TEXAS TRANSPORTATION COMMISSION

ALL Counties

MINUTE ORDER

ALL Districts

Transportation Code, Chapter 51 (Texas Coastal Waterway Act), designates the state to act as the nonfederal sponsor of the main channel of the Gulf Intracoastal Waterway (GIWW) from the Sabine River to the Brownsville Ship Channel.

Transportation Code, Section 51.007 requires the Texas Transportation Commission (commission) to continually evaluate the impact of the GIWW on the state and prepare a report for each regular session of the Texas Legislature. The evaluation shall include:

(1) an assessment of the importance of the GIWW that includes identification of its direct and indirect beneficiaries;
(2) identification of principal problems and possible solutions to those problems that includes estimated costs, economic benefits and environmental effects;
(3) an evaluation of the need for significant modifications to the GIWW; and
(4) specific recommendations for legislative action that the commission believes are in the best interest of the state in carrying out the state's duties under this chapter.

The report of the evaluation shall be published and presented to each regular session of the Texas Legislature.

The Texas Department of Transportation has completed the evaluation and developed the report for the period of Fiscal Years 2005-2006.

IT IS THEREFORE ORDERED that the 2005-2006 Gulf Intracoastal Waterway Report, as shown in Exhibit A, is accepted by the commission and should be presented to the members of the 80th Texas Legislature.

Submitted and reviewed by:

James R. Randall

Director, Transportation Planning and Programming Division

Recommended by:

M. W. Behrens

Executive Director

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Minute Number — Date Passed

TEXAS DEPARTMENT OF TRANSPORTATION

Gulf Intracoastal Waterway

2005-2006 Legislative Report

Texas Department of Transportation
Dewitt C. Greer State Highway Bldg. • 125 E. 11th Street • Austin, Texas 78701-2483 • (512) 463-8585

DRAFT

Governor Rick Perry

Lieutenant Governor David Dewhurst

Speaker of the House of Representatives Tom Craddick

Members of the 80th Legislature

Prior to 1975, the need existed for a single, nonfederal sponsor of the Gulf Intracoastal Waterway (GIWW) in Texas. To fulfill that need, the 64th Texas Legislature passed the 1975 Texas Coastal Waterway Act, now codified as Transportation Code, Chapter 51. In this Act, the legislature appointed the State Highway and Public Transportation Commission, now the Texas Transportation Commission (commission), to act as the state's agent in fulfilling the non-federal sponsorship of the GIWW in Texas.

Through this Act, the legislature also required the commission to continually evaluate the GIWW as it relates 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 mandated evaluation has been conducted and a report prepared. The report reflects the commission's focus on using and maintaining existing transportation corridors of the state. It is essential that state leaders understand the importance of transportation corridors, such as the waterway, when addressing congestion, air pollution, safety, assets valuations, and economic development opportunities associated with an efficient and effective multimodal transportation network.

The 2005-2006 GIWW Legislative Report is hereby submitted to the 80th Texas Legislature in accordance with Transportation Code, Section 51.007.

Sincerely,

M. W. Behrens

Michael W. Behrens, P. E.
Executive Director

Gulf Intracoastal Waterway in Texas

Figure 1 - Texas GIWW

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Executive Summary

The Texas Department of Transportation (TxDOT) has a vision to deliver a 21st century multi-modal transportation system that will enhance the quality of life for Texas citizens and increase the competitive position for Texas industry by implementing innovative and effective transportation programs.

Our mission is to provide safe, efficient and effective means for the movement of people and goods throughout the state, facilitating trade and economic opportunity by : [1]

- **Reducing Congestion**
- **Enhancing Safety**
- **Improving Air Quality**
- **Expanding Economic Opportunity**
- **Increasing the Value of Texas Transportation Assets**

To carry out the agency mission, four fundamental strategies will be employed:

- **We will use all available financial tools to build transportation projects.**
- **We will empower local and regional leaders to solve local and regional transportation problems.**
- **We will increase competitive pressure to drive down the cost of transportation projects.**
- **We will demand consumer-driven decisions that respond to traditional market forces.**

This report, the sixteenth in the series as required by the Transportation Code, is submitted on behalf of the Texas Transportation Commission (commission) to the Eightieth Texas Legislature, summarizing the state's sponsorship efforts to maintain the Gulf Intracoastal Waterway (GIWW) in Texas. The GIWW is an important transportation asset of the state. Cargo carried on the GIWW reduces congestion on the highway and rail systems, decreasing maintenance costs and extending the life of these systems. Water transportation is the lowest cost transportation option, providing significant saving to businesses and consumers. Environmentally, water transportation has historically been the safest mode of transportation with the fewest number of hazardous spills when compared to other modes of transportation. Water transportation is also the most fuel efficient mode of transportation, producing the smallest amount of air pollutants per ton of cargo carried.

The Texas portion of the GIWW (Figure 1) is over 50 years old and presents a significant challenge to the state to maintain and optimize the benefits of this transportation system. The GIWW has some unique transportation advantages, and it is essential that it be recognized as an important component of an effective and safe multimodal transportation system.

The entire GIWW is a 1,300-mile-long, man-made canal that runs along the Gulf of Mexico coastline from Texas' southernmost tip at Brownsville to St. Marks, Florida (Figure 2). The canal links all of the Gulf Coast ports and enables these ports to access the inland waterway system of the United States.

