

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

2007 CONSOLIDATED ANNUAL REPORT

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Southwest Florida
Water Management District



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Project Team

Overall report coordination, preparation and distribution ----- Mikel Renner, Paula McCleery
 Chapter 1. District Water Management Plan Annual Report ----- Trisha Neasman, Tonya Parker-Rimes
 Chapter 2. Minimum Flows and Levels Priority List and Schedule ----- Marty Kelly
 Chapter 3. Five-Year Capital Improvements Plan ----- Linda Pilcher, Joyce Morra
 Chapter 4. Annual Alternative Water Supply Report ----- Anthony Andrade
 Chapter 5. Five-Year Water Resource Development Work Program ----- Lisann Morris, Shellie Ferreira-Lee
 Chapter 6. Florida Forever Work Plan ----- Cheryl Hill
 Chapter 7. Mitigation Donation Annual Report ----- Clark Hull



DISTRICT OFFICES

Brooksville Headquarters
 2379 Broad Street
 Brooksville, FL 34604-6899
 (352) 796-7211 or
 1-800-423-1476
 Suncom 628-4150

Bartow Service Office
 170 Century Boulevard
 Bartow, FL 33830-7700
 (863) 534-1448 or
 1-800-492-7862
 Suncom 572-6200

Lecanto Service Office
 3600 West Sovereign Path,
 Suite 226
 Lecanto, Florida 34461-8070
 (352) 527-8131

Sarasota Service Office
 6750 Fruitville Road
 Sarasota, Florida 34240-9711
 (941) 377-3722 or
 1-800-320-3503
 Suncom 531-6900

Tampa Service Office
 7601 Highway 301 North
 Tampa, Florida 33637-6759
 (813) 985-7481 or
 1-800-836-0797
 Suncom 578-2070

For further information regarding this report, contact the Planning Department at (352) 796-7211, or planning@swfwmd.state.fl.us. This report is also available on the District's web site at: www.WaterMatters.org

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Executive Summary

During the 2005 legislative session Section 373.036, Florida Statutes (F.S.), was amended to require the water management districts to prepare a "Consolidated Water Management District Annual Report." The legislation requires the report be submitted by March 1st of each year to the Governor, the President of the Senate, the Speaker of the House of Representatives, and the Secretary of the Department of Environmental Protection. In addition, copies must be provided, " . . . to the chairs of all legislative committees having substantive or fiscal jurisdiction over the districts and the governing body of each county in the district having jurisdiction, or deriving any funds for operations of the district. Copies of the consolidated annual report must be made available to the public, either in printed or electronic format."

This consolidated report is a significant communication tool for the District and allows greater efficiency in comparing differing reporting mechanisms. The agency formerly produced these components individually and distributed them at various times of the year. The new legislation aims to streamline these required reporting documents so that they now come forward in one package. The report must include the following components:

The District Water Management Plan Annual Report. Eighteen performance measures are used to report on the District's progress in implementing the current District Water Management Plan, completed in July 2005. Noteworthy highlights in this report include the following: all District structures were maintained on schedule during 2006, while remote operational capability was added to three additional structures (bringing the total to 26 structures), allowing quicker response for structure operations while saving time and manpower; minimum levels were established for seven lakes scheduled for 2006, and for 18 lakes and one river segment scheduled for adoption in previous years; and finally, the District manages about 285,500 acres of conservation lands, and it is estimated about 7,700 acres (2.6 percent of managed lands) are infested to some degree with invasive plants, representing a slight decline in infested acres since 2005.

The Minimum Flows and Levels Annual Priority List and Schedule as approved by the Department of Environmental Protection (DEP). This year's revised list reflects significant and ongoing coordination between the District, the DEP and our public input process. The District's budget for Minimum Flows and Levels (MFL) establishment has gone from approximately \$1 million to \$5.5 million between 1998 and 2007. As of 2006, 112 MFLs have been adopted by the District, new MFLs for 80 water bodies are scheduled for adoption by 2011, and MFLs for all first magnitude springs and second magnitude springs that are publicly owned are proposed to be established by 2010. Delays are likely for the 2007 development of levels for a variety of waterbodies due to regulatory and structural issues and the need to finalize ongoing studies and peer reviews.

The Annual Five-Year Capital Improvements Plan includes projected revenues and expenditures for planned improvements for fiscal years 2005-2006 through 2009-2010. Some of the highlights in this year's report include: continuation of the State's Florida Forever land acquisition program at an annual budget of \$26,250,000 through FY2009-2010; repair of the Lake Tarpon Outfall Canal and Structure S-551 due to embankment erosion and deterioration of the secondary drainage system; and, remediation and remodeling of the District's Tampa Data Center.

The Annual Alternative Water Supply Report describes alternative water supply projects funded as well as the quantity of new water to be created as a result of these projects, and separately accounts for other moneys involved, such as grants, or the use of District lands or facilities to implement regional water supply plans. FY2007 marks the 21st year of District alternative water supply funding (FY1987-FY2007). To date the SWFWMD has funded 275 reclaimed water projects. In FY2007 alone, the District provided more than \$55 million in alternative water supply funding.

The Five-Year Water Resource Development Work Program describes the District's implementation strategy for the Water Resource Development (WRD) component of the approved Regional Water Supply Plan (RWSP). The Work Program must identify which WRD projects will provide water, explain how each project will produce additional water, and estimate the quantity produced. The District Work Program also provides information on water supply development projects due to the magnitude of this effort in the region. Notable in this year's Work Program, the District has allocated \$14.4 million more this fiscal year than last year for WRD projects with three new projects added. Two WRD projects were completed from last year's Program, the Evaluation of ASR Systems and Tarpon Springs Preliminary Water Supply Feasibility Study. Additionally, the District has allocated \$10.4 million more this fiscal year than last year for water supply development projects, including assistance for conservation and reclaimed water projects.

The Florida Forever Work Plan identified the District's planned activities to be funded through the State's Florida Forever program. Projects include land acquisition and management, water resource development, and restoration. Highlights of the 2007 update to the Florida Forever Work Plan include: reorganization of projects to eliminate redundancies and consolidate where possible, such as incorporating the Peace Creek Canal Restoration into the Upper Peace River Resource Management project, and consolidating multiple pieces of the Tampa Bay Estuarine Ecosystem Restoration project into a single reference; and incorporation of additional lands into the Plan in accordance with Florida Forever goals, project boundary reviews and the District's Strategic Plan, such as maximizing partnership opportunities within the Myakka River Watershed, specifically the Myakka Prairie and Myakkahatchee Creek projects.

The Mitigation Donation Annual Report identifies all cash donations accepted during the preceding fiscal year for wetland mitigation purposes. As with last year, there were no donations received.

CHAPTER 1

District Water Management Plan Annual Report

I. Introduction

The District Water Management Plan (DWMP or Plan) is a comprehensive guide to the Southwest Florida Water Management District's (SWFWMD or District) water resource management responsibilities. These include Water Supply, Flood Protection, Water Quality and Natural Systems. The DWMP also includes a fifth area of responsibility (AOR), referred to as Management Services. The most recent five-year update of the Plan was completed in July 2005, and this is the second annual report on the plan.

Recognition that planning is a continuous process is crucial to the success of any long-range plan. The Plan must be evaluated at regular intervals to remain viable. This need to assess the DWMP is explicitly acknowledged in Chapter 373.036(2), Florida Statutes, and the State's "Water Resource Implementation Rule" (Chapter 62-40, F.A.C.). The DWMP must include provisions for updating and monitoring progress every five years. Pursuant to these requirements, an annual evaluation of the District's progress toward implementing the Plan must be conducted. The purpose of this "Annual Report" is to provide a performance-based assessment of whether the District is effectively realizing its strategies.

The Annual Report is submitted to the Governing Board each year and subsequently transmitted to the Florida Department of Environmental Protection (DEP) to document progress being made toward implementing the Plan. The Annual Report has been developed as part of the District's Consolidated Annual Report, which is submitted to the Governor and Florida Legislature and made available to local governments and members of the public as one means of evidencing the accountability of the District in managing and protecting water resources.

It is important to note the DWMP is a planning document and is not self-executing. It requires subsequent action by the Governing Board in the form of rulemaking, budgeting or other formal action to achieve implementation. The District has emphasized this connection between planning and budgeting in a variety of ways, including its annual Program Budget and the use of performance measures for both efficiency and effectiveness.

II. Water Management Performance Measures

Government, like any meaningful enterprise, needs to measure the results of its actions to ensure that services provided are effective and efficient. The purpose of any measurement process must be aimed at accomplishing sound resource management while improving accountability. If measures are successfully developed, and communicated, they can be expected to:

- Provide better information for decision making;
- Document to taxpayers their dollars are being spent wisely;
- Spot potential problems before they become crises; and
- Coordinate effective resource management among agencies.

The water management districts, DEP and the Executive Office of the Governor (EOG) jointly developed the initial set of core performance measures. They are organized around the four primary areas of responsibility of the districts: Water Supply, Flood Protection, Water Quality and Natural Systems. Base years, assumptions and data sources for each measure were mutually agreed upon as one means of achieving consistency among districts. The time frames associated with each measure may vary, based upon the availability of data. A number of

measures are provided for each area of responsibility, as well as for a category called Common Measures. This latter area reflects measures that apply to more than one responsibility and are therefore grouped in a common set. A good example is land acquisition, which involves multiple water management benefits in most cases. The concept is that a few key measures for each of the District's responsibilities will be tracked over time to identify trends as they are reported annually.

These measures will continue to be refined as the District gains experience with their use and discovers their validity. Coordination with other agencies and the public, and periodic assessment, will be necessary to ensure a measuring system that provides true accountability.

Summary of Water Management Performance Measures

Water Supply Measures

Objective 1: Increase available water supplies and maximize overall water use efficiency to meet identified existing and future needs.

- a. Percentage of domestic wastewater reuse
- b. Gross per capita water use (Public Supply) by District and water supply planning regions
- c. Within each water supply planning region: 1) the estimated amount of water supply to be made available through the water resource development component of the Regional Water Supply Plan; 2) percent of estimated amount under development; and 3) percent of estimated amount of water actually made available
- d. Within each water supply planning region, the estimated additional quantities of water supply made available through District water supply development assistance

Objective 2: Prevent contamination of water supplies.

- a. Percentage of surface water supply sources for which water quality fully attains the designated use

Flood Protection Measures

Objective 1: Minimize damage from flooding.

- a. Percentage of District works maintained on schedule

Objective 2: Promote non-structural approaches to achieve flood protection and to protect and restore the natural features and functions of the 100-year floodplain.

- a. Number of acres identified for acquisition to minimize damage from flooding and the percentage of those acres acquired

Water Quality Measures

Objective 1: Protect and improve surface water quality.

- a. Percentage of water bodies that attain or potentially do not attain their designated uses under the TMDL program

Objective 2: Protect and improve ground water quality.

- a. Improving, degrading and stable trends in groundwater quality
- b. Improving, degrading and stable trends in nitrate concentrations in springs

Natural Systems Measures

Objective 1: Maintain the integrity and functions of water resources and related natural systems.

- a. Number of MFLs, by water body type, established annually and cumulatively
- b. Percentage of MFLs established in accordance with previous year's schedule
- c. For the previous fiscal year, the total acres of wetlands or other surface waters authorized by Environmental Resource Permit (ERP) to be impacted and the number of acres required to be created, enhanced, restored and preserved

Objective 2: Restore degraded water resources and related natural systems to a naturally functioning condition.

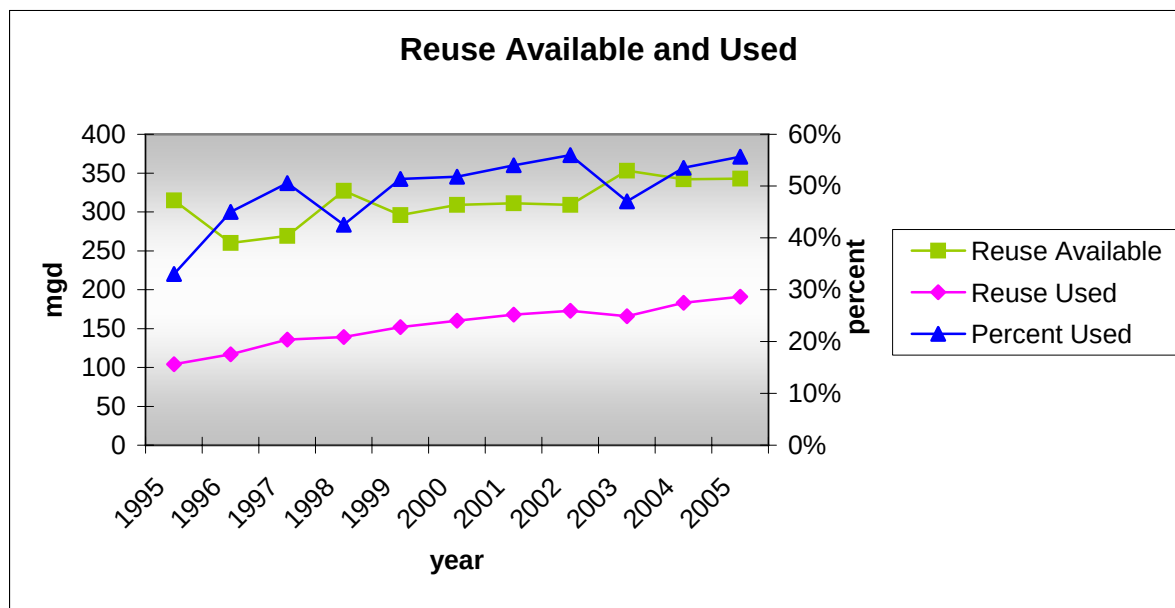
- a. Acres of invasive nonnative aquatic plants in inventoried public waters
- b. Acres of District managed lands infested with invasive nonnative upland plants
- c. Acres of District-owned lands identified in land management plans as needing restoration; acres undergoing restoration; and acres with restoration activities completed

Common Measures

- a. Acres of land acquired through fee simple, and less-than-fee simple ownership, on an annual and cumulative basis.
- b. Number and percent of land management plan activities being implemented according to plan schedules

Water Supply Measure 1a: Percentage of domestic wastewater reuse

The State and the District have placed increasing emphasis on wastewater reuse in recent years. This water resource, once considered a “disposal problem,” has become an important alternative to use of potable quality supplies for such beneficial uses as irrigation, industrial processing, power generation and environmental restoration. This measure is intended to reflect the quantity of reuse water available and reused.



Source: DEP Annual Reuse Inventory, 2005

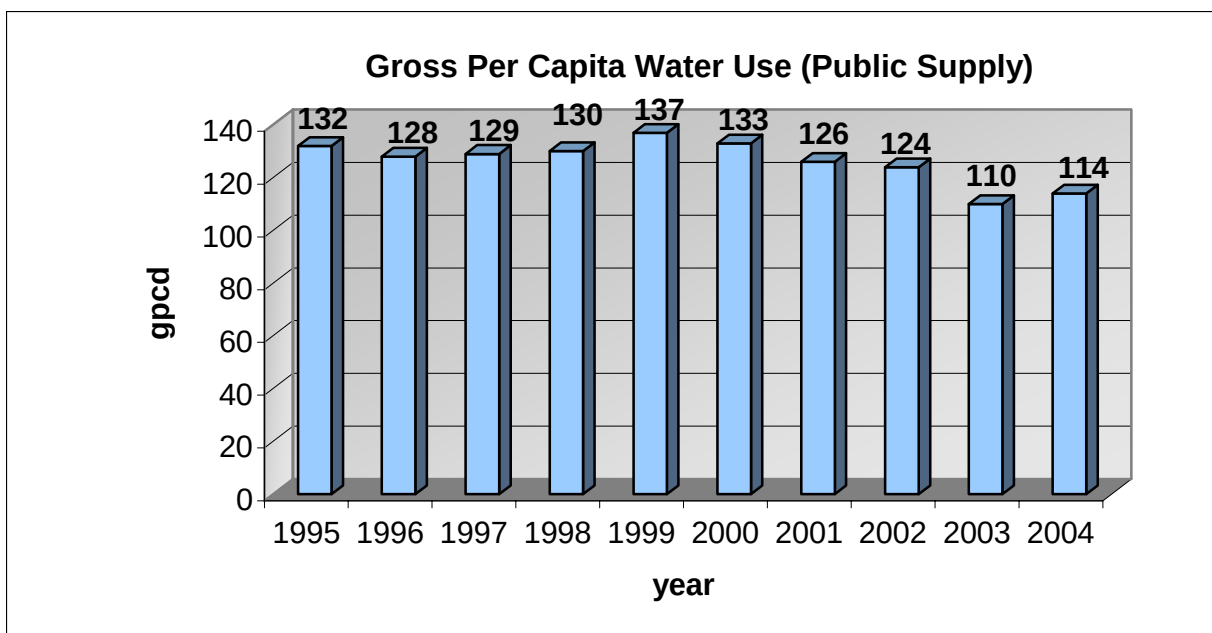
The amount of domestic wastewater reused in the District has increased steadily, from 104 mgd in 1995 to 191 mgd in 2005. Percentages have continued to increase, reaching a peak of 56 percent in 2005, reflecting the increased use of reclaimed water, as well as the increase in reuse customers. The 2005 figures show an increase in the available wastewater plant flows and an increase in the amount of reclaimed water used. These changes are associated with an increase in population and the number of on-line reuse projects. Newly completed reuse projects resulted in more than 10,000 additional customers connected in 2005, and District-wide customers now number more than 76,000 (the highest of any water management district).

This measure is intended to identify, on an annual basis, the proportion of wastewater effluent available to be reused which is actually reused.

Reduced percentage in 1998 due to increased wastewater treatment plant flows associated with El Niño which caused increased infiltration and inflow of stormwater into sanitary sewer systems.

Water Supply Measure 1b: Gross per capita water use (Public Supply) by District and water supply planning regions

Public supply represents one of the two largest water use sectors (along with agriculture), and is experiencing the greatest growth in use levels. This measure is intended to show the trend of such use, recognizing that water conservation can serve as a significant source of “new water” to meet public needs. Unadjusted gross per capita public supply use (gallons per capita per day, or gpcd) is calculated by dividing the total publicly supplied water used (in gallons per day) by the population served.



*Source: SWFWMD Estimated Water Use Reports, 1995-2002
Draft (October 2006) SWFWMD Estimated Water Use Reports, 2003, 2004*

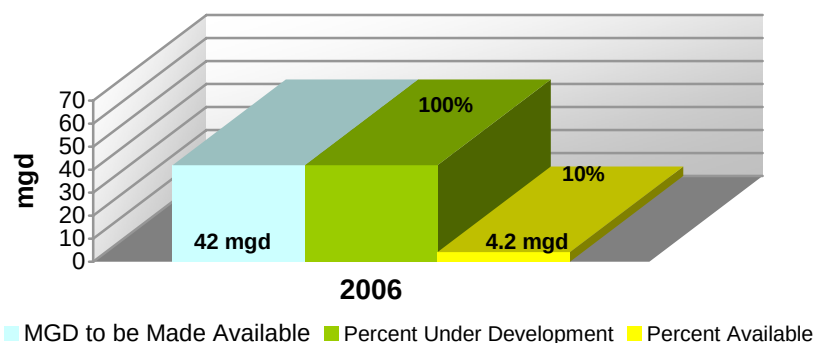
While it is recognized there are many factors which influence water usage (e.g., effective rainfall), there was a clear trend toward reduced per capita rates in the District until 1999. Although not shown on this graphic (1995 was chosen as the base year common to all Districts), between 1992 and 1997, gross per capita water use declined from 144 to 129 gallons per day, a 10 percent reduction. This trend can be attributed, in part, to the increasing availability of reuse systems, water conservation programs, enhanced public awareness and related factors. The per capita figures for 1999 and 2000 are reflective of the severe drought experienced District-wide and resulting higher use levels, as evidenced by the per capita reduction in 2001 and 2002 (“wet” years). Years 2003 and 2004 reflect the lowest per capita achieved to date within the Southwest District.

Public Supply water use includes the water distributed by most public and private water utilities.

Water Supply Measure 1c: Within each water supply planning region: 1) the estimated amount of water supply to be made available through the water resource development component of the Regional Water Supply Plan (RWSP); 2) percent of estimated amount under development; and 3) percent of estimated amount of water actually made available

The District is charged with expanding the “water pie” to assure future water supply availability. This can be done, in part, through water resource development, or regional projects designed to create, from traditional or alternative sources, an identifiable, quantifiable supply of water for existing and/or future reasonable - beneficial uses. It is very difficult to categorize the numerous projects receiving District funding assistance as Water Resource Development or Water Supply Development projects. It is important to note, however, that both types result in increased water supply availability. This measure is intended to document progress toward water resource development.

Water Resource Development

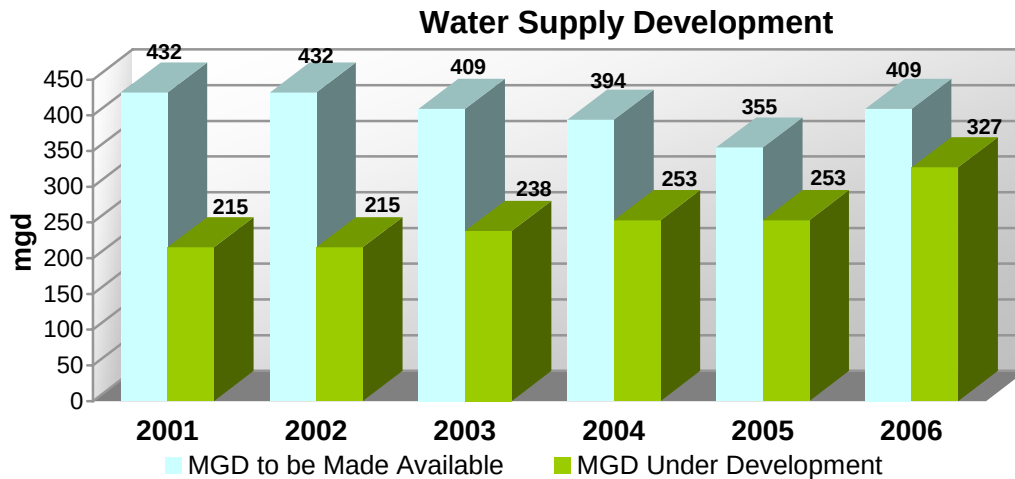


*Source: SWFWMD Five-Year Water Resource Development Work Program, January 2007
SWFWMD Resource Conservation and Management Staff, December 2006*

The District's RWSP (December 2006) notes the intent for Water Resource Development (WRD) is to enhance the amount of water available for water supply development. Water resource development at the District takes two forms: activities and projects. WRD activities include: 1) hydrologic data collection, 2) Regional Observation Monitoring Program (ROMP) (well construction and testing), 3) Quality of Water Improvement Program (QWIP) (plugging of abandoned artesian wells), 4) flood control and associated storage projects, 5) hydrologic investigations, and 6) establishment of MFLs. Over the next five years, the District will allocate approximately \$269 million for these types of water resource development activities including about \$53.8 million in FY2007, in support of water supply development by local governments, utilities, regional water supply authorities and others. The District currently has 18 projects that meet the more narrow definition of water resource development “projects” (see the District's Five-Year Water Resource Development Work Program, January 2007). For FY2007, the District has allocated over \$4.7 million for WRD projects. The District's FY2007 budget also includes Water Supply and Resource Development Reserves of about \$50.2 million.

Water Supply Measure 1d: Within each water supply planning region, the estimated additional quantities of water supply made available through District water supply development assistance

“Water Supply Development,” though primarily the responsibility of local and regional water supply providers is typified at the District by shared funding arrangements. The intent of this measure is to identify the extent to which the District is assisting water suppliers in developing additional capacity. This has typically been accomplished through partnerships that reflect both suppliers and the District have important roles to play in water supply development.

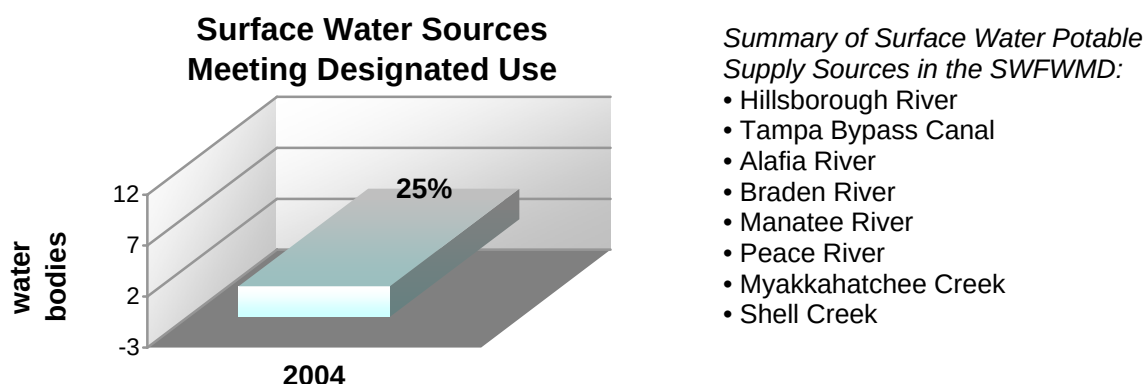


*Source: SWFWMD Regional Water Supply Plan, December 2006
SWFWMD Resource Conservation and Development Staff, December 2006*

The District's RWSP update received Board approval in November 2006. This update shows that at least an additional 409 mgd of new water supplies will be required by 2025. Of this amount, 327 mgd, at a total estimated cost of over \$2.7 billion, are currently completed, in progress, or programmed (meaning that the funding is budgeted). The remaining 82 mgd needed through 2025 have not been developed or funded. The RWSP includes a pay-as-you-go funding plan for implementation (referred to as the “financial engine”) that depends on the majority of the remaining funds being generated in conjunction with the District's public and private partners. The District will continue to seek additional federal, state, and local funding through 2025 to address the investment necessary to develop the additional new sustainable water supplies for both the Northern Tampa Bay and Southern Water Use Caution Areas.

Water Supply Measure 2a: Percentage of surface water supply sources for which water quality fully attains the designated use

Protecting and maintaining high quality water for human use is a critical component of water management. As the SWFWMD turns to surface water sources for future supplies it is essential these sources be monitored and maintained in a high quality state. The Integrated Water Quality Assessment for Florida: 305(b) Report and 303(d) List Update (Integrated Assessment) produced by the DEP has provided useful water quality information on a statewide and basin-by-basin level. Under Florida's water quality monitoring programs, surface water bodies are regularly assessed for a variety of water quality parameters. Surface waters supply about 13 percent of Florida's drinking water. Of 7,200 public drinking- water systems in the State, only 19 obtain their water from surface water. Eight of these are found in the SWFWMD. An additional 26 drinking water systems wholly or partially purchase water from these 19 systems statewide.



Source: Information for 2004 from DEP staff and Integrated Water Quality Assessment for Florida 2004 305(b) Report and 303(d) List Update

CURRENT DATA NOT AVAILABLE

In 2004, of the eight surface water sources in the District, five water bodies do not meet their use (impaired); one does not require TMDLs as it is covered under the Shell, Prairie, Joshua Creek Reasonable Assurance (RA) Plan that was developed by the District and two (i.e., Peace River and Myakkahatchee Creek) have been delisted. Of the five impaired water bodies, four are impaired for Dissolved Oxygen (which is not a drinking water standard requirement), and all five are impaired for coliform. These data reveal the vulnerability of surface water drinking sources to a growing variety and intensity of land uses surrounding them. For these and all supply sources it is important to note that water used for potable supplies is treated to federal and State standards prior to distribution and use.

Sources that do not meet their designated use for 2004 are the result of a more rigorous and coordinated assessment provided in the current Integrated Assessment Report. The new process, conducted in coordination with the water management districts and others, involves the collection of additional data over previous years and the use of data from previously unavailable sources. Tracking these data over time will allow verification of trends related to surface water supply sources.

Flood Protection Measure 1a: Percentage of District works maintained on schedule

The District maintains a total of 84 structures, including water conservation structures, salinity barriers, canals and flood control structures. It is essential these facilities be maintained in order to optimally perform their respective functions. Information contained in the Structure Operations Five-Year Maintenance Plan serves as the guideline for scheduling maintenance on District works.

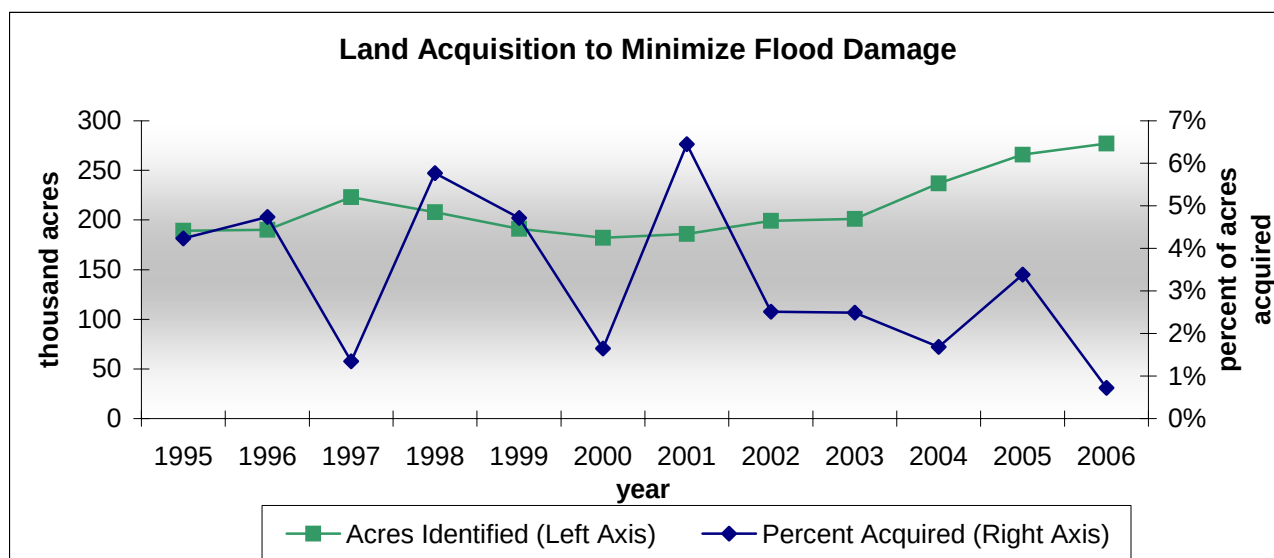
Year	Number of Structures	Percent of Structures Maintained on Schedule
1999	75	100
2000	75	100
2001	75	100
2002	75	100
2003	84	100
2004	84	100
2005	84	100
2006	84	100

*Source: SWFWMD
Operations Staff, December 2006*

All District structures were maintained on schedule during 2006. Remote operational capability is available for 26 of the District's structures, which allows quicker response for structure operations while saving time and manpower. Two additional structures are scheduled for remote operation in 2007. The SWFWMD uses a five-year plan to address all needed routine and preventive maintenance on District structures, including the necessary budgets to accomplish the work.

Flood Protection Measure 2a: Number of acres identified for acquisition to minimize damage from flooding and the percentage of those acres acquired

The majority of lands purchased by the District contain important natural flood storage areas. By protecting these areas, the District ensures they will not be developed, putting people at risk on the sites themselves and in downstream locations where flood levels may be made higher by the loss of natural water storage areas. As an example, the District owns about 100,000 acres in the Green Swamp in Central Florida that naturally detains a large volume of surface water prior to discharging to the Withlacoochee and Hillsborough rivers. Less than fee acquisitions (e.g., conservation easements) are often particularly useful for flood protection purposes. The intent of this measure is to identify the trend of land acquisitions that will minimize flooding damage.



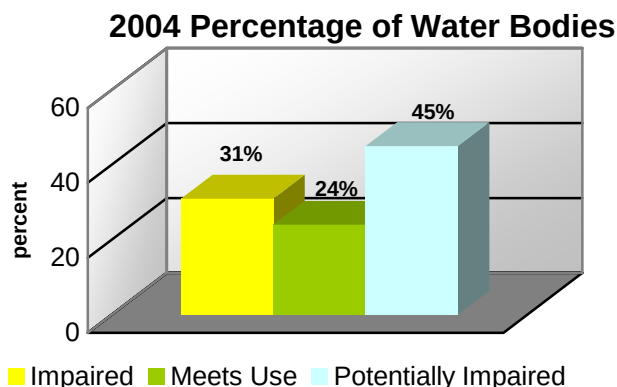
The District continues to make steady progress in acquiring lands that will aid in minimizing flood damages. Between 1995 and 2006, over 63,000 acres were acquired within the 100-year floodplain, bringing the overall total of lands or interests in lands acquired therein to 242,513 acres as of September 2006. This reflects the acquisition of 179,338 acres prior to 1995. In FY06, 276,639 acres were identified, and 2,155 acres were acquired within the 100-year floodplain.

The total lands acquired within the 100-year floodplain as of September 2005 include a reduction of approximately 15,000 acres of less-than-fee simple interests that were transferred to the state.

Percentages are generated by using GIS to calculate all lands identified for purchase within the 100-year floodplain and dividing that number into the actual number of acres acquired within the 100-year floodplain.

Water Quality Measure 1a: Percentage of water bodies that attain or potentially do not attain their designated uses under the TMDL program

Under Florida's water quality protection programs, waters are classified for different uses (such as drinking water, shellfishing, and fish and wildlife maintenance). This performance measure shows whether or not the water quality needed to support the designated use is being attained in the SWFWMD.



Source: DEP Staff and Integrated Water Quality Assessment for Florida: 2004 305(b) Report and 303(d) List Update.

CURRENT DATA NOT AVAILABLE

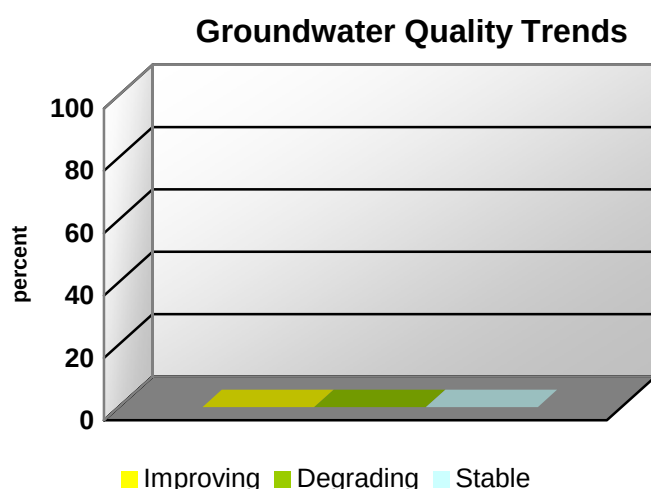
The Department of Environmental Protection's Integrated Water Quality Assessment for Florida: 305(b) Report and 303(d) List Update, initiated in 2004, are the result of a new, more rigorous and coordinated assessment of water quality statewide. The new process, conducted in coordination with the water management districts and others, involves the collection of additional data over previous years and the use of data from previously unavailable sources. Cycle 1 of the statewide assessment through the Integrated Water Resource Monitoring (IWRM) network began in 2000 and was completed in 2003. This network does not collect sufficient data at a given station or water body to determine use support for individual water bodies. Instead, the results for each basin are aggregated by water body type and assessed against water quality targets to determine the overall health of that type of water body in the basin. Tracking these data over time will yield trends related to the quality of surface water bodies.

The Integrated Assessment pointed out that most water quality problems in 2004 are found in highly urbanized central and south Florida. Problems are evident around the densely populated, major urban centers including Tampa. Basins with intense agricultural and industrial use are also associated with poor water quality. The main pollutants or parameters causing non-attainment of designated use for streams and rivers include Dissolved Oxygen (DO), coliform bacteria, nutrients, mercury, iron and lead. Many systems in the SWFWMD have DO concentrations that are naturally low and may still meet their designated use for aquatic life support. For lakes, nutrients, selenium, DO, turbidity, iron, silver and mercury are major pollutants causing non-attainment of designated use. The main pollutants causing non-attainment in estuaries are bacteria (in shellfish), mercury, fecal coliform, nutrients, DO, copper and iron.

Data describing 2005 and 2006 trends in regional surface water quality throughout the District are not currently available. DEP was the identified data source for this measure and is expected to make the information available for inclusion in the next progress report.

Water Quality Measure 2a: Improving, degrading and stable trends in groundwater quality

Groundwater is a major source of potable water for the SWFWMD and the State as a whole. Close attention to changes and trends in quality is critical to maintain public health and safety and for the protection of natural systems dependent upon these water resources. The District has a number of programs that regularly assess groundwater quality in areas of concern such as: 1) coastal regions for salt-water intrusion, 2) spring areas which have shown increasing concentrations of nitrates, and 3) dominant land use areas, such as citrus agriculture, which have demonstrated negative impacts to groundwater quality through use of fertilizers and pesticides/herbicides. Water Quality Measure 2(b) shows trends for nitrate concentrations in springs, an issue of water quality concern primarily in the northern half of the SWFWMD.

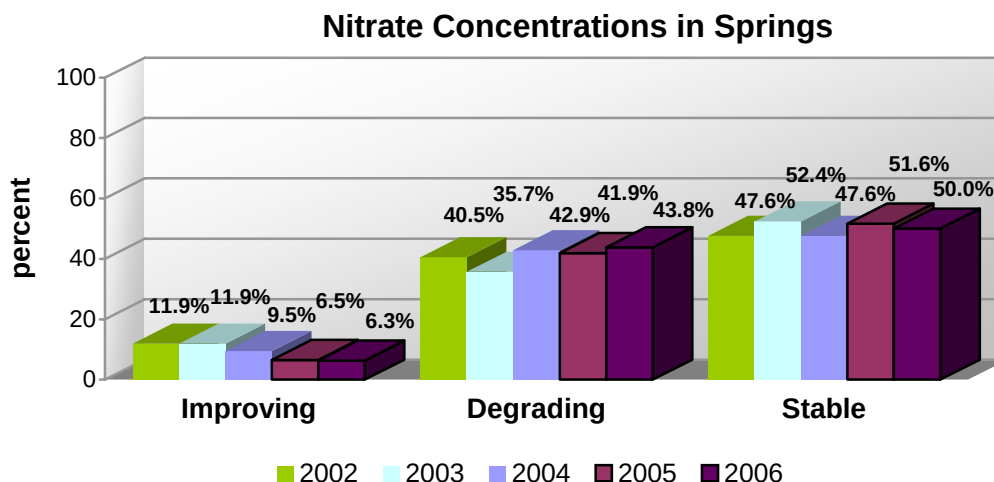


CURRENT DATA NOT AVAILABLE

Data describing trends in regional groundwater quality throughout the District are not currently available. Information collected by the DEP Status Network was the identified data source for this measure but has not been available to date. These data will be used to assess regional conditions once sufficient data is collected and interpreted.

Water Quality Measure 2b: Improving, degrading and stable trends in nitrate concentrations in springs

There is continued awareness and concern regarding the increasing levels of nitrates in District coastal springs. While not yet posing significant human health impacts, increasing nitrates have the potential to advance the growth of aquatic vegetation which can alter the ecologic functions of springs and receiving water bodies. Under Florida's water quality monitoring programs, groundwater aquifers are assessed for a variety of water quality parameters. This measure is intended to identify groundwater nitrate trends as measured in spring flow to assure protection of water resources.



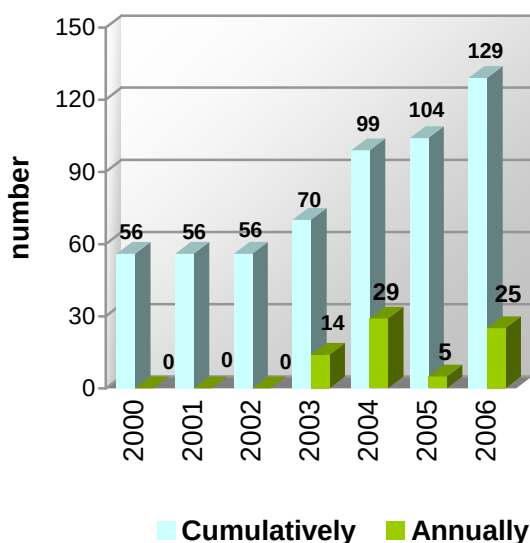
Source: Resource Conservation and Data Staff, December 2006

Water quality trends in springs in the northern portion of the SWFWMD are showing an increase in nitrate contamination. Nitrate concentrations in springs may fluctuate based on a variety of factors including amount of rainfall, presence of drought, irrigation practices, etc. This trend may be modified with changes in land use, but the direction of the change is sometimes unclear. This situation has led to the formation of the DEP Springs Task Force and an inter-agency Nutrient Remediation Workgroup (NRW). Both support funding for investigations and implement strategies to improve water quality in Florida's springs, including recognition of the significance of public education. These data are derived from temporal groups comparing January 1999–December 2001 with data from January 2002–January 2006.

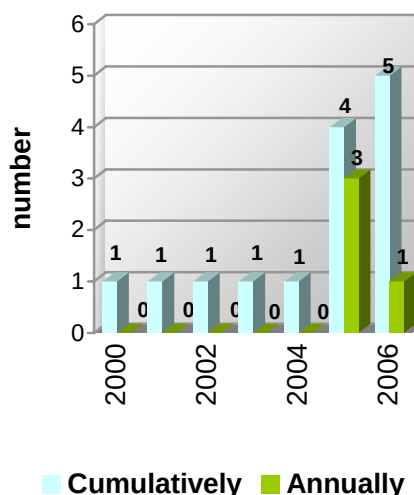
Natural Systems Measure 1a: Number of MFLs, by water body type, established annually and cumulatively

The District maintains and annually updates a “Minimum Flows and Levels Priority List and Schedule” that identifies water bodies for which the District plans to establish MFLs. The List is based on the importance of the waters to the State or region, and includes those waters which are experiencing or may reasonably be expected to experience adverse impacts. The District continues to make progress in the establishment of MFLs.

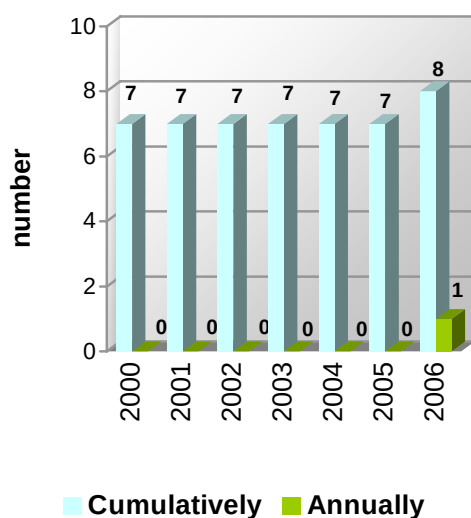
Lakes/Wetlands with MFLs



Rivers/Stream Segments with MFLs



Aquifers with MFLs



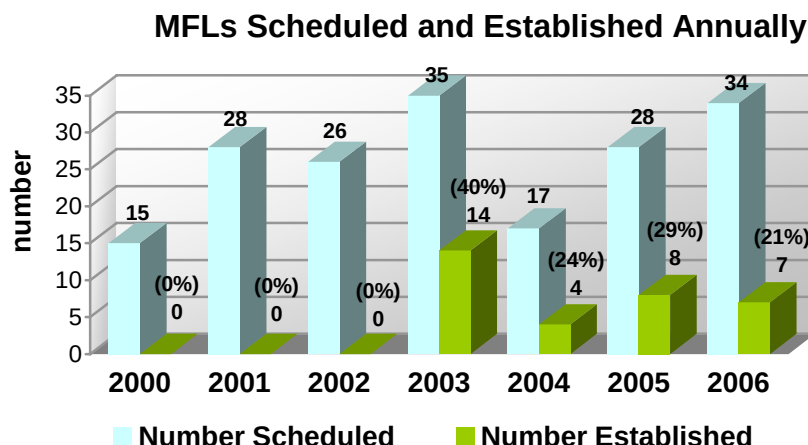
Source: SWFWMD Resource Conservation and Development Staff, December 2006

The graphics show the number of MFLs that have been developed annually and cumulatively during the past seven years.

By the year 2000, the Governing Board had established MFLs for 15 lakes, 41 wetlands, one river segment and seven aquifer sites. By the end of 2006, the District had established MFLs for 88 lakes, 41 wetlands, five river segments, seven aquifer sites north of Tampa Bay, and the Floridan aquifer system in the Southern Water Use Caution Area, and had also determined that establishment of minimum flows for the Tampa Bypass Canal was not ecologically warranted and development of minimum flows for the intermediate aquifer system in the SWUCA was not technically feasible.

Natural Systems Measure 1b: Percentage of MFLs established in accordance with previous year's schedule

The District's MFL Priority List and Schedule identifies those lakes/wetlands, river/streams, springs and aquifers for which MFLs are to be established. The Schedule is updated annually and submitted to DEP for approval. This measure compares the scheduled water bodies with those actually established to track progress in implementing MFLs.



Source: SWFWMD Resource Management Staff, December 2006

Graphic does not include the MFLs established in 2004 for 25 lakes listed for adoption in previous years or the MFLs established in 2006 for 18 lakes and 1 river segment listed in previous years.

The 2006 MFL Priority List identified a total of 34 MFLs scheduled for establishment in 2006. This list included 17 lakes, 8 river segments, and 9 springs. Lakes identified for MFL adoption included Fort Cooper, Crews, Iola, Jessamine, King, King (East), Linda, Pasco, Pierce, Unnamed #22 (also known as Loyce), Annie, Dinner, Lee, Mabel, Starr, Venus and Hancock. River segments identified for MFL adoption included the Tampa Bypass Canal, the lower Hillsborough River (to be reevaluated), the Alafia River estuary, the upper Braden River, the lower Myakka River system, the lower Peace River estuary, the upper Hillsborough River and the Weekiwachee River. Springs identified individually for MFL adoption, or as part of river system, included Sulphur Springs, Litha Springs, Buckhorn Springs, Crystal Spring, Weeki Wachee Spring, Jenkins Creek Spring, Salt Spring, Little Weekiwachee Spring and Mud River Spring. In 2006, minimum levels were established for 7 of the lakes scheduled for adoption in 2006. In addition, levels for 18 lakes and 1 river segment scheduled for adoption in previous years were established in 2006. Establishment of minimum flows for the Tampa Bypass Canal was determined not ecologically warranted in 2005, but the final Board decision regarding the water body was delayed to permit evaluation of the system as a component of the MFLs proposed for the entire Hillsborough River system.

Natural Systems Measure 1c: For the previous fiscal year, the total acres of wetlands or other surface waters authorized by Environmental Resource Permit (ERP) to be impacted and the number of acres required to be created, enhanced, restored and preserved

The ERP Program evaluates surface water management systems for impacts to natural systems (surface water and wetlands), water quality, and water quantity (flood protection) from various development projects. Impacts to surface waters and wetlands, unless specifically exempted, must be eliminated or reduced and, if unavoidable, mitigated. The intent of mitigation is to replace the functions of the impacted natural systems, whether involving water quality treatment, flood protection, wildlife habitat or other factors. This measure addresses the extent to which natural systems are impacted, and the extent to which impacted systems are replaced.

Environmental Resource Permit Results (Acres)									
	1998	1999	2000	2001	2002	2003	2004	2005	2006
Impacted (temporary and permanent)	353.4	240.2	243.1	190.0	367.5	332.9	398.5	475.2	571.4
Created/Restored	162.3	164.5	233.6	336.8	271.0	245.5	749.1	414.8	670.2
Enhanced	444.2	176.8	432.1	228.3	571.0	401.8	1171.5	758.9	581.1
Preserved (not impacted)	7283.3	2915.6	3273.9	3238.0	5328.8	4174.6	4129.2	6274.1	7612.1

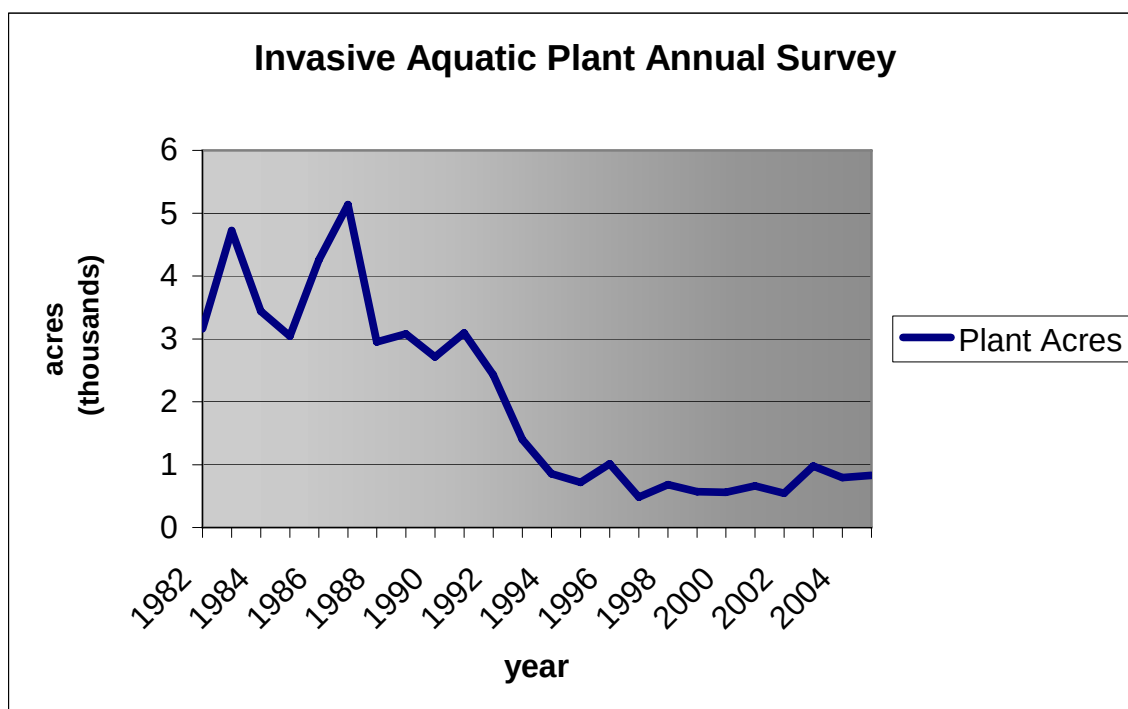
Source: SWFWMD Environmental Resource Permitting Database, December 2006

The District's ERP Program shows a clear preference for avoiding wetland impacts as the best means to retain the functions of these important systems. Where wetland impacts were unavoidable, the combination of creating, restoring and enhancing wetlands more than offset acres impacted in all years shown.

The Created/Restored distinction is classified in the ERP database as a single category.

Natural Systems Measure 2a: Acres of invasive nonnative aquatic plants in inventoried public waters

The protection and management of natural surface waters cannot be accomplished without effectively managing troublesome exotic aquatic plant species that can reduce the abundance and diversity of beneficial native plant populations, negatively impact fish and wildlife habitat, hinder navigation and recreational use, degrade water quality, impede water flow and increase sedimentation rates. Aquatic plant management operations conducted by the District on publicly accessible natural waters are funded and/or coordinated with the DEP, the Fish and Wildlife Conservation Commission, and local governments to address these issues. This measure is intended to monitor how well the District and its partners are doing in managing invasive aquatic plants.

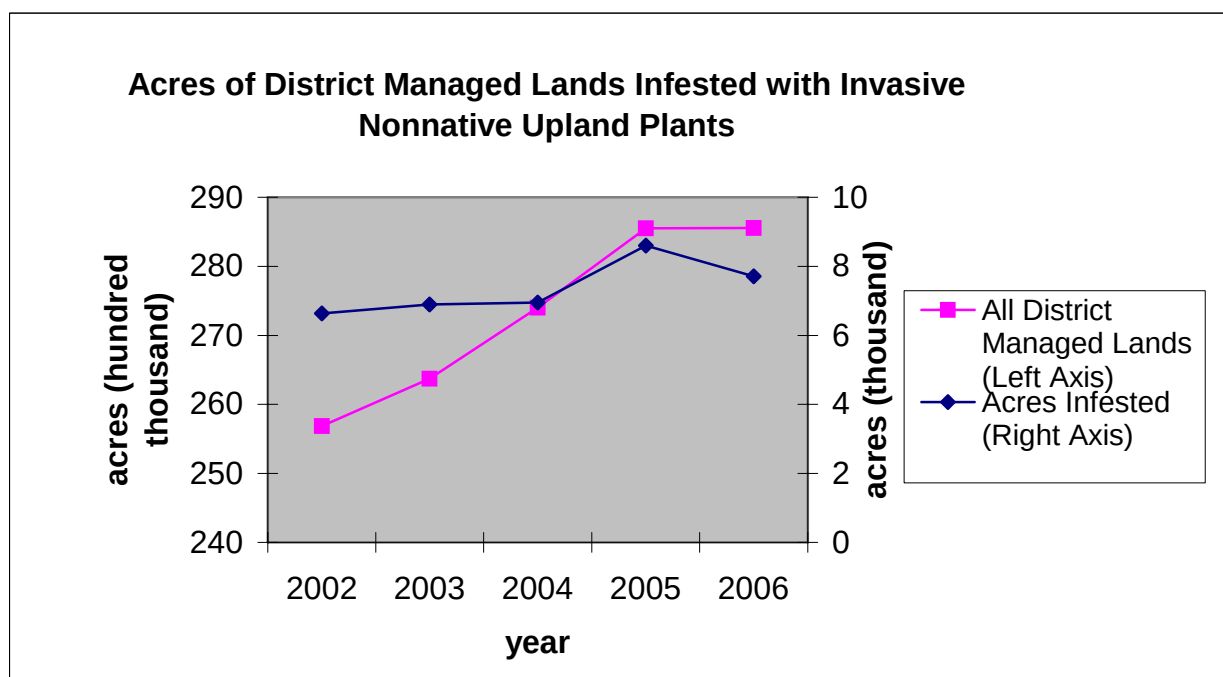


Source: DEP Bureau of Invasive Plant Management's Annual Survey Database, January 2006

There has been significant progress made over the 23-year period depicted (1982-2005) in managing the invasive exotic species hydrilla, waterhyacinth and waterlettuce in inventoried public waters managed by the District, from a high of 5,137 acres affected in 1987 to a low of 482 acres in 1997. In 2005, a total of 830 acres of these invasive aquatic plant species were inventoried in District managed waters. This represents a 38-acre increase in the 2004 level and the continuation of effective maintenance control. Some variation in plant acreages is expected on a year to year basis since ecological conditions such as water levels may result in increased or decreased growth potential or affect planned control operations. It is not realistic to expect complete eradication - the goal is "maintenance control" where targeted plants are regularly monitored and maintained at the lowest feasible level.

Natural Systems Measure 2b: Acres of District managed lands infested with invasive nonnative upland plants

Exotic plant infestations have the potential to destroy the biological integrity of the areas the District has acquired to protect and preserve. This statewide problem is recognized as a primary threat to the remaining natural areas in Florida, and includes such species as melaleuca, Brazilian pepper, skunk vine, Old World climbing fern and many others. As a major public landholder and manager of natural lands, the District cooperates with others (including State, federal and local governments) to develop effective invasive plant control and management strategies. This measure is intended to monitor how well the District is doing in managing invasive terrestrial plants.



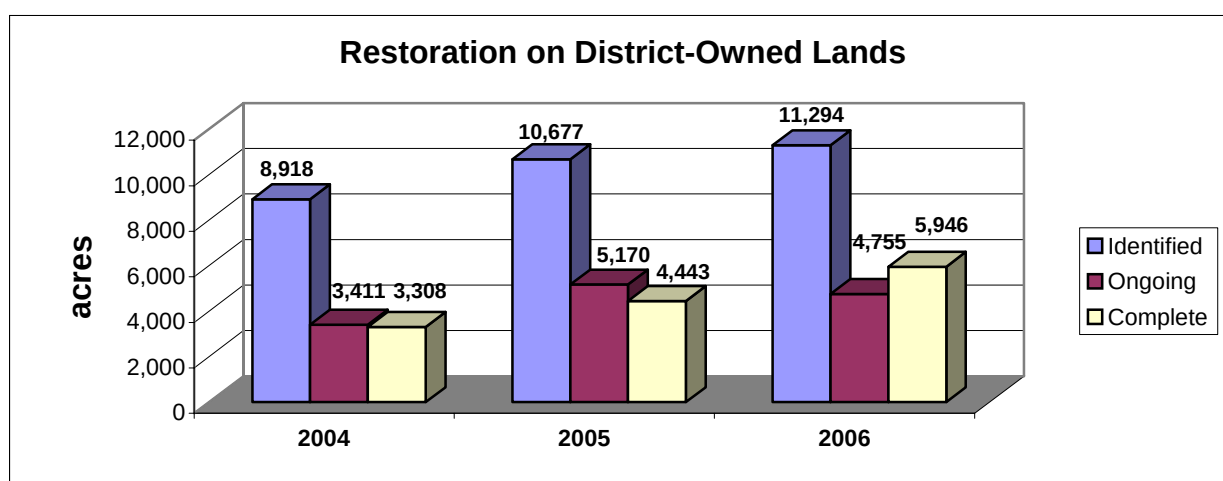
Source: SWFWMD Land Resources Staff, 2006

The District manages about 285,500 acres, and it is estimated about 7,700 (2.6 percent of managed lands) acres are infested to some degree with invasive plants. This represents a slight decline in infested acres since 2005. Invasive plants, however, are expected to remain an important management issue as the District continues to acquire land, a factor that makes trend information on controlling invasive plants problematic. For example, if 100 acres of invasive plants are brought under maintenance control (complete elimination is **not** practicable) but lands acquired include 500 additional affected acres, it may appear the District is not succeeding in this effort despite progress being made. The preferred trend in future years will be to see an increasing number of acres classified at maintenance level (defined as all invasive plants on property treated and on schedule for retreatment and monitoring).

The District has acquired a total of about 422,000 acres of land or interests in land. Lands **not** managed by the District include those subject to a management agreement (e.g., with a local, or state government), or acquired via less-than-fee simple methods (where private owners typically retain management responsibility).

Natural Systems Measure 2c: Acres of District-owned lands identified in land management plans as needing restoration; acres undergoing restoration; and acres with restoration activities completed

The primary goal of the District's restoration program is to reestablish natural plant and animal communities on District managed lands that have been disturbed or impacted by past land uses such as fire exclusion, drainage, mining, logging and agriculture. A District Procedure (61-10) on Natural System Restoration defines the approach to restoration efforts and the criteria by which staff identifies and prioritizes sites for restoration. This has resulted in a ten-year restoration plan which the District began implementing in 1998. An update of the plan, including a much more comprehensive site inventory and implementation schedule, was completed in December 2005. The updated plan forms the baseline for this and future performance measure updates. This measure will identify over time whether progress is being made in accomplishing planned restoration activities.



Source: Land Resources Staff, 2006

Acres of restoration projects as the unit of measurement must be used carefully since it reflects just the number of acres actually worked on, rather than the overall area enhanced by the restoration activity. For example, a 1,000 square foot ditch block may be restored, enhancing 1,000 acres of property. Restoration projects include overstory restoration on clearcut sites, mechanical restoration on sites degraded by long-term fire exclusion, ditch filling and plugging projects, and active revegetation on large agriculturally altered upland sites. The revised District Ten-Year Restoration Plan (and supplements) identifies 51 projects totaling approximately 11,294 acres, including upland and wetland restoration needs. Of the total, 5,946 acres have been completed, 4,755 acres are ongoing as of October 2006 and 1,191 acres are to be addressed by future projects.

Common Measure a: Acres of land acquired through fee simple and less-than-fee simple ownership, on an annual and cumulative basis

This measure reflects the fact that acquisition of land, or specific interests in such land, provide significant water resource benefits (whether related to Water Supply, Flood Protection, Water Quality and/or Natural Systems) and is often the most effective way to protect water and related natural resources for the future. It depicts the number of acres acquired annually and cumulatively by the District (including less-than-fee acquisitions). "Less-than-fee" refers to a group of techniques which involve the acquisition of limited interests in property, as opposed to outright, or fee simple, purchase (e.g., conservation easements). Generally, less-than-fee methods should be used when resource protection benefits can be obtained without fee simple ownership, when intensive land management or restoration is not necessary, and when the cost to the public is reasonable. The 1996 Legislature directed the WMDs to actively use less-than-fee techniques.

