

**SECTION 8**  
**RECOMMENDED PLAN**

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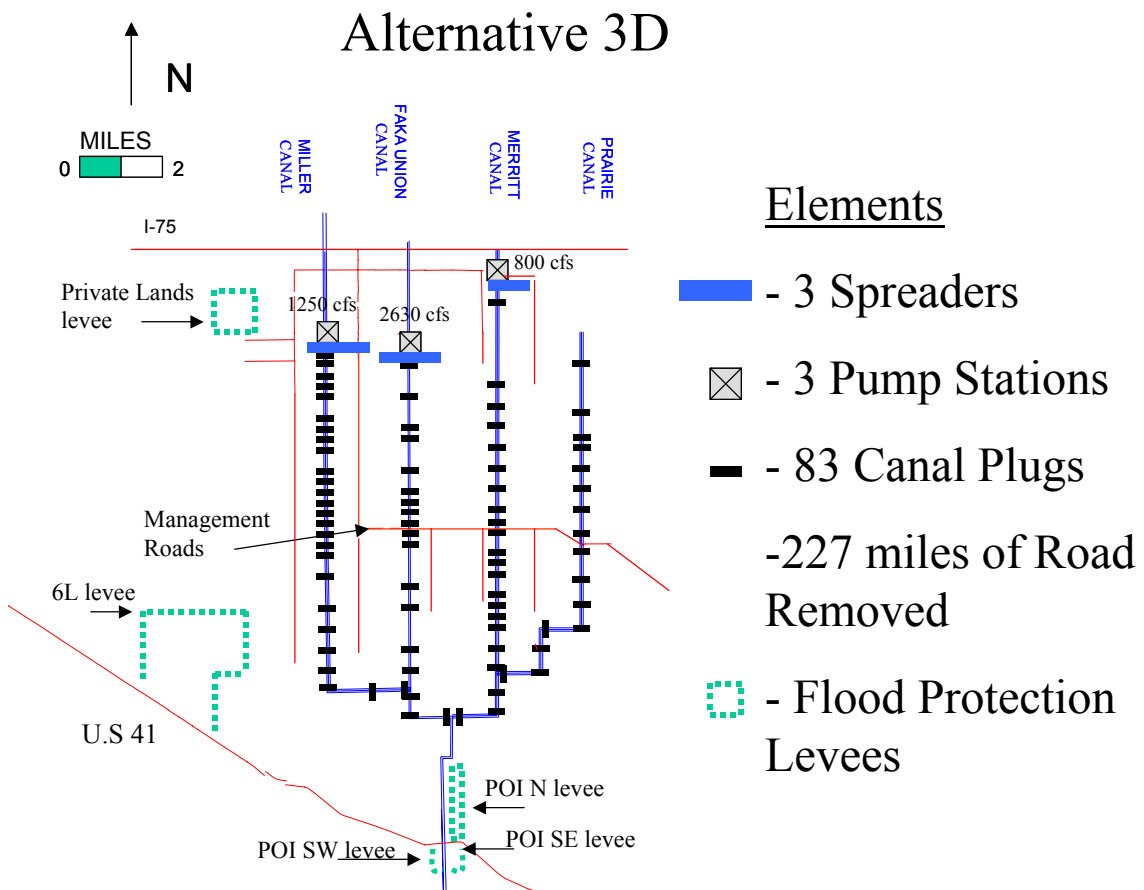
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## SECTION 8 RECOMMENDED PLAN

### 8.1 INTRODUCTION

Alternative 3D is the recommended plan (the Preferred Alternative, under terminology used in the National Environmental Policy Act, NEPA). The main features of Alternative 3D are shown in Figure 8 - 1. The next sections present the construction features, operational features, real estate requirements, monitoring requirements, and the cost estimate for the recommended plan.



**FIGURE 8 - 1 ALTERNATIVE 3D**

In response to agency and public comments, the team continued to analyze Alternative 3D during the period after release of the draft PIR. The team looked more closely at many aspects of Alternative 3D, including but not limited to drainage for NGGE during storms, the total water to be made available for the environment, and real estate costs. As a result of this continued evaluation, Alternative 3D has been modified slightly from the alternative presented in the draft PIR. The features and cost estimates for Alternative 3D presented in this updated Section 8 of the PIR are not identical to the values for Alternative 3D in Section 6 of the PIR. The principle changes are that the pump station sizes and associated construction cost estimates have increased; the real estate cost estimate for SGGE land has decreased; and the total first cost has decreased by about \$13 million. Ecosystem benefits did not change. The construction cost changes would have been applied to all alternatives with pump stations. The real estate cost changes for SGGE land would have been the same for all three of the final alternatives. This highest refined level of analysis was not performed for the other alternatives because these changes would not have altered which alternative became the recommended plan.