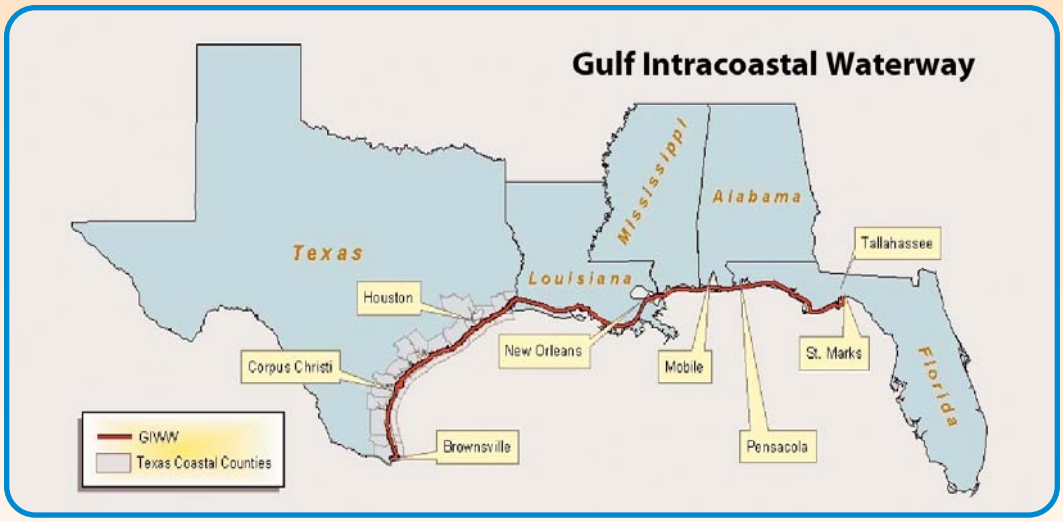

Figure 2 - 1,300 Mile GIWW

The GIWW is the nation's third busiest waterway with the Texas portion handling over 58 percent of its traffic. In Texas, the GIWW is 423 miles long. In 2004, over 72 million short tons of cargo were moved on the Texas portion of the waterway with a commercial value of over 25 billion dollars. In combination with ports, Texas ranked first in the nation for 2004 in total waterborne tonnage moved in the United States. [2]

There are numerous issues concerning the continued use of the GIWW. Shoreline development along the GIWW and recreational boaters create conflicts with commercial navigation. It is becoming difficult to maintain existing and to find new locations for the placement of dredged material. Federal budget issues have also impacted funding of operation and maintenance activities. The Corps of Engineers is not able to maintain the GIWW at optimum levels and commercial navigation is not able to fully load vessels. During the last few years barges have had high incidents of grounding and the Coast Guard has needed to impose restrictions on use of the GIWW and other navigation channels in problem areas.

The GIWW is an essential component of the state's and nation's transportation network and is an integral part of the Governor's priority goal, "provide for all of Texas transportation needs for the new century." [3] To support the state's nonfederal sponsorship of the GIWW in Texas and facilitate planning, maintenance, preservation, research, and improvement of the waterway, the state should continue to recognize and promote the Gulf Intracoastal Waterway as an integral and valuable part of the state's multimodal transportation system. This can be accomplished by providing the financial resources necessary to support nonfederal responsibilities such as the acquisition of disposal areas and cost-sharing in beneficial use of dredged material projects.

History

The development of the Gulf Intracoastal Waterway (GIWW) required the concerted efforts of federal, state, and local interests. Over 150 years ago, planning associated with this project began and continues today.

Development History

In 1850, five years after Texas was admitted to the Union, coastal business interests began to connect portions of the state's coastline by dredging links between the natural bays, lakes, rivers, and bayous. In 1854, the Galveston and Brazos Canal connected West Galveston Bay to the Brazos River. This canal ranged in depth from three to six feet and was the first navigable link to be constructed on the Texas coast.

In 1873, the federal government passed the Rivers and Harbors Act of 1873. This act appropriated funds for a survey to "connect the inland waters along the margin of the Gulf of Mexico from Donaldson, Louisiana to the Rio Grande River in Texas by cuts and canals." This act was the start of the development of the Intracoastal Waterway. A series of congressional acts passed between 1925 and 1942 allowed for continued expansion of the waterway. By 1941, the GIWW in Texas extended from the Sabine River to Corpus Christi with a bottom width of 100 feet and a depth of nine feet. Legislation passed in 1942 extended the canal to Brownsville and changed its dimensions to 125 feet by 12 feet deep. Construction was completed in 1949. Figure 3 depicts a timeline of the Texas GIWW history.

