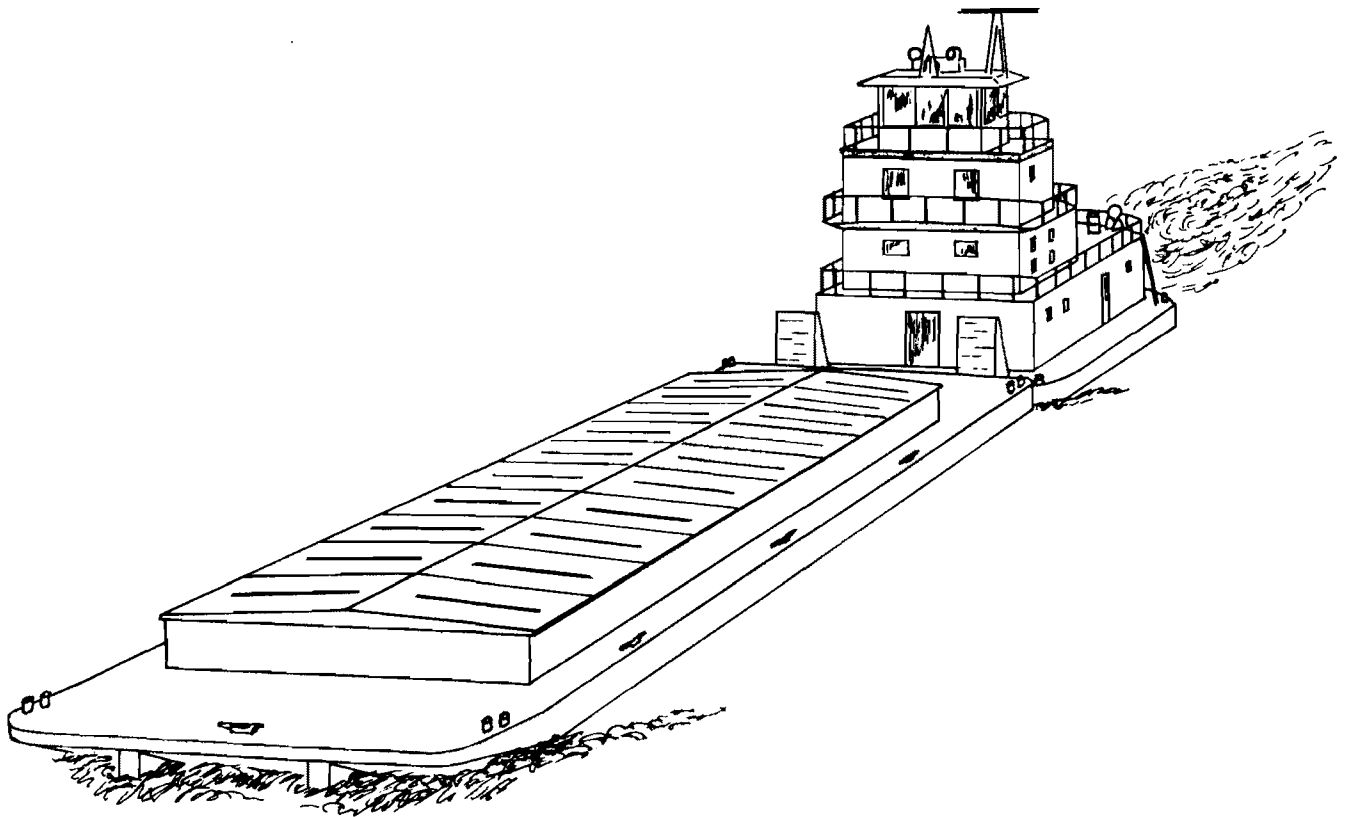


THE GULF INTRACOASTAL WATERWAY IN TEXAS

1988



Prepared By
THE STATE DEPARTMENT
OF
HIGHWAYS AND PUBLIC TRANSPORTATION



L016985

THE GULF INTRACOASTAL WATERWAY
IN TEXAS

PRESENTED IN RESPONSE TO
THE TEXAS COASTAL WATERWAY ACT OF 1975
AND
SUBMITTED TO
THE SEVENTY-FIRST SESSION
OF THE TEXAS LEGISLATURE

PREPARED BY
THE STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
TRANSPORTATION PLANNING DIVISION

1988



COMMISSION

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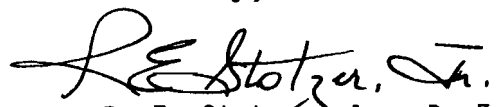
Prior to 1975, the need existed for a single, local nonfederal sponsor of the Gulf Intracoastal Waterway in Texas. The Texas Coastal Waterway Act of 1975 filled that need by appointing the State Highway and Public Transportation Commission to act as agent for the State of Texas as the nonfederal sponsor of the Gulf Intracoastal Waterway in Texas.

The Act also instructed the Commission to evaluate the Gulf Intra-coastal Waterway as it related to Texas, including an assessment of the importance of the Waterway, an identification of principal problems and significant modifications to the Waterway, and specific recommendations for legislative action, if any.

The evaluation mandated by the Act has been conducted and a report prepared; it represents information based upon available data and reflects the current status of Waterway-related matters as well as the possible future of these matters. It also reiterates the desire of the Commission to foster the growth of shallow-draft navigation in Texas while simultaneously fostering the protection and enhancement of the coastal environment.

The report is hereby submitted to the Seventy-First Legislature in accordance with the Texas Coastal Waterway Act of 1975.

Sincerely,


R. E. Stotzer, Jr., P. E.
Engineer-Director

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Charged with performing the duties of nonfederal sponsor for the Gulf Intracoastal Waterway, the State Highway and Public Transportation Commission has authorized the purchase of 1,130 acres of land to be used as disposal sites for materials dredged from the Gulf Intracoastal Waterway. These lands are located in Brazoria County at Bryan Beach south of Freeport, Texas, and in Matagorda County, south of Sargent, Texas, and adjacent to the East Matagorda Bay area. Funds for the purchase of these lands were allocated from the General Revenue Fund by the 70th Legislative Session.

Additional disposal land has been acquired in Calhoun County, south of Port O'Connor, that is state property and under the jurisdiction of the General Land Office. To follow the procedure outlined by the Texas Coastal Waterway Act of 1975, the State Highway and Public Transportation Commission conducted public meetings and hearings, duly publicized, to hear testimony of interested parties and to establish that the acquisition of these properties can be accomplished without unjustifiable waste of publicly or privately owned natural resources, and without permanent substantial adverse impact on the environment, wildlife, or fisheries.

Securing environmental clearances, conducting hearings, performing title searches, surveying, and appraisals of the properties was accomplished during the fiscal year 1988.

Landowners are being approached in fiscal year 1989 with offers to purchase their properties. Some owners have expressed the desire to sell their property, but others will most assuredly contest in court the purchase of their property.

Members of a state and federal interagency task force have begun investigation of other areas where storage capacity or environmental issues dictate that new disposal sites are required. Accordingly, a request has been included in the State Department of Highways and Public Transportation proposed budget for the '90-'91 biennium for funds to purchase these new properties and to acquire any of the aforementioned 1,130 acres that may not have been acquired due to the lack of sufficient funds provided in the '88-'89 allocation.

The U. S. Army Corps of Engineers has determined that 60 percent of the Texas shoreline is erosional, 33 percent is in a stable condition, and the remaining 7 percent is accretionary. While erosion of the coastline is a continuous condition that has been occurring for thousands of years, it is becoming a threat to the waterway in the Sargent Beach area in Matagorda County. The waterway at that point is in imminent danger of being breached by Gulf waters. Some estimates indicate this could occur as soon as 1995. This could seriously disrupt the service of the waterway and have a detrimental effect on the economy of the state. It has been recorded that in 1986, 72.6 million tons of goods were moved via the waterway. An estimated value of those goods is approximately 21.1 billion dollars.

The Corps of Engineers is beginning a year long reconnaissance study to determine the best solution for protecting the waterway. The methods of protection "in place" are varied in their approach and require a variance in expenditures, some of which may be the responsibility of the sponsor. Most likely the sponsor would only be required to furnish a small amount of property. Another solution being studied is to move the waterway inland a sufficient distance to assure

its protection for a number of years. As nonfederal sponsor the State would be required to participate in the realignment costs by providing all rights-of-way, relocating all utilities and pipelines affected, and the construction of any bridges should they be necessary. Should realignment be the solution chosen, the State could be asked to contribute funds as early as the 74th Legislative Session concerning the '96-'97 biennium.

A table of costs is shown that gives "ball park" figures for the expenditures necessary for each method being studied.

COMPARISON OF PLANS	
Protect Existing Alignment of GIWW	
Method	Cost
Riprap with cover stone	\$22,500,000
Seawall	50,000,000
Steel sheetpile wall	29,000,000
Pre-Stressed Concrete Sheetpile Wall	21,000,000
Breakwaters	25,000,000 (would require nourishment)
Groinfield	17,000,000 (would require nourishment)
Beach Nourishment	4,000,000
Combination Breakwater and Nourishment	29,000,000
Combination Groinfield and Nourishment	21,000,000
Relocation GIWW Inland	
Method	Cost
Route #1 - 6,000 feet inland	\$19,000,000
Route #2 - 14,000 feet inland	23,500,000

The State Highway and Public Transportation Commission, as directed by the Texas Coastal Waterway Act of 1975, continually evaluates the waterway with respect to the promotion and continuance of the waterway, and the protection of coastal resources. As such the following recommendations are submitted for legislative consideration and action.

