US Army Corps
Of Engineers

New York District

Dredged Material Management Plan for the Port of NY & NJ

FACT SHEET — February 2000

DESCRIPTION: The Port of New York and New Jersey must be dredged to maintain navigation and commerce estimated to generate about $ 20 billion annually in direct and indirect benefits. Due to past and present pollution, managing dredged material from many areas of the Port has become increasingly difficult. This is due to either a lack of management options or the higher cost of the limited number of options currently available. In December 1998 the Corps prepared a Dredged Material Management Plan (DMMP) for the Port of New York and New Jersey. Since then the Corps has been working with the lead agencies in the region to develop a draft Implementation Report for the DMMP. It identifies primary and contingency options needed to meet the dredging requirements of the Port through the year 2040 giving special emphasis to beneficial uses.

AUTHORIZATION/PROJECT DESCRIPTION: New York Harbor encompasses approximately two dozen separately authorized and maintained Federal navigation channels. These projects, whose authorized depths vary from 8 feet to 45 feet, along with the privately operated berthing areas generate approximately 2 to 4 million cubic yards of dredged material annually from maintenance. Further, several of these channels are planned to be deepened in the upcoming years to allow for the larger classes of ships now in use. The construction of these deeper channels will also generate substantial amounts of dredged material. The DMMP process seeks to identify and implement options to manage the material generated from both the federal and non-federal maintenance and deepening of the Port through the year 2040.

STATUS: The DRAFT Implementation Report for the DMMP and its Programmatic Environmental Impact Statement were released to the public in September 1999 (noticed in Federal Register September 10, 1999). Now that the public review/comment period has closed, the DMMP reports are now being finalized for release to the public in early 2000. The DMMP as it currently is developed utilizes a wide variety of preferred and contingency management options for dredged material. These options include:

- Contaminant Reduction – With the states lead and Corps support, a multi-million dollar, multi-year data collection and analysis program is now underway to identify and track down the sources of pollution that are contaminating dredged material.
- Remediation of the Historic Area Remediation Site – Dredged material is being used beneficially to remediate the HARS (an impacted ocean site) and will likely require decades to complete.
- Habitat Creation/Restoration – Several different habitat applications are included in the DMMP (*e.g.*, restoring habitat by filling existing degraded pits, creating fish reefs, and creating shellfish & bird habitats).
- Land Remediation – Using amended (or treated) dredged material, several landfills and brownfields in the region are being remediated. Plans and demonstrations are also underway to remediate abandoned mines.
- Decontamination Technologies – Several innovative dredged material treatment methods are now being demonstrated by the USEPA, the Corps, and New Jersey. The products of the treatment have a wide array of potential uses (*e.g.*, construction material, or clean fill).
- Containment Options – Several inshore pit options are either in use or under consideration as contingency to meet the regions short and mid-term management needs. The pits are sited in existing impacted areas and near to the dredged material sources to avoid adverse environmental impact.

NOTE: New Lower Bay subaqueous contained aquatic disposal facilities and island confined disposal facilities are currently inactive and <u>not included</u> in the Recommended Plan.

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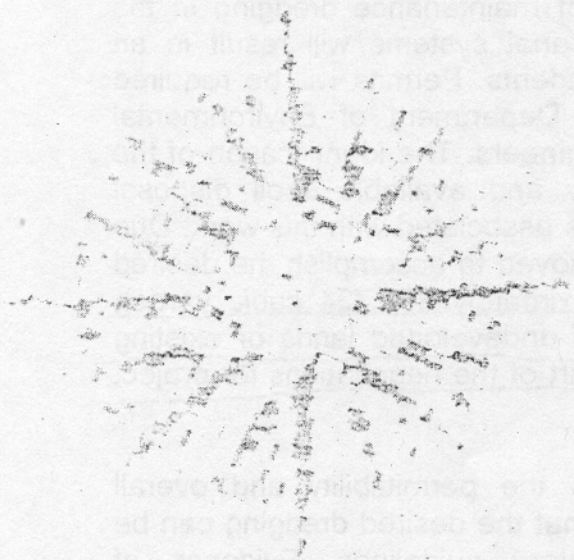
DRAFT
Residential Canal Dredging Manual

Prepared For:
City of Tampa
Department of Sanitary Sewers



Prepared By:
Gee & Jenson
E-A-P, Inc.