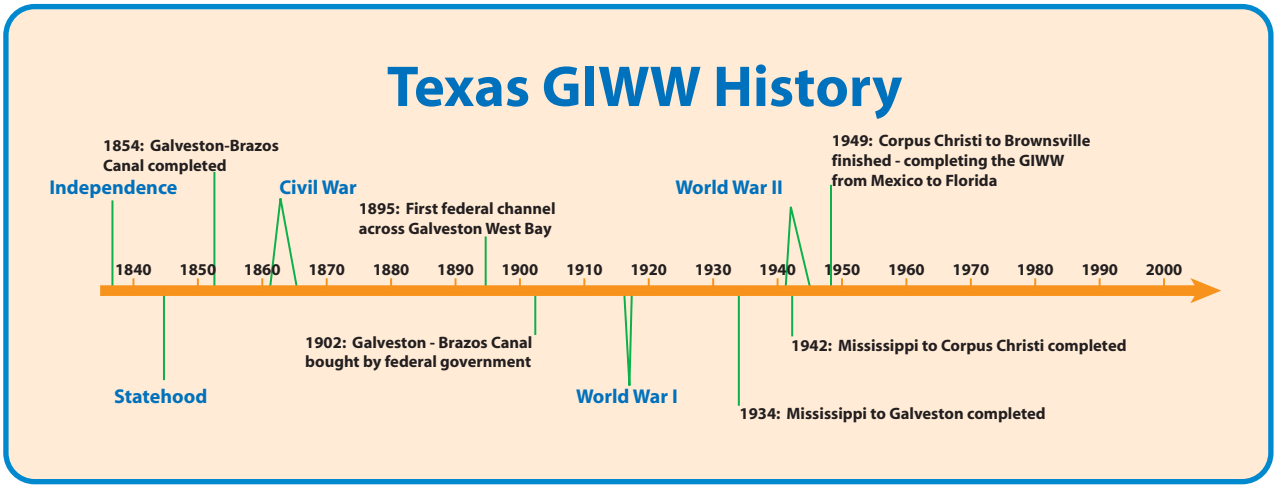

Figure 3 - Timeline

CHAPTER 2

Benefits and Concerns

One of the initial functions of the GIWW was to provide protected inland transportation of goods and troops during World War II. It has since evolved into a multipurpose waterway used by recreational and commercial interests. Recreational uses include fishing, skiing, sightseeing, and protected water transportation routes for travelers along the coast. Commercial uses include the movement of domestic and international cargo, harvesting of fish and shellfish, and servicing of the gulf and coastal oil and gas industry.

Direct and Indirect Benefits

The GIWW provides some important direct and indirect benefits to the state, such as:

1

In 2004, the GIWW facilitated commercial and sport fishing entities to catch an estimated 16.7 million pounds of shrimp, oysters, crabs and finfish within Texas bay systems amounting to a wholesaler's value of $27.1 million.[4]

2

In 2004, 72.26 million short tons (one short ton equals 2,000 pounds) of goods were moved on the Texas GIWW. The estimated value of these goods was over $25 billion. This was accomplished by approximately 116,243 barge one-way trips.[5]

3

Barge transportation is an efficient, economical and environmentally friendly mode of transportation. The movement of goods by barge requires less fuel and produces fewer air emissions that similar movements of goods by truck or rail.[6]

4

The movement of goods by barge is a safe mode of transportation. In 2005, according to the Office of Hazardous Materials Safety, the total number of documented hazardous spills in Texas was 65 by air, 1224 by highway, 81 by railway, and five by water transportation.[7]

5

Barge transportation reduces congestion to the transportation system. The capacity of one barge is equivalent to 15 railcars or 60 trucks.

Operational Concerns

The waterway, in its current form, is over 50 years old. During the past 50 years, the size of individual barges and towboats, the width and length of barges lashed

together and pushed as a unit, and the volume of traffic have steadily increased. These factors have led many to believe that the 1949 dimensions of the GIWW and its associated structures do not adequately support the state of barge transportation today. The Brazos River Floodgates and the Colorado River Locks are, for example, two lock type structures on the waterway that may need to be removed or modified.[8] The structures are only 75 feet wide. To move through the structures, vessel operators must park their tows, break the barges apart, move them through the locks in smaller sets or individually, and then put them back together on the other side. This process, known as tripping, is difficult and causes delays estimated to cost over two million dollars a year to the towing industry at each location. In addition, a serious safety hazard has arisen at the Brazos River Floodgates. Currents within the waterway have increased in recent years. Many believe the reason for this increase is the sedimentation of the mouth of the San Bernard River. Runoff from the San Bernard River flows into the waterway versus the Gulf of Mexico. Barges trying to enter the GIWW via the western flood gates of the Brazos River are being pushed under the water by this current. Figure 4 depicts this hazard.[9] TxDOT, waterway users, and the Corps are researching this problem but limited funding has delayed any progress on addressing the issue.

Figure 4 - Brazos River Floodgates Hazardous Condition

The area in West Galveston Bay, where the GIWW passes beneath the dual Interstate Highway 45 bridges and the Galveston Island Railroad Bridge (Figure 5), is also a major problem. The opening for barge traffic through these structures is only 120 feet wide for a distance of about 800 feet. Repairs to damages to the fender systems of these structures cost TxDOT an estimated half million dollars each year, and the towing industry has identified this spot as the greatest hazard to navigation on the entire 1,300 miles of the GIWW. TxDOT is currently building replacement highway bridges which will have a 300 feet opening for navigation interests. These replacement bridges have a 2008 estimated completion date. The Coast Guard and local legislators are working on replacing the railroad bridge under the authority of the Truman-Hobbs Act, but only partial construction funding has been secured at this time.