- ° Continue to recognize and promote the Gulf Intracoastal Waterway as a valuable part of the State's multi-modal transportation system.
- ° Continue to accept the nonfederal sponsorship for the Gulf Intracoastal Waterway.
- ° Support and maintain funding for nonfederal sponsorship duties as recommended in the State Department of Highways and Public Transportation budget request for the Gulf Intracoastal Waterway.
- ° Consider methods of financing additional expenses for relocation of the waterway in certain areas, possibly as soon as the 74th Legislative Session.

F O R E W O R D

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FOREWORD

Just as a highway requires additional maintenance when traffic volumes increase and cause more wear on the pavements, so does increased flow of traffic on the waterway require the necessity of a vigilant maintenance program to provide a safe and useable channel. The latest available figures show that the amount of goods shipped on the waterway increased from 67.5 million tons in 1985 to 72.9 million tons in 1986. Periodic monitoring of the channel bottom by the U. S. Army Corps of Engineers records the shoaling condition of the waterway. When the depth of the channel becomes too shallow for safe navigation a contract is awarded to dredge the channel to the authorized depth. Keeping this depth at a safe level is a primary ingredient for keeping the flow of goods moving on the waterway. But more and more other conditions caused by the existence of the waterway are drawing cause for alarm.

It is the charge of the nonfederal sponsor to assist the Corps of Engineers in their maintenance programs. When storage capacity or environmental problems cause disposal problems the sponsor is requested to provide suitable areas for the disposition of the materials. The State of Texas accepted this responsibility when it adopted the Texas Coastal Waterway Act of 1975, and the 70th Legislature provided funds to begin acquiring 1900 acres for new disposal sites in five areas of the waterway. It is also the responsibility of the State of Texas to protect and preserve the coastal resources, and as such, new maintenance methods may be needed to not only provide a safe depth for the waterway, but also to correct problems caused by its presence.

This report will reflect the steps taken by the nonfederal sponsor to provide those needed sites for the continued maintenance of the waterway.

In addition, a new/old threat to the continuance of the waterway, coastline erosion, will be discussed regarding the possible future role of the State.

P R E F A C E

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PREFACE

Prior to 1975, the Gulf Intracoastal Waterway in Texas had no single local nonfederal sponsor. Various navigation districts, river authorities and port authorities located along the reaches of the Gulf Intracoastal Waterway attempted to coordinate local management efforts with those of the federal sponsor, the United States Army Corps of Engineers.

In 1975, the State Legislature passed the Texas Coastal Waterway Act. This Act authorized the State of Texas to act as local nonfederal sponsor of the Gulf Intracoastal Waterway in Texas and designated the State Highway and Public Transportation Commission to act as agency for the State in fulfilling the responsibilities of the nonfederal sponsor.

The nonfederal sponsor works closely with the United States Army Corps of Engineers to provide local cooperation and input into federal projects. Local sponsorship requirements may vary as different projects are authorized by the United States Congress. It is usually the responsibility of the nonfederal sponsor to provide all land needed for construction and maintenance of the project at no cost to the federal government. Many projects also require that the local sponsor make any necessary alterations to pipelines, cables and other utilities which may be located in the project area. The local sponsor may also be required to construct and/or maintain containment facilities for disposal material. Whatever the particular requirements of the local nonfederal sponsor may be, it is a general requirement that the federal government be held free from any damage that might result from construction and maintenance of the project. In the case of state sponsorship, this requirement can be fulfilled only to the extent permitted by state law.

In addition to serving as the nonfederal sponsor of the Gulf Intracoastal Waterway, the State Highway and Public Transportation Commission received a legislative mandate to carry out the coastal policy of the State of Texas. The State has declared its support of the shallow-draft navigation of the state's coastal waters in an environmentally sound fashion and its desire to prevent the waste of both publicly and privately owned natural resources while at the same time preventing or minimizing adverse impacts on the environment. The State has also pledged itself to maintaining, preserving and enhancing wildlife and fisheries. Much of the state's coastal policy emphasizes the importance of protecting the environment while supporting navigation functions at the same time.

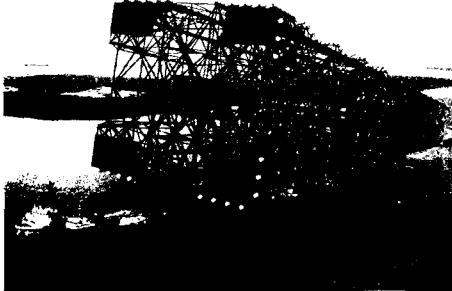
To carry out the legislative mandate and to further discharge the duties of the nonfederal sponsor, the Commission was instructed to continually evaluate the Gulf Intracoastal Waterway as it relates to Texas. Such an evaluation involves the consideration of both tangible and intangible values. If the State is to prevent the waste of its coastal resources and minimize adverse environmental impacts while simultaneously fostering an efficient system of navigation, it is first necessary to identify existing conditions and needs. This report, the seventh in the series as required by the Act, is submitted to the Seventy-first Legislature to assist in achieving usage of the Gulf Intracoastal Waterway to its full potential while protecting coastal resources.

CHAPTER ONE

THE TEXAS WATERWAY

THE TEXAS WATERWAY

INTRODUCTION



The Gulf Intracoastal Waterway is a canal that interfaces the Gulf of Mexico's coastline uninterrupted from the southernmost tip of Texas at Brownsville to St. Marks, Florida. This man-made channel, authorized by the United States Congress, is maintained by the U. S. Army Corps of Engineers at a width of one hundred twenty-five feet and a depth of twelve feet. In nautical terms the waterway is defined as a shallow-draft canal because it is less than twenty-five feet deep; however, it capably carries a large variety and a great number of vessels and cargo. The Gulf Intracoastal Waterway is an integral part of the total inland transportation system of the United States, relative to the systems of the Atlantic Coast, Mississippi River and Antilles, Great Lakes, Pacific Coast, Alaska and Hawaii. The Gulf Intracoastal Waterway is a vital link in the transportation network that moves much of the commodities called for by this nation and foreign markets as well.

DEVELOPMENT OF THE GULF INTRACOASTAL WATERWAY IN TEXAS

The onset of an inland transportation system in Texas began in 1850, just five years after Texas was admitted to the Union. Local business interests, who pioneered inland navigation in Texas, connected portions of the state's coastline by dredging links between the natural bays, lakes, rivers and bayous. The construction of Texas' first navigable segment, the Galveston and Brazos Canal, was completed around 1853. This canal's depth ranged from three to six feet and connected West Galveston

Bay and the Brazos River. The Rivers and Harbors Act of 1873 was the first federal step toward construction of a continuous marine transportation system west of the Mississippi River. This Act appropriated funds for a survey to "connect the inland waters along the margin of the Gulf of Mexico from Donaldsonville, Louisiana to the Rio Grande River in Texas by cuts and canals."¹

The expansion of the inland system throughout the coastline of Texas was not accomplished in one effort, but rather by the construction of segments through a series of congressional acts passed between 1925 and 1942. By 1941, the Gulf Intracoastal Waterway in Texas extended from the Sabine River to Corpus Christi and was 100 feet wide by 9 feet deep. Improvement of the canal to its current status was authorized by legislation passed in 1942, and construction was completed by 1949. The result was an extended route from the Sabine River to Brownsville, Texas with the new dimensions of 125 feet wide by 12 feet deep.

THE PATH OF THE WATERWAY

The length of the Texas Gulf Intracoastal Waterway is 426 miles and its course encounters a variety of sights along the way. Dunes, flats, fishing cabins, bays, rivers and streams, farm and ranch lands, wetlands, wildlife and marine life, parks, refuges, and historic landmarks can be seen from the canal. Other widespread features along the waterway include industrial, recreational and residential developments.

The path of the waterway is etched through many shallow bays and often lies on the landward side of the natural barrier islands that protect most of the entire Texas coastline. This inward course gives the

¹Rivers and Harbors Act of 1873, "House Document 1491, 62nd Congress," Volume 1.

waterway its "inland" classification. Many creeks and streams empty into the Gulf Intracoastal Waterway, but only two major rivers flow directly into it, enroute to the Gulf of Mexico. These rivers, the Colorado and the Brazos, have currents strong enough to require protective flood control gates for the waterway during high-water stages.

The route of the Gulf Intracoastal Waterway leads through some of the most productive, yet sensitive areas of the Texas coast. These areas, or "wetlands"² are widely recognized as the nurseries for the commercially valuable finfish and shellfish. The environmentally delicate wetlands are also the nesting or feeding grounds for vast numbers of waterfowl, mammals and reptiles. The native vegetation of wetlands is important for its ecological contributions to the coastal system. The vegetation provides sustenance for the animal inhabitants and also retards erosion by holding onto the unstable soil that is common among coastal regions. Much has been learned in recent years about the importance of maintaining a balanced relationship between the delicate nature of wetlands and the effects on them from man-made water management projects. As a result, there are many state and federal agencies to administer the necessary regulations that protect the fragile wetlands and the coastal environment.

A BUSY TRANSPORTATION ARTERY

One of the initial functions of the Gulf Intracoastal Waterway was to provide protected inland transportation of goods and troops during World War II. It has since evolved into a multipurpose waterway with a wide

²The U. S. Fish and Wildlife Service defines "wetlands" in general terms as lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.