Acres Acquired through Less-than-Fee		
Fiscal Year	Annual	Cumulative
1996	0	20,077
1997	2,442	22,519
1998	31,505	54,024
1999	10,779	64,804
2000	158	64,962
2001	7,944	72,905
2002	9,604	82,509
2003	5,980	88,489
2004	0	88,489
2005	1,817	90,306
2006	0	90,306

Acres Acquired in Fee Simple		
Fiscal Year	Annual	Cumulative
1996	18,837	223,930
1997	4,848	228,778
1998	3,638	282,417
1999	9,733	242,150
2000	19,891	262,041
2001	16,406	278,447
2002	6,181	284,628
2003	6,322	290,950
2004	6,602	297,552
2005	9,815	307,366
2006	5,071	312,438

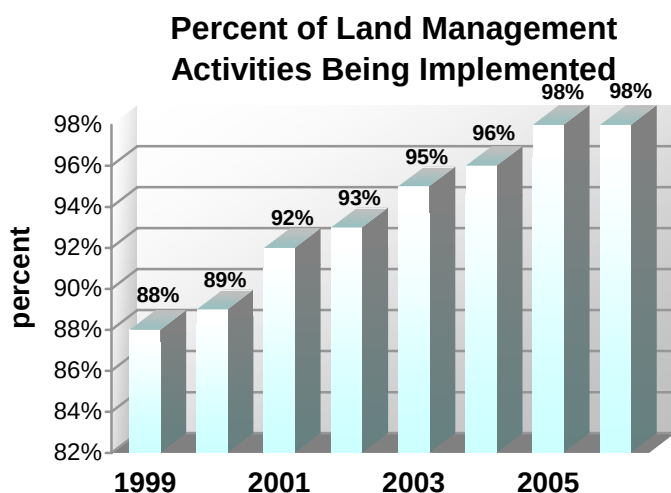
Source: Land Resources Staff, 2006

The District acquired over 177,500 acres between FY1996 and FY2005. About 244,000 acres had been acquired prior to FY1996, the majority of which was funded through the Save Our Rivers (SOR), and Preservation 2000 (P2000) programs. Land acquisition using funds from the Florida Forever program began in 2001. The trend in annual acquisitions shows year to year totals are opportunity driven (i.e., in any given year there may be a greater or lesser amount of land acquired based on specific circumstances).

Prior to FY1996, the District had acquired approximately 20,000 acres through less-than-fee techniques, primarily in the form of a single large flowage easement. Use of less-than-fee has grown over the years, as illustrated by the table above. In FY1998 alone, over 31,500 acres were acquired through such methods, and as of FY2006, over 90,300 acres have been protected.

Common Measure b: Number and percent of land management plan activities being implemented according to plan schedules

The District prepares site-specific land use and management plans for each District-owned property in order to formulate those uses and management regimes that are appropriate for the property. Activities are typically focused on such aspects as public recreation, prescribed burning, exotics control, restoration, timber and wildlife management and resource monitoring. Any activities undertaken must meet the statutory charge to manage lands in such a way as to ensure a balance between public access, general public recreational purposes, and restoration and protection of their natural state and condition. Virtually all District-owned lands are open for appropriate public recreation uses (i.e., uses that are consistent with the purposes for which the land was acquired).



Land Management Plan Activities		
Year	Number Completed or Ongoing	Total Plan Activities
1999	258	293
2000	281	316
2001	305	331
2002	355	383
2003	418	440
2004	421	439
2005	469	478
2006	469	478

Source: Land Resources Department Staff, December 2006

In 2006 nearly all activities scheduled in land management plans were either completed or being implemented on schedule. It is important to note that some initiatives (a total of 16 as of 2006) will not be implemented either due to being found infeasible or due to a change in circumstances subsequent to plan development (e.g., prohibition of airboats within the Flying Eagle and Potts Preserve properties).

CHAPTER 2

Minimum Flows and Levels Priority List and Schedule

BOARD APPROVED 2007
MINIMUM FLOWS AND LEVELS PRIORITY LIST AND SCHEDULE

Minimum Flows and Levels Already Adopted

- Alafia River (upper freshwater segment)
- Hernando County Lakes (Hunters, Lindsey, Mountain, Neff, Spring and Weekiwachee Prairie)
- Highland County Lakes (Jackson, Little Lake Jackson, June-in-Winter, Letta and Lotela)
- Hillsborough County Lakes (Alice, Allen, Barbara, Bird, Brant, Calm, Charles, Church, Crenshaw, Crescent, Crystal, Cypress, Dan, Deer, Dosson, Echo, Ellen, Fairy [Maurine], Garden, Halfmoon, Harvey, Helen, Hobbs, Horse, Jackson, Juanita, Little Moon, Merrywater, Mound, Platt, Pretty, Rainbow, Reinheimer, Round, Saddleback, Sapphire, Stemper, Strawberry, Sunset, Sunshine, Taylor and Virginia)
- Hillsborough River (lower segment)
- Peace River (middle segment)
- Peace River (upper segment – "low" minimum flows)
- Northern Tampa Bay (41 Wetland sites)
- Northern Tampa Bay (7 Wells – Floridan Aquifer/Saltwater Intrusion)
- Pasco County Lakes (Bell, Big Fish, Bird, Buddy, Camp, Clear, Green, Hancock, Middle, Moon, Padgett, Parker aka Ann, and Pasadena)
- Polk County Lakes (Clinch, Eagle, McLeod, Parker and Wales)
- Myakka River (upper freshwater segment)
- SWUCA (Floridan Aquifer)

2006

- Citrus County Lakes (Ft. Cooper, Tsala Apopka)
- Highlands County Lakes (Placid)
- Levy County Lake (Marion)
- Pasco County Lakes (Crews, Iola, Jessamine, King, King (East), Pasco, Pierce, unnamed #22 aka Loyce)
- Polk County Lakes (Annie, Bonnie, Crooked, Dinner, Lee, Mabel, Starr, and Venus)
- Sumter County Lakes (Big Gant, Deaton, Miona, Okahumpka, and Panasoffkee)

2007

- Alafia River Estuary (including Lithia and Buckhorn Springs)
- Anclote River System
- Braden River System (freshwater segment)
- Cow Pen Slough/Canal
- Highlands County Lakes (Angelo, Anoka, Denton, Tulane, Verona)
- Hillsborough County Lakes (Raleigh, Rogers and Starvation)
- Little Manatee River System
- Lower Hillsborough River (re-evaluation)
- Lower Myakka River System (includes Myakkahatchee Creek, Deer Prairie Creek and Blackburn Canal)
- Lower Peace River Estuary System
- Manatee River System (includes Braden River Estuary)
- Pasco County Lake (Linda)
- Polk County Lake (Hancock)
- Sulphur Springs
- Tampa Bypass Canal
- Upper Hillsborough River System (including Crystal Spring)
- Weekiwachee River System
 - o Weeki Wachee Spring (includes Jenkins Creek, Salt, Little Weeki Wachee and Mud River springs)

2008

- Blind Springs
- Chassahowitzka River System
- Chassahowitzka Spring (including Chassahowitzka #1, Crab Creek Group, Potter and Ruth Springs)
- Hillsborough County Lake (Wimauma)
- Rainbow Springs (including Bubbling and Waterfall Springs)

2009

- Homosassa River System
- Homosassa Spring
- Upper Withlacoochee River System (Green Swamp)
- Middle Withlacoochee River System

2010

- Crystal River System
- Kings Bay Spring
- Gum Springs Group
- Hidden River Springs 1 and 2
- Northern Tampa Bay – Phase II
- Pithlachascotee River System

2011

- Lower Withlacoochee River System
- Brooker Creek
- Upper Peace River "Middle" and "High" Minimum Flows

2012- 2019 Priority Waterbodies Proposed for Establishment in Future Years

- Highlands/Polk Surficial Aquifer
- SWUCA - Phase II

Notes: Changes being proposed to the MFL List are attributable to the following:

- (1) **Lake Linda** – Development of MFLs for Lake Linda has been delayed due to unresolved regulatory issues concerning drainage modifications associated with local road construction and installation of a surface water stormwater system. It is anticipated that these issues will be resolved and MFLs will be developed for the lake in 2007.
- (2) **Lake Hancock** (Polk County) – Delayed to 2007, pending finalization of proposed structure modifications.
- (3) **Lake Wimauma** (Hillsborough County) – Delayed to 2008, pending completion of joint District and County study on the effects of geology and drainage modifications on lake levels.
- (4) **Sulphur Springs, Tampa Bypass Canal, and Lower Hillsborough River** – Although individual MFL documents will or have been produced and peer reviewed for each of the listed waterbodies, it will be necessary to delay establishment of these MFLs until all separate MFL documents can be reviewed collectively by the District and interested parties. Considerable staff time has been directed to a number of issues related to the Lower Hillsborough River re-evaluation and the need to develop a mutually binding study report. The Tampa Bay Estuary Program has requested that its Technical Advisory Committee be reconvened so it can give its "members the opportunity to evaluate the three proposed MFLs concurrently." Similar sentiments have been expressed by the Hillsborough County Environmental Protection Commission and the City of Tampa.
- (5) **Alafia Estuary (including Lithia and Buckhorn Springs), Lower Myakka River System, Lower Peace Estuary System, and Weeki Wachee River System (including springs)** – development of MFL documents on these waterbodies has taken longer than initially

- anticipated, particularly for the Alafia Estuary which will serve as the template for the other estuary systems; considerable staff resources were devoted to this effort thus affecting staff availability on other projects. In addition, considerable staff time has been directed to a number of issues related to the Lower Hillsborough River re-evaluation and the need to develop a mutually binding study report.
- (6) **Upper Hillsborough River (including Crystal Springs) and Braden River** – draft MFL documents are near completion on these two freshwater river segments; however, it will not be possible to complete peer review and rule development in time to complete establishment in calendar year 2006.
 - (7) **Addition of Year 2011** – Beginning in 2004, the District added specific waterbodies for a fourth and fifth year. This enables staff to begin data collection earlier in the MFL process for those waterbodies that require a greater planning and budgeting horizon, and would make unforeseeable hydrologic events less of an obstacle in developing MFLs. The Lower Withlacoochee River System, Booker Creek, and "middle" and "high" minimum flows for Upper Peace River have been added in 2011.

CHAPTER 3

Five-Year Capital Improvements Plan

I. INTRODUCTION

The Five-Year Capital Improvements Plan (CIP) includes projected revenues and expenditures for capital improvements for fiscal years 2006-2007 through 2010-2011. As directed by Section 373.536(6)(a)3, Florida Statutes, the CIP is presented in a manner comparable to the fixed capital outlay format set forth in Section 216.043, Florida Statutes. The format for this report was jointly developed by the Executive Office of the Governor, the Department of Environmental Protection, and the water management districts. Capital improvement projects may be budgeted in either of two standard program categories. Those programs and their activities and sub-activities are represented below:

2.0 Acquisition, Restoration and Public Works

- 2.1 Land Acquisition
- 2.2 Water Source Development
 - 2.2.1 Water Resource Development Projects
 - 2.2.2 Water Supply Development Assistance
 - 2.2.3 Other Water Source Development Activities
- 2.3 Surface Water Projects
- 2.4 Other Cooperative Projects
- 2.5 Facilities Construction and Major Renovations
- 2.6 Other Acquisition and Restoration Activities

3.0 Operation and Maintenance of Lands and Works

- 3.1 Land Management
- 3.2 Works
- 3.3 Facilities
- 3.4 Invasive Plant Control
- 3.5 Other Operation and Maintenance Activities

The only activities and sub-activities under program 2.0 Acquisition, Restoration and Public Works that may include capital improvement projects are 2.1 Land Acquisition, 2.2.1 Water Resource Development Projects, 2.2.3 Other Water Source Development Activities, 2.3 Surface Water Projects, and 2.5 Facilities Construction and Major Renovations. The only activities under program 3.0 Operation and Maintenance of Lands and Works that may include capital improvement projects are 3.1 Land Management and 3.2 Works.

The purpose of the CIP is to project future needs and anticipate future funding requirements to meet those needs. *(The District uses a pay-as-you-go sinking fund approach and does not incur debt.)* The CIP contains only those projects that will be owned and capitalized as fixed assets by the district.

The CIP includes expenditures for basic construction costs (permits, inspections, communications requirements, utilities, outside building, site development, etc.) and other related capital project costs (land, survey, existing facility acquisition, professional services, etc.). The CIP does not include expenditures for changes in program costs (including salaries and benefits), changes in maintenance costs, or changes in utility costs.

The District's capital improvement projects are budgeted under the following program activities and sub-activity: 2.1 Land Acquisition, 2.2.1 Water Resource Development Projects, 2.5 Facilities Construction and Major Renovations, and 3.1 Land Management.

Standard definitions for these programs and activities used by all five water management districts for CIP preparation follow:

2.0 Acquisition, Restoration and Public Works This program includes the development and construction of all capital projects (except for those contained in Program 3.0), including water resource development projects/water supply development assistance, water control projects, and support and administrative facilities construction, cooperative projects, land acquisition (including Save Our Rivers/Florida Forever), and the restoration of lands and water bodies.

2.1 Land Acquisition – The acquisition of land and facilities for the protection and management of water resources. This activity category does not include land acquisition components of "water resource development projects" or "surface water projects."

2.2.1 Water Resource Development Projects – Regional projects designed to create, from traditional or alternative sources, an identifiable, quantifiable supply of water for existing and/or future reasonable-beneficial uses. These projects do not include the construction of facilities for water supply development, as defined in Subsection 373.019(21), Florida Statutes. Such projects may include the construction, operation and maintenance of major public works facilities that provide for the augmentation of available surface and ground water supply or that create alternative sources of supply. Water resource development projects are to be identified in water management district regional water supply plans or district water management plans, as applicable.

2.5 Facilities Construction and Major Renovations – Design, construction, and significant renovation of all district support and administrative facilities. The proposed work for the facilities improvement program includes project management, permitting, and conceptual, preliminary, and detailed engineering for the development and preparation of contract plans and specification for the construction of planned replacement, improvement, or repair to the district's administrative and field facilities.

3.0 Operation and Maintenance of Lands and Works This program includes all operation and maintenance of facilities, flood control and water supply structures, lands, and other works authorized by Chapter 373, Florida Statutes.

3.1 Land Management (Save Our Rivers/Florida Forever) – Maintenance, custodial, and restoration efforts for lands acquired through Save Our Rivers, Preservation 2000, Florida Forever or other land acquisition programs.

The District's Five-Year Capital Improvements Plan for FY2006-2007 through FY2010-2011 is presented in Sections II and III.

II. Five-Year Capital Improvements Plan

Southwest Florida Water Management District Fiscal Year 2006-2007 through Fiscal Year 2010-2011

2.0 ACQUISITION, RESTORATION AND PUBLIC WORKS

2.1 LAND ACQUISITION

REVENUES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
(1) Florida Forever Trust Fund	\$26,250,000	\$26,250,000	\$26,250,000	\$26,250,000	-
Water Management Lands Trust Fund	2,046,000	3,648,000	2,878,000	869,000	-
TOTAL	\$28,296,000	\$29,898,000	\$29,128,000	\$27,119,000	-
EXPENDITURES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
Florida Forever Land Purchases	\$28,296,000	\$29,898,000	\$29,128,000	\$27,119,000	-
TOTAL	\$28,296,000	\$29,898,000	\$29,128,000	\$27,119,000	-

2.2.1 WATER RESOURCE DEVELOPMENT PROJECTS

REVENUES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
General Fund Ad Valorem Taxes	-	\$1,250,000	-	-	-
Alafia River Basin Ad Valorem Taxes	-	312,500	-	-	-
Pinellas-Anclote River Basin Taxes	\$3,600,000	3,500,000	-	-	-
Manasota Basin Ad Valorem Taxes	-	312,500	-	-	-
Peace River Basin Ad Valorem Taxes	-	625,000	-	-	-
TOTAL	\$3,600,000	\$6,000,000	-	-	-
EXPENDITURES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
(2) Lake Hancock Outfall Structure Modification	-	\$2,500,000	-	-	-
Lake Tarpon Outfall Canal Restoration Project	\$3,600,000	3,500,000	-	-	-
TOTAL	\$3,600,000	\$6,000,000	-	-	-

2.5 FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

REVENUES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
General Fund Ad Valorem Taxes	\$2,400,000	\$1,500,000	\$1,250,000	\$1,250,000	\$1,250,000
Carryover	154,901	319,901	473,401	1,473,401	2,473,401
TOTAL	\$2,554,901	\$1,819,901	\$1,723,401	\$2,723,401	\$3,723,401
EXPENDITURES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
DISTRICTWIDE:					
Roof, HVAC, Repair, and Remodeling Projects	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
Carpet Replacement	91,000	126,500	-	-	-
Districtwide Security Project, Phase 2	157,000	215,000	-	-	-
BROOKSVILLE:					
Brooksville Building #1 - Roof and HVAC Study	-	50,000	-	-	-
Brooksville Building #21 - Expansion of Storage Building	68,000	-	-	-	-
Brooksville Building #34 Expansion - Automotive Shop	-	95,000	-	-	-
TAMPA:					
Tampa Data Center - Remediation & Remodeling	1,474,000	-	-	-	-
BARTOW:					
Bartow Sanitary Sewer Upgrade	-	155,000	-	-	-
Bartow Storage Building	-	405,000	-	-	-
Bartow Building #1 - Office Furniture	105,000	-	-	-	-
Bartow Building #2	-	50,000	-	-	-
Bartow Building #1 - Backup Generator	90,000	-	-	-	-
Not Allocated to Specific Projects	319,901	473,401	1,473,401	2,473,401	3,473,401
TOTAL	\$2,554,901	\$1,819,901	\$1,723,401	\$2,723,401	\$3,723,401

3.0 OPERATION AND MAINTENANCE OF LANDS AND WORKS

3.1 LAND MANAGEMENT

REVENUES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
Water Management Lands Trust Fund	\$750,000	-	-	-	-
TOTAL	\$750,000	-	-	-	-
EXPENDITURES					
	FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
Environmental Education Center - Alafia River Corridor Project	600,000	-	-	-	-
Recreation Facility Site Structure - Terra Ceia Boat Ramp	75,000	-	-	-	-
Recreation Facility Site Structure - Weekiwachee Preserve Boardwalk	75,000	-	-	-	-
TOTAL	\$750,000	-	-	-	-
TOTAL CAPITAL EXPENDITURES	\$35,200,901	\$37,717,901	\$30,851,401	\$29,842,401	\$3,723,401

- (1) The budgeted amounts for each year reflect the annual Florida Forever appropriation. At September 30, 2006, Florida Forever funds on reserve were \$74.2 million.
- (2) The total project cost is \$5 million - the first half of the project cost, \$2.5 million, was funded in FY2002-2003. The balance is scheduled to be funded in FY2007-2008, after the conceptual permit is received and the Governing and Basin Boards approve moving forward with the project.

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION AND PUBLIC WORKS

ACTIVITY: LAND ACQUISITION

PROJECT TITLE: Land Purchases

TYPE: Lands Acquired Through the Florida Forever Program

PHYSICAL LOCATION: Throughout the District's 16-county region

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: To Be Determined

EXPECTED COMPLETION DATE: Ongoing

HISTORICAL BACKGROUND/NEED FOR PROJECT: The District has recognized land acquisition as one of its primary tools for achieving its statutory responsibilities. Section 373.139, Florida Statutes, authorizes the District to acquire in fee or less than fee title to the lands necessary for flood control, water storage, water management, conservation and protection of water resources, aquifer recharge, water resource and water supply development, and preservation of wetlands, streams and lakes.

The District purchases land and interests in land through fee simple acquisition and less-than-fee simple techniques under the State's Florida Forever program. The Florida Forever program is a ten-year program to provide land acquisition funding to State agencies, the water management districts and local governments. The authorized uses for the Florida Forever Trust Fund include land acquisition, the Surface Water Improvement and Management (SWIM) program, water resource development, and regional water supply development and restoration. However, at least 50 percent of the allocation from the Florida Forever Trust Fund must be for land acquisition. The seventh year of Florida Forever funding will be available during FY2006-2007 through this important program, which is currently scheduled to end in FY2009-2010.

PLAN LINKAGES: District Water Management Plan; Watershed Management Plans; Surface Water Improvement and Management Plans; Southern Water Use Caution Area and Northern Tampa Bay Recovery Strategies; Florida Forever Work Plan; and Five-Year Water Resource Development Work Program

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): An alternative to land acquisition would be to place additional regulations/restrictions on lands requiring protection rather than purchasing the lands.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): \$26,250,000 each year. Monies are not budgeted to individual projects because of potential impacts on successful negotiations with property owners. Instead, monies are budgeted in a lump sum for all land acquisitions.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): For FY2006-2007, \$2,046,000 is included for ancillary costs such as appraisals, title insurance, attorneys' fees, and documentary stamps. Land acquisition ancillary costs are reimbursable from the Water Management Lands Trust Fund (WMLTF). The following amounts are projected for the out years: FY2007-2008 - \$3,648,000, FY2008-2009 - \$2,878,000, and FY2009-2010 - \$869,000.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): Land Acquisition and Survey Sections' staff time, central garage charges, and travel are \$728,377 for FY2006-2007. These costs are reimbursable from the WMLTF.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Assuming 2,650 acres are acquired in fee simple (i.e., managed by the District), then the cost would be approximately \$41,790 to manage the land acquired in fee simple. This is based on the District's average cost of \$15.77 per acre to manage its land. Land Management costs are reimbursable from the WMLTF.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$28,296,000	\$29,898,000	\$29,128,000	\$27,119,000	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION AND PUBLIC WORKS

ACTIVITY: WATER RESOURCE DEVELOPMENT PROJECTS

PROJECT TITLE: Lake Hancock Outfall Structure Modification

TYPE: Water Control Structure

PHYSICAL LOCATION: Lake Hancock, Peace River Basin

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: The structure is configured as a concrete spillway with a steel sheet pile weir driven to hard lime rock. The structure has two radial gates measuring 20 ft. x 7 ft. with an invert elevation of 91.7 ft. National Geodetic Vertical Datum (NGVD) and a crest elevation of 98.6 ft. NGVD.

EXPECTED COMPLETION DATE: FY2007-2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: The District is currently setting minimum flows for the Upper Peace River. Surface-water drainage alterations, reduction in surface storage, long-term rainfall patterns, and induced recharge due to ground-water withdrawals have all contributed to reduction in low flows in the upper river. A requirement of minimum flow establishment is the development of a recovery strategy. Part of the proposed strategy for the Upper Peace River is to restore storage in Lake Hancock and release some of the water during the dry season to help meet the flow requirements. Historically, Lake Hancock fluctuated more than a foot higher than it has during the past several decades. This lowering was due to the dredging of the outfall canal in the early part of the last century. Such dredging was common throughout Florida to allow for further use of marginal lands. This project proposes to address those impacts by modifying or replacing the District's outfall canal structure so that water levels can be maintained at higher operating levels. Presently, Structure P-11 is topped when water levels in Lake Hancock exceed 98.6 feet above sea level. This project would raise the structure and associated operating levels of the lake to address minimum flows with the goal of restoring historic levels in Lake Hancock. This project will be coordinated with other Lake Hancock restoration efforts. In particular, there will be a supporting hydrologic analysis to determine which properties may need to be acquired due to risk of flood. However, for a major central-Florida lake there are few homes currently on the shores of Lake Hancock. This can be expected to change in the coming decade or two.

PLAN LINKAGES: District Water Management Plan; Watershed Management Plans; Florida Forever Work Plan; Five-Year Water Resource Development Work Program; Southern Water Use Caution Area Recovery Strategy; and Regional Water Supply Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Leave the lake system in status quo without replacing the water control structure.

BASIC CONSTRUCTION COSTS (*includes permits, inspections, communications requirements, utilities outside building, site development, other*): Budgeted at \$2,500,000 in FY2007-2008. The total project cost is \$5,000,000--the first half of the project cost, \$2,500,000, was funded in FY2002-2003. The balance is scheduled to be funded in FY2007-2008, after the conceptual permit is received and the Governing and Basin Boards approve

moving forward with the project. This Water Resource Development capital improvements project is funded by ad valorem property taxes with the District General Fund paying 50 percent of the costs and the Basins paying the remaining 50 percent, distributed as follows: Alafia River Basin 12.5 percent, Manasota Basin 12.5 percent, and Peace River Basin 25 percent.

OTHER PROJECT COSTS (*includes land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*includes salaries, benefits, equipment, furniture, expenses*): To be determined.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: To be determined.

FY2006-2007	FY2007-2008*	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$2,500,000	\$0	\$0	\$0

* The total cost of the project is \$5,000,000 (\$2,500,000 was budgeted in FY2002-2003 and \$2,500,000 is planned for FY2007-2008).

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION AND PUBLIC WORKS

ACTIVITY: WATER RESOURCE DEVELOPMENT PROJECTS

PROJECT TITLE: Lake Tarpon Outfall Canal Restoration

TYPE: Water Control Structure

PHYSICAL LOCATION: Lake Tarpon, Pinellas-Anclote River Basin, Pinellas County

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: These major structures, the Lake Tarpon Structure S-551 and Tarpon Outfall Canal (TOC), C-531, are part of the Four River Basins, Florida Project (FRB) authorized by the Flood Control Act of October 23, 1962. S-551 and C-531 are designed to pass a 30-year flood of 6,000 cu. ft. per second at elevation 3.7 ft. National Geodetic Vertical Datum (NGVD). Additionally, S-551 functions as a salinity barrier preventing saltwater from entering Lake Tarpon during high tide events up to 6.0' NGVD.

EXPECTED COMPLETION DATE: 12/2010

HISTORICAL BACKGROUND/NEED FOR PROJECT: A critical concern related to the Lake Tarpon Outfall Canal (TOC) and Structure S-551 is embankment erosion and deterioration of the secondary drainage system. Over the years, wind and wave action have severely compromised the side slopes of the canal to where they are vertical in many areas and the situation continues to worsen. Sloughing of the channel banks has deteriorated the canal to the point where flow may be diminished and equipment access to the embankments has become a safety concern. The TOC secondary drainage system receives water from adjacent areas all along the length of the system through a series of corrugated metal pipes that penetrate the levees. Repair of the embankments and secondary drainage culverts, some in place for 30 years, will require a significant commitment of funds as the problem extends to the length of the six-mile long canal. Of the 24 culvert systems located, 18 are either in a state of failure or in need of some form of maintenance. The District has notified the U.S. Army Corps of Engineers (USACOE) of the problem and three inspections have been conducted to date. The USACOE has authorized participation in an Initial Appraisal Report to determine potential federal interest in proceeding to feasibility level study; however, funding assistance from the USACOE, in the short term, appears unlikely. If federal interest is determined and the report approved, Congressional support would still be needed to proceed with the General Revaluation Report (probably in FY2008-2009). This problem is serious and the District must take steps now to halt the erosion process. It is proposed to correct the problem through Basin funding and the implementation of the Surface Water Improvement and Management (SWIM) TOC Habitat Restoration Project, which will be budgeted under the District's SWIM Program. An engineering study currently underway will provide more detail as to the total scope and cost of the project.

PLAN LINKAGES: District Water Management Plan and Watershed Management Plans

AREA(S) OF RESPONSIBILITY: Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Leave secondary drainage systems and embankments in status quo without implementing repairs.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): The first year of a multi-year funding cycle was FY2005-2006 which provided \$100,000 for engineering design services and \$2,000,000 initial funding for the construction repairs related to the secondary drainage culvert and embankment deterioration. The FY2006-2007 budget is \$3,500,000 for construction and another \$3,500,000 is expected to be budgeted in FY2007-2008 for construction. While District staff has discussed the embankment erosion problem with the USACOE, funding assistance in the short term appears unlikely. As a result of impacts from the 2004 hurricanes, the District has received an obligation from the Federal Emergency Management Agency in the amount of \$128,000 for TOC damages. This funding would be available in the form of a reimbursement once canal repairs are totally complete, now projected to be a multi-year process. The total project cost to repair the embankment and deteriorating secondary drainage culverts is conservatively estimated to be \$9,000,000. If no additional outside funding assistance can be obtained, the Pinellas-Anclote Basin Board will bear the total cost of the repairs.

OTHER PROJECT COSTS (include land, survey, existing facility acquisition, professional services, other): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (include salaries, benefits, equipment, furniture, expenses): To be determined.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: To be determined.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$3,600,000	\$3,500,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Districtwide Planned Roof, HVAC, Repair, and Remodeling Projects

TYPE: Repairs and Remodeling as Required

PHYSICAL LOCATION: District Headquarters, Brooksville; and Services Offices in Bartow, Sarasota and Tampa, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: As Required

EXPECTED COMPLETION DATE: Ongoing

HISTORICAL BACKGROUND/NEED FOR PROJECT: Starting in FY2001-2002, the Governing Board created an ongoing program to invest in the replacement and repair of the District facility roofs, heating, ventilation, and air conditioning (HVAC) systems. The Wolf Group completed a multi-year "facilities condition assessment" of all District facilities in March 2004. Based upon the recommendations in the facilities condition assessment, staff has developed a multi-year schedule for roof improvements, HVAC system replacements, and remodeling projects, which allows planning for building improvements and minimizes the opportunity for building damage due to unforeseen safety, roof, and HVAC failures. Estimated pricing as of March 2006 was used for budget planning purposes.

The projects currently planned in FY2006-2007 through FY2010-2011 are as follows:

FY2006-2007

Brooksville - Building #3, Roof Replacement

Building #3 was constructed in 1979, and has the original membrane roof. Based on the recommendation of the Wolf Group facilities condition assessment, this roof will need to be replaced in FY2006-2007. The existing 11,976 sq. ft. roof is a flat membrane roof. Due to the structural costs (truss system) associated with replacing this roof with a standing seam metal roof, it is recommended that the existing roof be replaced with a similar type membrane roof (20-year warranty). The estimated cost to replace the roof with a membrane roof, which is less expensive than a standing seam metal roof, is \$104,000.

Brooksville - Building #3, HVAC Rooftop Units Replacement

Once the new roof is installed, the existing rooftop HVAC units will be replaced. The existing rooftop units are approximately 15 years old. The estimated cost for the replacement is \$43,000.

Brooksville - Building #3, Building Automation System Replacement

The HVAC control system in Building #3 consists of individual thermostats that run independent of each other. Some are left on 24 hours a day. The exhaust fans are not controlled and also run 24 hours a day. The estimated cost to install a central HVAC control system is \$23,000.

Brooksville - Building #8, Roof Sealing

Building #8 is a one-story metal building that is used to house the Print Shop and Mail Room, Aquatic Plant Management and Hydrologic Data's Technical Shop. The building was built in 1980 and is 26 years old. The estimated cost to re-coat and seal the roof is \$16,900.

Sarasota - Building #1, Building Automation System Replacement

The HVAC control system in Building #1 consists of individual thermostats that run independent of each other. Some are left on 24 hours a day. The exhaust fans are not controlled and also run 24 hours a day. The estimated cost to install a central HVAC control system is \$30,000.

Unallocated

\$33,100 - Represents the remaining balance of the \$250,000 to be allocated to future projects.

FY2007-2008

Brooksville - Building #6, Roof Replacement

Building #6 was constructed in 1988. Over the life of the building, the roof has been repaired several times and had a Uniflex coating applied several years ago that has extended the life of the system. Based on the Wolf Group facilities condition assessment, the roof needs to be replaced in FY2007-2008. The existing roof is a flat membrane roof. Due to the structural costs associated with replacing this roof with a standing seam metal roof, it is recommended that the existing roof be replaced with a similar membrane roof (20-year warranty). The estimated cost to replace the roof with a membrane roof, which is less expensive than a standing seam metal roof, is \$85,000.

Brooksville - Building #36, Roof Sealing

Building #36 is a one-story metal building that is used to house the Field Maintenance Section. The building was built in 1982. The estimated cost to re-coat and seal the roof is \$11,500.

Tampa - Buildings #3 and #4, Roofing Sealing

Building #3 is a one-story metal building that is used to house the Field Maintenance Section. The building was built in 1990. Building #4 is a storage building used by the Facilities Section, the Resource Conservation and Data Section, the Land Management Section, and the Surface Water Improvement and Management Section. The building was built in 1990. The estimated cost to re-coat and seal these roofs is \$13,000.

Unallocated

\$140,500 - Represents the remaining balance of the \$250,000 to be allocated to future projects.

FY2008-2009

Bartow - Building #1, HVAC Replacement

The 60-ton air conditioning system is the original system that was installed when the building was built in 1991. The coils are corroding and there have been several freon leaks that had to be repaired. The estimated cost to replace this system is \$87,000.

Brooksville - Building #6, Building Automation System Replacement

The HVAC control system in Building #6 consists of individual thermostats that run independent of each other. Some are left on 24 hours a day. The exhaust fans are not controlled and also run 24 hours a day. The estimated cost to install a central HVAC control system is \$19,500.

Brooksville - Building #37, Roof Sealing

Building #37 is a one-story metal building that is used to house the District's core sample room, and is used by the Facilities Section for storage. The building was built in 1983. The estimated cost to re-coat and seal the roof is \$11,500.

Unallocated

\$132,000 - Represents the remaining balance of the \$250,000 to be allocated to future projects.

FY2009-2010

Brooksville - Building #35, Roof Sealing

Building #35 is a one-story metal building that is used to house the Fleet Services Section. The building was built in 1978. The estimated cost to re-coat and seal the roof is \$7,000.

Unallocated

\$243,000 - Represents the remaining balance of the \$250,000 to be allocated to future projects.

FY2010-2011

Brooksville - Building #34, Roof Sealing

Building #34 is a one-story metal building that is used to house the Fleet Services Section. The building was built in 1997. The estimated cost to re-coat and seal the roof is \$7,000.

Unallocated

\$243,000 - Represents the remaining balance of the \$250,000 to be allocated to future projects.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): If the roof and HVAC projects are not completed, the facilities maintenance costs required to keep roofs from leaking and HVAC units operating properly will increase significantly. Further, roof leaks increase the risk of moisture damage to the buildings.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): Roof, HVAC, repair, and remodeling projects budgeted at \$250,000 each year from FY2006-2007 through FY2010-2011. These numbers are as of March 2006, subject to market increases.

OTHER PROJECT COSTS (include land, survey, existing facility acquisition, professional services, other): To be determined.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): To be determined.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: To be determined.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$250,000	\$250,000	\$250,000	\$250,000	\$250,000

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Districtwide Carpet Replacement

TYPE: Carpet Replacement

PHYSICAL LOCATION: District Headquarters, Brooksville

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: Districtwide Carpet Replacement

EXPECTED COMPLETION DATE: 7/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: Carpet replacement over the next two years. Carpet is currently acquired through a State contract from Lee's Facility Four Carpet for both the carpet tiles and the rolled carpet. This is comparable to the carpet being used in the new Tampa facility. Carpet replacement, which includes both the cost of the carpet installation (\$32 per yard) and the cost to move all existing furniture, is budgeted per the following schedule:

FY2006-2007:	Brooksville Building #3 (12,000 sq. ft.)	\$56,000
	Last Replaced: 1989 with rolled carpet	
	Brooksville Building #7 (7,500 sq. ft.)	\$35,000
	Last Replaced: 1999 with carpet tiles	
FY2007-2008:	Brooksville Building #1 (21,000 sq. ft.)	\$97,500
	Last Replaced: 1999 with rolled carpet	
	Brooksville Building #6 (6,000 sq. ft.)	\$29,000
	Last Replaced: 2001 with rolled carpet	

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Keep existing carpet in its deteriorating condition which will detract from the District's public image.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): In FY2006-2007, the carpet will be replaced at an estimated cost of \$91,000 to include Brooksville Building #3 at \$56,000 and Brooksville Building #7 at \$35,000. In FY2007-2008, the carpet will be replaced at an estimated cost of \$126,500 to include Brooksville Building #1 at \$97,500 and Brooksville Building #6 at \$29,000.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$91,000	\$126,500	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Districtwide Security Project, Phase 2

TYPE: Facilities Security

PHYSICAL LOCATION: District Headquarters, Brooksville, and Services Offices in Bartow, Sarasota and Tampa, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 190,830 sq. ft.

EXPECTED COMPLETION DATE: 7/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: Beginning in FY2004-2005, the District's Governing Board directed that an enhanced comprehensive security solution be similarly implemented at the District Headquarters and at the Bartow, Sarasota and Tampa service offices. The first phase consisted of implementing electronic security devices, fences, gates, guard services for nights and weekends, and limited use of swipes for restricted access to doors. The second phase of the solution consists of expanding the use of swipes at all District offices and will complete the implementation of the District's enhanced security plan. The required amounts for the additional badge readers will be budgeted in FY2006-2007 and FY2007-2008.

FY2006-2007 - District Headquarters, Brooksville.

As part of the second phase of the security solution at District Headquarters, Brooksville, badge readers will be installed for Buildings #1 through #8. The estimated cost for this work is \$157,000.

FY2007-2008 - District Headquarters, Brooksville.

As part of the second phase of the security solution at District Headquarters, Brooksville, badge readers will be installed on the remaining support buildings and the heavy equipment parking lot gate. The estimated cost for this work is \$125,000.

FY2007-2008 - Bartow, Sarasota, and Tampa Service Offices.

To complete the second phase of the security solution at the District Service Offices, badge readers will be installed on the motorized security gates for the heavy equipment parking lot. The estimated cost for this work is \$90,000.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Enhance existing guard coverage to around the clock at all campuses at a total Districtwide additional cost of \$100,000 per year.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): The cost to purchase, install, and implement the security system is \$157,000 in FY2006-2007 and \$215,000 in FY2007-2008.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Annual service agreement for the equipment will be ten percent of the total equipment cost (after the first year); monitoring is estimated to be \$4,500 annually for Brooksville, same as for each of the other Service Office sites; and annual cost for the remaining security guard coverage once all improvements have been implemented is estimated to be \$265,000.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$157,000	\$215,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Brooksville Building #1 – Roof and HVAC Study

TYPE: Roof and HVAC Study

PHYSICAL LOCATION: District Headquarters, Brooksville, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 21,000 sq. ft.

EXPECTED COMPLETION DATE: 9/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: Brooksville Building #1 is a one-story building constructed in 1964. Over the years the building has been added onto three times. This building houses the Information Resources and Finance Departments and the GIS Section. The Wolf Group facilities condition assessment recommended a study be done to determine the feasibility of converting this building to a chilled water system. In addition, this study will determine the feasibility of installing a standing seam metal roof.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): An alternative would be to complete the study as part of a roof and HVAC project. This would cause delays and increased costs if the initial design/review shows it is not feasible to continue with the project.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): The cost for this study is currently estimated at 50,000.

OTHER PROJECT COSTS (include land, survey, existing facility acquisition, professional services, other): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (include salaries, benefits, equipment, furniture, expenses): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$50,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Brooksville Building #21 - Expansion of Storage Building

TYPE: Expansion of existing storage building

PHYSICAL LOCATION: District Headquarters, Brooksville, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 800 sq. ft.

EXPECTED COMPLETION DATE: 3/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: Additional equipment and supply storage space is requested for the Land Use and Protection Section in Brooksville. Request is to construct an additional 800 s.f. with two roll-up bay doors to the existing storage building on the southwest corner of the Brooksville equipment parking lot. The equipment being stored outside includes an airboat, two commercial lawnmowers, four all terrain vehicles, pole saws, chainsaws, and miscellaneous equipment and hand tools.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Continue to store equipment and materials outdoors subject to the elements, which increases maintenance costs and shortens the life of the equipment.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): As of March 2006, the estimated cost to construct Building #21 was \$68,000 based on a cost of \$85 per square foot.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$68,000	\$0	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Brooksville Building #34 Expansion - Automotive Shop

TYPE: New Addition

PHYSICAL LOCATION: District Headquarters, Brooksville, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 1,122 sq. ft.

EXPECTED COMPLETION DATE: 9/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: The existing garage was built in 1998 with six service bays, four of the bays with a hoist. Three of the in-ground floor hoists were installed close to the center of the bay, making it difficult at times to utilize all six bays at the same time because of the length of the vehicles with a front mounted winch. The expansion of the building is requested to permit the technicians to more easily work on the vehicles with an extended or crew cab length, especially if there is a delay in repair/replacement parts and a vehicle remains up on the lift.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Continue to do various repairs requiring extended cab vehicles to not face each other on the hoist. The repair of the larger longer vehicles could be outsourced, but it is not cost effective due to the necessity of two technicians being required to deliver and pick up the outsourced vehicle from the vendor. Further, there will be more down time.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): As of March 2006, the estimated cost to expand Building #34 to include two new service bays is \$95,000 based on a cost of \$85 per square foot.

OTHER PROJECT COSTS (include land, survey, existing facility acquisition, professional services, other): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (include salaries, benefits, equipment, furniture, expenses): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$95,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Tampa Data Center Remediation and Remodeling

TYPE: Repair and Remodeling

PHYSICAL LOCATION: Tampa Service Office, Tampa, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 17,144 sq. ft./Data Center

EXPECTED COMPLETION DATE: 10/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: The Tampa Data Center is a one-story office data center constructed in 1988. The building has experienced numerous roof leaks and a new roof was installed in 2005 as part of the Tampa Service Office Construction Project at a cost of \$147,200, under the direction of Tampa based Architect Henry Woodroffe. Due to the deteriorated condition of the old roof, the entire roof including the decking and batt insulation had to be removed at a cost of \$29,736. When the decking and insulation were removed, microbials were discovered on the drywall that supported the insulation. An industrial hygienist, Salazar, was brought in to assess the problem and recommended the drywall be removed. Due to the scope of this project, to be integrated with the heating, ventilation, and air conditioning (HVAC) retrofit, architect Woodroffe and mechanical engineer Al Sanchez were asked to develop a proposal to the plans and specifications to complete this remediation and remodeling. Additional funding is needed for this project as a result of the recent Information Resources Department Study, which required a redesign of the HVAC system and office layout. This change in plans will extend the useful life of the office and remodel the total building configuration instead of requiring another costly upgrade when the mainframe is removed in 2010. Additionally, construction costs for material and labor have been increasing at a rate of at least 1.5 percent per month. In order to reduce staff relocation cost, staff currently housed in the Data Center will be relocated to other District buildings instead of leasing offsite space.

A proposal from Woodroffe Corporation Architects was received estimating costs and services required to complete this project. The major components of this proposal are:

Architectural Services	\$ 208,000
HVAC Retrofit	1,272,000
Remediation and Construction	1,317,000
Carpet Replacement	60,000
Furniture Replacement	280,000

Total Estimated Cost	\$3,137,000

Details of these components are described below.

Architectural Services

The architectural services cost to design the remainder of the replacement and remediation of the building is estimated to be \$208,000, based on a proposal received from Woodroffe

Corporation Architects on July 7, 2005. The Governing Board approved funding for these design services at the July 2005 Governing Board meeting with the funds provided from the facility funds originally budgeted and approved in the FY2004-2005 Capital Improvements Plan (CIP) for the Tampa Data Center HVAC Retrofit. The Governing Board approved a request to encumber these funds into FY2005-2006.

HVAC Retrofit

The facilities condition assessment that was completed March 2004 determined that the original HVAC system was in need of replacement. In the past several years, the system has had compressor failures and problems with the control system and the coils are in need of replacement. When the system was originally designed, the HVAC supplied chilled water to the mainframe computers. Today's computers no longer require chilled water for cooling which has resulted in the HVAC system being oversized. Mechanical engineer A.J. Sanchez Consulting Engineers, who did the design work on Building #1 for Woodroffe Corporation Architects, reviewed the system to make recommendations as to the equipment needs for the Data Center to best meet the current code requirements for indoor air quality (IAQ). The recommendation was to replace the existing HVAC system with a more energy efficient system, which will improve the building's IAQ and will meet future Data Center needs. The funding for the HVAC retrofit was budgeted and approved in the FY2004-2005 CIP based on a pre-hurricane and pre-metal shortage cost of \$400,000, of which \$210,000 was needed for architectural services for the overall project. The Governing Board approved a request to encumber these funds into FY2005-2006. Due to demand in the construction industry, projected costs for replacement continue to rise rapidly. The latest estimate for HVAC replacement is \$1,272,000. Due to the problems discovered when the roof was removed, the planned replacement of the HVAC system should be completed in conjunction with the remediation and renovation of the building.

Construction Associated with the Remediation/Renovation

The construction services associated with the remediation / renovation of the building will include the following:

- Demolition of interior space
- Ceiling and lighting replacement
- Rework of the perimeter wall vinyl covering with required patching
- Replacement of the ductwork as required, not part of the HVAC replacement
- Replacement of the gypsum board on the underside of the roof steel joists
- Upgrade of electrical system
- Protection of computer room equipment
- Construction contingencies
- Permit and utility fee contingency
- Upgrade the fire alarm system and sprinkler system
- Asbestos abatement
- Upgrade plumbing and cabinets in the restrooms to meet ADA requirements
- Upgrade emergency generator transfer switch
- Reseal the exterior brick
- Reseal the storefront system
- New hard walled offices and training room
- New carpeting, VCT and tile work
- Repainting of the interior space

The estimated cost for this construction associated with the remediation/renovation is \$1,317,000.

Carpet Replacement

The facilities condition assessment also recommended that the carpet in the Tampa Service Office Data Center be replaced. The funds for this carpet replacement were budgeted and approved in the FY2004-2005 CIP at a cost of \$45,000; the latest estimate is \$60,000. This cost covered the replacement of 14,762 sq. ft. of carpet tiles. This carpet replacement is also being delayed until all of the remediation for the building has been completed. The Governing Board approved a request to encumber these funds into FY2005-2006.

Furniture Replacement

The existing office and modular furniture is 18 years and in need of replacement. The estimated cost to replace the furniture is \$280,000.

The total cost of this project is estimated to be \$3,137,000. This projected cost is based on pending market prices and is the expected direct cost of the project based on the current architect's project timeline. It does not include owner's contingencies or any future market price increases for any further delays or reductions due to changing economics. Of this total cost, \$1,663,000 existed in the FY2005-2006 budget. The FY2006-2007 budget is \$1,474,000 for the remainder of the costs.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): None.

BASIC CONSTRUCTION COSTS (include permits, inspections, communications requirements, utilities, outside building, site development, other): The cost for this project is currently estimated by the architect Woodroffe at \$3,137,000. Of this amount, \$1,663,000 existed in the FY2005-2006 budget and \$1,474,000 in the FY2006-2007 CIP budget. This cost includes preliminary estimated construction costs pending actual market bids after plans and specifications are completed.

OTHER PROJECT COSTS (include land, survey, existing facility acquisition, professional services, other): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (include salaries, benefits, equipment, furniture, expenses): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$1,474,000 *	\$0	\$0	\$0	\$0

* See Table Below:

Total Budget	
FY2005-2006 Budget	\$1,663,000
FY2006-2007 Budget	\$1,474,000
Total	\$3,137,000

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION AND PUBLIC WORKS

ACTIVITY: FACILITIES, CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Bartow Sanitary Sewer Upgrade

TYPE: Repair/Replacement as Required

PHYSICAL LOCATION: Bartow Service Office, Bartow, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: Bartow Building #1

EXPECTED COMPLETION DATE: 09/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: Building #1 was built in 1991, and has had ongoing blockages in the sewer lines since the building first opened. This has resulted in plumbing service calls. A recent scoping of the sewer line found that a section of the sewer line was not properly installed at the time of construction. In order to correct the problem, sections of the sewer line located under Building #1 must be replaced. There are two distinct problem areas with the sanitary sewer lines. The first is at the east end of the building affecting only the women's bathroom. The problem area is approximately 31 ft. long. It extends from the far south end of the women's bathroom to the break room hallway and out to the covered patio area ending just before the steps. The second problem area starts at the east end of the middle bathrooms (by the boardroom) and extends under the dividing wall between the men and women's bathrooms and ends in the hallway near the water fountain. These areas total approximately 48 ft. of sewer lines. Based on the scoping video, these appear to be the only areas that require replacement.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Continue to remove backups as they have occurred since 1991.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): As of March 2006, the estimated cost for the repair to the sewer line is \$130,000.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): \$25,000 engineering costs.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$155,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Bartow Storage Building

TYPE: New Addition

PHYSICAL LOCATION: Bartow Service Office, Bartow, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 4,500 sq. ft.

EXPECTED COMPLETION DATE: 09/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: The Facilities Section, Land Management Section, and the Operations Department are in need of additional storage space to house their equipment. Currently, this equipment is being exposed to the elements. The additional space would protect the equipment from exposure to the elements, which will reduce maintenance cost and extend the life of the equipment. This equipment includes airboats, commercial lawnmowers, all terrain vehicles, pole saws, chainsaws, portable generators, and miscellaneous equipment and hand tools.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Leave the equipment exposed to the elements.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): As of March 2006, the estimated cost to construct Building #3 is \$405,000 based on a cost of \$90 per square foot.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$405,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Bartow Building #1 - Office Furniture

TYPE: Office Furniture Replacement

PHYSICAL LOCATION: Bartow Service Office, Bartow, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: Bartow Building #1

EXPECTED COMPLETION DATE: 09/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: The conference room chairs that are in use in Conference Room 7 were placed in the Bartow Service Office in approximately 1987 when the Regulation Department was relocated from the Tampa Service Office to the Bartow location. The conference room chairs that are in use in Conference Room 8 were purchased in 1992 when the District constructed the building on Highway 60 West and the Bartow Service Office relocated in May 1992. The chairs are now 19 and 14 years old and are beyond their useful lives. These chairs have been subject to heavy use by the public and staff for numerous meetings throughout these years. The chairs from 1987 have wooden arms and the finish is wearing off and is marred from use. Some of the fabric seat material is now pulling away from the piping and is showing wear from use. The armchairs purchased in 1992 have adjustable seat heights and backs and are on castors. The functionality of these chairs (adjustable seats and backs) is now failing with repeated use and they are no longer adjustable. The fabric is pulling away from the form and is badly soiled and can no longer be cleaned. A total of 16 conference chairs need to be replaced.

When the Bartow Regulation Department relocated to the new building in 1992, all of the old furniture was moved into the new building. This included desks, chairs, bookcases, file cabinets and computer stations on wheels. As these pieces failed over the years, they have been replaced with other used furniture from other District offices as items became available. These items have now exceeded their useful economic lives as drawers in the desks and locking mechanisms are failing to operate properly. The shelves in the bookcases are bowing from storage of heavy volumes of permitting information and reference books. The desk chairs are in need of replacement due to heavy and long use. Worn furniture in the managers' offices is supplemented with folding tables to provide additional workspace for permitting review. A total of 6 bookcases, 20 training room tables, and furniture for 9 managers' offices need to be replaced.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Continue to use office furniture that has outlived its useful economic life.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): The cost for this project is currently estimated at \$105,000.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$105,000	\$0	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Bartow Building #2 - Modifications

TYPE: Existing Building

PHYSICAL LOCATION: Bartow Service Office, Bartow, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 2,100 sq. ft.

EXPECTED COMPLETION DATE: 08/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: The existing Building #2, at the Bartow Service Office, has served as a backup emergency operations center (EOC) location for the District. In order to better protect the EOC staff, hurricane shutters need to be installed on the windows, the existing bay doors need to be reinforced, and the roof anchoring system needs to be strengthened.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): Use a different location, if available, for a backup EOC.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): As of March 2006, the estimated cost to modify Building #2 is \$50,000.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$0	\$50,000	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: ACQUISITION, RESTORATION, AND PUBLIC WORKS

ACTIVITY: FACILITIES CONSTRUCTION AND MAJOR RENOVATIONS

PROJECT TITLE: Bartow Building #1 – Backup Generator

TYPE: Existing Building

PHYSICAL LOCATION: Bartow Service Office, Bartow, Florida

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: 25,045 sq. ft.

EXPECTED COMPLETION DATE: 05/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: The existing Building #2, at the Bartow Service Office, has served as a backup emergency operations center (EOC) location for the District. During the 2004 hurricane season, the Operations Department used this location to coordinate its field operations for their emergency services. Building #2 has an emergency backup generator that powered the building during this time frame. Since all the data and communication equipment is located in Building #1, Operations had limited communications at that time. In order to provide power for the servers and telephone switch, which are located in Building #1, a 200KW generator will need to be installed. This generator will not only allow the backup EOC to operate, and also provide power for continuing operations for the Resource Regulation Department housed in Building #1.

PLAN LINKAGES: District Water Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): None – In order to provide staff with communications during emergency situations, a generator is needed to power the communications equipment.

BASIC CONSTRUCTION COSTS (*include permits, inspections, communications requirements, utilities, outside building, site development, other*): As of June 2006, the estimated cost to purchase and install the generator for Building #1 is \$90,000.

OTHER PROJECT COSTS (*include land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*include salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: Covered under normal operating budget.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$90,000	\$0	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: OPERATION AND MAINTENANCE OF LANDS AND WORKS

ACTIVITY: LAND USE MANAGEMENT

PROJECT TITLE: Environmental Education Center

TYPE: Environmental Education Center

PHYSICAL LOCATION: Alafia River Basin

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: Alafia River Corridor project on the C. W. Bill Young Reservoir tract, Alafia River Basin (The physical size and configuration of the center will be determined pending project approval.)

EXPECTED COMPLETION DATE: 9/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: The District has assisted many partners, including the Hernando County School Board, and Polk, Hillsborough and Pasco counties, for the development of environmental education centers on District lands. The Alafia River Basin Board has expressed an interest in siting an environmental education center within its boundaries. It is anticipated that additional funding will be obtained from various partners. The proposed site will be at the District's Alafia River Corridor project on the C. W. Bill Young Reservoir tract. Additional facilities are needed in the county due to unprecedented growth and insufficient facilities to meet this challenge.

PLAN LINKAGES: District Water Management Plan; and Site-Specific Land Use and Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): An alternative to providing educational amenities on District lands would be to ignore an opportunity to further the District's mission through education and not contribute to the facilities creation.

BASIC CONSTRUCTION COSTS (*includes permits, inspections, communications requirements, utilities, outside building, site development, other*): Budgeted at \$1,200,000 for FY2006-2007, with the District's share at \$600,000 which is reimbursable from the Water Management Lands Trust Fund.

OTHER PROJECT COSTS (*includes land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*includes salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None, partners will manage the daily operation and maintenance.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$600,000	\$0	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: OPERATION AND MAINTENANCE OF LANDS AND WORKS

ACTIVITY: LAND USE MANAGEMENT

PROJECT TITLE: Recreation Facility Site Structure

TYPE: Terra Ceia Boat Ramp

PHYSICAL LOCATION: Manasota Basin, Manatee County

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: The boat ramp at the Terra Ceia State Park in Manatee County will consist of a launch and parking for approximately 20 vehicles.

EXPECTED COMPLETION DATE: 9/2008

HISTORICAL BACKGROUND/NEED FOR PROJECT: The boat ramp will be located on Bishop Harbor on the Terra Ceia State Park jointly owned by the District and State of Florida. There is currently an unimproved launch on the property. The Surface Water Improvement and Management (SWIM) Program restoration plan requires that the launch and parking be relocated to facilitate plan implementation. Relocation will meet regional needs for boat launching facilities. Funding for the boat ramp will be split between Manatee County and the Florida Department of Environmental Protection (FDEP). Funding for the design and permitting of the boat ramp will be split between the FDEP and the District.

PLAN LINKAGES: District Water Management Plan; and Site-Specific Land Use and Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): An alternative to providing recreational amenities on District lands would be to leave the lands unimproved with limited access.

BASIC CONSTRUCTION COSTS (*includes permits, inspections, communications requirements, utilities, outside building, site development, other*): Design and permitting is estimated to cost \$150,000, with the District and the FDEP splitting the costs at \$75,000 each. The District's portion of the funds are available from the Water Management Lands Trust Fund. It is anticipated that construction will be funded by other entities.

OTHER PROJECT COSTS (*includes land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*includes salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None, other entities will manage the daily operation and maintenance.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$75,000	\$0	\$0	\$0	\$0

III. PROJECT DESCRIPTION

PROGRAM: OPERATION AND MAINTENANCE OF LANDS AND WORKS

ACTIVITY: LAND USE MANAGEMENT

PROJECT TITLE: Education Facility Site Structure

TYPE: Weekiwachee Preserve Boardwalk

PHYSICAL LOCATION: Coastal Rivers Basin, Hernando County

SQUARE FOOTAGE/PHYSICAL DESCRIPTION: The boardwalk at Weekiwachee Preserve in Hernando County will run the entire length of the environmental education center building, approximately 100 ft.

EXPECTED COMPLETION DATE: 9/2007

HISTORICAL BACKGROUND/NEED FOR PROJECT: The District entered into an agreement with the Hernando County School Board for the design, construction, operation and maintenance of an environmental education center at the District's Weekiwachee Preserve. Funding at that time was insufficient to allow construction of a boardwalk/walkway. The boardwalk/walkway will allow greater access to the riverine system, a major component of the education program. It will also reduce erosion along the education center on the riverside, thereby reducing sedimentation to the river.

PLAN LINKAGES: District Water Management Plan; and Site-Specific Land Use and Management Plan

AREA(S) OF RESPONSIBILITY: Water Supply, Flood Protection, Water Quality, and Natural Systems

ALTERNATIVE(S): An alternative is to not construct the boardwalk which would limit access to the riverine system and allow for further erosion along the education center on the riverside.

BASIC CONSTRUCTION COSTS (*includes permits, inspections, communications requirements, utilities, outside building, site development, other*): Construction costs for the boardwalk have been estimated at \$75,000. Funds for recreational activities on District lands are available from the Water Management Lands Trust Fund.

OTHER PROJECT COSTS (*includes land, survey, existing facility acquisition, professional services, other*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/INITIAL (*includes salaries, benefits, equipment, furniture, expenses*): None.

ANTICIPATED ADDITIONAL OPERATING COSTS/CONTINUING: None.

FY2006-2007	FY2007-2008	FY2008-2009	FY2009-2010	FY2010-2011
\$75,000	\$0	\$0	\$0	\$0

CHAPTER 4

Annual Alternative Water Supply Report

I. Introduction

Where Water Resource Caution Areas have been designated, Section 373.1961(2)(a), Florida Statutes, requires the governing boards of the water management districts to include in their annual budgets an amount for the development of alternative water supply systems, including reclaimed water systems. The section, as well as 2005 legislation related to the Water Protection and Sustainability Trust Fund (section 373.1961(3)(a), further requires that each district submit an annual alternative water supply report to the Governor, the President of the Senate, and the Speaker of the House of Representatives by March 1st of each year. This report describes all funded projects and accounts for funds provided through grants, matching grants, revolving loans, and the use of Southwest Florida Water Management District (SWFWMD or District) lands or facilities. The SWFWMD has designated Water Resource Caution Areas and has implemented alternate water supply funding pursuant to the Florida Statutes. This report is submitted pursuant to the related statutes (F.A.C. 373.1961, 373.036, and 403.890). Because of the unique organization of SWFWMD and its past accomplishments in the areas of water conservation and alternative water source development, the following is provided as background information.