## **8.2 CONSTRUCTION FEATURES**

### **8.2.1 Canals**

Eighty-three canal plugs would be placed in the four canals. The approximate locations of the plugs are shown in Figure 8 - 1. The source material for the canal plugs and swale blocks would be from the spoil from the original canal and swale excavations, and the demolition and degrading of the roads (see below). There will be sufficient material available to do the proposed work.

Three spreader channels will be constructed and will run in an east-west direction, across the Miller Canal at 64<sup>th</sup> Avenue, the Faka Union Canal at 66<sup>th</sup> Avenue, and the Merritt Canal at 54<sup>th</sup> Avenue. The spreader canals will be located immediately downstream of the proposed pump stations. The pumps have been designed to have discharge pipe free fall into the spreader channels, which will act as a plunge pool for energy dissipation and to aerate the water. The discharge waters will then be conveyed overland to the downstream project area. The spreader canals' lengths were optimized for restoration pumping rates. For the Miller, Faka Union and Merritt pump stations the spreader canal lengths will be approximately 4500 feet, 7000 feet and 1400 feet, respectively. They will serve to distribute the flows along the overland areas to emulate the historic sheet flow of the area.

### 8.2.2 Pump Stations

Pump stations would be constructed on the Miller, Faka Union and Merritt Canals (Figure 8-1). The Miller Pump Station would be constructed on the Miller Canal near 64<sup>th</sup> Avenue SE. The Miller Pump Station would have 4-125 cfs pumps and 2-375 cfs pumps, for a total of 1,250 cfs and 6 bays. The Faka Union Pump station would be constructed on the Faka Union Canal near 66<sup>th</sup> Avenue SE. The Faka Union Pump Station would have 2-125 cfs pumps, 2-250 cfs pump and 4-470 cfs pumps, for a total of 2,630 cfs and 8 bays. The Merritt Pump station would be constructed on the Merritt Canal near 54<sup>th</sup> Avenue SE. The Merritt Pump Station would have 2-80 cfs pumps and 3-213 cfs pumps, for a total of 800 cfs and 5 bays. The pumps would be utilized to maintain flow through the project area during flood events and as a means for restoration. A small 100 cfs pump station with 2-50 cfs pumps will be required for interior drainage of the Private Lands levee system. Refer to Appendices A and C for engineering details.

### 8.2.3 Levees

Levees will be built to protect private property from any adverse flooding do to the project plan. The typical levee section will be 15 feet wide, 6 to 9 feet high, and have 1:3 side slopes. The source material for the levee would be from the spoil from the original canal and swale excavations and road demolition work. All five of the levees are shown on Figure 8-1 with more details in the Engineering Appendices (A through C).

A ring levee would be built in the southern end of the SGGE to protect the Port of the Islands (POI) Waterfront RV Resort and other structures from being flooded by the higher water and sheet flow from the north and northeast. The levee would be on the eastern side of the Faka Union Canal, south of the "T" (the intersection where the four SGGE canals become one canal), and north of U.S. 41 (Figure 8-1). The levee would be approximately 3.0 miles in length.

A second levee would protect the Port of the Islands development southeast of the intersection of the Faka Union Canal and U.S. 41 (Figure 8-1). The levee would be approximately 0.81 miles long.

A third levee would be constructed to protect the Port of the Islands development southwest of the intersection of the Faka Union Canal and U.S. 41 (Figure 8-1). The levee would be approximately 0.36 miles long.

The agricultural area in southern Belle Meade is surrounded by a levee or berm to assist the farms' operators with managing water levels in the farm. A new, improved perimeter levee (6L levee in Figure 8-1) would be constructed to ensure that the higher water levels expected from the recommended plan will not flood the agricultural area. The levee would be approximately 12.2 miles long.

A ring levee would be constructed around the set of private residential properties located in northeastern Belle Meade, adjacent to the northwest corner of SGGE (Figure 8-1). The levee would be approximately 4.2 miles long.

#### **8.2.4 Roads**

Approximately 227 of the 279 miles of roads existing in SGGE would be demolished so that they would be low enough to allow sheet flow of water. Approximately 219 miles of the roads are constructed of crushed limestone and 60 miles are paved with asphalt. The road material would be removed with standard earth-moving equipment. Asphalt would be removed off-site and disposed of according to state regulations. Trees and other vegetation growing along and in the roads would be left in place as much as practicable. The demolished roads would generally become impassable by vehicles. Some of the material would be used for construction of the canal plugs and flood protection levees. Any remaining material would be placed in the canals to supplement the canal plugs.

