

Chapter 8: Implementation of the Long-Term Plan for Achieving Water Quality Goals in the Everglades Protection Area

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SUMMARY

Pursuant to the requirements of Section 373.4592(13), Florida Statutes (F.S.), this chapter presents an update on the progress of the implementation of the Long-Term Plan for Achieving Water Quality Goals in the Everglades Protection Area (Long-Term Plan) (Burns and McDonnell, 2003) and subsequent amendments. Because there is overlap between many of the Long-Term Plan projects and other South Florida Water Management District (SFWMD or District) Everglades restoration efforts, the updates for many of the Long-Term Plan projects will appear in other chapters of this volume.

The Long-Term Plan projects that cover the Everglades Stormwater Program basins (also known as non-Everglades Construction Project, or non-ECP, basins) and source controls are covered in Chapter 4 of this volume, and the Long-Term Plan projects relating to the Everglades Construction Project Stormwater Treatment Areas (STAs) are covered in Chapter 5 of this volume. **Table 8-1** indicates the specific chapters in this report where each Long-Term Plan project update appears. The financial reporting related to the implementation of the Long-Term Plan is covered in Chapter 13 of this volume.

The long-term Everglades water quality goal is for all discharges to the Everglades Protection Area (EPA) to achieve and maintain water quality standards in the EPA, including compliance with the total phosphorus (TP) criterion established in Rule 62-302.540, Florida Administrative Code. Substantial progress toward reducing phosphorus levels discharged into the EPA has been made by the state of Florida and other stakeholders.

As of April 30, 2006, the Everglades Agricultural Area's Best Management Practices and the Stormwater Treatment Areas have collectively removed more than 2,495 metric tons¹ of TP that otherwise would have entered the Everglades; however, additional measures are necessary to achieve the Everglades water quality goal. The Long-Term Plan sets forth measures to achieve that goal and permits the state of Florida and the District to fulfill their obligations under both the Everglades Forever Act (Section 373.4592, Florida Statutes) and the federal Settlement Agreement (Case No. 88-1886-CIV-MORENO). A summarized list and locations of the basins addressed in the Long-Term Plan are presented in **Table 8-2** and **Figure 8-1**, respectively.

¹ The inception-to-date numbers presented for the STAs now include start-up flows and loads and, therefore, will reflect a revision to the STA removal reported in previous consolidated reports.

The District continued implementation of the Long-Term Plan in Fiscal Year 2006 (October 1, 2005 through September 30, 2006). The District's requests for major revisions to the Long-Term Plan were approved by the Florida Department of Environmental Protection on December 23, 2005, June 15, 2006, and September 1, 2006, as summarized in this chapter.

