PORT AUTHORITY ADVISORY COMMITTEE

2024-2025 TEXAS PORT MISSION PLAN

88TH LEGISLATIVE SESSION

Port of Brownsville

Container terminal at Port Freeport.

Workers from the International Longshoremen's Association at the Port of Port Arthur.

2024-2025 TEXAS PORT MISSION PLAN

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LETTER FROM THE CHAIRWOMAN

Phyllis Saathoff
Chairwoman
Port Freeport
Upper Coast Representative

As chair of the Port Authority Advisory Committee (PAAC), I am pleased to present the 2024-2025 Texas Port Mission Plan. Texas is a port-driven state and serves as a gateway to global trade opportunities, therefore, it relies on a strong port system to facilitate its waterborne commerce. In collaboration with the Texas Department of Transportation's (TxDOT) Maritime Division, the PAAC communicates and elevates port issues to the Texas Transportation Commission and State Legislature.

In 2020, Texas ports moved over 607 million tons of cargo, maintaining the state's position as the nation's top exporter by tonnage. This trend of high export growth is primarily due to the increasing demand of commodities such as oil, gas, liquefied natural gas, and plastics. Eleven of the state's ports ranked among the top 100 U.S. ports in total tonnage with six of the state's ports ranked in the top 20 ports in the U.S. in total tonnage. Additionally, Texas is home to the fourth busiest cruise terminal in the nation, where approximately 2.2 million cruise ship passengers sailed out of Texas in 2019.

Presented in this Port Mission Plan are a combined $9.67 billion of projects, consisting of $4.34 billion in identified inland connectivity needs, $1.67 billion in port capital infrastructure investments, and $3.66 billion in federally authorized ship channel improvement projects. The infrastructure investment opportunities highlighted in this report will improve efficiency for the port system, help ease multimodal freight movements, attract private investments, and create jobs. The PAAC has requested state funding of $550 million in TxDOT's Legislative Appropriations Request to help implement these strategic investments and support the growing Texas economy, one of the largest in the world, for decades ahead.

The port capital infrastructure and connectivity needs outlined in this plan are invaluable, as the infrastructure required to handle increasing tonnage and specialty cargo is necessary to maintain efficient and safe operations. Connectivity routes are equally important for distributing commodities to their destinations, while also serving as vital pathways for exports to arrive at port gates for outbound shipment.

Eight Texas waterways are authorized federal ship channel improvement projects, of which five are awaiting full federal funding. Overall, the Ship Channel Improvement Report identifies eighteen projects and feasibility studies along the Texas coastline, highlighting the waterway needs of our ports. Channel improvement projects are vital to each port's operational capabilities, as the depth and width of the channel directly impacts the volume of cargo and the size of vessels that can traverse the waterway. Our ship channels are a national asset offering significant returns on investment; delays in project funding result in lost revenues and investment opportunities.

Keeping up with the needs and growth of the Texas' port system can be challenging, but the PAAC is looking forward to continued collaboration and strategic partnerships with all Texas ports, industry and government stakeholders, and the people of Texas. Investments in the state's port system are vital to maintaining the growth and stability of our economy. Thank you for your support.

THE PORT AUTHORITY ADVISORY COMMITTEE (PAAC)

The Port Authority Advisory Committee (PAAC) develops the biennial Texas Port Mission Plan to highlight the funding needs of the Texas port system. The PAAC is comprised of nine members. Under Chapter 55 of the Texas Transportation Code, the Texas Transportation Commission appoints seven members of the PAAC to represent the upper coast, lower coast, and Port Houston. The Lieutenant Governor and the Speaker of the House of Representatives each appoint an additional PAAC member.

Mission

"Elevate port issues as a vital component of the Texas transportation system and advise the Texas Transportation Commission and Department on matters relating to maritime transportation."

Goals

- Identify high-priority and strategic port projects and make recommendations to the department for investment
- Incorporate maritime interests in TxDOT planning activities and documents
- Promote Texas ports for economic development opportunities
- Identify federal, state, or other funding opportunities for maritime investment

PORT AUTHORITY ADVISORY COMMITTEE MEMBERS

Phyllis Saathoff
Chairwoman
Port Freeport
Upper Coast Representative

Chris Fisher
Vice Chairman
Port of Beaumont
Upper Coast Representative

Michael Plank
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Allan Ritter
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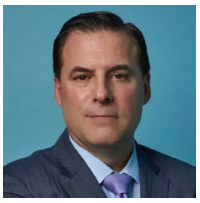
House Appointee

Roger Guenther
Port Houston
Permanent Member

Rodger Rees
Port of Galveston
Upper Coast Representative

Ronald Mills
Port of Port Mansfield
Lower Coast Representative



Sean Strawbridge
Port of Corpus Christi
Lower Coast Representative

Sean Stibich
Port Victoria
Lower Coast Representative


ATLANTIC POLARIS
NO SMOKING

LETTER FROM THE MARITIME DIVISION

Texas ports play an essential role in driving the state's economy, generating more than $308 billion in trade each year, exporting more than $207 billion and importing over $101 billion worth of goods, and leading to the creation of 1.8 million jobs in the state. That's why I'm honored for the opportunity to have collaborated with the Port Authority Advisory Committee (PAAC) and Maritime Division staff on the development of the 2024-2025 Texas Port Mission Plan. We hope this report will communicate to a broader audience the economic importance of Texas ports and highlight the many opportunities to invest in them.

Retired U.S. Coast Guard ADM James Loy is credited with coining the phrase, "If you've seen one port, you've seen one port," to explain the idea that while their operations may appear similar, each port has differing strengths, challenges, and opportunities. This is especially true in Texas.

Each one of our twenty commercial ports and navigation districts are unique not only in their capabilities, but also in their needs. We are home to six of the nation's Top 20 busiest ports who handle major commodities like agricultural products, energy resources, and containers destined for overseas markets. Other ports in the state fill a niche role supporting their local economies through commercial fishing, cruise operations, or ship-breaking operations. Still others ensure that America will be ready to support the deployment of armed forces during national defense emergencies through their participation in the National Port Readiness Network. This report evaluates and documents the specific conditions at each port in the state and makes recommendations for investment.

Geir-Eilif Kalhgen

Geir-Eilif Kalhagen
Director of Maritime Division

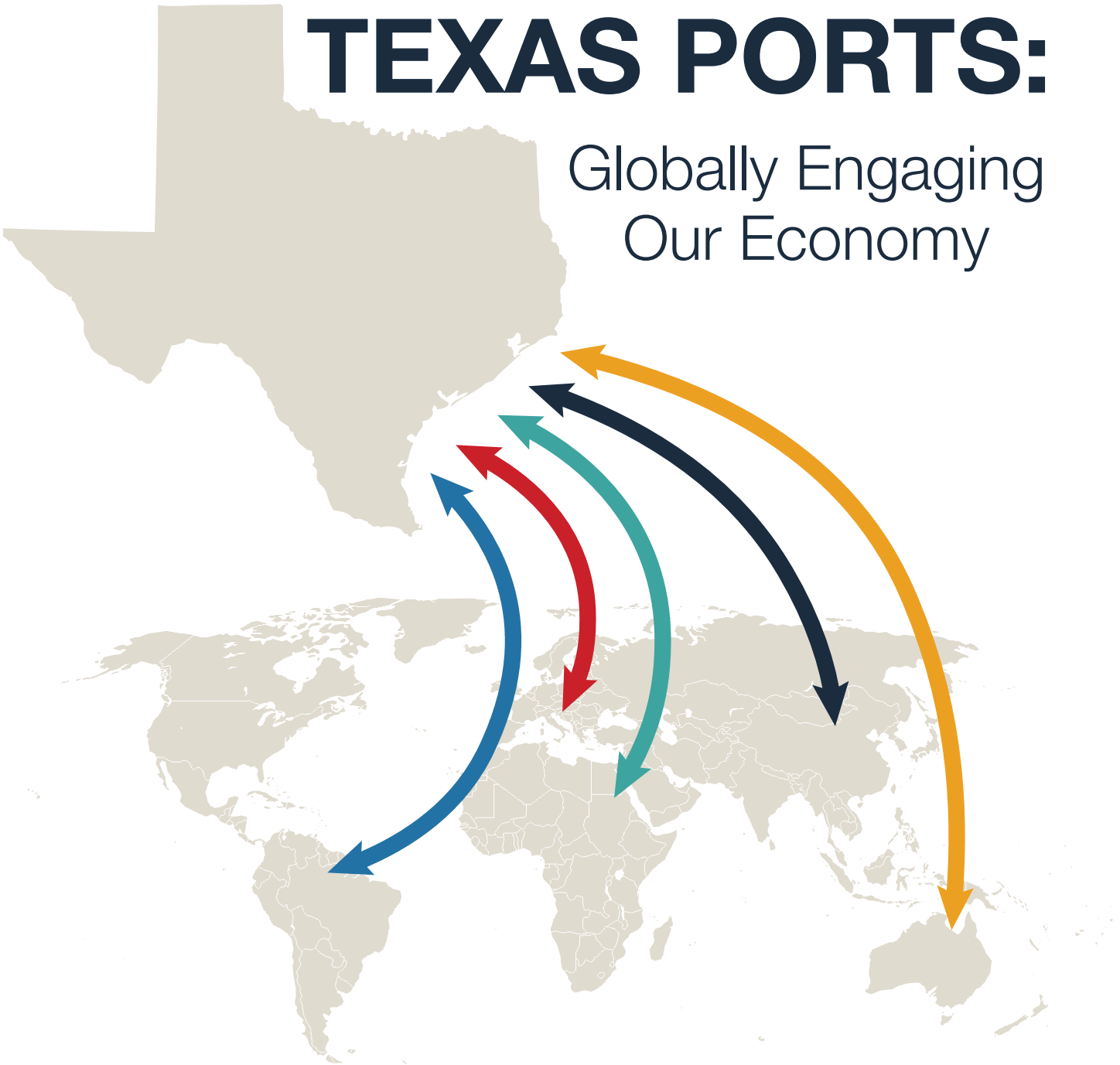
While the infrastructure investments needed at each of these ports varies considerably, all ports require continuous maintenance and improvement to attract investment opportunities for new industrial facilities and to avoid lost business opportunities. Within this Port Mission Plan, approximately $4.34 billion has been identified for road and rail projects to improve ports' connections to the National Freight Network and ease congestion on local roads; $3.66 billion for federally authorized ship channel projects to deepen and widen ports' waterways, allowing them to be more competitive with East and West Coast ports; and $1.67 billion in port capital investment projects that will expand ports' cargo handling capabilities and smooth their operations. The success of our ports and overall supply chains is predicated on thoughtful investment in "outside-the-gate" port connectivity needs, ship channels, and port-side infrastructure assets.

For the 88th Legislative Session, the PAAC recommended that TxDOT include the following in the Department's Legislative Appropriations Request (LAR): $150 million to help fund projects identified in the Port Capital Investment Report and $400 million for the Ship Channel Improvement Revolving Fund. TxDOT's Transportation Commission elected to include the full amounts in its LAR for the 2024-2025 biennium.

The TxDOT Maritime Division continues to explore external and internal partnerships and opportunities across all modes to identify collaborative ways to assist our state's ports. Together we can assure the continued economic vitality, stability, and competitiveness of the great State of Texas. We hope this report has succeeded in conveying the story of our incredible port system.

