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Office of Program Policy Analysis And Government Accountability

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Revised

Preliminary Report: Project Cost Estimates for Implementing the Everglades Forever Act

Purpose and Background

This Preliminary Report provides the Legislature with an analysis of the South Florida Water Management District's projected cost increases for implementing the Everglades Forever Act (Ch. 94-115, Laws of Florida). This review was conducted at the direction of the Joint Legislative Auditing Committee in response to a request from the House Environmental Protection and Water and Resource Management Committees. The Committees asked that OPPAGA review the reasonableness of the South Florida Water Management District's 1994 implementation plan and its projected costs, whether the revised cost estimates are the result of factors that the district could not have reasonably anticipated, and whether the district has taken appropriate steps to revise its cost estimates.

Background

Under the provisions of the Everglades Forever Act, the South Florida Water Management District is planning and constructing the Everglades Construction Project. This Project involves creating a series of stormwater treatment areas that will filter nutrients out of water flowing into the Everglades. The Project has a budget of over $500 million and is being built over the 1994-2005 period. The Project is being funded through a variety of sources, including District Ad Valorem (1/10th mill tax) revenues, agricultural privilege taxes, a portion of toll revenues from the Alligator Alley roadway, potential federal contributions, and other sources (see Appendix A).

Concerns about the Everglades Construction Project center on projected cash shortfalls recently reported by the District. Notably, while the District's 1994 projections showed that estimated revenues would fully fund anticipated Project costs, the District reported in March 1997 that the Project would have an estimated construction cash shortfall of $28.3 million at the end of fiscal year 2004-05. This figure does not include an estimated $37.2 million in operating and maintenance expenses, which will also need to be funded. These changes result from lower than anticipated revenues and higher projected costs. Appendix A compares revenues and expenditures estimated in May 1994 and March 1997.

Results in Brief

The District's 1994 Conceptual Design Plan and its May 1994 cost estimates were reasonable projections of cost; however, these initial projections were based on some key assumptions that have changed significantly. Some of the changes in fiscal assumptions were not within the District's control. However, the Project has been plagued by a lack of timely and clear communication concerning those changes. The District should have alerted the Legislature and other key stakeholders sooner to the potential for certain contingencies to impact construction costs and the cash flow schedule. The District did not establish the types of planning and control systems it has needed for the Project, exacerbating problems in analyzing the Project's fiscal status. District staff will provide more definitive answers concerning the Project's fiscal over the next three to six months as construction begins.

Observations

While the May 1994 cost estimates for the Everglades Construction Project were reasonable estimates, key assumptions concerning revenues, expenditures, and cash flows have changed significantly.

Early cost projections were reasonable. The District's initial fiscal projections for the Everglades Construction Project, developed in May 1994, indicated that the Project would be fully funded by the $505 million in its anticipated revenues. Our review indicates that the District's initial fiscal projections were generally reasonable given the data that were available at the time.

Key assumptions have changed. The District's 1994 fiscal projections were based on several key assumptions regarding Project revenues, costs, and cash flow. These assumptions have changed significantly over time. As a result, current projections indicate that both Project costs and revenues will differ substantially from the originally anticipated levels; the District currently estimates a $28.3 million cash shortfall for project construction over the 1994-2005 period. The District is also projecting substantial cash flow shortfalls during planned peak project construction periods.

Reason for lower revenue estimates. The District's March 1997 fiscal projection indicate that Project revenues will be $17 million lower than originally anticipated. This change is primarily due to lower estimates for excess Alligator Alley toll receipts. The Project is to receive the excess toll revenues after the Florida Department of Transportation (FDOT) receives payment for operations, maintenance, and debt service.

The District's cash flow projections for construction have relied heavily on excess Alligator Alley toll revenues to help alleviate cash flow problems. (See Appendix A.) The May 1994 project estimates did not project a cash shortfall and set the amount of anticipated excess toll revenues at $59.4 million through fiscal year 2004-05. This estimate was not based on any study of potential revenues but was simply set at the amount of revenue needed to fund construction. FDOT subsequently estimated that the Project would actually receive $31.8 million over this period. District staff planned to address this problem by bonding the excess Alligator Alley toll revenues for the full 20 years of the Project (through 2014). District staff estimated that the excess tolls would potentially generate $106.1 million.