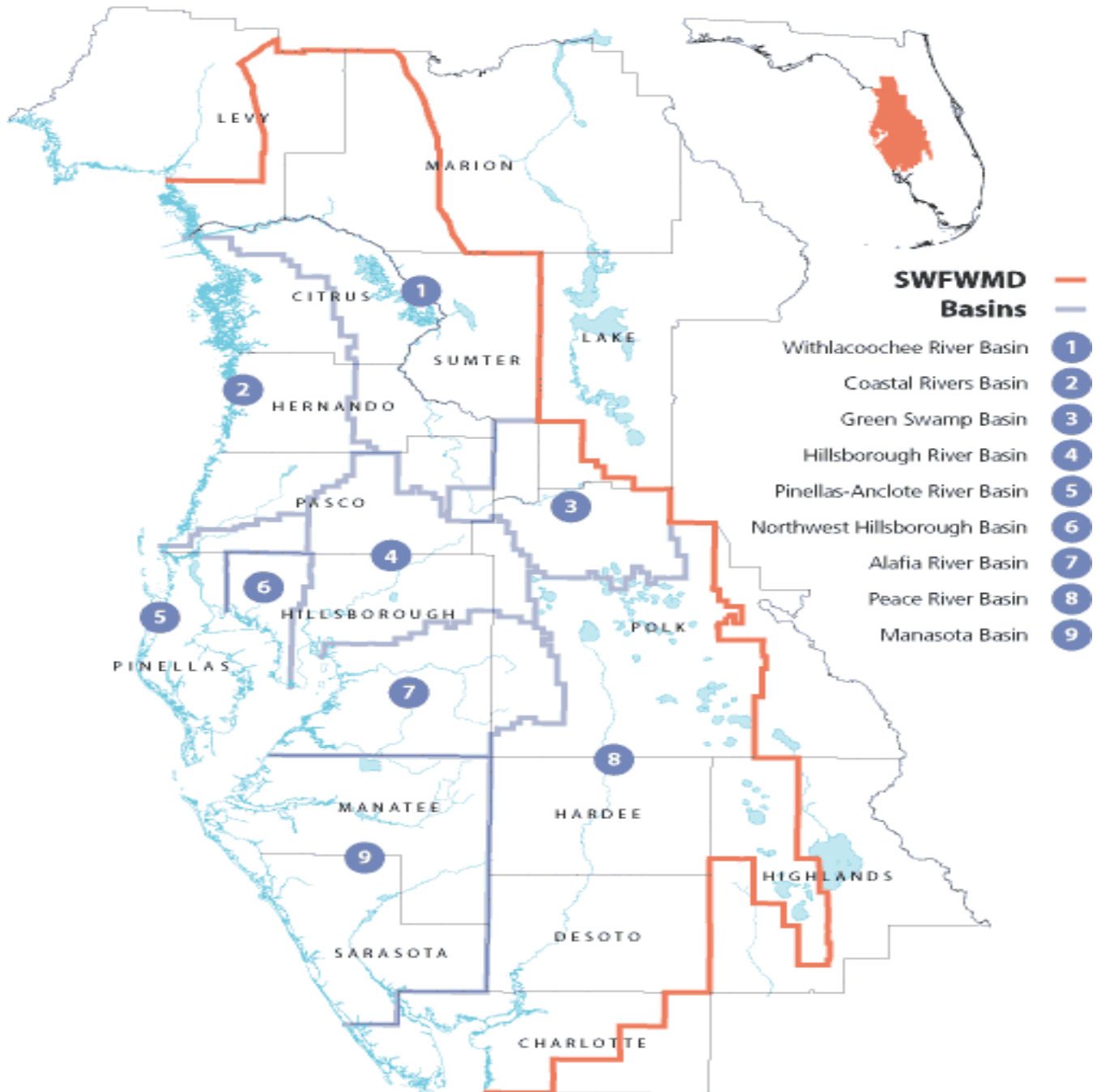
II. Background

The SWFWMD is unique among Florida's water management districts in that, beyond the similar structure of the governing boards, it has nine basins with jurisdictional boundaries encompassing the major watersheds making up the District (Figure 1). In eight of the nine basins population is such that boards have been appointed to address local, sub-regional water resource issues by sponsoring projects in cooperation with local governments, private citizens and private businesses, to improve, protect and restore the water resources of their respective areas. The basin boards, like the Governing Board, have the authority to levy ad valorem taxes up to 0.5 mill within their boundaries. Budget development and approval follow the public hearing and adoption process as required under state law.

The SWFWMD basin boards have been providing local funds for local water resource-related projects since the District's creation in 1961. Originally, the focus of the basin boards and the Governing Board had been on funding flood control projects. In the late 1980s, the basin priorities began to shift to the identification and funding of projects that focus on water conservation and the development of alternative water sources. Currently, staff and financial resources are focused on issues of water quality, natural systems improvement, flood protection, water conservation, and alternative water source development.

Before the late 1980s, basin board participation in local water resource projects, both financial and staff support was primarily driven by requests from local governments. Recognizing the importance of their ability to support local governments by providing solutions to the growing issues surrounding water supply, the basin boards adopted a more pro-active role in addressing local non-regulatory water issues. Initially, there was no set system for receiving project assistance requests, and no criteria regarding timing, project eligibility, funding, and other conditions for participation. The *Cooperative Funding Initiative* was established in recognition of the growing need for a structured approach in order to maximize the basin board's effectiveness in choosing and funding water resource projects and budgeting for their completion.

Figure 1. SWFWMD Map



III. Basin Board Cooperative Funding Initiative

A structured program for solicitation of requests for local water resource projects was established for all basins in the SWFWMD in 1987. Since then, the basin boards have continued to refine their policies in response to changing goals and basin priorities. As a whole, the basins have made noteworthy strides in the areas of water conservation and alternative water sources development.

Although the aforementioned statutes do not require the water management districts to provide information on funding of those projects initiated or completed prior to 1996, a summary of the accomplishments in a few areas of water conservation will provide the recipients of this report with an understanding of the effectiveness of the SWFWMD's programs. It should be noted that the SWFWMD also funds water conservation and alternative water source development projects in addition to those covered by the statutory definitions. Examples of major water conservation efforts are summarized in the District's *Reuse and Conservation Projects Summary Report*, (SWFWMD, 2006).

Table 1. Summary of Reuse Projects

Table 1 shows the significant historical financial contributions and alternative water quantities made available as a result of Governing Board and basin board participation in more than 275 reuse projects since fiscal year (FY) 1987.

The SWFWMD is involved in many other programs besides those specifically defined in the statute, which are also saving significant amounts of water. Some program examples are leak detection, drought tolerant landscaping, ultra-low volume toilet rebates, water saving ordinance development, industrial and residential water audits, landscape irrigation system efficiency, and many others, including major public education efforts.

Table 1. Summary of Reuse Projects by Basin Boards and Governing Board
(Including Reuse Projects Funded Through the NWSI Program and WSRD Projects)

Governing Board/ Basin Board(s) Providing Funding	Available Reclaimed Water (GPD)	Gallons of Storage (Million)	Amount (\$) Budgeted by District*
Alafia River	7,366,957	12.07	\$5,216,850
Coastal Rivers	16,749,055	84.34	\$18,459,485
Hillsborough River	13,379,915	95.41	\$13,644,092
Manasota	34,494,685	160.79	\$22,262,056
NW Hillsborough	14,196,944	21.10	\$19,821,369
Peace River	21,623,690	37.50	\$19,529,994
Pinellas-Anclote River	63,057,631	195.20	\$101,583,828
Withlacoochee River	7,172,135	13.21	\$4,634,020
Governing Board	49,173,585	429.28	\$35,152,072
Totals	227,214,597	1,048.90	\$240,303,766

Source: *Reuse and Conservation Projects Summary Report*, (SWFWMD, 2006).

Note: Amounts do not include water supply projects funded as a result of the Partnership Agreement (see page 4-11). *FY1987-FY2007 total of 275 budgeted projects.

IV. New Water Sources Initiative (NWSI)

In 1993, the SWFWMD Governing Board recognized the need to accelerate the development of alternative water sources to address the water resource impacts identified in the Southern Water Use Caution Area (SWUCA) and the Northern Tampa Bay Water Use Caution Area. The program solicited requests for large, regionally significant projects that would develop non-traditional (other than ground water) sources to offset existing use or provide for future growth. The Governing Board initiated the New Water Sources Initiative (NWSI) program with a \$10 million commitment beginning in FY1994. This program is in addition to the Cooperative Funding Initiative.

Eligible NWSI projects generally receive 25 percent of their funding from the District's Governing Board, 25 percent from appropriate basin board(s), and the remaining 50 percent from the local cooperator(s). The 25 percent basin board contribution may be split among two or more basins, depending on the geographical area served by the project. The NWSI program, like the Cooperative Funding Initiative, is administered pursuant to legislative directives to promote and fund alternative source development.

Table 2. Active New Water Sources Initiative Projects

Table 2 identifies the list of active NWSI projects, SWFWMD funding contribution, and water provided. As with the Cooperative Funding Initiative, some projects identified in the report fall outside the requirements of Florida Statutes as to what is considered an alternative source, yet the information is important in understanding the SWFWMD's role in the area of funding water resource protection and development projects.

Table 2. Active New Water Sources Initiative Projects

Project (project number)	Local Cooperator	Total Cost (\$)	SWFWMD Contribution* (\$)	Water Provided** (mgd)
Section 21 Wellfield Restoration Project (F011)	Tampa Bay Water, St. Pete., US EPA	\$1,704,000	\$439,000	up to 4
Manatee Agricultural Reuse Supply M.A.R.S. (F014)	Manatee County	\$37,670,000	\$11,980,970	20
Starkey Wellfield Rehydration Pilot Project (F026)	Tampa Bay Water and Pasco County	\$510,750	\$264,000	up to 30
Recharge/Recovery and the Natural Treatment of Wastewater and Storm water at the Hines Energy Complex (F023, F027) <i>F023 portions completed</i>	Florida Power Corp. and Florida Institute of Phosphate Research	\$1,693,250	\$865,000	up to 12.5
North Pinellas Reuse Interconnects (F028)	Pinellas County	\$3,172,300	\$1,586,150	3.8
PR/MRWSA Reservoir Expansion (F032)	Peace River/Manasota Regional Water Supply Authority (PR/MRWSA)	\$49,000,000	\$24,498,730	up to 14.70
PR/MRWSA Facility Expansion (F033)	PR/MRWSA	\$74,400,000	\$31,142,200	included in F032 (above)
Polk County Regional Reuse (F035)	Polk County	\$1,971,500	\$985,750	1.9
Totals		\$170,121,800	\$71,761,800	>86.90

Table includes only "Active" projects (does not include pre-2006 completed projects).

*Totals may represent multiple year funding and may include contributions from multiple Boards and Funds (WPSTF).

**In order to be consistent with other Water Management District's and FDEP the water provided equals water supplied by projects and does not represent offset amounts.

Does not include Partnership Agreement projects. (See page 4-12)

V. Water Supply and Resource Development Projects

As a means to facilitate the implementation options identified in the *SWFWMD Regional Water Supply Plan* (SWFWMD, 2001) or similar projects, the Governing Board and the basin boards initiated another funding opportunity in FY2001 to address large-scale water supply and resource development projects with multiple cooperators and regional benefits. The “*Water Supply and Resource Development Projects*” (WSRD) receive funding from the Governing Board, multiple basin boards, and from local cooperators. Depending upon the size and scope of the project, some WSRD projects may also involve additional state and federal funding.

Many WSRD projects in the Tampa Bay area have been funded by the District's basin boards according to the same formula used in the Partnership Agreement, as the projects are expected to delay the need for additional traditional water supply infrastructure for Tampa Bay Water. The financial formula is reflective of the proportional benefits anticipated to be realized by each of the basins, and the collective basin board funding is then matched by the Governing Board. As such, eligible WSRD projects generally receive 25 percent of their funding from the District's Governing Board, 25 percent from the collective basin boards, and the remaining 50 percent from local cooperators. The Tampa Bay Regional Reclaimed Water and Downstream Augmentation Project (TBRRAP) is an example.

Table 3. Active Water Supply and Resource Development Projects

Table 3 identifies the list of active WSRD projects, the total project costs, SWFWMD funding contribution commitment, and water provided. As with the Cooperative Funding Initiative and the NWSI, some projects identified in the table may fall outside the requirements of Florida Statutes as to what is considered an alternative source, yet the information is important in understanding the SWFWMD's role in the area of funding water resource protection and development projects.

Table 3. Active Water Supply and Resource Development Projects

Project (project number)	Local Cooperator	Total Cost (\$)	SWFWMD Contribution* (\$)	Water Provided** (mgd)
Lake Hancock Lake Level Modification (H008)	District	\$2,900,000	\$2,900,000	TBD
Lake Hancock Outfall Structure P-11 Modification (H009)	District	\$5,000,000	\$5,000,000	TBD
Largo/Clearwater/Pasco-ASR/Interconnect (H012)	Clearwater, Largo, Pasco	\$10,063,200	\$5,006,600	3.00
Lake Hancock Outfall Wetland Treatment System (H014)	District	\$16,359,574	\$13,609,574	TBD
Shell/Joshua/Prairie Creeks Well Rehabilitation (H015)	District	\$1,300,000	\$1,300,000	TBD
Facilitating Agricultural Resource Management Systems "FARMS" (H017)	State of Florida, FL Dept. of Agriculture & Consumer Services	\$9,500,000	\$4,757,537	TBD
Upper Peace River Resource Development Study (H024)	District	\$3,700,000	\$3,700,000	Study
Charlotte County Regional Reclaimed Water Expansion (H027)	Charlotte County	\$7,250,000	\$3,825,000	1.28
Polk Co Utilities Southwest Regional Reuse Phase II Expansion (H028)	Polk County	\$7,250,000	\$3,825,000	Storage and Pumping

Project (project number)	Local Cooperator	Total Cost (\$)	SWFWMD Contribution* (\$)	Water Provided** (mgd)
Polk Co Utilities Northwest Regional Reuse Phase I Expansion (H029)	Polk County	\$1,700,500	\$850,250	Storage and Pumping
Starkey/North Pasco Wellfield Infrastructure (H030)	City of Tampa	\$22,500,000	\$11,250,000	TBD
Peace Creek Canal Watershed (H034)	District, Polk County	\$2,956,753	\$2,956,753	TBD
Peace Regional Loop Feasibility (H036)	PR/MRWSA	\$500,000	\$250,000	Feasibility
Withlacoochee Regional Water Supply Plan (H037)	WRWSA	\$775,000	\$400,000	Plan
Pasco County South/East Regional Reclaimed Water Loop (H041)	Pasco County	\$1,330,000	\$784,700	TBD
Marion County Water Resource Assessment (H042)	Marion County	\$595,483	\$150,000	TBD
Cypress Creek Wellfield Management (H043)	Tampa Bay Water	\$2,775,792	\$1,067,012	TBD
SWUCA Pilot Lake Augmentation (H044)	District	\$100,000	\$100,000	TBD
Polk Co Water Supply Planning (H045)	Polk County	\$60,000	\$30,000	TBD
ASR Pretreatment Investigation (H046)	District	\$276,116	\$276,116	Study
City of Tampa ASR Monitoring Investigation (H047)	District	\$944,000	\$472,000	Study
Myakka River Watershed Initiative (H048)	District	\$4,987,685	\$4,987,685	TBD
PR/MRWSA Reg Integ Loop Sys Phase 1 Interconnect (H050)	PR/MRWSA	\$10,200,000	\$4,981,000	TBD
PR/MRWSA Reg Integ Loop Sys Phase 2 Interconnect (H051)	PR/MRWSA	\$39,000,000	\$19,500,000	TBD
PR/MRWSA Reg Integ Loop Sys Phase 3 Interconnect (H052)	PR/MRWSA	\$110,000,000	\$55,000,000	TBD
Tampa Bay Water - Northwest Hillsborough Wellfield Improvements (H053)	Tampa Bay Water	\$8,054,662	\$3,979,787	TBD
Tampa Bay Water System Configuration II (H065)	Tampa Bay Water	\$235,122,500	\$123,753,427	25.00
Pasco County State Road 52 East/West Regional Reclaimed Water Interconnect (H055)	Pasco County	\$18,600,000	\$9,300,000	6.00
Pasco Co Wet Weather Reclaimed Water Reservoir Boyette (H056)	Pasco County	\$18,550,000	\$9,275,000	3.30
Water Supply Flow Monitoring Project (H057)	District	\$139,500	\$139,500	TBD
Sarasota Co Exploratory Wells of the Intermediate Aquifer System (H058)	PR/MRWSA, Sarasota County	\$1,950,000	\$900,000	TBD
City of Bradenton Reservoir Expansion (H059)	City of Bradenton	\$5,650,000	\$2,825,000	2.15
Punta Gorda Shell Creek WTP Expansion (H060)	City of Punta Gorda	\$4,000,000	\$1,500,000	2.00
TBRRAP-Tampa Bay Regional Reclaimed Water Project (Option 3) H300, H301, H302, H303, H304, H305, H306, H307, H308, H309, H310)	City of Tampa, Hillsborough County, Pasco County	\$213,690,000	\$110,650,000	26.1

Project (project number)	Local Cooperator	Total Cost (\$)	SWFWMD Contribution* (\$)	Water Provided** (mgd)
IFAS BMP Implementation for Flatwood Citrus (H528)	IFAS, FDACS, SFWMD, SJRWMD, US-EPA	\$970,000	\$150,000	TBD
FDACS Mini-Farms Project (H529)	FDACS	\$125,000	\$75,000	2.00
FARMS-Parke Family Hydrofarms (H533)	Parke Family Hydrofarms	\$150,000	\$112,500	0.03
Totals		>\$769,000,000	>\$409,000,000	>70.86

*Totals may represent multiple-year funding, and may include contributions from multiple Boards and Funds (WPSTF and others).

**In order to be consistent with other Water Management District's and FDEP the water provided equals water supplied by projects and does not represent offset amounts.

Table includes only "Active" projects (does not include completed projects).

Does not include Partnership Agreement projects. (See page 4-12)

VI. Water Protection and Sustainability Trust Fund Projects

In 2005 the Florida Legislature recognized the need to accelerate the development of alternative water sources within the state. Large areas of Florida do not have sufficient traditional water resources to meet the future needs of the state's growing population and the needs of the environment, agriculture, and industry.

In 2005, legislation was passed and signed into law creating the "Water Protection and Sustainability Trust Fund" (WPSTF). The new legislation focuses on encouraging cooperation in the development of alternative water supplies and improving the linkage between local governments' land use plans and water management districts' regional water supply plans.

The state of Florida allocated \$100 million dollars in FY2005-2006, with \$25 million allocated to the SWFWMD. In FY2007 the state funding was \$60 million, with \$15 million allocated to the SWFWMD. Future annual amounts of state funding are anticipated to be similar to the FY2007 amounts. Funding will be expended on a reimbursement basis for construction costs of alternative water supply development projects as defined in the legislation. The legislation also requires that a minimum of 80 percent of the WPSTF funding must be related to projects identified in a district water supply plan. In the SWFWMD, the SWFWMD Regional Water Supply Plan (RWSP) is utilized in the identification of the majority of WPSTF eligible projects. Identified projects are further evaluated as to their suitability for this funding program. The identification of alternative water supply development projects in the RWSP does not guarantee funding assistance through this funding program.

Projects are evaluated for funding based on consideration of the 12 factors described in 373.1961(3)(f) and (g), Florida Statute (2005), and additional District evaluation factors as appropriate. Funding for each project is equivalent to up to 40 percent of construction costs. Projects funded through this program may also receive funding from other sources such as the Governing Board, multiple basin boards, federal agencies and local cooperators.

Table 4. Water Protection and Sustainability Trust Fund Projects

The SWFWMD has selected a total of 29 alternative water supply projects to receive FY2005-2006 and FY2007 funds from the new WPSTF. Most of these projects were identified through the District's ongoing cooperative funding programs, which have been funding alternative water supply development for two decades. Additional projects, developed in cooperation with regional water supply authorities and their member governments, have also been identified as eligible to receive funds.

Table 4 identifies the list of all WPSTF projects, SWFWMD funding, cooperator funding, funding from other sources as well as the amount of water provided. The scope and breadth of the WPSTF projects is immense, as evident by the 40+ million gallons per day (mgd) in potable water supplies, and the more than 26 mgd in reclaimed water supply (15 mgd of offsets) that will be realized upon their completion. Some projects identified in the table are also listed in other tables, depending upon the source of SWFWMD funding. The Appendix of this report contains a brief description of the projects identified in Table 4.

Table 4. Water Protection and Sustainability Trust Fund Projects

Project (project number)	Local Cooperator	State WPSF Contribution & Fiscal Year (\$ & FY)	Total* SWFWMD Contribution (\$)	Total* Local Cooperator Contribution (\$)	Total Project Cost (\$)	Water Provided** (mgd)
PR/MRWSA Facility Expansion (F032)	PR/MRWSA	\$6,533,976 FY2006	\$18,414,755	\$18,451,270	\$49,000,000	14.70
PR/MRWSA Reservoir Expansion (F033)	PR/MRWSA	\$12,161,596 FY2006	\$18,980,604	\$35,499,860	\$74,400,000	included in F032 amounts above
Charlotte County Regional Reclaimed Water (H027)	Charlotte County	\$400,000 FY2006	\$2,406,086	\$2,406,086	\$5,799,000	1.27
Pasco County SE Regional Reclaimed Water (H041)	Pasco County	\$239,405 FY2006	\$545,300	\$545,300	\$1,330,000	TBD
PR/MRWSA Loop System PH I (H050)	PR/MRWSA	\$562,000 FY2006	\$4,284,000	\$4,284,000	\$10,200,000	TBD
Bradenton Potable ASR (K114)	City of Bradenton	\$101,650 FY2006	\$685,000	\$685,000	\$1,610,000	0.41
Lake Tarpon ASR (K422)	Pinellas County	\$340,000 FY2006	\$1,376,876	\$1,376,876	\$3,257,356	0.27
North Sarasota County Reclaimed ASR's (K269)	Sarasota County	\$164,864 FY2006	\$2,689,748	\$2,689,748	\$6,443,546	1.17
South Tampa Area Reuse II (K655)	City of Tampa	\$926,800 FY2006	\$23,500,000	\$23,500,000	\$58,000,000	5.00
Lake Placid Reuse (L153)	City of Lake Placid (REDI)	\$117,420 FY2006	\$855,450	\$285,150	\$1,374,200	0.10
Brooksville US 41 Service Area Reuse System (L169)	City of Brooksville	\$371,311 FY2006	\$2,035,656	\$2,035,656	\$5,089,140	1.68
Charlotte County Rotunda Reclaimed ASR (L215)	Charlotte County	\$90,900 FY2006	\$369,500	\$369,500	\$870,000	TBD
Clearwater Morningside Area Reclaimed Water Transmission & Distribution (L254)	City of Clearwater	\$600,000 FY2006	\$1,832,000	\$1,832,000	\$4,500,000	0.59
Connerton Reclaimed Water Transmission Storage (L270)	Pasco County	\$216,632 FY2006	\$1,231,526	\$1,231,526	\$2,966,316	2.00
Hillsborough County Lithia- Pinecrest Reuse Water Transmission (L294)	Hillsborough County	\$362,520 FY2006	\$1,440,000	\$1,440,000	\$3,600,000	2.66
Inverness Reclaimed Water Transmission Main (L468)	Citrus County	\$267,300 FY2006	\$804,000	\$804,000	\$2,010,000	1.08
Polk County North East Regional Reclaimed Water Storage (L475)	Polk County	\$134,704 FY2006	\$385,013	\$385,013	\$905,912	Storage
Charlotte County Golf Course Reuse Storage (L485)	Charlotte County	\$120,328 FY2006	\$293,743	\$293,743	\$1,300,000	0.89
City of Sarasota Reuse/Payne Park (L500)	City of Sarasota	\$125,000 FY2006	\$250,000	\$250,000	\$625,000	0.10

Project (project number)	Local Cooperator	State WPSTF Contribution & Fiscal Year (\$ & FY)	Total* SWFWMD Contribution (\$)	Total* Local Cooperator Contribution (\$)	Total Project Cost (\$)	Water Provided** (mgd)
Aqua Utilities Lakewood Ranch Reuse (L522)	Aqua Utilities	\$54,644 FY2006	\$154,827	\$154,827	\$364,300	0.57
Palmetto Reclaimed ASR (L608)	City of Palmetto	\$72,000 FY2006	\$985,000	\$985,000	\$2,340,000	0.39
Englewood WD Stillwater Reuse Trans. (L652)	Englewood Water District	\$43,996 FY2006	\$113,683	\$113,683	\$271,582	0.10
City of Dunedin Reuse Trans. & Dist. (L697)	City of Dunedin	\$203,000 FY2006	\$926,041	\$926,041	\$2,283,852	0.21
Pasco Overpass Rd. Reuse Trans. (L729)	Pasco County	\$8,160 FY2006	\$652,720	\$652,720	\$1,592,000	1.05
Hillsborough Abby Grove Reuse Dist.(L759)	Hillsborough County	\$39,200 FY2006	\$78,400	\$78,400	\$196,000	0.03
Hillsborough Casey Lake Reuse Dist.(L760)	Hillsborough County	\$49,200 FY2006	\$98,400	\$98,400	\$246,000	0.02
Hillsborough Bordeaux Village Reuse Dist.(L763)	Hillsborough County	\$110,800 FY2006	\$221,600	\$221,600	\$554,000	0.06
South Brooksville Reuse Phase II (L781)	Levitt and Sons	\$75,740 FY2006	\$586,530	\$586,530	\$1,431,000	0.55
Tampa Bay Water System Configuration II (H065) ***	Tampa Bay Water	\$506,854 FY2006 \$15,000,000 FY2007	\$108,246,573	\$111,369,073	\$235,122,500	25
Totals		\$40,000,000	\$194,443,031	\$213,551,002	\$477,681,704	>60

*Totals may represent multiple-year funding, and may include past, current and future contributions from multiple Boards (does not include WPSTF funding).

**In order to be consistent with other Water Management District's and FDEP, the water provided equals water supplied by projects and does not represent offset amounts.

***Pending Board approvals.

VII. The Partnership Agreement (Northern Tampa Bay New Water Supply and Groundwater Withdrawal Reduction Agreement)

The Partnership Agreement provides for the development of new and alternative water supply and reduction of pumpage from Tampa Bay Water's Northern Tampa Bay wellfields.

Background

Floridians rely on ground water, pumped from underground aquifers, as their principal water supply source. In the Tampa Bay region, an over-reliance on ground water has resulted in adverse environmental impacts to lakes, wetlands, and the ecology. This led to years of conflict between water regulators, water suppliers, and property owners. Many of these conflicts were aired in administrative hearings and the court systems for many years without resolution.

Seeking a cooperative solution to the region's water problems, the SWFWMD proposed a collaboration of the District, Tampa Bay Water (formerly known as the West Coast Regional Water Supply Authority), and its six member governments (Hillsborough County, Pinellas County, Pasco County, and the cities of Tampa, St. Petersburg, and New Port Richey) for the development of new water supply and phased reduction of pumping from the 11 central system wellfields. Discussions of the plan began in 1997. After many months of negotiations, the "Partnership Agreement" was executed by all parties on May 27, 1998.

Objectives of the Partnership Agreement

The Partnership Agreement has four objectives: (1) Develop at least 85 mgd of new water supply by December 31, 2007, of which 38 mgd must be produced by December 31, 2002; (2) Reduce groundwater pumpage at 11 wellfields from 158 mgd to 121 mgd by 2002 and to 90 mgd by 2007; (3) End existing and minimize future litigation; and (4) Provide funding to assist in the development of the new alternative supply.

Elements of the Partnership Agreement

To assist Tampa Bay Water to meet the goal of developing at least 85 mgd of new water supply, the SWFWMD committed \$183 million in funding assistance to develop new alternative water supply sources. Projects eligible for District funding include seawater desalination, surface water supply facilities, indirect potable reuse, and inter-connecting pipelines.

In addition, the District has committed to provide approximately \$90 million over ten years toward conservation projects within the Tampa Bay area. The District's funding goal will be matched by Tampa Bay Water and local governments. The Partnership Agreement also includes conservation goals to reduce regional water use by 10 mgd by 2000, and by an additional 7 mgd by 2005.

The Partnership Agreement required Tampa Bay Water to develop a "New Water Plan." The New Water Plan must describe potential projects which, upon construction, will meet the objective of developing at least 38 mgd of new supply by 2003 (December 31, 2002), and at least 85 mgd of new water per day by 2007. The New Water Plan was approved by SWFWMD and a list of projects that are "eligible" for SWFWMD funding was provided to Tampa Bay Water.

A key element of the Partnership Agreement is the implementation of a recovery strategy for the Northern Tampa Bay area. Under the Partnership Agreement, ground water pumpage at the 11

wellfields will be reduced from permitted quantities of 158 mgd to 90 mgd by 2007. Water use permits for the 11 wellfields have been consolidated into a single permit. As part of the recovery strategy, Tampa Bay Water will also optimize water production from the wellfields to minimize environmental impacts.

What the Partnership Agreement Means to the Tampa Bay Region

The implementation of the Partnership Agreement represents a substantial step toward cooperative resolution of regional water resource problems. Through this innovative effort, water regulators and suppliers are working together to develop new and alternative water supply sources and to reduce environmental impacts due to overpumping of the ground water resource.

The Partnership Agreement is a landmark achievement. This progressive, inter-agency approach to solving water problems may serve as a model to other areas that face similar water supply and environmental challenges.

Table 5. Partnership Agreement Projects

Table 5 includes alternative water supply projects budgeted for Partnership Agreement funding. The SWFWMD is providing \$183 million budgeted over fiscal years 1995 to 2007 for the development of these projects. The Appendix of this report contains a brief description of the projects identified in Table 5.

Table 5. Partnership Agreement Projects

Project	Completion Date (Projected)	Capital Cost (Est)	SWFWMD Funding (FY 2007 Amount*)	SWFWMD Funding (Eligible Amounts**)	Design Capacity (Produced)
North-Central Intertie	2001	\$47,000,000	*	\$23,000,000	N/A
Enhanced Surface Water System				Up To \$69,500,000	66 mgd
Tampa Bay Regional WTP	2002				
Groundwater/Pumps/Stor	2002	\$31,000,000	*		
Surface Water	2002	\$94,000,000	*		
Repump Station	2002	\$10,000,000	*		
Tampa Bypass Canal Pipe	2002	\$16,000,000	*		
Alafia River	2002	\$12,000,000	*		
South-Central Intertie	2002	\$70,000,000	*		
Tampa Bay Regional Reservoir	2005	\$121,000,000	*		
Seawater Desal I	2002	\$110,000,000	*	Up To \$85,000,000	25 mgd***
Brandon/South Central Connection	2003	\$12,000,000	*	\$5,500,000	N/A
Totals		\$523,000,000	\$15,140,534	\$183,000,000	91 mgd

*Represents only FY2007 budgeted amount; individual project funding is not allocated to specific fiscal years.

**Represents Total SWFWMD FY 1995 - FY 2007 funding commitment for projects.

***Expandable to 35 mgd.

VIII. 2007 Annual Report Information

As defined in the Florida Statutes, alternative water supplies are “supplies of water that have been reclaimed after one or more public supply, municipal, industrial, commercial, or agricultural uses, or are supplies of stormwater, or brackish or salt water, that have been treated in accordance with applicable rules and standards sufficient to supply the intended use.” Pursuant to the requirements of the statutes, the following tables and associated narrative identify all such projects, associated funding, and provide a short description of their benefits.

Table 6. SWFWMD Budgeted Amounts

Table 6 summarizes the total annual budgeted amounts for the past ten fiscal years (FY1998-2007) by the SWFWMD for alternative water supply category projects. The funding of projects requiring large capital investments with construction spanning several years is normally spread out over multiple fiscal years due to the need to have funds available when costs are expected to occur, and also due to the annual funding amounts available in the budgets of each basin or the Governing Board.

Note: The funding amounts shown, as in subsequent tables, represent only SWFWMD contributions; equal or exceeding matching funds are provided by the cooperator.

Table 7. Funding Classification

Table 7 classifies the FY1998-2007 budgeted amounts into funding types. As indicated, the SWFWMD’s funding focus has been on matching grant type of cooperative funding programs.

Table 6. SWFWMD Budgeted Amounts

Alternative Water Source	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
Reclaimed Wastewater	\$17,462,595	\$12,527,821	\$16,013,189	\$14,923,351	\$18,820,038	\$18,999,847	\$19,373,952	\$18,441,017	\$29,378,507	\$19,862,511
Reclaimed Stormwater	\$0	\$0	\$0	\$188,115	\$200,000	\$23,000	\$200,000	\$81,245	\$1,219,250	\$75,000
Desalination of Brackish Water	\$0	\$0	\$0	\$442,500	\$0	\$58,979	\$26,623	\$247,060	\$16,834	\$410,000
Partnership Agreement Projects	\$13,779,148	\$14,709,464	\$17,557,017	\$16,645,345	\$14,647,831	\$15,140,538	\$15,140,536	\$15,140,536	\$15,140,534	\$15,140,534
Indirect Potable Reuse	**	**	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Desalination of Seawater	**	**	**	**	**	**	**	**	**	**
SWFWMD Totals	\$31,241,743	\$27,237,285	\$33,570,206	\$32,199,311	\$33,667,869	\$34,222,364	\$34,741,111	\$33,909,858	\$41,243,355	\$35,488,045
Allocated WPSTF									\$25,000,000	\$15,000,000
Totals									\$66,243,355	\$50,488,045

**All FY1998-2007 Indirect Potable Reuse and Desalination of Seawater funding has been reallocated to the Partnership Agreement Projects, please see Table 5.

Table 7. Funding Classification

Funding Type	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
Direct Grants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Matching Grants	\$31,241,743	\$27,237,285	\$33,570,206	\$32,199,311	\$33,667,869	\$34,222,364	\$34,741,111	\$33,909,858	\$66,243,355	\$50,488,045
Revolving Loans	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Use of District Land// Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SWFWMD TOTALS	\$31,241,743	\$27,237,285	\$33,570,206	\$32,199,311	\$33,667,869	\$34,222,364	\$34,741,111	\$33,909,858	\$66,243,355	\$50,488,045

Table 8. Alternative Source Type: Wastewater Reuse

In funding reclaimed water projects, the District requires that at least 50 percent of the reclaimed water supplied must offset existing or planned ground or surface water withdrawals in order to qualify for funding consideration (projects prior to 2001 were required to achieve a 25 percent offset). This requirement is intended to increase the efficiency of reclaimed water projects to reduce the use of potable quality water for outdoor landscape irrigation and, where allowed by state regulations, to provide an alternative source for agricultural irrigation. Table 8 identifies all reuse projects that will receive funding in FY2007.

Table 8 lists Cooperative Funding Initiative, NWSI, WSRD and WPSTF reuse projects. The table also identifies funds allocated in FY2007 by basin board(s) and the Governing Board, and includes the total funding commitment of the SWFWMD. The total funding commitment represents previous and projected year funding by the SWFWMD. Funding of projects requiring large capital investments with construction spanning several years is normally spread out over multiple fiscal years for two reasons: The first reason is the need to have funds available when costs are expected to occur, and the second reason is the annual funding amounts available in the budgets of each basin board or the Governing Board. Table 8 also includes the projected alternative supply amount (gallons) provided by the project. The Appendix of this report contains a brief description of the projects identified in Table 8.

Table 8. Alternative Source Type: Wastewater Reuse

Project Name (project number)	FY2007 Budgeted Amount				Gallons Provided* (gpd)
	Basin(s)	Governing Board	Total FY2007 Amount***	Total SWFWMD Amount**	
TBRRAP-Tampa Bay Reg. Reclaimed Water Project (H300 through H310)****	\$4,131,523	\$4,131,524	\$8,263,047	\$110,650,000	26,100,000
Pasco County State Road 52 East/West Regional Reclaimed Water Interconnect (H055)	\$1,550,000	\$1,550,000	\$3,100,000	\$9,300,000	6,000,000
Pasco County Wet Weather Reclaimed Water Reservoir Boyette (H056)	\$1,500,000	\$1,500,000	\$3,000,000	\$9,275,000	3,300,000
City of Brooksville Construction of US-41 South Service Area Reuse System (L169)	\$310,363	\$0	\$310,363	\$3,053,484	1,680,000
Clearwater Morningside Reuse Transmission and Distribution (L254)	\$800,000	\$0	\$800,000	\$2,668,000	590,000
Charlotte County Rotunda Reclaimed ASR (L215)	\$289,550	\$0	\$289,550	\$500,450	TBD
Hillsborough Lithia Pinecrest Reuse Transmission (L294)	\$420,208	\$0	\$420,208	\$2,160,000	2,660,000
City of Inverness Reuse Transmission (L468)	\$443,600	\$0	\$443,600	\$1,206,000	1,080,000
Palmetto Reclaimed ASR (L608)	\$389,000	\$0	\$389,000	\$1,355,000	390,000
North Port Reuse Master Plan (L629)	\$47,500	\$0	\$47,500	\$47,500	Plan
Punta Gorda Reuse Master Plan (L640)	\$125,000	\$0	\$125,000	\$125,000	Plan

Englewood WD Stillwater Reuse Trans. (L652)	\$113,793	\$0	\$113,793	\$158,009	103,400
Marion Oak Run Reuse (L650)	\$250,000	\$0	\$250,000	\$2,400,000	500,000
Marion Summer Glenn Reuse (L651)	\$150,000	\$0	\$150,000	\$925,000	500,000
Clearwater Skycrest Reuse Storage, Pumping, Trans. and Distribution (L695)	\$512,500	\$0	\$512,500	\$5,419,000	410,000
City of Dunedin Reuse Trans. & Dist. (L697)	\$468,500	\$0	\$468,500	\$1,357,811	212,000
Pasco Overpass Rd. Reuse Trans. (L729)	\$95,920	\$0	\$95,920	\$939,280	1,050,000
Oldsmar Reuse ASR Phase 2A (L739)	\$107,500	\$0	\$107,500	\$107,500	TBD
Hillsborough Abby Grove Reuse Dist.(L759)	\$78,400	\$0	\$78,400	\$117,600	27,000
Hillsborough Casey Lake Reuse Dist.(L760)	\$98,400	\$0	\$98,400	\$147,600	20,000
Hillsborough Bordeaux Village Reuse Dist.(L763)	\$221,600	\$0	\$221,600	\$332,400	60,000
Citrus Brentwood Reuse Storage (L768)	\$235,500	\$0	\$235,500	\$2,485,500	1,000,000
South Brooksville Reuse Phase II (L781)	\$222,130	\$0	\$222,130	\$844,470	555,000
On Top of the World Marion Reuse (L786)	\$120,000	\$0	\$120,000	\$1,099,000	750,000
Totals	\$12,680,987	\$7,181,524	\$19,862,511	\$156,673,604	>46,987,400

****Pending Board approval.

***Total represents FY2007 District budgeted amounts and may include FY2007 WPSTF funding (if included, listed in second row of total FY2007 funding).

**Total SWFWMD commitment represents projects that have been or will be funded over multiple years and may include WPSTF funding.

*Represents total project gallon amounts (GPD).

Table 9. Alternative Source Type: Reclaimed Stormwater

In funding reclaimed stormwater projects, the District requires that at least 50 percent of the reclaimed water must offset existing or planned ground or surface water withdrawals in order to qualify for funding consideration. This requirement is intended to increase the efficiency of reclaimed water projects to reduce the use of potable quality water for outdoor landscape irrigation and, where allowed by state regulations, to provide an alternative source for agricultural irrigation.

Table 9 identifies the reclaimed stormwater project that will receive funding in FY2007. The table also identifies funds allocated in FY2007 by basin board(s) and the Governing Board, and includes the total funding commitment of the SWFWMD. The total funding commitment represents previous and projected year funding by the SWFWMD. As previously stated, funding of projects requiring large capital investments with construction spanning several years is normally spread out over multiple fiscal years for two reasons. The first reason is the need to have funds available when costs are expected to occur; and the second reason is the annual funding amounts available in the budgets of each basin or the Governing Board. Table 9 also includes the projected alternative supply amount (gallons) provided by the projects. The Appendix of this report contains a brief description of the project identified in Table 9.

Table 9. Alternative Source Type: Reclaimed Stormwater

Project Name (project number)	FY2007 Budgeted Amount				Gallons Provided* (gpd)
	Basin(s)	Governing Board	Total FY2007 Amount***	Total Amount**	
North Port Wet Season ASR (K120)	\$75,000	-	\$75,000	\$740,250	410,000
Totals	\$75,000	\$0	\$75,000	\$740,000	410,000

***Total represents District FY2007 budgeted amounts and may include FY2007 WPSTF funding (if included, listed in second row of total FY2007 funding).

**Total SWFWMD commitment represents projects that have been or will be funded over multiple years.

*Represents total project gallon amounts (GPD).

Table 10. Alternative Source Type: Desalination of Brackish Water

Table 10 identifies the desalination of brackish water project that will receive funding in FY2007. The table also identifies funds allocated in FY2007 by basin board(s) and the Governing Board, and includes the total funding commitment of the SWFWMD. The total funding commitment represents previous and projected year funding by the SWFWMD. As previously stated, funding of projects requiring large capital investments with construction spanning several years is normally spread out over multiple fiscal years for two reasons. The first reason is the need to have funds available when costs are expected to occur; and the second reason is the annual funding amounts available in the budgets of each basin or the Governing Board. Table 10 also includes the projected alternative supply amount (gallons) provided by the project. The Appendix of this report contains a brief description of the project identified in Table 10.

Table 10. Alternative Source Type: Desalination of Brackish Water

Project Name (project number)	FY2007 Budgeted Amount				Gallons Provided* (gpd)
	Basin(s)	Governing Board	Total FY2007 Amount***	Total Amount**	
Sarasota County Exploratory Wells Intermediate- Aquifer-System (H058)	\$205,000	205,000	\$410,000	\$910,000	TBD
Totals	\$205,000	205,000	\$410,000	\$910,000	TBD

***Total represents District FY2007 budgeted amounts and may include FY2007 WPSTF funding (if included, listed in second row of total FY2007 funding).

**Total SWFWMD commitment represents projects that have been or will be funded over multiple years.

*Represents total project gallon amounts (GPD).

IX. Conclusion

The SWFWMD has developed an aggressive alternative water supply development program through the efficient utilization of the resources available to its eight basin boards, the Governing Board and the Florida Legislature. The SWFWMD is committed to identifying and assisting with appropriate solutions to the water resource problems within its area by providing technical and financial support in developing alternative water supplies. The SWFWMD has a long history of commitment to cooperative efforts with state and local governments, private industry, and the public at large through the sponsoring of research, flood studies, conservation, natural system improvements, water quality and, most recently, the shift in emphasis to the development of alternative water supplies. The SWFWMD is confident in its mission to find and maintain adequate and ecologically sustainable resources within its boundaries.

X. Appendix (Projects with FY2007 Funding)

Project Name: Sarasota County Exploratory Wells of the Intermediate Aquifer System (H058)

Type of Alternative Supply: Desalination of Brackish Water

Cooperator: Peace River/Manasota Regional Water Supply Authority, Sarasota County

District: Governing Board and Manasota Basin Board

Locale: Sarasota County

Project Description: This project will drill exploratory wells at two locations within the Carlton well field to determine the structure of the geology in these areas and to evaluate the water quality characteristics of the lower portion of the Intermediate Aquifer System to determine if this brackish zone could be utilized as potable raw water source. The lower portions of the Intermediate Aquifer System in coastal areas of Sarasota and Charlotte County are potential sources of brackish ground water that could be developed and treated using reverse osmosis to supply public supply water systems.

Project Name: Tampa Bay Water System Configuration II (H065)

Type of Alternative Supply: Surface Water Supply

Cooperator: Tampa Bay Water

District: Alafia River, Coastal Rivers, Hillsborough River, Northwest Hillsborough, Pinellas-Anclote River, and Withlacoochee River Basin Boards, Governing Board

Locale: Hillsborough County

Project Description: This project will build on Tampa Bay Water's existing Enhanced Surface Water System to provide an environmentally sound and economically feasibility 25 mgd supply. The project consists of two sub components, Downstream Enhancements Phases A/B and System Interconnects. Downstream Enhancements Phases A/B will expand the delivery capacity of Tampa Bay Water's Regional Surface Water Treatment Plant (SWTP) and add pumping and boosting capacity to existing infrastructure. This will enable higher surface water flows on the Hillsborough River and Tampa Bypass Canal to be captured. Downstream Enhancement Phases A/B also increases the use of Tampa Bay Water's existing C.W. Bill Young Regional Reservoir. System Interconnects are required to deliver the new water supply to Tampa Bay Water member governments.

Project Name: TBRRAP – Tampa Bay Regional Reclaimed Water Project (Option 3)
(H300 through H310)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Tampa, Pasco County, Hillsborough County, District.

District: Alafia River, Coastal Rivers, Hillsborough River, Northwest Hillsborough, Withlacoochee River, and Pinellas-Anclote River Basin Boards, Governing Board

Locale: Hillsborough and Pasco Counties

Project Description: The project consists of the planning, design and construction of more than 45 miles of reclaimed water transmission pipelines, pumping and storage, and additional distribution pipelines and infrastructure. The core project was estimated to cost \$213 million, but could increase as feasibility studies are completed and if components related to surplus/wet-weather reuse are expanded. There are ten project segments associated with the Regional Project. Collectively, these segments will supply 26 mgd of reclaimed water to 30,000 customers in Pasco and Hillsborough counties to offset 9 mgd of potable water supplies, and result in a net beneficial use of 8 mgd from using wet-weather reclaimed water flows in storage or natural system restoration. The project is a key element in the plans for regional utilization of Tampa's reclaimed water.

Project Name: North Port Wet Weather ASR Project (K120)

Type of Alternative Supply: Stormwater Reuse

Cooperator: City of North Port

District: Manasota Basin Board

Locale: Sarasota County

Project Description: Design, permitting, construction, of an Aquifer Storage and Recovery (ASR) project to create an alternative water supply by treating excess wet season flows from the Myakkahatchee Creek and storing it in the Floridan aquifer. The goal of this project is to develop a 1.5 million gallon per day dry season supply (0.41 mgd annual)

Project Name: City of Brooksville Construction of US-41 South Service Area Reuse System (L169)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Brooksville

District: Coastal Rivers Basin Board

Locale: Hernando County

Project Description: Design and construction of a reclaimed water main, one 1.0 mg reject water storage pond, two 0.5 mg storage tanks, three 3 mg storage/irrigation ponds, and two 1.0 mgd pump stations to provide reclaimed water. It also includes reclaimed water infrastructure to a golf course to be constructed at the Southern Hills Plantation development.

Project Name: Rotunda ASR Well Conversion for Reuse Water (L215)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Charlotte County

District: Peace River Basin Board

Locale: Charlotte County

Project Description: The multi-phase project includes a feasibility study to evaluate the alternatives for installation of a reclaimed water ASR and, if feasible, the conversion of one (1) existing potable water supply well located in the Rotonda area to an Aquifer Storage and Recovery (ASR) well for reuse.

Project Name: Clearwater Morningside Area Reclaimed Water Transmission and Distribution Project (L254)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Clearwater

District: Pinellas-Anclote River Basin Board

Locale: Pinellas County

Project Description: Design and construction of reclaimed water transmission mains and distribution piping in the Morningside area of Clearwater. The project will serve 700 residential customers currently irrigating with potable water and 60 residential and other recreational/commercial/aesthetic customers that irrigate from deep wells.

Project Name: Hillsborough Co. Lithia-Pinecrest Reclaimed Water Transmission (L294)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Hillsborough County

District: Alafia River Basin Board

Locale: Hillsborough County

Project Description: The project includes the construction of 12,200 feet of 24-inch reclaimed water transmission main and associated appurtenances to be located along Lithia Pinecrest Road from Bloomingdale Avenue south to the entrance road to the Riverhills Golf Course (WUP# 9137). Controls, telemetry, and associated appurtenances are to be included to connect to Hillsborough County's South/Central reuse system. This pipeline is needed to meet operational reliability and efficiency and provide additional hydraulic capacity to meet existing and future customer demands in the South/Central Reclaimed Water System.

Project Name: City of Inverness Reclaimed Water Transmission Main (L468)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Inverness

District: Withlacoochee River Basin Board

Locale: Citrus County

Project Description: Design, permitting, and construction of approximately 17,000 LF of 16-inch reclaimed water transmission main, expansion of the City of Inverness WWTP Reclaimed Water Pump Station and interconnections to the Inverness Golf and Country Club turf irrigation system.

Project Name: Palmetto Reclaimed Water ASR Project (L608)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Palmetto

District: Manasota Basin Board

Locale: Manatee County

Project Description: Design, permitting, construction, ultraviolet (UV) disinfection, cycle testing, and operational permitting for a 1.2 mgd reclaimed water Aquifer Storage Recovery (ASR) well at the City of Palmetto's WWTP. This ASR well will help reduce the demands on potable water supplies and eliminate the need for surface water discharge of excess reclaimed water to Terra Ceia Bay.

Project Name: North Port Reuse Master Plan (L629)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of North Port

District: Peace River Basin Board

Locale: Sarasota County

Project Description: This project will develop a reuse master plan that will analyze the City's irrigation water needs and outline a plan to use existing and future reclaimed water to offset existing and future potable water supplies.

Project Name: Punta Gorda Reuse Feasibility Study (L640)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Punta Gorda

District: Peace River Basin Board

Locale: Charlotte County

Project Description: This reuse feasibility study to identify the technical and financial elements of a reclaimed water system. The City of Punta Gorda owns and operates a 4 mgd wastewater treatment plant, and currently disposes all of its reclaimed water via a deep injection well. The feasibility study would consider a reclaimed water system to treat and deliver reclaimed wastewater for beneficial use as landscape irrigation.

Project Name: Marion County Oak Run Reclaimed Water Project (L650)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Marion County

District: Withlacoochee River Basin Board

Locale: Marion County

Project Description: Design, permitting, and construction of approximately 34,000 linear feet (LF) of 16-inch diameter reclaimed water main along the State Road 200 (SR 200) corridor in Marion County Utility's southwest service area. The project includes two transmission pump stations, two golf course supply pump stations, instrumentation, and related appurtenances. The project will supply the Oak Run 18-hole golf course and 18-hole executive golf courses. Future service to Oak Run residential areas and common areas in Timber Ridge and Spruce Creek Preserve may also be realized depending upon future supply availability.

Project Name: Marion County Summerglenn Reclaimed Water Project (L651)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Marion County

District: Withlacoochee River Basin Board

Locale: Marion County

Project Description: Design, permitting, and construction of 20,000 LF of 8-inch reclaimed water main from the Marion Oaks package plant to the Summerglenn WWTP then on to the Summerglenn Golf Course in Marion County Utility's southwest service area. The project also includes the design and construction of a pump station, instrumentation, and related appurtenances.

Project Name: Englewood Stillwater Reuse Transmission Project (L652)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Englewood Water District

District: Manasota Basin Board

Locale: Sarasota County

Project Description: Design, permitting and construction of approximately 4,379 feet of 6" reuse transmission line to connect the Stillwater Subdivision to the Englewood Reuse System. The project is anticipated to serve 251 residential units upon completion.

Project Name: City of Clearwater Skycrest Reclaimed Water Project (L695)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Clearwater

District: Pinellas-Anclote River Basin Board

Locale: Pinellas County

Project Description: Design, permitting and construction of reclaimed water transmission mains, distribution piping, a 5 MG storage tank and high service pump station in the Skycrest area of Clearwater. The project includes approximately 16,500 linear feet of 24-inch and approximately 47,000 linear feet of 4-inch and 6-inch diameter reclaimed water lines. The project will connect the city's east reclaimed water service area with their west service area and provide service to nearly 500 residential and commercial reclaimed water customers in central Clearwater.

Project Name: City of Dunedin Reclaimed Transmission & Distribution Project (L697)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Dunedin

District: Pinellas-Anclote River Basin Board

Locale: Pinellas County

Project Description: Construction of seven (7) combined reclaimed water transmission main and distribution systems. A total of approximately 3,579 linear feet of reclaimed water transmission main and approximately 27,146 linear feet of distribution mains will provide service to 500 residences (377 active) in the seven project areas.

Project Name: Pasco County Overpass Road Reclaimed Water Transmission Project (L729)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Pasco County

District: Hillsborough River Basin Board

Locale: Pasco County

Project Description: Design, permitting and construction of a reclaimed water transmission main from Elam Road, south along Curley Road and east along Overpass Road to an existing main on Handcart Road. The project includes approximately 16,700 linear feet of 16-inch reclaimed water transmission main. The Overpass Road segment of this project includes a lateral consisting of 4,100 linear feet of 12-inch reclaimed water transmission main through the Watergrass Development to provide a connection for 1,749 residential reclaimed water customers in the DePue Ranch Development.

Project Name: Oldsmar Reclaimed Water ASR-Phase IIA (L739)

Type of Alternative Supply: Wastewater Reuse

Cooperator: City of Oldsmar

District: Pinellas-Anclote River Basin Board

Locale: Pinellas County

Project Description: Design and permitting of a 15-inch exploratory well with the capacity to yield 1 to 2.5 mgd of reclaimed water and four monitoring wells. A preliminary engineering report will be prepared that will discuss treatment options to manage disinfection by-products and pathogens in the reclaimed water. The 15-inch exploratory well will be designed to be permitted as an ASR well under the future ASR Phase III and IV project phases at the city's Water Reclamation Facility.

Project Name: Hillsborough County Abbey Grove Reclaimed Water Distribution Project (L759)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Hillsborough County

District: Northwest Hillsborough Basin Board

Locale: Hillsborough County

Project Description: Construction of approximately 3,200 LF of 4-inch reclaimed water distribution pipelines and associated appurtenances to be located within the Abbey Grove residential subdivision. Miscellaneous valves, tees, controls, telemetry, and associated appurtenances are to be included to connect to Hillsborough County's South/Central reuse system.

Project Name: Hillsborough County Casey Lake Manors Reclaimed Water Distribution Project (L760)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Hillsborough County

District: Northwest Hillsborough Basin Board

Locale: Hillsborough County

Project Description: Construction of approximately 2,400 LF of 4-inch and 6-inch reclaimed water distribution pipelines and associated appurtenances to be located within the Casey Lake Manors residential subdivision. Miscellaneous valves, tees, controls, and telemetry are to be included to connect to Hillsborough County's Dale Mabry reuse system.

Project Name: Hillsborough County Bordeaux Village Reclaimed Water Distribution Project (L763)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Hillsborough County

District: Northwest Hillsborough Basin Board

Locale: Hillsborough County

Project Description: Construction of approximately 6,800 LF of 4-inch and 6-inch reclaimed water distribution pipelines and associated appurtenances to be located within the Bordeaux Village (Cheval) residential subdivision. Miscellaneous valves, tees, controls, and telemetry are to be included to connect to Hillsborough County's Northwest reuse system.

Project Name: Citrus County Brentwood Reclaimed Water Transmission Project (L768)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Citrus County

District: Withlacoochee River Basin Board

Locale: Citrus County

Project Description: Design, permitting, and construction of a reclaimed water transmission main to interconnect the Brentwood Wastewater Treatment Plant (WWTP) with the Meadowcrest WWTP, which will facilitate proposed service to Black Diamond Ranch. The pipeline will consist of 26,800 linear feet of pipe of which approximately 7,900 LF will be 16-inch and 18,500 LF will be 24-inch transmission main. The project also includes engineering services, a pump station, instrumentation, and related appurtenances sufficient to allow bi-directional flow management between the Brentwood and Meadowcrest facilities.

Project Name: Levitt & Sons South Brooksville Reuse System - Phase II (L781)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Levitt & Sons

District: Coastal Rivers Basin Board

Locale: Hernando County

Project Description: Design, permitting, and construction of a reclaimed water transmission main, a 2.3 million gallon lined storage pond and a 1 mgd pump station in the Phase II (Cascades) area of Southern Hills Plantation. The project includes approximately 7,157 linear feet of 12-inch and approximately 35,100 linear feet of 4-inch and 6-inch diameter reclaimed water lines. The transmission main will provide service to 925 residential customers as well as common area landscape irrigation in Cascades at Southern Hills Plantation.

Project Name: On Top of The World Marion County Reclaimed Water Project (L786)

Type of Alternative Supply: Wastewater Reuse

Cooperator: Bay Laurel Center Community Development District

District: Withlacoochee River Basin Board

Locale: Marion County

Project Description: Design, permitting, and construction of a reclaimed water storage and transmission system at the On Top Of The World. The project includes one 2.5 million gallon ground storage tank; installation of 3,500 linear feet (LF) of reclaimed water transmission mains; and conversion of the Bay Laurel Center Community Development District wastewater treatment plant (WWTP) to a reclaimed water pump station and storage facility. The project will provide reclaimed water to the four golf courses (three existing and one planned) and common areas in the development.

Project Name: WaterReuse Study of Reclaimed Water Following Storage & Distribution (P694)

Type of Alternative Supply: Wastewater Reuse

Cooperator: WaterReuse Foundation/Southwest Florida Water Management District

District: Governing Board

Locale: District-wide

Project Description: This study is to understand and prevent adverse changes in reclaimed water quality that may occur during seasonal storage and distribution.

Project Name: WaterReuse Reclaimed Water Study of Soil Aquifer Treatment (P695)

Type of Alternative Supply: Wastewater Reuse

Cooperator: WaterReuse Foundation/Southwest Florida Water Management District

District: Governing Board

Locale: District-wide

Project Description: This study is to develop the scientific information necessary to understand the ability of soils and the aquifer to treat or remove undesirable organic chemicals in reclaimed water.

Project Name: WaterReuse Reclaimed Water Study of Wetlands Treatment (P696)

Type of Alternative Supply: Wastewater Reuse

Cooperator: WaterReuse Foundation/Southwest Florida Water Management District

District: Governing Board

Locale: District-wide

Project Description: This study is to develop the scientific information necessary to understand the ability of wetlands to treat or remove undesirable organic chemicals in reclaimed water.

Project Name: Brandon/South Central Connection

Type of Alternative Supply: Water Supply Pipeline

Cooperator: Tampa Bay Water

District: Pinellas-Anclote River, NW Hillsborough, Hillsborough River, Alafia River, Coastal Rivers, Withlacoochee River Basin Boards and Governing Board.

Locale: Hillsborough County

Project Description: Approximately 6.2 miles of 30-inch diameter pipeline to connect the Brandon Urban Dispersed Wells project to the existing South Central Hillsborough Regional Wellfield. The pipeline will integrate the wellfield into the regional water supply system.

Project Name: Enhanced Surface Water System

Type of Alternative Supply: Surface Water Supply

Cooperator: Tampa Bay Water

District: Pinellas-Anclote River, NW Hillsborough, Hillsborough River, Alafia River, Coastal Rivers, Withlacoochee River Basin Boards and the Governing Board.

Locale: South Hillsborough County

Project Description: This project combines surface water from the Tampa Bypass Canal, Hillsborough River, and Alafia River with storage in a proposed 15 billion gallon off stream reservoir and treatment from a new surface water treatment plant to produce 66 mgd (maximum) of potable supply.

Project Name: North-Central Hillsborough Intertie

Type of Alternative Supply: Water Supply Pipeline

Cooperator: Tampa Bay Water

District: Pinellas-Anclote River, NW Hillsborough, Hillsborough River, Alafia River, Coastal Rivers, Withlacoochee River Basin Boards and the Governing Board.

Locale: Hillsborough County

Project Description: Approximately 12.5 miles of 84 inch diameter steel pipeline. This pipeline will convey water from the new regional water treatment facility to Tampa Bay Water's regional distribution system.

Project Name: Seawater Desalination I

Type of Alternative Source: Seawater Desalination

Cooperators: Tampa Bay Water

District: Pinellas-Anclote River, NW Hillsborough, Hillsborough River, Alafia River, Coastal Rivers, Withlacoochee River Basin Boards and the Governing Board.

Locale: South Hillsborough County

Project Description: This project involves construction and operation of a 25 mgd (expandable to 35 mgd) reverse osmosis seawater desalination facility at the Tampa Electric Big Bend Power Plant.

CHAPTER 5

Five-Year Water Resource Development Work Program

I. Introduction/Purpose

The District is required to update its Five-Year Water Resource Development Work Program (Program) as a part of its annual budget reporting process, pursuant to Subsection 373.536(6), F.S. *“The program must describe the district's implementation strategy for the water resource development component of each approved regional water supply plan developed or revised under s. 373.0361. The work program must address all the elements of the water resource development component in the district's approved regional water supply plans.”* (Subsection 373.536(6), F.S.) This report represents the District's sixth Five-Year Water Resource Development Work Program and covers the period from FY2007 through FY2011. This Program is consistent with the 2006 Regional Water Supply Plan (RWSP) and identifies projects within the ten-county area of the District, extending from Pasco County south to Charlotte County.

II. Water Resource Development

Chapter 373, F.S. defines **water resource development** as *“the formulation and implementation of regional water resource management strategies, including the collection and evaluation of surface water and ground-water data; structural and nonstructural programs to protect and manage water resources; the development of regional water resource implementation programs; the construction, operation, and maintenance of major public works facilities to provide for flood control, surface and underground water storage, and ground-water recharge augmentation; and related technical assistance to local governments and to government-owned and privately owned water utilities.”* (Subsection 373.019(19), F.S.). The intent for water resource development projects is to enhance the amount of water available for water supply development. The District is primarily responsible for water resource development projects. The water resource development component of the District's RWSP identifies a series of data collection and analysis activities the District is undertaking which meet this statutory definition. The implementation strategy for this water resource development category is contained in Section II.A of this report.

In addition, for purposes of annual budget reporting, the Executive Office of the Governor has more narrowly defined water resource development “projects” as “regional projects designed to create, from traditional or alternative sources, an identifiable, quantifiable supply of water for existing and/or future reasonable beneficial uses.” Section II.B of this report identifies the implementation strategy for this more narrowly defined category of projects.

