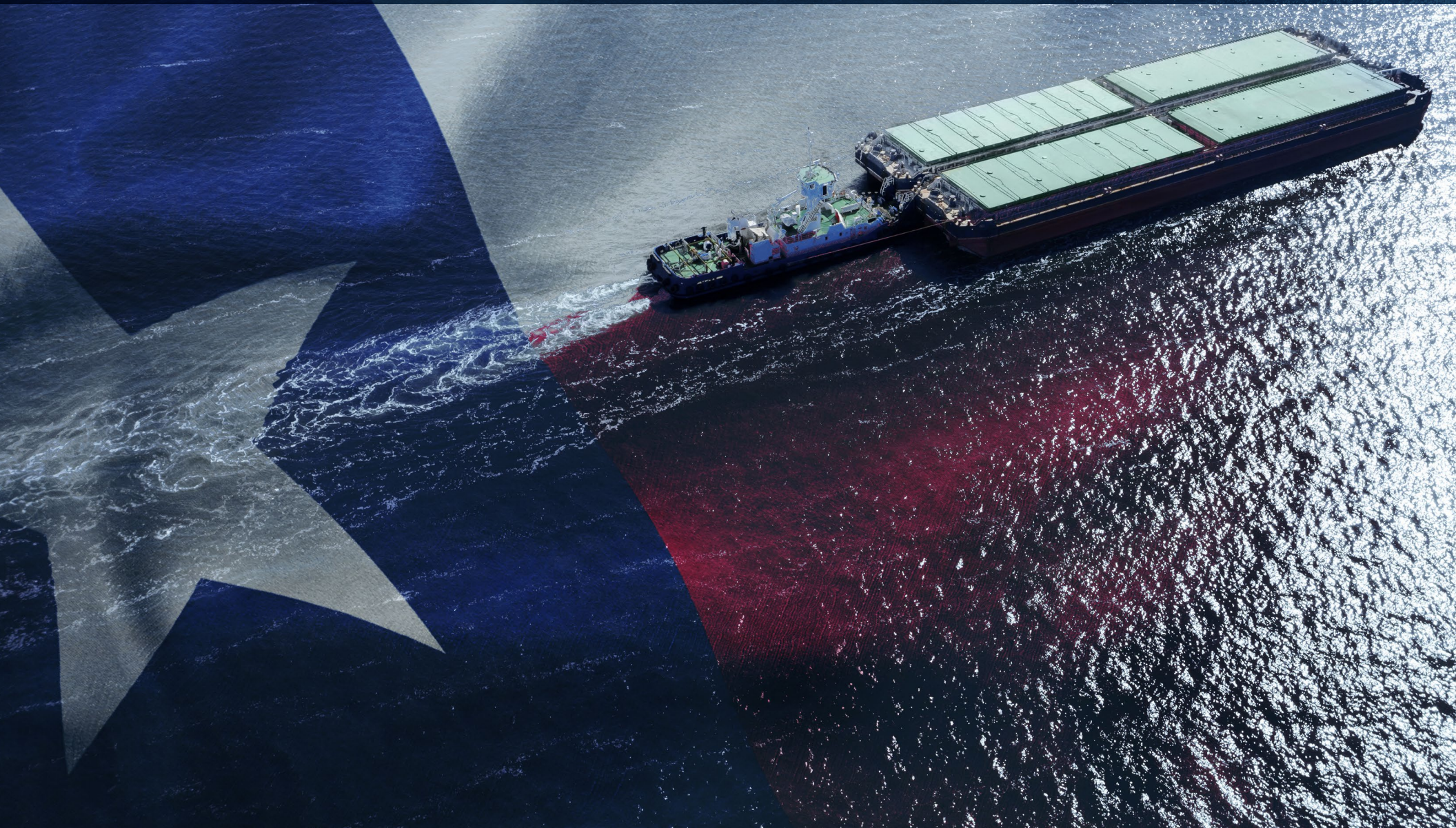
TEXAS DEPARTMENT OF TRANSPORTATION

GULF INTRACOASTAL WATERWAY
LEGISLATIVE REPORT

90TH LEGISLATIVE SESSION





A barge transits the Gulf Intracoastal Waterway (GIWW-T)
(Photo credit: Texas Department of Transportation (TxDOT))



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LEARN MORE ABOUT THE GIWW-T:

The GIWW Viewer, developed by TxDOT, provides data, details of infrastructure, shipping lanes and other notable locations along the GIWW-T.

Texas Beneficial Use of Dredged Material Master Plan (discussed on page 26).



A barge transits the Brazos River Floodgates (Photo credit: TxDOT)

Letter From the Director

An abundance of natural resources has helped make Texas one of the world's largest economies. Among these is the Texas portion of the Gulf Intracoastal Waterway (GIWW-T), a 379-mile barge channel running along the Texas coast from the Sabine River to the Brownsville Ship Channel. The waterway links the state's 23 seaports, public and private marine terminals, and global markets, serving as a central component of Texas' transportation network and economic success.

As Director of the Texas Department of Transportation's (TxDOT) Maritime Division, I am pleased to present the Gulf Intracoastal Waterway Legislative Report to the 90th Texas Legislature on behalf of the Texas Transportation Commission. The State of Texas, acting through the TxDOT Maritime Division, serves as the non-federal sponsor of the GIWW-T and works in partnership with the waterway's federal sponsor, the United States Army Corps of Engineers (USACE), and industry stakeholders to advance projects that maintain channel navigability and enhance system resiliency.

Maintaining the GIWW-T is essential to ensuring the efficient movement of commerce along our coast. In 2023, 85 million short tons of cargo moved along the waterway, underscoring its role as one of the state's most important freight transportation corridors. That activity, along with commercial fishing, marinas and recreational boating, supports $178.9 billion in economic activity each year and more than 576,660 jobs in Texas. Nationwide, it generates $322.7 billion in economic activity annually and more than one million jobs.

Petroleum products and chemicals account for over 90% of cargo volumes today, and the anticipated growth of emerging energy, including liquefied natural gas (LNG), hydrogen and ammonia, will place new demands on the corridor.

As these industries expand, sustaining safety, reliability and efficiency will become increasingly important to supporting economic growth and cementing Texas' position as a global energy leader.

Over the past biennium, TxDOT Maritime supported data-driven planning through the development and implementation of an Automatic Identification System (AIS) Application that analyzes vessel traffic patterns along the GIWW-T. The application is being expanded to provide enhanced trade and commodity flow analysis, helping improve our understanding of how the waterway is used and where future investments may be needed.

As Texas' population and economy continue to grow, so too will the demands placed on the GIWW-T. At the same time, persistent challenges, including erosion, shoaling and aging infrastructure, will further test the resilience of this corridor. The recommendations presented in this report provide a path forward to address these issues while protecting and maximizing the waterway's economic and transportation benefits. Through continued investment and collaboration, Texas can preserve and enhance the GIWW-T's role as a driver of economic growth, trade and prosperity for generations to come.



Geir-Eilif Kalhagen
Director, Maritime Division
Texas Department of Transportation



The Sargent Corkscrew Bridge over the GIWW-T at Sargent Beach, TX (Photo credit: TxDOT)

Executive Summary

The Gulf Intracoastal Waterway–Texas (GIWW-T) is one of the most critical maritime freight corridors for Texas and the United States. This maritime highway system moves fuel, chemicals, construction materials and agriculture products efficiently and safely. One 27,500-barrel tank barge replaces approximately 144 tank trucks and 46 rail tank cars, mitigating demand on Texas highways and rail infrastructure and reducing highway congestion, roadway wear, emissions and safety exposure.[10]

The GIWW-T is a 379–mile, federally authorized, 12-foot-deep and 125-foot-wide navigation corridor from the Sabine River to the Brownsville Ship Channel and is part of the larger Gulf Intracoastal Waterway (GIWW) spanning from Brownsville, Texas to St. Marks, Florida. A shallow-draft navigable waterway, the GIWW-T links coastal communities, the Texas port system, refineries, chemical plants, agricultural producers and manufacturers to the national inland waterways network.

The Texas Department of Transportation (TxDOT) is the designated non-federal sponsor for the GIWW-T. TxDOT acts on behalf of the State to fulfill its responsibilities in this role, which include the ability to participate in beneficial use projects, acquiring land, easements or right-of-way for the United States Army Corps of Engineers (USACE) Galveston District to use as dredged material placement areas.[51]

In 2023, the GIWW-T enabled movement of more than 85 million short tons of cargo in comparison to 80 million short tons reported in 2022, a 6.25 percent increase. That's equivalent to cargo throughput handled at one of the top 10 tonnage ports in the United States (U.S.). The corridor supports approximately 1.1 million jobs nationally, including more than 576,660 in Texas, and generates approximately $322.7 billion in national economic value and $178.9 billion within the State of Texas. The GIWW-T dependent cargo, recreational activities, marinas and commercial fishing activities contribute $88.6 billion in annual personal income

nationally and $54.3 billion to Texas residents. These economic activities generate state and local tax revenues of $10.3 billion in Texas and $16.8 billion in federal tax revenues.[2]

The GIWW-T is critical to the Texas and U.S. economies. Sustained investments by TxDOT and the federal government have supported the maintenance of this essential freight corridor with a significant opportunity ahead to further develop the GIWW-T as a nationally significant economic, energy, defense and maritime logistics corridor.

Persistent challenges to GIWW operations, including shoaling of the channel, aging floodgates and locks, Dredged Material Placement Areas (DMPA) capacity, barrier island erosion, damaged Aids To Navigation (ATONs) and uncertain funding, continue to affect the reliability of the GIWW-T. Coastal population growth, increased energy production, port activity and storm exposure also increase the urgency of action.

A sustained, predictable investment that treats the waterway as an interconnected corridor supporting freight movement, energy transportation, recreational activities, safety and resilience should be prioritized. Adequate funding is necessary to keep the channel dredged, maintain DMPA capacity, advance Brazos River Floodgates (BRFG) and Colorado River Locks (CRL) modernization, support reliable ATONs and pair dredging with shoreline and marsh restoration.

While challenges exist, meaningful progress has been made to maintain the channel, advance major project designs and strengthen coastal resilience planning through extensive stakeholder coordination.

The GIWW-T connects ports, industry and communities. There are significant opportunities to further develop the corridor with increased funding to capture growth in emerging energy sectors, strategic shipbuilding and Gulf Coast defense infrastructure, prosperity zones and maritime industrial parks. These investments would facilitate the growth of waterborne commerce within a sustainable, reliable and resilient GIWW-T and secure Texas' energy and maritime dominance into the future.