March 2000

1.0 Introduction

Gee & Jenson E-A-P Inc. has been retained by the City of Tampa, Department of Sanitary Sewers Stormwater Management Division to develop a Residential Canal Dredging Manual. The objective of the manual is to provide guidance on the regulatory agency requirements and construction planning aspects that are usually associated with the dredging of residential canals within the vicinity of Tampa Bay. Specifically, the manual addresses permitting processes, dredging methods, spoil disposal alternatives and estimated unit construction costs for the maintenance dredging of canals and lagoons of Davis Island and the Westshore area (see Project Location Maps - Exhibits 1-1 and 1-2).

Localized regions of the Westshore and Davis Island canal systems have been impacted by siltation to varying degrees over time. This has in turn created boat draft limitations to navigation in these areas of the canals. To assist area residents in the implementation of necessary maintenance dredging, this manual details the dredging process, from planning to construction through dredge spoil disposal. This manual also includes limited data collected specifically for this project (e.g., water depths, and physical and chemical sediment analysis). Much of this data, particularly the sediment analysis, may be utilized by the residents to augment other data when planning and permitting specific maintenance dredging activities

2.0 Summary

The design, permitting and performance of maintenance dredging in the Westshore and Davis Island residential canal systems will result in an improved navigational access for area residents. Permits will be required from the Tampa Port Authority, Florida Department of Environmental Protection and the U.S. Army Corps of Engineers. The identification of the most cost-effective dredging methodology and available spoil disposal area(s) are the single most important issues associated with this work. Due to the large volume of sediments to be removed to accomplish the desired navigational condition (estimated at approximately 387,724 cubic yards), coordination with owners of large tracts of undeveloped lands or existing spoil disposal facilities will be an integral part of the negotiations for project approval.

Preliminary studies conducted to assess the permittibility and overall feasibility of conducting this work indicate that the desired dredging can be accomplished within the existing regulatory guidelines. Evidence of elevated levels of metals and several petroleum-based contaminants suggest that some precautions will need to be taken during the removal and disposal of the spoil material. These may include monitoring of water quality