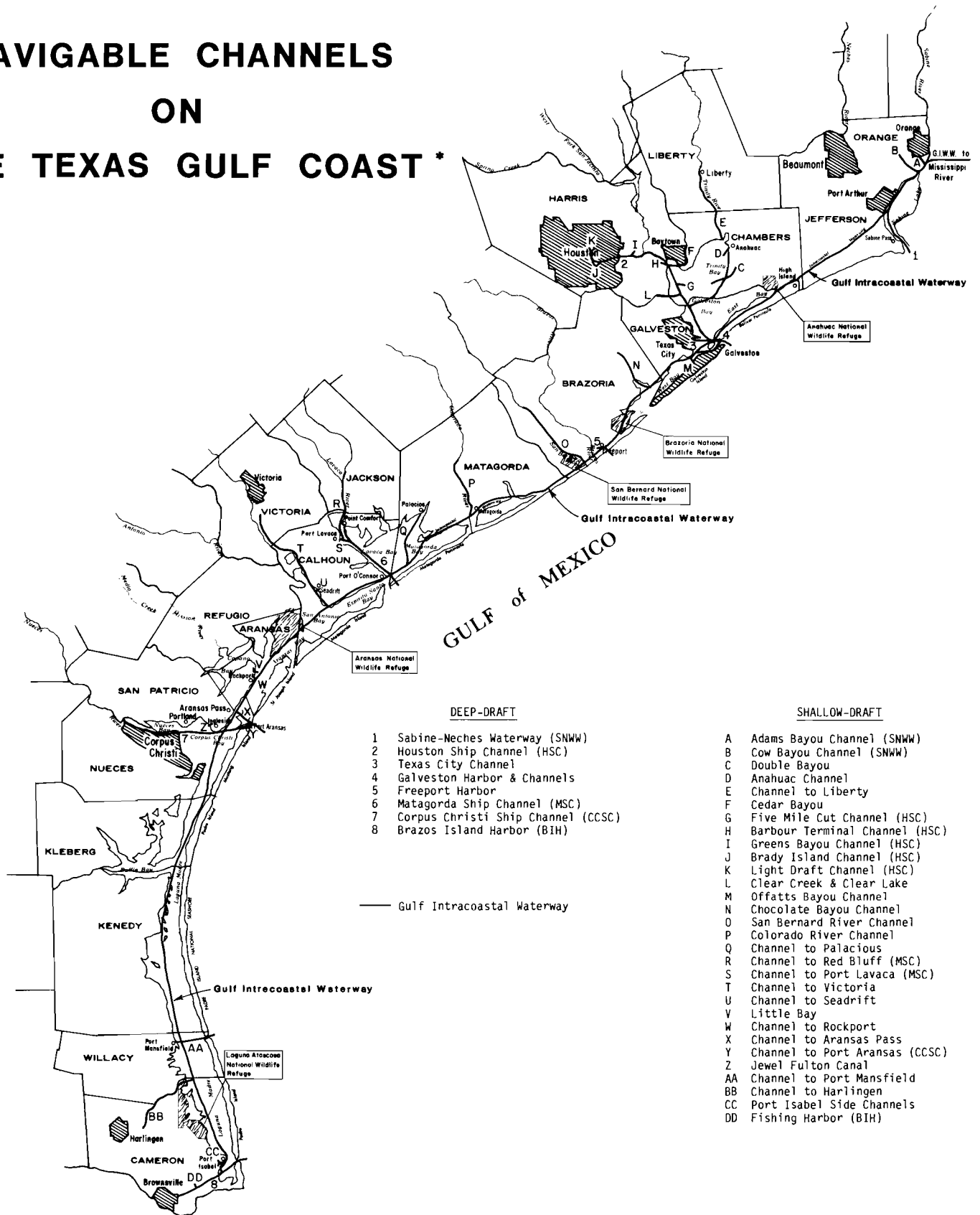
assortment of users. To many individuals, the Gulf Intracoastal Waterway is largely associated with recreation. Sport fishing and boating are very popular along the Texas coast and many facilities have been established on or near the waterway. However, it is the commercial trade link that the waterway provides and the subsequent economic prosperity for the Texas coastal region and the State as a whole that should speak for much of the waterway's value.

Many industries have concentrated in the coastal region of Texas to capitalize on the economic benefits of water transportation efficiency. Thousands of jobs are directly and indirectly linked to the waterway, and almost 75% of all goods shipped in Texas are moved by water.³ The transfer of goods by water is second only to pipelines in cost efficiency but is not limited by specialization as pipelines are.⁴ The commercial trade between Texas ports and other port centers of the United States, as well as foreign trade markets, is strongly facilitated by the Gulf Intracoastal Waterway. The waterway is directly linked with Texas' twelve deep-draft port channels, and it greatly increases the level of access and level of service to many tributary channels and private channels. The deep-draft port channels in Texas are Sabine Pass Harbor, Port Arthur Canal, Beaumont, Orange, Galveston Ship Channel, Houston Ship Channel, Freeport Ship Channel, Matagorda Ship Channel, Corpus Christi Ship Channel, Port Isabel Ship Channel and Brownsville Ship Channel. A map on page 5 depicts the Gulf Intracoastal Waterway in Texas and other channels maintained by the U. S. Army Corps of Engineers' Galveston District.

³Sea Grant Program, Texas A & M University. Primary Economic Impact of the Gulf Intracoastal Waterway in Texas. College Station, Texas, 1974, p. 128.

⁴State Department of Highways and Public Transportation, "The Gulf Intracoastal Waterway in Texas, 1976." p. 8.

NAVIGABLE CHANNELS ON THE TEXAS GULF COAST *



* These are channels maintained by the U.S. Army Corps of Engineers, Galveston District, SWGCO-M, 1989.

Figure 1

The Gulf Intracoastal Waterway is most effectively utilized by barge traffic and according to waterborne commerce statistics compiled by the U. S. Army Corps of Engineers, an annual average of 65 million tons of goods has been barged along the Texas Gulf Intracoastal Waterway since 1968. Petroleum products, chemicals and crude petroleum account for approximately 90% of the annual tonnage moved on the waterway. Other bulk materials such as minerals, metals, grains, shell and miscellaneous materials account for the remaining annual percentage. Commercial fishing boats and various work boats associated with the oil and gas drilling industry in the Gulf of Mexico also use the waterway.

Recreationists are another important factor in the traffic on this busy canal. The gulf coast is one of Texas' largest playgrounds and boats are a favored access to coastal recreation. Not only is the Gulf Intracoastal Waterway used by boaters as a reliable highway to other coastal regions, but it is also used for skiing, fishing, and cruising. For small and less seaworthy vessels, the waterway offers protected passage from the stormy nature of the Gulf of Mexico and moorings are located periodically along the canal for those who may need them. Larger vessels use the waterway because it has sufficient depth for their deeper draft hulls. The various uses of the waterway have been studied by the State Department of Highways and Public Transportation, revealing that recreational use of the Texas Gulf Intracoastal Waterway is quite extensive.

In 1980, the Department conducted a random survey of recreational boat owners in Texas and determined that 2.4 million recreational boat trips originate in Texas coastal waters annually.⁵ The survey also

⁵State Department of Highways and Public Transportation, "The Gulf Intracoastal Waterway in Texas, 1982."

revealed that 1.9 million, or 79% of the total 2.4 million recreational trips, utilize the Gulf Intracoastal Waterway. (These trip figures are used to describe the total number of trips made by each boat. If one boat is put in coastal waters ten times in a year, it would equal ten trips annually.) Over 65% of the recreationists surveyed reportedly use the Gulf Intracoastal Waterway as a major thoroughfare between coastal bays and most of the trip lengths on the waterway are between 5 and 50 miles each.

OVERVIEW OF 1986

In 1986, 72.9 million short tons of goods moved on the Texas Gulf Intracoastal Waterway. The estimated value of those goods transported in a safe, efficient, and economic manner amounted to 21.1 BILLION DOLLARS.⁶ Texas handled sixty-eight percent of the 1986 total of 106.9 million short tons moved between Texas and Florida on the waterway. The Department of the Army Corps of Engineers compiles tonnage statistics,⁷ and also provides estimates for evaluating the commercial impact of the waterway. Revised estimates from the Corps for the average number of tons per barge, show that about 33,900 barges were used to move the 72.9 million tons in Texas during 1986. If the same volume of goods were moved via railroad transportation, approximately 508,500 railroad carloads would have been required. If moved via truck transportation on the state highway system, it would have required 2,034,000 semitrailer

⁶Texas Transportation Institute, Policy and Management Division, Texas A & M University System, College Station, Texas. 1986 values determined by updating a 1982 Data Resources, Inc. Study for the U. S. Army Corps of Engineers. (See Bibliography.)

⁷Department of the Army Corps of Engineers. Waterborne Commerce of the United States. Part 2 and Part 5, 1986.

truckloads resulting in considerable wear and tear on the roadway surfaces.⁸ Safe transportation of barged materials, many of which are hazardous, is recorded in Table 2-23 of the U. S. Office of Technology Assessment's 1986 report, "Transportation of Hazardous Materials." For the period from 1976 to 1984, the total number of documented hazardous spills in Texas included 48 by air transportation, 2,854 by truck, 1,265 by rail, 6 by water transportation, and 18 by other.

In addition to safely transporting goods and serving recreational boaters, the Gulf Intracoastal Waterway also provides access to the prime fishing areas for the commercial industry and sport fishing boats. This group produced a 1986 catch of 115.9 MILLION POUNDS of shrimp, oysters, crabs, and finfish amounting to an ex-vessel value (value received at wholesaler's dock) exceeding 246 MILLION DOLLARS.⁹ The Gulf Intracoastal Waterway itself is a prime fishing area as it is part of the migratory route of schools of fish as they move in, out, and between the different bay systems.