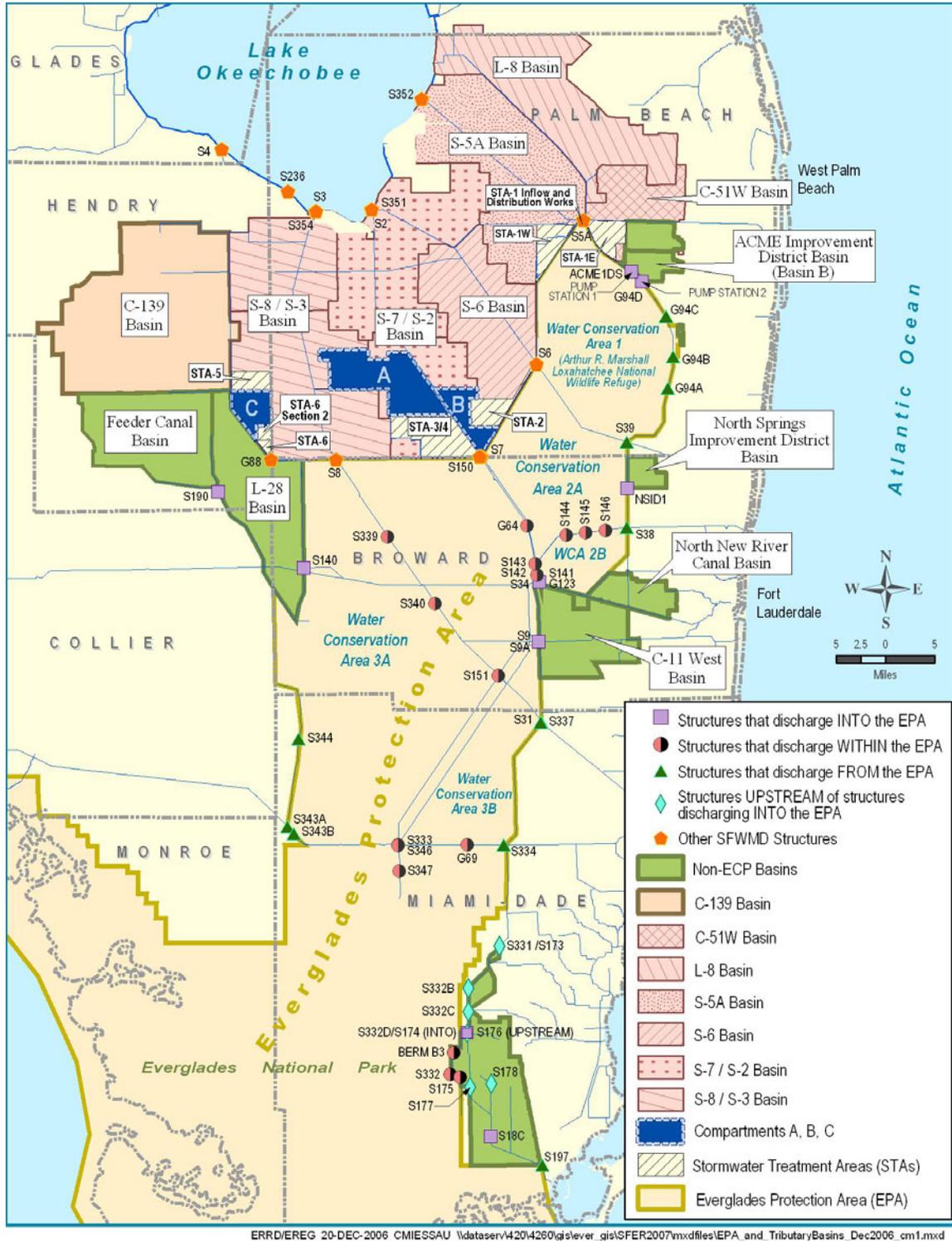


Figure 8-1. Overview of the Everglades Protection Area (EPA) and tributary basins.

Table 8-1. Summary of projects and cross-referenced chapters in the Long-Term Plan.

Project Description	Chapter References in the 2007 SFER – Volume I
<u>EVERGLADES CONSTRUCTION PROJECT (ECP) BASINS</u>	
STA-1E Enhancements	5 (STA-1E section)
STA-1W Enhancements	5 (STA-1W section)
STA-2 Enhancements	5 (STA-2 section)
STA-3/4 Enhancements	5 (STA-3/4 section)
STA-5 Enhancements	5 (STA-5 section)
STA-6 Enhancements	5 (STA-6 section)
ECP Operation and Maintenance - STAs and non-STAs	5 (each STA section)
ECP Compliance Monitoring	5 (each STA section)
ECP Operations Monitoring	5 (project-level activities section)
STA Site Management	5 (project-level activities section)
<u>EVERGLADES STORMWATER PROGRAM (ESP) BASINS</u>	
Acme Basin B	4
North Springs Improvement District Basin	4
North New River Canal Basin	4
C-11 West Basin	4
Feeder Canal Basin	4
<u>PROCESS DEVELOPMENT AND ENGINEERING (PDE)</u>	
<u>Basin Source Controls</u>	
EAA Basins - Source Controls	4
C-139 Basin - Source Controls	4
<u>Enhanced Control and Monitoring</u>	
Acquisition of Survey Data	5 (project-level activities section)
Additional Flow and Water Quality Monitoring Stations	5 (project-level activities section)
Review and Correction of Flow Measurement Anomalies	5 (project-level activities section)
Analysis and Interpretation	5 (project-level activities section)
Update and Maintenance of Hydraulic Models	5 (project-level activities section)

Table 8-1. Continued.