TEXAS PORTS:

Globally Engaging Our Economy



Annual Trade by Region[16]:

South & Central America
$58.89 B
Exports: $45.51 B
Imports: $13.38 B

Europe
$87.35 B
Exports: $53.68 B
Imports: $33.67 B

Africa
$8.41 B
Exports: $6.58 B
Imports: $1.83 B

Asia
$115.33 B
Exports: $76.01 B
Imports: $39.32 B

Australia & Oceania
$1.87 B
Exports: $1.39 B
Imports: $0.48 B

$308.58 billion in trade value overall annually*

$207.4 billion in exports and $101.18 billion in imports

*Values in dollars for annual combined waterborne import and export trade value for Texas in 2021.

INVESTMENT STRATEGY

Texas ports are critical to the economic growth of Texas. In 2020, Texas ranked first nationwide for total waterborne tonnage handled and first nationwide for total foreign waterborne tonnage of imports and exports.[1] Eleven of the state's ports ranked among the top 100 U.S. ports in total tonnage and six of the state's ports are ranked in the top 20 ports in the U.S. in total tonnage.[2] Three Texas ports were among the top five fastest growing U.S. ports in terms of absolute export revenue. Trade through the State of Texas is a significant contributor in making Texas the world's 10th largest economy when comparing Texas GDP to national GDPs.[3,4] Whether urban or rural, coastal, or inland dwelling, all Texans benefit from the port system.

Despite the strong position of the maritime industry in Texas, the single greatest challenge common to all Texas ports is the need for additional funding for capital improvements. Significant growth is forecasted for the population of Texas. This growth will lead to an increase in maritime trade in general and container trade specifically. Worldwide trade patterns have been changing to favor East Coast and Gulf of Mexico ports over West Coast ports, and the Panama Canal expansion has enhanced that trend. Several Texas LNG facilities are in the late planning phase and are likely to be constructed during the next few years at Texas ports. For these reasons, investments in Texas ports are needed to maintain the efficient transportation of cargo.

Each Texas port is unique and has its own infrastructure challenges and funding needs. The Port Authority Advisory Committee (PAAC) puts forward the 2024-2025 Texas Port Mission Plan (PMP) as the maritime mission plan required in Chapter 55 of the Texas Transportation Code. The PMP includes this investment strategy and three major sub-reports:

- Port Capital Investment Report (PCIR)
- Ship Channel Improvement Report (SCIR)
- Port Connectivity Report

Collectively, the reports comprising the Port Mission Plan highlight the importance of investing in the port system to benefit the state and meet the growth potential of global trade opportunities.

STATEWIDE IMPACT

Most Recently, Texas Ports:

- Moved nearly 607 million tons of cargo, including nearly 464 million tons of international cargo, and nearly 143 million tons of domestic cargo (2020)[5]
- Handled over 3 million containers (2020)[6]
- Served nearly 500,000 cruise passengers (2020)[7]
- Supported 1.8 million jobs in the state (2018)[8]

PORT INVESTMENT IS A STATEWIDE GROWTH STRATEGY

On an annual basis, the Texas ports system supports nearly 129,000 direct jobs and an associated $8.7 billion in direct personal income, using 2018 data.[8] In total, Texas ports provided 1.8 million jobs and a corresponding $102.8 billion in personal income in 2018.[8] They contributed $662 million in direct state and local taxes, and over $7.8 billion in total taxes, with a total economic value to the state of $449.6 billion.[8] To maintain Texas' position as a maritime trade leader and remain competitive in the future, the focus must be on critical capital investments that enhance and expand the Texas port system such as improved ship channels, multimodal connections, and replacement of outdated and failing port facilities. This will require support from all levels of government including the State of Texas.

Capital Investment

The Texas port system relies on partnerships and funding from the ports, private partners, and all levels of government. Ports are typically responsible for funding facility improvements and partnering with the federal government to fund ship channel projects. Even as a maritime leader, the Texas port system still faces funding shortfalls. For example, the congressional authorization and appropriation process for ship channel improvement projects can take decades, which has contributed to the nearly $109 billion backlog of federal water resource projects nationwide.[9] In the midst of such funding challenges, ports and their partners increasingly have to look for alternative means of funding projects such as public-private partnerships.

Capital investments in and around Texas ports have recently included:

- An estimated investment from public ports of over $1.7 billion between 2013 and 2017 and an additional anticipated investment of $3.2 billion in planned facility investments from 2018-2023.
- Roughly $96 billion in investments between 2013 and 2017 made by private industry with an anticipated $69 billion of planned investments between 2018 and 2023.
- Roughly $1.5 billion have been invested in currently authorized ship channel improvement projects as of 2022, including $679 million in federal funds and $811 million in local funds (see the Ship Channel Improvement Report for more details).

Resiliency

Resiliency of the Texas maritime system is often overlooked until emergencies and disasters, like global health concerns or hurricanes and floods, occur. In times of emergency, such as the 2020 COVID-19 pandemic, ports play a crucial role in keeping the U.S. economy afloat. In 2020, despite the global disruption in container vessel traffic, Texas ports remained open and moved more than 607 million tons of cargo—more than any other state.[5] They continued to import essential consumer goods, including medical supplies, pharmaceuticals, food, and fuel. In fact, when the petroleum industry faced an economic downturn due to plummeting demand and surplus supply, crude oil was stored in supertankers offshore until markets recovered. Investing in port infrastructure will ensure that the Texas maritime system not only endures disasters but continues to be an asset in times of need.[10]

During the COVID-19 pandemic, quarantined consumers shifted from spending their spare cash on vacations, restaurant outings, and other services, to buying goods and products online. This sparked an influx of demand for imported goods, which, when coupled with a shortage of truck drivers and other port workers, created a bottleneck at ports nationwide. At the border of Texas and Mexico, bottlenecks caused disruptions of the movement of up to $150 million worth of produce as additional inspections were performed on incoming commercial trucks. Some of the backups reportedly lasted 12 hours or longer, potentially rendering some produce unusable.[11,12] These supply chain problems created hardships for consumers, businesses, and port workers alike.[13,14]

Current events also impact the resiliency of the port system. After the Russian invasion of Ukraine, there was an increase in demand for crude from U.S. producers to replace Russian exports. Texas ports have seen an increase in export activities, specifically in the Corpus Christi and Beaumont-Port Arthur regions, since changes in global oil prices have made it much more profitable to ship crude overseas. The sustainability of this boost is largely dependent on whether domestic crude production continues to meet demand.[15] Incidentally, several offshore oil ports and onshore LNG facilities are in the planning and permitting stage and the Cheniere Corpus Christi LNG facility recently started construction on a major expansion.[16]

Beyond the effects of the recent pandemic, natural disasters can cause ports and waterways to shut down for days or even weeks. Shutdowns not only disrupt the flow of cargo into and out of Texas and the country, but also cost billions of dollars to the ports and related industries. Hurricanes and other natural disasters can also have major implications for Texas ports. Recent effects to the ports from natural disasters have included:

- In 2017, Hurricane Harvey caused $17.4 billion in economic impacts due to port closures and associated impacts and caused nearly $250 million of damage to port infrastructure.[17]
- In 2020, the COVID-19 pandemic decreased shipments of containerized goods and petroleum, allowing the import of essential goods such as food and medical equipment.
- The Port of Beaumont is a strategic military port and storm protection is being built to protect the area from damaging hurricanes like Hurricane Ike.

Investing in port infrastructure, multimodal connections, and ship channels can improve the ability for the port system to withstand and recover from disasters.

Events like Hurricane Harvey further weakened aging port infrastructure such as these grain docks at the Port of Beaumont.

DID YOU KNOW?

- **Texas leads the nation in maritime trade** as the Port of Houston continues to be the tonnage leader among US ports transferring over 275.9 million short tons in 2020. Corpus Christi, Beaumont, Port Arthur, Port Freeport, and Texas City all rank within the top 20 as far as total tonnage.[18]
- **Texas is the #1 cotton producing state**, and Texas ports lower the cost of transportation to export markets. The value of cotton exports from Texas ports increased 92% to an annual average of $875 million (2017-2021) since completion of the Panama Canal expansion.[19]
- The Texas chemical industry, with average annual wages of $107,000, is concentrated at port facilities. Texas ports export **an annual average of $15.3 billion (2017-2021) of organic chemicals** per year.[19]
- LNG (Liquified Natural Gas) export terminals and refineries provide billions in investment and increase local property tax revenue. **The value of petroleum and petroleum products exports from Texas ports increased 88%** to an annual average of $103.4 billion (2017-2021) since completion of the Panama Canal expansion.[19]
- Texas automobile manufacturing benefits from exports through Texas ports. **Texas ports export an annual average of $4.1 billion (2017-2021) of vehicles** and vehicle parts per year.[19]
- Texas plastic resin manufacturing facilities are concentrated near Texas ports. **The value of plastic exports from Texas ports increased 25%** to an annual average of $8.6 billion (2017-2021) since completion of the Panama Canal expansion.[19]
- Distribution centers near Texas ports lower the cost of consumer goods to Texans. **Imports of consumer durables (apparel, furniture, etc.) through Port Houston increased 127%** to an average of $7.2 billion annually since completion of the Panama Canal Expansion.[19]
- Texas routinely accounts for **over a third of the red snapper harvested in the Gulf and a third of the Gulf's shrimp landings** based on pounds (2018 to 2021). In 2020, while the nations' shrimp and seafood industry continued its decline, about 21 percent of all domestic shrimp landed in the United States came from Texas.[20]
- Texas continues to see an increase in the volume of containers and goods handled at ports. **Port Freeport handled 35% more cargo** in the first half of 2020, when compared to the same period in 2019, equating to 161,890 US tons. By June 2022, **Port Houston increased container volumes by 18%** when compared to the same time period in 2021, handling approximately 1.9 million TEUs.[21,22]

TYPES OF PORT FACILITIES

Ports vary greatly from one to the next, primarily due to the various types of commercial activity that occurs within the port. Each port has specific equipment and infrastructure needs in order to operate effectively. The following eight port typologies have been adapted from the U.S. Maritime Administration's port typology framework and are presented to summarize these ranging services provided by ports along the Texas coast.