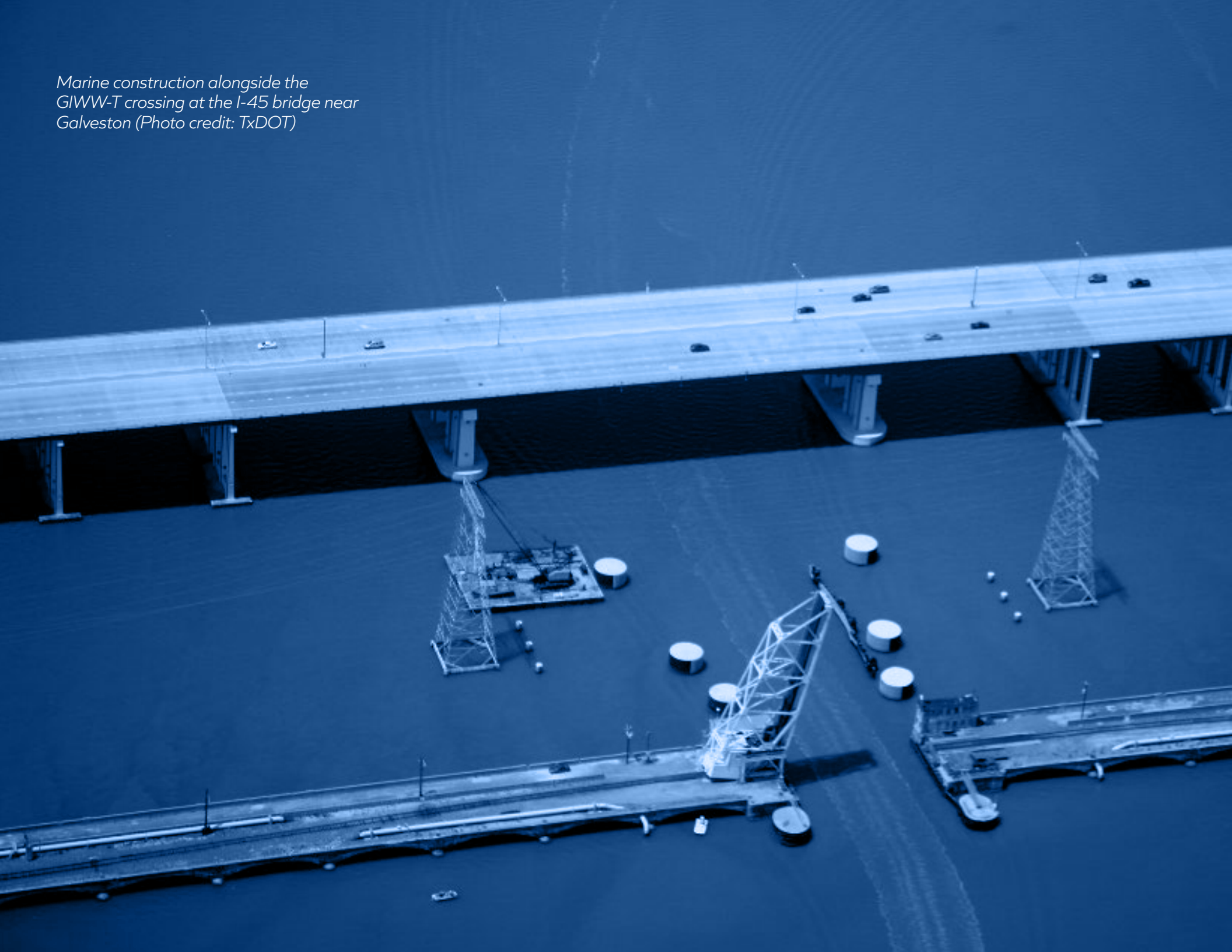
ECONOMIC IMPACT OF THE GIWW-T[2]

On the Nation:

- $322.7 Billion Total Economic Value
- $88.6 Billion Personal Income
- $16.8 Billion Federal Tax Revenue
- 1.1 Million Direct, Indirect, Induced & Related Jobs

On the State of Texas:

- $178.9 Billion Total Economic Value
- $54.3 Billion Personal Income
- $18.4 Billion Business Revenue
- $10.3 Billion State & Local Tax Revenue
- 576,660 Direct, Indirect, Induced & Related Jobs



Marine construction alongside the GIWW-T crossing at the I-45 bridge near Galveston (Photo credit: TxDOT)

1. The GIWW-T System Overview

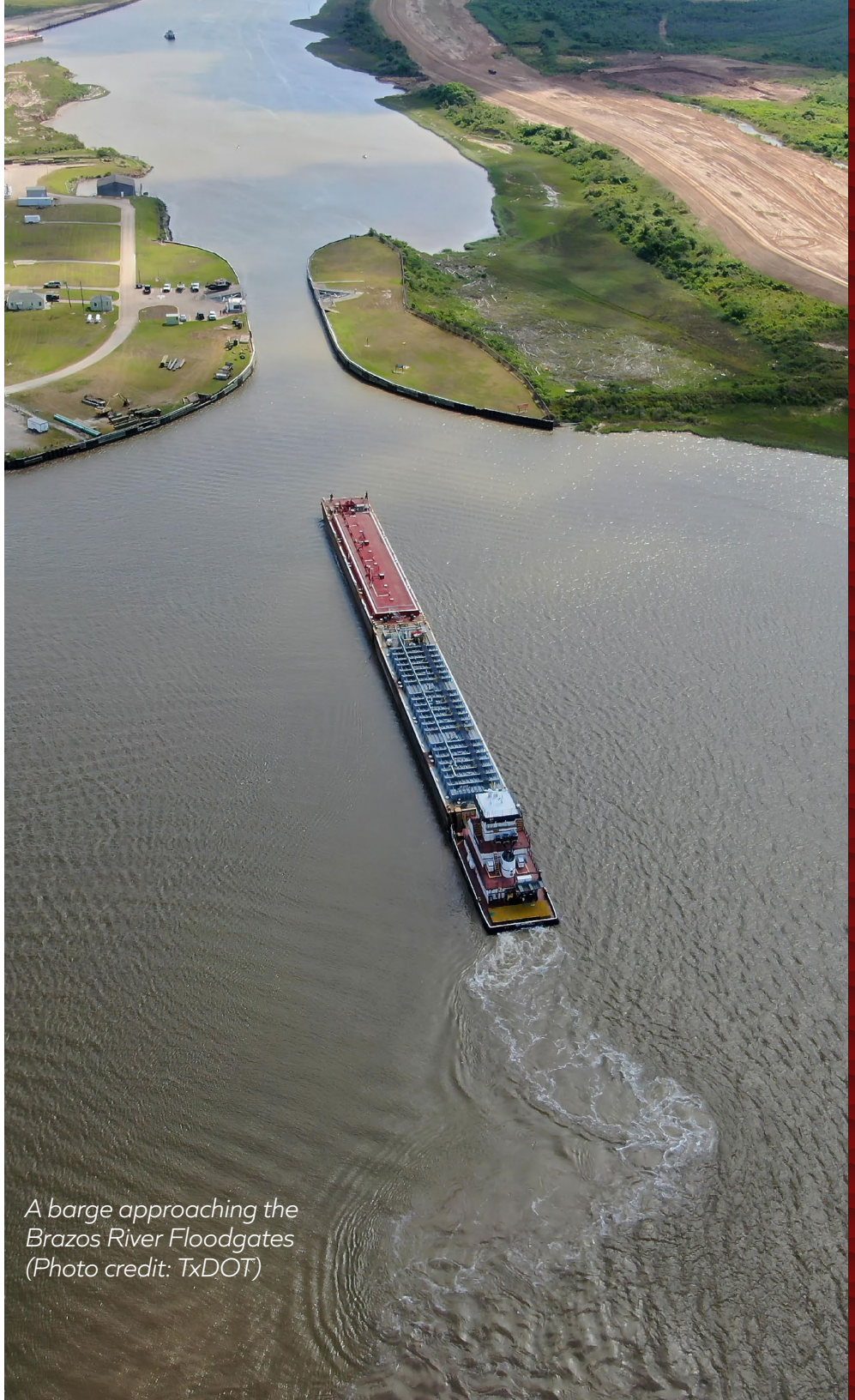
1.1 Introduction

Texas moves more cargo than any other state, and the Gulf Intracoastal Waterway-Texas (GIWW-T), with a 12-foot authorized depth and 125-foot width, helps keep that freight moving while maximizing transportation efficiency and safety. Stretching 379 miles from the Sabine River to the Brownsville Ship Channel, the corridor connects all 23 Texas ports, industries, agricultural producers, refineries, chemical plants and coastal communities to Gulf Coast and national markets via inland waterways. The GIWW-T is part of the larger Gulf Intracoastal Waterway (GIWW) which is 1,100 miles long and spans from Brownsville, Texas to St. Marks, Florida.[1]

The GIWW-T is also part of daily life along the Texas Coast. Commercial and charter fishing, marinas, recreational boating, tourism and coastal emergency response all rely on safe and reliable access to the waterway.

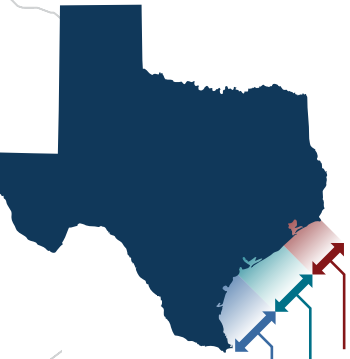
Activities tied to the GIWW-T support jobs, personal income and business and tax revenues in the United States (U.S.) and Texas. Its benefits are not limited to counties along the coast; they extend throughout the state and nation, supporting supply chains, industries and consumers.[2]

The GIWW-T is an authorized federal navigation channel under the jurisdiction of the U.S. Army Corps of Engineers (USACE), Galveston District.[26]



A barge approaching the Brazos River Floodgates (Photo credit: TxDOT)

The GIWW-T and Texas Seaports



UPPER REACH:
Sabine River to Galveston

MIDDLE REACH:
Galveston to Corpus Christi

LOWER REACH:
Corpus Christi to Brownsville Ship Channel

Beaumont
Port of Orange
Port of Beaumont
Sabine-Neches Navigation District
Houston
Port of Port Arthur
Sabine Pass Port Authority
Port Houston
Chambers-Liberty Navigation District
Port of Texas City
Cedar Port Navigation and Improvement District
Port of Galveston
Port Freeport
Brazos River Floodgates
Port of Bay City
Colorado River Locks
Gulf of America
Port of Palacios
Calhoun Port Authority
City of Port Lavaca Ports & Harbors
Port of Victoria
Port of West Calhoun
Aransas County Navigation District
Corpus Christi
Port of Corpus Christi
Port of Port Mansfield
Port of Harlingen
Port of Port Isabel
Brownsville
Port of Brownsville

LEGEND

Seaports of Texas
- Deep-Draft Port
- Shallow-Draft Port

- Controlling Structure
- Gulf Intracoastal Waterway-Texas
- Ship Channel

0 50 Miles

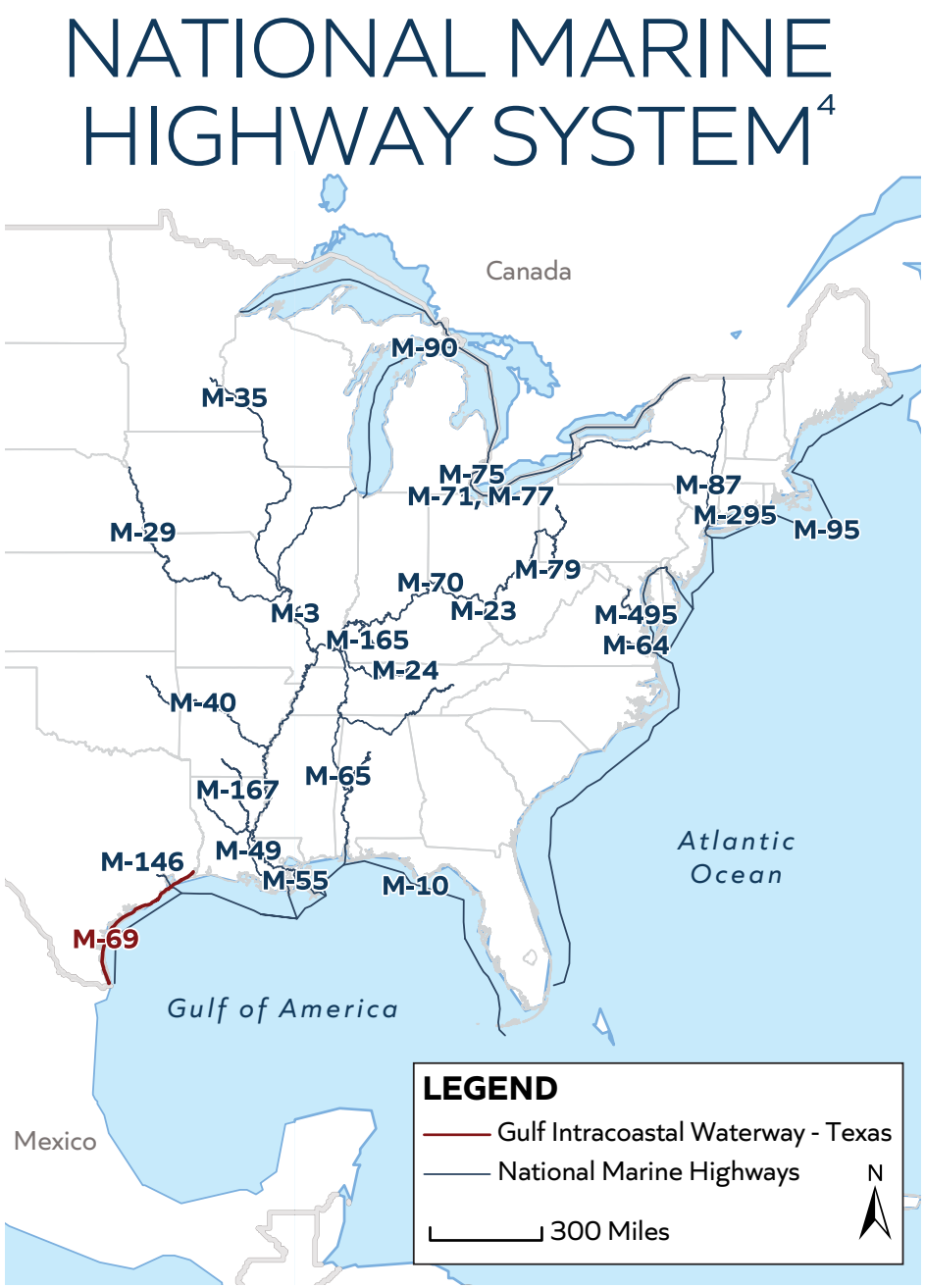
N

1.2 GIWW-T Seaport Network and Connectivity

The GIWW-T is a transportation corridor that links Texas seaports and navigation districts, coastal industries, the inland waterway and communities, supporting trade, business activity and the movement of goods across Texas and worldwide. All 23 seaports across Texas, including 12 deep-draft ports and 11 shallow-draft ports, rely on the GIWW-T. Smaller, shallow-draft ports that are not connected to the Gulf-facing ship channels rely solely on the GIWW-T to provide statewide and nationwide transportation connectivity. Higher tonnage, deep-draft ports with dedicated ship channels also heavily depend on the GIWW-T to enable navigation of inland barge traffic for efficient distribution of commodities.

