

EXECUTIVE SUMMARY

Recommend Approval of Coastal Planning and Engineering's Study Proposal of Clam Pass Park Beach

OBJECTIVE: Recommend approval of a study by Coastal Planning and Engineering (CP&E) to re-evaluate the Clam Pass Inlet Management Program with respect to renourishment of Clam Pass Beach Park

CONSIDERATIONS: Considerable controversy exists over the approach to renourishment of Clam Pass Beach Park. Clam Pass Beach Park has eroded significantly and requires renourishment within the next two years and preferably the next year.

CP&E has submitted a study proposal to review all the existing technical data and monitoring reports, work with Florida Department of Environmental Protection (FDEP) and technically evaluate the best approach to renourish this beach.

ADVISORY COMMITTEE RECOMMENDATIONS:

Coastal Advisory Committee: On August 11, 2005 the CAC recommended 8/0 approval of this item.

COUNTY ATTORNEY FINDING: N/A

FISCAL IMPACT: This study will cost approximately \$35,000.

GROWTH MANAGEMENT IMPACT: There is no impact to the Growth Management Plan related to this action.

RECOMMENDATION: Recommend approval of a study proposal by Coastal Planning and Engineering (CP&E) to re-evaluate the Clam Pass Inlet Management Program with respect to renourishment of Clam Pass Beach Park

PREPARED BY: Gary McAlpin, Coastal Project Manager

REEVALUATION OF THE CLAM PASS INLET MANAGEMENT PLAN

SCOPE OF WORK

INTRODUCTION

This report will reexamine Clam Pass Inlet Management from Collier County's perspective as the coastal manager. The Clam Pass Restoration and Management Plan (July 1998) primary objective was the improvement of the interior estuarine environment, with secondary benefit provided to the coastal zone. Collier County's interests are in maintenance of the Gulf beaches through processes which include use of beneficial dredged material and inlet bypassing of sand. Maintenance dredging of the Clam Pass system provides beach quality sand, which the County supports financially. Recent proposals have been made for changing and/or improving the maintenance dredging of the pass and its interior channels. In addition, down drift inlet effects have caused erosion problems at a County park facility.

The primary objective of this study is to review existing inlet management policies and procedures in order to recommend actions that the County could implement for an improved management of their beaches. The County supports improvements to estuarine environment, but may not desire to financially support improved management practices without a coastal benefit. The comprehensive plan should address both the concerns of water quality in the inner bay by maintaining an open pass and the downdrift erosion at the County Park by identifying the inlet's zone of impact. The analysis will examine proposals to improve inlet maintenance for their contribution to the coastal zone.

This report is not intended to replace existing management plans, provide a comprehensive analysis of all historic data or provide a detailed course of action and analysis. The objective is to reexamine the inlet management plans and their support of the County's coastal management program.

This study will utilize historic reports and existing data to the greatest extent possible. No new field work is proposed. The scope of work for development of the Clam Pass Inlet Management Opinion is divided into the following four (4) phases:

- I. Literature Review and Data Search
- II. Coastal Engineering Analysis and Process Summary
- III. Inlet Management Analysis and Recommended Actions
- IV. Report and Presentation

SPECIFIC TASKS

Phase I. Literature Review and Data Search

Historic studies, monitoring reports, aerial photography, survey data and recent proposals to improve inlet management will be compiled, reviewed and summarized to identify the key

management objectives, practices and historic coastal processes. The County will provide copies of past reports, aerial photography, recent proposals and other available data to assist in the review. Reports and survey data will be obtained from other public sources such as the Florida Department of Environmental Protection. In addition, the County will provide a copy of their latest policy on the types of projects supported with TDC funding. CPE will make a day trip to visit the County offices and other consultants to collect information. A summary of the inlet's recent history and practices will be compiled, along with the Clam Pass authority's proposal to modify the inlet plan.

Phase II. Engineering Analysis and Coastal Process Summary

Using the information and data compiled during Phase I, an engineering analysis of the local coastal processes around the inlet will be performed. The coastal process summary will focus on the last decade, updating the coastal process described in earlier reports with the latest survey, aerial and bathymetric data. The findings of this analysis will be compared to previous reports.