CONCLUSION

The early settlers of Texas colonized near natural water routes because they knew that a close proximity to water transportation would bring many advantages. Since the dredging of Texas' first segment, the waterway's service, value, and subsequent effect of economic prosperity

⁸Average estimated number of tons per barge was provided by the Galveston District Corps of Engineers, Economic and Social Analysis Branch. 1988. Translations from barges to railroad cars and semi-trailer trucks calculated from figures given by Kelly, Brig. General Patrick, U. S. Army Corps of Engineers. Houston, Texas: September 22, 1988. "The Society of American Military Engineers," Speech.

⁹Texas Parks and Wildlife Department, Trends in Texas Commercial Fishery Landings, 1977-1986.

have grown significantly. The Gulf Intracoastal Waterway is extensively used by a wide variety of users and imparts many benefits both directly and indirectly to the State. All these benefits, plus the waterway's importance as a national defense, account for the wisdom of protecting and maintaining this transportation mode.

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CHAPTER TWO

ACQUISITION OF DISPOSAL SITES

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ACQUISITION OF DISPOSAL SITES

INTRODUCTION AND GENERAL SUMMARY



For the 1988-1989 biennium, the Texas Legislature appropriated one million dollars for acquiring disposal sites to facilitate maintenance dredging of the Gulf Intracoastal Waterway. During 1988, the State Department of Highways and Public Transportation obtained approval for acquisition of twelve sites totaling 1,355 acres. Based on initial appraisal estimates, 1,130 acres can be purchased with the current funding, provided no sites go to condemnation court. By making use of a legislative law, Article 5248b, 225 acres of State land in Calhoun County have been designated, without any State expenditure, for disposal use. To support continuance of the waterway in an environmental manner, the State as nonfederal sponsor of the Gulf Intracoastal Waterway, must acquire over 3,000 acres for upland disposal sites by the year 2000. Efforts are underway to identify more new sites for acquisition in the 1990-1991 biennium. Additional State funding will be needed to continue furnishing sites.

To acquire the needed disposal sites, the State Department of Highways and Public Transportation coordinates the appropriate divisions and districts to handle land acquisitions. Several items are important in making acquisitions for disposal sites, including an understanding of applicable state and federal laws, identification of suitable sites, coordination of required environmental clearances and public involvement, site-specific authorization, and promulgation of

appropriate acquisition procedures. The Department's standard right-of-way acquisition procedures fully comply with the federal requirements to the nonfederal sponsor and these procedures are followed in acquiring the sites.

By coordinating closely with the Corps of Engineers, the Department has access to information on dredging frequencies, volumes of materials removed, and various disposal methods that are environmentally and operationally suitable for maintenance of the Gulf Intracoastal Waterway in Texas. The Department also coordinates with natural resources agencies regarding disposal related environmental concerns. Such factors determine the need for disposal capacity, location, size, and design of disposal sites.

STEPS TO SITE-SPECIFIC AUTHORIZATION

Selection of Proposed Sites

The Department, acting as sponsor for the waterway, organized a state agency advisory committee, the Gulf Intracoastal Waterway Advisory Committee, to help address problems and recommend solutions concerning the waterway. To physically investigate coastal areas that need new or additional disposal capacity, the Department appointed members from the Advisory Committee and also representatives from federal agencies, the National Marine Fisheries Service, U. S. Army Corps of Engineers and U. S. Fish and Wildlife Service, to serve on a task force. The task force of engineers and resource experts made preliminary selections of environmentally and operationally suitable sites in the areas of need. After this preliminary selection and the concurrence of the committee, the Corps of Engineers then coordinated environmental clearance for disposal use of the proposed sites. Only

after environmental clearance, will the State Department of Highways and Public Transportation conduct the required public hearings on specific sites. As part of the public hearing process, the State Highway and Public Transportation Commission must grant authorization to the Department for proceeding with site specific acquisitions.

Environmental Clearance

In order for any area to be used for disposal of dredged materials, there are federal and state laws which mandate that such use be environmentally acceptable. The National Environmental Policy Act, sets federal guidelines which the Corps of Engineers must follow in making environmental evaluations on proposed sites. The Texas Coastal Waterway Act of 1975 requires the State Highway and Public Transportation Commission to determine whether proposed sites can be used without unjustifiable waste of publicly or privately owned natural resources and without permanent, substantial adverse impact on the environment, wildlife, or fisheries.

Of the twelve sites identified for acquisition in the 1988-1989 biennium, seven are new sites. Use of these sites has been cleared and documented in environmental assessments and findings declared of no significant impact (EA/FONSI's). Agencies concerned about the State's natural resources, such as the National Marine Fisheries Service, Texas General Land Office, Texas Parks and Wildlife Department, Texas Water Commission, and U. S. Fish and Wildlife Service, each reviewed the environmental assessments and concurred with the findings. The Environmental Protection Agency then acknowledged the findings, completing the final step of clearing the seven proposed sites for disposal use.

The other five approved sites are existing disposal areas that require new easements for continued use. Their environmental clearance is documented in The 1975 Environmental Impact Statement For The Gulf Intracoastal Waterway. None of these areas requires design changes, such as new levees or spillways; therefore, the environmental studies conducted for the 1975 document are satisfactory for the clearance.

The State Department of Highways and Public Transportation must also review the environmental impact statements and findings on all sites, and determine that use of any proposed site can be accomplished in an environmentally acceptable manner. The Department has recognized that the twelve, upland disposal sites approved for 1988-1989 acquisition are feasible and prudent alternatives to open water dredged disposal. The environmental documents on clearing the use of these sites are available for viewing at the State Department of Highways and Public Transportation and the Galveston District, U. S. Army Corps of Engineers.

Public Involvement

The 1975 Texas Coastal Waterway Act requires the State Highway and Public Transportation Commission to hold public hearings for the purpose of receiving evidence and testimony concerning the desirability of proposed dredged material disposal sites. If the Commission determines that use of the sites is acceptable, the Commission then authorizes the Department to implement the acquisitions. To better inform communities on the proposed sites, the Department often conducts public meetings before the official public hearings. Public meetings are held in cities located near the proposed sites. The public hearings are held in Austin.

Local public meetings and the required public hearings are both advertised as specified in the 1975 Texas Coastal Waterway Act. Legal notices are published in newspapers that are generally circulated in the involved counties for three consecutive weeks before the public meetings and hearings. Legal notices are similarly published in the Texas Register. In addition, landowners, local public officials, and radio stations are notified.

Environmental documents and aerial displays regarding the proposed sites are exhibited at the public meetings and hearings. The proceedings of each are documented and become part of an official record. During these public forums, the Department explains the State's nonfederal responsibility to the Gulf Intracoastal Waterway, describes the waterway's maintenance program and disposal needs, and identifies the proposed sites. The public is given the opportunity to comment.

Commission Authorization

After due consideration of all evidence, testimonies, and environmental findings, the Commission determines whether each proposed site can be used without unjustifiable waste of publicly or privately owned natural resources and without permanent, substantial, adverse impact on the environment, wildlife, or fisheries. Acting through Commission Minute Orders, the Commission then authorizes the Department to proceed with acquiring the approved sites.

ACQUISITION STEPS

Surveying

After Commission authorization, the Department begins the acquisition process with surveys. Most landowners agree to allow

access to their property and the areas are then surveyed to accommodate the size and design needed for a site. Aerial surveys may be used if a landowner does not grant access to the property.

Surveyors draw plats of the sites, showing ownership, area, the disposal site perimeter, property access, and improvements, if any, such as pipelines or structures. The Department does not intend to encumber habitable structures or dedicated roads. Surveyors write field notes noting the exact acreage of surveyed sites, and prepare metes and bounds descriptions.

Since erosion is widespread along the Texas coastline, surveys of some properties may determine portions to be under water. To provide access for disposal operations, the State will acquire property to the Gulf Intracoastal Waterway's right-of-way line. Eroded acreage between the waterway right-of-way and the bank is considered in the appraisal process with the approved values for purchases reflecting this condition.

Appraisal

In the initial stages of the appraisal process, the Department notifies landowners of a proposed acquisition. The Uniform Relocation Assistance And Real Property Assistance and Real Property Acquisition Policies Act of 1970, as amended, requires such notice. None of the twelve sites approved for 1988-1989 acquisition will cause the displacement of landowners, therefore, no relocation assistance is necessary. Landowners are further notified by the Department of an appraiser's upcoming contact with the landowner. Landowners are entitled to accompany an appraiser's inspection of the site. Correct

legal and appraisal procedures are strictly adhered to in determining the fair market value of the sites.

Negotiations

After appraisals are completed, a negotiator from the Department personally contacts landowners and furnishes them a written offer letter. A departmental negotiator explains the acquisition process and the landowners' alternatives should they not accept an offer. Details on the proposed use of the land as a disposal site are explained when requested. If landowners choose to donate the use of their property, they become eligible for ad valorem tax breaks under the Legislative Law, S. B. 982, while retaining title to their land.

Acquisition

The Department's preferred acquisition method is to purchase in fee, since the leasing of the land over an extended period would approach the fee cost. Landowners are given not less than one month to consider offers. If an owner is dissatisfied and chooses to refuse the offer, the State may negotiate, or may initiate condemnation or eminent domain proceedings.

As initially stated, an estimated 1,130 acres can be purchased during the 1988-1989 biennium with the legislative appropriation of one million dollars, provided no sites go to condemnation. As already mentioned, use of the 225 acres in Calhoun County has been designated without any State expenditure. Listed on Table 1 are the site locations and the amount of acres in each site.