Marine Highway System: National Reach, Local Impact

The GIWW-T is part of the U.S. Marine Highway System, a network of navigable waterways designated by the U.S. Department of Transportation's (USDOT) Maritime Administration (MARAD) to enhance freight mobility and strengthen the nation's transportation system. Recognizing the GIWW-T's importance to commerce, MARAD designated the GIWW-T as Marine Highway M-69 in 2016, distinguishing it for the first time from the broader M-10 corridor. This underscored its importance as a major freight route alternative to the Interstate Highway System. As a result, the GIWW-T now carries dual Marine Highway designations and is eligible for its own funding opportunities under the U.S. Marine Highway Program. This designation improves access to federal funding opportunities that support waterway and port-related improvements.



1.3 GIWW-T Value and Strategic Economic Importance

The GIWW-T provides several operational advantages for moving bulk commodities, due to its cost efficiency, high cargo capacity and relatively predictable routing compared to overland modes. Water transport allows for large transport volumes with lower fuel consumption per ton-mile, making the GIWW-T an economical and environmentally efficient shipping option.

Economic Impact Analysis

The economic benefits of the GIWW-T contribute to local, state and national economies by generating revenue for businesses providing vessel and cargo handling services at the marine terminals. The GIWW-T also offers important recreational and commercial fishing benefits, which support employment and income to individuals and generate tax revenue for federal, state and local governments.

The GIWW-T's economic value is assessed by measuring total cargo volumes and commercial fishing and recreational activity, then calculating the resulting impacts on regional jobs, income and business spending. This analysis accounts for not just the businesses directly involved in maritime activities (the direct impacts), but also the ripple effects as those businesses buy supplies, and employees spend their income across the economy (indirect and induced impacts). The analysis also quantifies the economic impact of "related users" of the GIWW-T, which includes businesses that are supported by activity on the GIWW-T.

State of Texas Economic Impacts of GIWW-T Maritime Activity, 2025[2]

Impact	Cargo	Recreational Activity	Commercial Fishing	Total
Total Jobs	557,294	10,571	8,795	576,660
Personal Income ($ Millions)	$52,876.9	$793.5	$676.4	$54,346.8
Direct Business Revenue ($ Millions)	$14,284.7	$2,239.2	$1,897.5	$18,421.4
State And Local Taxes ($ Millions)	$5,444.9	$81.2	$69.2	$5,595.3
Economic Value ($ Millions)	$174,083.4	$2,653.2	$2,192.5	$178,929.1

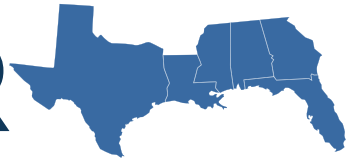
NOTE: Totals may not add due to rounding.

National Economic Impacts of GIWW-T Maritime Activity, 2025[2]

Impact	Cargo	Recreational Activity	Commercial Fishing	Total
Total Jobs	1,052,432	13,823	9,916	1,076,171
Personal Income ($ Millions)	$86,566.3	$1,187.4	$830.4	$88,584.1
Federal Taxes ($ Millions)	$16,448.4	$198.8	$143.7	$16,790.9
Economic Value ($ Millions)	$317,589.9	$2,823.2	$2,288.9	$322,702.0

NOTE: Totals may not add due to rounding.

The Gulf Intracoastal Waterway
★ THE ECONOMIC ARTERY OF TEXAS[2, 5, 6] ★

OVER ONE THIRD


of the entire GIWW resides in Texas

379 Miles in Texas | **1,109** Miles Total

4TH LARGEST
Texas Waterway by Tonnage

#1 Houston Ship Channel
#2 Sabine-Neches Waterway
#3 Corpus Christi Ship Channel
#4 Gulf Intracoastal Waterway

73,143 Vessel Trips in 2023



23 Texas Ports Connected by the GIWW-T
- 12 Deep-Draft
- 11 Shallow-Draft



85 Million*
Short Tons of Cargo Moved in 2023

**In 2023, USACE reported 79 million tons moving through the GIWW-T.[5] Martin Associates estimates that about 85 million tons of cargo move on the GIWW-T.[2]*

More Than Cargo...


The GIWW-T Commercial & Recreational Fleet

806	102,441	166	194
Commercial Fishing	Recreational Boats	Charter Fishing	Rental Boats

Note: Commercial and recreational fleet excludes rowboats, jet skis and manually operated craft



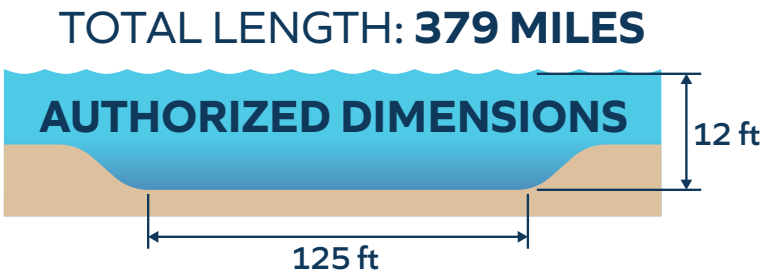
11,000 Recreational Boat Wet Slips

1.4 Cargo Volume and GIWW-T Interesting Facts

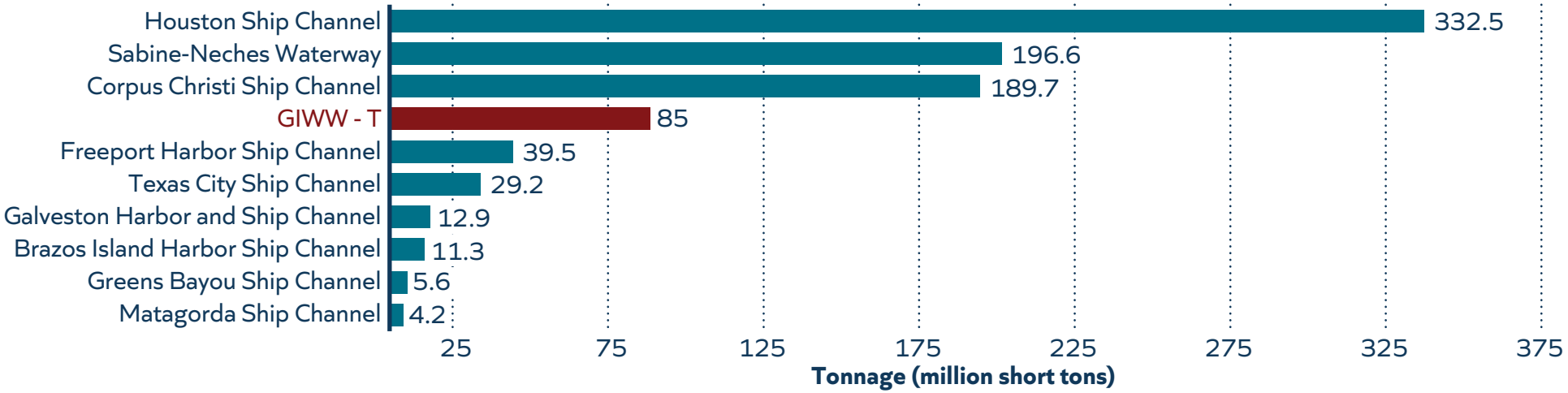
GIWW-T tonnage remains largely comprised of energy and chemical movements. Petroleum products, crude-related movements and chemicals dominate the commodity mix, reflecting the significant concentration of refineries, petrochemical facilities and export terminals along the Texas Coast. Of the 73,143 vessel trips recorded in 2023, tank barges represented the largest share at 40,356 trips (55.2%), followed by towboats with 22,809 trips (31.2%). Dry cargo barges accounted for 7,128 trips (9.7%), while dry self-propelled vessels made 2,798 trips (3.8%). Tankers and vessels classified as other contributed 31 (0.04%) and 21 (0.03%) trips, respectively.[5]

Based on the USACE Waterborne Commerce Data, the GIWW-T has historically handled approximately 80 million tons annually, with actual tonnage varying from 70 to 90 million tons based on national and global market dynamics.[7] Since 2021, GIWW-T tonnage has increased.[2, 5, 7]

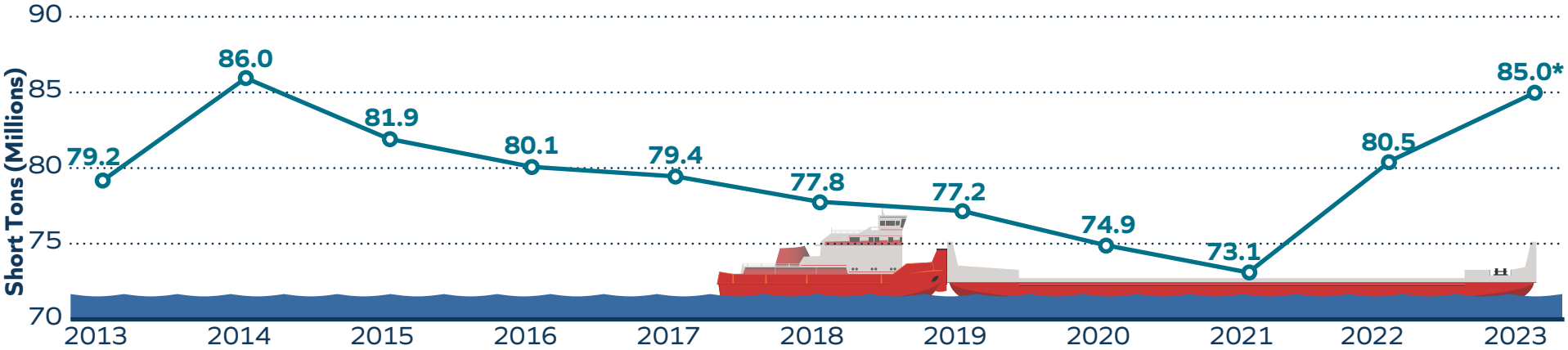
GIWW-T KEY FACTS



Top 10 Texas Waterways by 2023 Tonnage[2, 5]



GIWW-T Tonnage, 2013-2023[2, 5, 7]



**In 2023, USACE reported 79 million tons moving through the GIWW-T.[5] Martin Associates estimates that about 85 million tons of cargo move on the GIWW-T.[2]*

GIWW-T Commodities, 2022-2023[5, 7]

2023 Tonnage Mix:

Petroleum products **70.16%** | All other commodities **29.84%**

Notable Shifts, 2022-2023

Distillate Fuel Oil
↑3% GROWTH
13.9 Million Tons (2022) → 14.4 Million Tons (2023)