Project Description	Chapter References in the 2007 SFER – Volume I
<u>Improved Analytical and Forecasting Tools</u>	
Continued Development and Refinement of DMSTA	8
Water Quality Impacts of Reservoirs	8
Periphyton-based STA (PSTA) Investigations	5 (project-level activities section)
PSTA Implementation Project in STA-3/4	5 (project-level activities section)
<u>Optimizing SAV Performance</u>	
Operational Strategy	5 (STA-2 section)
Vegetation Maintenance	5 (STA-2 section)
Hydrologic and Hydraulic Assessment	5 (project-level activities section)
Internal Measurements	5 (project-level activities section)
Comparative Analysis	5 (future reports)
<u>Additional Structural and Operational Measures</u>	
Evaluation of Full-Scale STA Enhancements	5 (STA-1W section)
<u>Improved Reliability of Inflow Forecasts</u>	
Update Baseline Data Sets	8
Basins With Limited Current Data	8
Influence of CERP Projects on Inflow Volumes and Loads	8
Lake Okeechobee Long-Term Trends	8
Determine Water Quality Relationships in the EPA	3C
<u>ACCELERATE RECOVERY OF IMPACTED AREAS</u>	
Recovery Model Development and Calibration	6
Downstream Influence of Adding Clean Water to Previously Impacted Areas	6
Options for Accelerating Recovery	6
Alternatives Analysis and Plan Formulation	6
Hydropattern Restoration	6
Implement Steps for Recovery in Impacted Areas	6
<u>ADAPTIVE IMPLEMENTATION</u>	8
<u>PROGRAM MANAGEMENT</u>	8

Table 8-2. EPA tributary basins included in the Long-Term Plan.

Basin	Canal	Stormwater Treatment Areas	Receiving Water Conservation Areas
S-5A (EAA)	West Palm Beach Canal	STA-1W, STA-1E, STA-2	WCA-1
S-6 (EAA)	Hillsboro Canal	STA-2	WCA-2A
S-7 (EAA)	North New River Canal (NNRC)	STA-3/4	WCA-3A
S-8 (EAA)	Miami Canal	STA-3/4, STA-6	WCA-3A
C-51 West and L-8 Basin	C-51 West	STA-1E, STA-1W	WCA-1
C-139 (including Annex)	L-3 Canal	STA-5, STA-6	WCA-3A
ACME Basin B	N/A	N/A	WCA-1
North Springs Improvement District (NSID)	N/A	N/A	WCA-2A
North New River Canal (NNRC) (G-123)	NNRC	N/A	WCA-3A
C-11 West	C-11 West	N/A	WCA-3A
Feeder Canal	L-28 Interceptor Canal	N/A	WCA-3A
L-28	L-28	N/A	WCA-3A

N/A = Not Applicable

INTRODUCTION

The long-term Everglades water quality goal is for all discharges to the Everglades Protection Area (EPA) to achieve and maintain water quality standards, including compliance with the phosphorus criterion established in Rule 62-302.540, Florida Administrative Code (F.A.C.). For additional information on the phosphorus criterion rule, see Chapter 3C of this volume. Substantial progress toward reducing phosphorus levels discharged into the EPA has been made by the state of Florida and other stakeholders. The combined performance of the source controls in the Everglades Agricultural Area (EAA) and the Stormwater Treatment Areas (STAs) of the Everglades Construction Project (ECP) has exceeded expectations. The actual combined STA outflow of phosphorus concentrations have been below the STA target outflow concentration of 50 parts per billion, and the actual source controls load reductions have been markedly better than the 25 percent load reduction requirement. For more information on the EAA source controls program and STA performance, refer to Chapters 4 and 5 of this volume, respectively. In addition, some source control measures have been implemented in urban and other tributary basins included in the Everglades Stormwater Program (see Chapter 4).

The Long-Term Plan for Achieving Water Quality Goals in the Everglades Protection Area (Long-Term Plan) contains activities to achieve the Everglades water quality goal and to permit the state of Florida and the South Florida Water Management District (SFWMD or District) to fulfill their obligations under both the Everglades Forever Act (EFA) [Section 373.4592, Florida Statutes (F.S.)] and the federal Everglades Settlement Agreement (i.e., Settlement Agreement dated July 26, 1991, entered in Case No. 88-1886-CIV-MORENO, U.S. District Court for the Southern District of Florida, as modified by the Omnibus Order entered in the case on April 27, 2001).