TABLE 1. 1988-1989 APPROVED SITES AND ACREAGE

<u>Bryan Beach Area</u> (Brazoria County)	<u>East Matagorda Bay Area</u> (Matagorda County)
53 acre site	Site No. DA101A 200 acres
12 acre site	Site No. DA102D 260 acres
16 acre site	Site No. DA102E 257 acres
	Site No. DA104A Extension 70 acres
	Site No. DA105A 75 acres
<u>Caney Creek Area</u> (Matagorda County)	<u>Blackberry Island</u> (Calhoun County)
Site No. DA98 54 acres	Site No. DA118 225 acres
Site No. DA99 46 acres	
Site No. DA100 87 acres	

DESCRIPTIONS OF THE APPROVED SITES

Bryan Beach Area

Three sites approved for acquisition are near the Bryan Beach State Park in Brazoria County. These upland sites, totaling 81 acres, are adjacent to and on the south side of the Gulf Intracoastal Waterway, and situated between Freeport and the Brazos River. (See Figure 2.) By combining these three small sites with existing disposal areas, disposal efficiency will greatly increase. These combined disposal sites will provide storage capacity for an area of the Gulf Intracoastal Waterway that experiences heavy shoaling from the Brazos River.

The first of the three sites at Bryan Beach is a 53-acre, privately owned site. New to disposal use, the site has been cleared by an environmental assessment and finding of no significant impact (EA/FONSI). The site will be leveed to join the existing disposal area 86 (DA86). Projected for 30 years of use, the site will be purchased in fee.

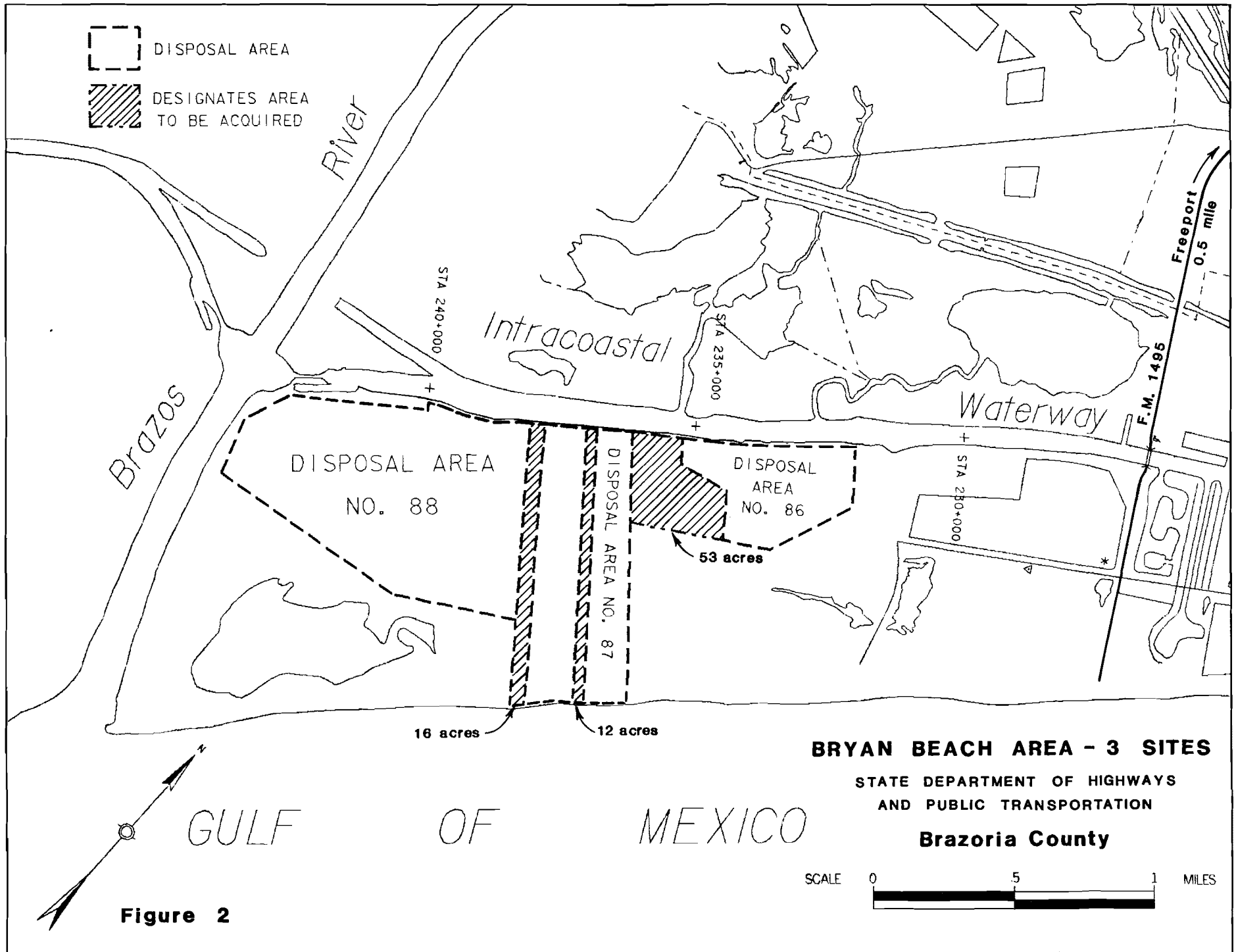
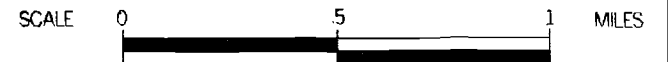


Figure 2

BRYAN BEACH AREA - 3 SITES

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

Brazoria County



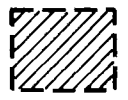
The second site at Bryan Beach, a 12-acre strip, is a privately owned estate. Never before used for disposal, the site has been cleared for use by an EA/FONSI. The 12-acre site is between and will adjoin the existing, leveed disposal areas, DA87 and DA88. A 30-year use is projected for the combined sites; therefore, purchase in fee will be the State's method of acquisition.

Located within existing site DA88, the third site approved for acquisition at Bryan Beach is a 16-acre, narrow strip. This privately owned site has been previously cleared for disposal use by The 1975 Environmental Impact Statement For The Gulf Intracoastal Waterway. Use of the site will increase the efficiency of DA88. The State will purchase the site in fee.

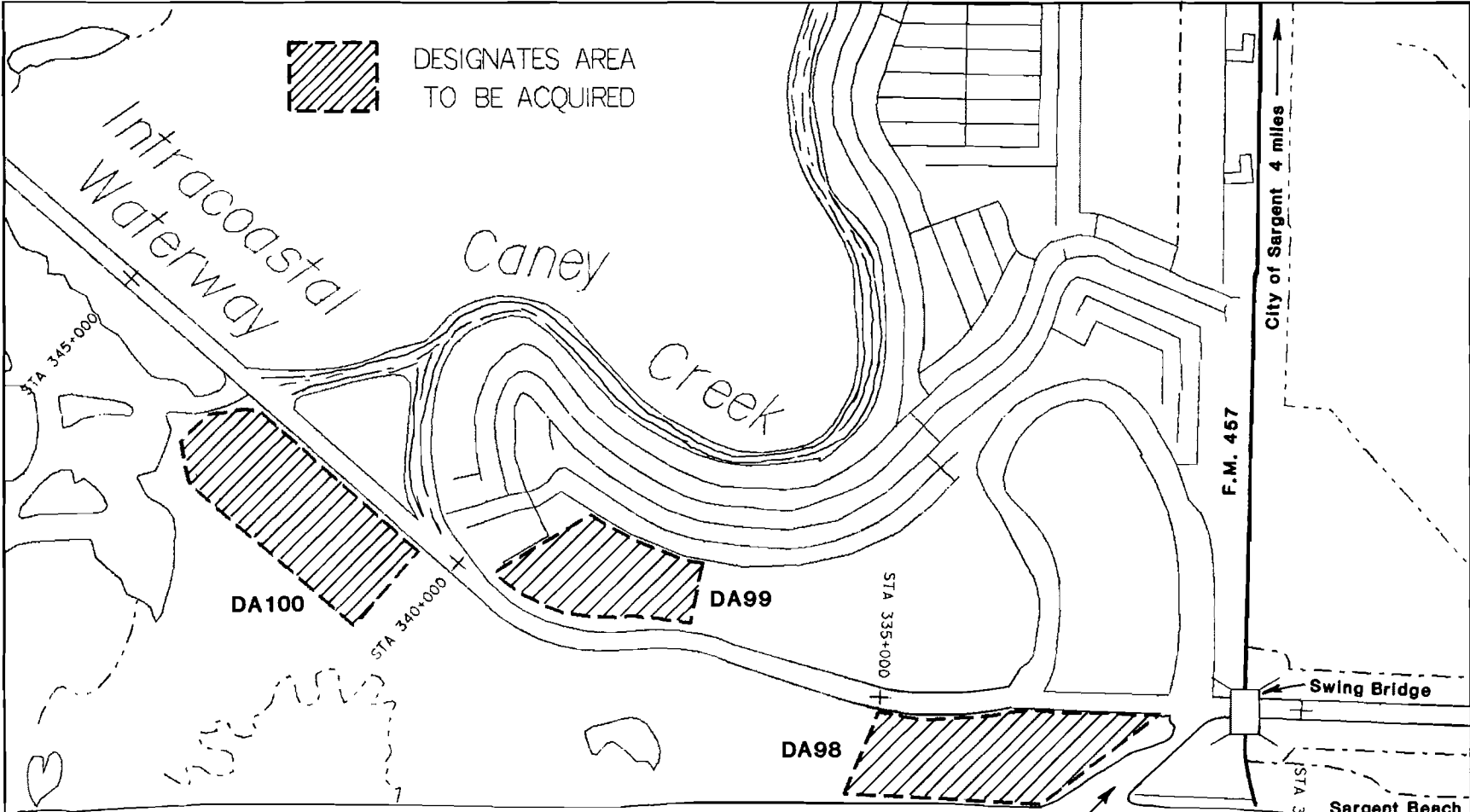
Caney Creek Area

Three sites approved for acquisition southwest of Sargent, Texas in Matagorda County are near Caney Creek and in all, they total 187 acres. (See Figure 3.) They are existing disposal sites, previously used for maintenance of the waterway. The Corps of Engineers has asked the State to furnish easements for these sites because the existing easements have expired. Located in an area of high shoaling, these three sites are critical to providing at least 15 to 30 years of disposal capacity each. Since these sites are existing disposal areas, The 1975 Environmental Impact Statement For The Gulf Intracoastal Waterway cleared their use.

