Chapter 1
INTRODUCTION

The Northern Palm Beach County Comprehensive Water Management Plan (NPBCCWMP) was developed under the leadership of the South Florida Water Management District (SFWMD) and the City of West Palm Beach, with extensive participation and support from many other county and local government entities and private interests. The purpose of this effort since 1995 has been to address mutual goals for the management of water resources in the L-8, C-51, and C-18 canal basins in northern Palm Beach County. The surface water management system within this area serves a number of important, often competing functions, including the following:

- Directly supports the surface-water based potable water supply system for the City of West Palm Beach and its interconnected municipalities
- Indirectly supports the potable water supply systems for the Town of Jupiter, Seacoast Utility Authority, and the back up wellfield for the City of West Palm Beach through recharge of the surficial aquifer
- Represents the combined water supply and flood protection system for extensive agricultural operations and urban development
- Serves as the water supply and flood management system for wetland and aquatic ecosystems associated with the Grassy Waters Preserve, the Loxahatchee Slough, and the Northwest Fork of the Loxahatchee River

To meet present and future needs for management of water resources, two multidisciplinary advisory committees were established. These groups defined mutually agreed-upon goals and objectives, and performance measures that could be used to determine how well the goals and objectives were met. A number of potential resource management elements were proposed that could be used to meet existing and future water needs. The elements were combined together and analyzed using subregional hydrologic and water management models. Results of model simulations were evaluated by the committee and the most effective combinations were selected as components of this plan.

This plan was developed to identify these elements. The ability to meet future water needs of northern Palm Beach County relies heavily on the Comprehensive Everglades Restoration Plan (CERP), which was developed jointly by the United States Army Corps of Engineers (USACE) and the SFWMD (USACE and SFWMD, 1999), and the *Lower East Coast Regional Water Supply Plan* (LECRWSP) (SFWMD, 2000). These plans provide funding and technical support necessary to build and operate water resource development projects, major components of the regional infrastructure during the next 20 years. The costs, agency responsibilities, time schedules, and potential benefits associated

with completing those regional projects are described in this plan. Cooperation and assistance by state, regional, and local partners will also be required during the next five years to provide additional system features, land acquisition and resource management to fully achieve the goals and objectives of this plan.

PURPOSE OF THIS PLAN

The primary purpose of the NPBCCWMP is to document the planning process and technical analyses that were used to identify and select the recommended improvements that will meet present and future water needs of northern Palm Beach County. Success in attaining the water management goals of this plan depends on specific projects that are mostly structural, such as conveyance improvements and additional storage. Both the goals and selected projects of this subregional planning effort were coordinated with ongoing regional planning efforts. The technical analyses undertaken during development of the CERP and LECRWSP indicated that multiple water management goals could be achieved by using a selected set of storage and conveyance improvements in the study area.

The second purpose of this report is to identify the specific LECRWSP and CERP projects, costs, and schedules upon which the NPBCCWMP is dependent. Local partners may be asked to share some aspects of implementing these projects, provide funding for capital improvements, or assume operational and maintenance responsibilities. The SFWMD remains committed to the continued development of the CERP through the federal process and will, through a diligent outreach process, maintain local stakeholder participation. The federal process provides an opportunity to refine the proposed projects, resolve issues, and produce effective solutions. The down side of the federal process is the lengthy planning and implementation time required to complete each project. These extended time frames are due to a number of contributing factors, including mandatory Environmental Impact Statements (EISs) and the need to provide timely submittals of proposed construction plans to meet deadlines imposed by the biannual Water Resources Development Act.

This document also provides support to implement structural components that can be built and operated in advance of the CERP projects. Costs and funding strategies; schedules for design, permitting, and construction of facilities; and the need for operating and maintenance agreements and protocols are identified. To this end, the SFWMD has initiated certain preconstruction tasks, such as acting as local sponsor in applications for state and federal grant programs. A funding plan for these structural components is important to ensure that implementation will move forward in a timely manner.

An example of initiating a local effort to accelerate the schedule of a CERP component is the L-8 Reservoir Testing Project. This project is being financed at a cost of approximately $3,100,000 by the Florida Department of Environmental Protection (FDEP), SFWMD, Palm Beach County, Indian Trail Improvement District (ITID) and the City of West Palm Beach to assess the feasibility of using rock pits that are owned by the Palm Beach Aggregates, Inc. (PBA) for water storage. At the request of, and with funding

from, local interests, the schedule for this activity was accelerated, in order to further the investigation for the L-8 Canal Basin General Re-evaluation Report and formulation of the CERP project implementation report (PIR) and to provide "interim benefits" to water supply, flood protection, and the environment.