OVERVIEW OF THE LONG-TERM PLAN

The Long-Term Plan (dated October 27, 2003) was submitted to the Florida Department of Environmental Protection (FDEP) in December 2003 as part of the long-term permit application required by the EFA. The October 27, 2003, version of the Long-Term Plan is located on the District's web site at <http://www.sfwmd.gov/org/erd/bsfboard/waterquality.pdf>. Descriptions of all subsequent revisions to the Long-Term Plan including documents, data, presentations, and related links are also available at the District's web site at www.sfwmd.gov under *What We Do, CERP/Everglades Restoration* section, and the *Long-Term Plan for Achieving Everglades Water Quality Goals* link.

STATUS OF PROJECT-LEVEL ACTIVITIES

The District began implementing the Long-Term Plan projects in Fiscal Year 2004 (FY2004) (October 1, 2003 through September 30, 2004). On February 28, 2006, the third annual public meeting was held at District headquarters in West Palm Beach. The purpose of this meeting was to provide the public with an updated status of the projects in FY2006 at that time and to receive input on proposed modifications to the Long-Term Plan. This chapter presents the status update on the project-level activities for the entire FY2006.

Because of overlap among several Long-Term Plan projects and other Everglades restoration efforts by the District, updates for several of the Long-Term Plan projects appear in other

chapters of this volume. **Table 8-1** summarizes all of the Long-Term Plan projects, including cross-references to other chapters in which the specific project update appears. An update on the status of project-level activities for eight of the Long-Term Plan projects for FY2006 is summarized below.

Continued Development and Refinement of the Dynamic Model for Stormwater Treatment Areas

The Dynamic Model for Stormwater Treatment Areas (DMSTA) (Walker and Kadlec, 2005) is the tool used to model the future of phosphorus performance in the STAs. The DMSTA was used to evaluate components of the Long-Term Plan and will be applied to future enhancements and the interaction between the Comprehensive Everglades Restoration Plan (CERP) reservoirs and the STAs. To increase the certainty in the accuracy of the model predictions, the model will be updated and calibrated.

The DMSTA refinement tasks identified in the Long-Term Plan for FY2006 were completed by the U.S. Department of the Interior and the U.S. Army Corps of Engineers (USACE) through contracts with Dr. William W. Walker, Jr. Additional information on the September 2005 version of the DMSTA, referred to as Dynamic Model for Stormwater Treatment Areas Model Version 2 (DMSTA2), can be found online at <http://www.wwwalker.net/dmsta/index.htm>.

Water Quality Impacts of Reservoirs

The Water Quality Impacts of Reservoirs Project was initiated in FY2004, as recommended in Section 5.3.2, Water Quality Impacts of Reservoirs of the Process Development and Engineering component of the Long-Term Plan. This project was completed in FY2005. All documents completed in support of this project can be found online at <http://www.sfwmd.gov/org/erd/longtermplan/documents.shtml> or through the District's web site at www.sfwmd.gov under *What We Do, CERP/Everglades Restoration* section, the *Long-Term Plan for Achieving Everglades Water Quality Goals* link, and the *Documents* section. All of the project hydrologic, water quality, and climatic data are available from the District's web site at <http://spatial1.sfwmd.gov/wqir/>.

Update Baseline Data Sets

As recommended in the Long-Term Plan, the analyses presented in the baseline data for the Basin-Specific Feasibility Studies to Achieve the Long-Term Water Quality Goals for the Everglades (Goforth and Piccone, 2001) should be updated no less frequently than once every two years to continually improve the degree of confidence in the projected flow volumes and associated TP loads in inflows to the treatment areas, or in some instances, in discharges directly to the EPA.

The Long-Term Plan recommendation was to provide funding for the inflow data set updates beginning in FY2005, and extending through FY2015 in alternating years. The next scheduled update is FY2007. The District has the responsibility for updating the baseline data sets; the updated data sets are reviewed by the FDEP as well as interested stakeholders.