The specific tasks of this phase are to quantify sediment transport (both natural and anthropogenic) through shoreline and volume changes, identify trends and cycles of inlet orientation from aerial photography, historic surveys and reports; and evaluate the effectiveness of past inlet management practices by developing a simple sediment budget from available data. The details and specific tasks of Phase II are as follows:

1. Shoreline and Volumetric Changes:

Survey data will be compiled and compared to quantify changes during the recent decades. The MHW shoreline and volumetric changes at the FDEP monument locations will be compared in tables and figures, in a fashion similar to the beach monitoring reports. Only survey data collected in years that include the area near Clam Pass can be utilized. Data based on inlet surveys and monitoring reports will be summarized from those reports. The study area will extend at least one (1) mile either side of the inlet. This data will provide the basis for a sediment budget.

2. Inlet Characteristics and Changes:

The recent history of the inlet will be reviewed and general characteristics identified. In particular, available aerial photography and reports of the inlet will be compared in sequential order to identify trends and cycles of inlet orientation and migration. This task will also include a mapping of the nearshore (gulf) bathymetry near the inlet with data collected from the recent airborne laser survey (LIDAR). Other past data sets will be compared to the LIDAR data to examine the 3-dimensional bathymetric changes (delta chart) over a specific time interval.

3. Littoral Processes and Sediment Budget:

Sediment transport (both natural and anthropogenic) will be quantified based on shoreline and volume changes (Task 1 above). The analysis will extend at least one (1) mile north and

south of the inlet, as needed to ascertain the inlet's zone of influence. The sediment budget will cover the most recent time period, where data is sufficient to support this analysis. The sediment budget will be developed for the inlet and vicinity including approximations for ebb and flood tidal shoal growth, the updrift and downdrift beach volumetric changes, dredging and sand bypassing. Previously developed sediment budgets will be reviewed and updated, if they exist. From the analyses described above, the study shall estimate the amount of sand that is currently being transferred across the inlet. These determinations will be made based on the results of the coastal processes analyses identified above along with available tide and current data, hydraulic characteristics, and wind and wave climate in the area of the inlet influence.

4. Coastal Process Summary:

The information discovered in Phases I and II will be incorporated into a coastal process summary. The intent of this summary is to identify the dominate processes and their impact on inlet management and the hot spot south of the inlet.

Phase III. Management Analysis and Recommended Actions

1. Contribution of Inlet Management Practices to the County's Coastal Program:

Based on the results in Phases I and II, an analysis of inlet management objectives and practices will be made to determine their contribution to the coastal zone managed by the County. This will include an analysis of any new proposals for inlet management or maintenance. An engineering opinion on the suitability of the inlet maintenance practices for the County program will be provided. Recommended changes and continuation of current practices will be considered.

2. Erosion Hot Spot South of the Inlet:

An analysis of the erosion hot spot south of the inlet will be based on coastal process information derived in Phase II. Solutions to this problem will be recommend, which can take one or more of the following forms:

- a. Support the existing or proposed inlet management practices.
- b. Modify existing inlet management practices.
- c. Stand alone solution separate from the Clam Pass management.

3. Engineering Opinion:

An engineering opinion on the need for further studies or engineering analysis of Tasks 1 and 2 above will be made. The opinion will address the need for engineering analysis or modeling to support a change to inlet management practices and their suitability in supporting the County program. In particular, the opinion will consider whether changes to the dredging frequency and quantity, channel depth and orientation, as well as revised disposal locations should be studied further.

4. Recommendations:

The objective of this study is to examine if a revised inlet management plan will maintain the adjacent beaches in a more comprehensive manner. The identified comprehensive plan should address both the concerns of water quality in the inner bay by maintaining an open efficient pass and addressing the downdrift erosion at the County Park by identifying management solutions. The portion of the comprehensive plan supportable by the County program will be identified.

Phase IV. Report and Presentation

Upon completion of the study, a report will be prepared to summarize the information compiled and analyses performed. The report will include tables and graphics as needed to explain and support the recommendations. The project deliverables will include 2 copies of the report with an ACROBAT (pdf) version and a presentation to the County at a time and location of their choosing. Report figures will include shoreline and volume graphs, sediment budget; recent Lidar based contour map and recent inlet orientation figure.