Naphtha & Solvents
↑2% GROWTH
9.0 Million Tons (2022) → 9.2 Million Tons (2023)

Gasoline
↑6% GROWTH
6.6 Million Tons (2022) → 7.1 Million Tons (2023)

Crude Petroleum
↓37% DECLINE
11.0 Million Tons (2022) → 7.0 Million Tons (2023)

Residual Fuel Oil
↓7% DECLINE
7.5 Million Tons (2022) → 7.0 Million Tons (2023)

Asphalt, Tar & Pitch
↑31% GROWTH
3.9 Million Tons (2022) → 5.2 Million Tons (2023)

Kerosene
↑26% GROWTH
1.0 Million Tons (2022) → 1.3 Million Tons (2023)

Sand & Gravel
↑158% GROWTH
713,000 Tons (2022) → 1.8 Million Tons (2023)

Misc. Mineral Products
↑122% GROWTH
10,600 Tons (2022) → 1.3 Million Tons (2023)

ENVIRONMENTAL IMPACT OF THE GIWW-T[8, 9]

387 MILLION
miles of truck travel diverted from Texas highways annually

1.03 MILLION
short tons of air pollutants avoided annually: CO_2, CO, NOx, VOCs and particulate matter (PM)

$178 MILLION
annual reduction in cost from avoided NOx and PM emissions, per USDOT damage costs (2024 dollars)



A towboat pushes a loaded barge along the GIWW-T (Photo credit: TxDOT)

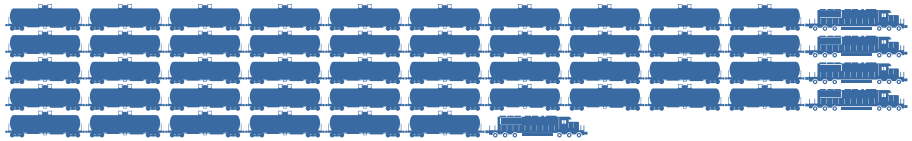
1.5 Barge Is Better

Barge is the most cost-effective and environmentally friendly mode of transportation, providing the highest capacity at the lowest cost. One 27,500-barrel tank barge can carry roughly the same load as 144 tank trucks or 46 rail tank cars, and one 1,750-short-ton dry cargo barge can carry roughly the same load as 70 trucks or 16 bulk rail cars. Barge transportation reduces spill incidents, decreases emissions on a ton-mile basis and provides Texas ports and industries with the unique opportunity to have multiple routes within the supply chain to move heavy cargo when one or more road or rail modes of transportation are congested or disrupted.[5, 10]

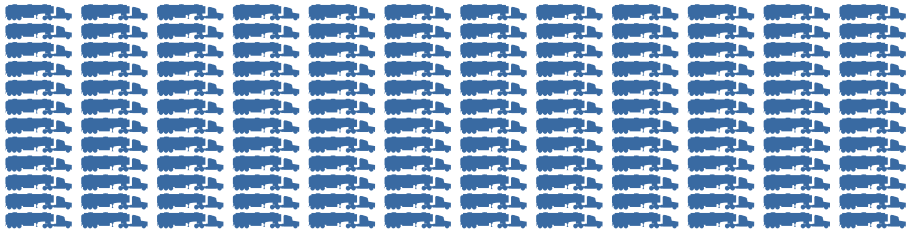
GIWW-T MARITIME HIGHWAY TRAFFIC[5,10]

1 TANK BARGE (27,500 BARRELS)

46 RAIL TANK CARS



144 TANK TRUCKS



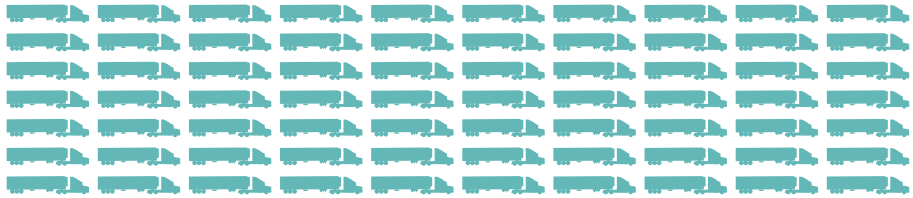
The **40,356 tank barge trips** on the GIWW-T in 2023 would equate to about **5,811,264 truck trips** that the Texas highway system would otherwise need to absorb.

1 DRY CARGO BARGE (1,750 SHORT TONS)

16 BULK RAIL CARS



70 BULK TRUCKS



The **7,128 dry cargo barge trips** on the GIWW-T in 2023 would equate to about **498,960 truck trips** that the Texas highway system would otherwise need to absorb.

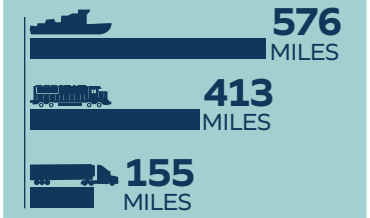
BARGE BENEFITS

Moving cargo by barge reduces emissions, lowers transportation costs and eases pressure on highways and rail systems.

FUEL EFFICIENCY[9]

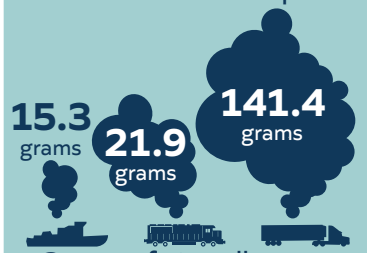
A single tank barge moves one ton of cargo further on a single gallon of fuel than truck or rail.

Ton-miles per gallon



EMISSIONS[8,9]

Barge transport emits 30% less air pollutants (CO_2, CO, NOx, PM) per ton-mile than rail and 89% less than truck transport.



Grams of air pollutants per ton-mile

SAFETY[11]

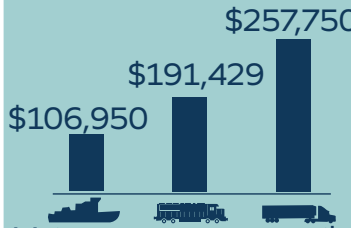
Waterborne transport of petroleum and chemicals has approximately 1/10 the large spill incident rate per ton-mile of truck transport.



Large spill incident rate per ton-mile

INFRASTRUCTURE[12,13,14]

Removing a ton of cargo from highways and railways reduces maintenance demand on Texas' existing freight infrastructure.



Maintenance cost per mile



1.6 Stakeholders

The GIWW-T is sponsored and supported by a broad stakeholder network. Federal and state agencies, ports, navigation districts, vessel operators, shippers, environmental partners and recreational users all depend on the same corridor, even though they use it in different ways.[26]

Government Agencies	Agencies with responsibilities along the GIWW-T include the USACE, U.S. Coast Guard, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Texas Commission on Environmental Quality and the Texas General Land Office.
Texas Ports	All 23 Texas seaports and navigation districts are connected by the GIWW-T.[6] Ports rely on the GIWW-T for barge access and for moving commodities to and from industry terminals.
Private Industry	Industries that depend on the GIWW-T include the energy and petrochemical sectors, such as refineries, chemical manufacturers, marine transportation companies, terminal operators, pipeline networks and export facilities.
Waterway Associations	Organizations that represent the carriers, ports and shippers that use the GIWW-T include the Gulf Intracoastal Canal Association, the American Waterways Operators, the Waterways Council, National Waterways Conference and the Inland Waterways Users Board.
Recreational & Coastal Users	These GIWW-T users include commercial and charter fishing crews, recreational boaters, hunters, and coastal-tourism operators, particularly around Matagorda Bay, the San Bernard River and the Laguna Madre.

Federal, State and Local Government Agencies

The USACE Galveston District is the GIWW-T's federal sponsor, maintaining the channel, navigation structures and annual dredging program that keep the waterway at its authorized depth. It also reviews and approves any work proposed within the federal channel. USACE Civil Works funding has not kept pace with needed maintenance.[14]

The State of Texas, acting through TxDOT under the Texas Coastal Waterway Act (TCWA) of 1975, serves as the non-federal sponsor. Its responsibilities include acquiring land to provide dredged material placement areas (DMPAs) and reviewing actions that may affect the waterway. This includes the ability to fund efforts to rebuild wetlands and marshes with dredged material along the coast.[51] TxDOT reviews federal permit applications that could affect the GIWW-T and provides the State's position to the USACE before final decisions are made. It is also responsible for maintaining navigation lighting and protective fender systems on TxDOT bridges.[17]

Stakeholder Network

Government agencies: The United States Coast Guard (USCG), Heartland District, is responsible for navigation safety and security on the GIWW-T. Its responsibilities include protecting endangered mariners, securing cargo, and managing marine environmental spill and emergency responses. U.S. Customs and Border Protection (CBP), the U.S. Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service (USFWS) handle federal permitting and environmental review. At the state level, the Texas Commission on Environmental Quality (TCEQ) issues environmental permits, and the Texas General Land Office (GLO) manages state-owned submerged lands and conducts federal consistency reviews under the Coastal Zone Management Act. The Gulf Coast Protection District (GCPD), whose jurisdiction covers Chambers, Galveston, Harris, Jefferson and Orange counties, is overseeing portions of the Coastal Texas Project, which include engineering hard structures and beach nourishment projects that protect the coast from storm surge.[18]

The GLO is the non-federal sponsor for the USACE-partnered Coastal Texas Protection and Restoration Project for ecosystem-restoration,[16] which includes breakwater construction along the GIWW-T. The GCPD is the non-federal sponsor of the Galveston Bay Barrier System which includes the Bolivar Roads Gates System and the Bolivar and West Galveston Beach and Dune System.[18] County emergency management offices along the GIWW-T coordinate storm response and recovery.

Private industry: The GIWW-T moves cargo heavily concentrated in the energy and petrochemical sectors, supporting refiners, chemical producers, terminal operators, pipeline networks and export facilities. Additionally, the waterway carries vital non-petroleum commodities, including salt, agricultural products and primary manufactured goods like steel and pipes. These industries rely on the GIWW-T to move fuel, chemical feeds, raw materials and industrial freight between Texas ports, processing plants and domestic markets. At times, they may also spearhead marine construction projects.

Texas ports: All Texas seaports rely on the GIWW-T for barge access and for moving commodities to and from public and private industry terminals.

Waterway associations: Various organizations represent vessel carriers, ports, shippers and other users of the GIWW-T. They advocate for funding, upkeep and long-term investment, while also supporting projects and promoting legislation that expands, improves, and maintains the GIWW-T for the benefit of its users and the broader maritime industry.

Recreational and coastal users: The GIWW-T is more than a commercial corridor. Charter fishing vessels, recreational boaters, hunters, and coastal-tourism operators use it to reach bays, marinas and fishing grounds. Safe, reliable passage matters as much to these users as to industry.[2]



Lady Toni on Palacios channel (Photo credit: TxDOT)

2. Stressors and Dynamic Influences on the GIWW-T

The GIWW-T faces interconnected stressors, including a growing coastal economy, changing commodity flows, aging physical infrastructure, coastal environmental pressures and limited redundancy during disruptions. These stressors affect whether the corridor can move high-value tonnage safely, reliably and at a reasonable cost.

The waterway's cargo base remains heavily concentrated in petroleum, refined products and chemicals. This makes the GIWW-T especially important to the Texas refining and petrochemical industries and helps make Texas and the nation a net energy exporter. This concentration also means that disruptions can have outsized impacts on statewide and national energy supply chains.

2.1 Growing Economy and Population Along the GIWW-T Corridor

The GIWW-T crosses one of the nation's busiest coastal economic corridors, encompassing many of Texas' largest metropolitan areas and industrial centers, including the trade clusters of Houston-Galveston, Sabine-Neches, Corpus Christi, Freeport, Calhoun and Brownsville. These areas concentrate population growth, industrial employment, port activity and energy production.