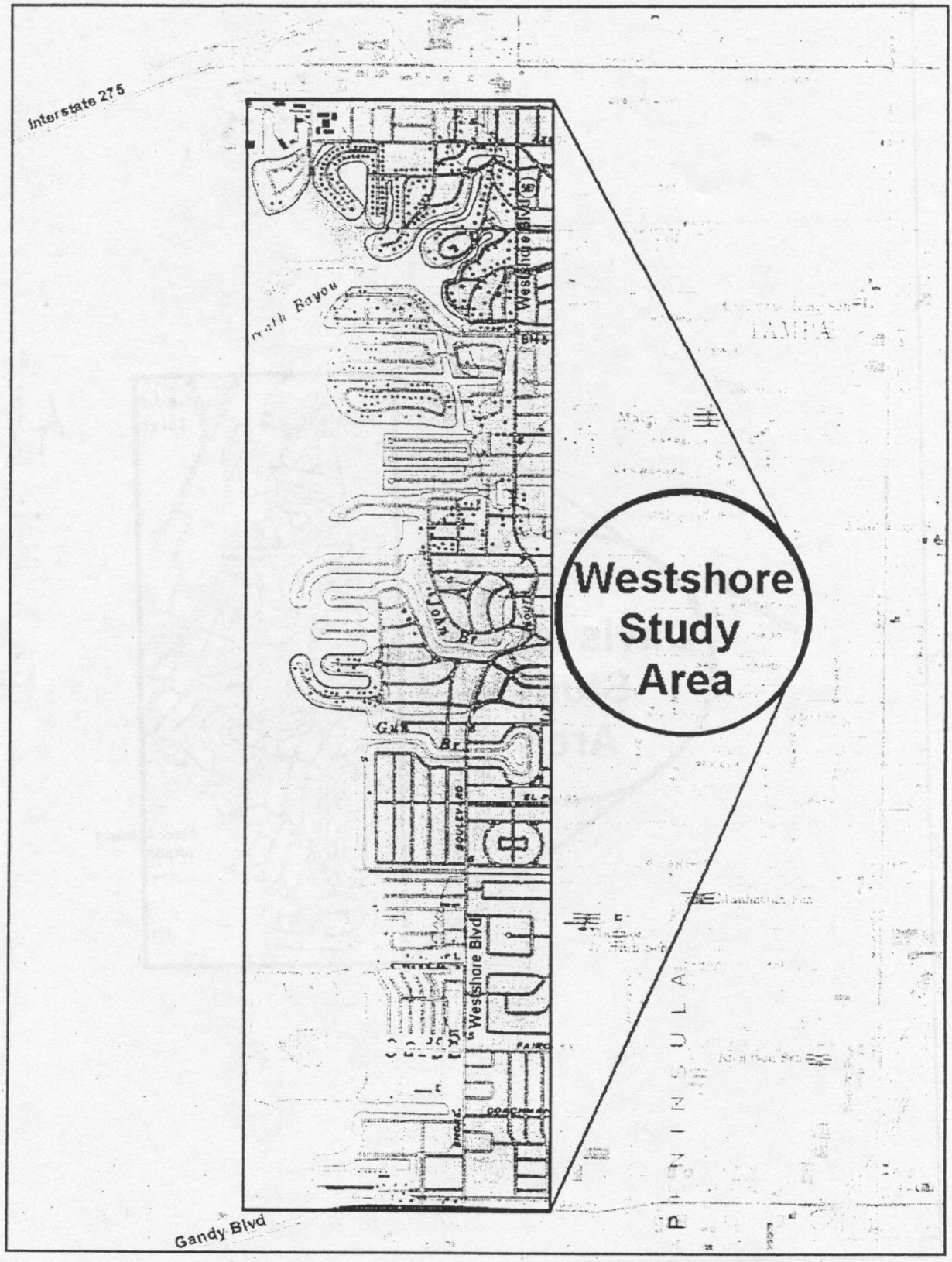


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Exhibit 1-2

Westshore - Project Location Map

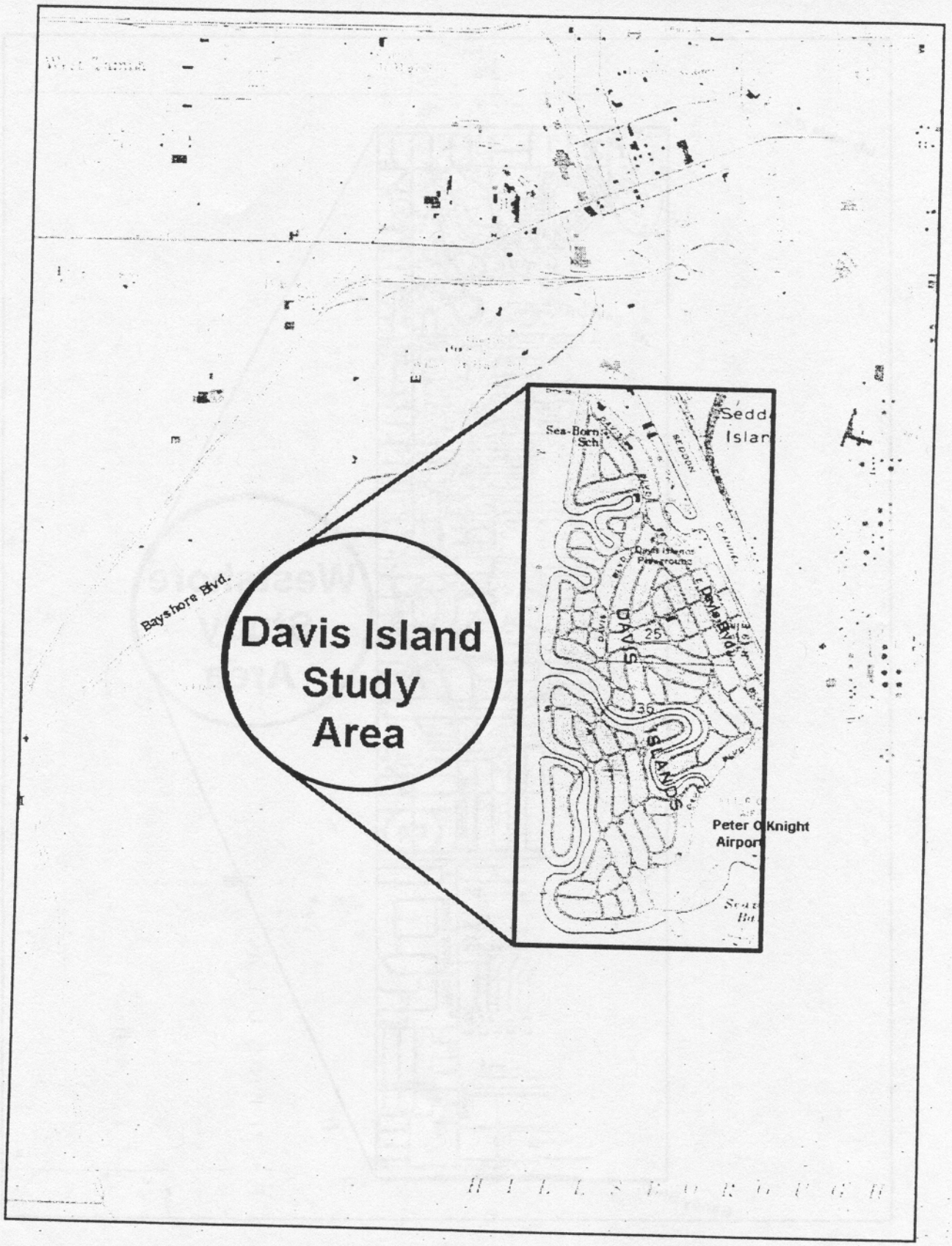

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Exhibit 1-1

Davis Island - Project Location Map

during the dredging process and the selection of appropriate land development uses for the final disposal of dredged material.

Actual costs associated with the maintenance dredging are difficult to determine due to the high variability of factors associated with this type of project. These include factors such as project phasing (e.g., dredging completed as a single project or multiple projects), availability of and distance to an appropriate disposal site, dredge spoil quality, agency permit requirements and many others.

3.0 Typical Canal Sedimentation Factors

Residential canals in Florida and other coastal states were usually excavated from uplands or dredged from shallow wetlands. The excavated or dredged material was then deposited adjacent to the newly created canal to form suitable uplands for home construction. This was a common and seemingly practical solution to residential, waterfront development. Linear, low-flow