However, FDOT revised its Alligator Alley toll projections in October 1996 and told the District that it could expect excess toll revenues of only $15.5 million over the 1994-2005 time period. FDOT told the District that it could expect to receive a total of $31.8 million in excess toll revenues through 2016—two years beyond the 20-year project period. As a result, estimated excess toll revenues will not be sufficient to allow for bonding. The District's inability to realize expected revenues from the excess Alligator Alley tolls or to subsequently bond these funds has a significant impact on cash flow shortfalls projected for the construction period of the project.

Reasons for increased Project costs. In addition to the cash shortfall, the estimated costs for constructing the Project have also increased. (See Appendix C.) The District's March 1997 projections indicate that land acquisition and construction costs will be higher than projected, and unplanned interest expenses will be incurred due to the need to borrow funds to cover the cash flow shortfalls.

Specifically, for years 1994-2005, acquisition costs are expected to total $118.6 million, or $17.8 million higher than originally projected. District staff report that this is due to the estimates not including amounts for damages, crop values, additional boundary lands, negotiated premiums, or future litigation costs. Design/engineering and construction costs are now estimated to be $382.7 million, an increase of $13.3 million from the 1994 estimates. District staff indicated that this increase was due primarily to construction premiums and increases in construction management costs.

Further changes in Project cost estimates will likely occur as it progresses. The full implications of some cost increases will not be known until the District further refines its cost estimates and receives construction bids. However, the District will need to do a better job in reporting cost changes as they become known.

The District lacked an adequate planning and control structure.

The District did not establish an adequate planning and control structure that would have allowed it to better address anticipated and unanticipated contingencies. Delays in hiring its current Project Director for the construction team until March 1996 further contributed to weaknesses in the District's systems. The District also lacked a good system for tracking and reporting cost variances as they occurred. Finally, District officials lacked an adequate system to clearly identify and communicate to its Board and the Legislature the full implications of cost changes and cash shortfalls. Many of these changes could have been brought to the attention of these key stakeholders sooner. Earlier and clearer communication with the District's Board and the Legislature concerning the potential for changes in revenues, expenditures, and cash flow would have increased their ability to better consider options for addressing these contingencies.

For example, District staff identified cash flow as a problem when the project estimates were made in May 1994. District staff knew that 1998 and 2002 would be years with cash shortfalls that would necessitate some form of borrowing. Recognizing the cash flow problems and the rigid time frames for completing construction, it was essential for District staff to closely track revenue and cost variances from the 1994 conceptual design plan estimates to alert them to any changes. Although the District needed to plan for these types of contingencies, it only recently began developing the analysis needed to address cost increases.

The District reported favorable projections. While the District recognized the volatility of the cost estimates and revenue assumptions earlier, it did not communicate those contingencies to its Board until consultants revised their cost estimates in July 1996. In a memorandum dated October 5, 1995, to the District's Executive Director, the Director of Finance presented a cash flow analysis in best and worst case scenarios. For example, the best case scenario assumed the District would receive funding as originally planned. The worst case scenario recognized that all pledged revenue may not be received as planned and assumed zero dollars for excess Alligator Alley tolls. However, when the Executive Director received an inquiry from then state Senator Wexler in January of 1996 concerning the adequacy of Project funding, the District responded based on favorable assumptions. The District proceeded with the favorable assumptions until it received more refined cost estimates from its consultants in July 1996 showing significant cost variances with earlier estimates. Better communication concerning the potential for different contingencies would have alerted stakeholders earlier to the potential for changing assumptions related to revenues, expenditures, and cash flow.

Lack of baseline on cost estimates. The District also did not develop a method of comparing its most current cost estimates to its May 1994 estimates. This has contributed to the District's difficulty in clearly defining the sources of cost variances and more accurately identifying changes to the Project. In a memorandum to the Governing Board member dated August 7, 1996, the Director of the Ecosystem Restoration Department stated, "There is currently insufficient detail to accurately reconstruct individual project element costs for 1994 and earlier dates for line item comparison." District staff are still working to create that detail. Better tracking of cost variances would have allowed for better communication to stakeholders on the source these variances.