Continued population and economic growth, particularly in coastal counties adjacent to the GIWW-T, is increasing demand for consumer goods, refined fuels and construction materials. The GIWW-T will continue to play a critical role in moving commodities efficiently along the Texas coast and connecting ports, industries, and communities to Gulf Coast and national markets as cargo volumes rise. While the waterway strengthens supply chains and supports economic growth, increased vessel traffic puts greater pressure on aging infrastructure, contributing to delays at critical bottlenecks like the Brazos River Floodgates (BRFG) and Colorado River Locks (CRL), and increasing the risk of vessel wake-related shoreline erosion.

As Texas' population and economy continue to grow, considering how increased demand and traffic will affect existing constraints on the waterway is essential to planning and implementing effective long-term solutions that preserve the GIWW-T's reliability and economic value. Several interconnected trade clusters along the GIWW-T have seen growth in petrochemical manufacturing, energy production and refining. From 2013 to 2022, cargo tonnage on the Houston Ship Channel alone increased by 19.13%.[7]

2.2 Changing Commodity and Market Dynamics

Commodity and market dynamics reinforce the waterway's strategic role. Much of the cargo moving along the GIWW-T supports Texas' energy and manufacturing industries and U.S. national energy dominance. Petroleum products make up 70.16% of the cargo moving along the GIWW-T,[5] reflecting continued expansion and investment in crude oil export facilities, LNG terminals, petrochemical manufacturing and associated industrial facilities. While energy-related shipments make up the vast majority of the freight volume, non-petroleum commodities comprise the remaining 29.84% of the total.[5]

New products are also beginning to move through the corridor as energy and manufacturing industries continue to evolve. Emerging investments in hydrogen, ammonia, and other alternative fuels are becoming a growing part of cargo movement and expected to diversify future cargoes.[52]

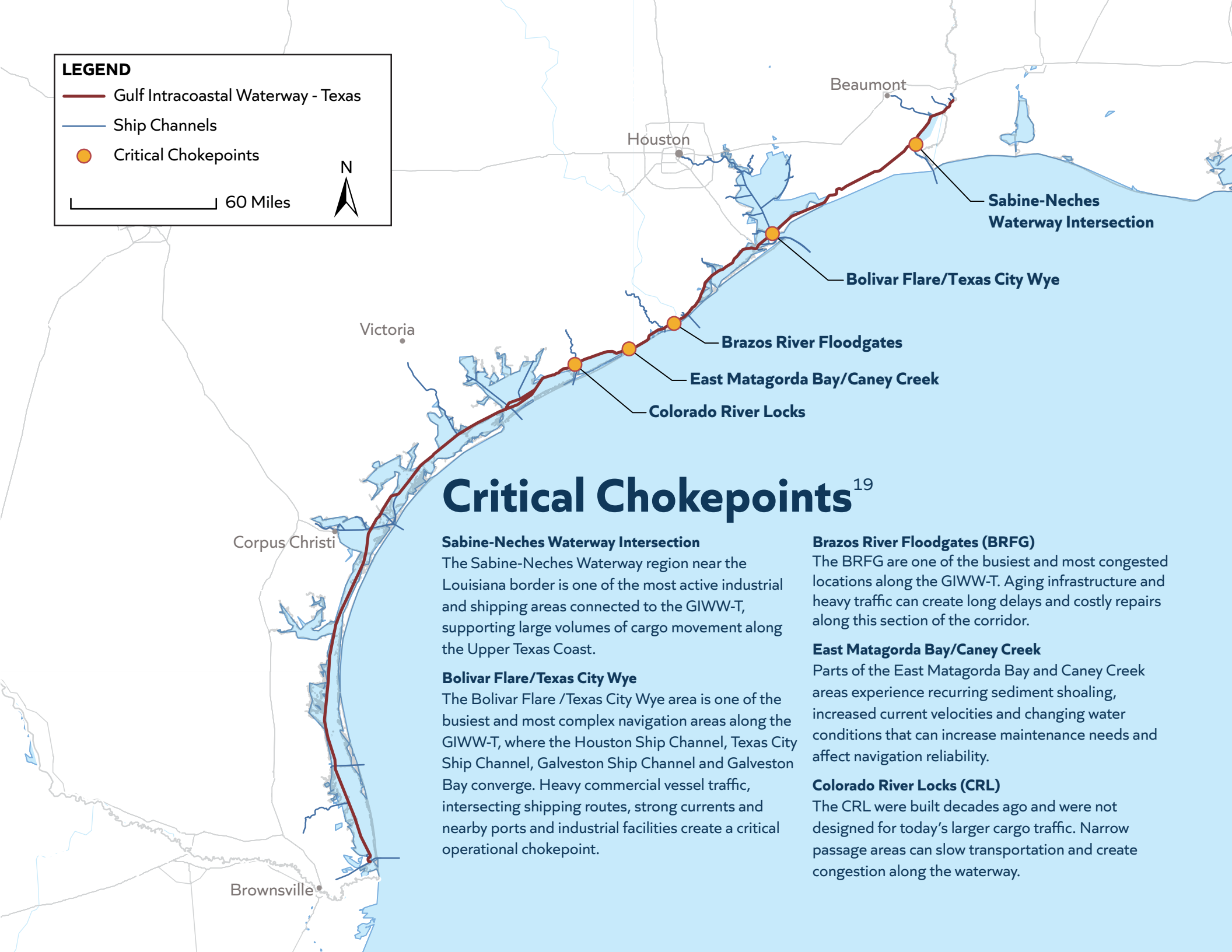
Commodity-flow analysis further demonstrates that freight movements are becoming increasingly concentrated within a limited number of industrial trade clusters. Harris County serves as the primary logistics hub for statewide barge movements, with strong connections to Jefferson, Brazoria, Galveston, Nueces and San Patricio counties, while Louisiana gateways remain critical interstate trading partners as well.



COMMODITY MIX (2023)[5]

- Distillate Fuel Oil - 18.19%
- Naphtha & Solvents - 11.58%
- Gasoline - 8.97%
- Crude Petroleum - 8.84%
- Residual Fuel Oil - 8.79%
- Asphalt, Tar & Pitch - 6.54%
- Other Petroleum Products - 7.23%
- Chemicals/Liquid Bulk - 21.15%
- Dry Bulk/Raw Materials - 4.10%
- Manufactured Goods - 3.92%
- Other Products - 0.67%

NOTE: Totals may not add due to rounding.



Critical Chokepoints[19]

Sabine-Neches Waterway Intersection
The Sabine-Neches Waterway region near the Louisiana border is one of the most active industrial and shipping areas connected to the GIWW-T, supporting large volumes of cargo movement along the Upper Texas Coast.

Bolivar Flare/Texas City Wye
The Bolivar Flare /Texas City Wye area is one of the busiest and most complex navigation areas along the GIWW-T, where the Houston Ship Channel, Texas City Ship Channel, Galveston Ship Channel and Galveston Bay converge. Heavy commercial vessel traffic, intersecting shipping routes, strong currents and nearby ports and industrial facilities create a critical operational chokepoint.

Brazos River Floodgates (BRFG)
The BRFG are one of the busiest and most congested locations along the GIWW-T. Aging infrastructure and heavy traffic can create long delays and costly repairs along this section of the corridor.

East Matagorda Bay/Caney Creek
Parts of the East Matagorda Bay and Caney Creek areas experience recurring sediment shoaling, increased current velocities and changing water conditions that can increase maintenance needs and affect navigation reliability.

Colorado River Locks (CRL)
The CRL were built decades ago and were not designed for today's larger cargo traffic. Narrow passage areas can slow transportation and create congestion along the waterway.

2.3 Physical Infrastructure Constraints

Physical infrastructure constraints are a reliability and safety issue. Several GIWW-T assets were built decades ago for a smaller, less complex operating environment and now serve larger tows, denser traffic, and more complicated interactions with deep-draft ships, ferries, recreational vessels and port operations. A tow is the standard nautical term for the entire grouping of barges connected to a towboat. It consists of a powerful towing vessel (or towboat) connected to and pushing (or pulling) one or more unpowered barges lashed together.

The most significant infrastructure constraints are concentrated at five high-risk navigation locations: the Sabine-Neches Waterway Intersection, BRFG, CRL, East Matagorda Bay/Caney Creek and the Bolivar Flare/Texas City Wye area.[3]

These facilities regularly experience congestion due to the increasing size and frequency of commercial barge traffic, particularly movements serving the Houston and Beaumont-Port Arthur petrochemical complexes.[20]

Navigation is also affected by channel geometry at several locations. Narrow channel widths, sharp bends, high current velocities, and constrained turning areas reduce maneuverability for large tow configurations and increase the likelihood of congestion and navigation conflicts. The Bolivar Flare/Texas City Wye area presents a different constraint of complex vessel interactions in high-density port areas. In East Matagorda Bay/Caney Creek, shoaling, which occurs when sediment builds up in the navigation channel and reduces usable depth, affects channel depth and navigability, requiring frequent maintenance dredging.

In addition, there are limited mooring and fleeting areas for vessels to stage during fog, storms, lock delays, mechanical issues or post storm reopening. As commercial traffic continues to grow, additional mooring facilities and navigation aids will be needed to improve the safety, operational flexibility and reliability at major bottlenecks.

CONTROLLING STRUCTURE DELAYS[20]

Brazos River Floodgates

14 HOURS
AVERAGE DELAY PER TRANSIT



76-81%
OF VESSELS DELAYED



Colorado River Locks

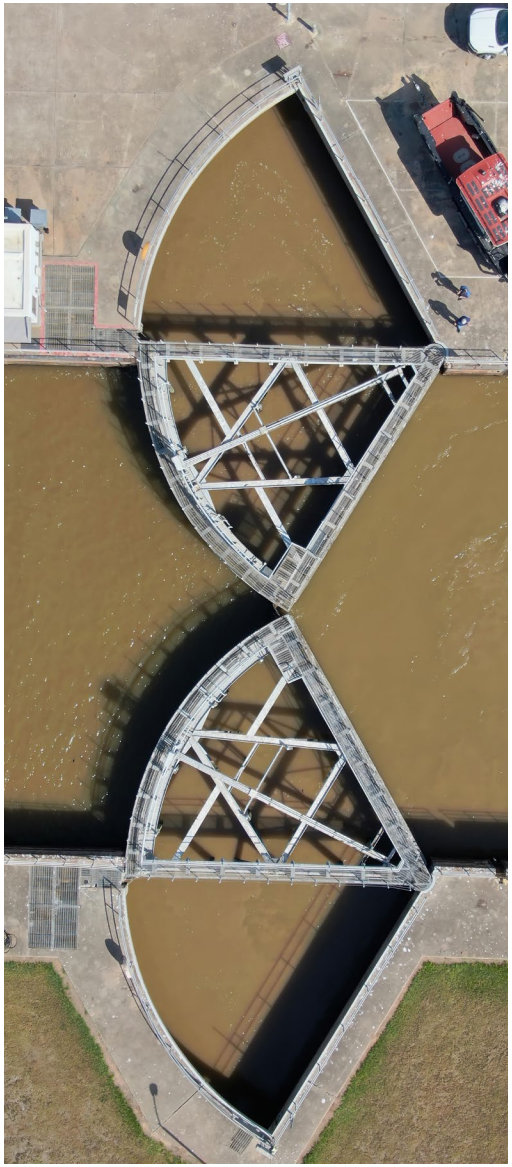
5.5 HOURS
AVERAGE DELAY PER TRANSIT



70-78%
OF VESSELS DELAYED



Even when the waterway is not physically damaged, high winds, storm surge, flooding and debris can interrupt vessel traffic and affect nearby ports, terminals, roads, rail connections and industrial facilities.



Relative sea-level rise places additional stress on locks, floodgates and navigation aids (Photo credit: TxDOT)

2.4 Coastal Environmental Conditions

Hurricanes, storm surge, sea-level rise, erosion, barrier-island retreat and sediment movement all affect how safely and reliably the GIWW-T functions and affect navigation, dredging needs, infrastructure, operating costs, and the ability of Texas ports and industries to keep freight moving.