Approximately 52 miles of existing road would remain in SGGE. Stewart Boulevard would remain between Janes Scenic Parkway and Everglades Boulevard. Everglades Boulevard would remain between Stewart Boulevard and I-75. Berson Boulevard west of the Merritt Canal would remain. These roads would be modified with a mix of low water crossings to allow water to flow over them and with culverts to allow water to flow under them. Portions of the north-south Miller, DeSoto, Merritt, and Patterson Boulevards would be degraded to adjacent ground elevations, but would remain available for use during the dry season.

Up to 4 miles of new, unpaved roads would be constructed from Berson Boulevard southward to the sites of the three proposed pump stations.

### **8.2.5 Culverts**

New culverts would be constructed under U.S. 41. The culverts would supplement the bridges and culverts that exist today. The culverts are identified as 42A, 46A, 51A, 51B, 51C, 55A, 62A, 66A, and 66B in the Letter Report and Environmental Assessment for the Tamiami Trail Culverts Critical Project.

Culverts would be constructed under Everglades Boulevard immediately south of I-75 to convey water between the Miller and Faka Union Canals. Culverts and low water crossings would be constructed in Stewart Boulevard and other roads that would remain within SGGE. The number, size, and specific location of these culverts will be determined during the detailed design phase.

Culverts would be required for some of the levee systems to provide interior drainage. They would convey runoff off-site to reduce the amount of interior flooding that could occur during storms.

## **8.3 OPERATIONAL TESTING AND FEATURES**

### **8.3.1 Operational Testing**

Subsequent to the completion of the construction phase of the project operational testing of the pump stations and other project components will be required. Assuming that there is an adequate supply of water each pump station will require approximately 2 to 4 weeks of operational testing. Other project components such as the spreader canals and canal plugs will be currently tested with the operational testing of the pump stations. If the pump stations are tested in series, it will take approximately 4 months to complete the operational testing.

### **8.3.2 Operational Features**

Several versions of the operating manual will be prepared prior to project completion. In the Pre-construction and Detailed Design phase, the draft operating manual developed for the PIR (see Appendix A) may be modified, as necessary, for operations during construction. A draft operating manual for the operational testing and monitoring phase will then be prepared. Experience gained from the operational testing and monitoring phase will be incorporated into the final operating manual, which will be coordinated with

SFWMD and the South Atlantic Division (SAD), and will supercede all other iterations of the operating manual. At this point, the SFWMD, as the local non-Federal sponsor, will accept ownership and responsibility for long-term operations of the project.

The non-runoff phase of operation is characteristic of the dry period (mid October – April) across the SGGE Project landscape and is maintained by gravity flow. Many of the roads that obstruct the historic flow ways will be degraded to natural ground level. As water flow in the canals encounters the canal plugs, it will form a series of pools. The operation of the pump stations during this period will be necessary if gravity flow is not adequate to maintain the optimum canal stages.

The flood control phase of operation is characteristic of periods of high discharges during the wet season (May – mid October), particularly during runoff events, and during severe tropical storms in order to remove excess runoff or regain canal storage. Continuous pump station operations during the wet season are anticipated.

The Florida Division of Forestry will manage the SGGE land as a unit of the Picayune Strand State Forest. The Division of Forestry will perform prescribed fires throughout SGGE. The Division will use a variety of methods to reduce the distribution and abundance of invasive native and exotic plants. The Division will operate under its existing 5-year management plan. After the SGGE plan is authorized, the Division's management plan will be updated to reflect the construction features and the expected changes to the landscape.

#### **8.4 REAL ESTATE REQUIREMENTS**

The lands required for the recommended plan are based on an analysis of the lands needed for construction, operation, maintenance, repair, replacement and rehabilitation of the Project. The real estate component of the recommended plan is tentative in nature for planning purposes only. Both the final real property acquisition lines and the real estate cost estimates provided herein and in Appendix F are subject to change. More detail of the real estate requirements for the recommended plan is discussed in Appendix F.

### **8.4.1 Land Acquisition**

The total estimated land requirement is approximately 64,690 acres. There are 55,247 acres in the Southern Golden Gate Estates CARL Area, which will be required in fee title. A perpetual flowage easement will be required over approximately 9,021 acres in the Belle Meade State Conservation and Recreation Land (CARL) Area, which will be hydrologically impacted in the average wet season with an increase in the depth of waters from the Project on average from 0.5 to over 1.0 feet. Fee title will be required over approximately 20 acres for installation of the Tamiami Trail Culverts. Fee title will be the required estate over 397 acres required for construction of the five levees. A temporary road easement will be required over 5.20 acres for the period of construction. More detail is discussed in Appendix F.