A. Water Resource Development (Data Collection and Analysis)

The District has budgeted significant funds in FY2007 to implement the water resource development component of the RWSP. The activities summarized in Table 1 are mainly data collection and analysis activities that support water supply development by local governments, utilities, regional water supply authorities and others. The Table indicates that over \$53 million will be allocated each year toward these activities between FY2007 and FY2011 for a total of approximately \$269 million. Because budgets for the years beyond FY2007 have not yet been developed, funds for FY2008 through FY2011 were set equal to FY2007 funding. This is a practical approach because even though funding for each activity is expected to vary somewhat each year, the total cost of data collection and analysis activities for each fiscal year is expected to remain relatively constant through 2011. Funding for these activities is from the District's Governing Board and Basin Boards, water supply authorities, local governments, and the U.S. Geological Survey (USGS). Following Table 1, each of the projects is further described.

Table 1. Major Water Resource Development Data Collection and Analysis Activities

Project	FY2007 Costs (\$)	FY2008 Costs (\$)	FY2009 Costs (\$)	FY2010 Costs (\$)	FY2011 Costs (\$)	Total Costs (\$)	Funding Source
1) Hydrologic Data Collection	\$3,895,772	\$3,895,772	\$3,895,772	\$3,895,772	\$3,895,772	\$19,478,860	SWFWMD, USGS
2) Regional Observation Monitoring Program	\$2,259,197	\$2,259,197	\$2,259,197	\$2,259,197	\$2,259,197	\$11,295,985	SWFWMD, local partnerships
3) Quality of Water Improvement Program	\$776,862	\$776,862	\$776,862	\$776,862	\$776,862	\$3,884,310	SWFWMD
4) Flood Control Projects							
a) Data Collection	Included in Hydrologic Data Collection	Included in Hydrologic Data Collection	Included in Hydrologic Data Collection	Included in Hydrologic Data Collection	Included in Hydrologic Data Collection		SWFWMD, USGS
b) Remediating Existing Problems	\$38,869,936	\$38,869,936	\$38,869,936	\$38,869,936	\$38,869,936	\$194,349,680	SWFWMD, local govt. cooperators
c) CWM Initiative	\$2,681,323	\$2,681,323	\$2,681,323	\$2,681,323	\$2,681,323	\$13,406,615	SWFWMD
d) Lake Levels/MFLS Program	\$3,959,970	\$3,959,970	\$3,959,970	\$3,959,970	\$3,959,970	\$19,799,850	SWFWMD
5) Hydrologic Investigations							SWFWMD, USGS, local govt. cooperators
a) USGS Hydrologic Studies	\$718,200	\$718,200	\$718,200	\$718,200	\$718,200	\$3,591,000	SWFWMD/USGS
b) Water Resource Assessment Projects	\$676,557	\$676,557	\$676,557	\$676,557	\$676,557	\$3,382,785	SWFWMD/USGS
Totals	\$53,837,817	\$53,837,817	\$53,837,817	\$53,837,817	\$53,837,817	\$269,189,085	

Source for FY2007: SWFWMD FY2007 Summarized Programmatic Activities Report

1) Hydrologic Data Collection - (Chapter 7 of the RWSP). The District has a comprehensive hydrologic conditions monitoring program. This program includes data collected by District staff and permittees, as well as data collected as part of the District's cooperative program with the USGS. Data collected from this program allow the District to gauge changes in the health of the water resource, monitor trends in conditions, identify and analyze existing or potential resource problems, and develop programs to correct existing problems and prevent future problems from occurring. The primary hydrologic conditions that are monitored include rainfall, evapotranspiration, lake levels, discharge and stage height of major streams, ground-water levels, various water quality parameters of both surface and ground water (including springs), and water use. In addition, the District monitors ecological conditions as they relate to both potential water use impacts and changes in hydrologic conditions. The District also monitors data submitted by Water Use Permit (WUP) holders to ensure compliance with permit conditions and to assist in monitoring hydrologic conditions.

2) Regional Observation Monitoring Program (ROMP) - (Chapter 7 of the RWSP). This program has increased the density of the District's ground-water monitoring network since the mid-1970s by constructing additional monitor wells. The data from these monitoring sites are used to evaluate seasonal and long-term changes in ground- water levels and quality, and the interaction and connectivity between ground- and surface-water bodies. The ROMP also performs geophysical logging on existing wells to provide needed data on well construction and water quality, most of which is incorporated into the District's Geographic Information System (GIS) database. Impacts resulting from increased water demand over the past 30 years have been documented and assessed through analysis of ground-water data. These impacts directly affect the District's planning, regulatory policies and programs. For example, ground-water data are used during the permitting process to model potential impacts of new uses. This information is also used to monitor existing permittees to prevent them from significantly impacting natural systems and existing legal users. Construction of new monitor wells also provides the opportunity to collect valuable technical information such as the geologic core that is recovered from various depths and water quality, and potentiometric levels. From these data, aquifers and confining units are delineated, location of the freshwater/saltwater interface is determined and water quality within aquifers is characterized. The installation of long-term ground-water monitoring sites for the next few years will continue to target the District's Water Use Caution Areas (WUCA). This will provide additional data for the Water Resource Assessment Projects (WRAP), well performance data for wellhead protection projects and the aquifer characteristics inventory.

3) Quality of Water Improvement Program (QWIP) – (Chapter 7 of the RWSP). The QWIP was established in 1974 through Chapter 373, F.S., to restore ground-water conditions altered by well drilling activities. The QWIP's primary goal is to preserve ground- and surface-water resources through proper well abandonment. Plugging abandoned artesian wells eliminates the waste of water at the surface and the degradation of ground water from inter-aquifer contamination. Wells constructed prior to current well construction standards are often deficient in casing and expose several aquifers of varying water quality to one common wellbore. Thousands of these wells are in existence and they allow potable water supplies to be contaminated with mineralized water from deeper aquifers. Contaminated water and potable water can flow to the surface, which wastes water and can contaminate surface water.

Plugging wells involves filling the abandoned well with cement. Confinement is thus reestablished and mixing of varying water qualities and free flow is stopped. Prior to plugging an abandoned well, the well is geophysically logged to determine the proper plugging method and to provide back ground-water quality and geologic data for inclusion in the District's

database. These data are used in the WRAP studies discussed later to determine changes in water quality. The emphasis of this program is primarily in the coastal portions of the Southern Water Use Caution Area (SWUCA) where the aquifer is confined and flowing wells can exist. Chapter 373, F.S., requires that artesian systems, those areas where water in a well will rise naturally above the confining unit, be specifically addressed.

Historically, the QWIP has proven to be a cost-effective method to prevent waste and contamination of potable water resources, both ground and surface waters. In January 1994, the District increased QWIP funding as an incentive for property owners to comply with well plugging requirements contained in the Florida Statutes.

4) Flood Control Projects – (Chapter 7 of the RWSP). The District undertakes a number of flood protection activities. These activities include data collection, remediation of existing flood protection problems, the Comprehensive Watershed Management (CWM) initiative, and lake levels program. Each of these flood protection efforts is described below:

- a) **Data Collection** - Data collection related to flood protection includes the regular assembly of information on such key indicators as rainfall, water levels and stream flows. The District's capability to assist in flood control has continued to improve during the past several years with the expansion of the District's Supervisory Control And Data Acquisition (SCADA) system. This computerized data collection system comprises the cornerstone of the District's flood data collection, through a Districtwide network of more than 231 real time and data logger water level and rainfall data collection stations. The term "real time" means that the data are available within minutes of being measured, whereas data logger means that the data can be captured electronically if queried by computer.

The SCADA system provides an early warning mechanism that allows flood problems to be anticipated by observing water level and rainfall trends. This information, which is automatically transmitted to District headquarters by radio, allows the District to operate its structures much more effectively during rainfall events and provides limited capability to remotely operate gates at water control structures. The system was designed with several fail-safe components to keep it operational during major storm events, when traditional communication lines may be inoperable.

The amount and detail of rainfall and stream level data now available for use by modelers has expanded significantly in recent years. In addition to the 134 rainfall sites on SCADA, the District operates 46 other recording rainfall gauges without telemetry. These instruments record rainfall accumulations every 15 minutes transmitting data hourly or daily. More recording rain gauges are being installed to develop a dense, Districtwide network of precipitation data.

The USGS monitors flow on all major rivers and streams in west-central Florida during the past few years, mostly through a cooperatively funded program with the District. The USGS has instrumented 134 surface water sites on these rivers and streams with data collection instruments that have the capability to relay data in near-real time by satellite. These data are posted on the USGS' Internet Web site, increasing accessibility for the many entities that use this information.

- b) **Remediating Existing Problems** - While much of the District's focus is on prevention, existing flood problem areas can be addressed in numerous ways. The District is

working with local governments through the Watershed Management Coordination Initiative to set priorities for remedial actions to address existing problems. Such actions may include conveyance improvements, creation of flood storage, relocation of structures out of flood prone areas, or other initiatives. Much of the funding for these projects is provided through the District's Basin Boards. Projects can be funded entirely by the Basin Board or shared equally between the Basin Board and a local cooperator.

- c) CWM Initiative - This program is more fully described in the Watershed Management Chapter of the District Water Management Plan. With regard to flood protection, CWM provides a comprehensive analysis of surface water hydrology and flooding issues for each of 11 major watersheds in the District. At a broad scale, CWM analyses help to identify existing problems and potential future problem areas through use of GIS technology and local involvement, and develop cross-disciplinary solutions. A significant component of implementing the CWM initiative is building the necessary decision support systems at the District. Technological enhancements are a critical component of this effort. The Water Management Information System (WMIS) will support the CWM initiative by integrating permitting and regulatory data with other spatial and temporal resource data in a web-based geographic information system that uses a unified data source to allow streamlining and improvement of District work processes.
- d) Lake Levels Program - The District's Lake Levels Program, established in the 1970s, has provided adopted management levels for over 400 lakes throughout the District. Flood stage information from this program is used by many local governments in regulating development adjacent to lakes, as well as by the District in public flood protection education efforts. Information relative to flood protection from the Lake Levels Program is contained in the District publication, Flood-Stage Frequency Relations for Selected Lakes. This report, a compilation of flood level information for all lakes for which it is available, has been distributed to numerous local governments and is available from the District upon request.

The Lake Levels Program merged with the District's Minimum Flows and Levels (MFLs) program in an effort to expand and enhance the management and protection of surface and ground-water resources.

5) Hydrologic Investigations – (Chapter 7 of the RWSP). Hydrologic investigations include USGS Hydrologic Studies and detailed District studies entitled WRAPs, each of which are described below:

- a) USGS Hydrologic Studies - The District has a long-term cooperative program with the USGS to collect hydrologic data and conduct regional hydrogeologic investigations. The goals of this program are to monitor for changes in the hydrologic system and improve the understanding of cause and effect relationships. Funding for this program is generally on a 50/50 cost share basis with the USGS. However, this varies based on whether other cooperators are involved in the project and if requests for non-routine data collection or special project assignments are implemented.

Hydrologic data collection is a large part of the cooperative program and is closely coordinated with the District's Hydrologic Data Section. The USGS provides ongoing monitoring of 134 surface-water sites within the entire District.

Regional investigations of the hydrogeology of the District are an important aspect of the cooperative program. These investigations are intended to augment work conducted by District staff and are focused on improving the understanding of cause and effect relationships and developing analytical tools to be used in resource evaluations. In the past these investigations have included: 1) development of computer models of the regional ground-water flow systems for the District, Highlands Ridge WUCA, Hardee and DeSoto counties, Cypress Creek, Cross Bar, and Morris Bridge wellfields, and the St. Petersburg aquifer storage and recovery (ASR) site, 2) detailed analysis of the hydrologic budgets for two benchmark lakes (Lucerne and Starr), 3) hydrogeologic characterization of the intermediate aquifer, and 4) hydrologic assessments of the Peace and Alafia Rivers.

In recent years, this program has included projects to determine the effects of using ground water to augment stressed lakes and investigation of factors influencing coastal spring flows. Ongoing projects include: evaluation of the effects of using ground water for supplemental hydration of wetlands; hydrogeologic characterization of the intermediate aquifer system (IAS); use of ground-water isotopes to estimate lake seepage; statistical characterization of lake level fluctuations; and investigation of the hydrology of the upper Hillsborough River Basin.

- b) Water Resource Assessment Projects (WRAPs) - In the late 1980s, the District initiated a program to conduct WRAPs to assess water availability in several regions and to support the development and establishment of MFLs. These projects are detailed assessments of regional water resources and include intensive data collection and monitoring to characterize hydrologic conditions and determine effects of water withdrawals. There are five areas in the District for which WRAPs have been initiated. The first three WRAPs were initiated in the late 1980s and early 1990s for the Northern Tampa Bay (NTB), Eastern Tampa Bay (ETB), and Highlands Ridge (HR) areas. These projects were initiated in response to falling lake levels, drying of wetlands, and the increased landward movement of the freshwater/saltwater interface. In the mid-1990s, a fourth WRAP was initiated that covered the southern portion of the District and encompassed both the ETB and HR WRAPs. A fifth WRAP is being conducted for the northern portion of the District, primarily focusing on areas north of Pasco County. The data collection element for the Northern District WRAP was initiated in 1998 to provide baseline hydrologic conditions. The ETB WRAP was completed in 1993 and the NTB WRAP was completed in 1996. The Southern District WRAP is still ongoing, but a ground-water flow model is complete. The Northern District WRAP program is scheduled to be complete by the end of 2010. Completion of these projects provides the foundation for determining water availability and can assist in the establishment of MFLs. Once the studies are completed, water resource management programs established in these areas can be modified as necessary.

In 1999, the District initiated the NTB Phase II investigation as a follow-up to the NTB WRAP. Through a series of projects, this study will continue assessments of the biologic and hydrologic systems in NTB to support the ongoing development of MFLs, water resources recovery, water use permitting, and environmental resource permitting. Projects will include the further development of MFLs methodologies, assessments of various techniques for restoring water levels in surface water features, and expanded biologic and hydrologic data collection. These studies will continue through 2010.

A key component of the NTB Phase II study is the extensive network of hydrologic and biologic data collection sites. The significant data collection network currently maintained by the District, Tampa Bay Water (TBW), and local governments will be reassessed, updated, and expanded as part of the study. Impacts to surface water features are generally the most limiting factor to water supply development in the NTB area. Because the data from monitoring sites in surface water features will form the basis of decisions concerning key water management issues, it is critical that data in the NTB area be collected for various types of systems, and spread throughout the study area. Specific target areas for expansion and upgrade include hydrologic and biologic data collection in a wider variety of wetland types, increased spatial coverage of wetland and nested aquifer monitor wells and staff gauges, and data collection in areas of minimal hydrologic impacts for control purposes. Upon completion, the District and TBW's combined network is projected to include over 600 wetland monitoring sites and over 500 aquifer monitoring sites.

B. Water Resource Development “Projects”

The District currently has 18 projects that meet the more narrow definition of water resource development “projects.” The total cost of these projects is approximately \$72.6 million and a minimum of 42 mgd of additional water supply will be produced or conserved. The District has allocated just over \$4.7 million for these projects in FY2007. Beyond 2007, it becomes difficult to accurately determine the amount of funding that will be allocated to the projects each year. Several of the projects will not be completed by 2011 and a significant portion of the funding will also not be spent by 2011. District funding for a number of these projects is matched to varying degrees by local cooperators, including local governments, regional water supply authorities and others. In addition, a number of projects have received state and federal funding. District funds for these projects are being generated through a number of different mechanisms described in Section IV of this report. Following Table 2, each of the projects is described in detail.

Table 2. Total Project Cost and FY2007 - FY2011 District Funding for Water Resource Development Projects

Project	Total Prior District Funding (\$)	FY2007 District Cost (\$)	FY2008 District Cost (\$)	FY2009 District Cost (\$)	FY2010 District Cost (\$)	FY2011 District Cost (\$)	Total Cost District + Cooperator	Funding Source	Quantity to be Developed or conserved (mgd)
1) Alternative Water Supply Research and/or Pilot Projects									
a) Potential ASR in Avon Park Formation	0	76,662	72,000				148,662	SWFWMD	N/A
b) Natural Treatment of Wastewater/Stormwater Phases I & II	592,161	18,095					1,157,914	FIPR SWFWMD	TBD
c) Section 21 Wellfield Rehydration Pilot Project	438,714	3,963					1,703,214	TBW SWFWMD	TBD
d) Starkey Wellfield Rehydration Pilot Project	264,018	4,681					510,794	TBW SWFWMD	TBD
e) USGS-Hydrogeology & Quality of GW in Highlands	0	22,330	20,000				582,330	USGS, SFWM, Highlands, SWFWMD	N/A
f) Polk Co Util Lower FL Exploratory/Test Well	422,890	0					835,489	Polk Co SWFWMD	TBD
g) Cypress Creek Wellfield	1,055,516	11,496					2,775,792	TBW SWFWMD	TBD
h) SWUCA – Pilot Lake Augmentation	100,000	0					680,000	SWFWMD	TBD
i) Eval of Arsenic processes during ASR activities PRMRWSA Wells City of Tampa Wells ASR Pretreatment Invest.	525,000 472,000 239,300	0 0 36,854					1,050,000 944,000 276,154	SWFWMD & local partnerships	N/A
2) Agricultural Water Supply/Environmental Restoration Projects									
a) Irrigation Well Back Plugging Program	1,141,234	158,879					1,300,113	SWFWMD FDACS	TBD
b) FARMS Program	7,811,248	1,626,414					9,507,537	SWFWMD State of FL	40.0
c) Mini-FARMS Program	0	75,000					125,000	FDACS SWFWMD	2.0
3) Restoration of Minimum Flows to the Upper Peace River									
a) L. Hancock Lake Level Mod.	2,314,929	703,087	*5,000,000	*5,000,000	*5,000,000	*5,000,000	22,968,318+	SWFWMD State of FL	TBD

Project	Total Prior District Funding (\$)	FY2007 District Cost (\$)	FY2008 District Cost (\$)	FY2009 District Cost (\$)	FY2010 District Cost (\$)	FY2011 District Cost (\$)	Total Cost District + Cooperator	Funding Source	Quantity to be Developed or conserved (mgd)
b) L. Hancock Outfall Structure P-11 Mod.	2,500,000	0					5,000,000	SWFWMD	N/A
c) L. Hancock Outfall Wetland Treatment System	15,809,574	70,187					16,429,764	SWFWMD State of FL Federal	N/A
d) Upper Peace River Res. Development Project	1,792,138	533,085					2,214,411	SWFWMD State of FL	TBD
e) Effect of Karst Devel. on Peace River Flow	562,254	124,112					1,442,771	USGS SWFWMD	N/A
f) Peace Creek Canal Watershed	1,646,693	1,304,528					2,956,753	USDA-NRCS SWFWMD, State of FL	TBD
Totals	37,687,669	4,769,373	5,092,000	5,000,000	5,000,000	5,000,000	72,609,016+		42.0+

Source: SWFWMD FY2007 Summarized Programmatic Activities Report

List of how Table 2 has been updated from the 2006 Work Program.

- a) New projects include 1a, Potential to use ASR in the Avon Park Formation, 1e, USGS - Hydrogeology and Quality of Ground Water in Highlands County, and 2c, Mini Farms. From last year under 1i, Evaluation of Arsenic Mobilization Processes during ASR activities was renamed ASR Pretreatment Investigation.
- b) Deleted projects include the Evaluation of ASR Systems and Tarpon Springs Preliminary Water Supply Feasibility Study because of completion.
- c) Funding from the Water Protection and Sustainability Trust Fund is indicated as State of Florida.
- d) Many of the projects included under 3) Restoration of Minimum Flows to the Upper Peace River will require substantial land acquisition. Expenditures for land purchases have totaled approximately \$52 million with final costs possibly exceeding \$100 million.

*From Regional Water Supply Plan 2006, funding budget estimate that will be distributed between projects 3) a, b, c, d, and f. Specific amounts have not yet been determined.

1) Alternative Water Supply Research/Pilot Projects

The following projects are research and/or pilot projects designed to further the development of the innovative alternative water sources described in the RWSP. These projects include: 1) research to develop methods to improve the water quality of Aquifer Storage and Recovery (ASR) systems (four projects), 2) a pilot-scale investigation of a wetland treatment system to treat storm water and reclaimed water for an ASR system, 3) two pilot-scale projects to determine the feasibility of rehydrating wetlands on wellfields with reclaimed water, 4) a study to update information on hydrogeology and water quality of the surficial, intermediate, and Floridan aquifer systems in Highlands County and assess long-term water resource trends, 5) a pilot project to augment lake levels to address minimum levels, 6) an evaluation of rehydrating wetlands with stormwater and 7) a pilot project to look at developing ground water from the lower Floridan aquifer. Although these projects are, for the most part, relatively small scale, their successful completion may lead to their development as major sources of water supply for the future.

a) Potential ASR Use in the Avon Park Formation

Background – This study will evaluate the potential for ASR operation in the Avon Park Formation, which is not the injection zone typically used for ASR in the southern and central areas of the District. Investigators from the University of South Florida (USF) Geology Department will conduct a detailed mineralogical and chemical investigation of the Avon Park Formation that will culminate in an ASR operation model. Compounds that are regulated by primary and secondary drinking water standards will be considered, with an initial focus on arsenic and its identified source, pyrite. ASR is an important alternative resource that is integral to water resource management in the SWUCA, and the District has funded several ASR installation projects as well as ASR investigative studies. There have been growing concerns about the quality of water retrieved from the current injection zone, the Suwannee Limestone. Elevated arsenic concentrations have been consistently discovered in injectate that is stored and recovered from the Suwannee Limestone. The results of this study will be an important tool that can be used to evaluate future ASR development in the SWUCA.

Linkage to the Regional Water Supply Plan – One of the principal components of the surface water and reclaimed water alternative source projects discussed in the RWSP is storage because the availability of these sources is seasonally dependent. The success of ASR will be critical to the future development of surface water and reclaimed water sources and will affect the District's ability to meet future demands. This project will further the development of ASR systems by addressing the problem of mobilization of constituents in the aquifer that contribute to the recovery of a lower quality of water. These types of projects are mentioned in Chapter 7 of the RWSP, and are critical components of the District's strategy to develop ASR on a large scale.

Status – This study will be composed of the following tasks: descriptions of existing cores; sample collection; chemical analysis and interpretation of cores; collection and analysis of Avon Park Formation ground water; and modeling a range of ASR scenarios using the collected data.

Future Actions – This principal investigator for the project, Dr. Thomas Pichler with USF, is preparing a detailed scope of work and budget for the project. The District's project manager is preparing the necessary contract documents.

b) Natural Treatment of Wastewater/Stormwater Project

Background – This is a New Water Sources Initiative, initiated in FY1999, to investigate the potential for treating stormwater and treated wastewater effluent using a combination wetland and tailing sand filter basin (wetland-basin system) located on previously mined phosphate lands. The ultimate intent is to produce reliable quantities of high quality water that could be used as a source of water for an aquifer recharge/recovery well. Phase 1 was the design, construction and testing of the wetland-basin system. A final report entitled "*Pilot Project to Test Natural Water Treatment Capacity of Wetland and Tailing Sand Filtration on Mined Phosphate Lands*" was submitted to the District in March 2005. Water quality test results indicate that effluent from the wetland-basin system currently meets 134 of the total 140 state drinking water standards for chemicals. With the exception of total coliform, the remaining five parameters that do not meet standards are secondary drinking water parameters. The second phase of this project will consist of tasks that will be performed to improve treatment efficiency and effectiveness of the system. Also, additional data collection and laboratory testing tasks will be initiated to examine the potential for metal--specifically arsenic--mobilization in the limestone aquifer using water produced from the wetland-basin system. The low oxygen concentrations observed in the water may prevent or inhibit the dissolution of pyrite which commonly occurs during recharge; however, further investigation and testing are needed to substantiate this. The results and data collected from this new task will provide important and relevant information for all existing and future aquifer recharge/recovery and ASR projects in the District.

Linkage to the Regional Water Supply Plan – The treatment of wastewater and storm water to drinking water standards using wetlands treatment systems has tremendous potential to cost-effectively treat large volumes of water for storage in ASR systems or for aquifer recharge. This project is specifically referred to in the RWSP in Chapter 7.

Status – Tasks completed on this project have been predominantly related to the continued repairs and modifications of the treatment site needed to get the site operational again. Existing pumps and sensors within the filter basin and the wetland are currently under repair or will be replaced. Water quality samples from the cooling pond, wetland and filter basin were also collected and analyzed in the field for a variety of parameters including conductivity, salinity, turbidity, dissolved oxygen, oxidation-reduction potential, iron, chloride and sulfate.

Future Actions – The consultant has also been working with a local university to prepare for the bench testing. USF has purchased equipment and constructing test structures that will be used to help determine the water-rock interactions and major reaction steps occurring for each length. A meeting was held between project cooperators to discuss adding an additional task to the project to investigate the potential impacts of using Ultraviolet technology.

c) Section 21 Wellfield Rehydration Pilot Project

Background – The objective of this project is to investigate the feasibility of using storm water and reclaimed water to rehydrate stressed and impacted wetlands on the Section 21 wellfield in Hillsborough County, and to determine the effects of this type of rehydration on water levels, water quality and wetland health. A key component of the pilot project is the Resource Assessment (RA). The purpose of the RA is to measure the probability and level of possible public health consequences associated with rehydrating surface features on the wellfield with surface water and/or reclaimed water. The RA is focusing mainly on the potential risks associated with chemical and microbiological contaminants found in the source waters through the wellfield's surface and ground-water systems. Depending on the results of the RA and the

determination of the risks involved, Tampa Bay Water, regulatory agencies, and other stakeholders will decide whether to go forward with the rehydration project. If the project proves to be feasible, the same approach can be taken at other wellfields to rehydrate wetlands that have been impacted by ground-water withdrawals.

Linkage to the Regional Water Supply Plan – One of the goals for the development of reclaimed water as an alternative water source, as stated in the District's RWSP, is to maximize the utilization of reclaimed water by making full use of excess wet-weather flows. This project is discussed in Chapter 7 of the RWSP. The District is working to achieve this goal by storing the excess reclaimed water in ASR systems for recovery and use in the dry season. Additional wet-weather flows will be used for the recovery of natural systems and recharge of the aquifer. This project involves the use of reclaimed water to rehydrate natural systems that have been stressed through excessive ground-water withdrawals. This project concept is referred to in Chapter 6 of the RWSP.

Status – TBW continues to perform rehabilitation work on the production wells at the Section 21 wellfield. Four of the five production wells have now been rehabilitated. The consultant has been working with USF to evaluate how water quality data should be resampled/analyzed for cryptosporidium (i.e., number of samples, species determination, risk assessment, etc.). A revised sampling plan was submitted by the consultant and approved for implementation by TBW. Samples were taken monthly for one year. A fifth amendment to the contract was drafted in September 2005 and was approved by Management Services in mid December 2005. The consultant conducting the work has been modifying the modeling portion of the RA using the newly acquired data, as well as collecting additional water quality samples. While data collection and analyses are essentially complete for this project, the report has yet to be completed. The consultant is currently working on this final portion of the project and expects to have a draft RA report in November 2006.

Future Actions – Rehabilitation work on the production wells at the Section 21 well field has delayed this project. After the RA is finalized in 2006, the decision will be made whether to proceed with design and construction of the project.

d) Starkey Wellfield Rehydration Pilot Project

Background – The purpose of this project is to investigate the use of reclaimed water on the Starkey Wellfield in Pasco County to recharge the surficial aquifer that in turn will provide recharge to the underlying Floridan aquifer. The water will be applied with an above-ground sprinkler system. A corollary benefit of recharging the surficial aquifer is that water may be available to rehydrate nearby wetlands. A portion of the sprinkler system has been installed and connected to Pasco County's reclaimed water transmission line and five surficial aquifer and three upper Floridan aquifer monitor wells have been installed. Data collection has begun on background conditions.

Linkage to the Regional Water Supply Plan – One of the goals for the development of reclaimed water as an alternative water source, as stated in the District's RWSP, is to maximize the utilization of reclaimed water by making full use of excess wet-weather flows. The District is working to achieve this goal by storing the excess reclaimed water in ASR systems for recovery and use in the dry season. This project is discussed in Chapter 7 of the RWSP. Additional wet-weather flows will be used for the recovery of natural systems and recharge of the aquifer. This project involves the use of reclaimed water to rehydrate natural systems that have been

stressed through excessive ground-water withdrawals. This project concept is referred to in Chapter 6 of the RWSP.

Status – This project is still on hold pending the determination that the application of reclaimed water to a wellfield area is feasible. The only activities consist of continued monitoring of water levels and geochemistry. TBW has learned that the cost of determining the safety of applying reclaimed water to the wellfield is on the order of \$250,000 and would involve a year of sampling/analysis with probably an additional six months to finalize a report. A similar scenario exists for the Section 21 reclaimed water project and sampling would not commence on the Starkey project until Section 21 is finished. Therefore, there will not be a decision made on the Starkey project for at least 1 1/2 to 3 years assuming that the decision to spend the additional \$250,000 is made. The additional funding would entail a contract amendment for the money as well as for the additional time required.

Future Actions – No decision has been made whether to proceed with the project. If the project moves forward, final construction of the system will probably be completed no later than 2008.

e) USGS - Hydrogeology and Quality of Ground Water in Highlands County

Background – This study will update information on hydrogeology and water quality of the surficial, intermediate, and Floridan aquifer systems in Highlands County and will assess long-term water resource trends. Water resources in Highlands County have not been comprehensively studied in the last 50 years (Bishop, 1956), and information gathering is essential to make knowledgeable water resource decisions in the SWUCA. This report will enable water resource managers to better evaluate current hydrologic conditions; define present-day baseline conditions; and identify what additional hydrologic data are needed. This is a three-phase study that investigators will complete by researching existing information, collecting new data, and generating a written report. In Phase 1 (FY2007), data will be compiled from area stakeholders, and it will be used to characterize current ground-water quality conditions, assess long-term trends, and identify data gaps. For Phase 2 (FY2008), ground-water levels will be measured; maps and hydrogeologic cross-sections will be developed; water level trends will be evaluated; and ground-water quality samples will be collected and analyzed. The results of the study will be published in a USGS Scientific Investigations Report during Phase 3 (FY2009).

Linkage to the Regional Water Supply Plan – Water supply continues to be a critical issue in the SWUCA, and this study compliments the District's water supply planning efforts. This technical investigation will enable the District and local governments to make knowledgeable decisions about area water needs and resources like those projects referenced in Chapter 2 of the RWSP.

Status – The contract for this new project was developed and is under review. Funding partners for this project include, along with SWFWMD, the SFWMD, USGS and Highlands County.

Future Actions – The initial task will be a hydrogeologic and water quality inventory and the identification of data gaps.

f) Polk County Utilities Lower Floridan Aquifer Exploratory/Test Production Well

Background – This project includes the construction of an exploratory/test production well to an estimated depth of 2,450 feet below land surface (bls) in northeast Polk County. A large portion of Polk County has been included as part of the SWUCA. The development of additional ground-water supplies from the Upper Floridan Aquifer (UFA) in and adjacent to the SWUCA is uncertain at best; and therefore, it is necessary for Polk County Utilities (PCU) to search for alternative water supplies in accordance with the District's RWSP and the District Water Management Plan (2000). The purpose of the exploratory well is two fold. Data will be collected on the hydrogeology and water quality of the aquifers and the confining units underlying the area during the construction and testing of the well to determine the viability of utilizing the lower Floridan aquifer (LFA) as a source of potable water. In addition, the data collected will allow both PCU and the District to better quantify the effects of ground-water withdrawals from the UFA on minimum flows and levels from the Surficial Aquifer (SA), wetlands, and surface water bodies. Data collection and testing will include lithologic samples from drill cuttings and cores, geophysical logging, performance of pumping tests to measure aquifer parameters of the UFA and LFA, and water quality analysis of samples from the LFA, and the confining units. A seven-day Aquifer Performance Test (APT) will be conducted on the exploratory well utilizing two UFA monitoring wells. The water quality of the LFA in the vicinity of the Northeast Regional Utility Service Area is unknown. Water samples from production wells completed in the LFA and located between 8.5 and 21 miles from the anticipated location of the exploratory/test production well show considerable variation in concentrations of key parameters including sulfate, dissolved solids, and chloride. The water quality data collected during this project will be invaluable for assessing the potential for LFA ground-water withdrawals by neighboring water purveyors, now and in the future. Based on production wells in the Orlando area that are completed in the LFA, the potential production capacity of the exploratory/test production well, which will be completed with a 16-inch diameter final casing to an estimated depth of 1,300 feet bls and open hole to 1,550 feet bls, is three to five million gallons per day. This will provide a substantial savings in ground-water withdrawal from the UFA for this service area.

Linkage to the Regional Water Supply Plan – This project is discussed in Chapter 7 of the RWSP. Water from the LFA represents a potential alternative to stressed ground water from the UFA as discussed in the RWSP, Chapter 5.

Status – Contractor has completed the SA monitor well and it is currently being used for a water supply well during construction of the other wells. The well is producing approximately 50 gallons per minute with approximately five feet of drawdown. Drilling contractor has begun drilling the Upper Floridan monitor well. Dredging sand from above has plagued drilling progress. Drilling contractor moved on to the deep exploratory well. The dredging of sand as in the previous location of the Upper Floridan well has plagued this well.

Future Actions – Contractor is continuing to work on problems associated with the Upper Floridan and deep exploratory well. Once those problems are addressed, testing will begin.

g) Cypress Creek Wellfield Surface Water Management Project

Background – The project objectives are to re-hydrate wetlands impacted by pumping from the Cypress Creek wellfield and reduce flooding problems in the adjacent Saddlewood and Quail Hollow subdivision areas. The project will remove conveyance restrictions caused by construction of roads, and enhance surface water storage within wetlands on the wellfield;

including implementation of portions of the Phase I Mitigation Plan under TBW's Consolidated Water Use Permit. All construction will take place on the wellfield public lands, including improvements on District-owned property. Professional engineering services for Best Management Practice (BMP) analysis through construction management is funded by TBW. The project involves the implementation of BMPs that includes design, construction document development, construction permitting, land acquisition, bidding and contractor selection, construction of the BMPs and construction engineering and inspection. Funding is included to complete the implementation of the BMPs. A cooperative funding expenditure agreement with TBW was developed for construction of BMPs.

Linkage to the Regional Water Supply Plan – This project is discussed in Chapter 7 of the RWSP. Re-hydration will enhance surface water storage within wetlands impacted from ground-water pumping, thus enabling higher production rates in the Cypress Creek Wellfield.

Status – Both parties executed the cooperative funding agreement. The Environmental Resource permit submittal for the project has been deemed complete, recommended for approval by staff, and was approved by the Governing Board in August 2006. Possible legal action and/or litigation by the Saddlewood homeowners association may delay the project.

Future Actions – Proceed with design and construction process.

h) Pilot Augmentation Project for Lake Lotela

Background – The goal of this project is to construct a pilot augmentation well and monitoring system to study the feasibility of ground-water augmentation to increase surface water levels in Lake Lotela, an 800-acre lake in the Upper Carter Creek Watershed in Highlands County. The project will be accomplished through augmentation of the lake with ground water from the surficial aquifer or the Floridan aquifer. The project will help ensure compliance with the minimum levels established for Lake Lotela. The first phase of the Lake Lotela pilot augmentation project will be to investigate the feasibility of augmenting the lake using ground water pumped from the surficial aquifer. The project will involve the purchase of approximately one to two acres of land within one-half mile of Lake Lotela; a feasibility analyses to determine surface water leakage to the aquifer and water quantities needed for augmentation; design and permitting; installation of a pilot well/pump system (one 16-inch diameter surficial well 150 feet deep); installation of three monitoring wells; installation of an evapotranspiration (ET) and a rain gauge site; and installation of a pipeline (2,000 feet) from the well to the lake.

Land acquisition will be pursued for the purpose of installing a surficial aquifer well for augmentation of the lake. A feasibility analysis to determine the quantity of water needed to maintain the lake stage at the minimum level will include development of appropriate water-budget parameters and an operations schedule. A preliminary water budget analysis indicates that approximately two to four mgd during dry weather conditions may be required for augmentation to overcome the vertical leakage to the Floridan aquifer and maintain the lake stage within the desired range of lake fluctuation in order to achieve the proposed minimum lake level. During wet periods, the rate will be low, probably less than two mgd.

The augmentation rate is not intended to overcome ET, since this is a natural component of the lakes water budget and is necessary to produce the natural lake fluctuation. It is anticipated that virtually all the augmentation water will return to the aquifer, since augmentation will not result in an appreciable increase in ET. If land is available, the location of the augmentation well will be laterally downgradient of the lake to recapture and recirculate lateral seepage from

the lake to the extent possible. Since there is a strong vertical flow component to the underlying aquifer, augmentation water that is not captured by the well will reach the Floridan aquifer relatively quickly.

Linkage to the Regional Water Supply Plan – This project is referenced in Chapter 7 of the RWSP. In response to a mandate from the Florida Legislature, the District has developed minimum levels to protect Lake Lotela and other regional lakes from significant harm that may be attributed to water withdrawals. The minimum levels proposed for Lake Lotela are intended to provide protection for cultural and natural system values associated with the lake. Developing the ability to augment Lake Lotela with ground water pumped from either the surficial aquifer or the Floridan aquifer will ensure that these values are protected. Implementation of the project will aid the restoration of water surface levels at Lake Lotela, and provide the necessary information to design the final augmentation system that will ensure compliance with proposed minimum levels.

Status – First Amendment to agreement was drafted to incorporate this project as a task under the Carter Creek Watershed Management Program. The agreement will be amended to incorporate changes to the language in the Scope of Work to include a water budget and changes to the total compensation amount by \$100,000.

Future Actions – Execute amendment and proceed with water budget analysis.

i) Evaluations of Arsenic Processes During ASR Activities

Background – Aquifer Storage and Recovery (ASR) is a technology that has great potential to increase the availability of water supplies in the southern half of the District where water resources are most stressed. In recognition of this, the District has committed significant financial and staff resources to assist water supply authorities, local governments, and the private sector to develop ASR systems. The regulatory requirements associated with ASR, however, have been evolving over the past 20 years in response to new issues discovered during the operation and testing of ASR systems. In particular, the U.S. Environmental Protection Agency (EPA) took action to lower the drinking water standard for arsenic from 50 micrograms/liter (ug/l) to 10 ug/l by January 1, 2006. Those recent changes prompted the DEP to implement new standards and criteria needed to test and/or operate an ASR system. The DEP now requires that all existing and proposed ASR systems demonstrate, through the installation and sampling of monitor wells, that elevated As concentrations do not pose a threat to the aquifer beyond a significant distance (generally 100 to 200 feet, and limited to the property boundary). Meeting the new, lower standard has been difficult to date. Three projects are ongoing to investigate the nature and extent of arsenic mobilization in the aquifer as a result of ASR operations.

- Peace River/Manasota Regional Water Supply Authority (PR/MRWSA) ASR Monitoring Well Program - This project is a cooperative effort by the District and the PR/MRWSA to construct and test up to 13 monitor wells at the PR/MRWSA's old and new ASR well fields. Following completion of the project, District staff will meet with the DEP to discuss project results and determine a course of action to ensure ASR can remain a viable water supply option now and in the future.
- City of Tampa ASR Monitoring Well Project - Cooperatively fund with the City of Tampa the construction and testing of up to five monitoring wells at the City's Rome Avenue ASR well field and one Avon Park monitoring well at the City's Woodland Terrace ASR site. To provide the data necessary to satisfy the DEP, a ground-water monitoring

program has been proposed using the Tampa Rome Avenue ASR well field as one of the test sites. A total of up to five Upper Floridan aquifer monitoring wells and one Avon Park monitoring well are proposed to be drilled at the Rome Avenue ASR well field and the Woodland Terrace ASR site, respectively. Geologic data and water quality data will be collected during the operation of the ASR system to determine the extent of elevated levels of arsenic in the aquifer.

- ASR Pretreatment Investigation - This project investigates methods to control arsenic mobilization in the Floridan aquifer resulting from ASR activities. Two consultant teams will investigate the probable mechanisms resulting in arsenic mobilization. Probable factors causing release of arsenic and options to minimize the release will be identified. Additionally, the Geology Department of USF will be contracted on an as-needed basis to analyze geologic cores collected from ASR sites funded by the District. The purpose of the analysis will be to determine the mineralogy of aquifer storage zones so that the sources of arsenic can be identified. The information developed from the project will provide input to geochemical analyses to identify the factors causing the release of arsenic during ASR activities.

Linkage to the Regional Water Supply Plan – One of the principal components of the surface water and reclaimed water alternative source projects discussed in the RWSP is storage because the availability of these sources is seasonally dependent. The success of ASR will be critical to the future development of surface water and reclaimed water sources and will affect the District's ability to meet future demands. These projects will further the development of ASR systems by addressing the problem of mobilization of arsenic in the aquifer that contribute to the recovery of a lower quality of water. These projects are identified in Chapter 7 of the RWSP.

Status –

- The PR/MRWSA ASR Monitoring Well Program - Monitoring well siting and permitting was completed in March 2005. Drilling of the monitoring wells started in April and was completed in July 2005. The newly installed wells have been sampled several times and the results from the first samples were received in July 2005. Additional samples have been collected and are currently being analyzed. Results from the first sample round were very encouraging since all the monitoring wells were below the arsenic standard for drinking water.
- City of Tampa ASR Monitoring Well Project - City of Tampa has completed drilling on all scheduled monitoring wells and is working on the final well construction report. Invoices for the project have not been received yet and are pending. Cycle testing at the Rome Avenue site and water quality sampling of the new monitoring wells is underway.
- ASR Pretreatment Investigation (previously know as Evaluation of Arsenic Mobilization Processes Occurring During ASR Activities) - Purchase order for the Florida Geological Survey (FGS) core analysis and leaching study has been issued. Each consulting team involved in the pre-treatment study is under contract with the District and both are scheduled to finish in September 2006. Draft task reports have been submitted for the majority of the work and are in the process of being reviewed. Geochemical modeling by the United States Army Corps of Engineers (USACE) has been delayed by a month and is due in October. The FGS core analysis and leaching study is behind schedule and has been extended by a year.

Future Actions –

- The PR/MRWSA ASR Monitoring Well Program - Construction activities are complete and the final invoices are being processed.

- City of Tampa ASR Monitoring Well Project - Results will be submitted in the upcoming DEP monthly monitoring reports. The City of Tampa will submit invoices for the project.
- ASR Pretreatment Investigation - Geochemical modeling, the FGS core analysis, and leaching study should be complete in 2007.

2) Agricultural Water Supply/Environmental Restoration Projects

These projects employ many of the agricultural water conservation strategies described in the RWSP to reduce ground-water withdrawals by increasing the water use efficiency of agricultural operations. The projects have the added benefit of reducing agricultural impacts to surface water features. The projects are public/private partnerships where the District provides financial incentives to farmers to increase the water use efficiency of their operations. These projects are specifically described in the RWSP, Chapter 7.

a) Irrigation Well Back-Plugging Program

Background – In the coastal and southern SWUCA, ground-water quality in the highly productive Floridan aquifer is generally marginal to poor. Investigations conducted by the District indicate that agricultural pumping in the highly productive zone of the Floridan aquifer can cause localized upward movement of mineralized ground water into irrigation wells. The use of mineralized ground water for irrigation reduces crop yield, corrodes pumping equipment, and degrades the water quality of downstream surface waters. Surface water quality impacts have been documented in the Shell, Prairie and Joshua Creek (SPJC) watersheds located in DeSoto and Charlotte counties. As a result, these watersheds are a priority area for the back-plugging program. Back-plugging is also an important management tool in other areas of the SWUCA where irrigation wells exhibit poor water quality. Back-plugging of these wells to a recommended depth helps sustain surface water quality, assists in maintaining ground-water resources, and facilitates improved crop yields.

Linkage to the Regional Water Supply Plan – This project is related to the District's QWIP which is described in Chapter 7 of the RWSP. Although the project is related to QWIP, it has a separate budget that is listed in Table 2. In addition, this project will help the District reach the agricultural water conservation goal (stated in the RWSP, Chapter 5) of nearly 40 mgd by the year 2025.

Status – The total number of back-plugged wells remains at 50, with 38 of the wells being located in the priority area of the SPJC watersheds. Water quality improvement is an average reduction in Total Dissolved Solids and chloride concentrations in SPJC are 55 percent and 68 percent, respectively. The well yields have been reduced in the back-plugged wells by an average of approximately 23 percent. Ten wells within the SWUCA but outside SPJC have been back-plugged with a reduction of approximately 31 percent.

Future Actions – Staff is identifying additional wells for back-plugging scheduled in 2007. The program continues to yield water quality benefits.

b) Facilitating Agricultural Resource Management Systems (FARMS Program)

Background – The purpose of FARMS is to implement agricultural BMPs within the SWUCA, with priority status given to the SPJC watershed and the upper Myakka River watershed. The program has been developed in cooperation with Florida Department of Agricultural and Consumer Services (FDACS) to achieve water quality improvements and reduce ground water

use in the region. FARMS projects provide benefits that include water quality improvement; reduced UFA withdrawals; and/or the conservation, restoration, or augmentation of water resources and ecology. The program is funded annually from state appropriations, FDACS, and the District Governing Board and Basin Boards. These funds are being used to develop projects that include tail-water recovery and increased irrigation efficiency practices. A portion of the state appropriation and District matching funds are allocated to support the SPJC Well Rehabilitation program.

Linkage to the Regional Water Supply Plan – FARMS is intended to assist with the implementation of the RWSP in that it is a public/private partnership that will help farmers improve the efficiency of their irrigation systems which will reduce the use of ground water in the SWUCA. In addition, this project will help the District reach the agricultural water conservation goal for the SWUCA of 40 mgd by the year 2025.

Status – There have been 26 board approved projects initiated in the Peace River and Manasota Basins. Of the 26 projects, twelve SPJC FARMS projects are complete, operational, and substantially reimbursed. To date, the 12 operational projects in SPJC have offset approximately 995,508,280 gallons of ground water with surface water at a rate of approximately 1.74 mgd. There are three FARMS project currently under construction within the SPJC area. One project, the McCarlton 2x4 Ranch, was terminated due to a land sale.

The Upper Myakka watershed is the other priority area for the FARMS Program. FDACS is the lead agency in the Upper Myakka. Currently, the District has approved funding for four projects, McClure Properties, Ltd. Cameron Dakin Dairy, ESDA Dairy, and Four Star/Clay Gulley. FARMS staff has also assumed management of the Falkner and PTG Surface Water Exchange Projects. These two operational projects have offset a total of 299,562,700 gallons since start up at a rate of approximately 1.77 mgd.

There are nine Board approved projects outside the Program's priority areas of SPJC and Upper Myakka. One project is operational, with an offset of 20,588 gallons and eight projects are under construction.

Future Actions – Future projects are a priority with FDACS and District staff in the Upper Myakka and SPJC watersheds. Staff is reviewing and developing over 20 potential project proposals within the SWUCA.

c) Mini-FARMS Program

Background – The District and FDACS agreed to design and implement a reimbursement program, following the general FARMS Program procedures, to directly assist smaller growers (generally defined as having irrigated acreage of less than 100 acres) on water resource projects that reduce water use. This new program, called the Mini-FARMS Program, is in the final stages of development and will be administered by FDACS, through contractual agreements with the local Soil and Water Conservation Districts. The District has proposed to provide funding assistance to FDACS in the amount of \$75,000 per year in support of the Mini-FARMS Program, beginning in FY2007. The cost share reimbursement rate will be capped at 85 percent of verified costs for eligible items, up to a maximum amount of \$8,000 per project. The Mini-FARMS Program will require an application process that District staff will review, along with FDACS and a contract with the applicable Soil and Water Conservation District. Potential Mini-FARMS Program cooperators will sign a "Notice of Intent" form that will be submitted to

FDACS staff to provide documentation that serves as proof of the applicant's intent to implement BMPs in accordance with Florida Statute 403.067(7)(c)2.

Linkage to the Regional Water Supply Plan – Mini-FARMS is intended to assist with the implementation of the RWSP in that it is a public/private partnership that will help farmers improve the efficiency of their irrigation systems which will reduce the use of ground water in the SWUCA. In addition, this project will help the District reach the agricultural water conservation goal for the SWUCA of 40 mgd by the year 2025.

Status – FDACS has received and approved 14 applications for Mini-FARMS projects. Seven projects are in Hillsborough County, three projects in Hardee County, two projects in Manatee County, and two projects in Polk County. Contracts are in place with the Hillsborough, Peace River, and Highlands Soil and Water Conservation Districts. All projects to date have been funded by FDACS. Request for 2007 District funding was approved by the Governing Board and Basin Boards in April 2006.

Future Actions – Future projects are a priority with FDACS and District staff in the Upper Myakka and SPJC watersheds

3) Restoration of Minimum Flows to the Upper Peace River

An important Chapter of the RWSP outlines the District's strategy for establishing MFLs for major water resources. The District is currently setting minimum flows for the Peace River. Surface-water drainage alterations, reduction in surface storage, long-term rainfall patterns and induced recharge due to ground-water withdrawals have all contributed to a reduction in low flows in the upper river. A requirement of minimum flow establishment is the development of a recovery strategy when actual levels are below or are anticipated to fall below established minimums. It is anticipated that actual flows will be below the minimum flows being proposed for the upper Peace River. These projects are key portions of the recovery strategy to restore minimum flows to the upper Peace River.

a) Lake Hancock Lake Level Modification

Background – Part of the proposed recovery strategy for the upper Peace River is to restore storage in Lake Hancock and release some of the water during the dry season to help meet the flow requirements. Historically, Lake Hancock fluctuated more than a foot higher than it has during the past several decades. This lowering was due to the dredging of the outfall canal in the early part of the last century. This project is evaluating the impact of replacing the District's outfall structure so that water levels can be maintained at higher levels. The evaluation is utilizing the regional flood study model recently developed in cooperation with Polk County for the Saddle Creek watershed

Linkage to the Regional Water Supply Plan – This project is specifically listed in Chapter 7 of the RWSP. This type of recovery project is referred to in a general sense in Chapter 3 of the RWSP as “implementing structural controls and/or augmentation systems to raise levels or flows in water bodies.”

Status – The Preliminary Evaluation Report for Lake Hancock by BCI, Inc., is complete and was provided to the Governing Board for action in October 2004. The target operating lake level recommended to the Basin Boards and approved by the Governing Board was 100.0 feet. With the approval of the Governing Board (October 26, 2004), District staff amended the contract and

entered into a Work Order with BCI Engineers and Scientists, Inc. to begin Step (2) of the project on November 3, 2004. This step entails the preliminary design and conceptual permitting of the Lake Hancock Modifications to raise the lake level from 98.7 feet up to 100.0 feet. Several meetings have occurred with North Central Land Fill (NCLF) staff since December 2004. The District has conducted pre-application meetings with DEP and the USACE regarding the project. The meetings were to familiarize DEP and the USACE with the project so that a near complete Conceptual Environmental Resource Permit (CERP) application can be submitted in 2006. District staff continues to meet and address questions raised by residents in the area. The Governing Board at their January 24, 2006 meeting authorized staff to submit a conceptual ERP application, as presented, to the DEP and the USACE to raise the control elevation up to 100 feet NGVD to help meet the low flow requirements of the upper Peace River, upon reaching agreement through a Memorandum of Agreement (MOA) with Polk County. The District presented the MOA between the NCLF and the District to the July 2006 boards and received approval of the agreement. Polk County has also approved the agreement.

Future Actions – The CERP application was submitted to DEP and the appropriate agencies for review. Once permits are approved, design of the structure modifications and any required mitigation projects can be initiated.

b) Lake Hancock Outfall Structure P-11 Modification

Background – This project proposes to restore storage in Lake Hancock by modifying or replacing the District's outfall structure so that water levels can be maintained at higher levels. This project will be coordinated with other Lake Hancock restoration efforts. In particular, there will be a supporting hydrologic analysis to determine which properties may need to be acquired due to risk of flood.

Linkage to the Regional Water Supply Plan – This project is specifically listed in Chapter 7 of the RWSP. This type of recovery project is referred to in a general sense in Chapter 3 of the RWSP as “implementing structural controls and/or augmentation systems to raise levels or flows in water bodies.”

Status – This project cannot go forward until the previous project, the Lake Hancock Lake Level Modification Project, is completed.

Future Actions – None at this time.

c) Lake Hancock Outfall Wetland Treatment System

Background – This project is investigating the development of a wetland treatment system to improve water quality leaving the lake. The location has yet to be determined, but it may be at the southern end of the lake, immediately above the outfall structure, or downstream of the structure, or a combination of both. A plan utilizing a treatment system below the structure (which is highly probable) will necessitate the purchase of lands for construction of the treatment wetland, which may be several hundred acres in size. Water quality leaving Lake Hancock has been documented as a major source of poor water quality in the upper Peace River. There is evidence that this poor water quality affects the River all the way down to Charlotte Harbor and is a concern of public water supplies from the river. Funding for this project is to be from Florida Forever Trust funds set aside for water resource development projects such as this.

Linkage to the Regional Water Supply Plan – This project is specifically listed in Chapter 7 of the RWSP. This type of recovery project is referred to in a general sense in Chapter 3 of the RWSP as “implementing structural controls and/or augmentation systems to raise levels or flows in water bodies.”

Status – The project was presented to the full Governing Board on February 21, 2006. Two action items were approved by the Board and they are: (1) an annual nitrogen load reduction from surface water discharges from Lake Hancock of 27 percent and (2) selection of treatment wetlands as the technology to achieve this goal. The project results were presented to the Peace River Basin Board in April and the action items were approved. In addition, the Basin Board was informed of the scope and budget for the next consultant work order. Consultant Work Orders issued to date for Task 1 (Research, Monitoring and Data Acquisition) and for the initial phase of Task 2 (Feasibility Study) total \$500,000. The next work order will include geotechnical testing, constructability testing and basis of design report for a total not to exceed \$509,000.

Future Actions – Begin geotechnical testing, constructability testing and basis of design report.

d) Upper Peace River Resource Development Project (now includes the Upper Peace River Minimum Flow Enhancement Feasibility Study and the Hydraulic Reconnection of Non-Mandatory Phosphate Lands Project)

Background – This project involves the identification and evaluation of potential water resource development projects in the upper Peace River watershed. The vehicle to accomplish this is the District's Watershed Management Program (WMP). The project includes performing the 1) Topographic Information, 2) Watershed Evaluation, and 3) Watershed Management Plan elements of the WMP. FY2007 funds will be used to perform Watershed Evaluation and Watershed Management Plan tasks for the area between Homeland and Zolfo Springs, and future funding will be used to complete the Watershed Evaluation and Watershed Management Plan tasks. Preferred BMPs will be further developed through the Implementation of BMPs process under separate activity codes, and will require additional funding. The water resource development projects that are ultimately selected for implementation will enhance low flows, water quality, and natural systems within the upper Peace River.

Linkage to the Regional Water Supply Plan – This project is specifically listed in Chapter 7 of the RWSP. This type of recovery project is referred to in a general sense in Chapter 3 of the RWSP as “implementing structural controls and/or augmentation systems to raise levels or flows in water bodies.”

Status – Ardaman and Associates has been assigned to this project. Issuance of the Notice to Proceed for Work Order #2, Geotechnical Testing, was temporarily delayed while staff negotiated an access agreement with the affected property owner. Notice to Proceed for Work Order #2 was provided on January 9, 2006. Notice to Proceed for Work Order #3 for the Watershed Evaluation above Homeland was issued on November 17, 2005. Delay of Work Order #2 tasks will not affect the completion of Work Order #3 tasks. FY2006 funds (\$500,000) were encumbered through the Second Amendment to the Agreement, which was executed on July 24, 2006. Work Order #4 was issued on May 19, 2006 for additional Watershed Evaluation tasks, and Work Order #5 was issued on July 28, 2006 for additional soil borings. A new Agreement will be developed to encumber FY2007 funds.

Future Actions – Future tasks will be prepare cost/benefit analyses, prepare preliminary and final design plans, and obtain permits needed to construct the reservoir.

e) Effect of Karst Development on Peace River Flow

Background – This project is part of the Recovery Strategy for the upper Peace River. It is a cooperative effort between the USGS and the District to assess the hydraulic connection between the river and underlying aquifers, characterize and map karst features within or adjacent to the river bed, and determine the amount of flow loss to the karst openings along the upper Peace River from Bartow to Ft. Meade. Long-term decline in upper Floridan aquifer water levels has reversed the hydraulic gradient between the river and the underlying aquifers that occasionally resulted in loss of perennial flow along the river between Bartow and Homeland. Understanding the extent, timing, and magnitude of flow loss to the underlying aquifers is the first step in the process of developing water resource development projects that could eventually augment low flow conditions along the upper reach of the river. Major elements of the study include: 1) conducting an analysis of historical hydrogeologic and land-use information in the basin, 2) identifying, locating, and characterizing karst features in the river bed and floodplain, 3) quantifying the flow losses to the karst openings and gains from mining outfalls, and 4) assessing the hydraulic connection of the river to the underlying aquifers. Two new stream gaging stations will be installed on the river by the USGS between Bartow and Ft. Meade. The District will provide and supervise drilling operations at four sites near the upper Peace River. Drilling operations will involve collection of data on geology, hydraulic characteristics, and degree of connection between the riverbed and underlying aquifers. Monitor wells will also be installed in the surficial aquifer, IAS, and the UFA at each site. A final report will present the findings of the study at the end of FY2008.

Linkage to the Regional Water Supply Plan – This project is specifically referenced in Chapter 7 of the RWSP and is an integral component of the recovery strategy for the upper Peace River.

Status – Monitor well installation has been completed at the LW3P site. Data continues to be collected, processed, and stored from five streamflow stations, two stage-only stations, eight wells, and two sinkholes. Another seepage run was conducted on June 23, 2006 between Bartow and the Clear Springs station. Water level recording equipment was installed for the wells at the Kissengen Springs site (LW4P).

Future Actions – Due to delays in obtaining drilling site access and the need to collect at least one year of monitoring data from the wells, the project has been extended by three years and will be completed by October 2008.

f) Peace Creek Canal Watershed

Background – The District has identified the upper Peace River watershed, which includes the Peace Creek Canal system, as an area that has undergone significant land alterations. In addition, extensive withdrawals of ground water have resulted in significant declines in the level of the Floridan aquifer and flow in the upper Peace River. This project will identify projects that will restore lost basin storage, provide recharge to the aquifer, improve water quality, provide flood protection benefits and improve natural systems. The project will utilize the Peace Creek model to evaluate the potential for restoring wetlands and floodplain storage in the Peace Creek watershed. FY2007 funding is for completing the Watershed Management Plan, performing immediate maintenance in the Peace Creek Canal, and for the design of BMPs. The

Watershed Management Plan element includes the following tasks: survey, data management and development of watershed parameters, GIS processing, computer modeling, floodplain analysis, surface water resource assessment (water quality), and BMP alternative analysis. Additionally, \$250,000 has been budgeted for purchase of homes in the Peace River Estates that were severely flooded during the 2004 hurricane season. Polk County has been awarded a FEMA grant for the purchase of approximately 18 homes. The grant requires a 25 percent match and the County has asked the District to cover half of their match or approximately \$250,000. The purchase of these homes will improve the management of the resource, not only for flood protection, but also for minimum flows.

Linkage to the Regional Water Supply Plan – This project is specifically referenced in Chapter 7 of the RWSP and is an integral component of the recovery strategy for the upper Peace River.

Status – District staff met with landowners to discuss the status of the Watershed Management Plan and Peace Creek maintenance issues. Another meeting was held to discuss the status of the Plan and TMDL issues for the Peace Creek Canal. The District has identified immediate maintenance needs for the canal, including aquatic weed control. The District obtained License Agreements for aquatic weed control spraying, which was completed in November. Additional License Agreements will be obtained for additional maintenance including sandbar removal. The District's consultant is preparing bid documents and permit information for the sandbar removal. The District's consultant has completed the hydraulic and hydrologic feature inventories and is assessing the surface water resources to identify potential improvement projects.

Future Actions – Once project sites have been identified, efforts to restore historic water flow and storage will move forward.