Rising Water Levels and Changing Coastal Conditions

The USACE relative sea-level rise scenarios show that transportation and coastal navigation infrastructure will face greater exposure over time. Rising water levels can alter shoreline stability, affect DMPAs, and place additional stress on locks, floodgates, shore protection features and navigation aids. These risks are higher near low-lying shorelines, eroding barrier features and shallow bay systems.[17]

Severe Storms

Hurricanes and tropical storms can temporarily close reaches of the GIWW-T, damage navigation aids, erode shorelines and increase shoaling, all of which can delay the reopening of channels after a storm.[21] Even when the waterway is not physically damaged, high winds, storm surge, flooding and debris can interrupt vessel traffic, affecting ports, terminals, roads, rail connections and industrial facilities. As coastal development and freight activity continue to grow in Texas, storm-related disruptions have the potential to affect more people, cargo and interconnected supply chains.[17]

Shoreline Erosion and Bay Barrier Island Erosion

Bay barrier islands are the strips of land between major bay systems (mainly East and West Galveston Bays and East and West Matagorda Bays) that remain from the original construction of the GIWW-T through mainlands. Natural shoreline, wetland and island features help absorb wave energy and protect portions of the GIWW-T from open water conditions. When those features erode, the channel becomes more exposed to waves, wind and storm-driven sediment movement,[25] making vessel operations more difficult during adverse weather.

Sediment Movement

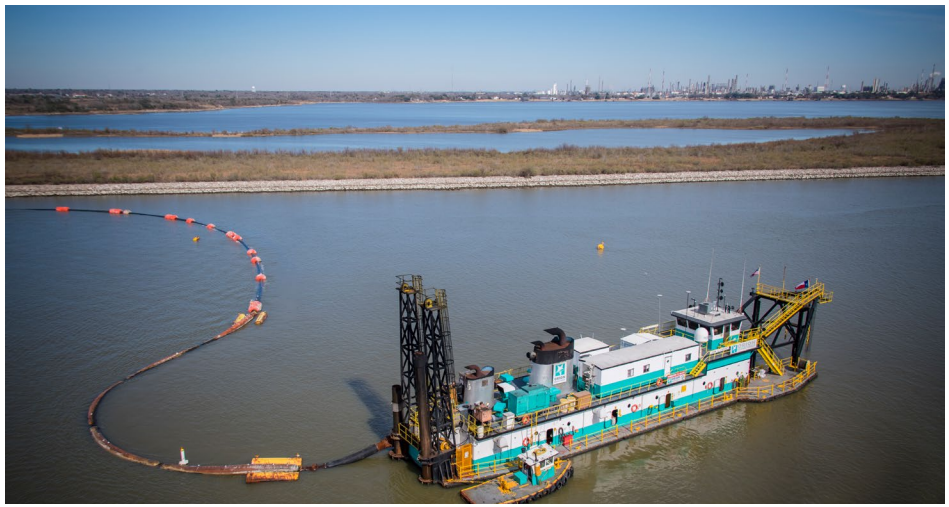
Both sediment loss and accumulation affect the GIWW-T. Rivers, tides, waves and coastal currents naturally move sediment. Sediment loss weakens protective shorelines and barrier features, and shoaling reduces navigable depth.[23]

Coastal Habitats

Marshes, wetlands, oyster reefs, and barrier island features help reduce wave energy, slow erosion, improve water quality, and provide natural buffers for navigation and waterfront communities and infrastructure.

Cost of Inaction

Studies of the Texas Coast show that storm damage, flooding, erosion, and rising water levels will increase future costs to communities, infrastructure and transportation systems if coastal risks are not addressed.[24] Protecting the GIWW-T involves keeping the channel open while also strengthening the coastal communities and features that help protect it.



A cutterhead pipeline dredge conducting maintenance dredging (Photo credit: Port Houston)



Dredged material can be used beneficially to rebuild or fortify coastal shorelines and habitats (Photo credit: TxDOT)

2.5 System Reliability and Modal Disruption Risk

The GIWW-T depends on the uninterrupted operation of a relatively small number of navigation structures and channel segments, so disruptions at key locations have cascading impacts across regional industries, port operations and multimodal freight networks. As cargo volumes continue to increase and vessel traffic becomes more complex, maintaining system reliability becomes increasingly important to Texas' economic competitiveness.

Unlike highway networks that often provide multiple alternative routes, barge traffic is generally confined to a single navigable channel. When navigation is disrupted by lock closures, mechanical failures, vessel incidents, severe weather, shoaling or maintenance activities, operators have few practical alternatives. Freight may be delayed until the waterway reopens or until it is shifted to truck or rail, both of which involve higher transportation costs, increased congestion, reduced shipment capacity and additional emissions.

3. Stakeholder Identified GIWW-T Challenges and Solutions

GIWW-T stakeholders have identified five practical challenges that most directly affect the corridor's cost, safety and reliability: shoaling, aging infrastructure, shoreline and barrier-island erosion, aids to navigation (ATONs) and funding.

These challenges affect the people, businesses, ports, communities and industries that rely on the corridor. When the channel shoals, locks slow traffic, a shoreline fails or ATONs are damaged, the result can be delayed cargo, higher transportation costs, lower mooring and fleeting capacity, increased safety risk, and added pressure on Texas highways and railroads.

These challenges should be managed as part of a critical freight corridor where each investment supports safer navigation, more reliable cargo movement, stronger coastal resilience, and continued economic value for Texas and the nation.

3.1 Challenge 1: Shoaling

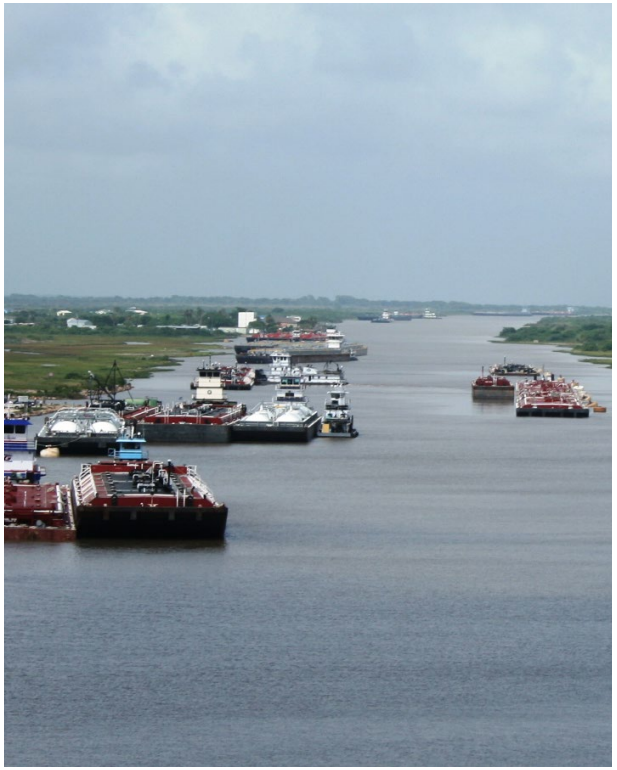
On the GIWW-T, shoaling directly affects how much cargo can move and how safely vessels and barges can transit. When shoaling reduces available depth, tow operators may have to light-load barges, slow vessel movements, wait for dredging or avoid constrained areas during unfavorable conditions.

The cost of lost depth is significant. The Texas A&M Transportation Institute (TTI) found that allowing the GIWW-T Matagorda Bay/East Matagorda Bay reach to lose just one foot of draft could force operators to make additional barge trips to move the same cargo, adding an estimated $12.6 million (2016 dollars) in annual operating costs and increasing the cost of doing business by about 15.5 percent.[25]



What is an allision?

Allisions occur when a moving vessel strikes a stationary object, such as a bridge, lock, pier or dock. A collision occurs when a moving vessel strikes another moving vessel.



Heavy traffic at the Colorado River Locks in 2015 (Photo credit: USACE)

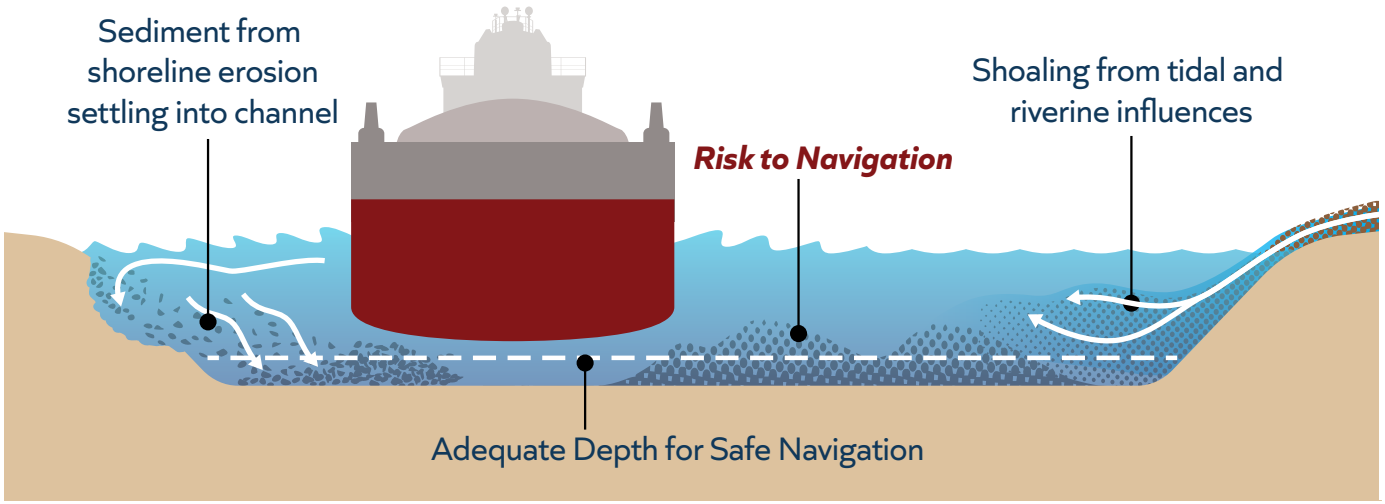
These added costs affect feedstock transfers, refined-product movements, chemical and petroleum shipments, construction materials and other critical supply-chain movements that support Texas' coastal economy.

Priority shoaling areas include East Matagorda Bay, Caney Creek, the Bolivar Flare/Texas City Wye area near Galveston Bay, Mitchell's Cut near Sargent Beach and other exposed bay reaches. In these areas, allisions and groundings occur annually, causing extensive system interruptions and damage to equipment and the channel infrastructure. From 2019-2023, the USCG reported that the Bolivar Flare/Texas City Wye area experienced a combined 65 allisions, collisions and groundings.[26] Across its service area, which includes this area, USCG Vessel Traffic Service Houston-Galveston reported eight collisions in 2024 and, in 2025, eight ship and tow collisions, two allisions, 17 broken tows and 16 groundings, 12 of them at Bolivar.[27, 28] These areas are affected by currents, tributary flow, vessel traffic, shoreline erosion and storm-driven sediment movement.

Maintenance dredging remains the foundation of GIWW-T reliability. The goal is to stay ahead of restrictions through planned dredging, maintaining dredge material placement area capacities, and early coordination between USACE, TxDOT, ports, industry and environmental partners.

Continued planning for future placement area needs remains a core GIWW-T priority. Adequate funding is essential to maintain authorized channel dimensions and support the timely execution of maintenance dredging activities. However, maintenance needs continue to outpace federal funding allocations, contributing to deferred maintenance dredging across the USACE Galveston District.

How Shoaling Threatens Navigation



WHY IT MATTERS

- Shallower water limits the size and number of vessels that can use the channel.
- Delays and restrictions increase transit times and costs.
- Higher costs can impact businesses, supply chains and the local economy.
- Dredging is often needed to remove sediment and maintain safe navigation.



A Cutterhead pipeline dredge relocating to a new dredge location (Photo credit: Port Houston)

Early coordination is important because delayed maintenance can allow shoals to grow, reduce navigation reliability and, in some cases, create additional environmental review complexity if deposited material remains long enough to become habitat.[29]

TxDOT continues to explore technology solutions to build the GIWW-T GIS database and develop a digital twin, a detailed digital database of the waterway's asset attributes that can help track important issues such as choke points and shoaling areas and provide systemwide visibility.[19]

To keep this digital twin current, TxDOT and partners will need to share data, including laser scanning, video and images of the waterway and infrastructure. This could be achieved using tools like LiDAR and sonar to measure channel depth and shape. The data could be captured manually or with autonomous and remotely operated vessels (ROVs). The data would then feed into the digital twin, where analytical tools could spot trends automatically, such as which areas are shoaling fastest. This would help TxDOT make data-driven decisions to reduce operations and maintenance costs.