### **8.4.2 Relocation Assistance**

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Public Law 91-646), relocation assistance is required to be provided to affected residents and business. There were originally 47 owners or tenants who qualified as displacees for the Uniform Relocation Assistance Benefits. The 47 displacees consisted of 41 single residence owners and 6 apartment tenants. There remains 1 displacee to be relocated. It is anticipated that due to limited availability of comparable replacement housing and rapidly rising real estate values in the area last resort housing may be required. In Belle Meade, there are approximately 25 owners who may require relocation assistance benefit payments.

## **8.5 ADAPTIVE ASSESSMENT AND MONITORING**

The intent of the SGGE Ecological and Water Quality Monitoring Plan is to determine if the anticipated hydrologic, vegetative, wildlife, and estuarine benefits of the project are being achieved and to support the adaptive management process over the 50-year life of the project. The plan proposes to monitor ecosystem responses to the changes in hydroperiod depth and duration and changes in flows to the estuaries resulting from implementation of recommended alternative 3D. The monitoring plan is in Appendix H, Ecological and Water Quality Monitoring Plan.

## 8.6 COST ESTIMATE

The estimate for the SGGE recommended plan includes:

1. Initial costs (land acquisition and construction costs)
2. Investment costs
3. Operation and maintenance costs

These costs are presented in more detail in the following sub-sections. Equivalent annual costs were also calculated for the features of the recommended plan.

### 8.6.1 Initial Costs

The total estimated initial cost of the recommended plan is \$349,422,000 at October 2004 price levels. This estimate is the “baseline” estimate, and in accordance with Federal water resource-planning regulations does not include future price escalation. The estimated initial cost for the recommended plan is shown in Table 8-1.

**TABLE 8 - 1 ESTIMATED INITIAL COSTS**

<b>FEATURE</b>	<b>COST *</b>	<b>TOTALS</b>
Utilities & Relocation	\$2,094,000	
Road Demolition	\$34,065,000	
Canals & Plugs	\$5,382,000	
Levees	\$7,401,000	
Pump Stations	\$67,476,000	
Culverts	\$8,528,000	
Subtotal		<b>\$124,946,000</b>
Detailed Design	\$11,369,000	
Construction Management	\$12,633,000	
Subtotal		\$24,002,000
		\$148,948,000
Monitoring during const	\$7,431,000	
<b>Construction Total</b>		<b>\$156,379,000</b>
Lands	\$193,043,000	
<b>Total</b>		<b>\$349,422,000</b>

(\* October 2004 price levels)

Table 8 - 2 provides a comparison of the features of the SGGE plan described in the Comprehensive Plan and those provided in the SGGE recommended plan in this PIR.

**TABLE 8 - 2 SUMMARY OF CHANGES CERP AND SGGE PIR**

	<b>SGGE in the Comprehensive Everglades Restoration Plan final report</b>	<b>SGGE PIR</b>
<b>Construction Cost</b>	\$ 15,500,000 (Oct 1999 Price Level)	\$ 124,946,000 (Oct 2004 Price Level)
<b>Real Estate Cost</b>	\$0 in main report; \$134,400,000 in Appendix A, Plan Formulation	\$193,043,000
<b>Components</b>	Non-specific/Conceptual Source report (1996 conceptual plan):  Miller Pump Station 200 cfs Faka Union Pump Station 500 cfs Merritt Pump Station 160 cfs Prairie Canal Plugs 130 miles of roads removed. (No levees) (No culverts and levee ramps)	Miller Pump Station 1,250 cfs Faka Union Pump Station 2,630 cfs Merritt Pump Station 800 cfs Prairie Canal Plugs (same) 227 miles of roads removed. 5 ring levees for flood protection Culverts and levee ramps
<b>Feature Siting</b>	Non Specific/Conceptual	Criteria Used: Current Land Use, Topography, Hydrologic, and Ecological Connectivity
<b>Amount of Land</b>	The land between I-75, U.S. 41, Fakahatchee Strand, and Belle Meade area	59,294 acres between I-75, U.S. 41, Fakahatchee Strand, and Belle Meade area

### 8.6.2 Investment Costs

Department of the Army Engineering Regulation (ER) 1105-2-100 requires that interest during construction (IDC) be computed which represents the opportunity cost of capital incurred during the construction period. Interest was computed for construction and pre-construction engineering and design (PED) costs from the middle of the month in which the expenditures were incurred until the first of the month following the estimated construction completion date. Interest during construction is shown within Table 8-3.