III. Water Supply Development Assistance

Although not a required element of this report, the District's water supply development assistance efforts have been included because of the significant magnitude of annual funding provided by the District, and the District's ongoing commitment to continue this funding in an effort to ensure there are adequate water resources to meet existing and future reasonable and beneficial uses. The District has budgeted for 102 water supply development projects in FY2007. As shown in Tables 3 through 6, the total amount of District funding for Reclaimed Water, Conservation and Potable Water projects is over \$141 million, of this \$15.5 million is provided by the Water Protection and Sustainability Program for alternative water supply development assistance and \$6 million from state appropriations for the Tampa Bay Water System Configuration II Project. Most of these projects are matched on a 50-50 cost share basis with local cooperators, including local governments, regional water supply authorities and others. In addition, a number of projects have received state and federal funding.

Table 3. FY2007 Reclaimed Water Projects

Project	FY2007 Funding
Manatee Co. Agriculture Reuse Supply	\$5,353
Overpass Road Reclaimed Water Transmission Main	\$108,044
N. Pinellas Reuse Interconnections	\$642

Project	FY2007 Funding
N.E. Polk Co. Regional Reuse	\$1,878
Oldsmar Reclaimed Water ASR-Phase IIA	\$109,757
Charlotte Co. Regional Reclaimed Water Expansion	\$3,386
Polk Co. Utilities Southwest Regional WWTF Phase 2	\$3,209
Polk Co. Utilities Northwest Regional WWTF Phase 1	\$3,130
Abby Grove Reclaimed Water Distribution Project	\$119,857
Casey Lakes Manors Reclaimed Water Distribution Project	\$149,857
Pasco Co. Southeast Reg Rclm Water Loop	\$3,972
Tampa Bay Water System Configuration II Project	\$8,263,047
No Sarasota Co. Reclaimed	\$423,966
Pinellas Co. N Reclaimed Water System Storage	\$2,567
Lake Tarpon ASR Testing	\$3,963
NW/SW Reclaimed Storage Tanks, Pumps & Telemetry	\$1,693
Polk Co. Utilities Northeast Service Area Reuse	\$1,878
Reuse and Alternative Supplies	\$44,006
Largo/Clearwater Pasco ASR/Interconnect	\$5,779
St Petersburg ASR	\$5,605
S. Tampa Area Reclaimed Project (STAR)	\$3,152
S. Pinellas Reclaimed Water ASR Feasibility Study	\$3,963
Pasco Co Wet-Weather Reclaimed Water Rsrv-Boyette	\$3,003,470
Pasco Co SR 52 East/West Reg Reclaimed Water Interconnect	\$3,108,095
Clearwater Seville/Sunset Reclaimed Trans	\$642
Charlotte Co. Victoria Estates Reuse	\$2,422
Englewood Lemon Bay High School Reuse Extension	\$2,344
Tarpon Springs Reclaimed Water Storage Facility	\$2,257
Clearwater Del Oro Groves Rclm Wtr Pump/Trans/Distribution	\$1,925
Bordeaux Village Reclaimed Water Distribution Project	\$334,657
Meadowcrest Reclaimed Water Storage Project	\$192,757
Brentwood Reclaimed Water Transmission Project	\$237,757
South Brooksville Reuse System – Phase II	\$300,513
New Port Richey Design/Construction Jasmine Hills/Woodridge Reuse	\$1,321
Brooksville Construction of US-41 South Service Area Reuse	\$467,528
TOW Marion County Reclaimed Water Project	\$122,257
Arcadia Reuse System Expansion	\$2,822
Skycrest Reclaimed Water Project	\$515,232
Reclaimed Water Trans & Distribution Project	\$673,757
Englewood Reuse Transmission – Stillwater	\$161,135
Charlotte Co. Rotunda ASR Well Conversion for Reuse Water	\$383,272
Summerglen Reclaimed Water Project	\$151,693
Clearwater Morningside Area Reclaimed Water Trans & Distribution	\$1,001,925
Oak Run Reclaimed Water Project	\$251,693

Project	FY2007 Funding
Pasco Co. Timber Greens Golf Course Storage Pond & Pump Station	\$1,321
Pasco Co. East Reuse System Metering & Controls	\$1,324
Pasco Co. Connerton Rclm Water Transmission & Storage System	\$1,983
Lithia Pinecrest Reclaimed Water Transmission Main	\$632,569
Pinellas Co. Reclaimed Wtr Supplemental Wtr Sply from Lk Tarpon	\$1,925
Punta Gorda Airport Reuse	\$127,822
North Port Reuse Master Plan	\$50,846
City of Inverness Reclaimed Water Trans Main	\$667,657
Polk Co. Utilities NE Regional Reclaimed Storage Expansion	\$3,131
City of Winter Haven Reuse Master Plan	\$2,822
Charlotte Co. Golf Course Reuse Storage	\$2,822
DeSoto Co. DCI Reuse Feasibility	\$2,822
City of Sarasota Payne Park Reuse Project	\$3,346
City of Bradenton Reuse Feasibility Study	\$3,346
Aqua Utilities Reuse Trans to Lakewood Ranch	\$3,346
Palmetto Reclaimed Water ASR	\$465,684
Dundee Reclaimed Water Use System Project	\$3,131
Total Reclaimed Water Projects	\$22,164,075

Table 4. FY2007 Conservation Projects

Project	FY2007 Funding
Mote Aquaculture Park Water Reduction Technologies	\$2,257
St. Petersburg Sensible Sprinkling Program	\$1,530
St. Petersburg ICI Spray Valve Replacement Project	\$1,530
Urban Mobile Lab Program	\$10,376
Indoor/Outdoor Water Conservation Program	\$17,145
Water Conservation Initiative	\$44,207
Clearwater Reclaimed Water System Meter Retrofit Project	\$1,925
Tampa Plumbing Retrofit & Education Project	\$1,693
St. Petersburg Shallow Well Incentive Program	\$1,283
Hernando Co. Irrigation Evaluation & Audit Project	\$2,820
North Port Water Conservation and Retrofit Program	\$1,530
Manatee Co. Rain Sensor Installation Project	\$1,530
Manatee Co. Shallow Well Rebate Program	\$3,346
SWUCA Performance Based Conservation Project	\$5,096
Indoor Water Conservation Retrofit Project	\$44,355
Pinellas ULF Toilet Rebate Program	\$2,706
St Petersburg Toilet Replacement	\$152,549
Toilet Fill Tube Installation Pilot Project	\$4,000

Project	FY2007 Funding
Water Conservation & Retrofit Project	\$70,330
Spray Valve Replacement Project	\$30,530
Tampa Plumbing Retrofit & Education Project-2007	\$111,693
Polk Co. Utilities Toilet Rebate Program	\$1,606
St Petersburg ICI Spray Valve Replacement Project	\$1,530
Alternative Source Rebate Program	\$85,067
Total Conservation Projects	\$600,634

Table 5. FY2007 Potable Water Projects

Project	FY2007 Funding
Peace River Regional Reservoir Expansion	\$5,143,238
Peace River Facility Expansion	\$9,308,903
PR/MRWSA Regional Loop System Feasibility Project	\$1,553
PR/MRWSA- Reg. Integ. Loop System-Phase 1 Interconnect	\$2,708,579
Bradenton Potable ASR Program – Phase 3	\$5,605
Longboat Key Emergency Backup Potable Water Supply Interconnect	\$251,693
City of Punta Gorda Interconnect	\$1,000,000
PR/MRWSA- Reg. Integ. Loop System-Phase 2 Interconnect	\$1,502,579
PR/MRWSA- Reg. Integ. Loop System-Phase 3 Interconnect	\$1,354,907
Manatee Co. ASR	\$5,605
Bradenton ASR	\$5,779
North Port ASR Feasibility	\$79,736
Water Supply & Resource Development Reserves	\$50,242,546
Unallocated NWSI Funding	\$17,149,185
Tampa Bay Water System Configuration II	\$27,948,634
City of Bradenton Reservoir Expansion	\$105,316
Punta Gorda Shell Creek WTP Expansion to 10 mgd	\$1,503,883
Total Potable Water Projects	\$118,317,741

Source: SWFWMD FY2007 Summarized Programmatic Activities Report

Table 6. FY2007 Total Funding for Major Water Supply Development Projects

Project Totals	FY2007 Funding
Reclaimed Water Projects	\$22,164,075
Conservation Projects	\$600,634
Potable Water Projects	\$118,317,741
Total FY2007 Funding	\$141,082,450

IV. Funding Sources

The source of District funding for the water resource and water supply development projects listed in this report includes the Cooperative Funding Program of the Basin Boards; the New Water Sources Initiative and Water Supply and Resource Development Program funded by the Governing and Basin Boards, portions of the District's State allocated Florida Forever funds, Federal sources, and the State's new Water Protection and Sustainability Program created from the Growth and Management Water Supply bill (SB) 444. Each of these funding sources is described below.

A) New Water Sources Initiative (NWSI) - The NWSI was established by the Governing Board as a part of its FY1994 budget. FY2007 represents the 14th year of NWSI funding. The purpose of this fund is to enhance financial assistance opportunities for alternative water supply projects. The Governing Board has allocated \$10 million per year for eligible NWSI projects. Beginning in FY1995, Basin Boards receiving benefits from the selected projects have matched the Governing Board's \$10 million per year, for a current total of approximately \$20 million per year in District funding. Currently, there are 14 NWSI projects ranging from ASR, to regional reclaimed water systems, to seawater desalination, that are in various stages of development. NWSI projects generally receive 25 percent of their funding from the Governing Board, 25 percent from the appropriate Basin Board(s) and the remaining 50 percent from the cooperator. In addition, a number of NWSI projects have received federal funding assistance. Matches from local cooperators may be less than the current 50 percent in the future as the District focuses on the water supply needs of non-public supply users.

B) Cooperative Funding Initiative - The District is unique among the five water management districts in the State with its composition of eight Basin Boards. The Basin Boards share the ad valorem millage capacity of the organization with the Governing Board and fund water resource management projects specific to each Basin. The Basin Board Cooperative Funding Initiative funds projects on a cost share basis primarily with local governments (although other entities, including private entities, are included). Projects include reuse, conservation, storm water management, hydrologic investigations, and education, among others. The Cooperative Funding Initiative provides approximately \$10 million per year for water supply projects, which is typically matched by local cooperators. Local matches may diminish in the future as the composition of local cooperators changes.

C) Water Supply and Resource Development Program (WSRD) - The WSRD program is a vital component of the **Financial Engine** that was established in FY2000 to help meet major water resource funding requirements through 2025. It is a flexible funding source that complements the NWSI and Cooperative Funding programs and is critical to helping solve the long-term water supply needs in the SWUCA and the continuing challenges in Northern Tampa Bay. The FY2007 General Fund budget includes WSRD projects totaling \$23.7 million. The General Fund has \$72.5 million available in WSRD reserves. The FY2007 budget includes an additional \$44.8 million, for a total of \$117.3 million in General Fund WSRD reserves for allocation to future projects. Collectively, the Basins' FY2007 budgets include WSRD project funds of \$18.3 million. The combined Basins have \$20 million available in reserves. The combined Basins have budgeted an additional \$5.4 million in FY2007 for WSRD reserves, for a total of \$25.4 million available for allocation by the Basins to future projects. The combined FY2007 budget includes \$42 million for WSRD projects and \$50.2 million for WSRD reserves, for a total of \$92.2 million for WSRD. Current plans show \$516 million allocated to WSRD projects over the period of FY2000 through FY2012. Currently, the District has received \$53.2 million in state and federal funding for identified projects.

D) The Florida Forever Act - The Florida Forever Act is a \$10 billion, ten-year, statewide program that will provide the District approximately \$26.2 million per year for land acquisition, environmental restoration, and water resource development. At least 50 percent of these funds must be spent on land acquisition over the life of the program leaving an average of approximately \$13 million annually potentially available for environmental restoration and water resource development. A “water resource development project” is defined as a project eligible for funding pursuant to Section 259.105, F.S., which 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, or promoting reuse. Implementation of eligible projects under Florida Forever includes land acquisition, land and water body restoration, ASR facilities, surface-water reservoirs and other capital improvements. It does not include construction of treatment, transmission, or distribution facilities.

E) Federal Revenues - In 1994, the District began investigating the feasibility of obtaining federal matching funds for water projects funded under the District’s NWSI program. The District, in cooperation with members of Florida’s congressional delegation, local government and regional water supply authority sponsors, was successful in obtaining funding for five NWSI projects. Local governments and regional water supply authorities within the District have received approximately \$95 million through 2005. Additional Federal funds will be sought for appropriate projects in the future.

F) Water Protection and Sustainability Program - The Legislature passed a major Growth and Management Water Supply bill (Senate Bill 444), which the Governor signed into law in June 2005, which created the state Water Protection and Sustainability Program (Program). This ten-year Program provided \$25 million of funding in FY2006 for alternative water supply development assistance. The state’s Program is required to be matched at least dollar for dollar by the District to assist in funding the District’s highly-effective funding programs: the NWSI, the WSRD Program and the Cooperative Funding Program. These established programs currently provide funding assistance to the District’s local and private partners for a variety of water resource management projects, including alternative water supply development projects. This new state Program will provide an additional level of funding for the construction of alternative water supply development projects each year to the benefit of the District and its cooperators. The District received \$15 million in FY2007. It is anticipated that the state will appropriate \$15 million a year in matching funds as the program continues through FY2014.

V. Summary/Conclusions

The water resource and water supply development projects and funds identified above reflect the District’s continuing commitment to ensure that adequate water resources are available to meet both existing and future reasonable and beneficial needs. In addition to those projects and funds identified above, the District has used and anticipates continuing to use portions of its Florida Forever funds for water resource development. Challenges that lie ahead in implementing the RWSP include the establishment of minimum flows and levels, particularly in the SWUCA and the anticipated need for a recovery and prevention strategy. Once these levels and flows have been established, the total water resource and supply development needs within the region will be better known.

CHAPTER 6

Florida Forever Work Plan

I. Introduction

In 1999, the Florida Legislature established the Florida Forever program, which was based upon a constitutional referendum that passed by 72 percent of Florida voters in 1998. The program continues Florida's successful land acquisition initiative that has included the Save Our Rivers and Preservation 2000 programs. As required by Section 373.199(7), Florida Statutes (F.S.), this report is the District's annual update of its Florida Forever Work Plan. Its purpose is to present projects eligible for funding under the Florida Forever Act (Section 259.105, F.S.) and to report on progress and changes since the initial submission.

The District's approach to the Florida Forever program is to include only the projects that the District currently plans to fund through the Florida Forever program rather than including an extensive list of projects that may receive future Florida Forever funding.

The Florida Forever Act provides for the issuance of up to \$3 billion in bonds over a ten-year period, to be used for land acquisition (including less-than-fee purchases), water resource development, stormwater management, water body restoration, recreational facility construction, public access improvements, invasive plant control and related projects. The annual appropriation of up to \$300 million is divided among programs administered by several state agencies and the five WMDs. The five WMDs together annually receive up to \$105 million (minus administrative costs), allocated as shown in Table 1 below. Based on the allocation formula, the Southwest Florida Water Management District (SWFWMD) is projected to receive over \$26.25 million a year for project funding. Over the life of the program, at least 50 percent of the funds must be spent on land acquisition.

Table 1. Florida Forever Annual WMD Funding Distribution

Water Management District	Percent Allocation	Estimated Amount
South Florida	35.0%	\$36,750,000
Southwest Florida	25.0%	\$26,250,000
St. Johns River	25.0%	\$26,250,000
Suwannee River	7.5%	\$7,875,000
Northwest Florida	7.5%	\$7,875,000
Total	100.0%	\$105,000,000

The annual update is organized into eight sections and nine appendices. Section I is the Introduction. Section II presents project modifications, deletions and additions to the original SWFWMD Florida Forever Work Plan and consists of water resource development, restoration and land acquisition subsections. Section III includes land acquisitions completed during fiscal year 2006. Information on conservation lands and lands that were surplus during fiscal year 2006 are presented in Sections IV and V, respectively. Section VI summarizes various land management activities conducted by the District. Section VII consists of budget and expenditure information. Section VIII provides required information of the District's eleven major surface-water basins and the Florida Forever projects in each. Appendices A-H, which are available upon request as separate documents, are current project status reports for District projects.

Florida Forever funds must contribute to achieving the following goals found in Section 259.105, F.S.:

- A. Enhance the coordination and completion of land acquisition projects.
- B. Increase the protection of Florida's biodiversity at the species, natural community, and landscape levels.
- C. Protect, restore, and maintain the quality and natural functions of land, water, and wetland systems of the state.
- D. Ensure that sufficient quantities of water are available to meet the current and future needs of natural systems and the citizens of the state.
- E. Increase natural resource-based public recreational and educational opportunities.
- F. Preserve significant archaeological or historic sites.
- G. Increase the amount of forestland available for sustainable management of natural resources.
- H. Increase the amount of open space available in urban areas.

The District presently plans to use its Florida Forever funding to support multiple land acquisition projects (\$249 million) and one capital improvement project (\$13.44 million) through the life of the program (FY2001 through FY2010). Figure 1 shows the allocation between land acquisition and capital improvement funding.

Figure 1. Expenditures, Budget and Projection for Capital Improvements and Land

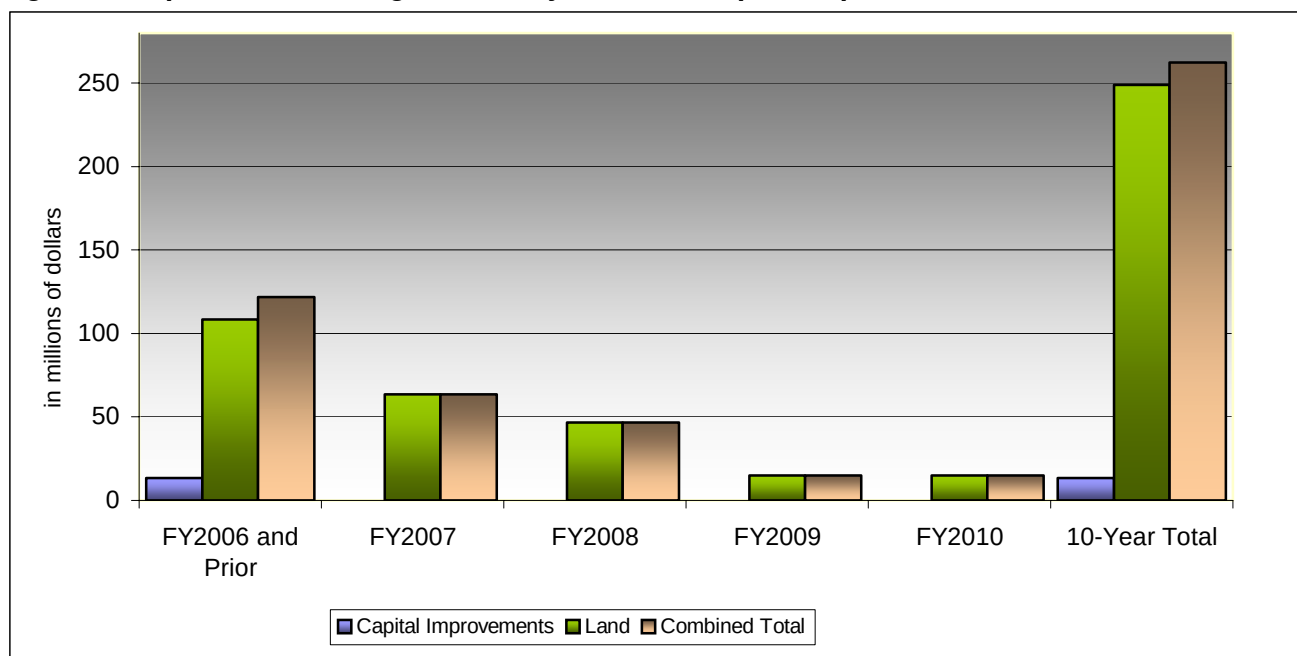


Table 2 provides expenditure, budget and projection by program and project through the end of the program. Individual water resource development and restoration projects are listed with projected Florida Forever funding provided for land acquisition and capital improvements.

Table 2. Florida Forever Work Plan Project Funding

Project	In Millions of Dollars											
	Exp. & Enc.		Projections								Totals	
	FY2006 & Prior		FY2007		FY2008		FY2009		FY2010			
	Cap Imp	Land	Cap Imp	Land	Cap Imp	Land	Cap Imp	Land	Cap Imp	Land	Cap Imp	Land
Water Resource Development												
Lake Hancock Lake Level Modification & Ecosystem Restoration		35.73		33.73		10.00		10.00		10.00		99.46
Upper Peace River Resource Management						30.00						30.00
Rocky Creek Lake Enhancement		0.06				1.00						1.06
Water Resource Development Totals		35.79		33.73		41.00		10.00		10.00		130.52
Restoration												
Lake Hancock Outfall Treatment System	13.44	4.90									13.44	4.90
Restoration Total	13.44	4.90									13.44	4.90
Land Acquisition - Conservation		67.8		29.96		5.88		5.00		5.00		113.64
Subtotals by Capital Improvements & Land Acquisition	13.44	108.49		63.69		46.88		15.00		15.00	13.44	249.06
Grand Totals	121.93		63.69		46.88		15.00		15.00		262.50	

II. Project Modifications and Additions to the SWFWMD 2001 Florida Forever Work Plan

The District is no longer requesting Florida Forever funding for any of its SWIM and non-SWIM restoration projects, or the water resource development projects included in the 2001 Plan, unless otherwise included below. These projects are expected to continue to be funded by ad valorem tax dollars collected by the District, local matches, state and federal grants, the Water Management Lands Trust Fund and other funding sources. Appendices A through H list the District's active SWIM and non-SWIM restoration projects, as well as nearly all other District projects. Projects are listed by the District's eight Basin Board areas and include project descriptions, status, funding sources and critical milestones. Total cost for the projects listed in Appendices A through H is nearly \$2 billion and Florida Forever funding is expected to account for about ten percent of these costs. As currently planned, over 95 percent of the District's allocation of Florida Forever funds will be used to acquire land needed to support water resource development, restoration and preservation projects. Capital funds are limited to one major water quality restoration project known as the Lake Hancock Outfall Treatment system in the Peace River Basin.

A. Water Resource Development

The Water Resource Development Program was mandated by 1997 legislation that required WMDs to complete specific water supply planning activities and initiate resource development and water supply projects. The legislation defines water resource development to differentiate it from water supply development and states the WMDs' primary responsibility is water resource development. All water resource development projects are identified in the District's annual Five-Year Water Resource Development Work Program as required by Section 373.536(6)(a)4, F.S. The most recently published Program included as Chapter 5 of this Consolidated Report.

Listed below are the water resource development projects for which the District is requesting Florida Forever funding.

***Project:* Lake Hancock Lake Level Modification and Ecosystem Restoration**

Cooperators: SWFWMD, Polk County, Florida Fish and Wildlife Conservation Commission, State of Florida and federal government

Purpose: The objective of this project is to restore historical storage, outflow and lakeshore ecosystem of Lake Hancock, a 4,500-acre lake in the headwaters of the Peace River watershed. This restoration will aid in reestablishing perennial flow to the upper Peace River, the primary objective of the proposed minimum flow requirement. Project lands also serve as a critical link to a major greenway that extends from Charlotte Harbor, a designated estuary of national significance, through the Peace River watershed and Green Swamp, and further north to the Ocala National Forest.

Need: This is one of a series of projects being pursued to meet the proposed minimum flows and levels for the upper Peace River, which are 17 cubic feet per second (cfs) at Bartow, 27 cfs at Fort Meade, and 45 cfs at Zolfo Springs. During the 30-year period from 1975 through 2004, flows in the upper Peace River were below the proposed minimum flows at Fort Meade approximately 28 percent of the time. This project, along with other similar projects, will restore significant basin storage resulting in enhanced aquifer recharge and longer duration of upper Peace River flows. Ground-water withdrawals in the Southern Water Use Caution Area

(SWUCA) have resulted in declines in aquifer levels throughout the SWUCA and contribute to reduced flows in the river.

This project is a critical component of the District's SWUCA Recovery Strategy in that it provides a cost-effective approach to aid in the restoration of minimum flows to the upper Peace River, and allows ground water to continue to meet the significant urban, agricultural and industrial water needs of the area. The return of historical storage in Lake Hancock will make possible significant lakeshore ecosystem restoration. This project will also contribute to the restoration and preservation of flows to Charlotte Harbor, an estuary included in the National Estuary Program.

Florida Forever Program Interest: Florida Forever funds will only be used to purchase land or easements needed for restoration of lake storage. Florida Forever funds will be leveraged with local and federal land acquisition funds.

Description: The goal of the project is to store water in Lake Hancock by raising the control elevation of the existing outflow structure on Lake Hancock from 98.7 feet NGVD up to a target elevation of 100.0 feet NGVD, then slowly release the stored water during the dry season to help meet the low flow requirements in the upper Peace River. Preliminary results indicate that storing water in Lake Hancock may recover up to 50 percent of the minimum flows for the upper Peace River, which includes accounting for approximately 25 cfs of sink losses within the river reestablishing perennial flow to the upper Peace River.

Once water levels are restored, other projects will be undertaken to reestablish historical lakeshore ecosystems, although some restoration projects are already underway where hydrologic conditions are favorable (e.g., confluence of inflow streams and the lake). Biological indicators and early twentieth century photography indicate that Lake Hancock's mean annual flood elevation was approximately 102 feet above sea level. The lake was lowered via an outfall canal dug in the natural overflow channel. A structure in this outfall canal significantly controls the elevation of the lake, which now fluctuates two or three feet below where it once did. A detailed watershed analytical model to predict the extent of water levels under proposed normal and flooding conditions has been developed to identify lands that would have to be acquired or otherwise compensated.

Preliminary results are that approximately 2,000 acres will need to be acquired or otherwise compensated and that some remedial action will be needed to prevent potential impacts to Polk County's solid waste facility and the City of Lakeland's cemetery. It is important to note however, that there are remarkably few homes that border the lake, which presents a rare opportunity to restore significant lost lake storage on a major central Florida lake.

Schedule:

Design and Permitting.....	2004-2008
Land Acquisition.....	2002-2009
Construction of Structure Replacement	2008-2010
Ecosystem Restoration	2002-2008

Table 3. Lake Hancock Lake Level Modification and Ecosystem Restoration

Funding Source	Prior Years	FY2007	Future Years	Totals
SWFWMD	\$53,374,000	34,030,000	\$40,000,000	\$127,404,000
Polk County	3,710,000			3,710,000
State Grants	750,000			750,000
Florida DOT Funds	1,000,000			1,000,000
State Surface Water Restoration	300,000	300,000		600,000
Totals	\$59,134,000	\$34,330,000	\$40,000,000	\$133,464,000

Note: SWFWMD funding includes \$39,451,950 of Florida Forever funds and \$3.71 million of Preservation 2000 funds already expended for land acquisition.

Step (1) of the Lake Hancock Lake Level Modification project included preliminary engineering analyses to determine the incremental benefits, impacts and costs of restoring the lake operating level to 99.5, 100.0 and 100.5 feet NGVD from the current top of weir elevation of 98.7 feet was completed in May 2004. Based on these analyses, an elevation of up to 100.0 feet is the recommended lake level whereby approximately 50 percent of the Minimum Flows and Levels (MFL) goal of the upper Peace River can be met. It is projected that approximately 3,800 acres of lake shore and upland properties will be affected by the project; however, slightly less than half of this area is already owned by the District or other public entities. The total cost estimate for the project remains unchanged. The District is nearing completion with Step (2) of the project, which involves submission of a Conceptual Environmental Resource Permit CERP application up to a target elevation of 100.0 feet NGVD to state and federal regulatory agencies for approval. Performance of this task required the updating of the watershed's terrain and the surface water runoff model to more accurately predict inundation areas and the MFL benefits. After the baseline conditions for the proposed lake level of 100.0 feet was established using updated information, strategies are continuing to be developed for mitigating the impacts (land acquisition, flood proofing, wetland restoration, etc.). The mitigation plan for the increased lake operating level will be submitted (CERP application) to state and federal regulatory agencies for approval.

Project: Upper Peace River Resource Management Project

Cooperators: SWFWMD

Purpose: The purpose of this project is to restore storage, flows, water quality and ecosystems in the upper Peace River watershed that have been lost, degraded or significantly altered. The project will also aid in the restoration of flows and water quality within the entire Peace River and Charlotte Harbor, an estuary included in the National Estuary Program; and will enhance a major greenway that extends from Florida's lower west coast through the Peace River watershed and Green Swamp to the Ocala National Forest.

Need: Over the past 150 years there have been substantial changes to the upper Peace River watershed including clearing, draining, re-contouring and mining. These activities cumulatively resulted in significant changes to the watershed's hydrology and ecosystems. This project is a critical component of the District's Southern Water Use Caution Area (SWUCA) Recovery Strategy in that it provides a cost effective approach to restore minimum flows to the upper Peace River and allows ground water to continue to meet the significant urban, agricultural and industrial water needs of the area.

Florida Forever Program Interest: Florida Forever Funds will be used for land acquisition only, to purchase land or easements needed for the construction and operation of the proposed impoundment and associated intake and discharge facilities.

Description: This project involves the investigation of resource restoration and development opportunities in the upper Peace River watershed that could contribute to restoration of minimum flows. An evaluation of existing and anticipated future watershed conditions will be performed. Best management practices (BMPs) will be developed and implemented to meet the minimum desirable flow rates identified by the *Upper Peace River - An Analysis of Minimum Flows and Levels, August 25, 2002, Draft*. One option involves the feasibility of constructing an above-grade surface water impoundment and associated intake and discharge facilities to divert water from the Peace River during periods of high flow, for release back to the river when flows are below the minimum desirable flow rates. Other BMPs that will be evaluated include reconnection of closed basins and areas that have been hydraulically severed through anthropogenic changes in the watershed; and the use of mined lands to provide attenuation, improve water quality, and enhance infiltration. An alternative analysis including a cost/benefit evaluation of potential BMPs will be performed. Preferred BMPs will be further developed through the implementation process and will require additional funding. The project also includes the purchase of easements and/or fee interest in land, evaluation, design, permitting, development of construction documents, construction and initial post-construction monitoring and maintenance necessary for the hydrologic restoration in the Peace Creek Canal watershed, located in Polk County. Peace Creek is one of nine major tributary watersheds that comprise the Peace River watershed. Agricultural practices, mining and land development, especially during the early 20th century, significantly contributed to the change of flow patterns, and loss of wetlands, storage, and recharge.

Two previous projects, the Upper Peace River Minimum Flow Enhancement project, and the Old Lands Phosphate project, were initiated in FY2003 to accomplish similar goals. The Upper Peace River Minimum Flow Enhancement project included funding for a feasibility analysis, and design and permitting of a surface water reservoir on reclaimed mine land. As part of the Old Lands Phosphate project District staff identified potential reservoir locations and areas that no longer contribute runoff to the river as a result of mining activities, but potentially could be hydraulically reconnected. Both of these previous projects have been incorporated into the Upper Peace River Resource Management project.

Schedule:

Evaluation 2003-2008
Land Acquisition 2008-2011
Design and Permitting 2008-2011
Construction 2010-2012

Table 4. Upper Peace River Resource Management Project Funding

Funding Source	Prior Years	FY2007	Future Years	Totals
SWFWMD	\$1,307,500	\$250,000	TBD	\$1,557,500
State Surface Water Restoration	\$250,000	\$250,000	TBD	\$500,000
Totals	\$ 1,557,500	\$ 500,000	TBD	\$2,057,500

Project Status: Lidar topographic data has been obtained for the entire upper Peace River watershed. A watershed evaluation is currently ongoing for the area between Bartow and

Homeland, and is scheduled to be complete in 2007. The watershed evaluation includes field reconnaissance, and the review of permits and approved mine plans to develop data that will be used in the development of a surface water model. The watershed evaluation also includes development of a mass-balance model to determine the amount of water that could be diverted, stored, and ultimately released back to the river. Water transmission alternatives and associated costs are also being prepared. The watershed management plan for the area between Bartow and Homeland is scheduled to be complete in 2008, and includes the development of a surface water model to simulate the effects of improvement alternatives. A watershed evaluation has also been initiated for the remaining portion of the upper Peace River watershed between Homeland and Zolfo Springs, and is scheduled to be complete in 2008.

Sites for the above grade impoundment are being evaluated, and preliminary geotechnical testing has been conducted for one site located north of Highway 640. A Request for Proposals for engineering services for testing, surveying, design and permitting will be developed and advertised once a contract to purchase is entered into. Design, permitting and construction of an above-grade impoundment will require additional funding.

Project: Rocky Creek Lake Enhancement

Cooperators: SWFWMD and Tampa Bay Water

Purpose: The purpose of this project is to construct an excess surface-water diversion system from Rocky Creek (at Lake Pretty) to several nearby isolated lakes in need of rehydration. The system will only be used during times of high flow. The project will augment lake levels in several lakes that have had suppressed levels for over 50 years, which will in turn provide ecologic improvements and increased recharge to the underlying aquifers. The project will also reduce flooding impacts downstream on Rocky Creek.

Need: This project is in the Northern Tampa Bay Water Resource Caution Area, a designation required by Florida law. The lakes in the project area have experienced significantly lowered water levels due to the large amount of ground-water withdrawals in the area, as well as alterations associated with surrounding land development. The establishment of minimum levels in several of these lakes (as per Florida Statute) has required the development of a recovery plan to achieve these levels. In addition, a number of flooding concerns during high rainfall events have been documented along the downstream segments of Rocky Creek. This project will work as part of the recovery plan, which includes a large reduction in ground-water withdrawals, to provide an additional water source for these lakes during periods of excess flow and to increase recharge in the area.

Florida Forever Program Interest: Florida Forever funds will be used only to purchase land or easements needed for the pump, pipeline and ditch system components of this project. Current estimates are that \$500,000 in Florida Forever funding will be requested for land or easement acquisition, which represents less than 40 percent of the total project cost of over \$1.3 million.

Description: The project involves the construction of an excess water diversion system from Lake Pretty to augment a number of nearby lakes. Lake Pretty is one of a chain of lakes through which Rocky Creek flows. Lakes proposed for augmentation include Horse Lake, Lake Raleigh, and Lake Rogers. The project includes three phases: 1) Project Development, 2) Design Permitting and Plans, and 3) Construction Services and Construction. The results of Phase 1 indicated the project to be cost effective. Two temporary projects during the El Niño events of 1997-1998 and 2002-2003 have successfully raised the levels of five lakes in the area, while

providing flood relief for properties downstream of the intake point. The project includes a completed feasibility study that modeled Rocky Creek and the surrounding lakes determining the amount and timing of water that can be diverted from the Rocky Creek system during high flow periods without causing negative downstream ecologic or aesthetic effects. The study also demonstrated the recharge benefits of the diversion system. Land purchases or easements will be required for pipeline and existing ditch routes, pumping facilities and maintenance access. Once the system is constructed and in operation, a monitoring and maintenance plan will be initiated, including water quality sampling. The project is expected to increase the ecologic health of the recipient lakes and surrounding wetlands, provide aesthetic and recreational improvements for the general public and adjacent lake property owners, increase recharge to the underlying aquifers and provide flood relief along the downstream segments of Rocky Creek during high rainfall events.

Schedule:

Feasibility and Corridor Delineation 2001-2005

Design and Permitting..... 2006-2007

Construction..... 2008-2010

Table 5. Rocky Creek Lake Enhancement Funding

Funding Source	Prior Years	FY2007	Future Years	Totals
SWFWMD	\$225,841	\$136,739	900,000	\$1,262,580
Tampa Bay Water	170,307	100,000	400,000	670,307
Totals	\$396,148	\$236,739	\$1,300,000	\$1,932,887

Note: SWFWMD funding includes \$500,000 of Florida Forever funds for land or easement acquisition.

Project Status: Phase I (Project Development) began in 2001. Due to the design and permitting of a new structure immediately to the south of Lake Pretty, the project was placed on hold until the design of the downstream structure was finalized. The design of the downstream structure would affect the surface-water modeling in Phase 1. The design of the downstream structure was finalized in late 2002 and the surface-water model work has been reinitiated. Phase I was completed September 2005. In September 2004, the contract between Tampa Bay Water and the SWFWMD was amended to make the SWFWMD the lead agency and to extend the deadlines as shown above. District staff advertised a Request for Proposals to hire a consultant that would cover both Phases II and III. The District is negotiating a cost with the successful consultant for the design\permitting portion of Phase II. Design work will begin in 2007.

B. Restoration Projects

Listed below are the District restoration projects for which Florida Forever funding is being requested.

Project: Lake Hancock Outfall Treatment System

Cooperators: SWFWMD, State of Florida and federal government

Purpose: The purpose of this project is to improve the quality of water discharging from Lake Hancock into South Saddle Creek, the natural outflow channel from Lake Hancock, by constructing a regional water quality treatment system. This treatment system will remove much of the nutrient and other pollution that Lake Hancock and its watershed is contributing to the

main stem of the Peace River and Charlotte Harbor, an estuary included in the National Estuary Program.

Need: Nitrogen has been identified as the primary target nutrient in restoring water quality in the main stem of the Peace River and preventing degradation of Charlotte Harbor. Historical data has shown that the Saddle Creek drainage basin, one of nine sub-basins in the Peace River watershed, contributes approximately 6 percent of the total flow of the Peace River, yet contributes approximately 13 percent of the watershed's total annual nitrogen load. Nitrogen has been identified as the primary target nutrient in restoring water quality in the Peace River and preventing degradation of Charlotte Harbor, a Surface Water Improvement and Management priority water body. The Peace River ecosystem routinely suffers from algae blooms during periods of low flows and warm weather. These events not only affect the fish and wildlife associated directly with the river and estuary, but also affect the region's largest potable surface water supply system, operated by the Peace River/Manasota Regional Water Supply Authority. Many of the basins along the Peace River, including Lake Hancock, have been identified by the Florida Department of Environmental Protection as impaired under the Clean Water Act, requiring that Total Maximum Daily Loads be established. Furthermore, nitrogen loads have been predicted to increase significantly over the next 20 years as a result of growth. Water quality treatment of discharges from Lake Hancock has been identified as the most cost effective means of reducing nitrogen loads into the Peace River and Charlotte Harbor. Additionally, the restoration of the South Saddle Creek ecosystem will enhance a major greenway that extends from Charlotte Harbor through the Peace River watershed and Green Swamp and further north to the Ocala National Forest.

Florida Forever Program Interest: Florida Forever funds will be used for land acquisition and capital project expenditures for the water quality treatment project. A total of \$13,435,446 has been encumbered within the Florida Forever Trust fund for capital project expenditures such as design, permitting and construction to significantly improve water quality entering the Peace River.

Description: Discharges from Lake Hancock will be diverted to a water quality treatment system located near the southern end of the lake and in the vicinity of South Saddle Creek, the tributary between the lake and the Peace River. Several treatment technologies are being evaluated, including settling ponds, treatment wetlands, chemical coagulation and aquatic plant based technologies. The District's land acquisition staff has been successful in acquiring property at the desired location. Construction would take place following design and permitting. The selected system will require ongoing operation and maintenance.

Schedule:

Monitoring/Feasibility Study.....	2004-2007
Design and Permitting.....	2007-2008
Land Acquisition.....	2003-2004
Construction.....	2009-2011

Table 6. Lake Hancock Outfall Treatment System Funding

Funding Source	Prior Years	FY2007	Future Years	Totals
SWFWMD	\$18,335,446		\$3,750,000	\$22,085,446
State Appropriation	1,450,000		TBD	1,450,000
Requested Federal Funds	1,300,000		TBD	1,300,000
Totals	\$21,085,446	\$ 0	\$3,750,000	\$24,835,446

Note: SWFWMD funding is anticipated to be from the Florida Forever program and will be used for land acquisition, easements and capital improvements. SWFWMD, Future Years funding is anticipated from the Peace River Basin Board and Water Protection Sustainability Trust Fund.

Project Status: District staff has procured the services of an engineering consultant to evaluate treatment options and assist with design and permitting of the outfall treatment project. The project involves five tasks: (1) Research, Monitoring and Data Acquisition, (2) Feasibility Study, (3) Design and Permitting, (4) Construction, and (5) System Start-up and Operation. Tasks 1 and 2 are complete and are the basis for the selection of the treatment technology for full-scale implementation. Treatment wetlands are the recommended technology based on costs, proven track record and ancillary benefits. The project is currently in the design phase (Task 3). The first element of the design task is to prepare the Basis of Design Report. This report will establish the objectives, data, and assumptions that form the foundation of design. This phase also includes environmental permitting through FDEP and the U.S. Army Corps of Engineers. The final element of Task 3 is the preparation of construction plans and specifications. Task 4 involves procuring a contractor through the competitive bid process for construction of the treatment system. Task 5 involves treatment system start-up and optimization of system performance to achieve target nutrient removal. The District is responsible for long-term operation and maintenance.

The project budget may be refined during the design to reflect the engineer's estimate of probable cost for the treatment system. The District is pursuing federal funding to offset state funds and/or to cover additional project costs.

III. Fiscal Year 2006 Land Acquisition

The following table depicts the District's land acquisition activity during fiscal year 2006.

Table 7. Fiscal Year 2006 Land Acquisition

Project/ Parcel Number	County	Acres Acquired	Land Cost (SWFWMD)	Land Cost (Partner)	Date Acquired	Interest Acquired	SWFWMD Funding Source
Green Swamp							
10-200-1237	Lake	4.46	2,500.00		02/16/2006	Fee	Fla Forever
10-200-1145	Polk	5,066.98	24,101,645.00	\$ 29,101,645.00	05/31/2006	Fee	Fla Forever / Water Management Lands Trust Fund
Total FY2006		5,071.44	\$ 24,104,145.00	\$ 29,101,645.00			

IV. SWFWMD Conservation Lands Status

The following table depicts the acquisition status of the District's conservation lands.

Table 8. SWFWMD Conservation Lands Status

Project	County	Lands Acquired Fee	Lands Acquired LTF	Lands Approved Fee	Lands Approved LTF	Study Areas	Grand Total	Approximate District Cost
Alafia River Corridor	Hillsborough & Polk	9,955	1,573	23,675			35,203	\$ 34,284,646
Alafia River Reserve	Polk	334					334	250,000
Anclote River Corridor	Pinellas					347	347	
Annettella Hammock	Hernando & Citrus	2,475		11,210	687		14,372	11,160,427
Bowlegs Creek	Polk					15,329	15,329	
Bright Hour Watershed	DeSoto		32,227		19,311		51,538	11,638,594
Brooker Creek Headwaters	Hillsborough	1,038		636			1,674	2,511,957
Brooker Creek Preserve	Pinellas	1,634					1,634	11,104,266
Charlie Creek	Highlands			6,844	2,584		9,428	
Charlie Creek Addition	Hardee & Polk				5,590	29,715	35,305	
Charlotte 1	Charlotte					8,545	8,545	
Charlotte Harbor State Park	Charlotte	7,631					7,631	6,671,702
Chassahowitzka River & Coastal Swamps	Citrus & Hernando	5,563	4				5,567	8,479,080
Cork Prairie	Hillsborough			527			527	
Cotee-Anclote River Corridor	Pasco			36,000			36,000	
Cypress Creek	Pasco	7,446	813	3,685	565		12,509	17,517,381
Edward W. Chance Reserve (f/k/a, Lake Manatee Reserve)	Manatee	7,929	25	10,358			18,312	10,763,789
Flying Eagle	Citrus	16,333	102				16,435	21,221,664
Green Swamp	Lake, Polk, Pasco & Sumter	114,720	27,273	16,706	40,763		199,462	98,895,170
Griffin Prairie	Hernando			744			744	
Gum Slough	Marion & Sumter	4,059	5,799	13,215	5,439		28,512	7,724,944
Hálpata Tastanaki Preserve	Marion	8,146		1,994			10,140	13,576,196
Hernando Connector	Pasco			3,328			3,328	
Hidden Lake	Pasco	589					589	1,354,608
Hillsborough River Corridor	Pasco	276	79	6,630			6,985	237,500
Homosassa River	Citrus					927	927	
Horse Creek	DeSoto & Hardee					43,445	43,445	
Jack Creek	Highlands	1,284					1,284	1,528,808
Jerry Lake	Pinellas	81					81	554,516
Lake Hancock	Polk	5,749		5,006			10,755	48,061,950
Lake Panasoffkee	Sumter	10,869	5,522	1,213			17,604	14,256,856
Lake Thonotosassa	Hillsborough	144		865			1,009	
Lewis Longino Preserve	Sarasota		3,804				3,804	1,188,231
Little Manatee River	Hillsborough & Manatee	6,989		26,513			33,502	8,767,526
Long Island Marsh	DeSoto			7,023			7,023	
Lower Cypress Creek	Hillsborough		312			7,634	7,946	
Lower Hillsborough	Hillsborough	16,030					16,030	12,140,950
Lower Manatee River Floodway	Manatee			6,990			6,990	

Project	County	Lands Acquired Fee	Lands Acquired LTF	Lands Approved Fee	Lands Approved LTF	Study Areas	Grand Total	Approximate District Cost
Lower Peace River (Deep Creek)	DeSoto & Hardee	2,105		39,254			41,359	4,483,510
Marion/Levy 1	Marion & Levy					19,202	19,202	
McIntosh Wetland	Hillsborough					535	535	
Myakka Prairie	Sarasota	8,246			2,139		10,385	9,522,072
Myakka River/Deer Prairie Creek	Sarasota	10,126		17,041			27,167	18,654,892
Myakka State Forest	Sarasota	8,063	15				8,078	4,662,192
Myakkahatchee Creek	Sarasota		4,583	664	14,048		19,295	2,273,050
Myakkahatchee Creek Preservation Corridor	Sarasota			56			56	
Panasoffkee/Outlet Tract	Sumter	820		566			1,386	1,641,757
Pasco 1 (Conner Preserve)	Pasco	2,980	507		18,524		22,011	9,792,677
Pasco Agricultural Reserve	Pasco				18,555		18,555	
Potts Preserve	Citrus	9,342		633			9,975	12,847,957
Prairie/Shell Creek	Charlotte	609		13,604	10,624		24,837	2,411,905
Rocky Creek Lake Enhancement	Hillsborough	3		6			9	60,000
RV Griffin Reserve	DeSoto & Sarasota	5,917		9,034	12,616		27,567	5,309,770
Sawgrass Lake	Pinellas	398	6				404	2,042,332
Starkey Wilderness Preserve	Pasco	19,103	114	1,152			20,369	10,031,325
Starkey/Brooker Creek Wildlife Corridor	Hillsborough & Pasco					5,604	5,604	
Tampa Bay Estuarine Ecosystem	Hillsborough, Manatee, & Pinellas	4,728		13,530			18,258	9,753,244
Two-Mile Prairie	Citrus	2,980					2,980	2,828,914
Upper Hillsborough	Pasco, Polk & Hillsborough	9,364	9,966	2,386	5,916		27,632	12,501,221
Upper Lake Marion Creek Watershed	Polk	277		1,621			1,898	382,134
Upper Myakka River Watershed (Flatford Swamp)	Manatee	2,356		16,156	2,611	3,228	24,351	2,099,889
Upper Peace River Corridor	Polk & Hardee			12,167			12,167	
Weekiwachee Preserve	Hernando & Pasco	11,149		6,410			17,559	43,463,522
TOTAL		327,840	92,724	317,442	159,973	134,511	1,034,397	\$ 498,653,124

Note: all acreages derived using geographic information system software

V. Surplus Lands

The District did not surplus any land during fiscal year 2006.

VI. Land Management Activities

Over 94 percent of the District's conservation lands have an approved management plan. The following is a brief description of land management activities for properties owned by the District.

Alafia River Corridor – In 1993 the Governing Board authorized the acquisition of lands for the Alafia River Corridor project in Hillsborough and Polk Counties. The Alafia River Corridor project contains parcels of land along the Alafia River corridor from Bell Shoals Road and extends upstream to the headwaters of the river. The river's natural floodplain is a mixture of hardwood swamps and upland hammocks. Over 4,000 acres within the project have been jointly acquired in fee simple by the District and Hillsborough County. Under this cooperative arrangement, Hillsborough County also manages the lands. In Polk County, the District and the County have jointly acquired 334 acres in fee simple, with Polk County responsible for a park site on the property and the District responsible for resource management and recreational development. Some 1,577 acres within the project have been protected through donations of conservation easements. The District manages lands for the C. W. "Bill Young Regional Reservoir, consisting of 5,228 acres. The following recreational improvements/ amenities have been provided by Hillsborough County: primitive camping; 15 miles of equestrian trails; fishing; and hiking. Land management activities conducted by the District include prescribed burning, exotic species control, security, public use/recreational development and mowing.

Annutteliga Hammock – In 1996 the Governing Board authorized the acquisition of the Annutteliga Hammock project. Located in southern Citrus and northern Hernando Counties, the Annutteliga Hammock project is within the District's Coastal Rivers Basin. The project is located generally within a regional area located between Homosassa Springs to the northwest, the Withlacoochee State Forest to the northeast, Brooksville to the southeast and Weekiwachee Springs to the southwest. To date over 2,400 acres have been acquired in the project. The Annutteliga Hammock project area supports an important and unique assemblage of high quality temperate upland hardwood forest and exceptional caliber sandhills along the Brooksville Ridge. Preservation of the remaining large contiguous areas of the hammock region will protect some of the best remaining examples of those community subtypes that are the most endangered or rarest along the Brooksville Ridge. Since lands acquired to date are, for the most part not contiguous, recreational use is limited to foot traffic and equestrian riding on approximately 10 miles of marked trails. Land management activities consist of security, prescribed burning, resource monitoring, exotic species control, and public use/recreational development and monitoring.

Bright Hour Watershed – In 1998 the Governing Board authorized the less-than-fee acquisition of 51,158 acres in DeSoto County, referred to as the Bright Hour Watershed. To date 32,227 acres have been acquired by the District via perpetual conservation easements (less-than-fee). An additional 19,311 acres have been identified for potential purchase of conservation easements within the watershed. The project area consists of extensive, high quality prairie, hammock, marsh and slough systems that provide water management benefits for a traditionally water-poor region. Hydrologic values include protection of the headwaters of several important creek systems, such as Prairie and Shell creeks. Water storage, conveyance and flood control are also provided by the watershed's poorly drained landscape. Habitat protection for numerous rare plant and animal species and globally imperiled, high quality natural communities is amply afforded by this project. Since the District does not hold fee simple title, land management activities consist of monitoring the terms of the conservation easements.

Brooker Creek – In 1987 the Governing Board authorized staff to pursue the acquisition of the Brooker Creek project in Pinellas and Hillsborough Counties. The Brooker Creek Headwaters project consists of 1,038 acres acquired in fee simple and remains as islands of undeveloped natural and rural lands in the changing landscape of northwest Hillsborough County. The lands include several extensive and interconnected cypress swamps, which form the headwaters of Brooker Creek. These headwater swamps are an important water resource feature on their own,

as well as for their contribution to downstream elements of the creek. An additional 636 acres have been identified for potential acquisition within the project. Lands within the Brooker Creek project in Hillsborough County are managed by Hillsborough County. The County has developed and made available several miles of unimproved interior roads that are open to hikers. The dominant habitats within the Brooker Creek Preserve, consisting of 1,619 acres, acquired in fee simple, located in Pinellas County, include cypress and mixed hardwoods swamps along portions of Brooker Creek. As part of the area's natural drainage system, Brooker Creek is an important water resource feature. Local low-lying areas are drained by the creek's system of sloughs and swamps. Floodplain vegetation offers treatment of runoff prior to discharging into Lake Tarpon. Lands within the Brooker Creek project in Pinellas County are managed by Pinellas County. Recreational improvements/amenities available on the tract include 10 miles equestrian trails, 8.5 miles of hiking trails and a 1.75-mile interpretive foot trail. Land management activities primarily consist of coordination with the lead land managers.

Charlotte Harbor State Buffer Preserve – In 1995 the Governing Board authorized the acquisition of the Myakka River/Charlotte Harbor project consisting of approximately 38,000 acres in Charlotte and Sarasota Counties. In 1998 the Governing Board authorized the acquisition of an additional 6,639 acres as a part of the Charlotte Harbor project. The Charlotte Harbor Save Our Rivers project was jointly purchased between the District and the State of Florida's Conservation and Recreation Lands (CARL) program. Lands within the project area are characterized by a variety of natural lands including isolated freshwater marshes, tidal marshes and tidal swamps. To date 7,637 acres have been acquired in fee simple within this project. There are no more lands slated for acquisition within the project. Under a management agreement with the State, the Department of Environmental Protection's Division of Recreation and Parks is the lead land manager for the project. Currently the Preserve offers canoeing and boating. Land management activities consist primarily of coordination with the Division of Recreation and Parks, the land manager.

Chassahowitzka River and Coastal Swamps – In 1989 the Governing Board authorized the purchase of the Chassahowitzka River and Coastal Swamps project. The Chassahowitzka River and its expansive coastal swamps are located in western Citrus County. This completed land acquisition project consists of 5,563 acres and includes nearly two miles along the Chassahowitzka River and includes Chassahowitzka Springs, which forms the river's headwaters. The project is contiguous with the federally owned Chassahowitzka National Wildlife Refuge to the west, the State's Homosassa Reserve to the north and the Chassahowitzka Wildlife Management Area to the south. The project contains the Chassahowitzka River Campground, which is operated and maintained by Citrus County. Recreational activities/amenities available are primarily managed by Citrus County and include canoe/boat launch; 80 campsites, 36 with full hook-ups; canoe rental; picnic pavilions; restrooms; potable water; and primitive camp sites along the river. Land management activities consist of prescribed burning, resource monitoring, land maintenance, fence repair and recreational monitoring.

Cypress Creek – In 1986 the Governing Board authorized acquisition of 3,300 acres of land within the Cypress Creek project in Pasco County. The Cypress Creek project includes the heavily forested Cypress Creek swamp, formed by its namesake, Cypress Creek, as it flows to the Hillsborough River. As part of the tributary system to the Hillsborough River, the project serves both a water detention role and a water conveyance role. Additionally, the low-lying swamps provide treatment and assimilation of runoff waters. To date 7,446 acres have been acquired in fee simple, while an additional 813 acres have been protected through a conservation easement. Recreational activities/amenities available at Cypress Creek include

five miles of bicycling trails, twelve miles of equestrian trails and several miles hiking trails; camping opportunities include a group camp site, primitive camping and equestrian camping; and fishing. Land management activities include fence construction, exotic species control, public use and recreation maintenance, prescribed burning, natural systems restoration, mowing and resource monitoring.

Edward W. Chance Reserve (Formerly known as Lake Manatee Reserve) – In 1991 the Governing Board authorized the acquisition of lands within what was then called the Lake Manatee Lower Watershed project in Manatee County. The Lake Manatee Reserve extends over a large area, which includes narrow floodplain forests and native pine lands surrounded by vast areas of rangeland, improved pastures, croplands and citrus groves. Lands purchased within this project protect an existing regional water resource, protect floodplains and restore adjoining wetlands in the headwaters. To date 7,929 acres have been acquired in fee simple within the project, and 25 acres have been protected by a conservation easement. An additional 10,358 have been approved for potential future fee simple acquisition. Recreational activities include 12 miles of multiuse trails for hiking, bicycling and horseback riding. Land management activities include exotic species control, prescribed burning, pasture mowing, wildlife monitoring, FDOT restoration/monitoring, cattle lease management, land security, recreational development/ maintenance and public use.

Flying Eagle – Acquisition of lands within the Flying Eagle project was included in the original legislation authorizing the Save Our Rivers program. The Flying Eagle tract is located within the Lake Tsala Apopka region of Citrus County. The District's Flying Eagle tract consists of 16,333 acres acquired in fee simple and 91 acres protected through less-than-fee simple acquisition. An additional 102 acres have been authorized for fee simple acquisition. The property includes over five miles of frontage to the Withlacoochee River and its forested floodplain. A broad expanse of mixed hardwoods and cypress swamps cover the floodplain along the river. Areas of hammocks and xeric oak scrub lands occur throughout the higher elevations of the interior portions. Scattered marshes and wet prairies complete the landscape. The Tsala Apopka system is important because it has been described as a primary recharge area for the Floridan aquifer. Recreational activities/amenities available at Flying Eagle include 13 miles of bicycling trails; 9 miles of equestrian trails; over 16 miles of hiking/backpacking trails; four primitive campsites include one equestrian campsite, one group campsite, a river campsite and one additional primitive campsite; and hunting, which is managed by the Florida Fish and Wildlife Conservation Commission. Land Management activities include prescribed burning, mowing, exotic species control, timber management, resource management, and public use and recreation development/maintenance.

Green Swamp – Acquisition of lands within the Green Swamp project was included in the original legislation authorizing the Save Our Rivers program. The Green Swamp project includes several efforts directed at protecting headwater swamps, floodplains and watershed areas in the Green swamp region and along two of its principal river systems (Withlacoochee and Hillsborough). Through its land acquisition program the District has acquired over 115,600 acres in fee simple, while an additional 27,300 acres, more or less, have been protected through less-than-fee simple acquisition (including a 19,000-acre flowage easement within the Withlacoochee State Forest). The Green Swamp is the District's largest landholding. The Green Swamp and its river systems are of hydrologic importance to central Florida, both in terms of surface water and ground water resources. Four river systems have their origin in the low-topography headwaters of the Green Swamp. Swamps, floodplains and headwaters serve as natural flood detention areas, while uplands serve as areas for recharge. Recreational amenities in the Green Swamp include over 80 miles of hiking (including approximately 15 miles of the

Florida National Scenic Trail), bicycling and equestrian trails; 12 primitive campsites; and hunting, managed by the Florida Fish and Wildlife Conservation Commission. Land management activities in the Green Swamp include prescribed burning, resource monitoring, natural systems restoration, mowing, exotic species control, security patrol, and public use and recreational development/maintenance.

Gum Slough – Acquisition of lands within the Gum Slough project was included in the original legislation authorizing land acquisition through the Save Our Rivers program. Lands within the Gum Slough property are located within Marion and Sumter Counties and are dominated by densely forested swamps and hammocks. Nearly 1,100 acres of forested hardwood swamps that line the Gum Slough run from a common boundary with state-owned lands to the east (Half-Moon Wildlife Management Area). The lands within the area offer protection to portions of the Withlacoochee River, Gum Slough and its various hydrologic characteristics. To date over 4,000 acres have been acquired in fee simple, while an additional 5,800 acres have been protected through less-than-fee simple acquisition. Lands authorized for acquisition within the project include 13,215 acres to be acquired in fee simple and 5,439 acres to be acquired using less-than-fee techniques. Recreational improvements/amenities available on the property are: disabled-accessible portable toilet; non-potable water; 16 miles of shared-use trails that are available for hiking, bicycling and horseback riding and 21 miles of woods roads available for hiking. Hunting, which is managed by the Florida Fish and Wildlife Conservation Commission (FWC), is also available.

Hálpata Tastanaki Preserve – In 1992 the Governing Board authorized acquisition of lands within what was then called the Marion 1 project. The Hálpata Tastanaki Preserve adjoins the Marjorie Harris Carr Cross Florida Greenway. Primary surface water features include five miles of floodplain along the northern bank of the Withlacoochee River. The isolated wetlands and marshes scattered throughout the site form the site's internal drainage system and provide local surface water storage. The site of Fort Izard, an important battleground during the second Seminole War, is located within the project lands. To date 8,146 acres have been acquired within the project. Recreational activities/amenities are hiking, bicycling and equestrian trails. Land management activities include prescribed burning, natural systems restoration, timber management, road repair, exotic species control, resource monitoring, recreation development/maintenance and security.

Hidden Lake – Acquisition of lands within the Hidden Lake project was included in the original legislation authorizing the Save Our Rivers program. The Hidden Lake project is located in west-central Pasco County and is part of an interconnected system of lakes within the Rocky Sink/Boggy Creek basin of the Bear Creek Watershed. District ownership ensures protection of the lake and the surrounding forested wetlands and will help preserve water quality within the lake and sub-basin. This completed project consists of 589 acres. Recreational use of the lands within the project is extremely limited due to development in the vicinity and the fact that the lands are essentially a "lake swamp." Limited land management is required, primarily security patrol for illegal activities (dumping and digging).