Break bulk ports require large cranes or other equipment to move products like steel, lumber, wind turbines, and over-sized project equipment and materials. In addition to having equipment for moving cargo, they frequently require large areas for laydown yards or warehousing. Port Houston is the national leader in handling break bulk cargo.[23]

Bulk ports are those which use equipment such as cranes or elevators to handle loose commodities such as aggregate materials for construction or agricultural products such as grains. The Port of Harlingen exports 100% of the sugar produced in the Rio Grande Valley and imports most of the fertilizer used by South Texas farmers.[24]

Container ports typically require specialized large-scale cranes to efficiently move containerized cargo. Similarly, vessels transporting container cargo are among the largest that call on Texas ports, requiring significant channel depths to avoid light loading. Both Port Freeport and Port Houston have Post-Panamax sized container cranes, with Port Houston standing as the fifth largest container port in the U.S. and the largest container port on the U.S. Gulf Coast.[25,26,27]

Cruise terminals provide for the recreational travel of passengers via ship and require separate access from the other secured port operating facilities. The Port of Galveston is the 4th busiest cruise port in the U.S., providing access for vacationing to the Gulf Coast of Mexico and the Caribbean.[28]

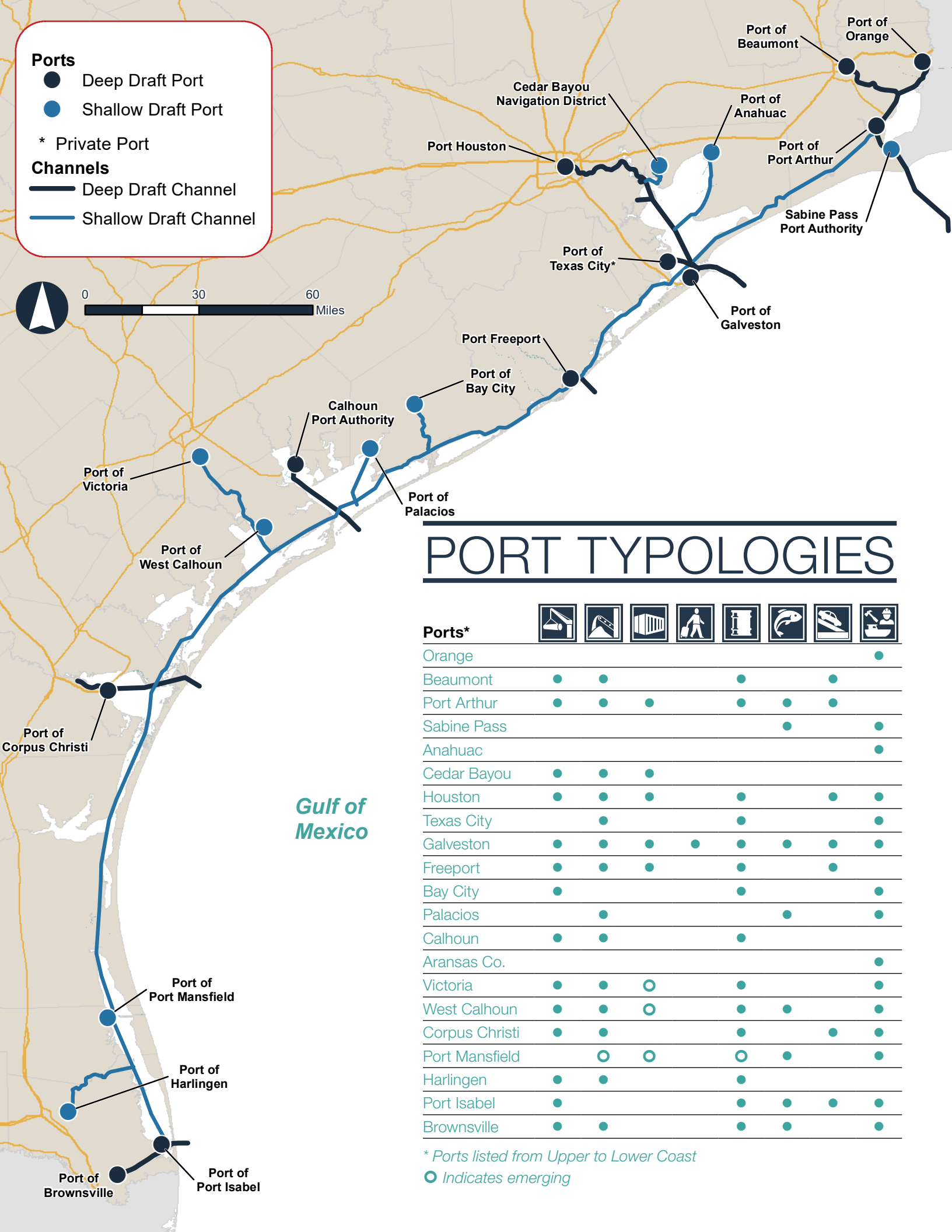
Energy ports allow for the import and export of liquid bulk such as petroleum products, chemicals, and liquefied natural gas. These port facilities often include large storage tanks and pipeline connections for product handling. Vessels calling on energy ports often require greater depths. The Sabine-Neches Waterway is the leading bulk liquid cargo waterway in the nation.[29]

Fishing ports provide dockside access for fleets of commercial fishermen who catch finfish, shrimp, oysters, and crabs. Four Texas ports are among the top fifty largest commercial fishing ports in the country including the combined Ports of Brownsville and Port Isabel, the Port of Galveston, the Port of Port Arthur, and the Port of Palacios.[30]

Ro/Ro (roll on/roll off) ports process vehicles and other equipment that can be moved on and off vessels by using large ramps to connect with dock facilities. Ports that process vehicles will often have facilities for additional port-installed auto manufacturer options such as wheels, suspension, or other interchangeable parts. Ro/Ro ports in Texas play a critical part in supporting the movement of military cargo at the Port of Beaumont and Port of Port Arthur.

Other commercial activities are carried out at ports that don't fall into the above port typologies. Some of these activities include recreation, vessel and barge repair and construction, lay berthing, ship recycling, support of offshore oil and gas, and support of emerging industries, such as space exploration by private companies.

New wharf construction at Port Freeport.



PORT TYPOLOGIES

Ports*								
Orange								●
Beaumont	●	●			●		●	
Port Arthur	●	●	●		●	●	●	
Sabine Pass						●		●
Anahuac								●
Cedar Bayou	●	●	●					
Houston	●	●	●		●		●	●
Texas City		●			●			●
Galveston	●	●	●	●	●	●	●	●
Freeport	●	●	●		●		●	
Bay City	●				●			●
Palacios		●				●		●
Calhoun	●	●			●			
Aransas Co.								●
Victoria	●	●	○		●			●
West Calhoun	●	●	○		●	●		●
Corpus Christi	●	●			●		●	●
Port Mansfield		○	○		○	●		●
Harlingen	●	●			●			
Port Isabel	●				●	●	●	●
Brownsville	●	●			●	●		●

** Ports listed from Upper to Lower Coast*

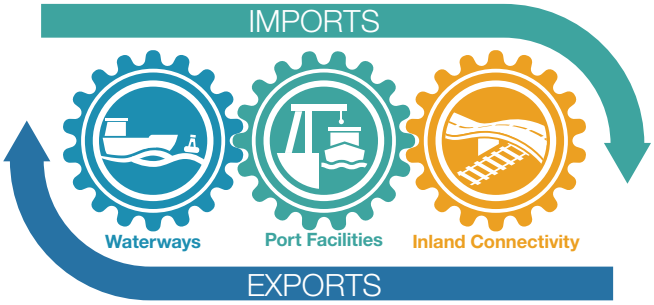
○ *Indicates emerging*

HOW THE PORT SYSTEM WORKS

Texas ports are strategic shipping hubs that house complex operating networks for handling the cargo and commodities that fuel and furnish the nation. There are three major components that are essential to each port's day-to-day activities: waterways, port facilities, and inland connectivity. Each one of these components represents an indispensable piece of the supply chain and a critical area for strategic investment. All three combine to form the Texas port system and intersect at the port.

Every industry served by ports relies on all three parts of the port system. All goods moving through Texas for export rely on trucks, trains, and pipelines to get to the port, where they are then typically stored in a warehouse or laydown area. Goods are then transferred onto vessels by using cranes or other equipment. Once loaded, vessels leave the port using waterways. A bottleneck in any one of the three parts of the port system can have a ripple effect and negatively impact other parts of the port system supply chain. If, for example, a ship channel is not deep enough, vessels may need to carry less cargo or be routed to another port with sufficient draft, even if the port facilities and landside connections at the original port are in working order. The port system's success requires thoughtful coordination and investment across all three areas.

Another key to the success of the Texas maritime system is its diverse ports. All ports, big and small, provide unique services and contribute to the overall success of the industry. Some ports offer comprehensive services to a range of industries and can handle a wide variety of cargo in large volumes, such as Port of Houston. Others serve a specialized purpose or niche, such as Port of Palacios, which serves a large shrimping fleet, or Calhoun Port Authority, which houses the necessary equipment to handle large quantities of chemicals, petrochemicals, aluminum ore, and fertilizers. Similarly, Port of Galveston is the only cruise port in the state of Texas. Strong intermodal transport infrastructure amongst the large and small ports is necessary not only for the success of individual ports, but also for the connectivity of the entire port system.[31]



Waterways

Any vessel entering or leaving a Texas seaport relies on well-maintained navigable waterways, or ship channels. These waterways are the critical thoroughfares of trade, serving as marine "highways" that allow for the movement of commodities in and out of ports. Deep draft channels allow for the movement of large vessels while shallow draft channels support smaller vessels and barge activity. The width, depth, and navigability of a waterway that serves a port directly affects the kinds of vessels and markets a port can serve. It is important to maintain Texas waterways so that vessels can continue to move in and out of ports safely and efficiently. Furthermore, some ports require deeper and wider channels so that they are equipped to receive the next generation of larger vessels.