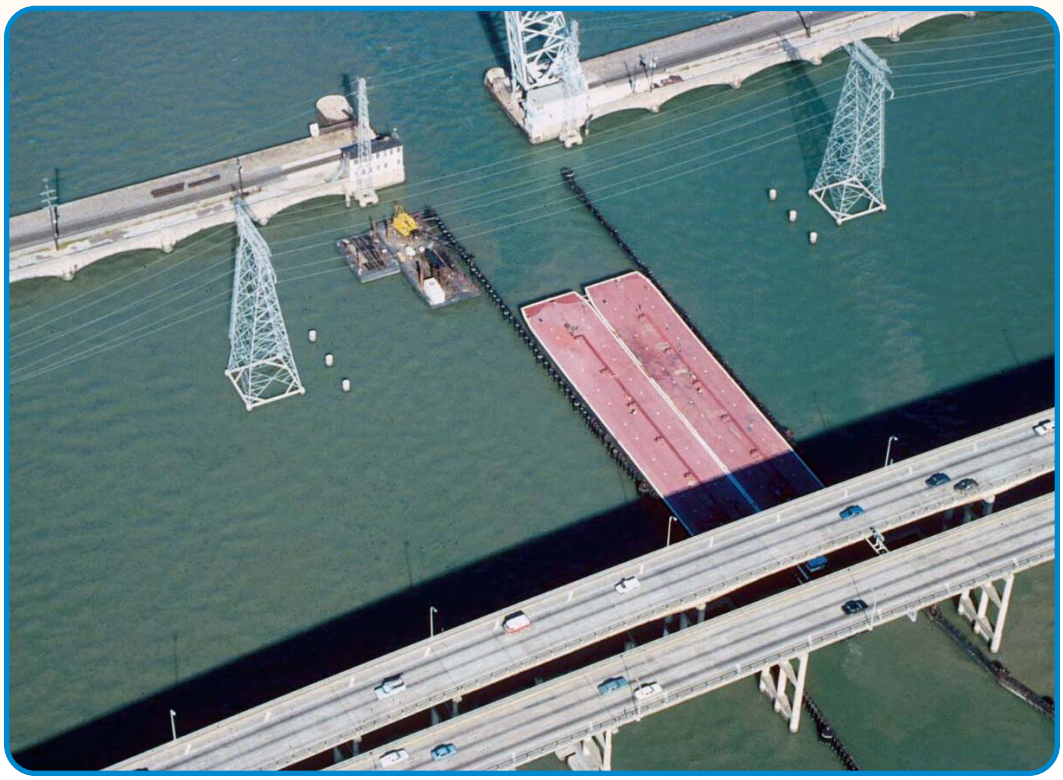

Figure 5 - Galveston Causeway

Recent Activities

During the last biennium, TxDOT has participated in various activities to support the waterway. Federal and state studies and research projects were initiated, maintenance dredging projects were performed, dredged material disposal property issues were addressed, and a national estuary research reserve was created.

Studies and Research

The Corps, under the authority of the Flood Control Act of 1970, has initiated various Section 216 Studies. These studies look at specific water resources projects that may have changed because of physical or economic reasons. TxDOT acts as the non-federal sponsor for the studies involving the GIWW in Texas.

For the Texas portion of the GIWW, the waterway was divided into five separate Section 216 study areas. These areas have been further divided into six studies to focus on complex or unique problems. Figure 6 illustrates the Section 216 Studies in Texas.

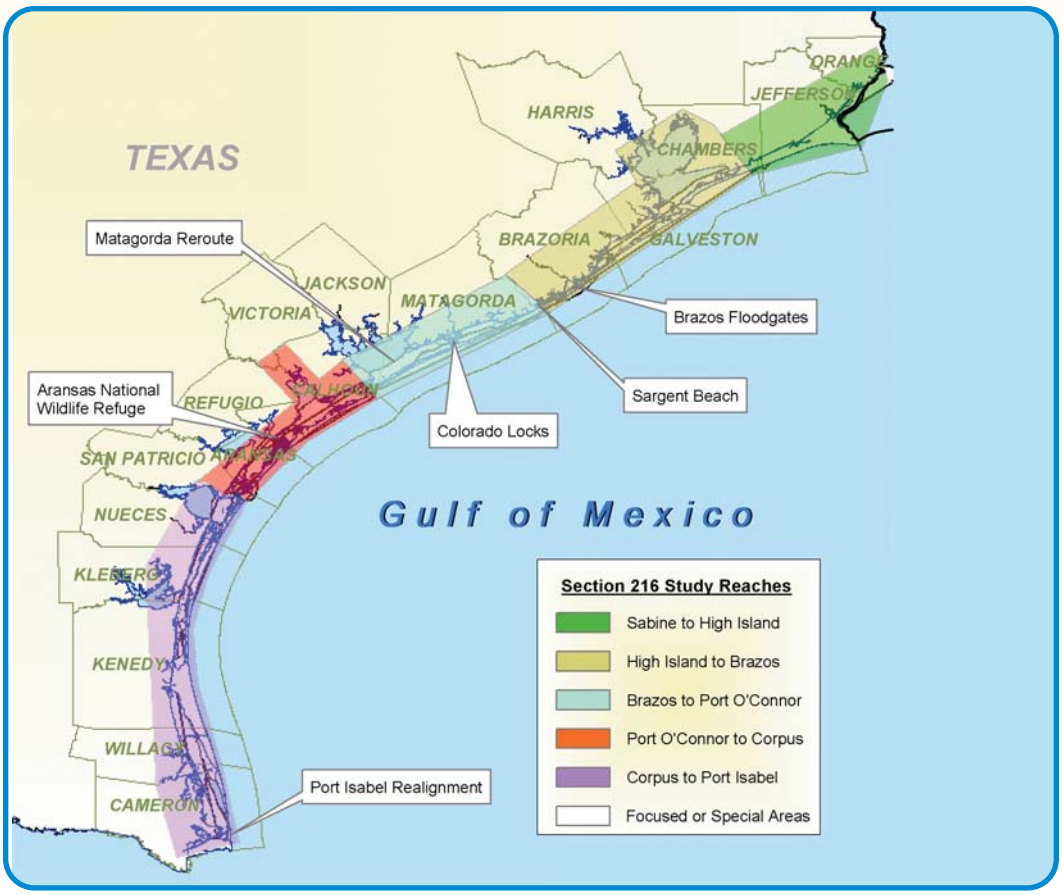

Figure 6 - Section 216 Study Areas

Chapter 3 Recent Activities

Currently, there are seven active Section 216 studies. The effort to complete these studies is estimated at $29.2 million of which $18.8 million in additional funding is needed. In FY2005, three of these studies were funded, receiving a total of $1.04 million in federal funding. In FY2006, five of these studies were funded, receiving a total $1.16 million in federal funding.

In addition to the federal Section 216 Studies, TxDOT has initiated marine transportation-related studies. Several of these marine transportation-related studies were conducted through TxDOT's research program. This program, plus interagency agreements, allowed TxDOT to participate in studies that address various needs of the GIWW. Research studies funded by TxDOT are shown in Table 1-1.