**TABLE 8 - 3 TOTAL COSTS**

<b>Cost Component</b>	<b>Alternative 3D*</b>
Construction Features	\$156,379,000
Lands	\$193,043,000
<b>Initial Cost</b>	<b>\$349,422,000</b>
Interest during construction	
Construction	\$26,325,000
Lands	\$4,169,000
Monitoring	\$1,007,000
Total Interest During Construction	\$31,501,000
<b>Total Project Investment</b>	<b>\$380,923,000</b>
Average Annual Costs	
Interest and Amortization	\$22,912,000
Operation and Maintenance	\$2,129,000
Monitoring	\$887,000
<b>Total Annual Equivalent Cost</b>	<b>\$25,928,000</b>

\*Alternative 3D costs were updated as part of the detailed cost analysis for the recommended plan. The annual cost is less than \$30,000 greater than used in the incremental analysis.

The cost of a project is the investment incurred up to the beginning of the period of analysis. The investment cost at that time is the sum of construction and other initial cost such as real estate and PED cost plus interest during construction. In this analysis, most of the constructed components had different construction completion dates. The IDC for the construction element of the recommended plan is \$26,325,193 (Table 8-3).

Interest during construction was computed for real estate using the date the lands are to be certified for the project. For the SGGE lands, there are two certification dates. The first is the lands that are needed for construction, which consists of a much smaller percentage of land than the whole of the SGGE study area. This set of land will be certified in 2006. The second date is for the remaining lands, which will not be certified until construction is completed and benefits start accruing in 2010. The lands associated with the second certification date will not accrue interest during construction since benefits start at the same time these lands are certified. The total IDC on real estate is estimated to be \$22,912,000 (Table 8-3).

Interest during construction was computed for monitoring during construction. This began five years prior to benefits starting to accrue. The IDC for the monitoring during construction is \$1,007,000 (Table 8-3).

### **8.6.3 Operation, Maintenance, Repair, Replacement, and Rehabilitation Costs**

Annual operation and maintenance costs were estimated for the construction features of the recommended plan. The operation and maintenance costs were determined by extrapolation from operational costs histories supplied by the South Florida Water Management District (SFWMD), by using industry standard cost data and by using data from past and projected future cost trends. The average annual operation, maintenance, repair, replacement and rehabilitation (OMRR&R) costs are estimated to be \$2,129,000 (Table 8-3).

### **8.6.4 Monitoring and Adaptive Assessment Costs**

The current estimate for the average annual monitoring and adaptive assessment activities described in Section 8.4 and Appendix H is \$887,000 (Table 8-3). Much of the monitoring is “front-loaded”, with the most intensive monitoring scheduled for the early years of the project, when the most rapid ecosystem change is expected to occur.

### **8.6.5 Annual Costs**

Investment costs were converted to annual costs using an interest rate of 5 5/8 percent and a period of analysis of 50 years to compute interest and amortization. Annual operation and maintenance costs and monitoring and adaptive assessment costs were then added to the interest and amortization costs to determine the average annual cost, which is \$25,928,000 for the recommended plan (Table 8-3).

### **8.6.6 Cost Estimate Uncertainties**

The current estimated cost of the recommended plan is based on the best available information. Appropriate contingency factors were used in developing the cost estimates to reflect the uncertainties inherent at this stage of project development. As more site-specific analysis is completed, the contingency factors will be revised to reflect the greater levels of certainty. Value engineering will be used to optimize the design of facilities in the detailed planning and design phases of implementation for individual projects. During the detailed design phases, opportunities will be sought that

reduce the number of control structures as well as using more passive control structures wherever feasible, which could result in reduced construction and OMRR&R costs of projects.

## 8.7 COST SHARING

Responsibilities for implementing the recommended plan will be shared by the Corps, on behalf of the Federal government, and the non-Federal sponsor, the SFWMD. The Corps and the SFWMD will cost share equally in the design of projects resulting from this plan. The SFWMD will acquire and furnish necessary lands, easements, rights of way, relocation, and disposal areas (collectively referred to as LERRD); and operate and maintain the completed project. Construction contracts to build the projects will be managed by either the Corps or SFWMD to maintain a 50-50 cost. Rules, which determine how project responsibilities are shared, are established in Federal law and related administration implementing policies. Section 601 of WRDA 2000 provides in-kind cost sharing for the non-federal sponsor for design, construction and operational and maintenance and for treatment of credit between projects to maintain a 50/50 cost share.