The first site in the Caney Creek area is southwest of the swing bridge at FM 457 and adjacent to and on the south side of the waterway. The 54-acre site is referred to as DA98. Previously, the Corps of Engineers had a perpetual easement to use the site, but the land was



DESIGNATES AREA TO BE ACQUIRED



GULF OF MEXICO

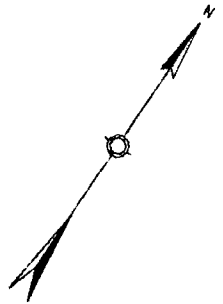


Figure 3

CANEY CREEK AREA
 STATE DEPARTMENT OF HIGHWAYS
 AND PUBLIC TRANSPORTATION
Matagorda County



encumbered by a lien. The lien forfeited, and the lien holder, an undivided interest, was not agreeable to a new disposal easement with the Corps. An aerial survey of the property, conducted by the State Department of Highways and Public Transportation, was used because the owner denied the right of entry. Partially leveed on emergent land with some open water disposal, the site is experiencing erosion on the gulf bank near the Matagorda County's drainage channel, known as McCabe's Cut. Disposal capacity is expected to last at least 15 years. The State will purchase the site in fee.

The second site at Caney Creek is a leveed, upland site, referred to as DA99. This 46-acre site is located inland from the north side of the waterway and will require disposal pipeline easements and effluent or water return easements since the site is not adjacent to the waterway. The expected disposal life of 15 years is very important to the maintenance of the waterway in this area of high shoaling; therefore, the State will purchase the site in fee.

The third site at Caney Creek is referred to as DA100. Consisting of 87 acres, the leveed, upland site is adjacent to and on the south side of the Gulf Intracoastal Waterway. The Corps has requested the sponsor to furnish DA100 which will provide about 30 years of disposal capacity. The State will purchase the site in fee.

East Matagorda Bay Area

Five new sites, totaling 862 acres, have been approved for acquisition along the northern end of East Matagorda Bay in Matagorda County. (See Figure 4.) Located southwest of Sargent, Texas and between Caney Creek and Live Oak Bayou, these five upland sites are adjacent to and on the north side of the waterway. For these new

 DESIGNATES AREA TO BE ACQUIRED

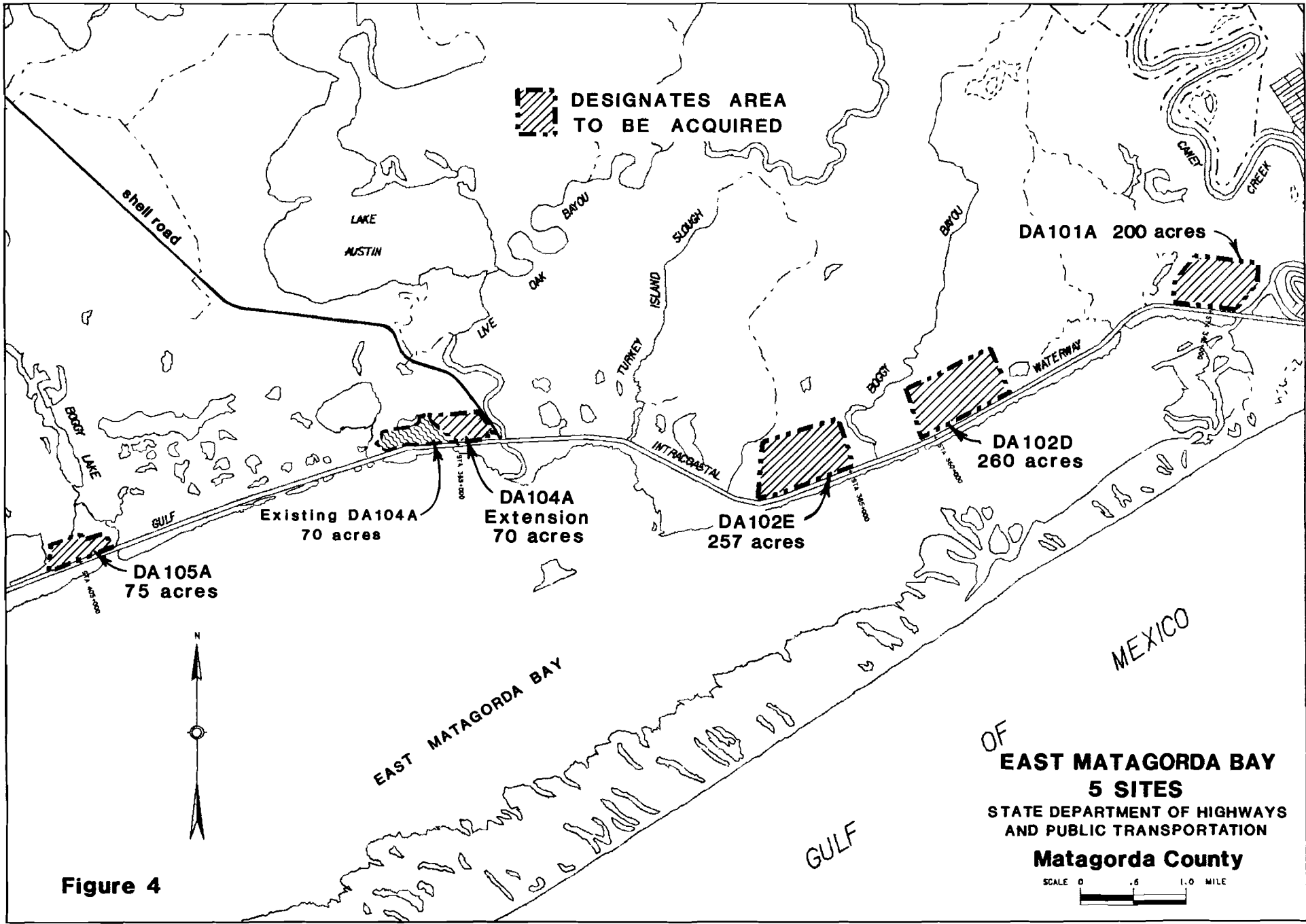


Figure 4

**EAST MATAGORDA BAY
5 SITES**
STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
Matagorda County
SCALE 0 .5 1.0 MILE

sites, an Environmental Assessment determined a finding of no significant impact (EA/FONSI). Each site will provide 15 to 30 years of disposal capacity. Environmental concerns about open water disposal into the productive, shallow waters of East Matagorda Bay resulted in litigation in 1983 and almost again in 1985. Acquisition of upland sites in this area will help minimize open water disposal.

The first new site along East Matagorda Bay, referred to as DA101A, is about 200 acres. DA101A will, at a minimum, provide 30 years of disposal capacity. Initially, the Corps may conduct the practice of sheet disposal, or free flowing, uncontained disposal. Short bank levees along the channel and wing levees on the sides will guide the dredged materials to flow and settle within the designated disposal area. Then after three or four disposal operations, the site would be completely leveed.

The property owner of a part of DA101A attended each of the public hearings for this site. In an effort to retain his land, which is used for grazing, the owner proposed five disposal alternatives in nearby areas. After an evaluation of each, the Corps determined that the proposals were not viable for economic, engineering, or environmental reasons. This site, greatly needed for an area of high shoaling, is regarded the most suitable upland option in the immediate area. The Commission, therefore, approved the site for acquisition, and the State will purchase the site in fee.

Further south, the second approved site along East Matagorda Bay is DA102D, a 260-acre site that will provide a minimum of 30 years disposal capacity. Similar to DA101A, the DA102D disposal practice may initially be sheet disposal, followed later by leveed, contained

disposal. In 1986, an experiment in sheet disposal was successfully conducted via a one-time donation from the privately owned estate. Initial results of a study on the experimental site have shown the grass forage to regenerate within six months. Property surveys of DA102D have shown bank erosion along the waterway's northern right-of-way line to total 25 acres. The State will purchase the 260-acre site in fee, with consideration for the approved purchase values, reflecting the erosion condition.

Further south and just west of Boggy Bayou is site DA102E, totaling 257 acres. Sheet disposal, with later leveed containment may be used for the thirty years expected life of the site. Surveying of the site revealed that almost 22 acres have eroded along the waterway's northern bank. A part of the same private estate as DA102D, the 257-acre site will be purchased by the State in fee with approved purchase values.

The fourth approved site along East Matagorda Bay, referred to as DA104A Extension, is a 70-acre, privately owned site near the intersection of Live Oak Bayou and the Gulf Intracoastal Waterway. This new site will be combined with an adjacent, existing disposal area to achieve an estimated 15 years of crucially needed, upland, disposal capacity in the East Matagorda Bay area. Consideration of alternate sites has determined 104A Extension to be the best solution in the immediate area. The State will purchase the site in fee.

At the public hearings on site DA104A Extension, the property's manager and also local cabin owners, expressed concern about the proposed project. They feared the disposal site would encumber a shell road which services the local area, displace homes, create a safety hazard to children, and intensify area flooding which already occurs

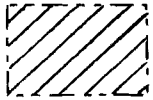
during watershed runoff.