District is taking steps to improve cost analysis. To address this problem, the District Board has endorsed a staff proposal to work with the original consultant who developed the 1994 Conceptual Design Plan. This effort will revalidate that design and develop the cost baseline for identifying variances in more detail. This should help the District more clearly delineate what has changed since the original design. This analysis should also allow the District to critically evaluate the Project construction schedule and identify design elements that can be delayed and still meet statutory deadlines. Delaying certain elements in the construction schedule may lead to cost reductions and may alleviate some cash flow problems.

The District has recognized the need to improve its Project control structure and has taken steps to augment its project planning and enhance its cost control functions. Consultants have been used extensively in design and cost estimating functions. In November 1996, the Project Director established a new project control unit for the express purpose of tracking project costs. The District has also invested in industry standard software that will allow it to more easily manage and track project costs and variances. In addition, the District regularly receives outside advice and expertise through the use of project and technical advisory committees.

Changing fiscal reports has caused confusion. The lack of precision and changing assumptions in the District's early estimates has caused considerable confusion once the District started revising the figures presented to the Board in August 1996. In February 1997, the District developed figures showing a projected shortfall of approximately $105 million covering the years 1994-2005 of the construction project. Revised figures in March 1997 showed only a $28.3 million shortfall for that same period. The difference in those figures results from staff revising Ad Valorem revenues and interest expenses and no longer reporting projected federal funding participation and operations and maintenance costs. The District would reduce much confusion by adopting a consistent format for its reports.

The revised project forecast figures presented to the Board in March 1997 more clearly identify projected variances in revenues, expenditures, and cash flow.

Many questions remain to be resolved. However, questions remain concerning what current cost estimates actually mean and how the Project cost estimates will be changed as the District refines them over the next two to three months. Questions also remain concerning how to address the potential cash shortfall for the construction intensive years of 1998-99. As previously stated, the District's March 1997 estimates show an $80 million cash shortfall for fiscal year 1998 that will have to be addressed. More information will be available as the District completes the detailed designs and receives formal bids on the initial projects scheduled for construction.

We identified several factors largely beyond the District's control that will continue to magnify the impact of cash flow problems: federal participation, permits, project deadlines, revenues and the need for borrowing. To date, the federal government has not contributed funds for its portion of the Project, including expenditures the District made on its behalf in buying land for Stormwater Treatment Area 1 East. The District's earliest projection for the receipt of any federal money is fiscal year 1998.

The District is seeking to modify some conditions in the federal permit needed to construct the Stormwater Treatment Areas due to permit conditions that conflict with the Everglades Forever Act. The Board has decided not to sign the permit but to enter into formal dispute resolution with the U.S. Army Corps of Engineers and proceed with scheduled construction. Legal complications with the permit could, however, delay construction. This adds to the difficulty in meeting the statutory completion deadlines for land acquisition and construction. These deadlines in the Everglades Forever Act offer little flexibility in the construction schedule that would allow delaying some construction elements to alleviate some cash flow problems.

Conclusions and Recommendations

The District's May 1994 cost estimates were reasonable projections of cost. However, these initial projections were based on key assumptions that have changed significantly. Some of the changes in fiscal assumptions were not within the District's control. However, the Project has been plagued by a lack of timely and clear communication concerning those changes. More definitive answers concerning the Project's fiscal status will be available over the next three to six months as construction starts.

The District is currently working to revise its revenue, expenditure, and cash flow schedules. As part of this project oversight, district staff are reevaluating design and construction to identify potential cost savings from project elements that can be revised, eliminated, or delayed. The District needs to continue these efforts. We recommend that the District continue its efforts to establish stronger planning and control structures to ensure adequate coordination between its construction, land acquisition, and budget functions. This would include its efforts to develop a strong project control function to track cost variances.

To provide better communication to project stakeholders, we recommend the District develop a regular progress report that tracks projected and actual project revenues, expenditures, and cash flow (see Appendices B, C, and D for a more detailed discussion of reporting needs). The progress reports should identify and explain major project variances and design changes. This report should be supported by analysis that includes current cost estimates for individual project elements compared to the May 1994 baseline, the baseline budget compared to current projections for the construction and post-construction periods, and cash flow analysis by project element by year. Most importantly, the District needs to develop a consistent reporting format with sufficient explanation to facilitate communication.