Jack Creek – In 1989, the Governing Board authorized staff to pursue acquisition of 3,200 acres of land in Highlands County, referred to as the Jack Creek project. The Jack Creek project includes a significant part of Jack Creek, its 100-year floodplain and outlying forested areas associated with the creek system and local lake outflow wetlands. The project area also includes portions of sand pine scrub and mixed scrub—among Florida's most unique threatened upland habitats. Jack Creek and its associated swamps serve as the natural drainage basin for the immediate area, as well as the water conveyance system for lakes in the area. The well-

drained scrub areas surrounding the Jack Creek system appear to offer good recharge potential throughout the year. Approximately 1,284 acres have been acquired in fee simple within the project. As a part of the approval of the 2001 Land Acquisition Five-Year Plan, the Governing Board decided to no longer pursue acquisition of the remaining lands within the project. Land management activities consist of prescribed burning, security patrol, public use/recreation maintenance and enhancements, exotic species control, mowing and monitoring for listed plants and animals. Recreational activities on the Jack Creek property are limited to hiking and nature study due to its remote location, environmental sensitivity and access constraints.

Lake Hancock – Lake Hancock is located southeast of the city of Lakeland and north of the city of Bartow in Polk County. At approximately 4,500 acres, Lake Hancock is the largest lake associated with the Peace River and the third largest lake in Polk County. Lake Hancock has been recognized as having some of the poorest water quality in the state. The lake has been recognized as having some of the poorest water quality in the state, characterized by persistent blue-green algae blooms, high nutrient concentrations and low dissolved oxygen levels in the water column, and fish and wildlife populations indicative of eutrophic to hypereutrophic conditions. A requirement of the statutorily mandated minimum flow establishment is the development of a recovery strategy. Part of the proposed strategy for the Upper Peace River is to restore storage in Lake Hancock and release some of the water during the dry season to help meet the flow requirements. Historically, Lake Hancock fluctuated more than a foot higher than it has during the past several decades. This lowering was due to the dredging of the outfall canal as was common in the early part of the last century. This project proposes to reverse those impacts by modifying or replacing the District's outfall canal structure so that water levels can be maintained at historical levels. Land acquisition within the Lake Hancock project is a necessary element of the lake's restoration. In anticipation of these efforts and to continue a significant greenway from the Peace River watershed to the Green Swamp, the District identified areas along the shores of Lake Hancock for potential acquisition. To date, the District and Polk County have jointly acquired 1,267 within the project, known as the Circle B Bar Reserve. The District has also acquired approximately 4,448 additional acres along the lake. The Reserve is managed by the County and provides hiking trails and picnic tables for recreationists.

Lake Panasoffkee – In 1990 the Governing Board authorized the acquisition of lands within the Lake Panasoffkee project located in Sumter County. The Lake Panasoffkee project is comprised of a large, contiguous area of relatively undisturbed lands along the eastern portion of the lake's watershed. The project, which consists of 10,869 acres acquired in fee simple and 5,552 acquired through a conservation easement, extends north to include Big Jones and Little Jones Creeks, both tributaries to the lake. Wetlands dominate the area with extensive mixed hardwood and maple swamps, lake front marshes and willow areas. Lands within the project protect local and regional drainage features and provide storage and detention of surface waters, while providing important wildlife resources. An additional 1,213 acres have been authorized for potential fee simple acquisition. Recreational activities/amenities include eight miles of bicycle trails, 18 miles of hiking/equestrian shared use trails, group picnic pavilion, six horse stalls, primitive and equestrian camping, restrooms and a campground host. The Florida Fish & Wildlife Conservation Commission (FWC) manages hunting on the property. Land management activities include exotic species control, land security, cattle lease management, maintenance of facilities located on the property, public use, recreation development/maintenance, prescribed burning, timber management, natural systems restoration and resource monitoring.

Little Manatee River Corridor – In 1992 the Governing Board authorized the acquisition of lands within the Little Manatee River project in Hillsborough and Manatee Counties. The Little

Manatee River project, consisting of 6,989 acres, acquired in fee simple, contains parcels of land along the Little Manatee riverine corridor from downstream estuarine waters, to the river's headwaters. Dense forest dominates the land along the river's floodplain with the adjoining uplands being comprised of a mixture of pine flatwoods, mixed hardwoods and shrub and brushlands. An additional 26,513 acres have been authorized for potential fee simple acquisition. The District has entered into an interlocal agreement with Hillsborough County wherein the County has lead responsibility for lands jointly purchased by Hillsborough County and the District. Recreational improvements/ amenities made available by the County include: canoe landing sites adjacent to five primitive campsites along the river; fishing; and hiking trails. District land management activities consist of road stabilization, prescribed burning, natural systems restoration, mowing and recreational development/ maintenance.

Lower Hillsborough – Acquisition of lands within the Lower Hillsborough Flood Detention Area project was included in the original legislation authorizing the Save Our Rivers program. The Lower Hillsborough project consists of approximately 16,000 acres, which includes several miles of the Hillsborough River and its broad floodplain. The project contains important areas of natural flood conveyance and storage and contains the Morris Bridge Wellfield. Recreational activities available include five developed park sites managed by Hillsborough County including such amenities as 22 miles of hiking, equestrian and bicycle trails; picnic pavilions; restrooms; boat launches and visitor centers. The District has also made available an additional 22 miles of equestrian trails. Land management activities include exotic species control; land security; public use and recreation development/maintenance; prescribed burning; timber management; wildlife management; natural systems restoration and mowing.

Lower Peace River Corridor (Deep Creek) – In 1994 the Governing Board authorized the acquisition of approximately 40,000 acres within Hardee and DeSoto Counties known as the Lower Peace River Corridor project. Lands acquired and proposed for acquisition within the project include an extensive network of tributaries, floodplain swamps and connected headwaters. The project covers a corridor over 35 miles along the Peace River between Zolfo Springs at the upstream reaches, downstream to the Charlotte/DeSoto County line. Acquisition of lands within this project will provide protection for the receiving waters of Charlotte Harbor. To date, one parcel known as the Deep Creek tract consisting of 2,105 acres have been acquired in fee simple. An additional 39,254 acres have been approved for potential future acquisition. Recreational activities available include approximately 9 miles of multi-use trails for hiking and equestrian use; and primitive campsites for equestrian, group and river camping. Land Management activities include prescribed burning, mowing, exotic species control, wildlife monitoring, recreational amenity development/monitoring and security.

Myakka Prairie – In 1992 the Governing Board authorized the acquisition of lands within the Ringling-MacArthur tract (now known as Myakka Prairie). Lands within the Myakka Prairie project are characterized by the region's flat topography and include landscapes of extensive shrub and brushlands, pine flatwoods and pastures. Numerous isolated freshwater marshes dot the site's flatlands. The 8,246 acres of acquired project lands provide surface water detention and natural water quality treatment of overland sheet flow. An addition 2,139 acres have been identified for protection through less-than-fee techniques. The Myakka Prairie is adjacent to lands within the Myakka River State Park and are managed by the State's Division of Recreation and Parks. Recreational development/amenities on the property made available by the Division of Recreation and Parks include several miles of hiking, bicycling and horseback riding trails. District land management activities primarily consist of exotic species control.

Myakka River/Deer Prairie Creek/Myakka State Park – In 1995 the Governing Board authorized the acquisition of 38,000 acres within the Myakka River/Charlotte Harbor project in Sarasota and Charlotte Counties. A majority of the lands within the Myakka River Save Our Rivers project were jointly purchased with the State of Florida's Conservation and Recreation Lands (CARL) program (Myakka State Forest) and Sarasota County. Lands within the Myakka River project area are characterized by a variety of natural lands and lands altered by development including mesic pine flatwoods, oak hammocks, shell mounds, prairie hammock and improved pasture. The project area includes portions of the Myakka River and its floodplain forests. To date, 18,372 acres have been acquired in fee simple and an additional 17,041 acres have been authorized for fee simple purchase in the future. Portions of the project lands are included within the Myakka State Forest and managed by the State of Florida's Division of Forestry (DOF). The DOF has made the following recreational improvements/ amenities available on the property: 13 miles of marked shared use trails for bicycling, horseback riding and hiking, and primitive camping. District land management activities include fencing, road upgrade, exotic species control, recreation development/maintenance and public use, prescribed burning; wildlife monitoring and mowing.

Myakkahatchee Creek – In 1994 the Governing Board authorized the acquisition of 11,288 acres in Sarasota County, referred to as the Myakkahatchee Creek. To date 4,583 acres have been acquired by the District via perpetual conservation easements (less-than-fee). An additional 14,048 acres have been identified for potential purchase through less-than-fee acquisition and 664 acres in fee simple within the project. The project area consists of oak/cabbage palm hammock dominated banks along the southern portions of the creek, isolated marshes and improved pastures within the upland portions and mixed natural lands scattered throughout. The main surface water feature, Myakkahatchee Creek, is a 21.5-mile long tributary creek of the Myakka River. Land management activities are limited to conservation easement monitoring.

Panasoffkee/Outlet Tract – Acquisition of lands within the Panasoffkee/Outlet Tract was included in the original legislation authorizing the Save Our Rivers program. Lands acquired within Panasoffkee/Outlet property consists of 820 acres acquired in fee simple extending over three miles along the eastern floodplain of the Withlacoochee River. An additional 566 acres have been identified for potential fee simple acquisition. For the most part, the areas are representative of the river's five-year floodplain, which include the regularly flooded cypress and mixed hardwood forests, as well as some areas of temperate hammock. Preservation of these lands along the river will maintain their function and protect forested swamps important to the water resources and water quality of the river system. An additional 566 acres have been authorized for potential fee simple acquisition within the project. Recreational activities on the property include hiking, fishing and a boat access. Land management activities include prescribed burning; mowing; road repair; exotic species control; cattle lease management; public use and recreation development/maintenance.

Pasco 1 (Conner Preserve) – In 1998 the District Governing Board approved the less-than-fee acquisition of lands within the Pasco 1 project in Pasco County. The project is located within the Hillsborough and Coastal Rivers Basins area. The Pasco 1 project includes the upper portion of Cypress Creek, a regionally important surface water feature and tributary creek of the Hillsborough River. Cypress Creek originates near I-75, east of CR 581 and north of CR 578 and has a contributing watershed of 74.5 square miles. Land use of the project area is primarily agricultural dominated by several large cattle ranches. Land cover consists primarily of improved pasture, rangeland, live oak hammocks, pine flatwoods, xeric oak/longleaf pine, cypress domes and freshwater marshes/wet prairies. The project includes a number of shallow

lakes, many of which include extensive marshes or open prairies. The project area itself is located between the District's Cypress Creek project and the Cross Bar/Al-Bar Ranch complex, representing two major public supply wellfields operated by Tampa Bay Water. One parcel, known as the Conner Preserve and consisting of 2,981 acres were purchased in late fee and 507 acres were acquired through a conservation easement. Land management activities consist of resource monitoring, prescribed burning, restoration and recreational development/ monitoring.

Potts Preserve – Acquisition of lands within the Potts Preserve project was included in the original legislation authorizing the Save Our Rivers program. The Potts Preserve property, consisting of 9,342 acres, is located within the Lake Tsala Apopka region in eastern Citrus County and includes portions of the Hernando Pool. The Preserve's eastern boundary is formed along five and one-half miles of the Withlacoochee River and its associated floodplain. The lands are a mixture of lakes, ponds and marshes surrounding islands of oak forests and lands partially cleared for agriculture. The Tsala Apopka system is considered important as an area of recharge for the Floridan aquifer. Recreational activities/ amenities available include 12 miles of equestrian trails and a 30-mile trail for hiking and backpacking; five separate campsites, including equestrian and group camping; and boat launch. Hunting, through an agreement with the Florida Fish & Wildlife Conservation Commission (FWC), is provided on the property. Land management activities include public use and recreation development/ maintenance, land security, prescribed burning, wildlife monitoring, natural systems restoration and mowing.

Prairie/Shell Creek – In 1991 the Governing Board approved acquisition of the Prairie Creek project, consisting of 5,385 acres. In 1995, as a part of the Preservation 2000 Remaining Needs and Priority report, lands along Shell Creek were included. The project now consists of 25,128 acres within Charlotte and DeSoto Counties. The lands proposed for acquisition include a greenway corridor from the mouth of the Peace River to the District's Bright Hour Watershed project to the north and to the State's Babcock-Webb Wildlife Management Area to the south. The District has acquired 610 acres within the project in Charlotte County. Lands proposed for potential acquisition include 13,604 acres in fee simple and 10,624 acres proposed for less-than-fee acquisition. Land management activities include prescribed burning, wildlife monitoring, resource monitoring, resource protection and recreational development.

RV Griffin Reserve (including Lewis Longino Preserve) – In 1991 the Governing Board authorized staff to pursue acquisition of 8,568 acres in DeSoto County, now referred to as the RV Griffin Reserve project. In 1996, the Governing Board increased the project to size to 31,667 acres, with a majority of the additional lands lying in Sarasota County. The project includes lands supporting and surrounding the existing facilities at the Peace River/Manasota Regional Water Supply Authority treatment plant. Lands in the project area include mixed hardwood forests along the river; however, the majority of the lands consist of pine flatwoods, rangelands, pastures and pine plantations. The project supports and protects present potable water supplies. To date, 5,917 acres have been acquired in fee simple, with an additional 3,895 acres acquired by a conservation easement known as the Lewis Longino Preserve. An additional 9,034 acres have been approved for potential acquisition in fee simple and 12,616 acres using less-than-fee simple techniques. Land management activities consist of prescribed burning, exotic species control, mowing, wildlife monitoring, security patrol and recreational development/ maintenance. Recreational activities/amenities include seven miles of shared-use trails available for bicycling; 15 miles of shared-use trails available for horseback riding; 22 miles of shared-use trails available for hiking trails; and one compost toilet.

Sawgrass Lake – Acquisition of the Sawgrass Lake project began in 1972 to provide flood protection to the City of Pinellas Park. A water control structure was built to facilitate drainage canal improvements and to maintain desirable water level fluctuations in Sawgrass Lake and the surrounding swamp. The lake and swamp system provide natural water treatment to enhance the quality of water draining to Tampa Bay. In 1976, the District, Pinellas County and the Pinellas County School Board cooperatively agreed to establish a county park and an environmental education center on the 398-acre site. The Haynesworth Tract Stormwater Treatment facility was completed within the project in 1999 as part of the District's Surface Water Improvement and Management (SWIM) program. The property is managed by Pinellas County and Pinellas County School Board. Pinellas County has developed a wide array of recreational amenities on the property including: restrooms, potable water, elevated boardwalks, hiking trail, nature center, outdoor interpretive displays; and they offer interpretive tours by reservation. The School Board has established an environmental education program that serves area students from kindergarten through fifth grade.

Starkey Wilderness Park – Acquisition of lands within the Starkey Wilderness Park was included in the original legislation authorizing the Save Our Rivers program. Located in Pasco County, lands within the Starkey Wilderness Park are a combination of improved pastures, rangeland, pine flatwoods, oak forests, scattered marshes and cypress swamps. The project lands are a part of the contributing watershed of the Anclote River. The Starkey Wellfield and part of the J. B. Starkey Wilderness Park are located within the project limits. To date 19,103 acres have been acquired in fee simple, while an additional 114 acres have been protected through less-than-fee simple acquisition. An additional 1,152 acres have been identified for fee simple purchase in the future. Recreation at the Starkey Wilderness Park is managed by Pasco County, while the District manages recreation on the Serenova and Anclote Ranch tracts. Recreational activities/ amenities available at Starkey Wilderness Park include 5 miles of paved bicycle trails, 9 miles of equestrian trails and 27 miles of hiking/backpacking trails, cabin rental, primitive camping, horse corral, picnic pavilions, self-guided educational nature trail and restrooms. Land management activities include prescribed burning, natural systems restoration, wildlife monitoring, exotic species control, land security, recreational development/management and mowing.

Tampa Bay Estuarine Ecosystem – The Tampa Bay Estuarine Ecosystem project was authorized by the Governing Board in 1995, in an effort to further the Tampa Bay Surface Water Improvement and Management (SWIM) plan. Approximately half the project consists of mangroves and salt marsh which dominate the northern project area along Bishop Harbor and the western area associated with the tidal bays of Moses Hole, Clambar Bay and Williams Bayou. The natural upland and wetland habitats within the project area provide natural water quality treatment of overland flows before reaching the receiving waters of Tampa Bay. A majority of lands within the Tampa Bay Estuarine Ecosystem project were jointly purchased with the State or local governments. Under an agreement with the State, the Department of Environmental Protection's Division Recreation and Parks is the lead land manager for the Terra Ceia tract. To date 4,728 acres have been acquired within the project. Hillsborough County manages the Bullfrog Creek and Port Redwing tracts.

Two-Mile Prairie – Acquisition of lands within the Two-Mile Prairie project was included in the original legislation authorizing the Save Our Rivers program. Two-Mile Prairie lies along the southern bank of the Withlacoochee River at the northern end of the Tsala Apopka Lake system and includes a variety of upland plant communities characterized by well-drained soils. Wetlands and surface water features include several miles of the Withlacoochee River and isolated depression marshes. The completed 2,900-acre project protects natural floodplain

areas along portions of the southern bank of the river, while adjoining upland areas provide buffer areas to protect the river from high intensity land uses. The lands within this project were jointly purchased between the District and the State's Conservation and Recreation Lands (CARL) program. Under a management agreement with the State, the Division of Forestry (DOF) is the lead land manager. Recreational improvements/amenities made available by the DOF include: a trail network north of CR-491 for bicycling and horseback riding; canoeing and non-gas powered boating; fishing; primitive camping; picnicking; and 2.8 miles of registered "trailwalkers" trail. Land management activities consist of monitoring and coordinating with the DOF regarding their management of the tract.

Upper Hillsborough – Acquisition of lands within the Upper Hillsborough project was included in the original legislation authorizing the Save Our Rivers program. The Upper Hillsborough project, located in Pasco and Polk Counties, includes the channel of the Withlacoochee and Hillsborough Rivers, including a unique hydrologic feature - the Withlacoochee River/Hillsborough River overflow. At this point, a portion of the flow of the Withlacoochee River naturally conveys to the Hillsborough River north of U.S. Highway 98. Lands within this project protect the hydraulic features of the river systems along with extensive areas of forested wetland habitats. To date 9,364 acres have been acquired in fee simple, while an additional 9,966 acres have been protected through less-than-fee simple acquisition. An additional 5,916 acres have been authorized for potential less-than-fee simple acquisition and 2,386 acres have been identified for fee simple acquisition within the project. Recreational activities/amenities available at the Upper Hillsborough include 5 miles of bicycling trails, 12 miles of equestrian trails and 13 miles of hiking trails, one equestrian and one primitive campsite, and fishing. Hunting is also provided and is managed by the Florida Fish and Wildlife Conservation Commission. Land management activities include prescribed burning; exotic species control; public use and recreational development/ maintenance, land security, natural systems restoration and wildlife monitoring.

Upper Lake Marion Creek Watershed – In 1991 the Governing Board authorized staff to pursue the acquisition of 1,922 acres of land in Polk County, referred to as the Upper Lake Marion Creek Watershed project adjacent to lands under protection by the South Florida Water Management District. The relatively undisturbed creek system flows north out of Lake Marion, joins Snell Creek and ultimately flows southeast to Lake Hatchineha. The entire Lake Marion Creek basin extends over 18,300 acres and includes portions of both the Southwest and South Florida Water Management Districts. To date, the SWFWMD has acquired 277 acres in fee simple and approved an additional 1,627 acres for potential fee simple acquisition. This district has entered into an agreement with the SFWMD to assist in the management of SWFWMD-owned lands since, due to the property's proximity to SFWMD-managed lands; the SFWMD can manage the property more cost effectively. District land management consists primarily of coordination with the SFWMD.

Upper Myakka River Watershed (Flatford Swamp) – In 1991 the Governing Board authorized the acquisition of 7,670 acres within the Upper Myakka River Watershed project in Manatee County. The Upper Myakka River Watershed project area includes forested floodplain swamps and marshes along the upper portions of the Myakka River watershed. The headwater swamps function as retention and detention areas for local drainage. Wetland forests and adjoining uplands provide treatment of surface runoff. To date 2,356 acres have been acquired, known as Flatford Swamp. An additional 16,156 acres are approved for potential acquisition in fee simple and 264 using less-than-fee simple techniques. Access to the property is limited since the project lands are often flooded, which is not conducive to recreational trail development.

However, the property contains narrow flatwoods roads and jeep trails that can be used for hikers during dry weather.

Weekiwachee Preserve – In 1991 the Governing Board authorized the acquisition of the then-named "Weekiwachee Riverine System" project located in Hernando County. The Weekiwachee Preserve consists of 11,149 acres acquired in fee simple and includes several miles of the Weekiwachee River and extensive areas of hardwood swamps and hammocks. An additional 6,410 acres have been authorized for potential fee simple acquisition. The Weekiwachee Swamp extends several miles along the coastal portions of Hernando County and represents a regionally important wildlife area. The riverine swamps are environmentally sensitive areas, which play an important role in the river's conveyance system and in flood and storm abatement. As they approach their outfall at the Gulf of Mexico, the Weekiwachee and Mud Rivers form a complex system of productive estuarine marshes and lowlands. Recreational activities/amenities include 5.5 miles of bicycling trails and eight miles of hiking trails, including five miles of interpretive trails, and fishing. The Preserve is open to vehicular access the second Saturday of every month. Land management activities include natural systems restoration, exotic species control, land security, public use and recreational development/ maintenance, prescribed burning, wildlife monitoring, road repair and mowing.

VII. Progress of Funding, Staffing and Resource Management

The following table depicts the District's progress of funding and staffing for resource management, public use and payments in lieu of taxes:

Table 9. Progress of Funding, Staffing and Resource Management

Budget Area	FY2002-2003	FY2003-2004	FY2004-2005	FY2005-2006	FY2006-2007
FTEs	42	50	46	50	48
Resource management	\$3,760,629	\$5,951,078	\$5,533,035	\$6,650,409	\$7,268,111
Public use	1,734,462	3,879,606	3,784,875	2,598,967	2,007,036
Payments in lieu of taxes	500,000	500,000	375,000	375,000	375,000
Total	\$5,995,091	\$10,330,684	\$9,692,910	\$9,624,376	\$9,650,147

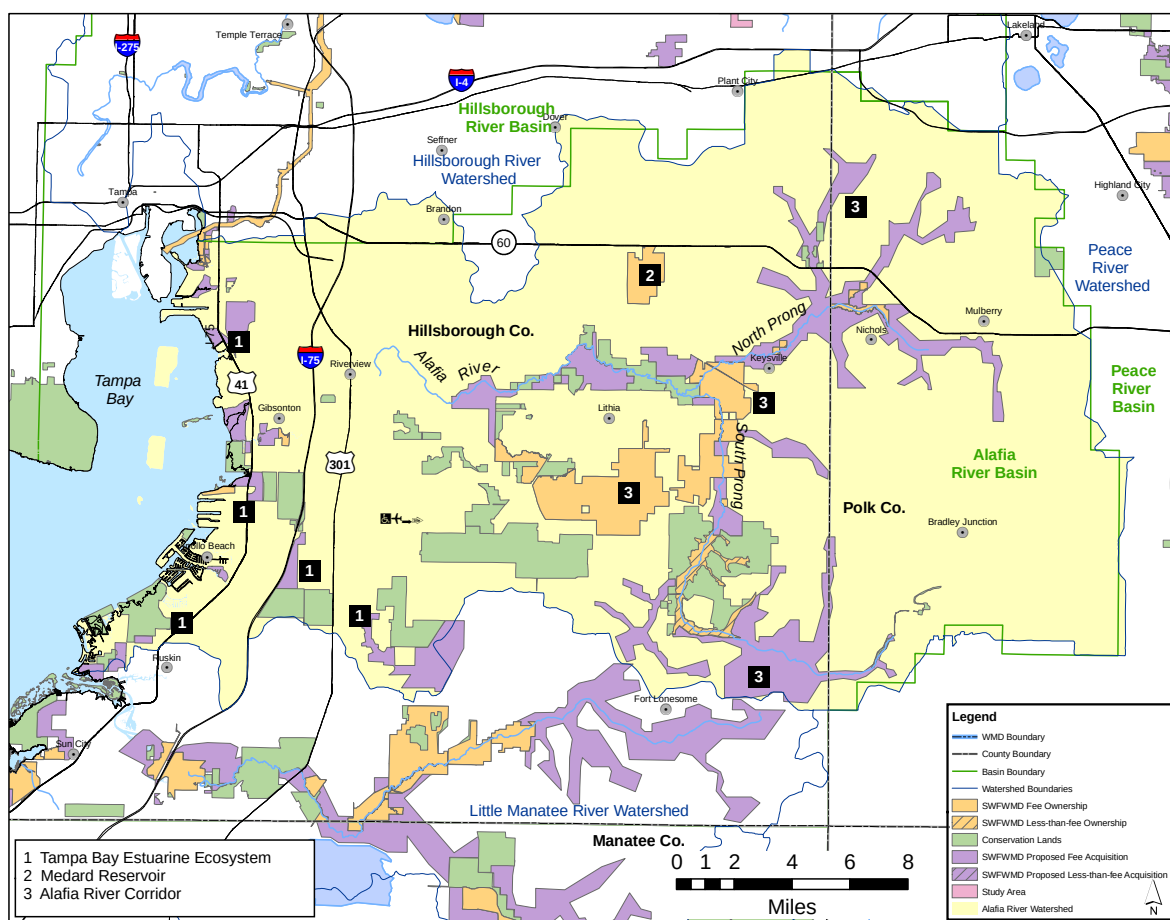
VIII. Watershed Descriptions and Florida Forever Land Acquisition Projects

Alafia River Watershed

A. Watershed Description

Location – The Alafia River originates from several creeks that converge into a centralized riverine system flowing westward from Polk County through Hillsborough County to Tampa Bay (Figure 2, Alafia River Watershed map). The two main creeks that feed the river include the North Prong, originating to the west of Plant City and south of Lakeland and South Prong, originating in southeast Hillsborough County. The Alafia River flows 24 miles westerly into lower Hillsborough Bay, with an estimated drainage area of 270,000 acres. For the period 1933 - 2003, the river's yearly mean discharge was 337 cfs at the Lithia station.

Figure 2. Alafia River Watershed Map



The Alafia River watershed extends over parts of two counties, including much of the eastern portion of Hillsborough County and a smaller area in the west-central part of Polk County. It is bounded to the north by the Hillsborough River watershed, to the east by the Peace River watershed, to the south by the Little Manatee River watershed and to the southwest by the Tampa Bay watershed. It incorporates parts of Lakeland, Plant City, Mulberry, the community of Brandon and large expanses of rural or undeveloped farm and phosphate mining lands.

Climate – West-central Florida has a humid subtropical climate. The mean normal yearly temperature for Hillsborough County is 72.2° F, generally ranging from a normal maximum temperature of 91° F in July and August, to a normal minimum temperature of 49° F in January. Evapotranspiration (ET) for the area encompassing the Alafia River watershed is approximately 39 inches per year. Greatest ET rates occur in May and June, and nearly 60 percent of the total yearly ET occurs during the period between May and October.

The average annual normal precipitation for the Alafia watershed rainfall stations is 68.93 inches for the year 2004. For the period 1915-2004, annual average rainfall for the watershed is 52.58 inches. In a typical year, approximately 60 percent of the annual precipitation comes from convective thunderstorms during the four-month period between June through September. Periods of extremely heavy precipitation associated with the passage of tropical low-pressure systems may occur during summer and early fall.

Physical Description – The Alafia River watershed lies within two physiographic provinces: the Gulf Coastal Lowlands and the Polk Upland. The lower portion of the watershed flows over the Gulf Coastal Lowlands province, a relatively flat plain extending eastward with a gentle slope upward to the border with the Polk Upland physiographic province. The northern edge of the watershed drainage basin borders an area locally known as the Brandon Karst Terrain, an internally drained basin. The western edge of the Polk Upland is defined by the presence of the first of several paleoshoreline scarps associated with the Pleistocene Ice-Age sea level fluctuations. This physiographic feature is known as the Pamlico Scarp or shoreline. Elevations in this part of the Gulf Coast Lowlands province range from sea level to 25 feet National Geodetic Vertical Datum (NGVD).

The remainder of the Alafia River watershed is situated in the Polk Upland province. Elevations in the extensive Polk Upland range up to between 100 and 130 feet. The Alafia watershed's elevations, however, are mostly between 25 and 75 feet. Eastward of the Pamlico Scarp the river banks attain a narrower, steeper profile and some spots are bluff-like with 20-25 feet of relief from the river's water level. In the vicinity of Riverview and Bell Shoals, the physiography adjacent and south of the river is composed of low sand hills which attain elevations of 75-80 feet. The Talbot and Penholoway paleoshorelines pass through this area in a north-south orientation, with their surface features having elevations of 42 and 75 feet, respectively.

In the Polk Upland province, near the town of Lithia, the river travels over the clay-rich Bone Valley Member (Pliocene). This is the lithologic unit that is extensively mined for phosphate minerals in the eastern portion of the watershed. The river banks in this region become less steep with many low relief floodplain or wetland areas surrounding the river. The watershed and its tributaries drain an area of the Polk Upland where the Pleistocene marine sands (overburden) and the underlying ore-bearing Bone Valley Member and Hawthorn Group rocks have been disturbed by phosphate mining in many areas. Outstanding physiographic features in this region include many water-filled, former mine pits and large, bermed clay-settling areas of various rectilinear configurations easily observable on maps and aerials photos. Most of these "open water" natural systems, particularly in the eastern half of the basin, resulted from phosphate mining.

Primary soil groups in the Alafia River watershed include the Myakka-Basinger-Holopaw association, which predominates in the upland areas in the northern and southern portions of the watershed. The Candler-Lake association occurs in the vicinity of the Brandon/Bloomington area, while the Winder-Chobee-St. Johns occur along the main stem of the river including the main tributaries. A significant area of Arent-Haplaquent-Quartzipsamment soils, considered soils

of manmade areas, occupy an area extending from southern Dover through the Medard Park/Reservoir and Lithia area and to areas on the east side of State Road 39 in the Turkey Creek drainage basin. This area coincides with former phosphate mining activities. In the Polk County part of the Alafia River watershed, this disturbed soil type dominates the entire area except for small remnants of flatwoods (Myakka association) near the watershed divide with river systems to the north and east.

Hydrogeology – The Alafia River watershed is underlain by water-bearing limestones and dolomites of Eocene to Miocene age, covered by a 0-100 foot layer of unconsolidated sands and sandy clays of Pliocene, Pleistocene and Recent origin. Five primary hydrogeologic units have been identified in the west-central Florida region. In order of descending depth, these are the surficial aquifer, the intermediate aquifer and confining beds, the upper Floridan aquifer, middle confining unit and lower Floridan aquifer. The surficial aquifer is unconfined and composed of variable amounts of clean quartz to clayey sand. At the base of the surficial aquifer, there may be phosphate pebbles and clays present that have been reworked from the underlying phosphate-bearing Bone Valley Member. The intermediate aquifer is made up of the permeable lithologies present in the Hawthorne Group except for the lowermost limestone unit (Tampa Limestone). In the Alafia River watershed, the intermediate aquifer serves as a locally important source for small potable water and irrigation wells for individual homeowners.

The upper Floridan aquifer interval is the primary artesian aquifer throughout Florida and much of the southeastern United States. It includes all the limestone and dolomite layers of Eocene to Miocene age that lie below the upper confining layer that separates it from the overlying intermediate aquifer. The average thickness of the upper Floridan aquifer system is approximately 1,100 feet in the Alafia River watershed area. The middle confining unit and the lower Floridan aquifer are in the non-potable zone at very deep depths.

Two large springs discharge to the Alafia River and contribute to its flow. Lithia Springs discharge ranges between 30 cfs and 55 cfs. Buckhorn Springs discharges into the Alafia River via Buckhorn Creek, with the period of record average flow being approximately 15 cfs. Both Lithia and Buckhorn springs are being fed by Floridan aquifer groundwater.

Land Use, Growth and Development – The landscape within the Alafia River watershed has been shaped and altered by urban/suburban development, agriculture and phosphate mining (Table 14, Land Use and Land Cover). Within the western (downstream) portion of the watershed, residential development has significantly altered the land. Most of the urbanization is concentrated in and near Lakeland, Plant City, Mulberry, Brandon, Riverview and Gibsonton. Moving upstream, the central portion of the river's watershed is characterized by a mixture of both rural lands and urban development. Further upstream along the north side of the North Prong, agricultural lands dominate the landscape while the south side has been more extensively altered by past and ongoing mining. Mining (extraction) has also had a major impact on the South Prong. This activity is expected to continue to change this region of the watershed. Natural lands (unaltered uplands and wetlands) exist mainly along the river as well as some of the tributaries within the eastern half of the watershed. There are many large areas, particularly along the river and its two major tributaries, in public ownership.

Table 10. 1999 Land Use and Land Cover for the Alafia River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	87,055	26%
Barren Lands	1,471	0.4%
Communication, Transportation & Utilities	6,580	2%
Extractive	98,452	29%
Rangeland	6,738	2%
Upland Forests	30,508	9%
Urban and Built Up	64,004	19%
Water	9,278	3%
Wetlands	36,687	11%
Total	340,772	100%

Source: SWFWMD Geographic Information System (GIS)

The Alafia River watershed had an estimated population of 232,227 in 2000. Forecasts show population increasing to 312,613 in 2015 and 359,069 in 2025. Growth expected between 2000 and 2025 represents an increase of 54.62 percent.

B. Land Acquisition

Two land acquisition projects are identified within the Alafia River watershed. The largest project area (Alafia River Corridor) consists of a corridor (buffer) of natural uplands and wetlands along much of the river, including the North and South Prongs and the headwaters regions. This project connects with the Little Manatee River project to the south, creating a contiguous riverine greenway within the watershed. The remaining project consists of lands along the eastern shore of Tampa Bay, south of the river's mouth, which includes estuarine wetlands and associated uplands.

Table 11. Land Acquisition Projects Within the Alafia River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Alafia River Corridor	10,392	1,573	10,426			22,391
Medard Reservoir	1,290					1,290
Tampa Bypass Canal	161					161
Tampa Bay Estuarine Ecosystem	208		5,240			5,448
Total	12,051	1,573	15,666	0	0	29,290

Note: all acreages derived using geographic information system software

Hillsborough River Watershed

A. Watershed Description

Location – The Hillsborough River begins in the Green Swamp area of Pasco and Polk counties; as do three other major rivers in Florida: the Withlacoochee, Peace and Ocklawaha (Figure 3, Hillsborough River Watershed Map). The Green Swamp region of central Florida consists of an estimated 870 square miles of low-lying flatlands and swamps flanked by several topographic ridges. In this region of flat topography, seasonal rainfall accumulates over the landscape forming extensive headwater swamps. After leaving the swamps, the Hillsborough River, with an estimated drainage area of 675 square miles, flows 54 miles southwesterly into Hillsborough Bay. Annual mean discharge for the Hillsborough River near Tampa for the 53-year period from 1939 to 1992 was 468 cubic feet per second (cfs), although the U.S. Geological Survey (USGS) has reported a declining trend of 7.7 cfs per year over that same period.

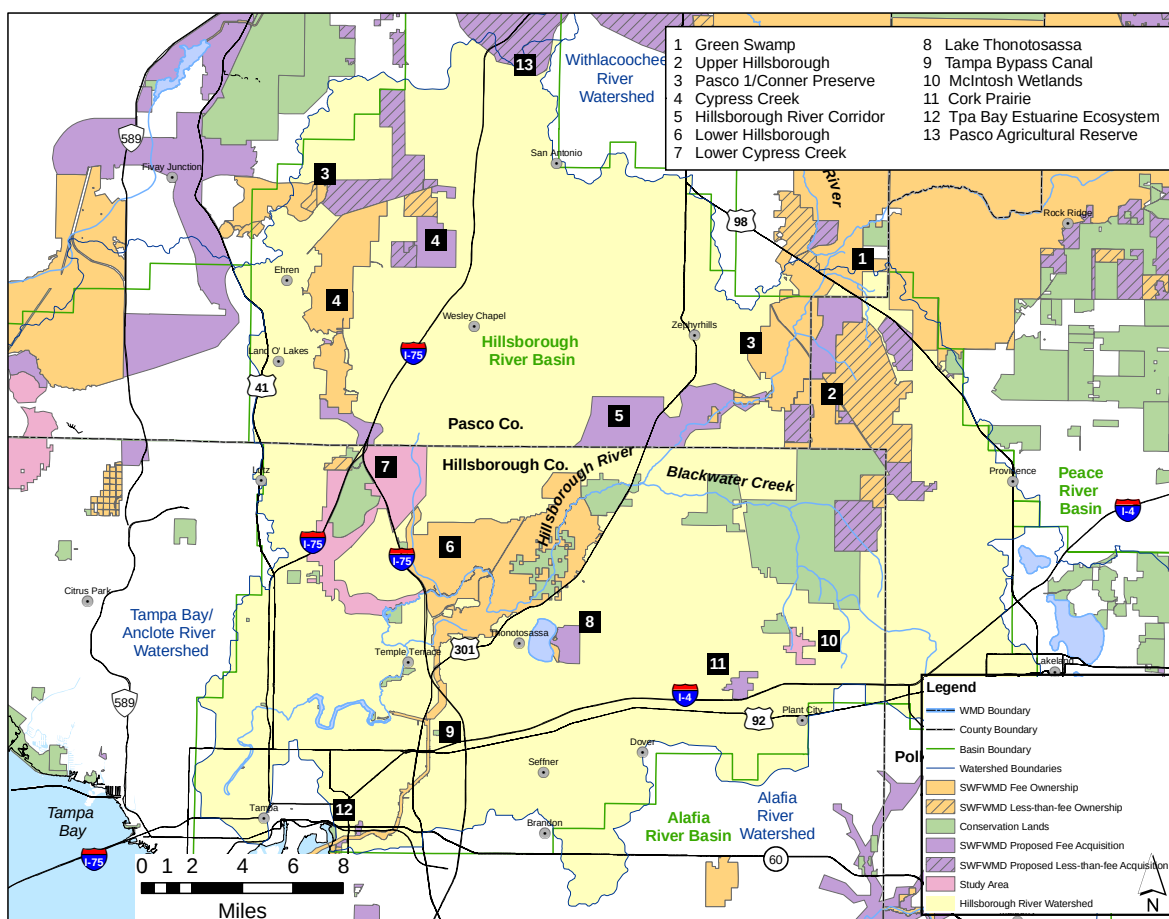
The Hillsborough River watershed extends over parts of three counties, including much of the northeastern quarter of Hillsborough County, a large area of central Pasco County and a small portion of northwestern Polk County. It is bounded to the north by the Withlacoochee River watershed, to the east by the Peace River watershed, to the south by the Alafia River watershed and to the west by the North Coastal and Tampa Bay watersheds. It incorporates parts of Tampa, Lakeland, Dade City, Plant City, the community of Land O' Lakes and all of the municipalities of Zephyrhills and Temple Terrace. The watershed ends at the Tampa Bypass Canal (TBC) basin. The TBC basin is not within the USGS boundaries of the Hillsborough River watershed, but is highly influenced by it.

Climate – The climate of West central Florida, including the Hillsborough River watershed, is classified as humid subtropical. The area's mean normal yearly temperature is 72.2° F, generally ranging from a normal maximum temperature of 91° F in July and August, to a normal minimum temperature of 49° F in January. Evapotranspiration for a larger area that encompasses the Hillsborough River watershed is approximately 39 inches per year. Greatest evapotranspiration rates occur in May and June and nearly 60 percent of the total yearly evapotranspiration occurs during the six-month period between May and October.

The average annual precipitation for the area is 51.0 inches. During the period 1900-1986, annual rainfall ranged from 31.9 inches to 76.8 inches. In a typical year, approximately 60 percent of the annual precipitation is produced by convective thunderstorms during the four-month period between June through September. Periods of extremely heavy precipitation associated with the passage of tropical low-pressure systems may occur during summer and early fall. Normal monthly rainfall within the Hillsborough River watershed is greatest in August (8.33 inches) and least in April (1.52 inches).

Physical Description – The Hillsborough River watershed lies within four physiographic provinces; the Brooksville Ridge, the Gulf Coastal Lowlands, the Zephyrhills Gap and the Polk Upland. The Brooksville Ridge extends from northern Hernando County into eastern Pasco County. The southern portion of the ridge extends into the Hillsborough River watershed. The entire ridge overlies a clay unit up to 30 feet thick, with partial hydraulic connection to the underlying upper Floridan aquifer by way of solution features and fractures. The Brooksville Ridge has the most irregular topography to be found in peninsular Florida. There are few persistent valleys and little surface drainage. The highest elevations in the Hillsborough River watershed are in this physiographic province, with some elevations as high as 300 feet NGVD.

Figure 3. Hillsborough River Watershed Map



The Gulf Coastal Lowlands province lies to the west of the Brooksville Ridge and includes the area of Big Cypress Swamp, as well as the extensive lakes region in northwest Hillsborough County and south-central Pasco County. Soils are sandy, with little organic material. Elevations are generally between 20 and 100 feet.

The Zephyrhills Gap lies to the south of the Brooksville Ridge and east of the Gulf Coastal Lowlands. It encompasses the greatest proportion of the Hillsborough River watershed and includes nearly the entire main river channel. The Zephyrhills Gap is an erosional watershed with sluggish surface drainage and many karst features. A thin layer of sand and clay overlies karst limestone, and springs and sinkholes are common. Elevations range from 10 to 140 feet, with poorly drained swamps and marshes in the lower elevations and pine flatwoods in the higher elevations.

The southernmost portion of the Hillsborough River watershed is situated in the Polk Upland Province. Elevations in the Polk Upland are typically between 100 and 130 feet, however, elevations are mostly between 20 and 50 feet within the watershed, dipping toward the valley of the Hillsborough River.

Primary soil groups in the Hillsborough River watershed include the Myakka-Basinger-Holopaw association and the Pomona-EauGallie-Sellers group of soils in Pasco County that

predominates in the northern and eastern portions of the watershed. The Candler-Lake association occurs in the vicinity of Lake Thonotosassa and the Winder-Chobee-St. Johns occurs along the main stem of the non-urbanized upper river. A sequence of urban soils (fill and disturbed soils) occurs along the lower reaches of the river in the urban and suburban areas associated with the cities of Tampa and Temple Terrace.

Hydrogeology – The hydrogeologic flow system of the Hillsborough River watershed is comprised of five principal hydrogeologic units: 1) the surficial aquifer; 2) semi-confining beds and the intermediate aquifer; 3) the Upper Floridan aquifer; 4) the middle confining unit; and 5) the Lower Floridan aquifer. The surficial aquifer consists of unconsolidated sands and sandy clays of Miocene, Pleistocene and recent origin which generally range in thickness from 20 feet to 50 feet. The semi-confining beds and intermediate aquifer separate the surficial aquifer from the underlying Upper Floridan aquifer. The semi-confining unit is composed of silt, sandy clay and clay of the Hawthorn Group that somewhat retards the movement of water. The intermediate aquifer consists of limestone and dolomite beds of the Hawthorn Formation and upper portions of the Tampa Limestone. Within much of the Hillsborough River watershed, the intermediate aquifer is locally discontinuous or absent. Where the intermediate aquifer does not have adequate thickness or permeability to serve as a water-bearing unit, it may act as a confining unit for the Upper Floridan aquifer. The Floridan aquifer is the primary artesian aquifer throughout Florida and much of the southeastern United States. It consists of two transmissive zones, the Upper Floridan aquifer and the Lower Floridan aquifer, which are separated by a middle confining unit. The Floridan aquifer consists of the limestone and dolomite beds of Eocene to Miocene age that have an average thickness of approximately 1100 feet in the Hillsborough Valley area.

Flow in both the upper and lower reaches of the Hillsborough River is augmented by groundwater discharges from springs. Crystal Springs, located near the city of Zephyrhills, discharged an average of 60 cfs in the upper watershed between 1939 to 1960 yet mean discharge was 47 cfs between 1970 to 2005. Sulphur Springs in the Tampa area discharged an average of 38 cfs to the lower river between 1960 to 2002. In addition to named springs, monitoring of the surficial aquifer indicates that localized areas with increased ionic content occur in the vicinity of some portions of the Hillsborough River, apparently as a result of upward leakage of highly mineralized water from deep in the Floridan aquifer. The deep groundwater likely migrates through areas of high permeability (probable fracture systems) to mix with the overlying Upper Floridan and surficial aquifers. In general, the areas of upward leakage coincide with the location of the Hillsborough River Tampa Bypass Canal and the Alafia and Little Manatee rivers, suggesting that the surface above the apparent fracture systems provides a preferential zone for surface water flow.

Land Use, Growth and Development – The Hillsborough River watershed reflects a wide variety of land uses (Table 16, 1999 Land Use and Land Cover) and conversions of natural lands, principally as a result of urban, suburban, commercial, industrial and agricultural development. A majority of the land within the watershed (61 percent) is considered developed, including urban and built-up areas, agriculture and transportation. Urban and built-up areas dominate the landscape in the southern quarter of the Hillsborough River watershed, which includes the urban and suburban areas of Tampa, Plant City and Lakeland. In the upper half of the watershed, urban and suburban areas appear as an east-west band encompassing Zephyrhills, Wesley Chapel and Land O' Lakes.

Table 12. 1999 Land Use and Land Cover for the Hillsborough River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	132,629	29%
Barren Lands	1,227	0.3%
Communication, Transportation & Utilities	9,041	2%
Extractive	4,001	1%
Rangeland	26,152	6%
Upland Forests	44,591	10%
Urban and Built Up	131,322	29%
Water	12,578	3%
Wetlands	95,384	21%
Total	456,924	100%

Source: SWFWMD Geographic Information System (GIS)

Within the region characterized by expanding population growth and land development, it is remarkable that large areas of swamps and forested uplands remain undeveloped along portions of the Hillsborough River and its principal tributaries. Together with other undeveloped lands throughout the watershed, natural lands (uplands and wetlands) comprise 39 percent of the watershed.

Throughout most of the remainder of the watershed, particularly in the upper reaches of the tributaries, land uses are primarily rangeland, pasture and agriculture, including citrus groves and row crops. The greatest acreages of citrus are located around Land O' Lakes, the Plant City/Dover/Seffner area south and east of Lake Thonotosassa, in the area around Lakeland and in a wide area above Zephyrhills. Generally, the northern and central portions of the watershed are rural, while the southern portions are mainly urban and industrial. However, suburban development radiating from major urban areas, such as Tampa, is spreading into the rural areas.

Between 1990 and 2000, the population of Hillsborough County increased by nearly 17 percent, from 834,045 in 1990 to 998,948 in 2000. The population in Pasco County over the same period increased from 281,131 to 344,765, or by 18 percent. Polk County population during this time increased from 388,356 to 469,416, or 17 percent. Projections for population growth for the entire watershed for the period from 2000 to 2025 are from 558,278 to 875,716, a 57 percent increase. Land use projections through the year 2010 reflect the anticipated population growth, predicting broader areas of single- and multi-family developments, spreading from the urban centers of Tampa and Plant City and in Pasco County between Zephyrhills and Land O' Lakes. This development is generally a conversion from agricultural land.

B. Land Acquisition

Land acquisition projects identified for the Hillsborough River watershed include projects along the Hillsborough River which complete a protective greenway corridor connecting other public lands, as well as lands along some of the river's principal tributaries. Other projects target water resources areas in the undeveloped portions of the watershed. The following table depicts the acquisition status of all of the land acquisition projects in the Hillsborough River watershed.

Table 13. Land Acquisition Projects Within the Hillsborough River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Cork Prairie			527			527
Cypress Creek	7,446	813	3,064	565		11,888
Green Swamp	2,501					2,501
Hillsborough River Corridor	276	79	6,630			6,985
Lake Thonotosassa	144		865			1,009
Lower Cypress Creek		312			7,634	7,946
Lower Hillsborough	16,030					16,030
McIntosh Wetland					535	535
Pasco 1 (Conner Preserve)	876	228		4,612		5,716
Pasco Agricultural Reserve				1,154		1,154
Tampa Bay Estuarine Ecosystem			119			119
Tampa Bypass Canal	1,397	2				1,399
Upper Hillsborough	9,189	7,499	2,386	5,916		24,990
Total	37,859	8,933	13,591	6,331	8,169	80,799

Note: all acreages derived using geographic information system software

Lake Wales Ridge Watershed

A. Watershed Description

Location – The Lake Wales Ridge watershed area includes the cities of Sebring, Lake Wales, Avon Park, Lake Placid and Haines City (Figure 4, Lake Wales Ridge Watershed Map). It is a long, narrow watershed that extends from north of Davenport to south of Archbold. The watershed lies along the extreme eastern edge of the SWFWMD within Polk and Highlands counties. The Lake Wales Ridge watershed covers an area of approximately 570 square miles.

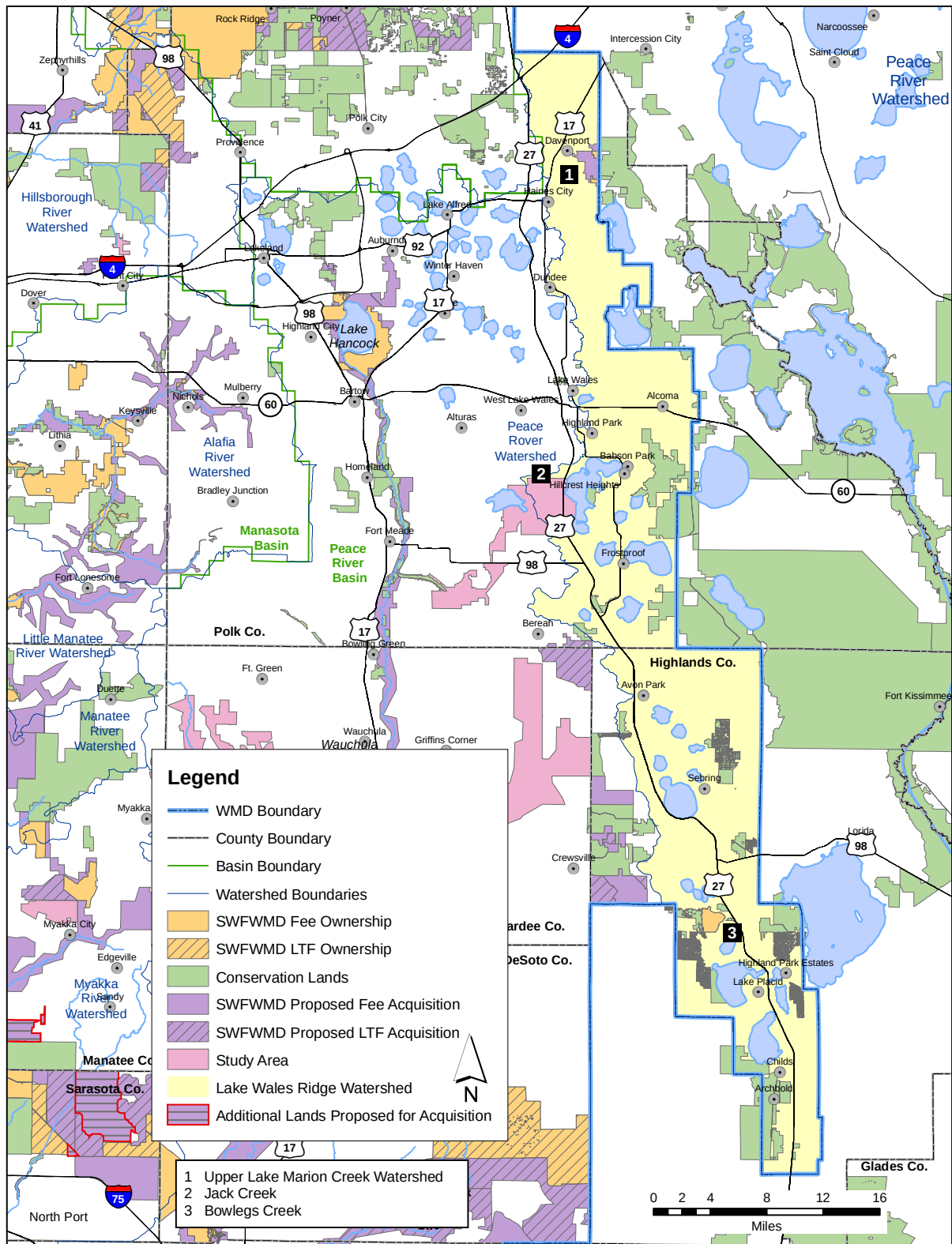
Climate – The climate of the area is subtropical and humid, with an average annual temperature of approximately 72° F and average annual rainfall of approximately 52 inches. More than 50 percent of the total annual rainfall typically occurs during the summer rainy season that extends from June through September. November is typically the month of lowest rainfall, although streamflows, lake stages and groundwater levels tend to reach annual lows in April and May due to a combination of low rainfall and high evapotranspiration rates. Freezing temperatures occur occasionally but are not common.

Physical Description – The Lake Wales Ridge CWM area, located in Polk and Highlands counties, generally encompasses the Lake Wales Ridge physiographic region and portions of major plains to the east and west of this feature. Land surface is characterized by a series of north-south trending sand ridges that are separated by valleys. Numerous lakes, swampy plains and intermittent ponds are found along and adjacent to the ridges. The highest topographic feature is the Lake Wales Ridge. It is the highest of five sand ridges in the area with elevations ranging between 150 and 300 feet NGVD. The southern part of the Lake Wales Ridge is divided into two secondary ridges by the Intraridge Valley. The southern one-half of the project area is hydrologically unique because of numerous sinkholes and sinkhole-formed lakes that provide an avenue for high recharge to the Upper Floridan aquifer.

In addition to the Lake Wales Ridge, other major physiographic features include the Polk Upland, DeSoto Plain, Osceola Plain, Bombing Range Ridge, Okeechobee Plain and the Caloosahatchee Incline. The Polk Upland is located west of the Lake Wales Ridge and is a broad, elevated, sandy plain that ranges in elevation from 100 to 245 feet NGVD. Southwest of the area is the De Soto Plain. It is a broad, shallow plain that is lower in elevation than the Polk Upland, ranging from 30 to 100 feet NGVD. To the east of the Lake Wales Ridge is the Osceola Plain. It is characterized by little relief change and generally varies in elevation from 60 to 70 feet NGVD. A distinctive feature within the Osceola Plain is the Bombing Range Ridge (so named for a World War II bombing practice area), which is similar to a large marine sand bar. The Okeechobee Plain is found to the southeast of the area and it gradually dips toward the south. Elevations of the Okeechobee Plain generally range from 20 to 40 feet NGVD. The last remaining physiographic feature, the Caloosahatchee Incline lies adjacent to the southern part of the DeSoto Plain and the extreme southeastern part of the Lake Wales Ridge. It is comprised of a long, narrow incline that gently slopes eastward with altitudes of 50 to 60 feet NGVD.

Almost 200 lakes and ponds are located along the ridges and flanks of the Lake Wales Ridge. The lakes are most likely the result of ancient sinkholes formed by the dissolution of the underlying limestone. The lakes range in size from a few tens of acres to more than 5,500 acres at Crooked Lake in southern Polk County. Drainage alterations occur on many of the lakes to facilitate flow during flooding conditions, although several of the lakes, especially in the uplands portion of the central ridge have not discharged any surface water for the past 25 years due to low lake levels.

Figure 4. Lake Wales Ridge Watershed Map



The Lake Wales Ridge forms the surface water divide between the Peace and Kissimmee rivers. The western side of the ridge drains into the Peace River and its major tributaries. The eastern side of the Lake Wales Ridge is drained by the Kissimmee River and its major tributaries, including Arbuckle Creek and Josephine Creek. Surface water runoff ranges from zero (internally drained) along the sandhills to as much as 11 inches/year where confining clays are thicker and more competent.

Hydrogeology – The groundwater system underlying the Lake Wales Ridge CWM area consists of a multi-aquifer system that is comprised of a thick sequence of carbonate rock overlain by clastic sediments. In descending order, these sediments consist of a near surface unconfined sand aquifer, a confined intermediate aquifer system and the confined Floridan aquifer system. Two low permeability layers, the upper confining unit and the lower confining unit, separate the aquifers. A gypsiferous limestone and dolomite layer separates the Upper Floridan aquifer from the Lower Floridan aquifer. This evaporite layer forms the bottom boundary of the freshwater system. In peninsula Florida, the Upper Floridan aquifer is the principle aquifer used for water supply. The Lower Floridan aquifer consists of brine-saturated limestone and dolomite and is not utilized for water supply. Because of this situation, all further reference to the Upper Floridan aquifer will be termed the Floridan aquifer.

At the surface and extending from 10 to more than 300 feet in depth is the unconfined surficial aquifer. It is comprised of quartz sand of Holocene and Pleistocene age that grades into less permeable clayey or silty sands with depth. The thickness of the surficial aquifer varies widely along the length of the Lake Wales Ridge with aquifer thickness ranging from about 50 feet in Polk County to 300 feet in southern Highlands County. East and west of the Lake Wales Ridge, aquifer thickness is generally less than 100 feet.

Underlying the surficial aquifer is the confined intermediate aquifer system. The intermediate aquifer system generally consists of the Peace River and Arcadia Formations of the Hawthorn Group. It includes all the water-bearing units and confining layers between the surficial and Floridan aquifers. The intermediate system may contain as many as three distinct aquifers that are composed of phosphatic carbonates and clastic materials. The intermediate system is heterogeneous and varies widely in lithology and thickness. The intermediate system is confined above by clay, marl and sandy clay of the Hawthorn Group (Miocene age). The system is bounded below by a unit comprised of sandy clay and clayey sand of the Tampa member of the Hawthorn Group.

The thickness of the intermediate aquifer system ranges from nearly zero near the extreme north part of the watershed to more than 500 feet in southern Highlands County. Underlying the intermediate aquifer system are limestone and dolomite formations several hundred feet thick. Where carbonates of the Arcadia Formation are in direct hydraulic connection with the lower limestone formations, the uppermost unit is the Tampa Member of the Arcadia Formation, formerly designated as the Tampa Limestone. In descending order below the Tampa Member are the Suwannee Limestone, the Ocala Limestone and the Avon Park Formation. This carbonate sequence comprises the confined Floridan aquifer. The base of the Floridan aquifer occurs where gypsiferous dolomite is encountered within the Avon Park Formation. The entire thickness of the Floridan aquifer in the watershed ranges from about 1,200 to 1,400 feet.

Land Use, Growth and Development – Table 18, which is based on GIS analysis of 1995 photography, shows the distribution of land use within the Lake Wales Ridge watershed. The landscape of the Lake Wales Ridge is dominated by agriculture, with an estimated 151,465 acres (or 41.4%) of the watershed dedicated to farming; citrus groves being the most prominent

and widespread crop land. Urban and built-up land use is second in prominence with 17.4% or approximately 63,604 acres (and growing) of the watershed in this land use category. Together, land use classifications of barren land, mining, transportation, communication and utilities, only comprise a little over 1.1% (4, 513 acres) of the watershed. Water, in the form of lakes and streams, is estimated at 10.1% (36,774 acres); while wetlands occupy an estimated 43,562 acres (11.9%) of the watershed. For the broad category of upland forests (which includes a variety of natural upland communities along with tree crops/plantations), it is estimated that nearly 11% (or 39,429 acres) of the watershed is under this land use designation. The remainder (7.2 % or 26,274 acres) is designated rangeland, a broad land use category which includes lands covered with herbaceous and shrub vegetation ranging from palmetto prairies to scrub areas.

The well-drained sands of the Lake Wales Ridge provide ideal conditions for citrus farming, ranching and housing developments. It is estimated that by 1990, these conditions, coupled with increased population into the Lake Wales Ridge have resulted in the loss of nearly 85% of the natural uplands (scrub and sandhills) along the Lake Wales Ridge. The remaining natural areas within the Lake Wales Ridge occur in a few large tracts and many small, fragmented, widely scattered parcels. These last vestiges of the Lake Wales Ridge's ancient ecosystems are under the imminent threat of development. In addition to the widespread loss of habitat and continual fragmentation, many of the unique plants and animals of the Lake Wales Ridge's habitats are at risk of extinction because of many years of fire suppression.

Table 14. 1999 Land Use and Cover for the Lake Wales Ridge Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	148,994	41%
Barren Lands	478	0.1%
Communication, Transportation & Utilities	1,990	1%
Extractive	2,081	1%
Rangeland	24,202	7%
Upland Forests	38,646	11%
Urban and Built Up	64,487	18%
Water	36,685	10%
Wetlands	44,157	12%
Total	361,719	100%

Source: SWFWMD Geographic Information System (GIS)

B. Land Acquisition

Two land acquisition projects are identified for the Lake Wales Ridge watershed. The Upper Lake Marion Creek Watershed project is a jointly managed area with the South Florida Water Management District as the lead agency. The Bowlegs Creek study area is a tributary to the Peace River.