The disposal site will not encumber the shell road, nor displace any habitable structures. The concern for safety has not been supported by any known incidents occurring in any of the Galveston District Corps of Engineers' dredging disposal sites; however, should an event occur, responsibility would rest with the State as landowner. An exception to State liability would be during a dredging operation whereby the dredging contractor would have the liability for any accidents. In regard to the disposal site intensifying local flooding, the Corps of Engineers evaluated the concern and determined that the proposed disposal site would not change the extent or severity of stream flooding in the area. Nearby Live Oak Bayou is the major source of stream flooding in the local area. In order to help ensure against any increase in flooding or additional damage to the shell road, a drainage ditch will be constructed along the northern and eastern edges of the disposal site.

The fifth site approved along East Matagorda Bay, referred to as DA105A, is a 75-acre tract. It is owned by the same estate as DA102D and DA102E. Surveys of the site determined that about 22 acres have eroded along the waterway bank. Approved appraisals of this site have considered the eroded condition. The disposal site will be leveed and provide about 15 years of capacity. The State will purchase the site in fee.

Blackberry Island

Blackberry Island, located in Calhoun County, southwest of Port O'Connor, Texas, is the southernmost site approved for acquisition. (See Figure 5.) It is located on the south side of the Gulf



DESIGNATES AREA TO BE ACQUIRED

S.H. 185

Port O'Connor
1 Mile →

Gulf Intracoastal Waterway

STA 655+000

STA 650+000

STA 645+000

STA 640+000

DISPOSAL AREA 118

Approximately 225 acres

BLACKBERRY ISLAND

MR. FORCE FERRY CHANNEL

ESPIRITU

SANTO BAY

BLACKBERRY ISLAND - 1 SITE

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION

Calhoun County

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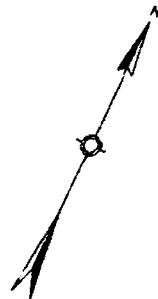


Figure 5

Intracoastal Waterway and is an existing, 225-acre disposal area. As an existing disposal area (DA118), use of the site has been cleared by The 1975 Environmental Impact Statement For The Gulf Intracoastal Waterway. The Corps of Engineers requested the State to furnish an easement for the island, because regular maintenance, over-the-bank disposal operations were beginning to encumber portions of the island. Under the jurisdiction of the State, and as described in Vernon's Civil Statutes Article 5248b, the island is granted in easement for maintenance of the Gulf Intracoastal Waterway. The State Department of Highways and Public Transportation has obtained clarification of this authorization from the Texas General Land Office, and the site will continue to be available without State expense and will provide about 30 years of disposal capacity.

CHAPTER THREE

A NEW / OLD THREAT TO THE WATERWAY

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THE NEW/OLD THREAT TO THE WATERWAY

A situation, common to all states fortunate enough to have a coastline, is beginning to threaten the continuance and service of the waterway. Erosion, along with subsidence, is eating away the land areas that protect the waterway from wave and current action of the gulf waters. Most seriously threatened is a ten mile strip of coastline near Sargent, Texas. In the eighty year period between 1852 and 1930, erosion in this area had caused the loss of 839 feet of coastline, or a rate of erosion of approximately ten feet per year. Erosion is a natural and continuous process that can happen to any coastline in the world. Erosion rates vary naturally but may be greatly influenced by the action of man as he changes the natural order of an area. The erosion rate in the Sargent area has increased to an alarming pace and is now estimated to be as high as 56 feet per year.¹⁰ At this rate the waterway will be breached by the year 2000. Residents of the area predict that it will occur around 1995. No longer will there be a protecting strip of land between the gulf and the waterway and barge traffic will be subjected to the wave action of open gulf waters. Keeping the channel dredged and useable would be an almost continuous, expensive operation and service could not always be assured. A representative of a large user of the waterway for transportation of products notes that if the system is interrupted, the company must seek other means to transport goods

¹⁰Department of Army Corps of Engineers, Galveston District. "Gulf Intracoastal Waterway In The Vicinity of Sargent, Texas." (Galveston, Texas: CESWG-PL-C, April, 1988), p. 5.

and shipping costs would increase by four million dollars per year.

Adding to the natural erosion rate of the area is an influence created by a man-made cut through the protective land strip where Caney Creek empties into the waterway. This cut was permitted for a channel thirty feet wide by three feet deep to allow upland flood waters to flow more readily into the gulf. Unfortunately, those runoffs, along with continuous tidal wave action, have caused the cut to be enlarged to one hundred feet wide by ten feet deep and it is continuing to get larger. Water currents are now so strong through the cut that barges and towboats have been swept out into the gulf. Numerous incidents have occurred, and the potential for a dangerous situation to occur is possible. Lives and property could be lost and long-lasting damage to the natural environment could be involved. It is believed that this cut has been a large factor in the local erosion problems at Sargent Beach. The dredging cycle in this reach of the waterway has changed from a 18 year cycle to a twice per year cycle since the cut was opened in 1983.

The Matagorda Drainage District has therefore obtained a permit to close the cut and to open a new one through the upper end of East Matagorda Bay. Flood waters would then be funneled through the bay out to the gulf, infusing fresh water into the bay system and providing a path into the gulf for marinelife to utilize. But the damage has been done and a solution to the problem of encroachment on the waterway must be addressed.

Sargent Beach once was an active recreation and resort area with numerous houses for permanent and weekend users to enjoy coastal recreation. Now, row upon row of those houses have toppled into the

pounding waters of the gulf. Only a lonely row of houses remain, backed up to the waterway, waiting its turn to fall.

Sargent Beach is not unique. According to the Corps of Engineers, 60 percent of the Texas shoreline is erosional, 33 percent is in a stable condition, and the remaining 7 percent is accretionary. Colonel John A. Tudela, District Engineer, Galveston District of the Corps of Engineers has said, "We periodically monitor the shoreline condition, but without specific Congressional authorization we have no means to attempt to reduce it (erosion)." The Corps at this time only has authorization to protect the waterway to assure its continuance.

Therefore, the Corps of Engineers has initiated a one-year study whose purpose is to evaluate the Gulf Intracoastal Waterway in light of future usage to the benefit of the State of Texas.

Objective of the study is to determine the feasibility of modifying the existing channel to correct erosion, shoaling and alignment problems in two trouble areas, and to determine long-range disposal needs. The study will also evaluate the entire waterway in light of present day conditions, traffic, channel size, and tow limits. \$350,000 has been authorized for the study under the authority of Sec. 216 of the Federal Flood Control Act of 1970.

The proposed study will initially focus on how to protect the waterway at Sargent Beach by employing solutions grouped into three general categories.

1. Do nothing and accept the ultimate closure of the waterway.
2. Protect the waterway in its existing alignment.
3. Relocate a portion of the waterway inland.

Category 1 - Do nothing and let the waterway close

Obviously, the first category is not acceptable and only the last two will be addressed.

Category 2 - Protection of the existing alignment by one or a combination of the following methods:

1. Revetment (Riprap or articulated mat) - Articulated mats are not designed to withstand gulf wave action so riprap only will be considered.

Cost for a 10 mile long riprap revetment would be \$22.5 million and require 340,000 tons of rubble.

2. Seawalls or sheet pile walls - a 10 mile seawall similar to that at Galveston would cost \$50 million but is considered to be "overkill" for the area. Reinforced concrete sheetpile, without tiebacks or cap, at \$12.50 per square foot would cost \$21 million. Steel sheetpile at \$17.50 per square foot would cost \$29 million.

3. Groinfield - at least 26 groins, 500 feet long, spaced at 1500 feet along a 10 mile stretch would be required at a cost of \$17 million.

4. Beach Nourishment - Addition of material to the near-shore zone would tend to reduce shoreline erosion rates. A rough deficit of this 10 mile reach would be on the order of 170,000 cubic yards per year. Replacement materials should be predominately of course grained sands. A onetime placement of this material in the nearshore littoral zone would cost approximately \$4 million and would need to be repeated annually.

5. Breakwaters - serve to reduce the amount of energy delivered to the shoreline. Offshore breakwaters can be continuous in length, segmented and submerged. Materials could be rubble, rock-filled cribs or piling. Construction cost would be in the order of \$44 million.
6. Combination of beach nourishment with groinfield - groinfield cost would not change but nourishment could be reduced by one-half. Estimated cost would be \$21 million with additional nourishment costs as required to maintain established beach.

All solutions cited in this category are subject to partial or total destruction due to hurricane storms. Even the seawall, being built on a smaller scale than the Galveston wall, could be vulnerable to hurricane force storms.

Category 3 - Relocation of GIWW Inland

A more permanent solution would be to relocate the threatened portion of the waterway inland. Effectively this would remove the waterway from the threat of being breached for a number of years.

Two routes have been evaluated without benefit of field surveys. Route #1 consists of a relatively direct route paralleling the existing alignment approximately 6,000 feet inland. Route #2 extends further inland, up to 14,000 feet, avoiding more wetland areas and possibly more development located along lower Caney Creek. Both options would entail provisions to provide access to the south side of the realigned GIWW routes. A fixed span, high-level bridge was assumed to be a feature of both options.