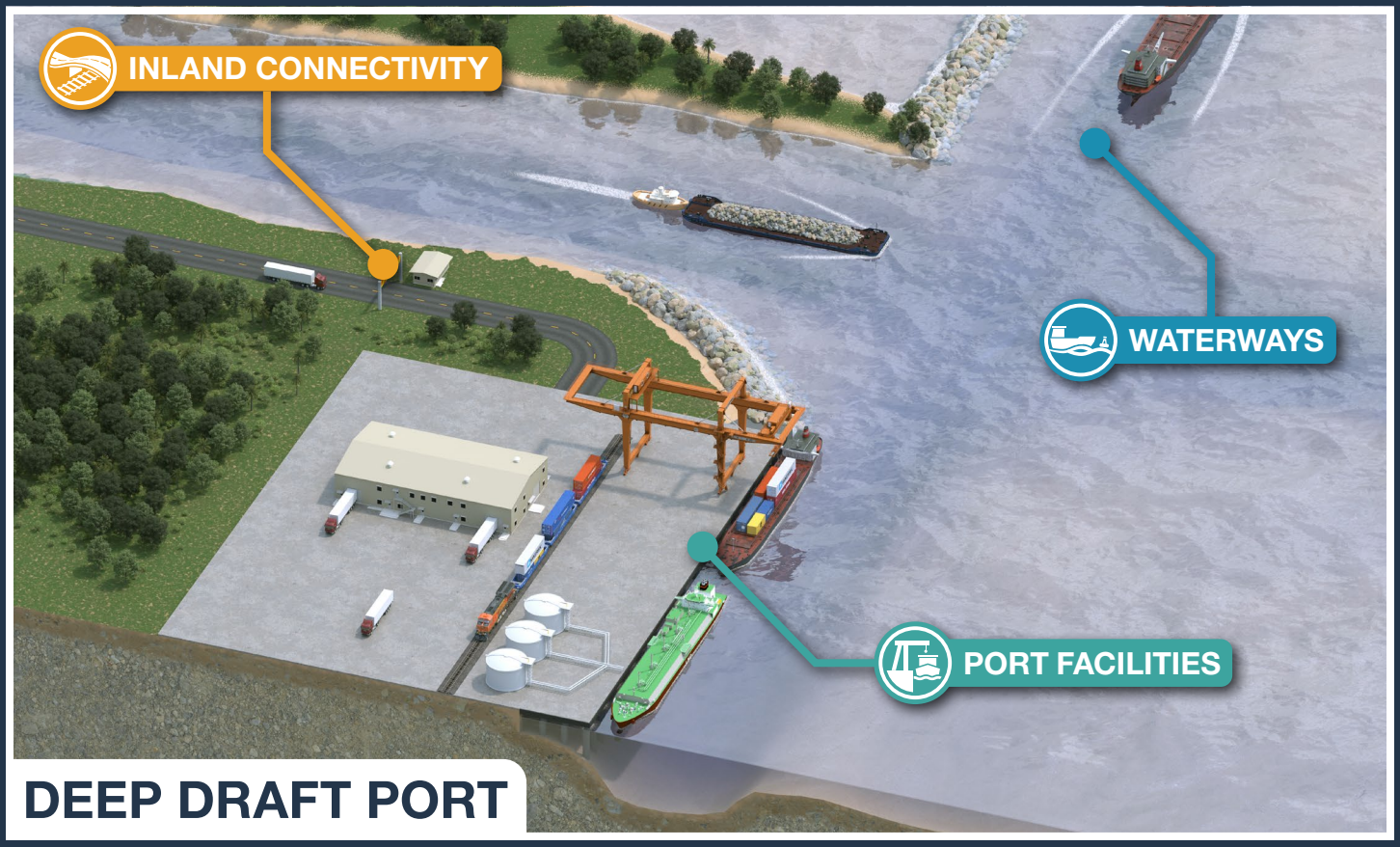
Port Facilities

Port facilities are the backbone of a port's operations. Port infrastructure and equipment is used by workers to help move goods and people between vessels that arrive at the port and other modes of transportation. Port facilities can be developed by the port, by a private tenant, or as a shared responsibility through a public-private partnership. Typical port facilities include wharves and docks, mechanized equipment, storage facilities, port gates, and anything else that is needed to support the port's commercial activity. Ports not only have to maintain their facilities, but they must also plan for future facility expansions and upgraded infrastructure. When port facilities are outdated or overburdened, the port can become a bottleneck that hinders the flow of cargo in and out of the state. This report focuses on the public ports of Texas, but it is important to note that there are multiple private ports and terminals that also work with the public port system.

Inland Connectivity

Texas markets are connected to Texas ports through inland connections such as roadways, railways, and pipelines. Many of the trucks and trains that cross Texas are tied to the commercial activity that takes place around Texas ports, making inland connectivity the most visible part of the Texas port system to most Texans. These connections support Texas export capabilities and also bring in goods from across the world to our doorsteps. Ports rely on a strong network of inland connections that help move goods to and from the port in a safe, quick, and reliable manner.

PORT SYSTEM OVERVIEW



DEEP DRAFT PORT

SHALLOW DRAFT PORT

PCIR BENEFIT CATEGORIES

Projects are evaluated and scored using the following five benefit categories:

ECONOMIC IMPACT
The proposed project results in an economic benefit to the state in terms of job creation, new business development, or retention of existing business.

OPERATIONAL IMPACT
The proposed project demonstrates a significant operational benefit in terms of cargo movement, reduction in vehicle wait times, improved access, or other efficiency factors.

ENHANCES CONNECTIVITY
The proposed project enhances connectivity to the state's multimodal transportation system.

IMPROVES SAFE AND SECURE OPERATIONS
The proposed project improves safety for customers, employees, and the public.

OTHER BENEFITS
The proposed project provides additional secondary benefits in terms of environmental sustainability, air quality, quality of life, or other significant factors.

Port Capital Investment Report

The 2024-2025 Texas Port Capital Investment Report is a key component of the Texas Port Mission Plan that is developed by the PAAC. This Plan takes a broad view of the needs of the Texas port system and considers **port facilities**, **waterways**, and **inland connections**. Whereas waterways and inland connectivity needs are assessed in separate reports included in the Texas Port Mission Plan, the Port Capital Investment Report is the only statewide maritime plan that addresses port facility needs.

The PAAC elevates matters related to maritime transportation to the Texas Transportation Commission and recommends strategic capital projects and studies to be considered for funding. To do this, the PAAC conducts a biennial assessment of port capital improvement project needs and studies throughout Texas. **An independent panel of engineers evaluates projects** that have been submitted by ports and navigation districts for their strategic importance to the individual port, the larger port system, and the state of Texas.

The 2024-2025 Port Capital Investment Report includes 49 capital projects and two studies at 15 different ports whose total project cost is just under $1.67 billion. All ports are willing to provide a minimum cost share of 25% for each recommended project and study. To date, this report has not resulted in direct funding for these port projects from the State.

Port Capital Investment Projects

Port	Project Name	Cost ($M)*
Port of Orange $40 million	Alabama Street Entrance Improvements	$5.4
	DRAVO Additional Truck Queuing and Utility Enhancements	$6.6
	Dupont and South Childers Roadway Improvements	$2.8
	South Childers Roadway Improvements	$5.2
	Trans Modal Containerized Project Cargo Loading Facility	$20.0
Port of Beaumont $179 million	Main Street Terminal 2	$150.0
	South End Truck Queuing Area	$29.0
Port of Port Arthur $97.6 million	Berth 3-5 Toe Wall	$32.3
	Berth 1-2 Toe Wall Construction	$23.8
	2.6 Acre Multimodal Laydown Yard	$3.3
	Queuing and Staging Area	$12.3
	Railyard Flyover Project	$15.0
	Terminal Rail Expansion	$7.9
	Truck and Trailer Cargo Queuing Area with Rail	$3.0
Sabine Pass Port Authority $6 million	Sheet Piling Replacement	$6.0
Port Houston $260.3 million	Barbours Cut Terminal Container Yard 6 Upgrade	$42.3
	Barbours Cut Terminal Container Yard 7 Upgrade	$53.3
	Barbours Cut Terminal Container Wharf Upgrade	$69.3
	Bayport Terminal Yard Expansion	$95.4

Port	Project Name	Cost ($M)*
Port of Galveston $301.2 million	Cruise Terminal Walkway Circulation Improvements	$2.7
	Galveston Island Wayfinding Project	$1.6
	Pelican Island Berth Development	$35.0
	Pelican Island Projects - Phase 1	$51.2
	Terminal Parking Garage	$131.0
	West End Cargo Expansion	$60.7
	West End Roadway Improvements Feasibility Study	$5.0
	Wharf Road Roadway and Utility Improvements and Gate Relocation	$14.0
Port Freeport $31 million	Velasco Terminal Development - Area 5 Stabilization	$15.0
	Velasco Terminal Development - Area 6 Stabilization and Rail Spur	$10.0
	Velasco Terminal Development - Velasco Intake Reservoir	$6.0
Port of Palacios $14 million	Truck Queuing Areas	$4.0
	Palacios Navigational Improvement - Turning Basin 4	$10.0
Calhoun Port Authority $175.4 million	New Barge Fleeting Area	$24.0
	South Peninsula Development - Liquid Docks 2 and 3	$150.0
	Boat Ramp Access and Access Road Improvements	$1.4
Port of West Calhoun $18.6 million	Long Mott Harbor Cargo Dock Bulkhead and Improvements	$18.6
Port of Victoria $36 million	Edna Ln, Bloomington Rd, and Black Bayou Rd Improvements	$4.6
	General Cargo Dock Development	$5.0
	Texas Logistics Center Rail Expansion Project	$26.4
Port of Corpus Christi Authority $415.9 million	Avery Point Terminal Redevelopment	$155.5
	Ingleside Low Carbon Energy Terminal	$110.0
	Bulk Materials Terminal Facility Improvements	$150.4
Port of Mansfield $23.3 million	Airport Runway Extension	$12.0
	Bulkhead Repair	$11.3
Port of Harlingen $47.2 million	Lighting Improvements	$2.0
	Railyard Development	$30.0
	Rehabilitation and Liquid Dock Buildout	$5.2
	Turning Basin Extension	$10.0
Port of Brownsville $24 million	Brazos Island Harbor (BIH) Channel Deepening Feasibility Study	$3.0
	Bulk Cargo Dock No. 3 Rehabilitation and Expansion	$15.0
	Fishing Harbor Wastewater Treatment Plant	$6.0

South end Development at Port of Beaumont.

Calhoun Port Authority

A ship docked at a bulk terminal at Port of Corpus Christi.

** Costs provided by individual ports.*

Ship Channel Improvement Report

The Ship Channel Improvement Report identifies and summarizes congressionally authorized ship channel improvement projects and feasibility studies in Texas. Federal ship channels are the responsibility of the U.S. Army Corps of Engineers, but ports and navigation districts act as "non-federal sponsors" and are responsible for funding a portion of the construction cost and future maintenance. Ship channel improvement projects are investments that are costly and time sensitive. Delays in funding and implementing navigation projects can lead to missed opportunities for attracting tenants, increases in overall project costs, and loss of returns on the overall investment.

In 2017, the 85th Texas Legislature passed Senate Bill 28, establishing the Ship Channel Improvement Revolving Fund (SCIRF). This creates a revolving loan program to help finance modernization of ship channels. By providing financing through the SCIRF, Texas has the ability to kickstart navigation projects in spite of limited federal appropriations and incentivize future federal appropriations to Texas projects. The revolving fund, once capitalized, will help the state invest in its port system, enhance the Texas economy, and be repaid through the loan process.

The Ship Channel Improvement Report includes eight federally authorized projects that are eligible for the revolving fund, representing a $2.19 billion federal share and $1.47 billion local share, for a total estimated first construction cost of $3.66 billion. This report also reflects two projects in the feasibility study phase for future Congressional authorization and eight non-federal projects, which are ineligible for SCIRF funding.

Ship Channel Improvement Projects

Project Name	Non-Federal Sponsor	Total Project Cost	Federal Share
Authorized Ship Channel Improvement Projects			
Sabine-Neches Waterway	Sabine-Neches Navigation District	$1,400,000,000	$840,000,000
Cedar Bayou Navigation Channel	Chambers County-Cedar Bayou Navigation District	$52,800,000	$47,500,000
Houston Ship Channel Expansion	Port of Houston Authority	$669,400,000	$354,800,000
Galveston Harbor Channel Expansion	Port of Galveston	$13,400,000	$10,800,000
Freeport Harbor Channel	Port Freeport	$324,600,000	$172,000,000
Matagorda Ship Channel	Calhoun Port Authority	$218,300,000	$163,700,000
Corpus Christi Ship Channel (-54')	Port of Corpus Christi Authority	$681,600,000	$415,800,000
Brazos Island Harbor Deepening	Brownsville Navigation District (Port of Brownsville)	$302,000,000	$187,200,000
Authorized Feasibility Studies			
La Quinta Channel Expansion	Port of Corpus Christi Authority	$212,000,000	$106,000,000
Port of Harlingen Turning Basin Expansion	Port of Harlingen Authority	$8,000,000	$7,200,000
Non-Federal Projects and Feasibility Studies			
Port of Port Arthur Berth 6 Expansion Project	Port of Port Arthur	$68,200,000	Not applicable
Port of Port Arthur Berths 1-2 Expansion Project	Port of Port Arthur	$1,300,000	
Port of Port Arthur Berths 3-5 Expansion Project	Port of Port Arthur	$2,100,000	
Sabine Pass Authority Dock	Sabine Pass Port Authority	$4,500,000	
Houston Ship Channel Expansion Segments 1B and 1C	Port of Houston Authority	$339,128,000	
Galveston Harbor Channel Tunneling Basin Improvements	Port of Galveston	$10,000,000 - $15,000,000	
Port of Palacios Turning Basin Expansion	Matagorda County Navigation District No. 1	$8,000,000	
Corpus Christi Ship Channel Deepening Project Feasibility Study	Port of Corpus Christi Authority	$525,000,000	

