Agenda Item:

PALM BEACH COUNTY BOARD OF COUNTY COMMISSIONERS

AGENDA ITEM SUMMARY

February 7, 2012

Meeting Date:

() Consent () Workshop

(X) Regular() Public Hearing

Department Submitted By: Submitted For:

Environmental Resources Management Environmental Resources Management

I. EXECUTIVE BRIEF

Motion and Title: Staff requests Board direction: Review of shore perpendicular structural options as part of the Singer Island erosion control efforts.

Summary: At the March 22, 2011 BCC Workshop, a motion to proceed with the permitting process for shoreline projects that include erosion control structures failed (5-2). The Board subsequently held another workshop on June 28, 2011 to discuss the proposed breakwaters designed for Singer Island. Representatives from the State and Federal permitting agencies participated in the workshop. Based on the feedback from the agencies, the Board directed staff to evaluate other potential erosion control alternatives, including shore perpendicular groins as was suggested by the Florida Department of Environmental Protection. Staff will present the Board with a review of the evaluation of shore perpendicular structures as an alternative for erosion control on Singer Island. Staff requests Board direction on whether to initiate the permitting process for any of the alternatives presented. <u>Countywide (SF)</u>

Background and Justification: The typical methods of shoreline management are sand placement projects such as inlet bypassing, dune restoration and beach nourishment. Along some sections of beach, these alternatives are either ineffective or would result in an unacceptable level of impacts to coastal resources. In these circumstances, erosion control structures are being evaluated as an effective alternative.

A decade of repeated dune restoration efforts on Singer Island has failed to counteract the continued erosion which threatens sea turtle nesting habitat and leaves the adjacent properties vulnerable to storms. Several feasibility studies and repeated modeling efforts conclude that structures are the best solution for maintaining a stable beach within the project area. An evaluation of shore perpendicular structures along Singer Island is now complete with a cost/benefit analysis of the two most effective designs. Each of these alternatives requires a large pre-fill component at the time of construction and periodic dune restorations. The U.S. Army Corps of Engineers has confirmed that an Environmental Impact Statement (EIS) will be required as part of the Federal permitting process. Initial costs are potentially shared between the State (40%), the City of Riviera Beach (20%) and the County (40%). The County's share comes from Bed Tax dollars, a non-advalorem source of funding.

Attachments:

- 1. Singer Island Groin Alternatives, Volume Change Comparison
- 2. Cost Analysis of Design Alternatives

Recommended by:	Que Esto	1-24-12
	Department Director	Date
Approved by:	County Administrator	Date

II. FISCAL IMPACT ANALYSIS

A. Five Year Summary of Fiscal Impact:

Fiscal Years	2012	2013	2014	2015	2016
Capital Expenditures					
Operating Costs					
External Revenues		<u> </u>			
Program Income (County)					
In-Kind Match (County)					
NET FISCAL IMPACT					
# ADDITIONAL FTE					
POSITIONS (Cumulative)					
Is Item Included in Current	Budget?	Yes	No		
Budget Account No.:	Fund	Department	Unit		Object
8	Program				

B. Recommended Sources of Funds/Summary of Fiscal Impact:

No fiscal impact associated with this agenda item

C. Department Fiscal Review:

III. REVIEW COMMENTS

Assistant County Attorney

C. Other Department Review:

Department Director



Singer Island Erosion Control Project 50-Year Cost Analysis of Design Alternatives

SINGER ISLAND BEACH EROSION CONTROL ALTERNATIVES 50-YEAR COST ANALYSIS INPUT PARAMTETERS

VARIABLE	UNITS	DUNE RESTORATION	NOURISHMENT	LOW PROFILE GROINS	NOURISHMENT, T-GROINS, LOW PROFILE GROINS
INTEREST RATE	%	3%	3%	3%	3%
ANALYSIS PERIOD	YR	50	50	50	50
NEARSHORE EROSION RATE	CY/YR	-45,000	-45,000	-45,000	-45,000
STORM INDUCED EROSION RATE	CY/YR	-25,000	-25,000	-25,000	-25,000
EROSION CONTROL SAND GAIN RATE	CY/YR	0	0	25,000	35,000
EFFECTIVE EROSION RATE	CY/YR	-70,000	-70,000	-45,000	-35,000
DESIGN FILL VOLUME	CY	0	420,000	90,000	70,000
STRUCTURES CONSTRUCTION COST	\$	0	0	12,000,000	14,000,000
MOBILIZATION (INITIAL)	\$	25,000	1,000,000	500,000	500,000
MOBILIZATION (2nd)	\$	25,000	1,000,000	250,000	250,000
UNIT COST (DREDGING)	\$/CY		12		
UNIT (UPLAND)	\$/CY	20		20	20
MONITORING	\$	0	0	0	0
MITIGATION COST	\$/ACRE	750,000	750,000	750,000	750,000
HARDBOTTOM IMPACT	ACRES	0	10	2	3
CONTINGENCY	%	10%	10%	10%	10%
ENGINEERING, DESIGN, PERMITING & ADMINISTRATION	%	5%	5%	5%	5%



Table 1: Input Parameters for the 50-year Annual Equivalent Cost of Project Alternatives

Singer Island Erosion Control Project 50-Year Cost Analysis of Design Alternatives

SINGER ISLAND BEACH EROSION CONTROL ALTERNATIVES COST ANALYSIS RESULTS						
VARIABLE	UNITS	DUNE RESTORATION	NOURISHMENT	LOW PROFILE GROINS	NOURISHMENT, T-GROINS, LOW PROFILE GROINS	
Initial Fill Volume	CY	70,000	490,000	135,000	105,000	
Annual Maintenance requirement	CY/YR	70,000	70,000	45,000	35,000	
Frequency of Fill	Years	1	7	3	4	
Total Maintenance Volume/ Event	CY/event	70,000	490,000	135,000	140,000	
ANNUAL EQUIVELANT COST (3% Int rate)	MIL \$	1.71	1.91	1.86	1.69	



 Table 2:
 Cost Analysis Results of Beach Fill and Maintenance Requirements for Design Alternatives