TxDOT Sponsored Research
Table 1-1

PROGRAM	STUDY	RESEARCHER(S)
State Planning Research	Value of Texas Seaports in an Environment of Increasing Global Trade (on-going)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute
State Planning Research	Planning for Container Growth along the Houston Ship Channel and other Texas Seaports: An Analysis of Corridor Improvement initiatives for Intermodal Cargo (completed)	University of Texas, Center for Transportation Research
State Planning Research	Develop Emissions, Truck Trips and Railcars Estimation Methodology for Major Texas Ports (on-going)	Texas Southern University
State Planning Research	Containerized Freight Movement in Texas (completed)	University of Texas, Center for Transportation Research
State Planning Research	Landside Access Needs for Port and Waterway Facilities in Texas (completed)	University of Texas, Center for Transportation Research
State Planning Research	Development of a Comprehensive Urban Commodity/Freight Movement Model for Texas (on-going)	Texas A&M University, Texas Transportation Institute
State Planning Research	Short Sea Shipping Initiatives and the Impacts of the Texas Transportation System (ongoing)	University of Texas, Center for Transportation Research and Texas A&M University, Texas Transportation Institute

Chapter 3 Recent Activities

Dredged Material Disposal Property Issues

For Fiscal years (FY) 2005 and 2006, TxDOT was appropriated $1.35 million dollars for acquiring dredged material disposal sites. During this period, TxDOT was involved in litigation with two property owners. In Galveston County, TxDOT acquired via condemnation, 220 acres at a cost of $727,000 on the Bolivar Peninsula to provide GIWW disposal property at the request of the Corps of Engineers. Both TxDOT and the former property owner are contesting the value awarded by the Condemnation Court. This case is scheduled to be heard in Galveston County Court in late 2006. In Aransas County, an adjacent property owner contested the property survey associated with the purchase of 89 acres by TxDOT in 1992. The adjacent owner claimed ownership to approximately seven acres of TxDOT property. TxDOT and the Attorney General Office investigated the claim. On June 23, 2006 these claims were denied.

The Laguna Madre Dredged Material Management Plan and Final Environmental Impact Statement were completed in September 2003. A Record of Decision (ROD) was issued by the Corps in April 2004. Concerns with the ROD by the National Parks Service are still being addressed. The GIWW passes through the Padre Island National Seashore and the National Parks Service still questions some aspects of the management plan for dredged material within the park boundaries.

Maintenance Dredging Activities

During 2005, approximately $23,960,000 in federal funds was expended by the Corps in 100 percent federally contracted and funded projects to operate and maintain the structures and navigability of the Texas GIWW. Approximately 5,520,000 cubic yards of sediment were dredged in six separate projects. Of this material, approximately 3,220,000 cubic yards were placed in confined placement sites, 1,490,000 cubic yards were placed in open-bay sites, and 810,000 cubic yards were used beneficially.[10] Figure 7 depicts the relative volumes that were removed and the location along the waterway.

During 2006, approximately $26,538,000 in federal funds was expended by the Corps in 100 percent federally contracted and funded projects to operate and maintain the structures and navigability of the Texas GIWW. Approximately 4,112,000 cubic yards of sediment were dredged in five separate projects. Of this material, approximately 3,001,000 cubic yards were placed in confined placement sites, 681,000 cubic yards were placed in open-bay sites, and 430,000 cubic yards were used beneficially.[10] Figure 7 depicts the relative volumes that were dredged and their relative location along the waterway.