Basins with Limited Current Data

Water quality performance projections for Everglades restoration efforts depend on understanding water movement and nutrient loadings from multiple watersheds. The projections utilize models that are calibrated from flow and water quality data collected at representative sites throughout the region. No work was scheduled to occur on this project in FY2006. The next scheduled project activity is in FY2007.

Influence of CERP Projects on Inflow Volumes and Loads

As CERP projects proceed through planning and implementation, the projected impact of these projects on the inflow volumes and loads to the STAs and to receiving water bodies in the EPA must be updated. Of particular interest is the EAA Storage Reservoirs Project, which will be linked operationally to one or more of the STAs upon its completion. Because the Phase I EAA storage reservoir has been expedited to the design and construction phase, more detailed information now exists regarding the proposed size, location, and operation of the reservoir, which will provide inflows to the STAs. As part of the EAA Regional Feasibility Study, analyses were conducted in FY2005 and early FY2006 to determine ways to optimize the performance of the linked Phase I EAA Storage Reservoir and the STAs. The documents produced as part of the EAA Regional Feasibility Study can be found at <http://www.sfwmd.gov/org/erd/longtermplan/documents.shtml> or through the District's web site at www.sfwmd.gov under *What We Do*, *CERP/Everglades Restoration* section, the *Long-Term Plan for Achieving Everglades Water Quality Goals* link, and the *Documents* section.

Lake Okeechobee Long-Term Trends

When the Long-Term Plan was developed, it was assumed that Lake Okeechobee would contribute a significant portion of the water anticipated to be captured and treated in the STAs. The most recent estimated percent contribution of Lake Okeechobee releases to the total STA inflows is about 4 percent of the volume and about 5 percent of the TP load. This estimated percent contribution is based on the recent Lake Okeechobee water quality information, i.e., following the 2004 and 2005 hurricanes. As revised information becomes available on Lake Okeechobee water quality, the anticipated percent contribution from Lake Okeechobee will be revised accordingly. Although no work was scheduled to occur on this project in FY2006, District staff and consultants working on the Long-Term Plan and Lake Okeechobee projects coordinated with the USACE to develop updated STA performance projections in support of the USACE's evaluation of alternative revised Lake Okeechobee operating schedules. The results of this evaluation will be available in FY2007, at which time the selected alternative is anticipated to be announced by the USACE. Implementation of the selected alternative for the revised Lake Okeechobee regulation schedule is anticipated to occur in mid 2007.

Adaptive Implementation

Part 6 of the Long-Term Plan includes a recommendation that a dedicated funding source be established to facilitate the adaptive implementation process and assure that additional steps are expeditiously implemented. The Long-Term Plan also includes a recommendation for funding of \$36 million, distributed as \$9 million per year from FY2007 through FY2010. Although no funds were recommended for this project until FY2007, as in earlier years, opportunities arose in FY2006 to provide funds for several STA optimization activities. These activities, which were combined into one Long-Term Plan revision request, include real-time monitoring of phosphorus at STA structures, strategies for STA vegetation management, and Best Management Practices

(BMPs) in District canals. For additional information on this revision to the Long-Term Plan, see the *Revisions to the Long-Term Plan* section of this chapter.

Program Management

During FY2006, the District and its contractors performed various program management activities, which included maintenance of the project schedules, STA operational support, program reporting activities, and overall Everglades program coordination.

REVISIONS TO THE LONG-TERM PLAN

As stated in the amended EFA (October 2003), revisions to the Long-Term Plan shall be incorporated through an adaptive management approach, including a Process Development and Engineering (PDE) component to identify and implement incremental optimization measures for further reductions in phosphorus. Also, as stated in the amended EFA, revisions to the Long-Term Plan shall be approved by the FDEP.

During FY2006, the District submitted three revision requests to the FDEP. Copies of all District request letters, FDEP approval letters, and supporting documentation can be found at <http://www.sfwmd.gov/org/erd/longtermplan/documents.shtml> or through the District's web site at www.sfwmd.gov under *What We Do*, *CERP/Everglades Restoration* section, the *Long-Term Plan for Achieving Everglades Water Quality Goals* link, and the *Documents* section.