Table 15. Land Acquisition Projects Within the Lake Wales Ridge Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Bowlegs Creek					5,269	5,269
Jack Creek	1,284					1,284
Upper Lake Marion Creek Watershed	277		1,621			1,898
Total	1,561	0	1,621	0	5,269	8,451

Note: all acreages derived using geographic information system software

Little Manatee River Watershed

A. Watershed Description

Location – The Little Manatee River originates in a swampy area east of Fort Lonesome in southeastern Hillsborough County and flows generally westward for about 32 miles toward its discharge point into Tampa Bay near Ruskin (Figure 5, Little Manatee River Watershed Map). The Little Manatee drains approximately 222 square miles of land. The maximum length of the main riverine system is approximately 40 miles. For the period 1940 - 2003, the river's yearly mean discharge was 171 cfs at the U.S. 301 Bridge.

The Little Manatee River watershed extends over the southern part of Hillsborough County and the northern portion of Manatee County. The watershed is bordered by the Alafia River watershed to the north, the Manatee River watershed to the south and to the east by the Peace River watershed. The watershed incorporates the City of Palmetto and communities of Parrish, Ruskin, Sun City and Terra Ceia. Other features of interest include Lake Wimauma, Lake Parrish, the Little Manatee River State Recreation Area and the Cockroach Bay Aquatic Preserve.

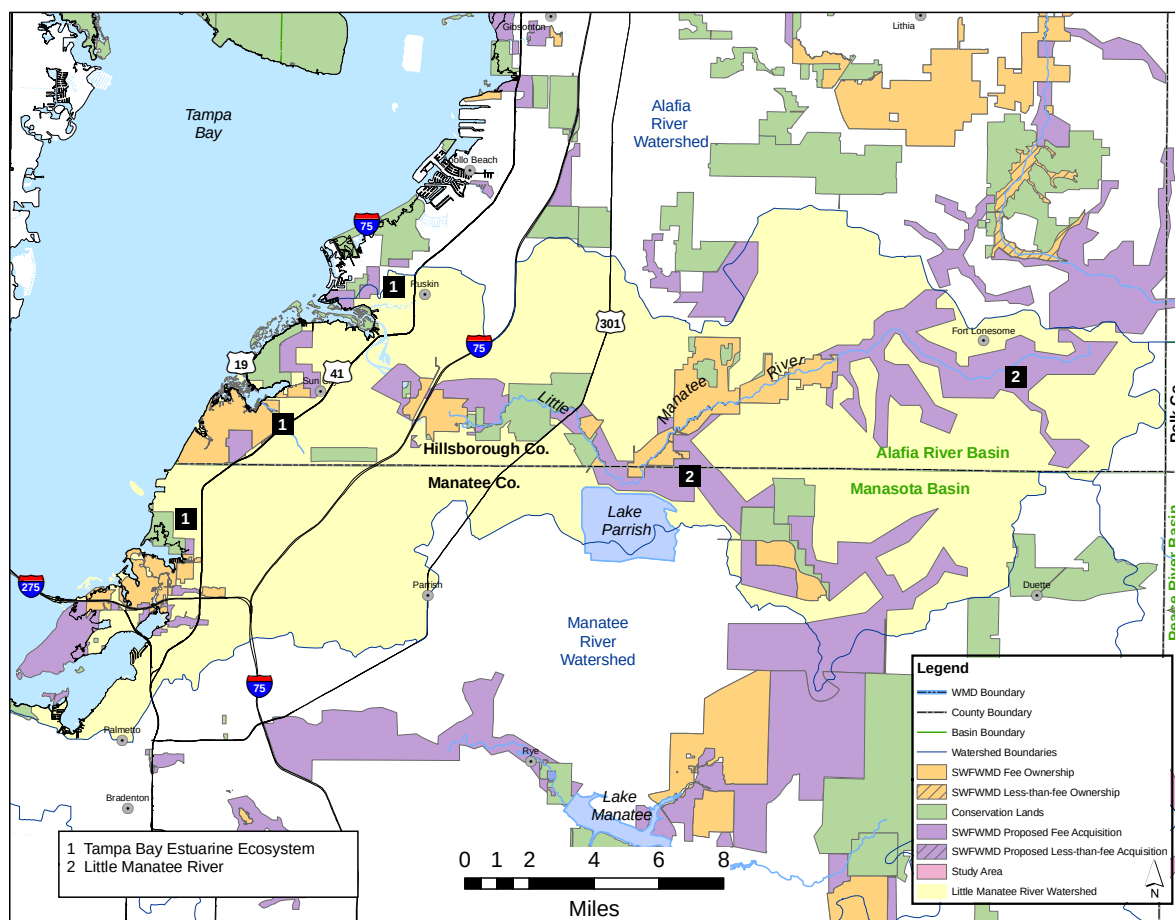
Climate – West-central Florida has a humid subtropical climate. The mean normal yearly temperature for Hillsborough County is 72.2° F, generally ranging from a normal maximum temperature of 91° F in July and August, to a normal minimum temperature of 49° F in January. Evapotranspiration for the area encompassing the Little Manatee River watershed is approximately 39 inches per year. Greatest ET rates occur in May and June and nearly 60 percent of the total yearly ET occurs during the period between May and October.

The average annual normal precipitation for the Little Manatee River watershed rainfall stations is 66.75 inches for the year 2004. For the period 1915- 2004, the annual average rainfall for the watershed is 53.64 inches. In a typical year, approximately 60 percent of the annual precipitation comes from convective thunderstorms during the four-month period between June through September. Periods of extremely heavy precipitation associated with the passage of tropical low pressure systems may occur during summer and early fall.

Physical Description – The Little Manatee River watershed lies within three physiographic provinces; the Gulf Coastal Lowlands, DeSoto Plain and the Polk Upland. The lower portion of the watershed flows over the Gulf Coastal Lowlands province and DeSoto Plain, relatively flat plains extending eastward with a gentle slope upward to the border with the Polk Upland physiographic province. The western edge of the Polk Upland is defined by the presence of the first of several paleoshoreline scarps associated with the Pleistocene ice-age sea level fluctuations. This physiographic feature is known as the Pamlico Scarp or shoreline. Elevations in the Gulf Coast lowlands and DeSoto Plain range from sea level to 50 feet NGVD.

The remainder of the Little Manatee River watershed is situated in the Polk Upland Province. Elevations in the extensive Polk Upland range up to between 100 and 130 feet. The watershed's elevations, however, range between 25 and 75 feet. Eastward of the Pamlico Scarp the river's banks attain a narrower, steeper profile and some spots are bluff-like with 20-25 feet of relief from the river's water level. In the vicinity of Wimauma, the physiography adjacent to the river is composed of low sand hills which in some cases attain 75 feet in elevation. The Talbot and Penholoway paleoshorelines pass through this area in a north-south orientation, with identifying surface features having elevations of 25 to 42 and 42 to 75 feet, respectively.

Figure 5. Little Manatee River Watershed Map



In the Polk Upland province, near the town of Fort Lonesome, the river travels over the clay-rich Bone Valley Member of the Peace River formation. This is the lithologic unit planned for extensive mining for phosphate minerals in the eastern part of the Little Manatee watershed. The river's banks in this region become less steep with many low relief floodplain or wetland areas surrounding the river. Much of this area will have its physiography and associated surface water drainage systems modified by future mining activity. Altered physiographic features in this region will include many water-filled, former mine pits and large, diked clay-settling areas of various rectilinear configurations as in the Alafia River watershed.

Primary soil groups in the Little Manatee River watershed include the Myakka-Urban land-St. Augustine and Estero-Wulfer-Kesson groups in the coastal areas. These associations are nearly level, poorly drained black soils commonly found in swamps, tidal marshes and river flood plains. Inland from these areas, the prevalent soil types are the EauGallie-Floridana, Myakka-Basinger-Holopaw, Malabar-Wabasso-Bassinger, Myakka Immokalee-Pomello, Myakka Waveland Classic and Waveland-Pomello-Myakka associations. These groups include nearly level and poorly to moderately drained soils characteristic of flatwood areas.

Hydrogeology – The Little Manatee watershed is underlain by water-bearing limestones and dolomites of Eocene to Miocene age, covered by a 200-300 foot layer of unconsolidated sands and sandy clays of Pliocene, Pleistocene and Recent origin. The watershed lies within the

southern groundwater basin and contains three distinct aquifer systems: the surficial, intermediate and Floridan. The surficial aquifer is unconfined and is composed of variable amounts of clean quartz to clayey sand. At the base of the surficial aquifer, there may be phosphate grains and clays present that have been reworked from the underlying phosphate-bearing Bone Valley Member. The underlying intermediate aquifer is made up of the permeable lithologies present in the Hawthorne Group including the lowermost limestone unit (Tampa Member). In the Little Manatee River watershed, the intermediate aquifer serves as a locally important potable water source for domestic wells.

The upper Floridan aquifer interval is the primary artesian aquifer throughout Florida and much of the southeastern United States. It includes all the limestone and dolomite layers of Eocene to Miocene age that lie below the upper confining layer that separates it from the overlying intermediate aquifer. The average thickness of the Floridan aquifer system is approximately 1100 feet in the Little Manatee River watershed area. The Floridan aquifer is the potable water source for most of the watershed. In the coastal areas, this aquifer contains high total dissolved solids making it less desirable for potable water and for some agricultural purposes.

Land Use, Growth and Development – The Little Manatee river watershed is a relatively undeveloped watershed in comparison to others draining to Tampa Bay. Table 20 shows the distribution of generalized land uses and land cover for the watershed in 1999. As indicated in the table, nearly 50 percent of the land within the watershed is considered agricultural. This land use pattern predominates particularly in the central and eastern portions of the watershed. Agricultural activity commonly associated with the area includes citrus, dairy, row crops and aquaculture. The eastern half of the watershed is part of the phosphate district. In this area, the phosphate industry has large holdings either being mined or slated for the activity in the near future. Future mining areas are often placed in an agricultural use such as pasturelands until the mining activity occurs.

Table 16. 1999 Land Use/Land Cover for the Little Manatee River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	84,917	48%
Barren Lands	107	0.1%
Communication, Transportation & Utilities	2,961	2%
Extractive	9,236	5%
Rangeland	10,799	6%
Upland Forests	15,120	9%
Urban and Built Up	17,956	10%
Water	5,165	3%
Wetlands	29,667	17%
Total	175,929	100%

Source: SWFWMD Geographic Information System (GIS)

In the watershed's western quarter, near the coast, urban development is prevalent. This development pattern appears as a band running north-south. The urban band encompasses the urban areas of Palmetto, Terra Ceia, Ruskin and Sun City and areas in the vicinity of the major north-south transportation corridors (i.e., I-75 and U.S.301).

In the remainder of the watershed, large expanses of swamps and uplands remain undeveloped. These lands are the most prevalent along the riverine corridors, including the North and South Forks up to the headwater areas. In 1999, natural lands (i.e., upland forest and wetlands) made up 44,787 acres or 26 percent of the total watershed acreage.

The watershed had an estimated 2000 population of 55,062. Forecasts show population increasing to 87,075 by 2025, representing an increase of 58.14 percent.

B. Land Acquisition

The Little Manatee River project is the primary land acquisition project identified within the watershed. It is an expansive project area, consisting of riverine floodplain wetlands and upgradient uplands along the majority of the river's length. The project also provides a contiguous riverine greenway linkage with the Alafia River Corridor project to the north and the Lake Manatee Reserve project to the south.

Table 17. Land Acquisition Projects Within the Little Manatee River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Little Manatee River	6,989		22,389			29,378
Tampa Bay Estuarine Ecosystem	4,034		3,847			7,881
Total	11,023	0	26,236	0	0	37,259

Note: all acreages derived using geographic information system software

Manatee River Watershed

A. Watershed Description

Location – The Manatee River watershed is located almost entirely in Manatee County in the urbanizing Tampa Bay region of west-central Florida. The Manatee River begins at an elevation of about 130 feet NGVD in marshes in the northeastern part of the County near Four Corners and flows approximately 45 miles in a westerly direction to southern Tampa Bay and the Gulf of Mexico. The river drains an area of about 360 square miles consisting mainly of Gulf Coastal Lowlands, hardwood swamps, marsh and mesic flatwoods.

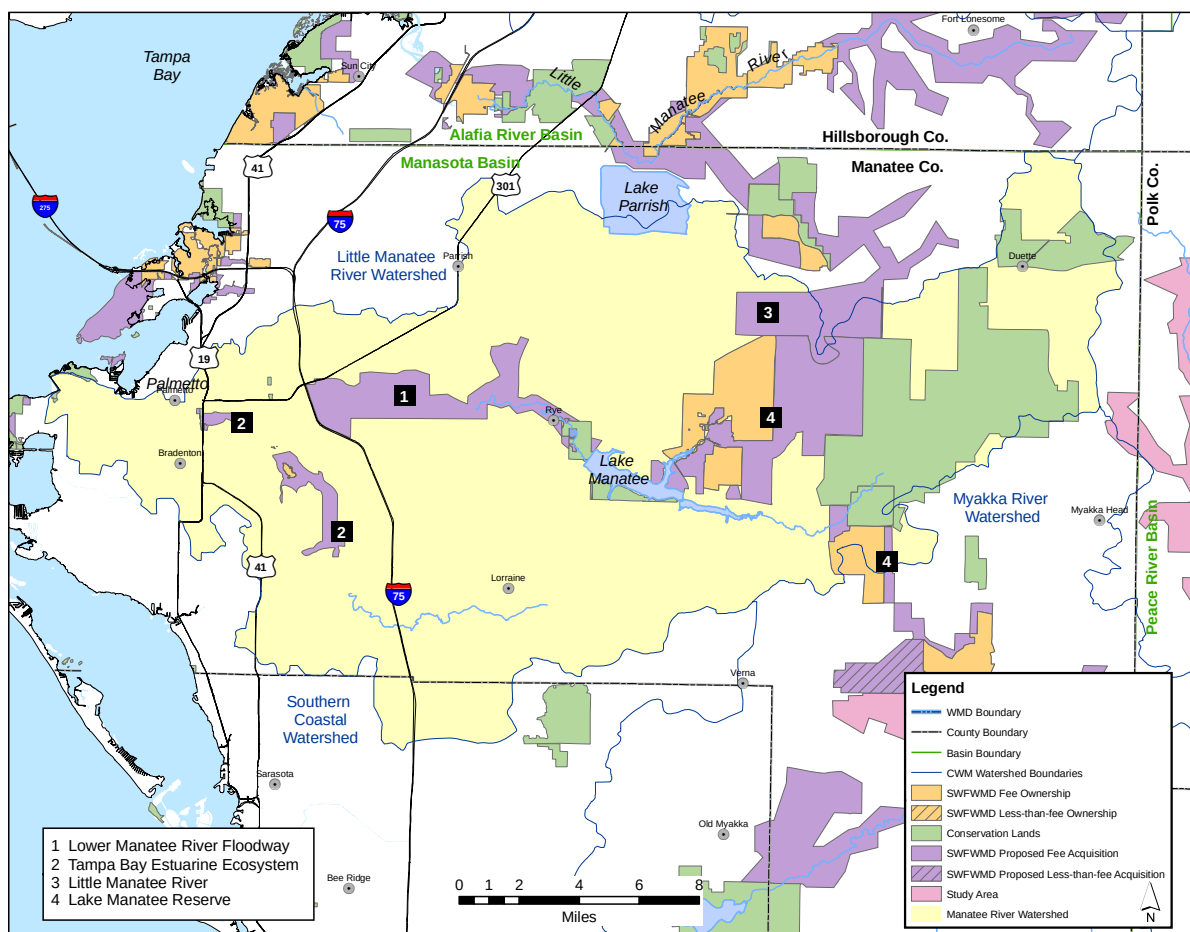
The Manatee River watershed includes more than 230,000 acres extending over most of the northern and western parts of Manatee County with small portions reaching into northern Sarasota County and southeastern Hillsborough County (Figure 6, Manatee River watershed Map). It is bounded to the north by the Little Manatee River watershed and coastal basins along Tampa Bay, to the east by the Peace River watershed, and to the south and west by the Myakka River and Southern Coastal area watersheds, respectively. The cities of Bradenton and Palmetto are the only incorporated areas within the watershed. Other communities within the watershed include Parrish and Duette. Features of interest within the watershed include the Lake Manatee State Recreation Area, the Lake Manatee Reservoir, the Braden River and the Evers Reservoir, Duette Park, the Upper Manatee River Florida State Canoe Trail and Rye Wilderness Park.

Climate – Manatee County has a humid, sub-tropical climate characterized by high mean annual rainfall and temperature. National Weather Service data indicate that the mean annual air temperature in the County is about 72° F and mean monthly temperatures range from 60° F in winter to 80° F in summer. Summer temperatures usually peak in the low to mid-90s but are moderated by frequent afternoon convective thundershowers. Winter temperatures can exhibit considerable variation throughout a single day with freezing temperatures at night and early morning and mild weather in the afternoon. Cold weather generally lasts for only a few days at a time as cold fronts move through the region and daylight temperatures rarely remain below freezing. Average low temperatures are near 50° F during the coldest months of December through February.

Rainfall amounts in the County average about 54 to 55 inches per year with both seasonal and annual variation. April and November are the driest months as they are generally the least affected by local convective thundershowers or by rains preceding cold fronts. Late winter cold fronts cause a small increase in average rainfall in February and March. In a typical year, approximately 50-60 percent of the annual precipitation comes from convective (thunder) storms during the four-month period from June through September. The evapotranspiration rate in the region encompassing Manatee County is estimated to be about 39 inches per year with about 60 percent occurring from May to October. Evaporation is greatest in May and lowest in December.

Physical Description – The Manatee River Watershed lies within three physiographic provinces: the Polk Upland, the DeSoto Plain and the Gulf Coastal Lowlands from east to west. The Manatee River begins in the eastern part of the County in the Polk Uplands and flows down through the DeSoto Plain to the Gulf Coastal Lowlands in the west. The Gulf Coastal Lowlands are composed of nearly level plains while the DeSoto Plains and Polk Uplands have a gently rolling topography.

Figure 6. Manatee River Watershed Map



The Gulf Coastal Lowlands province lies generally along the west coast and varies up to about forty miles inland in some places. Within the Manatee River watershed, it extends about 10-15 miles inland, nearly to the Lake Manatee reservoir. The Gulf Coastal Lowlands are characterized by flat topography with elevations generally below 40 feet and sandy, shelly and silty sand soils.

The DeSoto Plain extends eastward for about 3 miles in the northern portion of the watershed to about 10 miles in the southern portion and consists of generally white sandy soils at elevations from about 40 to 100 feet. The Polk Upland occurs in the northeast quadrant of the County, eastward of the Lake Manatee Reservoir at elevations from approximately 100 to 140 feet and contains Bone Valley Formations.

The soils found in Manatee County and the Manatee River watershed range from well drained to poorly drained. They consist of the Delray-Floridana, Felda-Wabasso and Tomoka Associations, the Okeelanta and Estero-Wulfert-Kesson Associations, the Waveland-Pomello-Myakka, Myakka-Waveland-Cassia, Eau Gallie-Floridana and Wabasso-Bradenton-Eau Gallie Associations, as well as the Pomello-Cassia-Duette and Tavares-Cassia-Zolfo and the Canaveral-Beaches-Myakka Associations.

Hydrogeology – Manatee County lies within the Southern West-Central Florida Ground-Water Basin and is underlain by a multi-layered freshwater aquifer system that includes the surficial, intermediate and Floridan aquifer systems. Miocene to Recent age sands, phosphatic sands, silts, marls, limestones and phosphorites of variable thickness overlie Cretaceous and Tertiary carbonate deposits. Miocene to Recent age deposits include in descending order, Pliocene to Recent age undifferentiated sands, the Pliocene Bone Valley Formation and the Miocene Hawthorn Formation.

The surficial aquifer occurs in the undifferentiated sands which overly the entire County and vary from less than 25 feet along the coastal areas to more than 50 feet in thickness in the northeastern areas of the County. The intermediate aquifer occurs in the Hawthorn Formation that is present throughout the County and varies in thickness from less than 200 feet to more than 350 feet. Below the Miocene to Recent age deposits are a thick sequence of sedimentary rocks that comprise the Floridan aquifer system, the primary artesian aquifer throughout Florida. The Floridan system, which can be divided into the Upper and Lower Floridan aquifers throughout the County, thickens from approximately 1,200 feet in the northern areas of the County to more than 1,600 feet to the south.

Surface water hydrology of the Manatee River watershed consists of primarily stream systems of dendritic drainage forming the River and its tributaries and headwaters. Major headwater streams include the East Fork Manatee River and Gilly Creek. Other major tributaries include Gamble Creek, Mill Creek and the Braden River. The headwaters and tributaries also include several small named and unnamed creeks and streams. The East Fork Manatee River is dammed to form Lake Manatee just downstream from its confluence with Boggy Creek. Further downstream, at its confluence with Gamble Creek, the River widens and becomes somewhat braided with islands prominent within the channel. This drainage pattern ceases approximately a mile east of Interstate 75. The Braden River also becomes braided with prominent islands just upstream from its confluence with the Manatee River.

Land Use, Growth and Development – The Manatee River watershed reflects a wide variety of land uses and conversions of natural lands, principally as a result of urban, suburban, commercial, industrial and agricultural development. As shown in Table 22, 1999 land use data showed that urban and built-up lands comprised about 32,260 acres, 14 percent of the total watershed, agriculture comprised 92,979 acres or 43 percent, rangeland approximately 32,942 acres (14.3%), upland forests some 25,696 acres (11.1%), and wetlands 30,452 acres (13.2%) of the watershed. The majority of the urban and built-up lands occur in the westernmost portions of the watershed, in the cities of Bradenton and Palmetto and in adjacent unincorporated areas of Manatee County. This follows the typical historic pattern where coastlines and rivers were developed early as they served as transportation corridors. Later, railroad and highway development reinforced this pattern due to waterways acting as physical barriers, the need to serve existing, growing populations and the high value and desirability of waterfront properties.

Table 18. 1999 Land Use and Land Cover for the Myakka River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	92,979	40.3
Barren Lands	119	0.05
Communication, Transportation & Utilities	3,385	1.5
Rangeland	32,942	14.3
Upland Forests	25,696	11.1
Urban and Built Up	32,260	14
Water	12,773	5.5
Wetlands	30,452	13.2
Total	230,606	100

Source: SWFWMD Geographic Information System (GIS)

A significant portion of the development in Manatee County and in the watershed occurs in areas designated by the Federal Emergency Management Administration (FEMA) as floodprone. Inappropriate development of floodprone areas can cause threats to human activities, property and the quality of the environment. Other areas not currently designated by FEMA as floodprone may suffer from localized flooding due to many factors, including changing conditions resulting from nearby development.

The population of Florida has increased greatly during recent years and Florida's coastal communities have experienced a large portion of the growth. The vast majority of the residents of Manatee County and most of the seasonal visitors to the area live within a relatively narrow corridor extending roughly ten miles inland from the Gulf. Most of the future growth in the region is expected to occur in this corridor as there is ample land available for development and local governments are encouraging concentrated development where adequate infrastructure exists or is expected to be developed. This means that the vast majority of the Manatee River watershed will eventually become urbanized.

The region encompassing the watershed has experienced tremendous growth in the recent past. Manatee County's population grew by nearly 43 percent during the 1980's and experienced an additional 25% growth in the 1990s. Nearly all of the recent population growth in the region can be attributed to net migration. The population of the region is expected to continue to grow considerably, although at a rate less than that which occurred in the 1980s. The population of the watershed was estimated to be 143,130 in the year 2000 and is projected to increase to 231,089 by 2025, representing a 61 percent increase.

B. Land Acquisition

Four land acquisition projects have been identified with the Manatee River watershed. The Lake Manatee Reserve project is located within the river's headwaters region, west and contiguous with conservation lands owned by Manatee County. Preservation of these lands will provide valuable protection of water quality conditions within the downstream potable water supply source (Lake Manatee), as well as protection of wildlife habitats. This project area connects with the Little Manatee River project to the north and the Upper Myakka River project to the south creating a contiguous greenway. The third project is west, along the Manatee River, known as the Lower Manatee River Floodway. The last area is part of the Tampa Bay Estuarine Ecosystem project and includes natural uplands and wetlands along the lower half of the Braden River and the north side of the Manatee River near Palmetto.

Table 19. Land Acquisition Projects Within the Manatee River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Lake Manatee Reserve	6,973	25	10,112			17,110
Little Manatee River			3,871			3,871
Lower Manatee River Floodway			6,990			6,990
Tampa Bay Estuarine Ecosystem	66		1,853			1,919
Total	7,039	25	22,826	0	0	29,890

Note: all acreages derived using geographic information system software

Myakka River Watershed

A. Watershed Description

Location – The Myakka River watershed extends over 550 square miles and includes lands in Manatee, Sarasota and Charlotte Counties (Figure 7, Myakka River Watershed Map). The Myakka River flows nearly 66 miles from Myakka Head southwest to the Charlotte Harbor Estuary. Just downstream of Myakka Head, seven tributary creeks come together near Myakka City to form Flatford Swamp, a regionally important and unique surface water feature. Other important surface water features within the Myakka River watershed include, portions of Tatum Sawgrass, Upper Myakka Lake and Lower Myakka Lake. Much of the Myakka River has special protective designations. The 34-mile segment of the Myakka River in Sarasota County has been designated a Wild and Scenic River by the State of Florida. Together with the estuarine portions of the river, it is designated an Outstanding Florida Water by the Florida Department of Environmental Protection. Myakkahatchee Creek is a main tributary of the Myakka River and supplies the City of North Port and part of Port Charlotte with potable water.

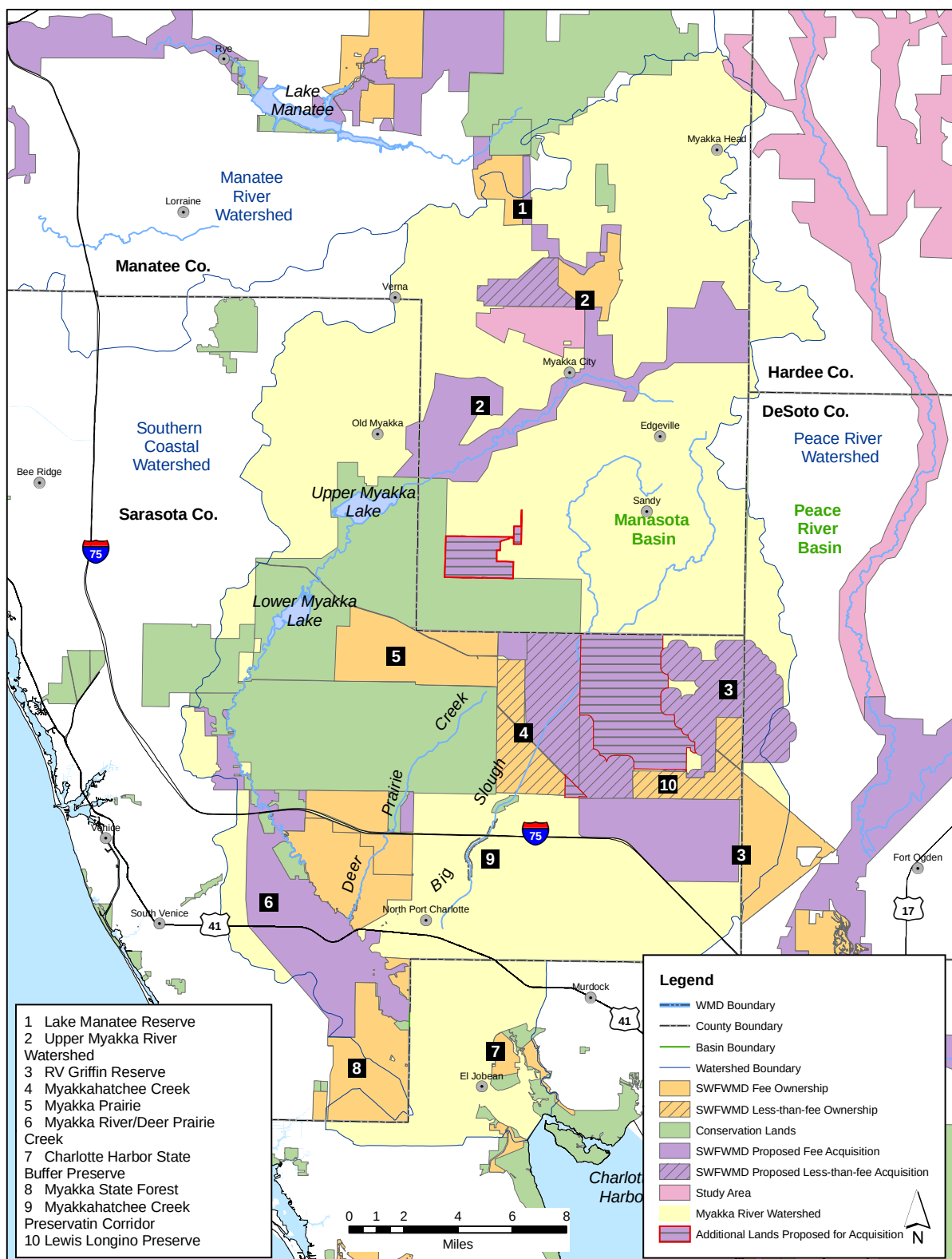
Land uses in the Myakka River watershed are predominantly rural, except for the City of North Port and several “estate-type” residential subdivisions. Development of the region has generally been limited to agricultural activities including improved pasture and vegetable row crops. Uplands within the watershed consist of pine flatwoods, rangeland, scrubby flatwoods, oak scrub, xeric hammock, mesic-hydric hammock, dry prairie and agricultural/developed lands. Wetlands include mixed hardwood swamps, freshwater marshes/wet prairies, saltwater marsh and mangrove swamps.

Climate – The climate of the Myakka River watershed is humid, near-subtropical, characterized by high mean annual rainfall and temperatures. Warm humid summers and mild winters are the result of the watershed’s southern peninsular location and the stabilizing effect of the Gulf of Mexico. Mean annual air temperature within Sarasota County, which encompasses the central portion of the watershed, is approximately 73 degrees Fahrenheit (° F), with a mean daily temperature range from 84° F in summer to 61° F in winter. Along the coast, temperatures are slightly higher in the winter and lower in the summer due to the moderating effect of the Gulf of Mexico. Summer temperatures usually peak in the low to mid-90s but are moderated by frequent afternoon convective thundershowers. Winter temperatures can exhibit considerable variation throughout a single day with below freezing temperatures at night and increases of as much as twenty degrees or more through the late afternoon. Cold weather generally lasts for only a few days at a time as cold fronts move through the region and daylight temperatures rarely remain below freezing. Average low temperatures are near 50°F during the coldest months of December through February.

Rainfall averages around 51 inches per year and varies both seasonally and annually. April and November are the driest months as they are generally the least affected by rains preceding cold fronts or by local thundershowers. Late winter cold fronts cause a small increase in average rainfall in February and March. In a typical year, approximately 60 percent of the annual precipitation comes from convective storms during the four-month period from June through

September. Periods of very heavy rainfall associated with the passage of tropical low pressure systems may occur during summer and early fall. Annual rainfall has ranged between 82 and 31 inches during the period from 1943 to 1995 at the Myakka River State Park weather station. The maximum daily rainfall was 10.1 inches recorded in September 1962. The dry season is from October to May. Often in the late spring, no measurable rainfall will occur for four to six weeks

Figure 7. Myakka River Watershed Map



or more. This dry season coincides with the peak tourist season and also the time of greatest irrigation demand.

Evapotranspiration in the greater region that encompasses the Myakka River watershed is estimated to be approximately 39 inches per year. Rainfall that is not “lost” through evapotranspiration is available for groundwater recharge or dissipates as runoff. ET rates are greatest in May and June and are lowest in December, with approximately 60 percent of the total yearly ET occurring during the six-month period between May and October.

Physical Description – The Myakka River watershed is contained in three subdivisions of the central or mid-peninsular physiographic zone of Florida, predominantly in the Gulf Coastal Lowlands with the upper portion of the river, generally above the State Park, within the DeSoto Plain and a small part of the headwaters in the Polk Upland unit. The Gulf Coastal Lowlands are characterized by flat topography with elevations generally below 40 feet NGVD and sandy, shelly and silty sand soils with little organic matter. The DeSoto Plain consists of generally white sandy soils at elevations from about 40 to 100 feet. The watershed's maximum elevation is around 116 feet in the northeastern part of the basin where terraces have eroded into rolling hills. The southwestern part of the basin is less than 20 feet and has little local relief.

The soils found in the watershed generally fall into four broad classifications and three joint classifications. Type A is a high infiltration rate, Type B is a moderate infiltration rate and Type C is a slow infiltration rate and Type D is a very slow infiltration rate.

Approximately 70 percent of the watershed may be classified as Type B/D, moderately to very poorly drained soils. These soils are generally level and sandy and are found in the extensive pine flatwoods and palmetto prairies of the watershed and associated low-lying areas as well as in oak/cabbage palm hammocks. These soils are often used for improved pasture, agriculture and urban development. Soils with very slow infiltration rates, i.e., very poorly drained soils, comprise about 21 percent of the watershed and are found mostly in flood plain forests, swamps, wetlands and tidal marshes. Soils with slow infiltration rates, poorly drained soils, comprise about five percent of the watershed and are generally found in flood plain, swamp and slough areas. The majority of the watershed is very flat with subtle variations in topography that create many small depressions, sloughs and rises. These in turn form a fine mosaic of wetlands, uplands, hammocks and other vegetative associations with many ecotones, areas of change between associations. The Myakka River watershed is valuable and significant due to the variety, quality and diversity of its landscape.

Hydrogeology – The Myakka River watershed is located within the Southern West-Central Florida Ground-Water Basin (SWCFGWB or the Basin), one of three distinct ground water basins within west-central Florida. No significant ground water flow crosses the basin boundaries; hence, all ground water is derived from recharge by rainfall within the Basin. Upper Floridan aquifer flow in the SWCFGWB is derived primarily from rainfall recharge that occurs in the Lake Wales Ridge and Green Swamp areas, located to the east and north of the Basin, respectively. Down gradient of these areas, ground water flows west and southwest toward and into the Gulf of Mexico.

Within the SWCFGWB, the ground water system is divided into three main aquifers: the surficial, the intermediate and the Floridan. A confining layer of variable thickness and areal extent separates each aquifer. The uppermost aquifer, the surficial, is largely undeveloped due to its small thickness and low permeability, except near the coast and in Charlotte County where ground water from deeper aquifers is too mineralized for potable use. The surficial aquifer

occurs in the undifferentiated sands that overlie the watershed and generally vary from less than 25 feet in the southern areas to more than 50 feet in thickness in the northeastern areas of Manatee County. These sands yield limited quantities of water, primarily used for lawn irrigation and are economically mined for their silica sand and shell hash content.

Underlying the surficial aquifer is the intermediate or secondary artesian aquifer system that occurs in the Hawthorn Formation. The intermediate aquifer system is a moderately prolific, but highly developed source of water and is widely used for domestic and public supplies south of Polk County. Within the SWCFGWB, the intermediate aquifer averages 700 feet in thickness in southern Charlotte County, but thins toward the north. Within the Myakka River watershed, the intermediate aquifer varies in thickness from less than 200 feet to more than 350 feet. The upper Hawthorn is a green sand and clay containing black phosphate grains. This upper unit is sometimes included with the Bone Valley ore matrix and targeted for phosphate mining. The lower Hawthorn is yellow to white sand, clay and limestone residual from carbonate rock. The fine sand is quartz with black or brown phosphate. Lenses of pure limestone, clay and sand exist throughout the formation and domestic water well production occurs from the porous limestone layers.

The lowermost and most productive aquifer in the watershed is the Floridan aquifer system. The Floridan aquifer system thickens from approximately 1,200 feet in the northern areas of the watershed to more than 1,800 feet to the south. Generally, water quality in the Upper Floridan Aquifer is good but it tends to deteriorate due to increasing mineralization as one moves south. The Upper Floridan is the major source of water for agriculture, industry and public supply, except in southern DeSoto and Charlotte counties and the coastal areas of Manatee and Sarasota counties where water quality is relatively poor.

It should be noted that the Myakka River watershed lies entirely within a region designated by the District as the Southern Water Use Caution Area (SWUCA). This is an area where the Floridan Aquifer is well confined and highly transmissive. Thus, water withdrawals at a single point in the SWUCA can affect water levels over large areas of the SWUCA. Additionally, most of the watershed above Upper Lake Myakka lies within the Eastern Tampa Bay Water Use Caution Area (WUCA) and abuts the Most Impacted Area (MIA), an area where no new water withdrawals are allowed. The Myakka River watershed provides little recharge to the Floridan Aquifer which is generally recharged along the sand ridges (Lake Wales Ridge) in the eastern part of the District.

Surface waters within the Myakka River watershed include numerous fresh and saltwater wetlands and several stream and slough systems. One of the most significant surface water features within the watershed is the confluence of seven streams to form the Flatford Swamp that lies just upstream of State Road 70 near Myakka City in Manatee County. Other notable surface water features include Upper and Lower Myakka Lakes in the Myakka River State Park, Deer Prairie Creek in eastern Sarasota County and Myakkahatchee Creek/Big Slough Canal which begins in the southeastern part of Manatee County near Edgeville and flows through the City of North Port where it enters the estuarine portion of the river. Two surface water features unique to the area are Warm Mineral Springs and Little Salt Spring in North Port that are the southernmost springs in the SWFWMD.

Land Use, Growth and Development – The Myakka River watershed reflects a wide variety of land uses and conversions of natural lands, principally as a result of residential, commercial and agricultural development (Table 24). Land use in 1999 consisted of approximately 49,102 acres of urban and built-up lands, nearly 13 percent of the watershed total area, agriculture comprised

about 103,926 acres (27.2% of the watershed), rangeland some 64,605 acres (16.9%), upland forests some 68,126 acres (17.8%) and wetlands some 82,390 acres (21.5%). Overall, about 60 percent of the watershed consists of natural lands and the rest is either urban or agricultural land. It should be noted, however, that many of the areas now designated as “natural” were in the past logged, farmed, ditched or otherwise altered from their original predevelopment condition even though they may be considered high quality natural habitats today.

Florida’s population and economy have increased greatly during the past generation and coastal communities have seen a major portion of that growth. The vast majority of the residents of Manatee, Sarasota and Charlotte counties live within a relatively narrow corridor roughly ten miles inland from the Gulf. Most of the future growth is expected to occur in this corridor as there is ample land available for development and local governments are trying to encourage and concentrate development where adequate infrastructure and public facilities already exist or are expected to be developed. This means that roughly the portion of the Myakka River watershed south of I-75 will face continuing growth pressure and some rural areas such as the Myakka City/Verna area that are near major transportation corridors will probably see increasing development. Much of the watershed, however, is likely to remain relatively undeveloped due to its agricultural character, the existence of the Myakka River State Park, the Myakka River State Forest and lands protected by Sarasota County through its Environmentally Sensitive Lands Protection Program and coordinated public and private conservation and management efforts by such groups as the Charlotte Harbor National Estuary Program, the Myakka Wild and Scenic River Coordinating Council, Friends of the Myakka and the Myakka Conservancy.

Table 20. 1999 Land Use and Land Cover for the Myakka River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	104,810	27%
Barren Lands	256	0.1%
Communication, Transportation & Utilities	1,949	1%
Extractive	2,118	1%
Rangeland	62,002	16%
Upland Forests	68,050	18%
Urban and Built Up	52,208	14%
Water	10,674	3%
Wetlands	80,546	21%
Total	382,613	100%

Source: SWFWMD Geographic Information System (GIS)

Urban development within the watershed generally follows typical, historical patterns of development in Florida where coastal and riverine areas were developed first as they served as transportation corridors. The vast majority of the urban and built up lands occur in the southern portions of the watershed, in the City of North Port and adjacent unincorporated areas. The City of North Port has some 55,428 lots on 44,669 acres with the potential for more lots. Additionally, North Port has annexed more than 6,000 acres since 2000. Adjacent areas in Charlotte County also contain tens of thousands of undeveloped platted residential lots. Commercial development is generally limited to main thoroughfares, especially U.S. 41.

Future land use within the Myakka River watershed is expected to be similar to existing uses with some notable exceptions. Primarily as a result of the desire to protect the Myakka River, it has been designated a Wild and Scenic River and a protection zone has been created within which land uses and development proposals must undergo a higher level of scrutiny in the development permitting process. Also, they must adhere to higher performance standards in terms of setbacks, stormwater management, buffering and other criteria specified in Sarasota County's Land Development Regulations. Additionally, the mining of phosphate is expected to occur in the extreme northern and eastern portions of the watershed.

The population of Florida has increased greatly during recent years and Florida's coastal communities have experienced a large portion of the growth. The vast majority of the residents of Manatee, Sarasota and Charlotte counties and most of the seasonal visitors to the area live within a relatively narrow corridor extending roughly ten miles inland from the Gulf. Most of the future growth in the region is expected to occur in this corridor as there is ample land available for development and local governments are encouraging concentrated development where adequate infrastructure exists or is expected to be developed. This means that much of the Myakka River watershed will eventually become urbanized. A great deal of the Myakka River watershed, however, has been preserved as conservation through fee simple purchase and less-than-fee acquisition.

The region encompassing the watershed experienced tremendous growth in the recent past. During the 1980s, Manatee County's population grew nearly 43 percent, Sarasota County grew nearly 37 percent and Charlotte County grew by 90 percent. In the 1990s, population within the three counties increased at a substantially slower rate; Manatee County's by almost 25%, Sarasota County's by more than 17 percent and Charlotte County's population increased by just under 23%. Nearly all of the recent population growth in the region can be attributed to net migration. The population of the region is expected to continue to grow considerably, although at a rate less than that which occurred in the 1980s. The population of the watershed was estimated to be 47,447 in the year 2000 and is projected to increase to 72,326 by 2025, representing a 52 percent increase.

B. Land Acquisition

Several land acquisition projects are identified for the Myakka River watershed. They range from projects to preserve and protect natural areas, to projects important to natural systems restoration, water quality protection for Charlotte Harbor and flood protection along the Myakka River.

Table 21. Land Acquisition Projects Within the Myakka River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Charlotte Harbor State Buffer Preserve	1,275					1,275
Horse Creek					221	221
Lake Manatee Reserve	956		246			1202
Lewis Longino Preserve		3,804				3,804
Myakka Prairie	8,246			2,139		10,385
Myakka River/Deer Prairie Creek	10,126		16,252			26,378
Myakka State Forest	4,725					4,725
Myakkahatchee Creek		4,583	664	14,048		19,295
Myakkahatchee Creek Preservation Corridor			56			56
RV Griffin Reserve	3,343		9,034	11,490		23,867
Upper Myakka River Watershed	2,356		16,156	2,611	3,228	24,351
Total	31,027	8,387	42,408	30,288	3,449	115,559

Note: all acreages derived using geographic information system software

Peace River Watershed

A. Watershed Description

Location – The Peace River watershed (Figure 8, Peace River Watershed Map) includes portions of the cities of Lakeland, Auburndale and Haines City to the north and stretches south to Charlotte Harbor. Its western boundary includes portions of Hillsborough, Manatee and Sarasota counties and incorporates portions of Highlands County to the east. The watershed encompasses major portions of Polk, Hardee, DeSoto and Charlotte counties and covers an area of approximately 2,400 square miles.

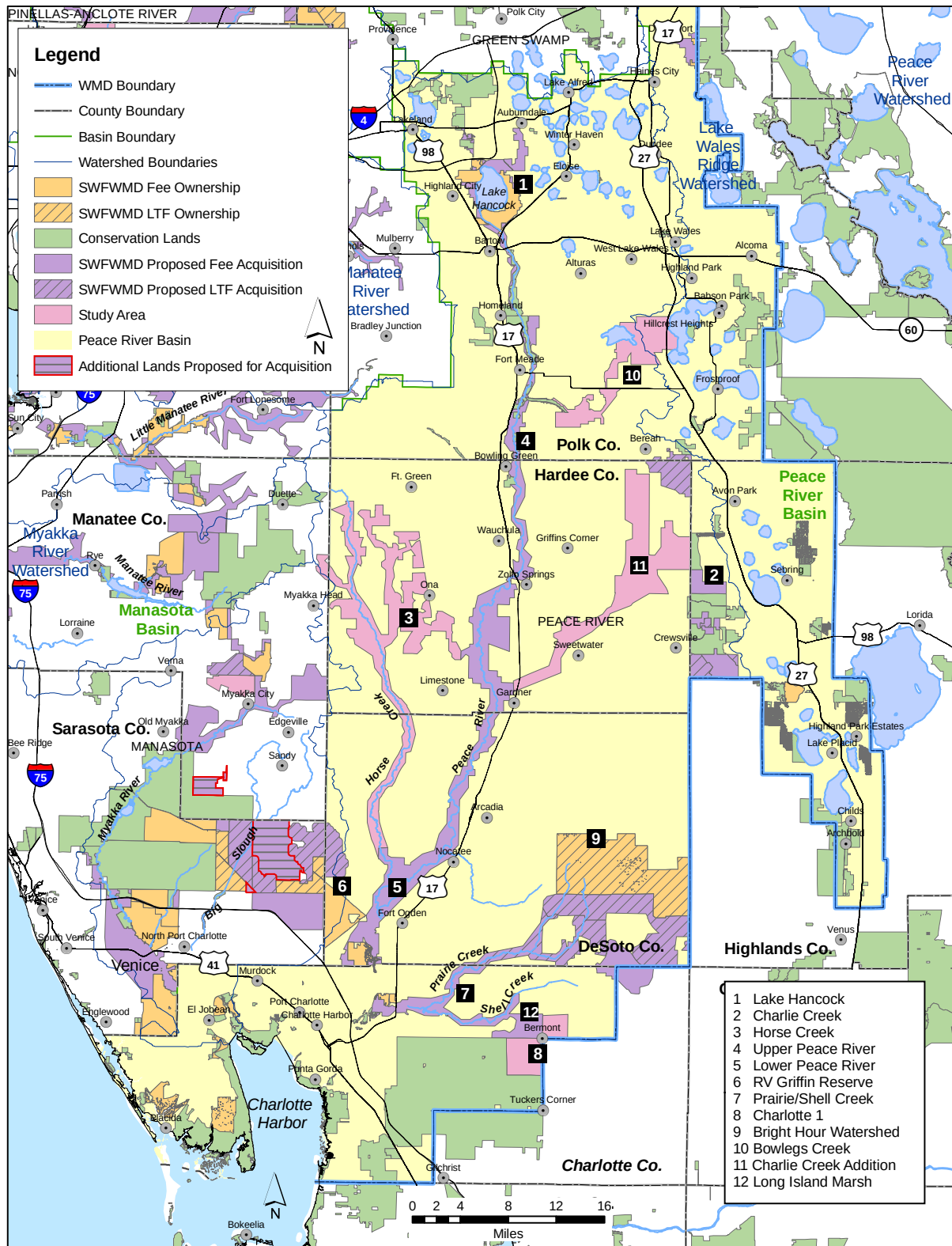
Climate – The climate of the area is subtropical and humid, with an average annual temperature of approximately 72° F and average annual rainfall of approximately 52 inches. More than 50 percent of the total annual rainfall typically occurs during the summer rainy season that extends from June through September. November is typically the month of lowest rainfall, although streamflows, lake stages and groundwater levels tend to reach annual lows in April and May due to a combination of low rainfall and high evapotranspiration rates. Freezing temperatures occur occasionally but are not common. Temperatures in coastal areas are moderated by the influence of the Gulf of Mexico and Charlotte Harbor. Temperature extremes tend to occur in inland portions of the watershed.

Tropical storms and hurricanes produce the most severe weather in the area. High tides and heavy rains cause flooding in low-lying areas adjacent to the coast and the tributary streams. Weather is the fundamental factor influencing coastal environments. For example, barrier islands have been completely overtopped by the tide and passes have opened and closed as the result of severe storms. During the period 1871-1973, tropical storms and hurricanes made an average of two landfalls per 100 years per 10 nautical miles of coast in the Charlotte Harbor area.

Physical Description – The three major physiographic provinces present in the Peace River Basin are the Polk Upland, the DeSoto Plain and the Gulf Coast Lowlands. These general regions have been subdivided into the Bone Valley Uplands, DeSoto Slope and Barrier Island Coastal Strip. The physiographic boundaries generally correspond to paleoshorelines (ancient shorelines). A paleoshoreline at the 100-foot elevation separates the upland regions from the plain and the 30-foot elevation separates the plain from the low coastal region.

The physiography of the Peace River watershed ranges from an internally drained lake district with highland ridges in Polk County, to a poorly-drained upland that extends into the northern half of Hardee County, to a broad, gently-sloping plain with well-developed surface drainage in southern Hardee County and most of DeSoto County. The Bartow Embayment, which extends from above Lake Hancock to directly north of Homeland, is an internally drained, local, erosional basin that has been partially infilled with phosphate-rich siliclastic deposits. The Polk Upland extends south from Homeland to Zolfo Springs and it corresponds to the Bone Valley Uplands. Polk Upland land surface elevations are generally greater than 130 feet above sea level. The area contains flatwoods, wetlands and lakes that occupy a poorly-drained plateau underlain by deeply weathered sand and clayey sand of the Bone Valley Member of the Peace River Formation. Natural drainage upstream of Bowling Green has been altered by area phosphate mining activity. The DeSoto Slope, or the DeSoto Plain, consists of wet prairie, swamp and flatwoods with a well-developed surface drainage system. The Gulf Coastal Lowlands and the Barrier Islands Coastal Strip are located where the Peace River discharges into the Charlotte Harbor Estuary.

Figure 8. Peace River Watershed Map



Portions of the watershed contain abundant phosphate deposits in the surficial and intermediate aquifer systems (primarily in the Bone Valley Member). Mining and processing of phosphate deposits have taken place in the upper Peace River basin since the late 1800s.

The Peace River watershed covers approximately 2,400 square miles, of which 2,020 mi² is monitored by U.S. Geological Survey (USGS) stream gages located at Arcadia, Horse Creek, Joshua Creek and Shell Creek. The headwater tributary streams occur in northern Polk County, with the river itself beginning at the junction of Saddle Creek and the Peace Creek Drainage Canal near Bartow.

The river flows generally southward for about 75 miles (through Polk, Hardee, DeSoto and Charlotte counties) and discharges into the northeastern portion of Charlotte Harbor near the City of Punta Gorda. Land surface elevations range from more than 200 feet above mean sea level near the headwaters to sea level at the river mouth. Upstream of Arcadia, the channel of the Peace River is generally well defined. Below Arcadia, however, the channel becomes braided and the width of the floodplain increases substantially, exceeding a mile in some places. Tidal influences have been observed during periods of low flow as far as five miles upstream from Fort Ogden. During periods of low river flow the system is tidally influenced from Fort Ogden to the mouth. However, tidal influences may have occurred further upstream in 2000 and 2001 due to extreme drought conditions.

Mined lands encompass a large area of the watershed, mostly near Ft. Meade and Zolfo Springs. These areas tend to retain initial rainfall volumes and provide surface discharge only after internal storage areas are filled. Additionally, many of these areas have controlled and permitted point source discharge outfalls. Consequently, freshwater flows from many of these internally-drained subbasins consist of significant quantities of industrial point source discharges.

Flows in the Peace River have been impacted by a variety of factors including long-term variations in rainfall; land use activities that have altered surface hydrology patterns; and groundwater withdrawals that supply industrial, agricultural and public supply water use needs. The river flows freely over its entire reach. Two tributaries have regulated flows, however, including a control structure (P-11) located on Saddle Creek south of Lake Hancock and a dam at the City of Punta Gorda's water supply reservoir on Shell Creek. The primary water withdrawals are made from the river at the Peace River/Manasota Regional Water Supply Authority (PR/MRWSA) water plant located south of Arcadia.

Hydrogeology – Three distinct hydrogeologic units occur in the Peace River watershed, including the (1) unconfined surficial aquifer, (2) confined intermediate aquifer system and (3) confined upper Floridan aquifer. The intermediate aquifer is bound by an upper and lower confining unit. In central Polk County, the intermediate aquifer system is thinner, less permeable and is referred to as the intermediate confining unit.

The surficial aquifer, the unconfined and uppermost aquifer, ranges in thickness from a thin veneer of sand to greater than 50 feet. It is composed of undifferentiated sands, clay and shell. The quartz sand, which is generally uniform throughout the unit, grades to clay with depth as the surficial aquifer system approaches the intermediate aquifer system's upper confining unit. The main method of recharge for the surficial aquifer is rainfall, with the depth to water averaging five to ten feet below the surface. However, the water table is exposed along river cut banks or is at land surface within the swampy floodplain and adjacent lowlands. The head gradient of the

surficial aquifer is generally toward the river and the confinement between the surficial and intermediate aquifers is well established.

The intermediate aquifer and its confining units occur within the Hawthorn Group, which ranges in thickness from 50 to greater than 250 feet. The dominant geologic formations within the Hawthorn Group are the Peace River and Arcadia Formations. The lithology of the Hawthorn Group is variable and generally consists of gray to green to brown phosphatic clay, minor sand, with occasional thin layers of residual limestone and dolostone. The Peace River Formation forms rock ledges or outcrops within the floodplain and streambed. The Bone Valley Member is the upper unit of the Peace River Formation. It is the clayey and phosphate-rich object of mining activities. The confining units present in the intermediate aquifer system retard the movement of water between aquifers. Generally, the upper and lower confining units are thinner near the Peace River. The intermediate aquifer is generally thicker and more confined toward the southwest.

Carbonate units that make up the upper Floridan Aquifer are the permeable lower Hawthorn Group, Suwannee Limestone, Ocala Limestone and Avon Park Formation. The total thickness ranges from 1,200 to 1,400 feet in the Peace River watershed. Dissolution of the limestone and dolomite enlarged preferential flow zones and structural features such as joints and fractures. Hydraulic characteristics of the upper Floridan aquifer vary widely due to the heterogeneity of the aquifer. Groundwater movement in the upper Floridan aquifer is generally from the northeast to southwest through Polk, Hardee and DeSoto counties. In 1995, the general flow direction in DeSoto County shifted to a more northwesterly direction. It was influenced by large depressions in the upper Floridan potentiometric surface caused by groundwater withdrawals in Sarasota and Manatee counties.

Land Use, Growth and Development – Agriculture is the most prevalent land use in the watershed, with approximately 42 percent of the watershed being dedicated to this use (see Table 26). In the past few years, however, there has been a shift from agriculture to other various commercial operations within the area of the watershed. Municipalities are annexing land, extending their boundaries, and developing those agricultural properties, citrus mainly, into housing developments, shopping centers, and other urban uses. Phosphate mining is another major land use in the region. This industry is focused around the middle interior part of the watershed, near the municipalities of Fort Meade and Zolfo Springs.

Urban development is more prevalent in the northern part of the watershed, along the Interstate 4 corridor, and in the far south around Charlotte Harbor. The central portion of the watershed has a population that is more sparse, reflecting the agricultural land uses in this area. Increasing growth and development pressure are changing the watershed. Between the years 2000 and 2025, the population of the Peace River watershed is projected to increase by nearly 49%, from 434,813 to 649,234. As the populations of the coastal regions of Florida begin to become more dense, the population growth in the central part of the state will increase substantially.

The result of the high rate of land conversion described above has been a correspondingly high rate of degradation to natural systems and widespread habitat destruction and fragmentation. Extensive modifications to surface hydrology, including the channelization or severance of natural drainage features that have historically discharged to the Peace River, have resulted in severe impacts to the aquatic communities of the river. These impacts are attributable to declines in water quantity and quality. Impacts to terrestrial communities have been equally severe. Much of the remaining natural land cover occurs as small, disjunct patches scattered

across a highly modified landscape or as narrow threads of floodplain forest lining the creeks and other small drainages that discharge to the Peace River.

Table 22. 1999 Land Use and Land Cover of the Peace River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	643,574	42%
Barren Lands	2,375	0.2%
Communication, Transportation & Utilities	10,283	1%
Extractive	146,700	10%
Rangeland	118,264	8%
Upland Forests	152,690	10%
Urban and Built Up	156,901	10%
Water	61,739	4%
Wetlands	242,959	16%
Total	1,535,484	100%

Source: SWFWMD Geographic Information System (GIS)

B. Land Acquisition

Because the majority of the watershed has been altered, the remaining natural lands are important because they protect and preserve water resources of the Peace River and provide habitat areas for wildlife. Several projects are identified within the watershed which include natural uplands and wetlands along the river, its major tributaries and tributary headwaters regions.

Table 23. Land Acquisition Projects Within the Peace River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Bowlegs Creek					10,060	10,060
Bright Hour Watershed		32,227		19,287		51,514
Charlie Creek Addition				5,590		5,590
Charlie Creek			6,844	2,584	29,715	39,143
Charlotte 1					8,545	8,545
Charlotte Harbor Buffer Preserve	159					159
Horse Creek					43,445	43,445
Lake Hancock	5,749		5,006			10,755
Long Island Marsh			3,686			3,686
Lower Peace River	2,105		39,254			41,359
Prairie/Shell Creek	609		13,604	10,624		24,837
RV Griffin Reserve	2,574			1,125		3,699
Upper Peace River			12,167			12,167
Total	11,196	32,227	80,561	39,210	91,765	254,959

Note: all acreages derived using geographic information system software

Southern Coastal Watershed

A. Watershed Description

Location – The Southern Coastal watershed extends along the southwestern shore of Florida from the mouth of Tampa Bay to the mouth of Charlotte Harbor (Figure 9, Southern Coastal Watershed Map). It is bounded to the north by the Manatee River watershed, to the east by the Myakka River watershed and to the south by Gasparilla and Pine Island sounds and Charlotte Harbor. More than 60 miles of barrier islands and the estuaries they protect are included in the watershed. Most of the nearly 250,000-acre watershed falls within the Manasota Basin of the Southwest Florida Water Management District, although the southernmost section lies within the Peace River Basin. The watershed includes portions of Manatee, Sarasota and Charlotte counties. Major urban centers include portions of Bradenton, as well as all of Sarasota and Venice.

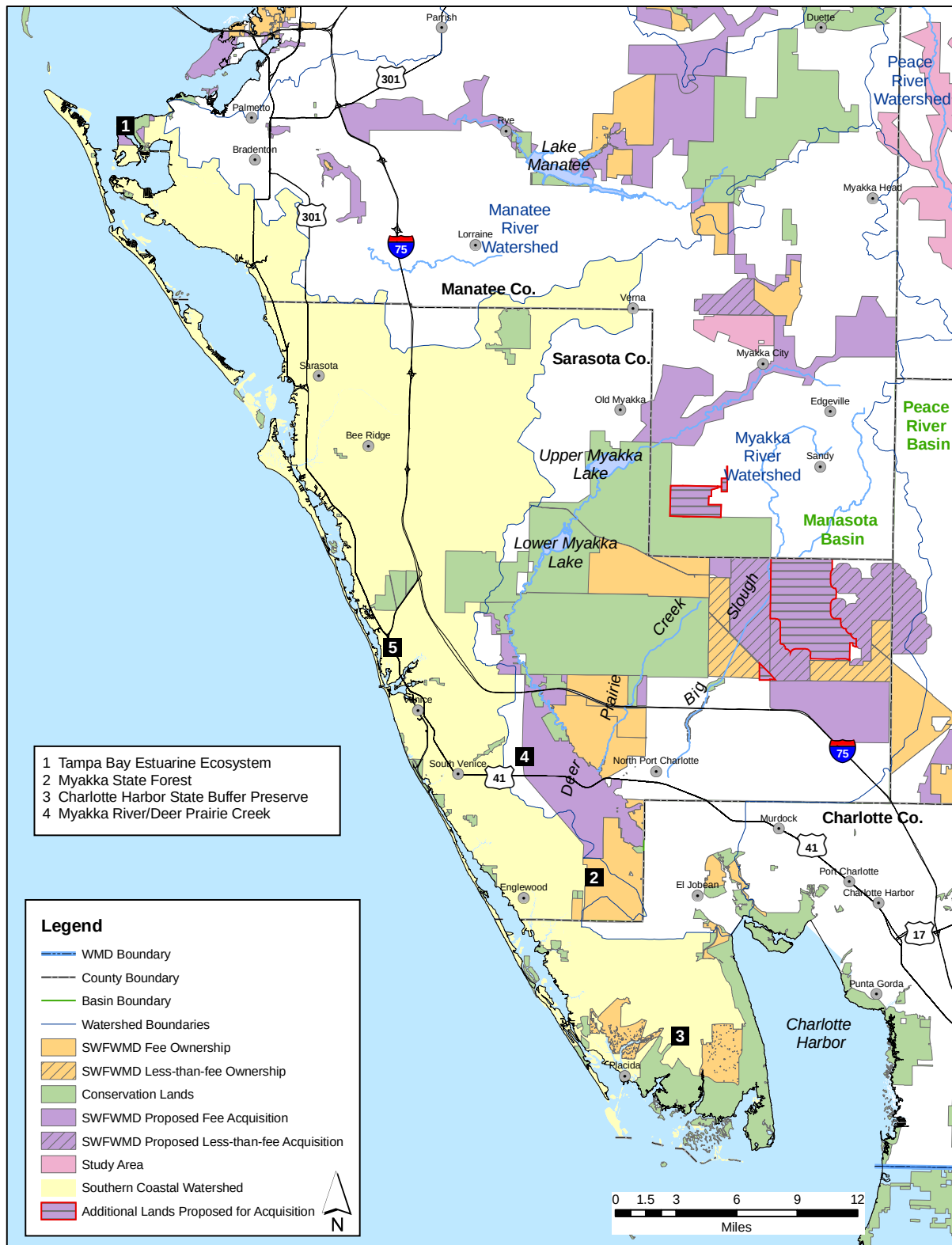
Climate – The climate of the Southern Coastal watershed is humid subtropical, characterized by warm, wet summers and mild, dry winters. The annual average temperature at two closely spaced weather stations near Bradenton, at the northern end of the watershed, is 72°F. At a Fort Myers station, about 25 miles south of the watershed, the annual average temperature is 74° F. Monthly average temperatures range from the low to mid-eighties in July and August to the low sixties in January.