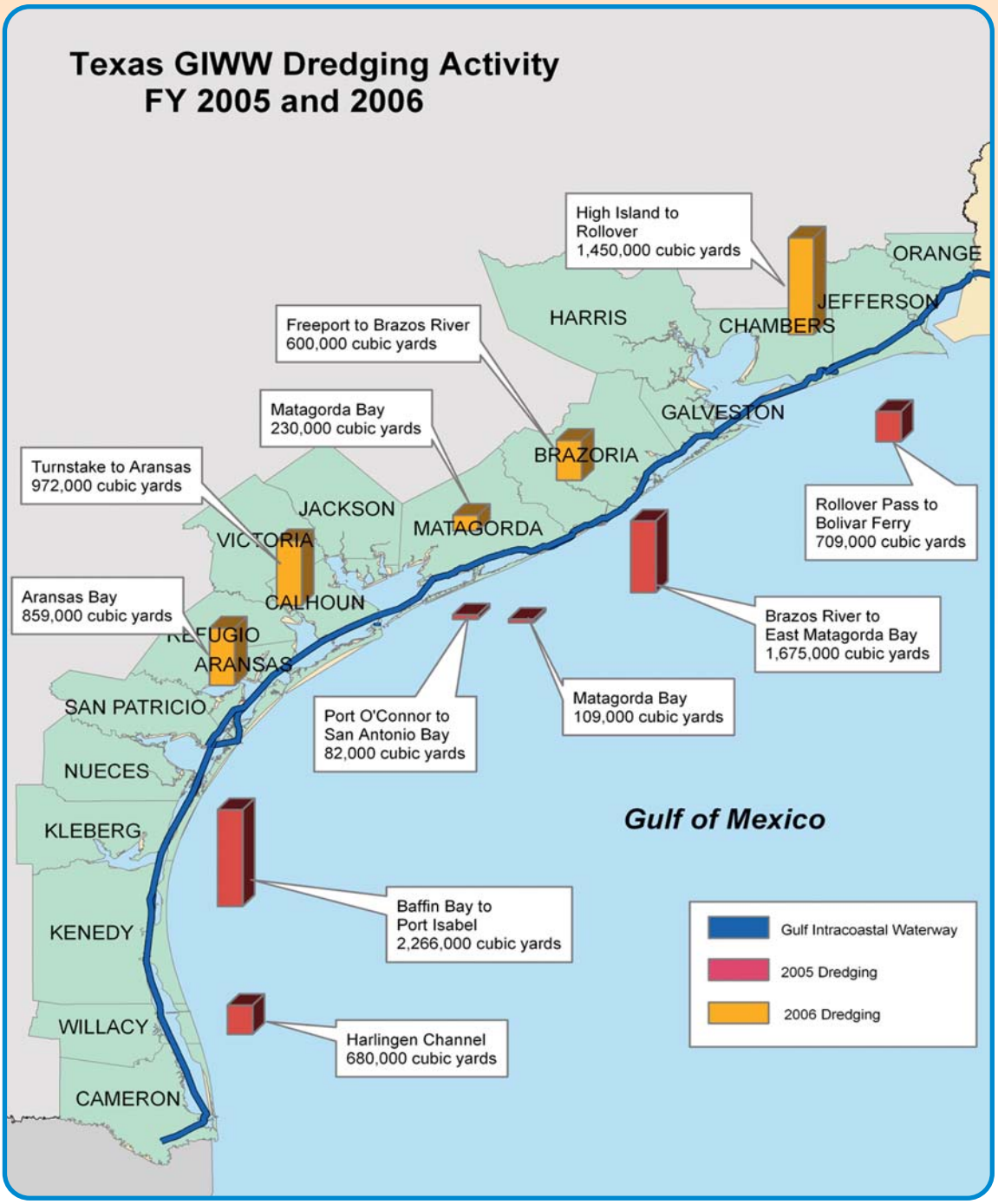

Figure 7 - FY 2005 and 2006 Dredging

Maintenance Dredging Activities (Cont.)

During FY 2005, TxDOT contributed $43,200 in state funds towards two GIWW beneficial use of dredged material projects to create 42 acres of emergent and marshland habitat from 210,000 cubic yards of dredged material in Aransas and Calhoun counties. These projects should be fully completed by 2008. Figure 8 illustrates how a typical habitat creation beneficial use project works.

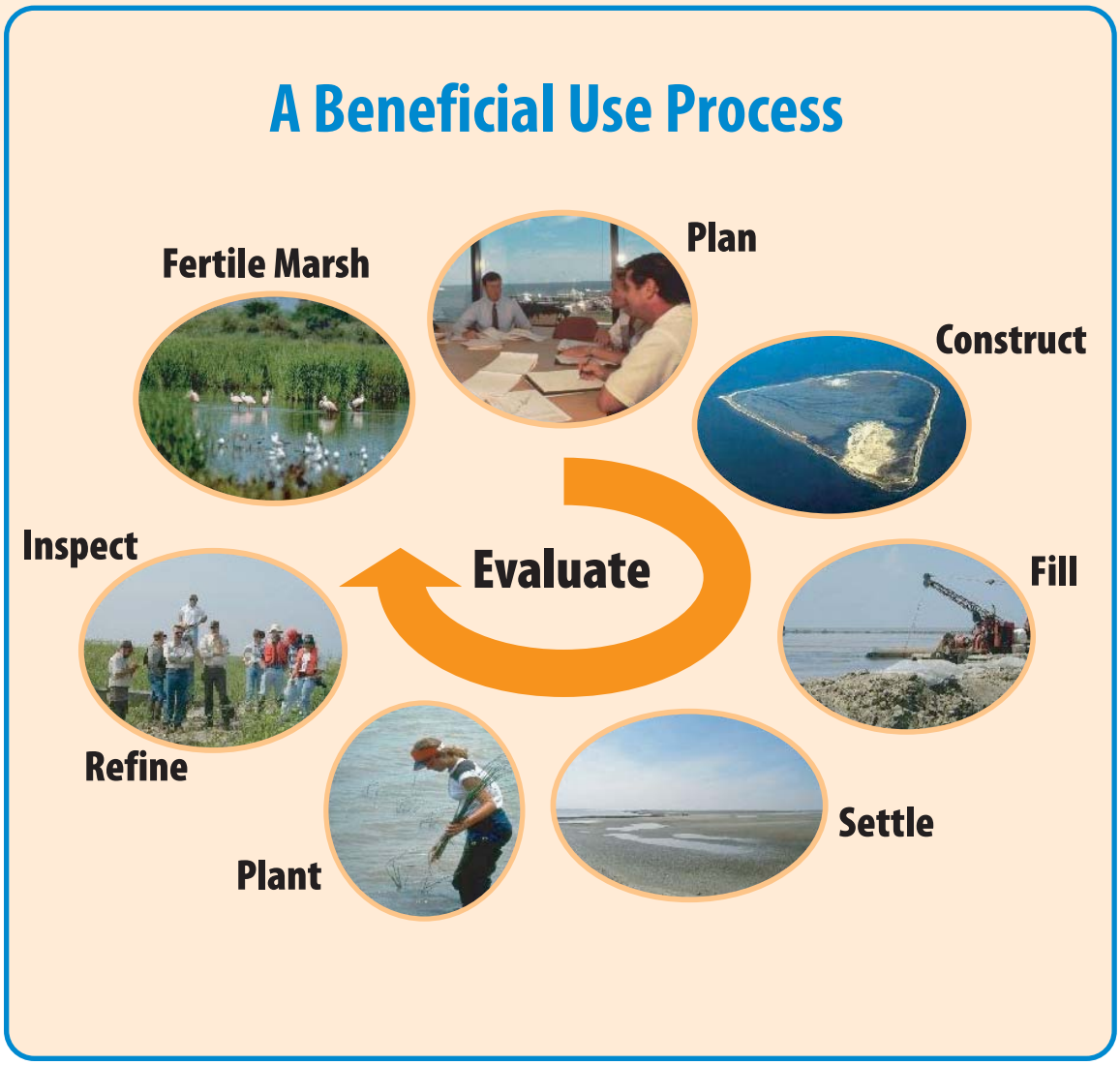

Figure 8 - Habitat Creation

Mission-Aransas National Estuarine Research Reserve

On May 3, 2006, the Under Secretary of Commerce for Oceans and Atmosphere signed a record of decision and a findings of designation for the Mission-Aransas National Estuarine Research Reserve in Texas. This is the 27th research reserve established in the country and the first reserve established in Western Gulf of Mexico biographic region. The lead agency in Texas for managing the reserve is The University of Texas Marine Science Institute. (UTMSI)