We also recommend that the District pursue project cooperative agreements with the U.S. Army Corps of Engineers to secure federal funding as soon as possible.

Appendix A
South Florida Water Management District
Everglades Construction Project
Fiscal Years 1994-2005

	May 1994 Estimate	March 1997 Estimate	Variance +/(-)
Revenues:			
Ad Valorem Tax-Net	$251,191,168	$279,192,439 (1)	$28,001,271
Agriculture Privilege Tax-EAA &298	127,508,578	129,052,680	1,544,102
Agriculture Privilege Tax-C-139 Basin	6,749,739	6,753,320	3,581
Excess Alligator Alley Tolls	59,476,832	15,500,000 (2)	(43,976,832)
P2000 Funds	33,000,000	33,000,000	-
FPL Mitigation Funds	14,000,000	14,000,000	-
Other	-	202,707	202,707
Total Revenues Before Interest	491,926,317	477,701,146	(14,225,171)
			-
Interest Earnings	13,822,270	10,673,154	(3,149,116)
			-
Total Revenues Including Interest	**$505,748,587**	**$488,374,300**	**$(17,374,287)**
Expenditures:			
Land Acquisition & Construction			
Land/Land Costs	$100,822,893	$118,597,463 (3)	$17,774,570
Design/Engineering	23,814,572	31,038,278 (4)	7,223,706
Construction	345,621,165	351,698,699 (5)	6,077,534
Total Land Acquisition & Construction	470,258,630	501,334,440	31,075,810
Interest Expense	-	15,335,001 (6)	15,335,001
Total Expenditures Before O & M	470,258,630	516,669,441	46,410,811
Operations & Maintenance	35,489,958	37,221,476 (7)	1,731,518
Total Expenditures	**$505,748,588**	**$553,890,917**	**$48,142,329**

Notes:

(1) Current estimate is equal to amounts contained in the February 1994 Conceptual Plan.

(2) The $15,500,000 in excess Alligator Alley tolls is based on data provided by the Florida Department of Transportation on October 9, 1996.

(3) Costs have increased because original estimates did not include provisions for damages, crop values, additional boundary lands, negotiated premiums, or future litigation costs

(4) Expected costs have increased primarily by revising the estimate of construction management from 5% to 12% which was applied to the revised estimate of construction costs.

(5) Expected costs for various project elements have changed for a number of factors. A clearer explanation of cost variances is needed.

(6) Interest expense does not include a provision for funding Operations and Maintenance.

(7) Operations and Maintenance costs were not included in the District's presentation. The District has not identified how it intends to fund these costs.

Appendix B
Limitations of the March 1997 Revenue Forecasts
(Fiscal Year 1994 - 2005)