### 8.7.1 Cost Sharing of Construction and Land Costs

Section 601 of the Water Resources Development Act of 2000 and Corps policy requires that:

- LERRD will be provided by the non-Federal sponsor.
- The total first cost of the project, including the value of LERRD and pre-construction engineering and design costs, will be shared equally between the Federal government and the non-Federal sponsor. The non-Federal sponsor will provide cash or manage a portion of construction as necessary to meet its 50 percent share of the total first cost of the project to be balanced according to Section 601 of WRDA 2000 to maintain a 50/50 cost share every five years.

Table 8 - 4 contains an apportionment of project costs between the Federal government and the non-Federal sponsor based on the recommended plan.

**TABLE 8 - 4 COST APPORTIONMENT OF SGGE RECOMMENDED PLAN (INITIAL COSTS ROUNDED)**

Item	Total	Federal	Non-Federal
Construction	\$156,379,000	\$136,711,000	\$19,753,000
LERRD	\$193,043,000	* \$38,085,000	\$154,958,000
Total	\$349,422,000	\$174,711,000	\$174,711,000

\* \$38,085,000 of Farm Bill funds from the Department of Interior were used by the non-Federal sponsor to acquire lands

### 8.7.2 Cost Sharing of Adaptive Assessment and Monitoring

As previously described in Section 8.5, the Adaptive Assessment Program has been developed. The program is needed to provide essential information that supports the development and the implementation of the recommended plan. Data collected as part of the monitoring program is critical to the refinement of the features of the recommended plan by providing the basis for adjustments to design and operation criteria as needed. The monitoring program is a necessary component for ensuring that ecosystem benefits are achieved in the Southern Golden Gate Estates area and the Ten Thousand Islands area, as well as Fakahatchee Strand State Preserve, the Florida Panther National Wildlife Refuge, the Belle Meade CARL area, and Collier Seminole State Park. Section 601(b)(2) of the Water Resources Development Act of 2000 specifies that adaptive assessment and monitoring will be cost shared equally by the Federal Government and the non-Federal sponsor (SFWMD). These adaptive management costs have been allocated to Construction and O&M for budgeting purposes.

### 8.7.3 Cost Sharing of Operations and Maintenance

Section 601(e)(4) of the Water Resources Development Act of 2000 specifies that the operations and maintenance of authorized projects of the Comprehensive Everglades Restoration Plan would be cost shared equally by the Federal Government and the non-Federal sponsor. Consistent with the provisions of section 601(e)(4) of the Water Resource Development Act of 2000, it is appropriate for the OMMRR&R associated with this plan to be shared equally between the Federal government and the non-Federal local sponsor.

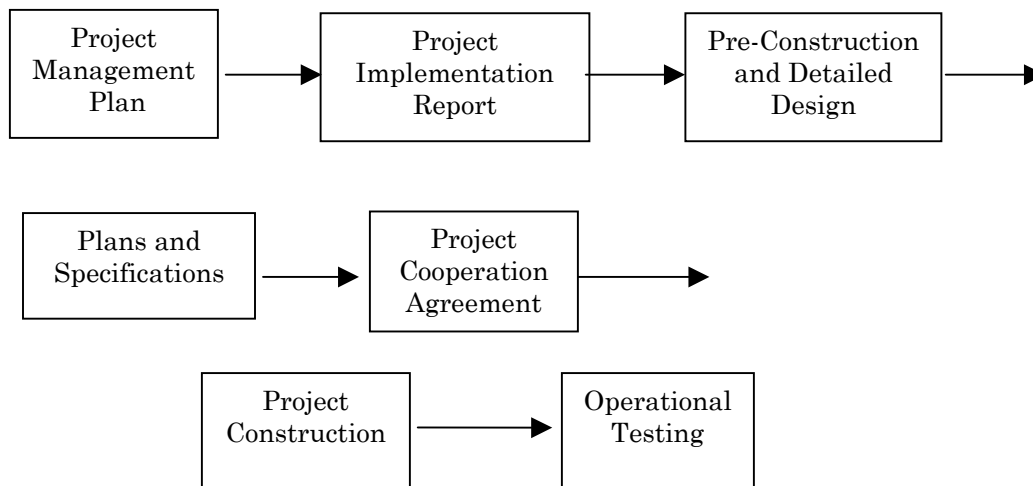
### 8.7.4 Cost Sharing of Early Construction

Corps of Engineers policy is that credit is not normally given to the non-Federal sponsor for construction work that is performed by the sponsor prior to signature of the Project Cooperation Agreement (PCA). If the sponsor proceeds with construction actions prior to the PCA, the sponsor is a risk of not receiving credit for the work. Section 13 (Recommendations) of this PIR recommends that Congress authorize credit to the non-Federal sponsor for constructing plugs within the Prairie Canal and constructing culverts under U.S. 41, based on verification that the work completed is necessary for the Project and that the costs are reasonable. If Congress approves this recommendation, and the work performed is necessary and of reasonable cost, then the cost of the Prairie Canal plugs and the U.S. 41 culverts will be shared equally between the Federal government and the non-Federal sponsor.