The reserve as depicted in Figure 9 is approximately 180,000 acres in size and encompasses state submerged land in the Mission-Aransas Estuary, the Aransas and Matagorda Island National Wildlife Refuges, several small conservation areas, and the UTMSI campus.[11] The GIWW and various transportation projects located in this area were excluded from the reserve to eliminate any potential conflicts between existing transportation infrastructure and the reserve. An eleven member Advisory Board of which TxDOT is a member has been setup to assist UTMSI in the management and development of the reserve.

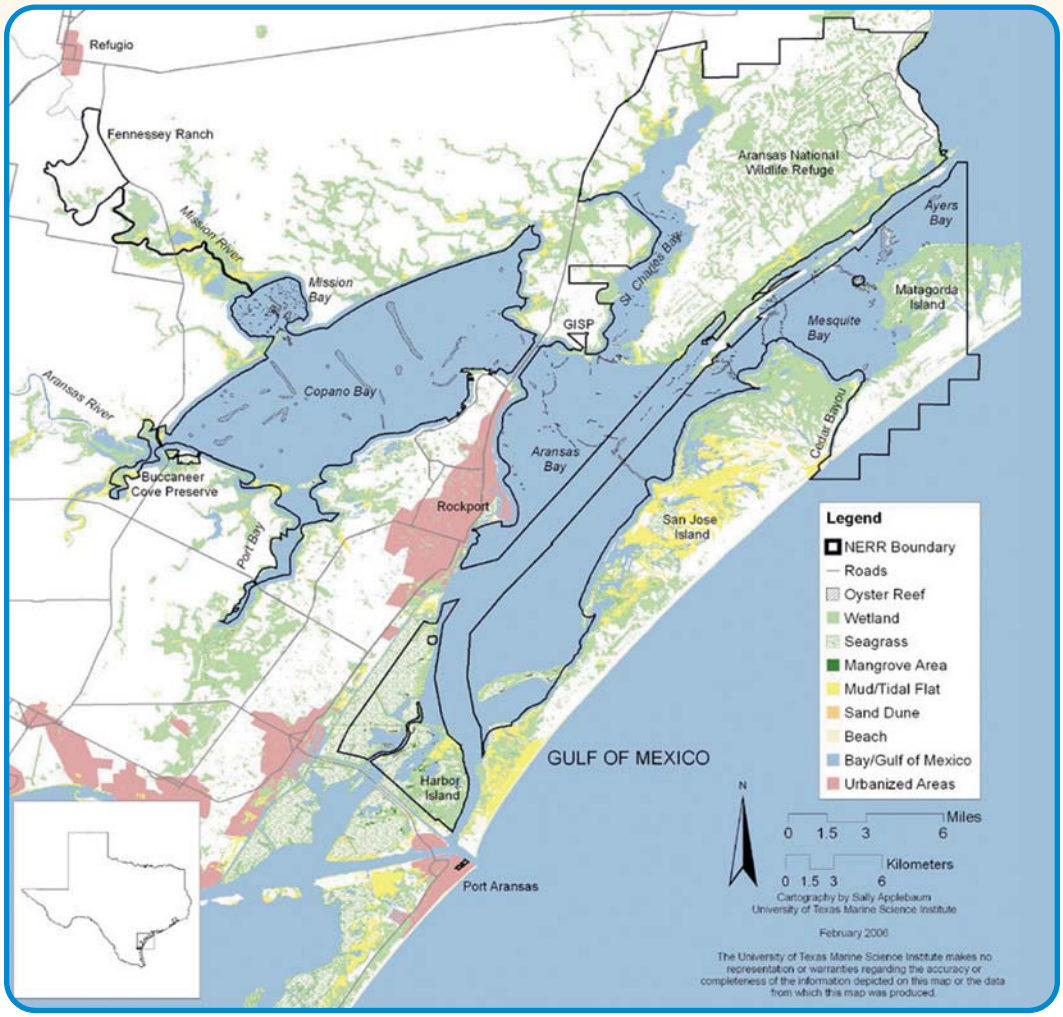

Figure 9 - Mission-Aransas National Estuarine Research Reserve

CHAPTER 4

Legislative Issues of Concern

There are various items of possible legislative concern related to future operations of the GIWW. As previously mentioned, the bridges to Galveston Island continue to pose a navigational hazard to commercial navigation. While TxDOT is currently replacing the highway bridges with new bridges that will have at least a 300-foot navigation opening, the replacement of the Galveston Railroad Bridge has not begun. This location on the GIWW will continue to be a navigational hazard until all of the bridges are replaced.

Funding levels are another area of concern. The Corps has not received adequate operations and maintenance funding to maintain the waterway as designed. As conditions deteriorate between dredging events, the Coast Guard has been forced to impose channel restrictions on the transportation industry. Drafts of barges have been restricted causing transportation costs to increase. It is estimated that for every ton left behind due to draft restrictions, there is an increase in transportation costs of at least $0.03/ton mile. With over 31 billion ton miles traveled on the GIWW in 2004, these costs quickly accumulate. Continued degradation of the state's water transportation infrastructure and associated increases in transportation costs pose a real threat to the viability of the state's extensive chemical and petro-chemical industries.