** Costs provided by ports/navigation districts*

The north bridge of the South Port Connector at Port of Brownsville

Port Connectivity Report

The Port Connectivity Report assesses the current state of landside connectivity at 18 maritime ports along the Texas seacoast, summarizing conditions for rail, pipeline, and road systems serving the ports. The report focuses on roadway connections from the port gates to major freight corridors. Transportation conditions and needs are unique to each port. They can include issues as diverse as:

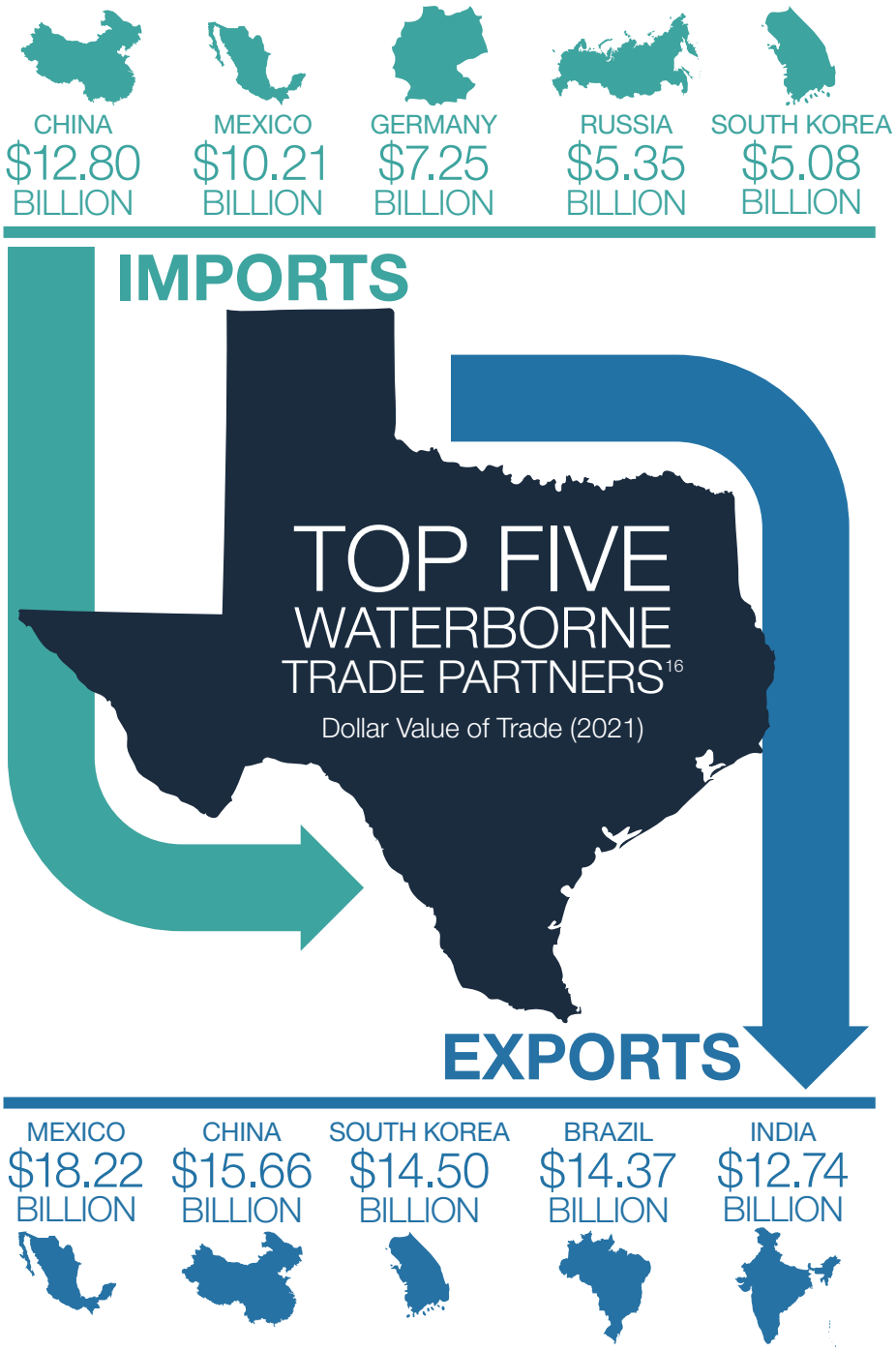
- incompatible surrounding land uses, such as residential neighborhoods, schools, or hospitals that can be disturbed by truck traffic;
- modal conflicts, for example routes with numerous at-grade rail crossings;
- operational inefficiencies, such as heavy mixed traffic congestion;
- insufficient facility design for the needs of freight operators, such as roads with tight turns that cause trucks to veer into oncoming traffic lanes.

In combination, these issues lead to inefficiencies for multimodal freight movement. This report evaluates the existing conditions for landside access at the Texas seaports, identifies connectivity issues facing port transportation, and proposes 142 projects – with total construction cost estimated at up to $4.34 billion – as potential solutions to these issues.

A truck drives along the Joe Fulton International Trade Corridor at the Port of Corpus Christi.

"The economic importance of Texas' air, land and sea ports, as well as our states' intermodal facilities, extends beyond Texas. The Lone Star State's port system is vital to the economic fabric of this country. Texas has led the nation in exports for more than a decade, and the port system has provided job throughout the state while facilitating the essential trade that keeps our state and our national economies moving forward."

Glenn Hegar
Texas Comptroller of Public Accounts[32]



TOP 10 IMPORT COMMODITIES[16]

1. Petroleum Products
2. Engines and Machinery
3. Electric Machinery & Parts
4. Copper Products
5. Vehicles
6. Organic Chemicals
7. Plastics
8. Furniture
9. Beverages
10. Aluminum

TOP 10 EXPORT COMMODITIES[16]

1. Petroleum Products
2. Organic Chemicals
3. Plastics
4. Machinery & Parts
5. Vehicles
6. Grains
7. Miscellaneous Chemical Products
8. Beverages
9. Electric Machinery & Parts
10. Inorganic Chemicals

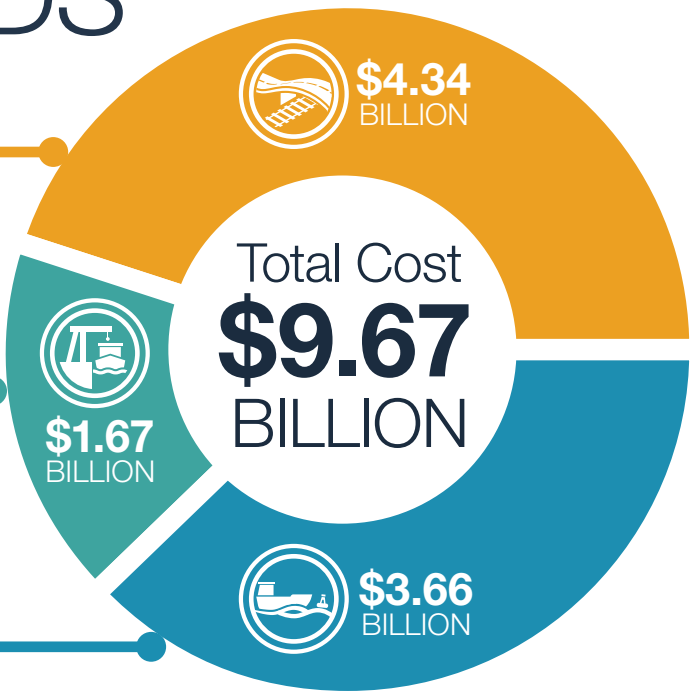
PLANNED PORT SYSTEM INVESTMENT

TEXAS PORT FUNDING NEEDS

Total cost for inland connectivity projects that serve public ports.[a]

Planned facilities investments for public ports between 2021 and 2025.[a]

Total cost for all eight authorized ship channel improvement projects.[a,b]



[a]Costs provided by ports, navigation districts, and MPOs, or developed by consultant team.
[b]In addition to federally appropriated funds for ship channel improvements, Texas Ports intend to invest up to $955 million over the biennium in channel dredging and maintenance.

HISTORICAL PORT INVESTMENT

*In the past decade, over 98% of Texas ports and navigation district investments were leveraged through **private port funding sources** vs 2% from **public port system investments** through local, state, and federal funds.*

FUNDING REQUESTED FOR THE PORT SYSTEM

Texas ports require continual enhancements and expansion to attract private investment for new industrial facilities. This funding request represents a fraction of the biennial need but is critical to give port capital, waterway, and connectivity projects the forward momentum that will accelerate their implementation. The Texas Transportation Commission voted to include the following funding requests in TxDOT's Legislative Appropriations Request (LAR) based on PAAC funding recommendations.

2024-2025 Port Capital Investment Report

The Port Capital Investment Report is a prioritized list of projects focused on improving port capital facilities. The PAAC voted to recommend a funding request of $150 million to help fund the projects included in the 2024-2025 PCIR, and the Commission voted to include the full amount of this request in the LAR. If funded, these projects will support improved logistics, increased capacity, and enhanced safety to keep Texas ports competitive.

Funding Requested: $150 Million

Ship Channel Improvement Revolving Fund (SCIRF)

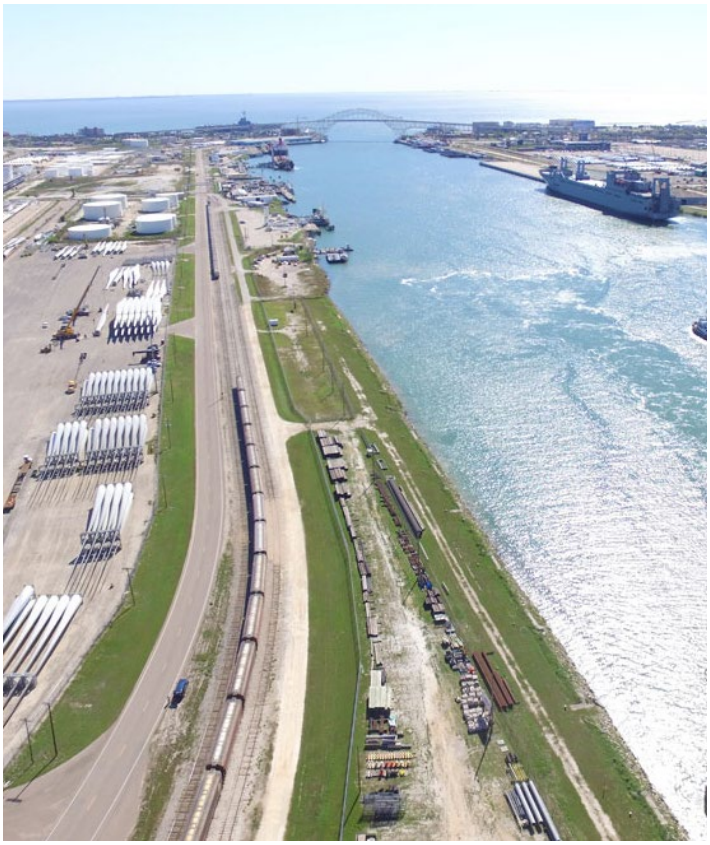
As recommended in the 2024-2025 Ship Channel Improvement Report, funding the SCIRF will provide financing for eligible federally authorized navigation projects that modernize waterways and improve growth of waterborne commerce. There are eight projects in Texas that are eligible to draw on the fund should it be capitalized. The PAAC voted to recommend a funding request in the amount of $400 million, a fraction of the amount required to fully fund all eight eligible projects, and the Commission has elected to include the full amount of this request in the LAR to cover the estimated drawdown for fiscal years 2024-2025.