Annual rainfall averages about 56 inches per year at Bradenton. Monthly rainfall is highest from June through September, when over half the annual rainfall occurs. Convective thunderstorms typically account for the bulk of precipitation during summer and early fall, often producing extremely intense localized rainfall events. The evapotranspiration rate for the region including the Southern Coastal watershed has been estimated at 39 inches per year. Nearly 60 percent of the evapotranspiration occurs during the six-month period from May through October.

Physical Description – The Southern Coastal watershed lies within the Gulf Coastal Lowlands and DeSoto Plain subdivisions of the central or mid-peninsular physiographic zone of Florida. Most of the watershed is within the Gulf Coastal Lowlands, which are nearly level plains extending the length of Florida's Gulf coast. A small segment of the watershed drained by the upper reach of Cow Pen Slough lies within the DeSoto Plain, a broad, gently sloping plain extending from central Manatee County into the northwest corner of Glades County. Elevations in the Southern Coastal watershed are generally between 5 and 35 feet NGVD. The soils of the Southern Coastal watershed may be classified into four groups: very poorly drained; poorly drained; somewhat poorly drained to moderately well-drained; and poorly to moderately well drained. Very poorly drained soils, including the Estero, Wulfert and Kesson groups are common in the tidal mangrove swamps. Poorly drained soils, including the Eau Gallie, Floridana, Wabasso and Bradenton series are the dominant soils in the northern portion of the watershed. To the south, in Sarasota and Charlotte counties, the dominant soils are the Eau Gallie, Myakka, Holopaw, Pineda and Imokalee series. Myakka, Waveland and Cassia soils, which are somewhat poorly drained to moderately well drained, occur in the northeastern section of the watershed on the DeSoto Plain. The barrier islands along the western edge of the watershed consist of poorly drained to well drained sandy soils of the Canaveral, Beaches, Kesson, Wulfert and Myakka groups.

Hydrogeology/Surface Water Hydrology – The Southern Coastal watershed is underlain by numerous layers of sedimentary deposits which store, confine or provide conveyance for ground water. The principal hydrogeologic units of the watershed include the surficial, intermediate and Floridan aquifer systems.

Figure 9. Southern Coastal Watershed Map



The surficial aquifer system in the Southern Coastal watershed consists of unconsolidated sands, marl and shell originating from the Holocene and Pleistocene ages. These deposits are generally less than 50 ft thick throughout the watershed. Poor transmissivity and the shallow nature of the surficial aquifer in the area limit use of this system as a water supply.

The intermediate aquifer system includes permeable and impermeable sedimentary deposits lying between the surficial and Floridan aquifer systems. These deposits consist of undifferentiated sediments from the Pleistocene and Pliocene ages and the Hawthorn Group of the Miocene age. Thickness of the intermediate aquifer systems varies from about 300-650 feet in the Southern Coastal watershed. The intermediate aquifer is the primary source of ground water for irrigation and domestic supply in the watershed.

The Floridan aquifer system consists of limestones and dolomites that formed prior to the Miocene age. In the region of the Southern Coastal watershed, the aquifer consists of two hydrologic units, the Upper and Lower Floridan aquifers, which are separated by a middle confining unit. The Upper Floridan aquifer is the most productive aquifer of the region, although the high mineral content of ground water from the aquifer limits use of this resource in much of the Southern Coastal watershed. The top of the Upper Floridan aquifer ranges from about 300-700 feet below the surface in the watershed and thickness of the aquifer varies from about 1300-1800 feet. The Lower Floridan aquifer contains highly mineralized water.

The Southern Coastal watershed includes numerous estuaries, wetlands and small coastal streams that are tidally influenced over much of their length and also a few longer stream/canal systems with predominantly freshwater habitats.

At the northern end of the watershed, a small area drains into Palma Sola Bay and several sub-basins drain to the Sarasota Bay estuary. Freshwater runoff enters Sarasota Bay from the Bowlees Creek system, Whitaker Bayou, Hudson Bayou, other mainland coastal areas and the barrier islands of Longboat Key, Lido Key and Anna Maria Island. Portions of Anna Maria Island also drain to Anna Maria Sound.

To the south, Phillippi Creek, a highly channelized drainage system, empties into Roberts Bay and Little Sarasota Bay. Catfish Creek also drains into Little Sarasota Bay. Downshore, South Creek empties into a region known as Dryman Bay. Runoff from other coastal regions of the mainland, Siesta Key and Casey Key also contributes to the freshwater flow entering Little Sarasota Bay.

The estuaries of Anna Maria Sound, Palma Sola Bay, Sarasota Bay, Roberts Bay and Little Sarasota Bay have been included in State and Federal habitat conservation and restoration programs. The United States Environmental Protection Agency designated these waters, which total about 52 square miles in area collectively, as an Estuary of National Significance in 1988 and established the Sarasota Bay National Estuary Program. The Sarasota Bay National Estuary Program subsequently developed a conservation and management plan for restoring and maintaining the ecological integrity of the bay. The estuaries have also been designated as Outstanding Florida Waters by the Florida Department of Environmental Regulation (now the Florida Department of Environmental Protection). In 1995, the District included Sarasota Bay on its list of priority water bodies for protection or restoration in accordance with the Surface Water Improvement and Management (SWIM) Act passed by the Florida Legislature. The SWFWMD has developed a management plan that identifies actions in the Sarasota Bay National Estuary Program comprehensive plan that may be funded with monies from the SWIM Trust Fund.

Dona Bay and Roberts Bay (the second “Roberts Bay” in the watershed), which become contiguous at their western ends, are small estuaries near the City of Venice. Dona Bay receives some discharge from coastal regions, but most flow into the estuary is from Shakett Creek/Cow Pen Slough, a network of canals and natural stream segments that drain an area of approximately 90 square miles. Increased seasonal freshwater flow and sediment loads transported by this highly modified drainage system have contributed to the degradation of water quality and habitat in Dona Bay. Roberts Bay is the terminus for Curry Creek. Hatchett Creek is a highly channelized system that drains into the Intercoastal Waterway near the southern end of Roberts Bay.

Lemon Bay extends from the vicinity of South Venice to the Gasparilla Island Causeway. This estuary is within the boundaries of the Charlotte Harbor NEP, designated an Estuary of National Significance by the EPA in 1995, and has been designated as an aquatic preserve by the Florida Legislature and an Outstanding Florida Water by the Department of Environmental Protection. These designations should promote the preservation of the exceptional biological, aesthetic and scientific qualities of the bay. Alligator Creek flows through the south Venice into the bay. Forked Creek drains a sizable area south of the city. Rock and Oyster Buck Creeks flow into the bay through less populated regions of the watershed. Runoff from coastal regions of the mainland and the barrier islands of Manasota Key, Don Pedro Island and Little Gasparilla Island also enters Lemon Bay. Gasparilla Sound receives runoff through Buck Creek, Coral Creek, Catfish Creek Bayou, Boggess Hole outflow, Whidden Creek and other mainland coastal areas

Land Use, Growth and Development – Land use/cover in the Southern Coastal watershed is a combination of urban, agricultural and wetland and open water habitats (Table 28). Based on aerial photographs from 1999, urbanized areas account for over one-third of the total area of the watershed (including open water areas). Coastal areas, including the barrier islands are almost entirely urbanized. Eastern portions of the watershed contain substantial areas of agricultural lands, which account for 10 percent of the total acreage of the watershed. Agriculture in the watershed is dominated by range and pastureland and row-crop farming. Upland forests are patchily distributed in the watershed, although a sizable, intact forested area remains inland from Lower Sarasota Bay. Significant wetland acreage remains in the southern region of the watershed, along the shores of Gasparilla Sound and Charlotte Harbor.

Table 24. 1999 Land Use and Land Cover for the Southern Coastal Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	28,893	12%
Barren Lands	619	0.3%
Communication, Transportation & Utilities	6,355	3%
Extractive	1,292	1%
Rangeland	12,481	5%
Upland Forests	28,853	12%
Urban and Built Up	115,239	47%
Water	9,950	4%
Wetlands	40,647	17%
Total	244,329	100%

Source: SWFWMD Geographic Information System (GIS)

Much of the watershed is within the 100-year flood zone designated by the Federal Emergency Management Administration. Additional acreage in areas of the watershed away from the coast and stream channels is also prone to flooding. Much of the urban development in the watershed has occurred in these flood prone areas. Improper development of these areas has and may result in significant threats to human activities and the quality of aquatic and shoreline habitats.

The population of Florida has increased greatly during recent years and Florida's coastal communities have experienced a large portion of the growth. The vast majority of the residents of Manatee, Sarasota and Charlotte counties and most of the seasonal visitors to the area live within a relatively narrow corridor extending roughly ten miles inland from the Gulf. Most of the future growth in the region is expected to occur in this corridor as there is ample land available for development and local governments are encouraging concentrated development where adequate infrastructure exists or is expected to be developed. This means that the entire Southern Coastal watershed, except public lands, conservation areas and possibly some of the easternmost sections of the watershed, will eventually become urbanized.

The region experienced tremendous growth during the 1980s. Manatee County's population grew nearly 43 percent, Sarasota County grew nearly 37 percent and Charlotte County grew by 90 percent. In the 1990s, population within the three counties increased at a substantially slower rate; Manatee County's by almost 25%, Sarasota County's by more than 17% and Charlotte County's population increased by just under 23%. Nearly all of the recent population growth in the region can be attributed to net migration. This is not surprising given that 30 percent of the population is over the age of 65. The population residing within the Southern Coastal watershed was estimated to be 413,121 in the year 2000. The population of the region is expected to grow considerably during the coming years, although at a rate less than that which occurred in the 1980s. By 2025, the number of people living in the watershed is expected to be 632,485, a 53% increase from 2000.

B. Land Acquisition

Two land acquisition projects are identified for the Southern Coastal watershed. The Tampa Bay Estuarine Ecosystem project is important to estuarine habitat restoration, water quality protection and flood protection. A small portion of the Myakka River project also lies within the Southern Coastal watershed. Land acquisition is complete for the Charlotte Harbor State Buffer Preserve and Myakka State Forest projects.

Table 25. Land Acquisition Projects Within the Southern Coastal Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Charlotte Harbor State Buffer Preserve	6,196					6,196
Myakka River			789			789
Myakka State Forest	3,339					3,339
Tampa Bay Estuarine Ecosystem			412			412
Total	9,535	0	1,201	0	0	10,736

Note: all acreages derived using geographic information system software

Springs Coast Watershed

A. Watershed Description

Location – The Springs Coast watershed covers approximately 800 square miles of coastal Citrus, Hernando and Pasco counties in west central Florida (Figure 10, Springs Coast watershed Map). The watershed is bounded on the west by the Gulf of Mexico and on the east by the Brooksville Ridge physiographic region. Incorporated cities within the basin include Port Richey, New Port Richey, Weeki Wachee, Brooksville and Crystal River. While residential and commercial development has expanded along the U.S. Highway 19 corridor from Crystal River southward to New Port Richey, a significant portion of the coastal lands west of U.S. Highway 19 between Weeki Wachee and Homosassa remain relatively undeveloped and protected through public ownership.

Climate – The Springs Coast watershed is characterized by a humid subtropical climate, affected largely by its location adjacent to the Gulf of Mexico. Winter cold fronts and high summer temperatures are moderated by the Gulf waters. The average mean daily temperature is approximately 70° F, with mean summer temperatures in the low 80s and mean winter temperatures in the upper 50s. Summer temperatures are tempered by sea breezes. Winter temperatures are quite variable due to the passage of frontal systems.

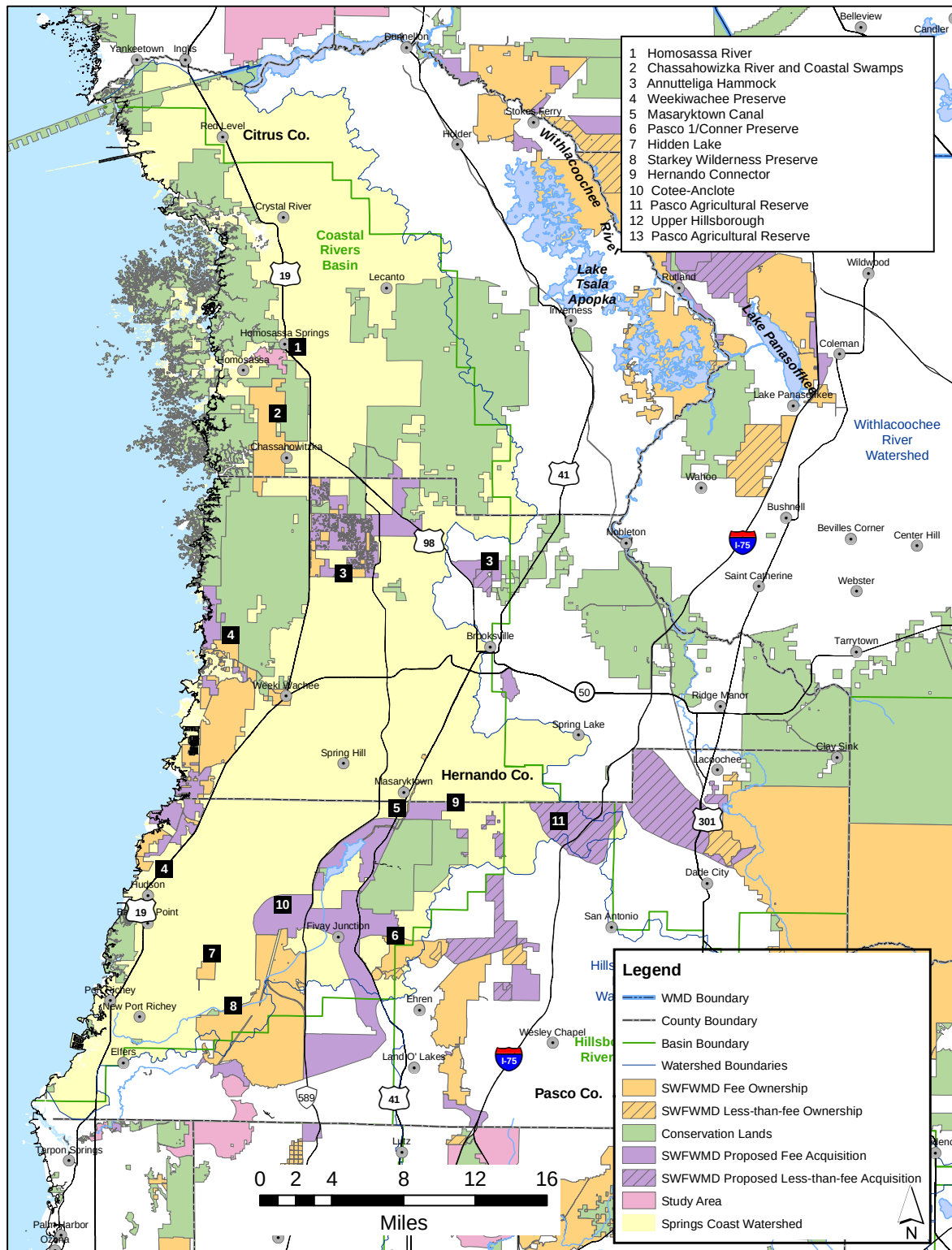
Rainfall in the area is the result of three types of systems: frontal, convective and tropical cyclonic. Although most of the rainfall is associated with summer convective storms, the area has two distinct peak rainfall periods: June through September and February through April. The average rainfall totals vary from 54 to 58 inches per year.

Physical Description – Three physiographic features are found within the Springs Coast watershed, including the Coastal Swamps, Gulf Coastal Lowlands and Brooksville Ridge. These physiographic regions are primarily a function of topographic relief and underlying sediments. The following is a brief discussion of each feature.

The Coastal Swamp area parallels the coast and extends inland from two to five miles. It is characterized by both tidal marshes and coastal swamps with elevations typically less than ten feet. Poorly drained, organic soils directly overlie limestones of the Floridan aquifer system in much of the coastal swamp area. The Gulf Coastal Lowlands lie between the Coastal Swamp and the Brooksville Ridge and range from about two to eight miles in width. Elevations range from sea level to about 100 feet. The topography consists of relatively flat plains to rolling hills. The hills are made up of aeolian sand dunes.

The Brooksville Ridge trends northwest-southeast through the central part of Citrus County and eastern Hernando and Pasco counties. The Brooksville Ridge measures approximately 17 miles in width in central Hernando County and reaches its southern terminus in northeastern Pasco County. Elevations along the ridge range from 70 to about 275 feet. The ridge has an irregular surface due to karst activity and elevations may vary more than 100 feet over short distances. The margins of the ridge are characterized by deep, sandy soils, while the ridge interior contains a mixture of poorly to well-drained sandy-clayey soils. The entire Brooksville Ridge area is underlain by a clayey unit that varies between 10 and 30 feet in thickness but allows good hydraulic connection to the underlying Floridan aquifer system through karst features and fractures.

Figure 10. Springs Coast Watershed Map



The Tsala Apopka Plain, a fourth physiographic province not within the Springs Coast watershed, plays an important role in the water resources of the watershed. The plain lies between the Brooksville Ridge and the Withlacoochee River within the recharge area of the coastal springs. It has a large number of interconnected lakes that are divided by peninsulas and islands. Siliciclastic deposits cover the limestone surface and elevations range from 35 to 75 feet. The soils are generally sandy and weakly cemented with organic matter.

The main surface drainage features within the watershed are the Crystal, Homosassa, Chassahowitzka, Weekiwachee and Pithlachascotee rivers. With the exception of the Pithlachascotee, these rivers are dominated by spring discharge and are relatively short (less than 10 miles in length). The lack of rivers and streams in the interior of the watershed results from a well-developed underground drainage system in the limestone that underlies the Springs Coast watershed. Rainfall on the Brooksville Ridge rapidly moves underground through numerous sinkholes and begins moving seaward through an extensive system of conduits.

The physiography described above plays a significant role in determining surface water features. In the northern part of the Springs Coast watershed principle water bodies include the coastal spring-fed Crystal, Homosassa, Chassahowitzka and Weekiwachee rivers. These rivers start as spring discharge and are typically only a few miles long. Little overland drainage from surrounding areas contributes to the rivers' discharge. All four spring systems are first magnitude springs. This means that each spring discharges an average of 100 cubic feet per second (cfs) or more. Hammock Creek, at Aripeka, is a coastal system formed by several lesser magnitude springs and swamp discharge.

In the southern portion of the watershed, surface water drains either directly to the Gulf of Mexico or to the Pithlachascotee (Cotee) River. The Cotee River starts in Hernando County as channeled flow through the Masaryktown Canal, then southwest to its headwaters, Crews Lake and on through Pasco County to the Gulf of Mexico at Port Richey.

Hydrogeology – Geology of the watershed is relatively simple with thick sequences of limestone exposed at or very near (10 to 20 feet) the land surface in the eastern and western portions of the watershed. Where limestone is near land surface, the thin veneer of sediment that covers the limestone consists of unconsolidated deposits of primarily quartz sand. These sands are marine terrace deposits and coastal dune trains. Dunes are prevalent in the Coastal Lowlands and along the flanks of the Brooksville Ridge.

The limestone units include the Suwannee Limestone of Oligocene age and the Ocala Limestone of Eocene age. Underlying these exposed limestone units is the Avon Park Formation of Eocene age. The Avon Park Formation is the deepest formation containing potable water. The Suwannee and Ocala Limestones and the Avon Park Formation comprise the Floridan aquifer in the area. In the Brooksville Ridge area, the Floridan aquifer is overlain by undifferentiated, quartz sand and sediments of the Hawthorn Group. The Hawthorn Group sediments were deposited in a variety of environments and consist of sand, silty sand and waxy green clay. Phosphorite pebbles and fossil oyster bars are common. Between the city of Brooksville and the Hernando/Citrus county line to the north, the Hawthorn sediments have largely been eroded off the Brooksville Ridge and limestone is exposed or near land surface in many of the high areas.

Karst processes play a dominant role in moving ground water through the Floridan aquifer within the Springs Coast watershed. The four physiographic features within the spring recharge area (Coastal Swamps, Gulf Coastal Lowlands, Brooksville Ridge and Tsala Apopka Plain) are areas

of intensive karst development. These areas are characterized by numerous sinkholes, lack of surface drainage and undulating topography. In karst areas, the dissolution of limestone has created and enlarged cavities along fractures in the limestone which eventually collapse and form sinkholes. Sinkholes capture surface water drainage and funnel it underground, which promotes further dissolution of limestone. This leads to progressive integration of voids beneath the surface and allows larger and larger amounts of water to be funneled into the underground drainage system. Many of these paths or conduits lie below the present water table and greatly facilitate groundwater flow.

The Floridan aquifer system is divided into two major hydrostratigraphic horizons: the upper Floridan, which contains potable water and the lower Floridan that is saline. The upper Floridan is the principal source of water for the springs in the watershed as well as domestic, agricultural and industrial supplies. Thickness of the potable water zone in the Floridan aquifer in the watershed ranges from more than 900 feet in south-central Pasco County, to less than 200 feet along the Withlacoochee River in southeastern Citrus County and less than 100 feet along the coast. A general uniform thinning of the potable zone of the Floridan aquifer occurs from south to north across the watershed. The vertical extent of potable ground water across the inland area appears to be controlled by the occurrence of gypsum-bearing carbonates of the middle confining unit and the presence of sulfate-rich waters derived from the dissolution of sulfate minerals at the top of the unit. Average thickness of the potable zone in the Floridan aquifer is 400 to 600 feet in Hernando County and 200 to 300 feet in Citrus County.

Most of the springs in the watershed lie in or near the freshwater/saltwater transition zone, a brackish zone in the Floridan aquifer where seaward-moving freshwater meets landward-moving saltwater. As a result of their proximity to the transition zone, many of the springs discharge brackish water. The high salt content of many brackish springs indicates that Gulf water has intruded through interconnected solution conduits gulfward of the springs. In general, springs located further inland are further from the transition zone and, therefore, have fresher water. A sharp boundary does not exist in coastal aquifers because of mechanical dispersion and tidal or water level fluctuations caused by changes in recharge or pumpage with time. Instead, a dynamic equilibrium has been established that causes freshwater and saltwater to mix and form a transition zone between freshwater and saltwater.

Land Use, Growth and Development – Despite a great deal of growth in the last 30 years, Citrus, Hernando and Pasco counties still retain a rural character. Covered by coastal swamps, dense woodlands, lakes and pastures, the counties are rapidly changing as residential and commercial development expands.

The northern portion of the watershed generally encompassing western Citrus County, contains a number of rapidly expanding retirement communities. Dense networks of streets and platted lots exist in the north-central portion of the County. Although relatively few houses now exist in these areas, the potential density of these developments at build out is extremely high. A future expansion of the Suncoast Parkway will impact Citrus County and affect commercial and industrial land uses near the corridor and will bring new residents to the County. These impacts include various demands for public facilities and services. The U.S. Highway 19 corridor between Crystal River and Homosassa is also rapidly developing. The extreme western portion of this area is characterized by sparsely populated coastal swamps and wetlands (mostly state or federally owned). Residential and commercial development along U.S. Highway 19 has been concentrated in a narrow corridor between the coastal swamps and the upland forest of the Brooksville Ridge. The Withlacoochee State Forest represents much of this upland forest; it is regularly logged and virtually uninhabited. Northeast of the forest, the City of Inverness, while

not in the watershed, supports a large residential community, commercial development and recreational land uses.

The central portion of the watershed, generally encompassing western Hernando County, also contains a number of rapidly growing communities. These communities are characterized by moderately dense residential and commercial development. In the vicinity of Spring Hill and Weeki Wachee, residential development occupies a large portion of the area between U.S. Highway 19 and the Brooksville Ridge, particularly between State Road 50 and County Line Road. Conversely, pasture and forests are prevalent over the central and eastern portions of the area. The City of Brooksville, lying in the east-central portion of the watershed, is characterized by residential and commercial land uses. Limestone mining is a major land use northwest of Brooksville.

The southern portion of the watershed, generally encompassing western Pasco County, contains widespread mixture of residential and commercial development, pasture, forest and wetlands. The extreme western portion of the watershed in Pasco County is characterized by coastal hardwood forests and coastal swamps. The U.S. Highway 19 area contains densely developed residential and commercial areas. The central and eastern portions of the watershed within Pasco County contain pasture, forest, open land, numerous lakes and wetlands, and some scattered row and tree crops.

It is important to note that the entire watershed has witnessed a pronounced increase in both on-site sewage treatment (septic tank/drain field facilities) and centrally sewered communities in a relatively short period of time. Table 30 depicts the acreage and percent of total acreage for land uses within the Springs Coast watershed.

Citrus, Hernando and Pasco counties have each experienced rapid growth since the early 1990s. Between 1990 and 2025, the population of Citrus County is projected to increase by nearly 52 percent, from 93,515 in 1990 to 179,900 in 2025. Population growth in Hernando County is estimated to soar by 59 percent, from 101,115 in 1990 to 208,400 in 2025. The population in Pasco County over the same period is projected to increase from 281,131 to 571,000, or by 65 percent. Between 2000 and 2025, the population of the Springs Coast watershed is projected to increase by nearly 62 percent, from 342,162 in 2000 to 552,962 in 2025.

Table 26. 1999 Land Use and Land Cover for the Springs Coast Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	65,967	12%
Barren Lands	3,053	0.5%
Communication, Transportation & Utilities	8,945	2%
Extractive	10,391	2%
Rangeland	10,428	2%
Upland Forests	159,410	29%
Urban and Built Up	155,014	28%
Water	9,503	2%
Wetlands	134,730	24%
Total	557,441	100%

Source: SWFWMD (GIS)

The central ridge area of Citrus County contains land with excellent development potential and it is here that most of the current residential growth in the county is occurring. Within Hernando

County, population growth is concentrated in the southwestern part of the county where a number of large-scale planned developments are located. Spring Hill, a community of about 60,000 residents, is the largest of these subdivisions. Pasco County has seen much of its growth occur in the western and southern portions of the county.

B. Land Acquisition

Several land acquisition projects are identified for the Springs Coast watershed. They include additions to public conservation lands along the coastal swamps of the Weekiwachee River and additions to the Starkey project. Other projects range from the Annutteliga Hammock project, which protects important recharge areas to the Homosassa River project in Coastal Citrus County.

Table 27. Land Acquisition Projects Within the Springs Coast Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Annutteliga Hammock	2,179		9,869			12,048
Chassahowitzka River & Coastal Swamps	5,563	4				5,567
Cotee-Anclote Corridor			15,983			15,983
Hernando Connector			1,463			1,463
Hidden Lake	589					589
Homosassa River					925	925
Masaryktown Canal	194					925
Pasco 1/Connerton	2,104	279		796		3,179
Pasco Agricultural Reserve				5,195		5,195
Starkey	8,506	78	180			8,764
Weekiwachee Preserve	10,911		5,978			16,889
Total	30,046	361	33,473	5,991	925	70,796

Note: all acreages derived using geographic information system software

Tampa Bay/Anclore River Watershed

A. Watershed Description

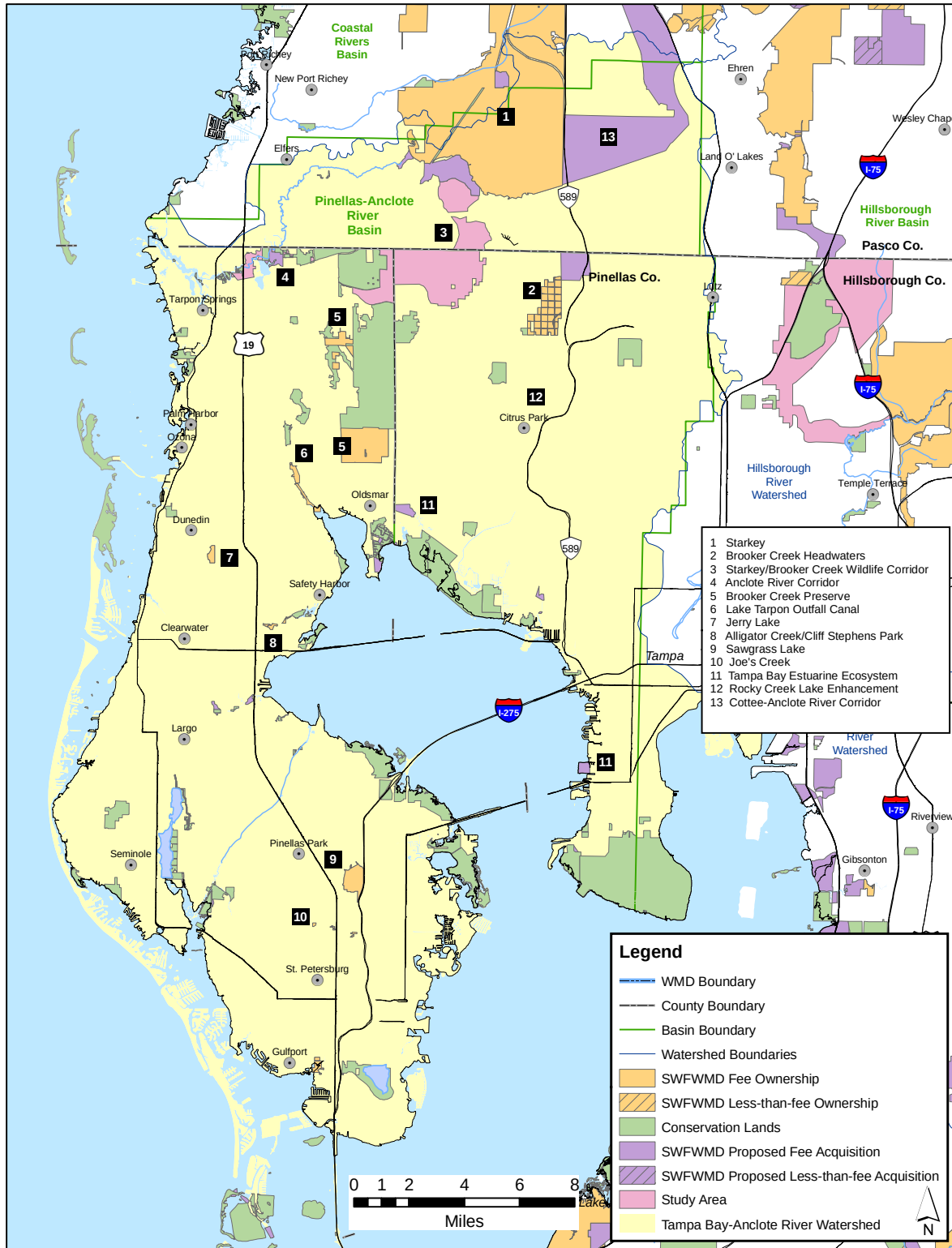
Location – The Tampa Bay/Anclore River watershed is a rapidly developing urban area that includes Pinellas County, southwest Pasco County, northwest Hillsborough County, the MacDill peninsula and several coastal basins within Hillsborough County which drain directly to Tampa Bay or the Gulf of Mexico and are not captured by major rivers (Figure 11, Tampa Bay/Anclore River watershed Map). Tampa Bay is an estuarine system that opens into the Gulf of Mexico approximately midway down the west central coast of peninsular Florida. The Bay is approximately 35 miles long, 10 miles wide and covers a total surface area of about 346 square miles with a shoreline of 212 statute miles. It is the second largest estuarine system of the 40 estuaries along the Gulf Coast. The Tampa Bay watershed contains approximately 2,200 square miles of which 1,138 square miles (or 728,507 acres) are within the TB/A watershed. The basin is bounded on the west by the Gulf of Mexico and on the east by Tampa Bay. Major cities within the watershed include Tampa, St. Petersburg and Clearwater, and each exerts substantial influence on the waters of the Bay. Residential development has expanded along the U.S.19 corridor from Tarpon Springs southward to south St. Petersburg.

The watershed can be divided into three general sections: Tampa Bay, coastal waters and inland areas. Each area has unique characteristics and anthropogenic problems that must be understood and addressed. Within the urban centers of the watershed, many natural areas have been lost to development and small remnants remain in the form of municipal parks and recreation areas. Large coastal areas have been transformed into urban canals via extensive dredge and fill practices and 50 percent of the shoreline is a hardened surface (e.g., seawall). Office buildings, commercial, industrial and residential development line major portions of Tampa Bay and the Gulf coastal margin. Much of the watershed has been urbanized and the Tampa Bay ecosystem has experienced declines as a result with a loss of 44 percent of the mangrove and tidal marshes as well as up to 80 percent of its seagrass populations. Seagrass health can be used as a barometer of the health of the system and, just in recent years, seagrass populations have exhibited a modest increase responding to a recent improvement in water quality and habitat restoration activities within the watershed.

Climate – The Tampa Bay/Anclore River watershed is located in the humid southern temperate to subtropical climatic zones with frost and freezing temperatures occurring at least once a year. Rainfall in the area is the result of three types of systems: frontal, convective and tropical cyclonic. Average annual rainfall is approximately 53 inches, but is highly variable both seasonally and from year to year. About 60-65 percent of annual rainfall typically occurs between June and September when evaporation rates are highest. These rains are generally associated with convective systems and strong thunderstorms, can cause both localized and widespread flooding. The overriding climatological factor affecting the area is the Gulf of Mexico. The Gulf waters moderate winter cold fronts and high summer temperatures. The average mean daily temperature is approximately 70° F. Mean summer temperatures are in the low 80s and mean winter temperatures are in the upper 50s.

Physical Description – The Tampa Bay/Anclore River watershed is located in the west-central coastal region of peninsular Florida, identified as the Gulf Coastal Lowlands physiographic area. The area is generally characterized as flat or of low relief, with elevations ranging from sea level to more than 100 feet above sea level. The dominant landforms in the watershed are marine terrace deposits, representing former sea level positions over recent geological time. These

Figure 11. Tampa Bay/Anclote River Watershed Map



marine terraces have been modified over time by wind, rivers and sinkholes, resulting in the present day topography and natural land cover.

Soils in the region are variable, ranging from excessively drained sands to moderate or poorly drained soils with a sandy subsoil. Soil types described in the soil survey publications for each county are numerous and are based on varied physical and chemical properties, but large regions of the watershed have soil types characterized as Urban land, owing to the extensive alteration of the land surface by development. Both geomorphology and soils composition dictate a variety of vegetation patterns in the watershed, which includes coastal estuary marshes and swamps, barrier island strands, upland oak sandhill dunes, pine-palmetto flatwoods interspersed with numerous isolated wetlands and bottomland hardwood hammocks along natural drainage features.

A significant geomorphic feature of the Tampa Bay/Anclote River watershed is karst topography. Karst is characterized by closed depressions and relic sinkholes that formed over thousands of years as water soluble limestone dissolved, causing the land surface to sink or collapse. This slow process of karst development is still evident in the recent formation of sinkholes, which in many cases are a surface expression of fractures and solution caverns developed in the underlying limestone. Many of these karst features penetrate the water table and often fill up with water, forming a direct connection between land surface and the underlying aquifer systems, which allows interaction between surface and ground waters. Lake levels in karst areas of the watershed are a direct reflection of ground water levels and fluctuate, along with stream base flow and spring discharge, with seasonal aquifer levels or with stresses caused by ground water pumping. Also, many of the isolated wetlands and cypress domes in the region are karst features that retard and store floodwaters, and cleanse water that infiltrates to the ground water system which ultimately discharges along the coast to maintain a balance in estuarine salinity regimes.

Hydrogeology – The hydrogeology flow system of the Tampa Bay/Anclote River watershed is comprised of surface water resources which include water bodies such as rivers, springs, lakes and estuaries which contribute aesthetic, ecological and economic (tourism, sport and commercial fishing, real estate development and quality of life) value. Development pressures along the coast and the many lakes have caused or contributed to the decline in water quality and resultant reductions in recreational and commercial value. Another functional component of fresh-water surface water resources is their role as public water supply sources and as biological treatment systems for increased urban runoff.

Numerous rivers, streams, canals and waterways punctuate the western coastline of the Tampa Bay/Anclote River watershed. The rivers are highly varied in terms of geology, origin of discharge, water quality and ecology. A striking feature is the range of combinations between ground water and surface runoff contributing to the flow of each river. The relative contribution of ground water affects flow, water chemistry and the biota of each system. Rivers with little ground water flow are characterized as "blackwater" streams and are naturally highly colored, acidic and typically have sluggish flow. Because they run at low grade, the influence of Gulf tides on blackwater rivers can extend a considerable distance inland creating productive estuaries. The effects of ground water flow, tides and the transition from temperate to subtropical climates create a rich diversity of habitats associated with river systems in the region. Major threats to river ecosystems include habitat destruction in floodplains and along shorelines, point and non-point source pollution and flow reductions as a result of water withdrawals. Water quality is generally regarded as good throughout the region's rivers, although a number of sections are degraded. Major water quality threats include agricultural and

urban stormwater runoff, domestic waste from septic tanks and treatment plants, discharge from heavy industry (particularly phosphate mining and processing), atmospheric deposition of pollutants and impoundments used for flood control or potable water supply.

Ground water provides potable water supply and is available throughout much of the Tampa Bay/Anclote River watershed but has increasingly been recognized as a limited resource. Ideally, the only way to maintain this resource is to withdraw no more than is replaced and the sole source of natural replenishment is rainfall. Ground water resources have been exploited to a point where the water level under an area declines, or the potentiometric (or pressure) surface drops. Declining levels result in numerous adverse impacts, including deterioration of water quality. Florida's freshwater aquifer system is surrounded by saline water and permanently lowering water levels promotes the intrusion or upconing of saline water into previously freshwater zones. In areas of the District not directly threatened by saltwater intrusion where the ground water system is directly connected to surface water, overpumping can reduce spring flow and induce recharge from the surficial aquifer into the Floridan Aquifer, lowering wetland and lake levels.

The Tampa Bay/Anclote River watershed contains two of the three major ground water basins, Central West-Central Florida which covers parts of Pasco and Hillsborough counties and all of Pinellas County and the Southern West-Central Florida basin. By 1989, the District designated the Northern Tampa Bay, Eastern Tampa Bay and Highlands Ridge water use caution areas (WUCAs), three distinct areas in which ground water resources were stressed. Much of the TB/A watershed is encompassed in two of these areas, including the Northern and Eastern Tampa Bay WUCAs.

There are three main aquifers found within the Tampa Bay/Anclote River watershed. In descending order of occurrence, they are: the surficial, intermediate and Upper Floridan aquifers. A semi-confining unit of variable thickness, consisting mainly of low-permeability clay deposits, separates these aquifers from one another. In watershed areas approximately south of Tampa, all of these aquifers are present creating a three-aquifer system. However, in the northern portion of the watershed (areas including Pasco, Pinellas, northern and central Hillsborough), the intermediate aquifer thins and disappears, leaving a leaky, two aquifer system (the surficial and Upper Floridan aquifers).

The surficial aquifer is the uppermost aquifer consisting of unconsolidated Pleistocene and Holocene sediments of sand, clayey sand, shell and marl. It is predominantly unconfined and extends from the land surface to the top of the upper confining bed. Within the watershed, surficial aquifer sediments range from less than one foot to over fifty feet. With the exception of coastal areas, surficial aquifer water quality often reflects the chemical nature of the source (mainly rainfall) and aquifer composition. Fairly short residence time prevents the accumulation of minerals and both chloride and sulfate levels are minor. High iron content and color are sometimes a problem in surficial aquifer groundwater. Due to its relatively thin nature and localized flow system, the surficial aquifer yields relatively small quantities of water. Groundwater from the surficial aquifer is used mainly for lawn irrigation and domestic supply. Typical surficial aquifer wells range from five to fifty gallons per minute.

The Upper Floridan Aquifer is a thick stratified sequence of limestone and dolostone units containing part or all of the Arcadia Formation (Tampa Member), Suwannee Limestone, Ocala Limestone and Avon Park Formation. It is a confined aquifer ranging in thickness from approximately 950 feet to 1200 feet. Within the watershed, the aquifer thickens from north to south. A low permeability evaporite zone consisting of gypsiferous dolomite and dolomitic

limestone marks the base of the aquifer. This unit, known as the middle-confining unit, is often considered the limit of the fresh water zone. Below this evaporite zone, water is often highly mineralized and nonpotable.

Within the Tampa Bay/Anclote River watershed, water quality within the Upper Floridan aquifer is generally good. Longer residence time within the limestone and dolomite results in a much harder and mineral-rich groundwater than those found in the surficial and intermediate aquifers. The typical groundwater quality from this aquifer is relatively low in TDS, high in bicarbonate and low in sulfate and chloride. Water quality generally decreases southward as the Upper Floridan aquifer becomes deeper. Along the coast, where transitional seawater mixing is a major influence, the groundwater becomes more variable in quality and often contains higher dissolved solids, with much higher chloride and sulfate concentrations.

Regions of the watershed where Floridan aquifer water levels are above land surface are zones of ground water discharge, which are commonly found along coastal margins of Tampa Bay and the Gulf of Mexico. The presence of springs in rivers and coastal areas also represents significant zones of ground water discharge that can act as point source inputs of contaminants, especially nutrients, to the receiving surface water body.

Land Use, Growth and Development – The use of land within the Tampa Bay/Anclote River watershed is a strong indicator of water needs. Agricultural, industrial, commercial, residential and other uses have particular requirements for freshwater. A majority of the land within the watershed is considered developed.

The Tampa Bay metropolitan area has the largest concentration of the District's population. The watershed includes productive agricultural lands as well as high growth urban areas along the Gulf coast. Industrial and power generation activities and tourism/recreation reflect the broad-based economic environment within the area. This area experiences a seasonal influx of residents that complicates water management, especially in the coastal communities. During these periods, daily peak demands on water supply systems may increase, creating localized capacity or pressure problems. This situation causes stress on water supplies and other resource capacities which points to the need for continuous education of seasonal visitors who may be unaware of the limitations of water resources.

Table 28. 1999 Land Use and Land Cover for the Tampa Bay/Anclote River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	31,028	9%
Barren Lands	1,789	0.5%
Communication, Transportation & Utilities	16,801	5%
Extractive	575	0.2%
Rangeland	6,410	2%
Upland Forests	25,283	7%
Urban and Built Up	11,827	58%
Water	19,070	5%
Wetlands	49,646	14%
Total	362,430	100%

Source: SWFWMD Geographic Information System (GIS)

Between 1990 and 2000, the population of Hillsborough County increased by nearly 20 percent, Pasco County's population over the same period increased from 281,131 to 344,765 (or by 23

percent), while Pinellas County population over the same period grew by 8 percent, from 851,659 to 921,482. The 2000 population of the three county area showed an increase over 1990 population of about 761,654 residents, over 50 percent (from about 1.5 million to 2.27 million). Projections to 2025 suggest continuing growth for the area on the order of over 930,905 new residents (a 41 percent increase). The population of the Tampa Bay-Anclote watershed was estimated to be 1.3 million in the year 2000 and is projected to increase to over 1.7 million by 2025, representing a 28 percent increase.

B. Land Acquisition

Several land acquisition projects have been identified for the Tampa Bay/Anclote River watershed. One project, the Tampa Bay Estuarine Ecosystem, consists of crucial habitat for restoration and water quality improvement of the Tampa Bay System. Another project contains additional lands within the Starkey project in Pasco County. The newest project, Cotee-Anclote Corridor, was submitted by Pasco County to provide a connection between the Starkey and Pasco 1 projects. Two study areas, the Anclote River Corridor and Starkey/Brooker Creek Wildlife Corridor, would provide greenway links to vast expanses of publicly protected lands within the watershed.

Table 29. Land Acquisition Projects Within the Tampa Bay/Anclote River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Alligator Creek	44					44
Anclote River Corridor					1,158	1,158
Brooker Creek Headwaters	1,038		636			1,674
Brooker Creek Preserve	1,634					1,634
Cotee-Anclote Corridor			6,609			6,609
Jerry Lake	80					80
Joe's Creek	25					25
Lake Tarpon Outfall Canal	132	98				230
Rocky Creek Lake Enhancement	3		6			9
Sawgrass Lake	398					398
Starkey	10,595	36	972			11,603
Starkey/Brooker Creek Wildlife Corridor					5,604	5,604
Tampa Bay Estuarine Ecosystem	66		913			979
Total	14,015	134	9,136	0	6,762	30,047

Note: all acreages derived using geographic information system software

Withlacoochee River Watershed

A. Watershed Description

Location – The Withlacoochee River watershed, which is located in the Central/Northwest part of the District, covers approximately 2,560 square miles (Figure 12, Withlacoochee River Watershed Map). The watershed (the second largest in the District) encompasses parts of Marion, Levy, Citrus, Hernando, Pasco and Polk counties and all of Sumter County. In addition to the river, numerous lakes and wetlands, there is a strong connection to the Floridan aquifer system.

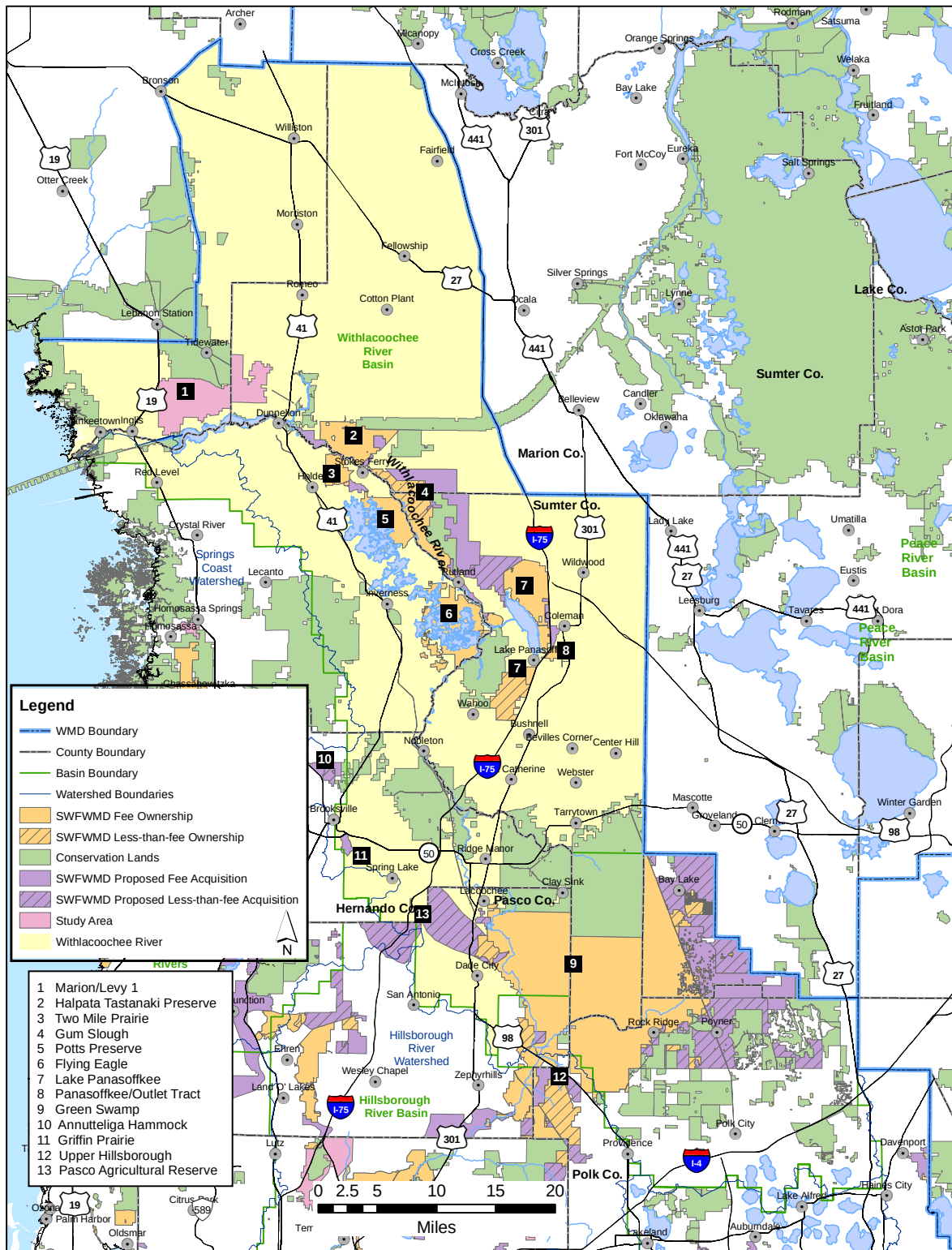
The 157-mile long Withlacoochee River originates in the Green Swamp in Polk County and extends northward, discharging into the Gulf of Mexico near Yankeetown, Florida. The Withlacoochee River is one of two rivers in the State that flows north (the other is the St. Johns River). It traverses eight counties (Polk, Lake, Sumter, Pasco, Hernando, Citrus, Marion and Levy counties), with a watershed in six physiographic regions. Within the Green Swamp, at a location near Highway 98, the Withlacoochee River runs close to the headwaters of the Hillsborough River. A natural saddle occurs between the two rivers at an elevation of 78.5 feet. The Withlacoochee can discharge to the Hillsborough River during high flows, but overflow seldom occurs. West of Lake Rousseau, the Withlacoochee River flows to the Gulf of Mexico where it discharges into the Withlacoochee Bay estuary.

Climate – The climate of the Withlacoochee River watershed is typical for west-central Florida. The summers are warm and humid, while winters are mild and dry. Summer rainfall is produced by convective summer storms which form in Southeast Florida and move northwest across the state. Late winter cold fronts cause a slight increase in average rainfall in February and March. The average amount of rainfall is 55 inches, but rainfall is spatially variable and also varies from year to year and decade to decade. Temperatures range from 60° F in January, to 82° F in July and August. Average temperature for the watershed is 72° F.

Physical Description – The primary physiographic features within the Withlacoochee River watershed are the Brooksville Ridge, Tsala-Apopka Plain, Coastal Lowlands, Webster Limestone Plain and the Dade City Hills. The Brooksville Ridge has a very irregular surface with elevations varying from 70 to 200 feet NGVD over short distances. The Ridge is mantled with clay-rich soils which may, in part, have slowed the weathering process of the underlying limestone compared to surrounding areas, thus creating the high areas of the Ridge. The erosion of the Dunnellon Gap breached the ridge and reversed the ancient course of the river from south to north. The creation of the gap also drained the once larger Tsala-Apopka Chain of Lakes to their present levels. The Dade City Hills area contains the highest elevations in the area. Many hills have elevations above 200 feet with the highest point reaching 301 feet. Several faults have been described in the southern portion of the Green Swamp that complicate the definition of the geology and hydrogeology of the area.

Springs, sinkholes, lineaments and caves are all land forms that characterize the karst geology of the Withlacoochee River watershed. Several large springs are located in the watershed and range in size from first magnitude, such as Rainbow Springs (450 mgd), to third magnitude, such as Wilson Head spring (2 mgd). Numerous smaller springs (4th magnitude and less) are also in the watershed, but most are unnamed and difficult to locate. Springs in the Lake Panasoffkee area are good examples. Springs indicate that a well-developed underground drainage system exists in the Floridan aquifer.

Figure 12. Withlacoochee River Watershed Map



Hydrogeology – Aquifers within the Withlacoochee River watershed are formed by a discontinuous surficial aquifer system and the deeper Floridan aquifer system. The latter is the principal aquifer system and a major source of water in the watershed. A discontinuous confining unit separates the surficial aquifer and the Floridan aquifers in some locations. While the confining unit is present in most areas, it is either thin or very fractured allowing some vertical flow. Within the Withlacoochee River watershed, the Floridan aquifer can be generally classified as “semi-confined.”

Land Use, Growth and Development – The dominant land uses and coverages in the Withlacoochee River watershed are wetlands, upland forest, rangeland, agriculture, mining and urban (built-up). The Green Swamp has mostly agricultural and wetland coverages. Further downstream, land uses become more urbanized near Dade City in Pasco County, but agriculture and wetlands are still dominant. Finally, in the Lake Tsala-Apopka area downstream to Dunnellon, more land is urbanized, but agriculture and wetlands are still a dominant part of the landscape.

Although residential and commercial development in the region is increasing, the watershed as a whole remains largely undeveloped when compared to other watersheds in the District. Currently, there are no urban centers on the Withlacoochee River. Some of the urban areas in the watershed include Dade City, Ridge Manor, Brooksville, Dunnellon, Inverness and The Villages.

Public land ownership is significant within this watershed. Through various state programs, many large parcels of land including the Flying Eagle Ranch, Potts Preserve, the Lake Panasoffkee Tract and parcels in the Green Swamp are in public ownership. Other large public land holdings are owned and managed by the State of Florida Division of Forestry, the Florida Game and Fresh Water Fish Commission and the Florida Department of Environmental Protection.

Privately owned land in the area is predominantly used for agricultural and silvicultural activities, including cattle ranching, row crops, sod, pasture, pine plantation and cypress harvesting. Improved pasture, used to graze cattle and harvest hay and sod, comprise most of the lands dedicated to agricultural uses. The primary industrial land use in the Withlacoochee River watershed is limerock mining. Other types of mining in the watershed include the extraction of sand and horticultural peat. Numerous active and inactive mines are scattered throughout the Withlacoochee River watershed, with many of these are located in the Green Swamp. Although these activities have certainly changed the landscape character of the watershed, land changes do not appear to have had a significant impact on the historic river flows. The exceptional quality of habitats of the Withlacoochee River watershed can be attributed to the limited residential and commercial development along its corridor and the acquisition (fee simple and conservation easements) and management of adjacent lands by state and local agencies.

The Withlacoochee River watershed is comprised of a variety of natural communities which form an extensive and diverse ecosystem ranging from river floodplain forests, cypress domes, pine flatwoods and sandhills in the Green Swamp, to extensive lake systems and marshes in the middle watershed, to salt marsh at the mouth of the river near Yankeetown. This diverse ecosystem supports nearly five hundred species of vertebrates (fresh and saltwater fish, amphibians, reptiles, birds and mammals). In addition to a wide range of common vertebrate species, many listed species inhabit the Withlacoochee River watershed. The Florida Natural Areas Inventory (FNAI) database has records for listed species, including the West-Indian manatee, wood stork, Eastern indigo snake, Florida scrub-jay and the Florida mouse. Other

designated species that are found in the Withlacoochee River corridor include the American alligator, gopher frog, gopher tortoise, bald eagle, Florida sandhill crane, Sherman's fox squirrel, burrowing owl, Southeastern American kestrel, red-cockaded woodpecker, limpkin, little blue heron, snowy egret and tri-colored heron.

Table 30. 1999 Land Use and Land Cover for the Withlacoochee River Watershed

Land Use - Land Cover	Acres	Percent
Agriculture	517,288	32%
Barren Lands	1,794	0.1%
Communication, Transportation & Utilities	11,137	1%
Extractive	13,454	0.8%
Rangeland	50,650	3%
Upland Forests	435,160	27%
Urban and Built Up	238,479	15%
Water	30,360	2%
Wetlands	342,071	21%
Total	1,640,552	100%

Source: SWFWMD (GIS)

Between 1990 and 2025, the population of Citrus County is projected to increase by nearly 53 percent, from 93,515 in 1990 to 179,900 in 2025. The population in Hernando County over the same period is estimated to increase from 101,115 to 208,400, or by 59 percent. Likewise, Levy County population is expected to increase by 56 percent, or from 14,854 to 29,670. Additionally, the estimated population for the Withlacoochee River watershed is projected to increase by 71 percent, from 299,733 in 2000 to 513,089 in 2025. Land use projections through the year 2015 will be highlighted by the estimated residential growth of The Villages in Sumter County, with approximately 14,000 acres and 32,200 single-family homes. This development is generally considered to have one of the highest housing starts in the state.

B. Land Acquisition

Several land acquisition projects are identified for the Withlacoochee River watershed. They range from project to preserve and protect natural areas along the river and its tributaries, to projects crucial to habitat restoration and water quality protection.

Table 31. Land Acquisition Projects Within the Withlacoochee River Watershed

Project	Land Acquired		Land Proposed		Study Area	Total
	Fee	Less-Than-Fee	Fee	Less-Than-Fee		
Annutteliga Hammock			1,341	687		2,028
Flying Eagle	16,334	102				16,436
Green Swamp	112,219	27,334	16,706	40,763		197,022
Griffin Prairie			744			744
Gum Slough	4,059	5,799	13,215	5,439		28,512
Hálpata Tastanaki Preserve	8,146		1,994			10,140
Lake Panasoffkee	10,906	5,486	1,213			17,605
Marion/Levy 1					19,202	19,202
Panasoffkee/Outlet Tract	807		566			1,373
Pasco Agricultural Reserve				12,206		12,206
Potts Preserve	9,342		631			9,973
Tsala Apopka Outfall Canal	3	141				144
Two-Mile Prairie	2,980					2,980
Upper Hillsborough	175					175
Total	164,971	38,862	36,410	59,095	19,202	318,540

Note: all acreages derived using geographic information system software

CHAPTER 7

Mitigation Donation Annual Report



An Equal
Opportunity
Employer

Southwest Florida Water Management District

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)
SUNCOM 572-6200

Lecanto Service Office
Suite 226
3600 West Sovereign Path
Lecanto, Florida 34461-8070
(352) 527-8131

2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)
On the Internet at: WaterMatters.org

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)
SUNCOM 531-6900

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)
SUNCOM 578-2070

Talmadge G. "Jerry" Rice
Chair, Pasco

Judith C. Whitehead
Vice Chair, Hernando

Neil Combee
Secretary, Polk

Jennifer E. Closshey
Treasurer, Hillsborough

Thomas G. Dabney
Sarasota

Heidi B. McCree
Hillsborough

Sallie Parks
Pinellas

Todd Pressman
Pinellas

Maritza Rovira-Forino
Hillsborough

Patsy C. Symons
DeSoto

David L. Moore
Executive Director

William S. Bilenky
General Counsel

January 16, 2007

The Honorable Charlie Crist
Governor of Florida
Office of the Governor
The Capitol
Tallahassee, Florida 32399-0001

Dear Governor Crist:

Subject: Annual Report on Cash Payments as Mitigation

This letter is written pursuant to Section 373.414(1)(b)(2), Florida Statutes, which requires that each water management district report annually to the Executive Office of the Governor "all cash donations accepted under subparagraph 1 during the preceding calendar year for wetland mitigation purposes."

The Southwest Florida Water Management District received no cash payments as mitigation during this reporting period.

If you have any questions, please feel free to contact me at (352)796-7211 or (Suncom) 628-4604.

Sincerely,

David L. Moore
Executive Director