waterways are often difficult to maintain. These Canal systems are often subject to a continual deposition and eventual accumulation of sediment material. The degree and rate of accumulation depends on many factors. The two primary factors which influence the rate of sedimentation are flushing characteristics and sediment input.

3.1 Flushing Characteristics (i.e., how well are the canals cleaned out by the movement of water in and out of the canal?)

The ability of a canal to "flush" sediments depends largely upon its' length, width, depth and points of connection to other surface waters or sources of water inflow. For example, does the canal have a "dead-end" with only one point of connection to a larger water body or does the canal act as a connection between two larger water bodies or connect to the same water body at two points (e.g., both beginning and end)?

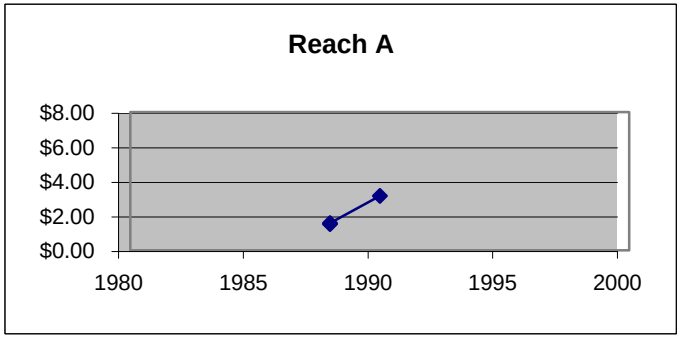
Canals with two or more points of connection will have better flushing characteristics. However, this advantage is negated when the canal is too long. In this situation there will be some horizontal movement of water within the canal, but not enough to completely flush or remove the sediments from the canal section.