Funding Requested: $400 Million

Total Funding Requested: $550 Million

Port of Orange

Bulk Terminal at Port of Texas City



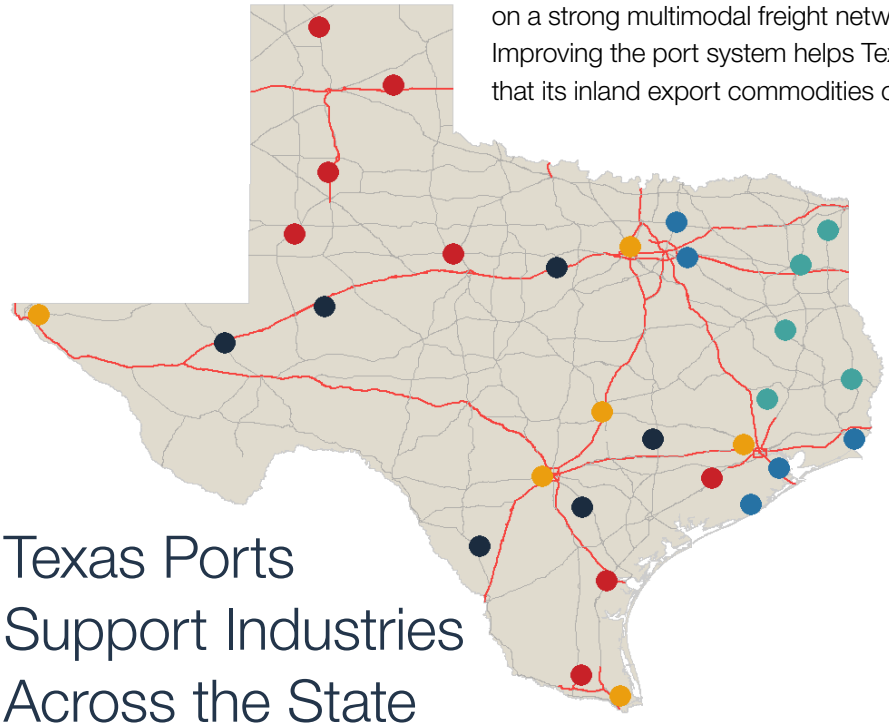
The Corpus Christi Ship Channel has received $248 M of federal appropriations for the $415 M federal share. Delays in project implementation have led to a cost increase from $327 M to $681 M.

Port of Galveston

BEYOND THE TEXAS COAST

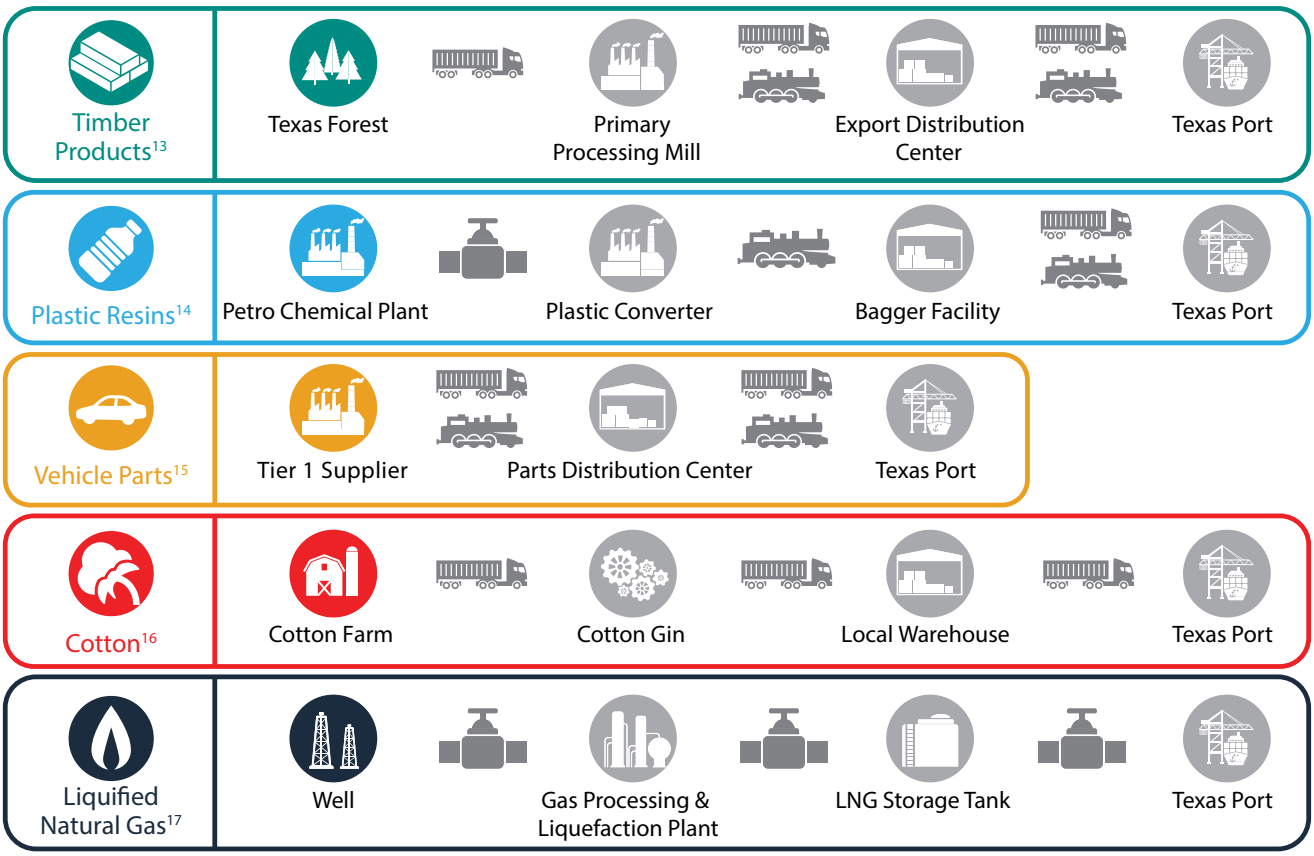
Texas is a Port-Driven State

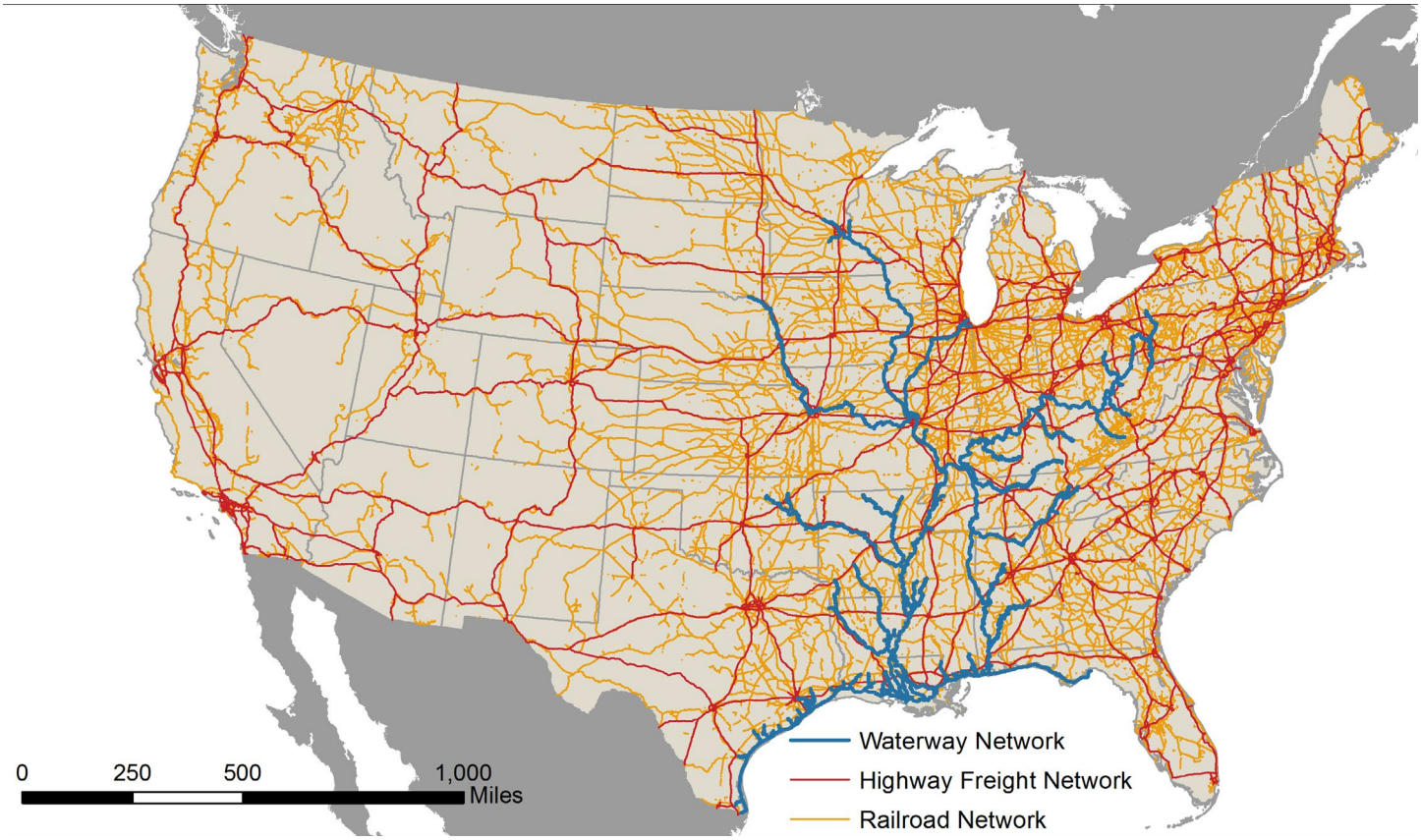
In a state where the shipping industry accounts for more than 25 percent of the Gross Domestic Product, the Texas economy is largely driven by commodity supply chains that move goods to and from the state.[33] Inland markets across the state rely on a strong multimodal freight network to get their goods to the ports for export. Improving the port system helps Texas compete in the global market by ensuring that its inland export commodities continue to reach their destinations worldwide.



Port Houston handled more tons of exports than any other U.S. port in 2020.