Revenue Source	Discussion	Suggestions
Ad Valorem Taxes on all lands in the Okeechobee Basin ($279,192,439—This projection is $28 million higher than estimated in May 1994.)	District staff adjusted gross Ad Valorem tax estimates to reflect early payment discounts and tax assessor and tax collector fees. Staff also adjusted the growth rate assumption due to Hurricane Andrew, which resulted in a tax roll reduction one year and a tax roll increase the following year. Projected Ad Valorem tax revenues are presently escalated at 3.0% per year. This growth rate assumption may be conservative. These revenues were originally projected to increase at a 5.0% rate per year in the February 1994 estimates. Staff have also capped this revenue source at $279,192,439 based on the projected cash flow anticipated when the Act was passed. Staff have presented this figure to the Board. The Board, however, has not made a decision as to the length or cap of the Ad Valorem tax.	The District may wish to increase its growth rate assumption when it revises its forecasts. Staff may also wish to revisit the cap with their Board as the Act is silent regarding the number of years this tax may be levied. Staff have currently set the tax to develop a revenue amount that is equal with the February 1994 Conceptual Design Plan value of $279,192,439.
EAA & 298 Agricultural Privilege Tax ($129,052,680—This projection is $1.5 million higher than estimated in May 1994.)	Taxes are based on actual acreage taxed. Forecasts have been adjusted to reflect planned acquisitions for the construction project. The taxes have also been adjusted for tax credits. Land owners may earn tax credits each year by reducing the amount of phosphorus discharged from EAA lands. Based on initial phosphorus reductions, staff estimate that available credits will offset EAA Agricultural Tax increases. These assumptions appear reasonable.	District staff should continue to monitor phosphorus reductions to assure credits are appropriately applied.
C-139 Basin Agricultural Privilege Tax ($6,753,320—This projection is generally consistent with the May 1994 estimate.)	The C-139 Basin tax projection is based on a fixed annual tax in the amount of $654,656 being collected through fiscal year 2014 and it is adjusted for collection fees.	
C-139 Basin Annex **(not scheduled)**	Currently no taxes are assessed; however, taxes may be levied in the future when storm water treatment areas number 5 and 6 become operational.	The District needs to determine whether an agricultural privilege tax will be assessed to land owners in the C-139 Basin Annex. Staff need to revise forecasts if applicable.
Excess Alligator Alley Tolls ($15,500,000—This projection is $44 million less than the May 1994 estimate.)	Revised revenue estimates are based on data provided by the Florida Department of Transportation in October 1996. These expected revenues are split evenly between the everglades construction project and Florida Bay: however, this split appears to be required only if the District issues revenue bonds or notes.	Since cash shortfalls are projected to occur in fiscal year 1998, staff should seek clarification from their Board regarding the allocation of funds between the everglades construction project and Florida Bay restoration efforts. Staff should revise its forecasts if applicable.

(Continued)

Revenue Source	Discussion	Suggestions
Federal Contributions **(Not listed)**	Staff estimates assume the federal government will reimburse the District for its expenditures in fiscal year 1998. Federal spending has been authorized, but federal appropriations are not anticipated until fiscal year 1998.	The District should pursue formal agreements with the applicable federal agencies identifying each party's responsibilities. Due to projected cash shortfalls, the District should also pursue prompt reimbursement for past expenditures and establish a quick reimbursement procedure for future expenditures.
Interest Earnings ($10,673,154—This projection is $3.1 million less than the May 1994 estimate.)	The District has used assumed an interest rate of 5% for its investments. While this interest rate appears to be reasonable, shifts in interest rates could impact the cost of borrowing. In years where the District identifies the need to borrow funds, it reports a net interest income/(expense) which tends to understate both interest income and interest expense.	The District needs to monitor changes in interest rates and if material changes occur, it should revise its forecasts. While offsetting interest income against interest expense allows the District to identify cash flow needs, actual project cost reporting should separately identify interest income and interest expense.

Appendix C
Limitations of the March 1997 Expenditure Forecasts
(Fiscal Year 1994 - 2005)