1. On November 22, 2005, the District submitted a request to the FDEP for a proposed major revision to the Long-Term Plan. On December 23, 2005, the FDEP approved the District's proposed revision, a brief description of which is presented below:

As recommended in the Revised Part 2 of the Long-Term Plan (November 2004), structural enhancements to Cells 2, 4, and 5 of STA-1W were initiated in FY2005 during the dry season. Damage and delays due to the hurricanes in fall 2004 resulted in revised schedules for completing the enhancements and hurricane repair work. District scientists have evaluated the condition of the vegetation in Cells 2, 4, and 5 and have proposed the following as the best plan of action to ensure the optimal long-term phosphorus removal performance of this STA:

- Post-pone enhancements in Cells 1 and 3 by one year to allow vegetation grow-in in Cells 2, 4, and 5. Completion would occur in FY2007 instead of FY2006
- Implement vegetation management activities to expedite Cells 2, 4, and 5 vegetation grow-in

The current proposed revision also includes a revision to the schedule for completing the automation of the STA-1W G-304 structures such that completion would occur in FY2006 instead of FY2005 as was stated in the November 2004 revision to the Long-Term Plan.

As recommended in the Revised Part 2 of the Long-Term Plan (November 2004), structural and vegetation conversion activities were initiated in Cells 2 and 3 of STA-3/4 during FY2004 and FY2005. The Long-Term Plan also recommended conversion of Cell 1 B from an emergent (predominantly cattail) marsh to a Submerged Aquatic Vegetation (SAV) marsh in the coming dry season. In order to implement this conversion, the treatment cell would need to be taken offline, dried out, burned and/or treated with herbicide, then re-flooded to allow SAV grow-in. District scientists have evaluated the recent excellent performance of this treatment cell and have proposed a

revision to the Long-Term Plan that will involve a less aggressive method of converting the vegetation from cattail to SAV, and will allow the treatment cell to remain online in flow-through treatment mode. This method would consist of herbicide application to small portions of the marsh at one time, followed by transplanting of SAV in the open areas.

2. On March 15, 2006, the District submitted a second request to the FDEP for a proposed major revision to the Long-Term Plan. On June 15, 2006, the FDEP approved the District's proposed revision, a brief description of which is presented below:

As described in Part 3 of the October 27, 2003, Long-Term Plan, one of the key assumptions was that the strategy for ACME Basin B, as well as determination of its implementation schedule, would be accomplished through the CERP planning and implementation process. Subsequent to completion of the Long-Term Plan, it was determined that the overall timeframe associated with the CERP planning process might impact the ability to complete construction of the ACME Basin B project by the originally planned date of December 31, 2006, and within the original budget. Also subsequent to the completion of the Long-Term Plan, it was confirmed that the optimal plan for addressing ACME Basin B discharges would include discharging to the C-51W Canal for eventual treatment in STA-1 E.

In order to complete the ACME Basin B project within the approximate timeframe of the originally planned completion date, and in order to facilitate better coordination with STA-1 E, the planned destination for this basin's runoff, it is now proposed to incorporate the ACME Basin B project into the Long-Term Plan. This revision will facilitate the completion of the ACME Basin B project by providing a dedicated funding source through the Everglades Trust Fund. Attached is a revised Part 3 of the October 27, 2003, Long-Term Plan further describing the costs and schedules associated with the proposed addition of the ACME Basin B project to the Long-Term Plan.

3. On July 28, 2006, the District submitted a third request to the FDEP for a proposed major revision to the Long-Term Plan. On September 1, 2006, the FDEP approved the District's proposed revision, a brief description of which is presented below:

The proposed revision includes the addition of the C-9 and C-11W CERP projects to the Long-Term Plan. The C-9 and C-11W project goals are consistent with Long-Term Plan goals and integrating with the Long-Term Plan is consistent with F.S. 373.4592 (3)(c)(EFA). Adding these projects to Long-Term Plan will provide a dedicated funding source to ensure timely completion. The cost estimate for the C-9 and C-11W Basin CERP projects is \$380 million, including real estate, engineering, design, construction, construction management and annual operations and maintenance through FY2016.