Texas Ports Support Industries Across the State





Connecting with the Nation

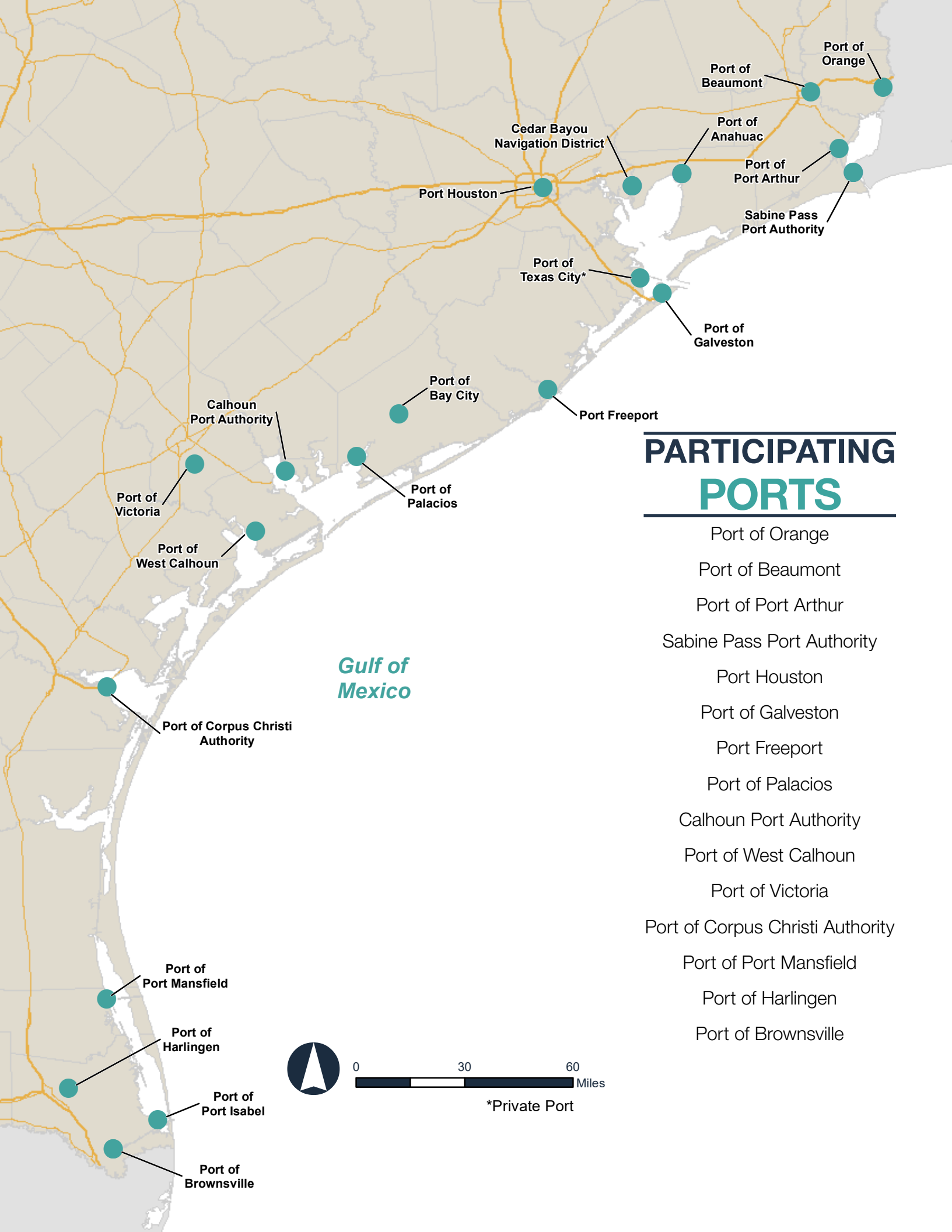
The deep and shallow draft channels that allow interstate barge transit are a critical part of the national freight network. Barge transport is a highly fuel-efficient means to transport bulk and liquid cargo that also reduces semitruck congestion on roadways. The Texas section of the Gulf Intracoastal Waterway (GIWW) connects all Texas ports to each other and to a robust network of Gulf Coast and inland waterways.

The Port of Harlingen has seen a 112% increase in tonnage since 2017 and now handles about 3 million tons annually.

DID YOU KNOW?

An average of 77 million short tons per year were transported along the Texas portion of the GIWW between 2018 and 2020.[1]

PORT CAPITAL INVESTMENT REPORT



PARTICIPATING PORTS

Port of Orange

Port of Beaumont

Port of Port Arthur

Sabine Pass Port Authority

Port Houston

Port of Galveston

Port Freeport

Port of Palacios

Calhoun Port Authority

Port of West Calhoun

Port of Victoria

Port of Corpus Christi Authority

Port of Port Mansfield

Port of Harlingen

Port of Brownsville

INTRODUCTION

The 2024-2025 Texas Port Capital Investment Report (PCIR) is a key component of the Texas Port Mission Plan that is developed by the PAAC. The PCIR takes a broad view of the needs of the Texas port system and considers port facilities, waterways and inland connections. Whereas waterways and inland connectivity needs are assessed in separate reports included in the Texas Port Mission Plan, the PCIR is the only statewide maritime plan that addresses port facility needs.

The PCIR is the only statewide maritime plan that addresses port facility needs.

The PAAC elevates matters related to maritime transportation and recommends strategic capital projects and studies to be considered for funding under the PCIR. To do this, the PAAC conducts a biennial assessment of port capital improvement study needs from Texas Ports and Navigation Districts. A panel of professional coastal engineers evaluated projects that have been submitted by ports and navigation districts for their strategic importance to the port, the larger port system, and the state of Texas. Members of TxDOT's Maritime Division reviewed the project scores. The types of projects that are eligible to apply for inclusion in the PCIR are shown below.

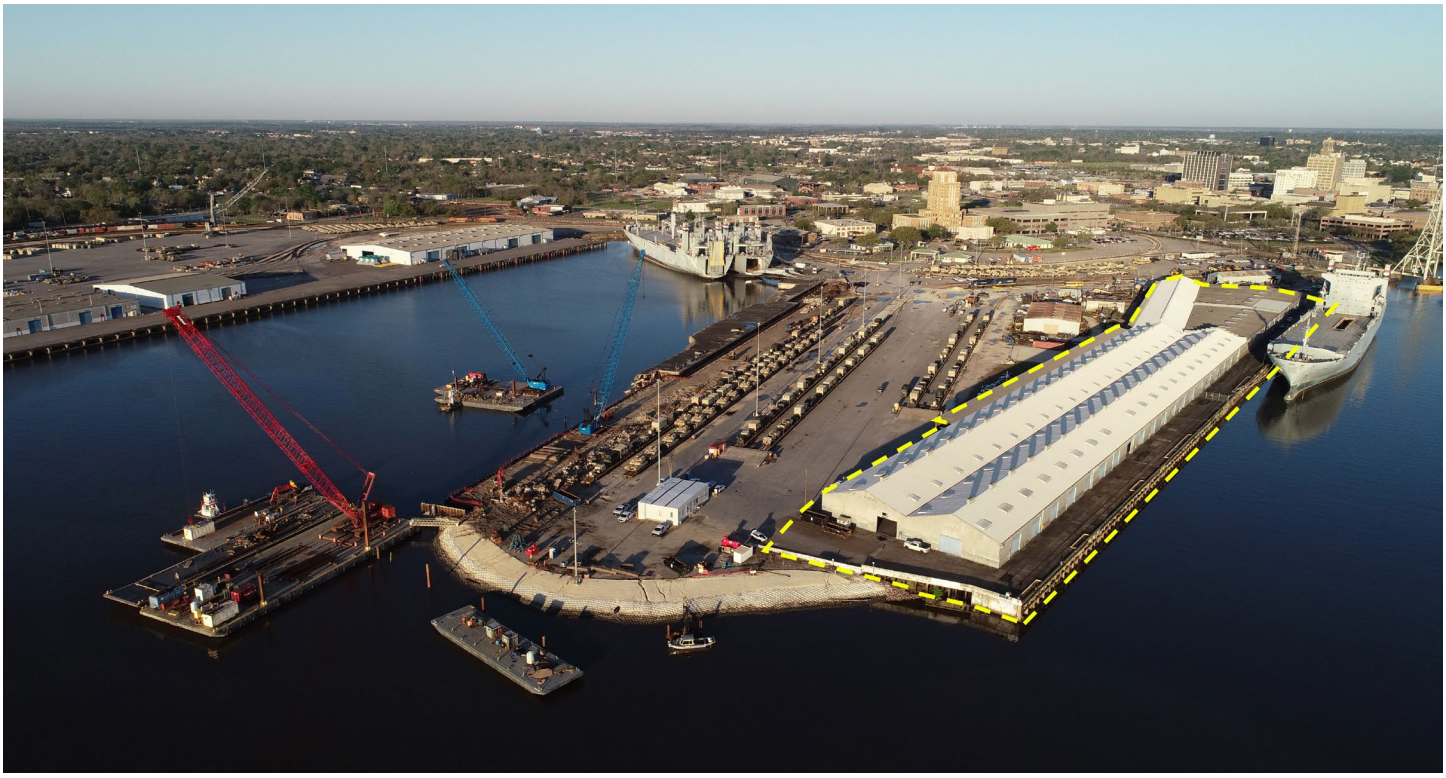
The PAAC voted to recommend a funding request of $150 million to help fund the projects included in the 2024-2025 PCIR. This is only a fraction of the total project cost, which is approximately $1.67 billion. Funding the PCIR will help accelerate the implementation of these projects so that Texas ports can remain competitive and continue to grow the state's economy. Ports are willing to provide at least a 25% project match for each project.

The PAAC voted to recommend a funding request of $150 million to help fund the projects included in the 2024-2025 PCIR. This is only a fraction of the combined project cost, which is approximately $1.67 billion.

Waterways
Dredging
Ship channels
Turning basins
Harbors

Port Facilities
Wharves and docks
Storage facilities
Cruise terminals
Mechanized equipment
Land acquisition

Inland Connectivity
Roadways
Railroads
Pipelines
Airports



The Main Street Terminal 2 at Port of Beaumont. (Credit: Port of Beaumont)

PORT CAPITAL INVESTMENT REPORT DEVELOPMENT

Port Capital Investment Report Eligibility

According to *Transportation Code, Title 4. Navigation, Subtitle A. Waterways and Ports, Chapter 55. Funding of Port Security, Projects and Studies (TC55)*, it is the PAAC's responsibility to determine whether a project is eligible to be included in the capital report. In order to fulfill this responsibility, the PAAC elected to include the following eligibility requirements to be included in the capital report.

Project Eligibility

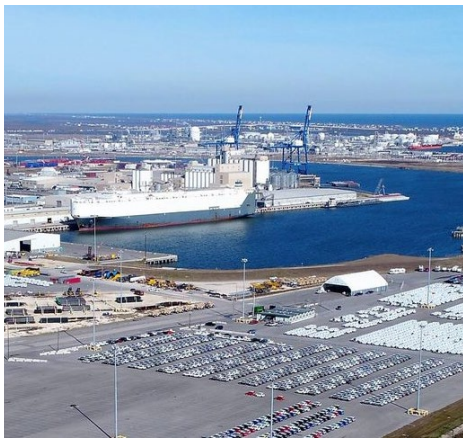
Eligible Projects	Project Examples	Minimum Criteria
Plans or Studies	• Planning Efforts • Feasibility Studies • Project Development*	✓ Meets Texas Transportation Ch. 55 eligibility ✓ Port will provide minimum 25% cost share ✓ Project lettable by the end of FY 2025 ✓ Project could be completed by the end of FY 2028 ✓ Shows economic, environmental, and engineering feasibility ✓ Has proven project support
Capital Projects	• Port Facilities • Inland Connectivity • Waterways	

**Up to 20% of design engineering*

All Texas public ports and navigation districts may submit capital projects and studies that meet the above eligibility requirements. All 20 Texas ports and navigation districts were invited to submit proposed projects to be considered for the 2024-2025 Port Capital Investment Report, with 15 of those ports and navigation districts electing to submit projects for this iteration. The projects were then scored and ranked, further discussed in the Evaluation Criteria section.