Expenditure Components Construction Period (Fiscal Year 1994 - 2005)	Discussion	Suggestions
Design/Engineering and Construction Costs ($ 31,038,278 + 351,698,699 =$382,736,977 —These projections are $13.3 million higher than estimated in May 1994.)	District staff have revised cost estimates based on updated design information. Cost variances occur due to factors such as changes in construction management costs, unit costs, more accurate information on the excavation volumes, revised designs, etc. While cost variance information has been provided by the District, it is not readily apparent what caused some of these variances. For example, the estimated cost of one work item increased $2.7 million and the reason provided was "refined design and calculation method." However, this does not explain what caused the cost increase. Better explanation of major shifts in project costs would help all stakeholders understand the nature of the cost variances. These construction cost estimates are based on engineer designs which are in various stages of completion. More precise information will be available as detailed design plans are obtained. Detailed design plans have not been requested for STA-3/4, which is not scheduled for construction until fiscal year 2002. Thus, estimates for work items in STA-3/4 will likely shift when detailed design plans are developed. Better information on project costs will be available as various construction projects are competitively bid. Finally, these cost estimates may be impacted by change orders and supplemental agreements that will occur during the construction process.	We suggest the District establish a policy on reporting cost variances. For major shifts in work items, such as the larger of 10% or $500,000, District staff should provide a detailed explanation of project changes and resulting cost variances. For example, if a work item was redesigned, the District should explain why the revision was made and its impact on costs. This would allow all stakeholders to understand the nature of major shifts in work items and their impacts on the project costs.
Land acquisition and related costs ($118,597,463—This projection is $17.8 million higher than estimated in May 1994.) Note* This projection does not include land acquisitions that the federal government will reimburse the District.	The estimated cost of land acquisitions has been affected by a number of factors. First, the design engineer assumed land owners would be willing sellers: however this assumption does not appear to be reasonable. Many owners are requiring the District to acquire lands by condemnation. Factors affecting original estimates did not include provisions for damages, crop values, additional boundary lands, negotiated premiums, or future litigation costs. In addition, the original estimates did not include lands for phase 2 of STA-6. Staff have revised estimates to reflect these factors. The District has already disbursed $42,414,462 on land acquisitions and related costs through fiscal year 1996. Staff currently assume land values in STA-3/4 will not escalate because these lands have shallower muck and are of a lower quality. In addition, we were requested to review the validity of the district's land acquisition costs. We reviewed the district's acquisition process and found that it has what appears to be adequate procedures for choosing contract appraisers, reviewing the appraisals, evaluating the appraiser's work, and bringing the results to the District Board for its approval. According to District documents, appraisals have not changed significantly from the February 1994 Conceptual Plan. According to staff, the District has originally assumed willing sellers, but this has proven not to be a reasonable assumption. The District instead	District staff should track the validity of their assumptions and modify forecasts as necessary.

Expenditure Components Construction Period (Fiscal Year 1994 - 2005)	**Discussion**	**Suggestions**
	used condemnation procedures on many of the STA acquisitions leading to increased costs.	

Appendix D
Limitations of March 1997 Cash Flow Projections
(Fiscal Year 1994 - 2005)

Description	Discussion	Suggestions
Cash Inflows ($488,374,300)	See Appendix B for additional discussion of revenue items. The District's current projected inflows and management assumptions provide reasonable basis for presenting estimates of the project's revenue sources, except for federal contributions cash flows and from borrowing activities. Federal revenues were not included in the cash flow schedule. Federal contributions should be included in a cash flow schedule because the source and use of federal funds does not always match-up in the same time period. For example, the District does not expect the federal government to reimburse the District for $14,310,348 in land acquisitions for STA-1 East until fiscal year 1998, although these cash outlays were completed in fiscal year 1996. Cash flows from borrowing are difficult to follow in the District's schedules These sources of funds are expected from commercial paper. These sources could be shown as inflows from sources other than revenue.	The District should consider modifying its cash flow schedule to include federal contributions. The District should review our suggestions made in Appendix B and reflect any changes to revenue items in the cash flow schedule as necessary. The District should also consider revising its presentation of inflows from borrowing.
Cash Outflows ($516,669,441)	See Appendix C for additional discussion of projected expenditures. The projected outflows provide a reasonable basis for presenting the District's current expected expenditures except for expenditures involving federal participation and operations and maintenance. As discussed previously, both expenditures and revenues involving federal participation should have been included in the District's cash flow schedule. The District also did not include expected operations and maintenance expenditures. While omitting these expenditures allows individuals to review the status of the construction phase of the project, the cash inflows also have to fund operations and maintenance. The schedule of cash flows should include all sources and uses of funds. For this project, this is especially important because inflows are not sufficient to meet expected outflows and the need for borrowing is recognized.	We suggest District modify its cash flow schedule to reflect expenditures for which they expect to receive federal reimbursement. The schedule should also include operations and maintenance to allow a better assessment of sources and uses of funds. The District should then identify the amount of borrowing required to complete the project as scheduled. This will also allow for better disclosure of expected interest expense from borrowing. It should then obtain direction from its Board on how to proceed based on these projections. Based on the direction from its Board, staff should update all schedules and advise all interested parties about the status of the project.

This project was conducted in accordance with applicable evaluation standards. Copies of this report may be obtained by telephone (904/488-1023 or 800/531-2477), by FAX (904/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

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The Florida Legislature

Office of Program Policy Analysis and Government Accountability

Mission Statement

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