## 8.8 PROJECT IMPLEMENTATION

The implementation of the recommended plan will be consistent with procedures described in the Master Program Management Plan adopted by the Corps and the South Florida Water Management District for the implementation of the Comprehensive Everglades Restoration Plan (CERP) and any amendments thereto. The tasks necessary to implement the SGGE recommended plan is described in this report. Upon completing the Final PIR, work will be initiated on Detailed Design. The Project Implementation Report addresses the reservation of water for the natural system and any issues that might be required by Section 601(h) of the Water Resources Development Act of 2000. The SGGE project implementation process is outlined in **Figure 8-2**.

**FIGURE 8 - 2 SGGE IMPLEMENTATION**



### **8.8.1 Project Management Plan**

Implementation of the recommended plan will be guided through the development and use of documents known as the project management plan (PMP) and the Project Implementation Report (PIR). The PMP was approved 24 May 2001. Preparation of a PIR was begun immediately after the completion of the PMP. The SGGE PMP contains the work plan and schedule for tasks identified as necessary to implement the recommendations of the SGGE Project, including those tasks accomplished through pre-construction engineering and design (PED). The PMP/PIR will be updated prior to commencement of project construction.

### **8.8.2 Project Implementation Report**

The SGGEPIR contains all of the project-specific requirements for PIRs outlined in Section 601(h)(4)(A)(iii) of the Water Resources Development Act of 2000 (WRDA 2000) including sub-clause (V) which states that the PIR shall "...identify the amount of water to be reserved or allocated for the natural system..." Furthermore, Section 601(h)(5) of WRDA 2000 (the "Savings Clause") requires that existing legal sources of water may not be transferred or eliminated until a new source of comparable quantity and quality is available. Additionally, the Savings Clause provides that implementation of CERP shall not reduce levels of service for flood protection that are in accordance with applicable law and in existence on the date of enactment of WRDA 2000. Section 601(h)(4)(c)(I) of WRDA 2000 also requires an operating manual that is consistent with the reservations described in the PIR. Since this Project Implementation Report will be finished before completion of the formal guidance memoranda and the pre-CERP baseline, this PIR compares the effect of the three leading alternatives on flooding to the flooding conditions that existed at the time of enactment and considers whether there would be any affect on these flooding conditions by any of these alternatives.

Similarly, Florida Statute 373.470 requires, in part, that "Prior to executing a project cooperation agreement with the Corps for the construction of a project component, the District (South Florida Water Management District), in cooperation with the Corps, shall complete a project implementation report to address the project component's economic and environmental benefits, engineering feasibility, and other factors provided in s. 373.1501 sufficient to allow the district to obtain approval under s 373.026. Each project

implementation report shall also identify the increase in water supplies resulting from the project component. The additional water supply shall be allocated or reserved by the District under Chapter 373.” This PIR contains information to meet the requirements of the Programmatic Regulations, 33 Code of Federal Regulations § 385.15, which provides that PIRs shall include such information and analyses as are necessary to facilitate review and approval of projects by the South Florida Water Management District and the State pursuant to requirements of Florida law.

### **8.8.3 Pre-Construction and Detailed Design Phase**

One of the first considerations of an implementation plan must be the completeness of the recommendations to be implemented. While a substantial interagency effort has gone into the development of this report, not every aspect of the planning process is finished.

Engineering analyses and design were completed using best available survey information. Improved survey information has been gathered but not incorporated into the engineering analyses and design to date. To determine if any additional design efficiencies can be incorporated into the recommended plan, engineering analyses and designs will be performed with this new survey information. The additional engineering analyses requirements are site specific hydraulic modeling, detailed geotechnical investigation, structural and mechanical optimization of the proposed pump station, but these are only some of the detailed design requirements for this phase. The outcome of this additional analysis is not expected to be adverse to the implementation of the recommended plan or result in increased cost. This detail engineering is only required to minimize the unfinished engineering design aspects required for a Plans and Specification Document for construction.

Soils and geologic information available from the original canal construction and a few other sources was employed in the current designs. Soils in the region are known to be relatively consistent and it is thought that soils are not likely to present problems for the type of construction contemplated. However, prudent and safe design demands that a thorough geotechnical investigation be completed prior to the development of construction plans and specifications.