An increasing population in Texas has resulted in increased shoreline development along navigable waterways. Marinas, residential developments, docks, piers, and other shoreline modifications are occurring throughout the state. As more and more projects are developed, safety issues are developing for navigation interests. Navigation channels are becoming restricted and congested. TxDOT has discussed this issue with the councils of the Texas Coastal Management Program. Their recommendation was to address these concerns during the comment period on Corps of Engineers permit requests. TxDOT has since increased its role in reviewing permits for navigation safety issues.

Finally, TxDOT was designated as the non-federal sponsor of the GIWW in the 1975 Texas Coastal Waterway Act. In 1983, Texas and the Federal Government signed a Sponsorship Resolution detailing the non-federal sponsor's duties. One of the primary duties of the non-federal sponsor is the provision of all rights of way and necessary disposal areas for maintenance and operation of the GIWW. While there are over 200 designated disposal areas along the GIWW in Texas, TxDOT has only been required by the Corps to acquire and provide 15 parcels of property totaling just over 2,200 acres. The remaining parcels have been provided by landowners to the federal government directly for use as disposal facilities by various real estate instruments including revocable easements. In recent years there has been a dramatic increase in coastal developments and dredge site easements have been revoked. As a result, the landowners have chosen to sell their land to developers who subdivide the land to create housing or business developments. Few alternatives remain on the coast for dredged material, and as such, TxDOT must acquire some of this developable property, which costs much more than if it had remained an easement. There is no method for municipalities along the GIWW or TxDOT to regulate the development of these dredge sites that are badly needed for continued maintenance of the waterway.

To support the state's nonfederal sponsorship of the GIWW in Texas and facilitate planning, maintenance, preservation, research, and improvement of the waterway, the state should continue to recognize and promote the waterway as an integral and valuable part of the state's multimodal transportation system. This can be accomplished by providing the financial resources necessary to support nonfederal responsibilities such as acquisition of disposal areas and cost-sharing in beneficial use of dredged material projects.

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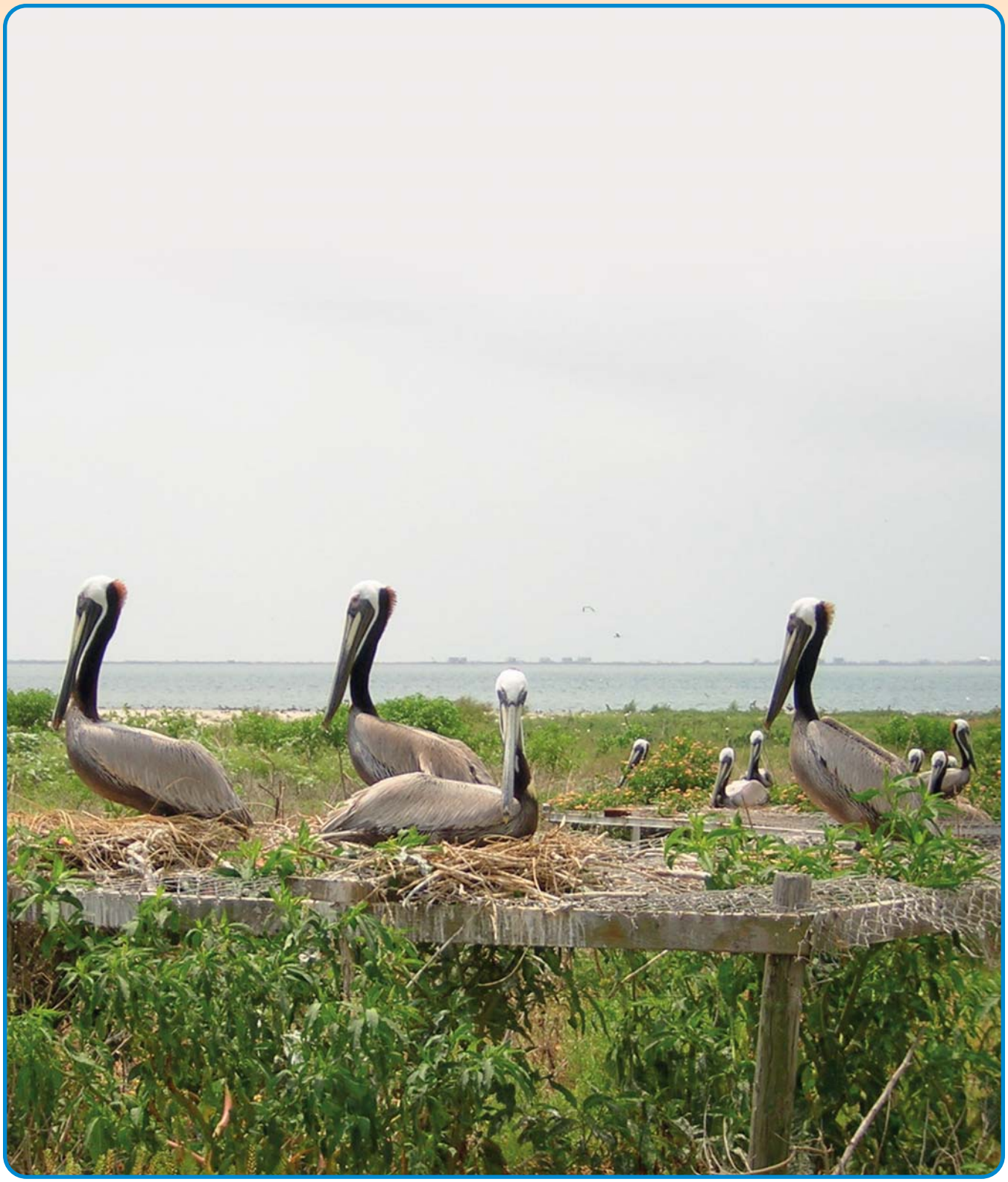

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