3.2 Challenge 2: Aging and Degraded Infrastructure

The BRFG in Freeport, where the GIWW-T intersects the Brazos River, and the CRL near Matagorda where the GIWW-T intersects the Colorado River, are the two most significant fixed-infrastructure constraints along the GIWW-T. Both were built in the 1940s and were not designed for today's tow sizes, cargo volumes or operating conditions.[3] These structures slow traffic because tows often must be separated and transited in smaller sections, causing delays, raising costs and increasing the risk of vessels striking the structures. Vessels strike the BRFG on average about once every five days, according to the USACE Inland Navigation Design Center,[30] and the Inland Waterways Users Board identifies it as the most frequently damaged structure in the entire USACE inland waterways portfolio.[31] TxDOT estimates the aging structures cause an economic loss of $37 million per year in transit delays.[32]

When delays occur at these locations, the impact can extend beyond the immediate structure and affect traffic planning upstream and downstream. Further, both of these structures limit traffic to one-way transit at a time.

These facilities are treated as system chokepoints. Lock Performance Management System (LPMS) data summarized for this reporting cycle show that the BRFG and CRL continue to experience high delay levels.[20]

Aging infrastructure also increases repair and reliability risk. Structures that experience repeated vessel impacts, mechanical issues or operational restrictions require increased maintenance. Repairs can be difficult to schedule because the waterway must remain open for commerce, public safety and coastal access. Even temporary restrictions can affect vessel schedules and increase the cost of moving cargo.[3]

Because the GIWW-T is an active freight corridor, major work at the floodgates and locks cannot be treated like a conventional, isolated construction project. Repair or modernization must account for navigation continuity, mariner safety, channel conditions, environmental review, traffic management and stakeholder coordination.[3, 29]

The need for BRFG and CRL modernization is well established. USACE's recommended plan addresses the existing narrow structures to reduce vessel strikes. The 2019 USACE feasibility report projected that the plan would reduce accident probability by approximately 80 percent at the BRFG and 99 percent at the CRL.[3]

The BRFG design is complete and construction is pending a federal new-start construction appropriation. The CRL design remains on hold pending funding, with both still in the Pre-Construction Engineering and Design phase.[3]

The BRFG should remain the highest-priority capital improvement project for construction funding, and the CRL should remain on an active path to design and delivery. Each year that modernization is delayed, the corridor continues to absorb avoidable delay, repair, safety and reliability costs.[3]

3.3 Challenge 3: Erosion – Shoreline and Barrier Islands

Shorelines, wetlands, and bay barrier islands help protect the GIWW-T from waves, storms and impacts of open-water conditions. When these features erode, the channel becomes more exposed and harder to maintain. Erosion can increase sediment entering the channel, make navigation more difficult during high winds or storms, damage DMPAs and increase the amount of maintenance dredging required to keep the waterway open.[25, 34]

Erosion on the GIWW-T varies by location. In Brazoria County, the Gulf shoreline on Follets Island near Surfside was eroding at 11.5 feet per year, based on 2000 to 2012 data.[34] Near Mitchell's Cut in Matagorda County, Sargent Beach erosion is even more severe, with reported rates of 20 to 23 feet per year along the historic section east of Farm to Market Road (FM) 457 and up to nearly 43 feet per year near Mitchell's Cut.[33]



An example of coastal erosion (Photo credit: Galveston Bay Foundation)

Beneficial Use of Dredged Material (BUDM)

Dredged material can be a beneficial resource where conditions allow, supporting the construction or restoration of marshes, shorelines, beaches, barrier islands, bird islands and rookery islands while also helping to stabilize the channel. BUDM has been implemented at many locations along the GIWW-T. According to USACE Galveston District's dredging records, 92,977,026 cubic yards, 53.82% of all material placed from GIWW-T main channel dredging, was used beneficially in fiscal years 1990 through 2023.[35]

Recent federal policy supports this direction. The Water Resources Development Act of 2024 (WRDA 2024) strengthened the national policy basis by establishing a goal to beneficially use at least 70% by volume of suitable dredged material from construction, operations and maintenance projects, to the greatest extent practicable.[36]

Meeting that WRDA goal would further stabilize the GIWW-T channel, while addressing two GIWW-T needs at the same time: maintaining channel depth and strengthening the coastal features that protect the waterway.

This approach does not eliminate the need for conventional DMPAs. Where beneficial use is practical, it can reduce shoaling, restore habitat and strengthen the coast around the waterway.[25]

Several projects show how this approach can work. The GIWW-T Coastal Resilience Project was authorized at $322.8 million by WRDA 2024.[36]

Texas should continue to advance projects that combine maintenance dredging and shoreline protection to capitalize on resilience benefits.

State coastal planning work is aligned with this mission. The Texas GLO's Coastal Resiliency Master Plan identifies shoreline erosion, wetland loss, storm impacts and sediment-related coastal change as ongoing issues along the Texas Coast.[34] These issues affect navigation depth, channel stability, DMPA capacity, storm recovery and the cost of maintaining the GIWW-T corridor.

Important Coastal Projects[1, 21]

The GIWW Coastal Resilience Project

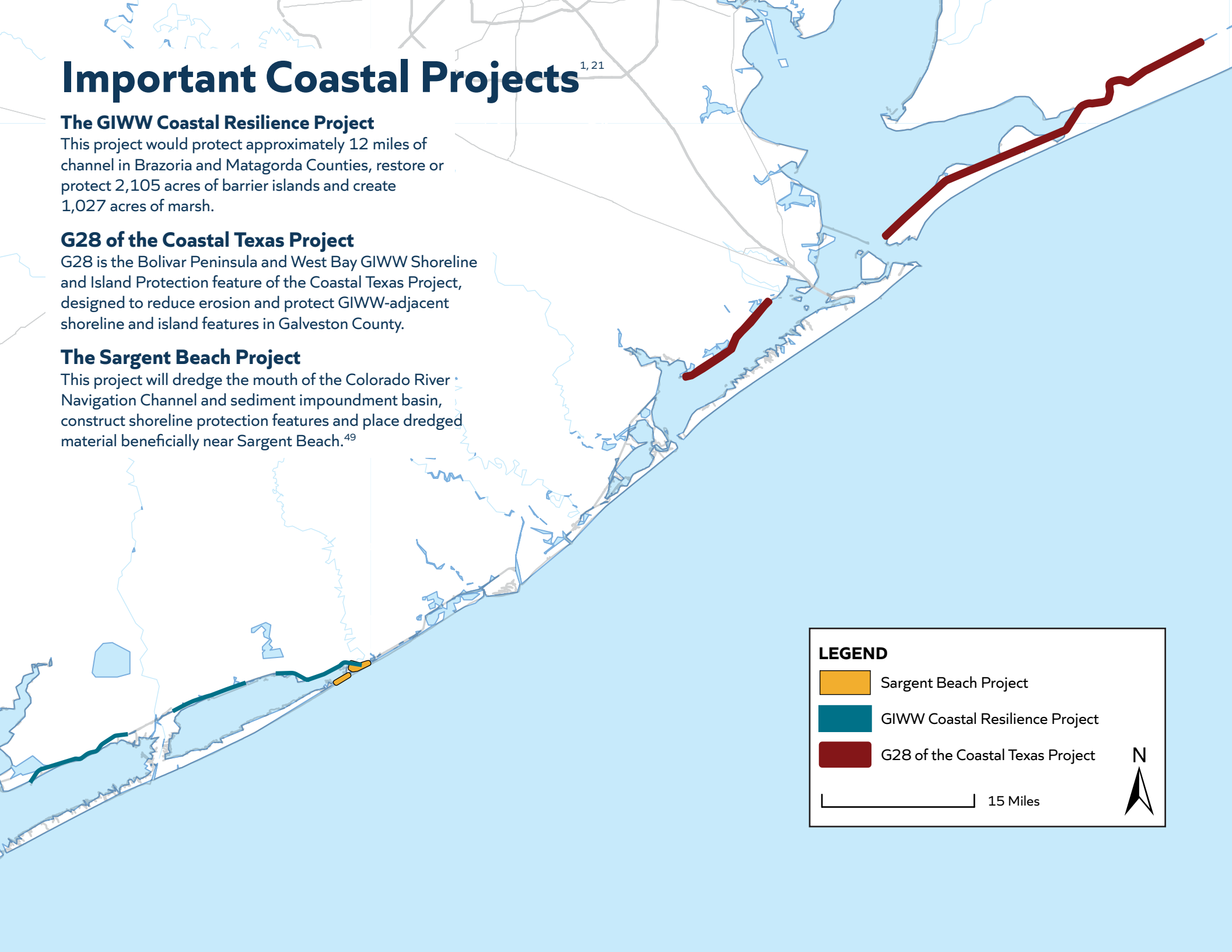
This project would protect approximately 12 miles of channel in Brazoria and Matagorda Counties, restore or protect 2,105 acres of barrier islands and create 1,027 acres of marsh.

G28 of the Coastal Texas Project

G28 is the Bolivar Peninsula and West Bay GIWW Shoreline and Island Protection feature of the Coastal Texas Project, designed to reduce erosion and protect GIWW-adjacent shoreline and island features in Galveston County.

The Sargent Beach Project

This project will dredge the mouth of the Colorado River Navigation Channel and sediment impoundment basin, construct shoreline protection features and place dredged material beneficially near Sargent Beach.[49]

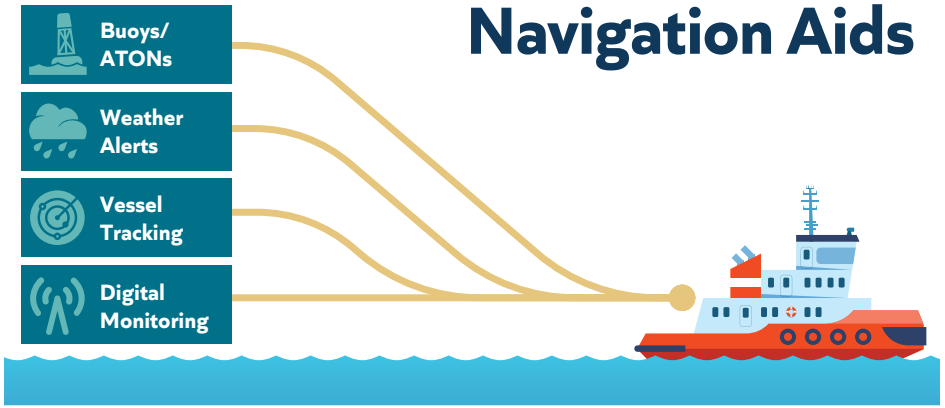


3.4 Challenge 4: Aids to Navigation (ATONs)

ATONs, which include buoys, beacons, lights, signs and other markers, assist vessel navigation in the channel. They are especially important because the GIWW-T is shallow and narrow in many areas and intersects every ship channel in Texas. When ATONs are damaged, missing or off-station, mariners have less information at the moment they most need certainty, increasing the risk of groundings, allisions, collisions and delays. This risk is greatest in high-traffic areas such as the Bolivar Flare/Texas City Wye area and Galveston Bay, where shallow-draft barge traffic interacts with deep-draft vessels, ferries, recreational boats and port traffic.[26]

The USCG establishes, operates and maintains federal ATONs on the GIWW-T.[37] In FY 2023, the USCG responded to 366 damaged ATONs along the GIWW-T, resulting in approximately $4,575,000 in taxpayer obligations, 95% of which were unreported by mariners. Maintaining ATONs reliability is difficult because the same forces that threaten navigation, including weather, currents, heavy traffic and vessel strikes, also damage or displace ATONs.[26]

The USCG's Waterways Commerce Cutter (WCC) program is key to long-term reliability, replacing aging vessels that support ATONs work on the GIWW-T.[38] Until the new fleet is fully in service, the GIWW-T's operations will depend on existing cutters, timely discrepancy reporting, inspection capacity and prioritized repairs.