At the conclusion of the initial phase of the L-8 Pilot Water Storage project (see Local Option Projects section), the parties agreed that additional testing was required to assess water quality and site feasibility. The L-8 Reservoir Testing will continue for three years, and has been expanded to include an additional pit. The available storage is currently 170 acres with an operational depth of up to 35 feet providing a total storage of about 6,000 acre-feet. The project involves construction of intake facilities during 2001, additional water quality monitoring (inflow, within pits, and outflow), determination of optimum water levels and drawdown duration, and monitoring of naturally-occurring radioactive elements.

Finally, the technical analyses indicate a potential for detrimental impacts that are likely to occur to regional water resources until the proposed projects are completed. Based on this information, this document identifies projects that can, and should be, accelerated in order to achieve benefits sooner and reduce potential detrimental resource impacts. To the extent that a consensus exists among local stakeholders, the SFWMD and the USACE, implementation of some projects can proceed immediately.

BASIS OF WATER SUPPLY PLANNING

The Florida legislature has delegated authority to the SFWMD to protect South Florida's water supply by managing water use at the regional level to meet future demands. Beginning in the 1990s, the SFWMD initiated water supply planning efforts to ensure prudent management of South Florida's water resources. This effort began with the development of a *District Water Supply Policy Document* (SFWMD, 1991), and continued with the *District Water Management Plan* (SFWMD, 1995, 2000), *District Water Supply Assessment* (SFWMD, 1998), and regional water supply plans such as the LECRWSP (SFWMD, 2000).

The SFWMD's water supply plans are guided by directives and policies embodied in the *District Water Supply Policy Document* (SFWMD, 1991), Water Resource Implementation Rule (Chapter 62-40, F.A.C.), Chapter 373, F.S., the State Comprehensive Plan (Chapter 187, F.S.), and delegation of authority from FDEP. In addition, water supply plans must meet the requirements of the 1996 Governor's Executive Order (96-297) and 1997 legislative water supply amendments to Chapter 373, F.S. to include the following:

- A 20-year planning horizon
- A quantification of estimated water supply needs
- A list of water source options for water supply development which will exceed the identified needs

- For each water source option, the estimated amount of water available and the estimated costs
- A list of water supply development projects that meet the criteria in Section 373.0831(4)
- A list of those water resource development projects that support water supply development
- For each water resource development project listed, provide the following information:
    1. An estimate of the amount of water to become available
    2. The timetable and the estimated costs
    3. Sources of funding and funding needs
    4. Who will implement the project and how it will be implemented
    5. A funding strategy
    6. Consideration of how the options serve the public interest or save overall costs
    7. Technical data and information
    8. Minimum flows and levels and associated recovery and prevention strategies established within the planning region (Section 373.042(1))

For this northern Palm Beach County region, minimum flows and levels and associated recovery and prevention strategies are being established within the planning region by a separate planning process that will be incorporated into a technical document in conjunction with rule development.

The LECRWSP (SFWMD, 2000), which includes Palm Beach County, was completed by the SFWMD in May 2000, and indicated that a more detailed, subregional planning effort was underway for northern Palm Beach County to address local water resource issues and concerns. Preliminary results from this northern Palm Beach County planning effort were incorporated into the LECRWSP. Those results were further refined and are provided in this NPBCCWMP for use by the SFWMD, other agencies and local interests.

AGENCY AND PUBLIC PARTICIPATION

Two advisory committees were created to oversee development of the NPBCCWMP. A Technical Advisory Committee (TAC) included scientists, engineers and other experts. The Policy Advisory Committee (PAC) included representatives from water supply utilities, water control districts, agricultural interests, environmental groups, and related state and federal resource management agencies. These committees met

periodically to provide guidance, direction, and technical support throughout the planning process. A list of committee members is included in **Appendix A** of the Technical Support Document, Volume II.

In addition, a number of public meetings were held, and periodic updates were provided to local utilities, agencies and interest groups to describe progress of the planning efforts. Information concerning this plan was also presented periodically at SFWMD Governing Board meetings and workshops to solicit public comment and input.