The Phase II and Phase III assessment for hazardous, toxic, and radioactive waste and evaluation of the risk associated with the flooding / inundation of the Southern Golden Gate Estates area was completed in September 2003. The SFWMD has been coordinating the findings with the Florida

Department of Environmental Protection (FDEP) and the U.S. Fish and Wildlife Service to develop appropriate actions for residual agrochemicals that were discovered. A total of 36 acres of land within SGGE contain chlordane that requires action. The SFWMD is aware of the requirement that lands provided for the project must be free from contamination. SFWMD plans to perform a combination of soil inversion, soil inversion plus capping, and soil excavation, depending on the site-specific concentration of chlordane. The estimated cost for all remediation is \$1,690,000. The SFWMD would perform this remediation during this Pre-Construction and Detailed Design phase. The costs of remediation would be entirely non-Federal and not cost shared between the sponsor and the Federal Government. Additional details are in Appendix D.

Real estate acquisition activities will continue concurrent with detailed design. The Florida Department of Environmental Protection is overseeing the acquisition. The acquisition is currently 97% complete. It is anticipated that the acquisition will be completed prior to completion of PED. The non-federal sponsor is engaged in real estate acquisition and the non-federal sponsor understands that until a Project Cooperation Agreement is executed its real estate acquisition is at its sole risk and expense.

#### **8.8.4 Project Cooperation Agreement**

The South Florida Water Management District and the Federal Government will enter into binding agreements for local cooperation prior to the implementation of the project. The Federal Government and SFWMD are currently developing a Master Agreement for Local Cooperation on the Comprehensive Everglades Restoration Plan (CERP) that will apply to the projects in the recommended plan. It is envisioned that the Master Agreement will include provisions common to all projects for which the South Florida Water Management District is the non-Federal sponsor. In addition, the Federal Government and the South Florida Water Management District will enter into a binding Project Cooperation Agreement specific to each project. The Project Cooperation Agreement will include provisions that are unique to the specific projects and will only be executed after all the applicable requirements of Federal and State laws have been met.

#### **8.8.5 Construction**

A majority of the activities that take place during the construction phase of a project are detailed in an updated PMP/PIR for construction as designs are completed. This phase encompasses the actual construction of a project's

components. Prior to the beginning of this phase, the PMP/PIR is updated to reflect the latest project schedule and cost estimates. Also, the on-site environmental monitoring plan is finalized and put into effect. As the construction phase is concluded, the operation, maintenance, repair, replacement and rehabilitation manuals are completed.

### **8.8.6 Early Construction**

Two components of the recommended plan will be exceptions to the implementation sequence described above. The non-Federal sponsor has started construction of the Prairie Canal plugs and plans to start construction of the U.S. 41 culverts prior to Congressional authorization of the project and prior to signature of the Project Cooperation Agreement. These features are being constructed early because they provide immediate benefits to the ecosystem and they are necessary steps for the later construction features. Ecosystem benefits would be greatly reduced and the recommended plan would not function without these components. The non-Federal sponsor is proceeding under a risk that it may not receive credit for the work. Section 13 (Recommendations) of this PIR recommends that Congress authorize credit to the non-Federal sponsor for constructing plugs within the Prairie Canal and constructing culverts under U.S. 41, based on verification that the work completed is necessary for the Project and that the costs are reasonable. If Congress approves this recommendation, then this early construction work will be treated the same as the other construction features, and their costs will be shared equally between the Federal government and the non-Federal sponsor.

### **8.8.7 Public Involvement**

Public involvement will continue to be a part of the SGGE Project throughout its implementation. Exact dates and times of public meetings cannot be predicted at this time. It is probable that public involvement events will take place as plans for each basin are solidified. As the details of design and construction are developed, the public will be afforded an opportunity to participate and comment.

### **8.8.8 Implementation Schedule**

Throughout project implementation the schedule for individual tasks developed for the PMP and PIR will likely require adjustments to ensure the overall project stays on schedule and within budget. While the project will be

managed, insofar as possible, to comply with the schedule developed for the PMP and PIR and within the currently estimated cost, it is inevitable that changes may be necessary. The estimated schedule for major phases of the SGGE project is presented in Table 8-5.

**TABLE 8 - 5 ESTIMATED DURATION TO COMPLETE UPCOMING SGGE PROJECT PHASES**

<b>Phase</b>	<b>Estimated Duration</b>
Detailed Design and Plans & Specifications	2 years
Project Cooperation Agreement	Complete by the end of P&S phase
Construction	3 years

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