Electronic tools can improve navigation awareness when physical aids are unavailable. Virtual ATONs are digital markers transmitted directly to the vessel's electronic navigation systems, giving mariners instant updates on underwater hazards and on missing or off-station ATONs, even when no physical marker is present.[53, 39] Virtual ATONs supplement rather than replace traditional ATONs, as smaller vessels may lack the technology needed to fully utilize them.[53]

Physical and virtual ATONs should advance in tandem. Physical aids should be maintained and strengthened, while virtual and AIS-based tools help when physical aids are damaged or displaced, especially at high-traffic locations such as the Bolivar Flare/Texas City Wye area.[53]

Strengthening this combined system would improve safety, reduce delays and help the GIWW-T recover faster after storms or incidents. Pilot projects for virtual ATONs, along with more routine maintenance, remain priorities.

Over the long term, Texas and its partners should keep investing in the surveys, data and pilot programs that make each dollar spent more impactful. More active monitoring supports a well-planned maintenance program, helping keep the GIWW-T open and reliable for the ports, industries and communities that depend on it.

3.5 Challenge 5: Funding

The challenges the GIWW-T faces are not managed by one sponsor or one appropriation. Responsibilities are split, meaning action can be delayed even when overlapping needs are clear.[26] Separately, a lock or floodgate project may be congressionally authorized but still lack construction funding appropriations.[30] Federal funding needs, annual work plans, project authorizations and construction funding decisions often move on different timelines.

As projects become more complex, readiness becomes more important. Planning, engineering, environmental review and real estate needs should be identified early, while required sponsor agreements and cost-sharing commitments must also be coordinated to support project execution.[15] Coordination is therefore as important as appropriation. When federal, state, local, industry and coastal-resilience funds are aligned, the GIWW-T project pipeline is positioned for execution as funding becomes available.

Delaying authorized infrastructure upgrades leads to rising costs and greater vulnerability to severe weather, resulting in less long-term value for public funding. For historical comparison, the original project baselines established since the last biennium (December 2024) budgeted the BRFG at $279.6 million and the CRL at $319.4 million. Updated engineering projections have since risen to $516.7 million for the BRFG and $612.4 million for the CRL, bringing the combined capital modernization total to nearly $1.13 billion. A sustained funding strategy for the GIWW-T should support three concurrent goals: keeping the channel open today, advancing construction-ready improvements, and preparing the next generation of resilience and navigation projects. Without that continuity, Texas and the nation risk paying more later for today's problems.

4. Ensuring Success: The Future of the GIWW-T

The GIWW-T is a working corridor and a daily part of life for Texas communities along the Gulf Coast. Shoaling, aging infrastructure, shoreline erosion, navigation aids, mooring needs, data gaps and funding limitations all affect its ability to function, so the corridor must be managed as an interconnected system.[26]

4.1 Leveraging Stakeholder Partnerships and Accessing Funding

No single agency manages every part of the GIWW-T, and successful partnerships are already in place. The system depends on the coordinated work of TxDOT, USACE, USCG, the GLO, the GCPD, the Lone Star Harbor Safety Committee (LSHSC), the Southeast Texas Waterways Advisory Council (SETWAC), the South Texas Waterways Advisory Committee (STWAC), ports, navigation districts, local governments, industry, environmental partners and coastal communities, all aligned around a shared mission.[26]

The Texas Beneficial Use of Dredged Material Master Plan (TEXBUMP) is an example of coordination. Ducks Unlimited, Anchor QEA, TCEQ, and TxDOT developed TEXBUMP to identify coastal sites where dredged material can rebuild marshes and strengthen living shorelines, supporting the ongoing work of USACE, the GLO and TxDOT. It also informs the GLO's Texas Coastal Resiliency Master Plan (TCRMP). Through the Texas Beneficial Use Group (TEXBUG), partners coordinate and accelerate projects so that beneficial use sites are identified ahead of dredging.[48]

Additionally, partners continue to demonstrate the value of joint project delivery. With GLO funding, the Matagorda Bay Foundation has advanced engineering and design for the Boggy Cut GIWW Stabilization project in Matagorda County, which addresses erosion on the islands separating East Matagorda Bay from the GIWW.[42]

Existing partnerships extend beyond project delivery to include research, planning, and monitoring efforts. The GLO partners with Texas A&M University-Corpus Christi's Harte Research Institute (HRI) on the Texas Coastal Resiliency Master Plan to generate geohazard maps, assess project effectiveness and model future storm surge inundation. Concurrently, the GLO contracts with the University of Texas at Austin Bureau of Economic Geology to conduct long-term shoreline change monitoring along the Gulf coast and bay systems. At the federal level, the USACE serves as the federal sponsor alongside the GCPD as the non-federal sponsor for the G-28 feature of the Coastal Texas Project.[22, 18]

Overall, the objective is to keep priority projects positioned for the next available funding opportunity. Near-term priorities include fulfilling TxDOT's statutory sponsor responsibilities, advancing the BRFG, CRL, and GIWW-T coastal resilience initiatives toward federal action, and packaging shoreline restoration and beneficial use projects to compete for coastal resilience funding.

4.2 Adapting For Success – Assessment, Solutions and Recommendations

To address the challenges and stressors covered in this report, the following five improvements are recommended to ensure the GIWW-T's status as an efficient, resilient and safe waterway. Each recommendation identifies the requested action, estimated cost and associated assumptions. Unless otherwise noted, cost estimates are presented in 2026 dollars.

IMPROVEMENT CATEGORIES

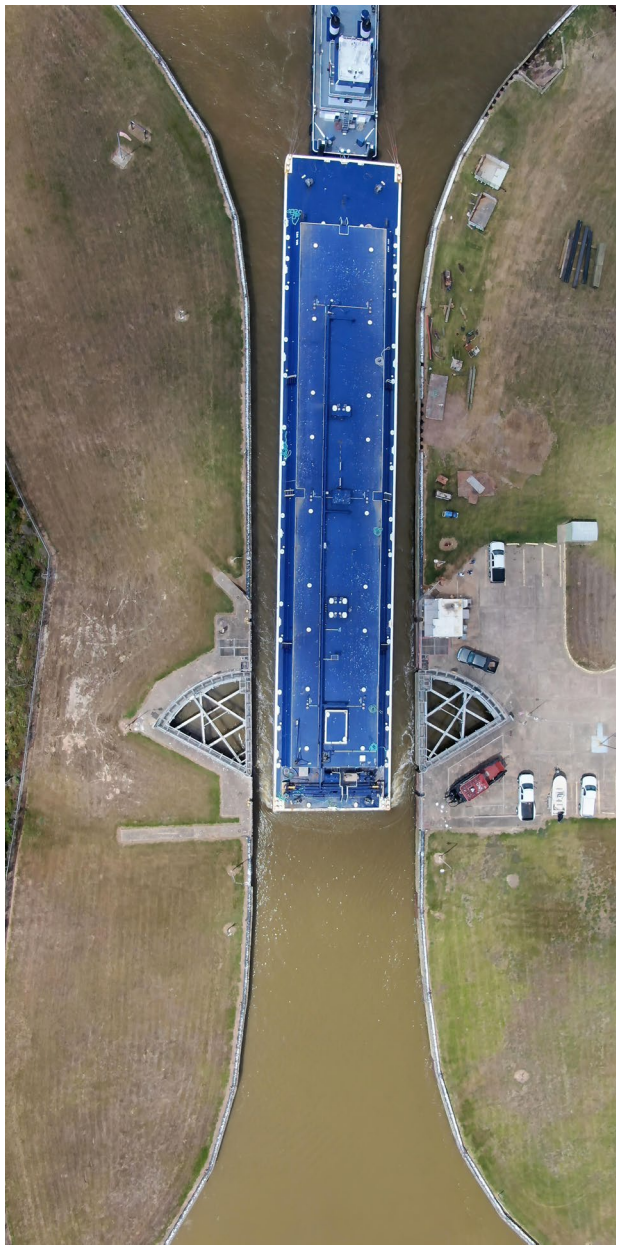
Safety | Navigation Reliability | O&M Cost Savings | Transportation Cost Savings | Coastal Resiliency | Data, Monitoring, & Planning

Improvement 1: Increased Maintenance Dredging Budget

Action: Support an increase in federal USACE funding for additional routine maintenance dredging to achieve authorized depth over a larger portion of the GIWW-T, reducing shoaling and continuing sponsor placement-area acquisitions.

Cost: $114.5 Million.

Assumptions: A roughly 19.4 million cubic yard restoration, computed from the most recent USACE eHydro hydrographic surveys for each GIWW-T segment (163 survey files, predominantly 2026) and checked against each segment's authorized depth and dimensions in the USACE National Channel Framework.[41, 42] Priced at $5.90 per cubic yard, the volume-weighted average of completed Galveston District GIWW maintenance-dredging contracts, for 2020 through 2023, from the USACE Dredging Information System.[35]



A barge travels through the Brazos River Floodgates (Photo credit: TxDOT)



Improvement 2: BUDM and Resilient Shoreline Stabilization Projects

Action: Promote BUDM in maintenance projects and execute resilient shoreline stabilization projects to address barrier island erosion and wetland habitat conversion, advancing the beneficial-use share toward the 70 percent goal.[36]

Cost: $7 to $10 per cubic yard pipeline mile incremental for unconfined placement; $25 to $35 per cubic yard pipeline mile for contained marsh restoration.

Assumptions: Dredging costs can vary significantly based on project-specific conditions, including the distance to the designated DMPA, project location, dredging depth, sediment characteristics, confined or unconfined and type of equipment.



Improvement 3: Modernization of the BRFG and CRL

Action: Secure funding to advance the phased BRFG modernization and CRL reconstruction, with the BRFG as the highest priority. At the BRFG, Phase I removes the existing 75-foot west sector gate and creates a 125-foot open navigation channel; Phase II removes the existing 75-foot east sector gate and constructs a new 125-foot sector gate set back from the existing gate location. The CRL would be reconstructed, replacing both existing sector gates with new 125-foot sector gates.

Cost: BRFG: $516.7 Million. CRL: $612.4 Million. Combined: $1.13 Billion.

Assumptions: Cost estimates per USACE data.



Improvement 4: Additional Maintenance and Expansion of Fleeting and Mooring Locations

Action: Provide more frequent routine maintenance at fleeting and mooring locations and develop an expansion plan for new facilities in consideration of industrial growth, changing vessel traffic patterns and commodity trends.

Cost: Approximately $34,000 to $43,000 per mooring buoy installed.

Assumptions: Costs calculated from USACE Galveston District procurement actuals.[43, 45] Supply and installation are escalated to 2026 dollars with the USACE Civil Works Construction Cost Index System.[46] Applies to buoy-type moorings in existing basins.



Improvement 5: Tracking and Monitoring Physical and Virtual ATONs

Action: Carry out virtual ATONs pilot projects in regions with frequently damaged or off-station physical ATONs; expand shore-side AIS receiver coverage and real-time monitoring of GIWW-T traffic; and establish pre-positioned post-storm survey and ATONs-restoration contracts.

Cost: $1.2 to $2 Million per pilot.

Assumptions: Estimated pilot costs reflect published USCG AIS shore site costs, integration and evaluation, prepositioned hydrographic survey support and PORTS-class annual operating costs.[44, 47, 31]

4.3 Outlook

The GIWW-T supports jobs across Texas,[2] keeps freight off highways[5, 10] and connects Texas to the U.S. Marine Highway System,[4] and it enters the 90th legislative cycle with real progress: the BRFG design is complete,[3] the GIWW-T Coastal Resilience project is authorized, placement-area acquisition is continuing[40] and beneficial-use planning has advanced.[16]

One of the remaining challenges is turning project readiness into construction: where obsolete chokepoints remain in service, delays continue and placement capacity tightens or protective shorelines erode, the waterway becomes more difficult to maintain and less reliable.[50]

With sustained investment and strong partnerships, Texas can keep this critical freight corridor open for today's economy while building a stronger, more resilient waterway for future generations.



The FM 2031 bridge across the Gulf Intracoastal Waterway in Matagorda County (Photo credit: TxDOT)

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A barge travels through the Brazos River Floodgates (Photo credit: TxDOT)


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