GOALS AND OBJECTIVES

The advisory committees identified the primary, often competing water resource functions (described above) of the northern Palm Beach County water supply system. Water resources must be effectively managed to serve these functions. The committees also determined that significant growth and land development are expected to occur within the planning area during the next 20 years. As indicators, population is expected to increase by 50 percent and public water supply demands are projected to increase by 63 percent.

The original goals of this cooperative effort, as identified by the advisory committees, are to enhance water supply, water quality, flood protection and environmental resources within northern Palm Beach County during the next 20 years. To achieve these goals, specific and quantifiable objectives were identified. These water resource management objectives for the area evolved through numerous discussions among the stakeholders and are summarized as follows:

- Provide supplemental water to the Loxahatchee Slough sufficient to maintain water levels such that they do not fall below the target hydroperiod by more than 6 inches during normal years, and for no more than 30 days during droughts with a return frequency of up to ten years. The target hydroperiod is described in the Technical Support Document (see Figure 7, Volume II).
- Provide supplemental water to maintain a flow of up to 65 cubic feet per second (cfs) over the Lainhart Dam to maintain appropriate bottom salinities in the Northwest Fork of the Loxahatchee River.
- Improve the timing and volume of flow provided from other tributaries to the Northwest Fork of the Loxahatchee River. Improved flow from other sources will reduce the amount of supplemental water that is needed from the C-18 Basin (delivered through G-92 and subsequently over the Lainhart Dam) and the regional system. Improving flow from other tributaries will most likely require additional storage within those basins.
- Provide 5 cfs of baseflow to the Southwest Fork of the Loxahatchee River.

- Allow periodic historical flow from C-18 Canal to wetlands located within the Mirasol Project (formerly known as Golf Digest).
- Provide sufficient recharge within the Town of Jupiter to prevent saltwater intrusion into their wellfield.
- Provide sufficient water to maintain the Grassy Waters Preserve at levels desirable for native plant communities and snail kite populations while preventing damage to Northlake Boulevard.
- Provide a dependable public water supply through 2020 for the utilities in the region for a drought with a return frequency of 1-in-10 years, to be consistent with water supply plans.
- Identify alternative sources and quantities of water that will enable public water supply utilities to meet drought demands and/or minimize drought restrictions. Such alternative sources include aquifer storage and recovery (ASR) and the reuse of reclaimed water.
- Continue to meet basinwide agricultural water supply needs including the ability to provide an average annual volume of 4.6 (million gallons per day) mgd from surface water sources for agricultural water supply to Callery Judge Grove.
- Assist the Indian Trail Improvement District (ITID) with peak flow management to provide additional flood protection.

COORDINATION WITH OTHER EFFORTS

As mentioned above, this local planning effort was closely coordinated with the development of the LECRWSP by the SFWMD. The modeling undertaken by the SFWMD for the LECRWSP, as well as that undertaken in conjunction with the federal CERP, affirmed the conceptual plan for the area. Based on this affirmation, the CERP intends to conduct additional planning and evaluation in the future, with further refinement of the recommendations. In addition to the USACE and SFWMD, other partners and activities must play a critical role to ensure the success of this planning effort. Therefore, the plan includes a list of related CERP projects and a discussion of participation that is needed by other partners and efforts.

As a final note, the recommendations resulting from the technical analyses conducted as part of this planning effort are not all inclusive, nor are they intended to limit the range of alternatives available to local governments or improvement districts. Local options for managing the water resources of northern Palm Beach County are evolving and deserve consideration. For this purpose, a list of related water management projects and the water management agencies involved is also provided.

STRUCTURE OF THIS REPORT

The NPBCCWMP is contained in two volumes. Volume I details the overall scope of the plan and the features, schedules, costs, and funding of proposed projects for the next two to five years, prior to the implementation of CERP projects in the area. The Technical Support Document, Volume II, provides a summary of the technical tools, assumptions, planning activities, and analyses that led to the proposed recommendations.

The federal effort to restore the Everglades via the CERP will, in the long-term, incorporate and further refine the recommendations in this report. This is an action plan, which was developed to address specific water resource issues and supplemental activities that are needed, in the interim, to provide necessary links between regional facilities created by the CERP and local needs. The actions described in this plan are intended to address both immediate and long-term problems in a manner that is as consistent as practicable with the proposed CERP direction, and to the extent that federal, state, regional, and local funding allows. Proposed implementation schedules, cost estimates, and funding agreements are identified based on the best available information.