Relating to tidal flow, long "dead-end" canals tend to flush less efficiently as water flow is somewhat static at the upper reaches of the canals. The water tends to rise and fall very slowly in response to the typical rise and fall of the tides. Horizontal movement of water and the resulting inflow and outflow are also sluggish. As canals become longer and narrower, the incoming tidal flow is met with more

Tampa Bay Dredged Material Management Strategy
Analysis of cost by reach

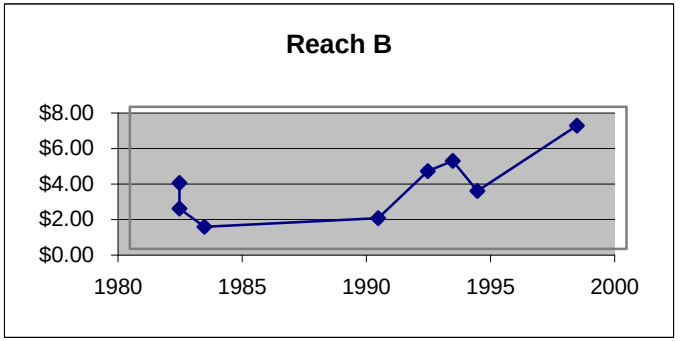
Reach A

Year	Volume	Final Cost	Cost Per CY
1988	2722343	$4,122,904	$1.51
1988	859703	$1,354,257	$1.58
1990	1686826	$5,298,871	$3.14
		Average	$2.08



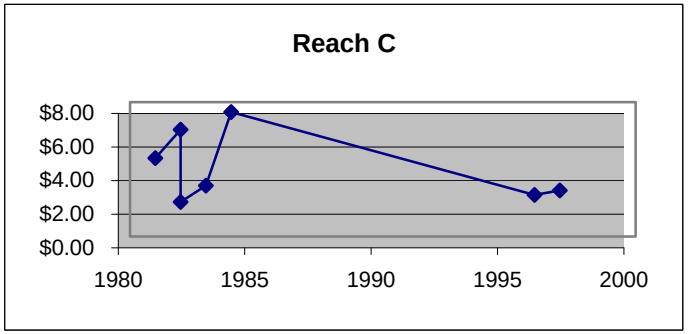
Reach B

Year	Volume	Final Cost	Cost Per CY
1982	662897	$2,463,794	$3.72
1982	964505	$2,193,240	$2.27
1983	516190	$645,237	$1.25
1990	642082	$1,115,765	$1.74
1992	885653	$3,880,849	$4.38
1993	785850	$3,899,977	$4.96
1994	363340	$1,187,179	$3.27
1998	721769	$5,009,785	$6.94
		Average	$3.57



Reach C

Year	Volume	Final Cost	Cost Per CY	Note
1981	3301060	$15,432,403	$4.67	
1982	1142250	$7,276,000	$6.37	
1982	5630652	$11,577,522	$2.06	
1983	3781222	$11,460,055	$3.03	
1984	3416254	$25,293,977	$7.40	
1996	1107696	$2,752,289	$2.48	
1997	1422000	$3,899,440	$2.74	a
		Average	$4.11	



Notes:
a.) Bid volume and price as pay volume and final cost not available.
b.) Data taken from Jacksonville District dredging history database.

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INTERNET RESOURCES FOR DREDGING

Address	Name and brief summary
dredging.seaport-net.com	Dredging network
www.navcen.uscg.mil/lnm/d7	U.S. Coast Guard Local Notice To Mariners, District 7
www.wrsc.usace.army.mil	U.S. Army Corps of Engineers Navigation Data Center Has a links section
www.mvr.usace.army.mil	U.S. Army Corps of Engineers Navigation Information Connection Has a very large links section
chl.wes.army.mil/research/dredging	U.S. Army Corps of Engineers Waterways Experiment Station Coastal and Hydraulics Laboratory Two parts: 1)DOTS 2)DOER
www.saj.usace.army.mil/conops/navigation/surveys/Hydro.htm#surveys	U.S. Army Corps of Engineers Jacksonville District Channel Condition Surveys