**REEVALUATION OF CLAM PASS INLET MANAGEMENT PLAN,
COLLIER COUNTY, FL**

July 5, 2005

PREPARED BY:



**REEVALUATION OF CLAM PASS INLET
MANAGEMENT PLAN, COLLIER COUNTY, FL
LABOR, EQUIPMENT & DIRECT COST RATES**

COASTAL PLANNING & ENGINEERING, INC.

	2005
LABOR RATES (HOURLY)	
Principal Engineer	\$154.00
Senior Coastal Engineer (PM)	\$120.00
QC / QA Technical Reviewer	\$120.00
Senior Coastal Engineer	\$120.00
Senior Marine Biologist	\$115.00
Certified Inshore Hydrographer	\$115.00
Professional Surveyor & Mapper	\$115.00
Coastal Engineer	\$95.00
Marine Biologist	\$85.00
Geologist	\$85.00
Boat Operator	\$75.00
Senior CADD Operator	\$82.00
CADD Operator	\$75.00
GIS Operator	\$75.00
Technician	\$75.00
Clerical	\$41.00
EQUIPMENT RATES (DAILY)	
Survey Boat (24 ft.)	\$575.00
Survey Vehicle	\$0.29
Differential GPS	\$400.00
Navigation System	\$250.00
Digital Land Camera	\$10.00
Underwater Camera (35 mm)	\$25.00
Klein 590 Side Scan Sonar	\$780.00
SSS Expendables	\$88.00
Triton Elics Isis	\$220.00
SSS Operator	\$770.00
Triton Elics Isis Freight	\$165.00
Film (35 mm)	\$6.25
Underwater Video Camera	\$100.00
GPS Integrated U/W Video Camera	\$400.00
Dive Equipment & Insurance	\$75.00
Dives	\$25.00
DIRECT COSTS	
Meals	\$21.00
Lodging *	\$100.00
Misc. Expenses/ Expendables *	1.00

Note: * Lodging and Expenses will be billed at cost, although values are used in the spreadsheet to determine a contract value.

REEVALUATION OF CLAM PASS INLET MANAGEMENT PLAN, COLLIER COUNTY, FL

TASK I
PREPARED BY: COASTAL PLANNING & ENGINEERING, INC.

TASK 1 CONSTRUCTION PHASE SERVICES	LABOR COSTS								Expendable & Expenses			
	Principal Engineer (Hours)	Senior Coastal Engineer (PM) (Hours)	Coastal Engineer (Hours)	Professional Surveyor & Mapper (Hours)	Geologist (Hours)	Senior CADD Operator (Hours)	GIS Operator (Hours)	Clerical (Hours)	Vehicle (Miles)	(Days)	Item	Amount (\$)
I LITERATURE REVIEW AND DATA SEARCH & COLLECTION												
1		2	10	1	2		1		250			
2	1	6	32			8		2				
	\$6,235											
II COASTAL ENGINEERING ANALYSIS AND COASTAL PROCESS SUMMARY												
1		2	24			2						
2		1	28	2		24		4				
3		3	20			8						
4	1	6	12			2		8				
	\$13,344											
III MANAGEMENT ANALYSIS AND RECOMMENDED ACTIONS												
1	1	8	18									
2		6	18									
3		4	14									
4	1	8	12		2	8		8				
	\$10,452											
IV REPORT AND PRESENTATION												
		10	18			8		12	250		Documents \$ 300.00	
	\$4,431											
	Total =	4	56	206	3	4	60	5	30	500	0	\$300.00
	Labor Rate / Hour =	\$154.00	\$120.00	\$95.00	\$95.00	\$75.00	\$82.00	\$75.00	\$41.00	\$0.29	\$21.00	1.00
	Labor Cost =	\$616.00	\$6,720.00	\$19,570.00	\$285.00	\$300.00	\$4,920.00	\$375.00	\$1,230.00	\$145.00	\$0.00	\$300.00
	LABOR COST =	34,016										
	DIRECT COST =	445										
	TOTAL COST =	34,461										