The proposed revision also includes implementation of a plan to address performance issues in STA-1W Cell 5 following the 2004 and 2005 hurricanes. The plan includes extensive dry-out of Cell 5B to consolidate the sediment; planting of rice to assist with sediment stabilization, anchoring of SAV, and attachment area for epiphytic periphyton; planting of vegetated berms in Cell 5B to serve as windbreaks; and some limited topographic re-shaping and re-distribution of material from high areas to low areas. Construction of the proposed Cell 1 internal levee and associated G-248 structures remains scheduled for the winter 2006 (FY2007) as per a previously approved revision to the Long-Term Plan. The construction of the levee and the structures is now proposed to be constructed in the wet whereby inflow to the eastern flow-way will be reduced, but not completely suspended. The estimated completion date for the proposed Cell 1 internal levee and structures is July 2007 (FY2007). The current proposed revision involves the vegetation conversion to SAV in Cells 1B and 3. Based on lessons learned during the STA-1W western flow-way vegetation conversion, the eastern flow-way will not be taken completely off-line for the vegetation conversion work which will occur concurrently

with construction beginning February or March 2007 (FY2007). Selective spraying of herbicide will be employed to create open areas for SAV growth and to encourage vegetated berms which are intended to serve as wind breaks. The estimated completion date for the herbicide application is January 2008 with SAV grow-in occurring over summer 2008.

The October 27, 2003, Long-Term Plan assumed improvement in phosphorus removal resulting from improved flow distribution from new internal levees and structures in STA-2 Cell 3, STA-6 Section 1, and STA-6 Section 2. The capital cost estimate for these internal levees and associated structures was \$8.23 million in FY2003 dollars. In order to complete the new levees, the existing cells would have had to be taken off-line for 12 to 30 months. As recommended in the Long-Term Plan, a tracer study was conducted in STA-2 Cell 3 to achieve a better understanding of the hydraulics of the cell. The tracer study (DB Environmental, Inc., 2004) demonstrated efficient hydraulics in STA-2 Cell 3 without the levee. In addition, the phosphorus removal performance of STA-2 Cell 3, STA-6 Section 1, and STA-6 Section 2 with and without compartmentalization was evaluated. The model runs indicated no improved phosphorus removal performance with the levees compared to without the levees for these three cells. It is therefore currently proposed to delete the STA-2 Cell 3, STA-6 Section 1, and STA-6 Section 2 internal levees that were included in the October 27, 2003, Long-Term Plan.

Revisions to the Options for Accelerating Recovery Project are currently proposed. During development of the October 27, 2003, Long-Term Plan, it was anticipated that research would require expenditures (FY2003 dollars) of \$500,000 per year for a 3-year period encompassing Fiscal Years 2004-2006, inclusive. Subsequent to completion of the Long-Term Plan, it was determined that the overall timeframe associated with conducting the appropriate studies for making management decisions might impact the ability to provide sufficiently supported data by the originally planned date and within the original budget. It is proposed that the Options for Accelerating Recovery project be extended by four years to FY2010 with a revised total budget of \$3,767,282. The proposed revisions are intended to improve the District's ability to enhance the recovery of impacted areas by providing recommendations as to methods for restoring ecosystem function in the Everglades.

Revisions to the PDE Component are also currently proposed. A brief description of the proposed revisions is as follows:

- Add Operations and Permit Monitoring for the expanded treatment areas
- Extend the STA Analysis and Interpretation project for the expanded treatment areas
- Extend the PSTA Investigations Project to track the USACE PSTA project in STA-1E
- Extend operations and monitoring of the STA-3/4 PSTA Demonstration Project
- Revise the location and schedule for the post-levee dye tracer study consistent with deletion of the internal levee in STA-2 Cell 3
- Increase the emphasis on the Lake Okeechobee Long-Term Trends Project to understand impacts on the STAs
- Extend the project to Determine Water Quality Relationships in Everglades Protection Area
- Use Adaptive Implementation to implement new activities, such as BMPs in District Canals, Strategies for Vegetation Management in STAs, and Real Time Phosphorus Monitoring at STAs

Descriptions of previously approved revisions to the Long-Term Plan can be found on the District's web site and in the 2005 and 2006 SFER – Volume I, Chapter 8.