Pertinent Features Of Route #1:

1. 6,000 feet inland, parallel to existing channel
2. 50,000 feet of new channel (9.5 miles)
3. Shortens existing route by approximately 5,000 feet
4. Several residences will probably require relocation
5. Upland disposal sites assumed
6. 350 acres of additional R.O.W. required
7. Approximately 6 million cubic yards of material to be removed
8. Significant portion of alignment through wetlands and would require mitigation

Pertinent Features Of Route #2:

1. 14,000 feet inland
2. Avoids most of lower Caney Creek development
3. 66,000 feet of new channel (12.5 miles)
4. Lengthens route by approximately 11,000 feet
5. A few residences will probably require relocation
6. Upland disposal sites assumed
7. 450 acres of additional R.O.W. required
8. Approximately 8 million cubic yards of material to be removed
9. More acres of grazing lands severed (substantially more than Route #1)
10. Some mitigation would be required

TABLE 2. COST COMPARISON BETWEEN ROUTES #1 AND #2

Route #1					
Item	Quantity	Unit	Unit Price	Amount	State Participation
Excavation	6 mil.	CY	\$1.50	\$ 9,000,000	-----
Rights-of-Way	350	Ac	2,000	700,000	\$700,000
High Level Bridge	1	Ea	L.S.	4,500,000	4,500,000
Relocation Residences	30	Ea	10,000	300,000	300,000
Disposal Area*	400	Ac	2,000	800,000	800,000
Mitigation Lands	200	Ac	2,000	400,000	400,000
Subtotal				\$15,700,000	\$6,700,000
25% Contingency				3,300,000	1,750,000
			TOTAL	\$19,000,000	\$8,450,000

Route #2					
Item	Quantity	Unit	Unit Price	Amount	State Participation
Excavation	8 mil.	CY	\$1.50	\$12,000,000	-----
Rights-of-Way	450	Ac	2,000	900,000	\$900,000
High Level Bridge	1	Ea	L.S.	4,500,000	4,500,000
Relocation Residences	5	Ea	10,000	50,000	50,000
Disposal Area*	500	Ac	2,000	1,000,000	1,000,000
Mitigation Lands	100	Ac	2,000	400,000	400,000
Subtotal				\$18,850,000	\$6,850,000
25% Contingency				4,650,000	1,712,500
			TOTAL	\$23,500,000	\$8,562,500

* Disposal Areas at 10 feet of fill = 16,133 CY/Ac

The following table compares the various options to maintain the GIWW through the Sargent Beach area.

TABLE 3. COMPARISON OF PLANS

Protect Existing Alignment of GIWW	
Method	Cost
Riprap with cover stone	\$22,500,000
Seawall	50,000,000
Steel sheetpile wall	29,000,000
Pre-Stressed Concrete Sheetpile Wall	21,000,000
Breakwaters	25,000,000 (would require nourishment)
Groinfield	17,000,000 (would require nourishment)
Beach Nourishment	4,000,000
Combination Breakwater and Nourishment	29,000,000
Combination Groinfield and Nourishment	21,000,000
Relocation GIWW Inland	
Method	Cost
Route #1 - 6,000 feet inland	19,000,000
Route #2 - 14,000 feet inland	23,500,000

STUDY OPTIONS BY CORPS OF ENGINEERS

Options for addressing a problem can fall under several categories. The standard study, requested by the local sponsor to investigate a problem, begins with a one-year reconnaissance study. Should this prove the need, a full feasibility report will then be initiated for an indepth investigation of the problem and may take as much as three

years. Should the study prove the project to be feasible and cost effective, the project is then presented to Congress for approval and funding. With funding construction can then begin. Cost for this type of study is usually paid for by the sponsor.

Another option would be through the review of completed projects provision of Section 216 of the 1970 Flood Control Act. This approach would give more flexibility in addressing the question of continued operation of the GIWW and also has the advantage of not requiring local sponsorship as all funding would be federal. However, initiation of this option is contingent upon the budgetary process, the same for general planning authorities. It must also go through the same process as for other planning studies which has proven to be quite lengthy, notwithstanding unsuccessful attempts in the past to speed the process up. This study falls under this option.

Another option would be to evaluate alternative solutions thorough the Operation and Maintenance program under the title of Major Rehabilitation. This would at least allow an immediate analysis of the problem and the investigation of potential solutions. The Corps would then be in a position to make definitive statements regarding the solution and to develop a course of action leading to resolution of the problem. Information generated from this analysis would be easily incorporated into other efforts should funding under other programs be obtained. Funding could be by the federal Waterway Trust Fund and federal general revenue. This is subject to definition for use of the Waterway Trust Fund monies.

Should a hurricane or tropical storm strike in the area and adversely affect navigation through shoaling or possibly a breach of

the waterway, federal emergency funds would be used to open the GIWW to traffic as soon as possible after the storm. If a breach should occur, it could possibly heal itself in a short time. However, if it doesn't the Corps would close the breach and stabilize it with rock or rubble fill and then address a more permanent solution.

REQUIREMENTS OF THE STATE

The federal act authorizing a navigation project specifically defines the local sponsor's responsibilities for that project. Any change in a channel, whether by location, alignment, or channel dimensions, requires a new federal authorization and thus would reopen the definition of the local sponsor's responsibilities.

The local sponsor is usually required to furnish all rights-of-way required for construction and maintenance of the project and aids to navigation. In addition, the sponsor is responsible for construction and maintenance of all bridges over the waterway, and the alteration of all pipelines, cables, and other utilities necessary for the project.

It is also possible that the sponsor could be required to provide and maintain all necessary retaining dikes, bulkheads, and embankments required for the disposal of dredged materials. But normally this is provided by the Corps of Engineers.

Whatever the changes may be in a new federal authorizing act regarding the definition of sponsorship requirements, the State must be prepared to accept these conditions of sponsorship for the new project.

In the option of realigning the waterway, the State would be liable, at a minimum, for the costs listed in Table Two. For any of

the protection options, the State would be responsible for right-of-way costs only.

TIMETABLE

The proposed study will follow the standard procedure with regards to a timetable. The money requested for the reconnaissance level (\$350,000 total) is for a one-year period (1989). The following feasibility level study, if requested, will be for a three-year limit period (1992). Then the Corps reserves one year for review (1993) before the request for authorization and funding will be submitted to Congress (1994). Therefore, with advance preparation for submission to Congress, the earliest a project can be authorized and funded would be in six years (1994), more likely seven years (1995). Probably two years would lapse before contracts could be awarded and another for purchase of rights-of-way. It is reasonable to assume that the State would not have to appropriate any money before the 74th legislative session for the 1996-1997 biennium should the realignment option for protection of the waterway at Sargent Beach be chosen.

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CHAPTER FOUR

LEGISLATIVE RECOMMENDATIONS

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LEGISLATIVE RECOMMENDATIONS

To be effective in performing an assigned task, a continuity of action should be established. Planning is the basis of any effective undertaking and that can only be built on a foundation of backing from the parent organization. To be truly effective as the nonfederal sponsor for the Gulf Intracoastal Waterway will require a continuing flow of legislative and monetary support from the State Legislature. This report shows the effort the State Highway and Public Transportation Commission has put forth to serve as sponsor agent for the State.

The allocation of \$1,000,000 budgeted by the 70th Legislative Session will secure most of the 1,130 acres of critically needed disposal sites that the State Highway and Public Transportation Commission has authorized for purchase. The acquisition of these acres is only the first step in a planning process that will ultimately lead to the most economical and beneficial method of assuring the continuation of so vital a part in the state transportation system.

Past inactivity, due to lack of funding, has lead to a backlog of over 3,000 acres of disposal sites needed in areas where disposal capacity has become critical or where damaging environmental concerns are a threat to the welfare of the coastal systems.

Meeting the requirements set forth in the Texas Coastal Waterway Act has been a lengthy task even though the areas to be purchased were well established before the appropriations had been approved. As with any "first time action" unforeseen delays have slowed the final purchases. At printing time for this report, the acquisition process had progressed to the stage where appraisals have been made and the landowners are being

approached with offers to purchase their land. Although the preferred type of acquisition is to purchase in fee simple, the options of donation or lease are still open for negotiation. It is foreseen that some acquisitions will have to be carried to condemnation. This will cause more delay and must be backed up with adequate money set aside for the final purchase price.

Acquisition of land in the coastal areas is different than the buying of land inland for a highway. A highway is planned from point A to point B in the most safe and economical manner possible. Purchase of a plot of land out of miles of undeveloped land often leads to the landowner asking, "Why my land and not the land over there, or why not do this or that?..." The landowner often does not respond to the explanation that this plot of land meets the criteria of being environmentally non-sensitive, within a limited economical pumping distance from the waterway, contoured as to be useful without extensive earthwork, and easily accessible by the contractor, and presenting an easy return water flow to the waterway.

Chapter three, "A New/Old Threat To The Waterway," presents the imminent breach of the waterway at Sargent, Texas. This is a foreknown fact that the Corps of Engineers is addressing in the mentioned study. This most certainly will lead to State involvement requiring extensive funding if it is determined that relocation of the channel is the best method to pursue, or if one of the protection measures is employed. Another area, not previously mentioned, where relocation may be the best alternative is in the Aransas National Wildlife Refuge where erosion of the channel is eating away at Whooping Crane habitat. Again, State expenditure will be involved.

In summation, a well-planned program to perform the duties of the nonfederal sponsor for the waterway has been set into motion. To maintain that momentum, it is requested that the following recommendations be implemented by the Legislature:

- ° Continue to recognize and promote the Gulf Intracoastal Waterway as a valuable part of the State's multi-modal transportation system.
- ° Continue to accept the nonfederal sponsorship for the Gulf Intracoastal Waterway.
- ° Support and maintain funding for nonfederal sponsorship duties as recommended in the State Department of Highways and Public Transportation budget request for the Gulf Intracoastal Waterway.
- ° Consider methods of financing additional expenses for relocation of the waterway in certain areas, possibly as soon as the 74th Legislative Session.

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