CHALLENGES TO ACHIEVING LONG-TERM WATER QUALITY GOALS

Successful implementation of the Long-Term Plan will require integration of numerous research, planning, regulatory, and construction activities. The District and the FDEP are committed to achieving these long-term water quality goals.

REGULATORY ISSUES

The Long-Term Plan being implemented by the District has the planning goal of achieving water quality standards, including the TP criterion in the EPA. During the initial phase of implementation (pre-2016) of the Long-Term Plan, permits issued by the FDEP are to be based on Best Available Phosphorus Reduction Technology, as defined by the EFA, and include technology-based effluent limitations consistent with the Long-Term Plan. In addition, the FDEP must evaluate water quality standards for parameters other than TP for the EPA and EAA canals. As a part of this evaluation, the FDEP is also specifically directed by the EFA to recognize by rulemaking the existing beneficial uses of the EAA conveyance canals.

The FDEP has been evaluating water quality standards for canals as a part of a state-wide reevaluation of water quality standards with a specific emphasis on classifications, which will include consideration of the existing beneficial uses. The FDEP will be conducting this review in consultation with a technical advisory committee of appropriate stakeholders, with final recommendations from this effort due by March 1, 2007. Other regulatory issues are discussed in Chapter 4 of this volume.

STA OPTIMIZATION RESEARCH

Chapter 5 of this volume presents a summary of STA optimization research during FY2006. While critical research is continuing on STA optimization, the Long-Term Plan includes a process of adaptive implementation to incorporate the best available and scientifically defensible information during implementation of the Long-Term Plan.

SOURCE CONTROL MEASURES

Controlling TP loads at the source, from the EAA, the C-139, and the non-ECP basins, continues to be a high priority in the Long-Term Plan. For this reason, source control development and implementation funding was provided again in FY2006 and will continue to be provided throughout the implementation of the Long-Term Plan. Additional information on the Long-Term Plan source control projects, including efforts to evaluate the effectiveness of different source control activities, can be found in Chapter 4 of this volume.

SYNCHRONIZATION WITH CERP PROJECTS

The majority of Everglades tributary basins contain proposed CERP projects (see Chapter 7A of this volume). As in FY2004 and FY2005, the District continued in FY2006 to coordinate with members of CERP's Project Delivery Teams (PDTs) in an effort to integrate Long-Term Plan projects with CERP projects, where possible, consistent with the 2003 amended EFA. Integrating some of the Long-Term Plan components with CERP projects continues to have the potential for

significant cost savings and water quality improvements as many of the CERP projects are still in the early planning and design phases. However, uncertainty continues as to how CERP projects will influence flows and water quality and as to the implementation schedules for the projects. Continued close coordination is needed between members of the PDTs and staff implementing the Long-Term Plan components to ensure that project goals are met on schedule.

STATUS OF WATER QUALITY AND FLOW CONDITIONS IN THE EVERGLADES PROTECTION AREA

Chapter 1B of this volume provides a summary of phosphorus loading and concentrations for all of South Florida and documentation that phosphorus control programs have led to lower loads and concentrations in major components of the EPA. The EAA BMPs and the STAs have been removing phosphorus from waters discharging to the EPA for over 10 years, and, as a result, water quality conditions are improving in the areas of the EPA that are downstream of the STA discharges. Additional water quality improvements are anticipated as more Long-Term Plan projects are implemented and those projects complete a stabilization phase. The Long-Term Plan not only has a series of projects being implemented but also an adaptive management component providing continual enhancements to projects with the expectation of improved phosphorous control.

The response of the EPA to the Long-Term Plan projects from a flow distribution and timing perspective may not be measured until after the Hydropattern Restoration projects are complete; however, efforts are under way to develop the tools for predicting the response of the system to the proposed projects. The status of the development of the tools needed to predict recovery is reported in Chapter 6 of this volume. For more information on the hydrology of the South Florida environment and on the status of water quality in the EPA, see Chapters 2 and 3A of this volume, respectively.

LITERATURE CITED

- Burns and McDonnell. 2003. Everglades Protection Area Tributary Basins Long-Term Plan for Achieving Water Quality Goals. October 2003. Report prepared for the South Florida Water Management District, West Palm Beach, FL.
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