Evaluation Criteria

Applicants selected the two most pertinent benefit categories out of the five benefit categories listed below for each project submission to be scored on. This allowed small-scale projects that can only address some of the benefit categories to be compared equitably with larger, more complex projects. The maximum score achievable was 10 points for each benefit category, for a total of 20 points possible per project. A panel of professional coastal engineers evaluated each project, and total scores were averaged together to determine final project rankings. This evaluation methodology was developed through collaboration with the PAAC and has been approved by the PAAC.



Port Freeport

Project Benefits Assessed

Economic Impact	The proposed project results in an economic benefit to the state in terms of job creation, new business development, or retention of existing business.
Operational Impact	The proposed project demonstrates a significant operational benefit in terms of cargo movement, reduction in vehicle wait times, improved access, or other efficiency factors.
Enhances Connectivity	The proposed project enhances connectivity to the state's multimodal transportation system.
Improves Safe and Secure Operations	The proposed project improves safe port operations or supports port security and resiliency.
Other Benefits	The proposed project provides additional secondary benefits in terms of environmental sustainability, air quality, quality of life, or other significant factors.

Port of Harlingen

The results of the full evaluation analysis are summarized in the chart below by cost and primary project types. The total cost of projects ranges from $1.4 million to just over $155 million. The total cost of all 51 capital projects is approximately $1.67 billion.

Results Summary

Project Type(s)	Eligible Projects	Cost Range of Projects	Total Category Amount
Port Facilities Only	25	$1.4 M to $150.4 M	$838.8 M
Inland Connectivity Only	9	$2.8 M to $30 M	$79.9 M
Port Facilities + Waterways	6	$10 M to $155 M	$360.8 M
Port Facilities + Inland Connectivity	11	$2.7 M to $150 M	389.9 M

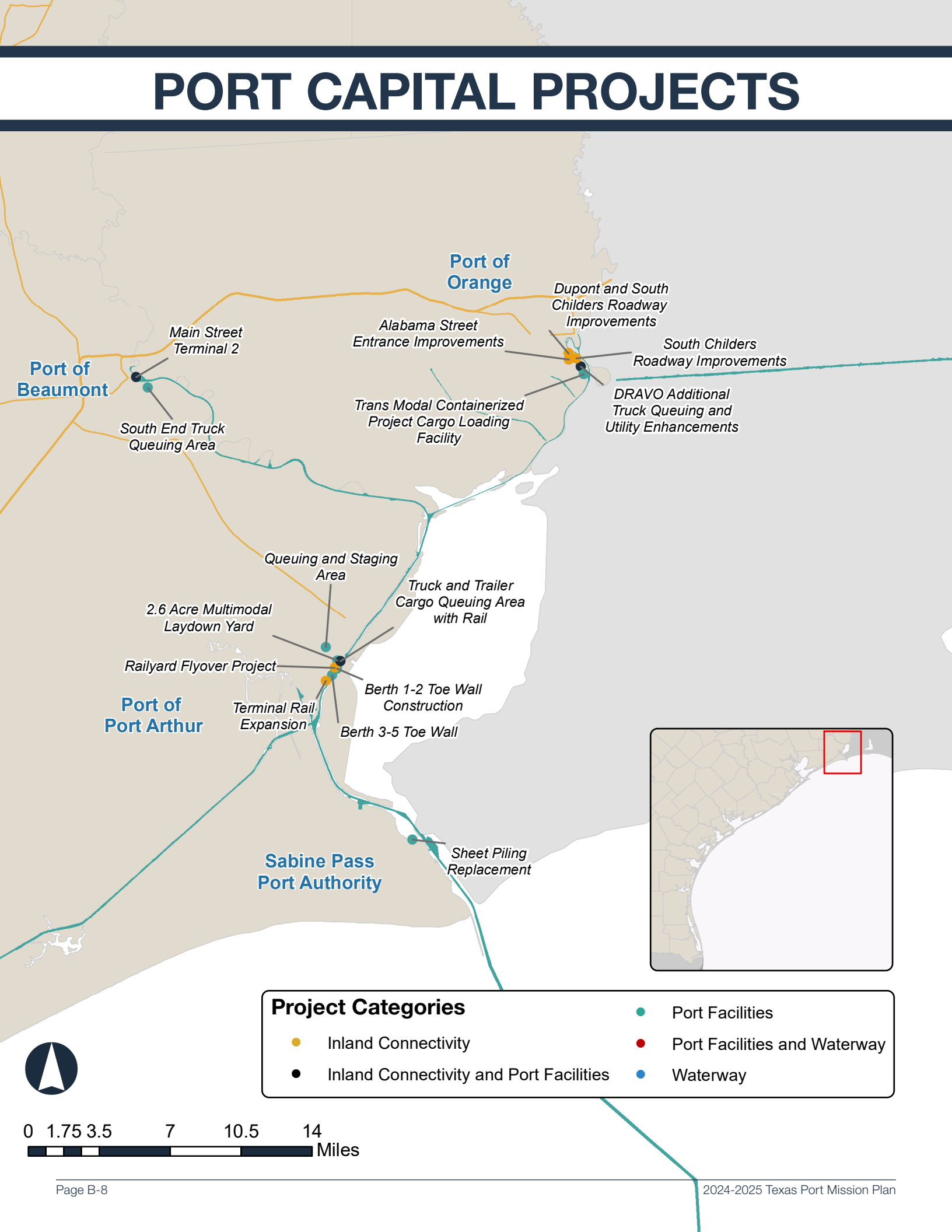
2024-2025 Port Capital Investment Report Projects

NOTE: Project ranking may not directly relate to funding.

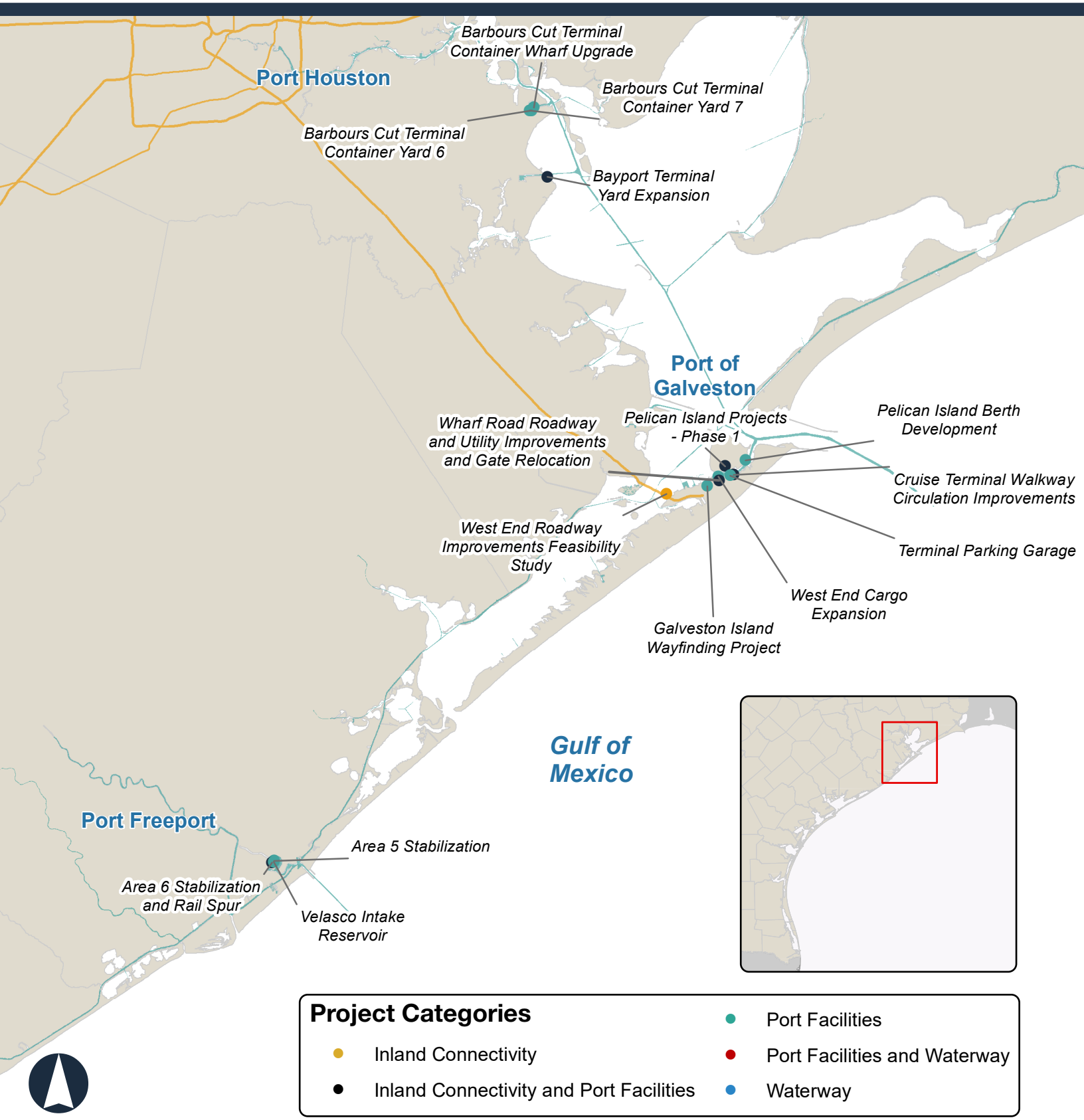
Rank	Port	Project Name	Cost
1	Port Houston	Barbours Cut Terminal Container Wharf Upgrade	$69,342,000
2	Port Houston	Bayport Terminal Yard Expansion	$95,418,093
3	Port Houston	Barbours Cut Terminal Container Yard 6 Upgrade	$42,250,000
4	Port of Galveston	Cruise Terminal Walkway Circulation Improvements	$2,724,574
5	Port of Harlingen	Lighting Improvements	$2,000,000
6	Port Houston	Barbours Cut Terminal Container Yard 7 Upgrade	$53,300,000
7	Port of Galveston	West End Cargo Expansion	$60,704,452
8	Port of Galveston	Pelican Island Projects - Phase 1	$51,200,000
9	Calhoun Port Authority	South Peninsula Development - Liquid Docks 2 and 3	$150,000,000
10	Port of Corpus Christi Authority	Avery Point Terminal Redevelopment	$155,508,988
11	Port of Harlingen	Rehabilitation and Liquid Dock Buildout	$5,200,000
12	Port of Galveston	Terminal Parking Garage	$131,000,000
13	Port of Port Arthur	Terminal Rail Expansion	$7,931,310
14	Calhoun Port Authority	Boat Ramp Access and Access Road Improvements	$1,356,100
15	Port of Beaumont	Main Street Terminal 2	$150,000,000
16	Port of Port Arthur	Berth 1-2 Toe Wall Construction	$23,848,000
17	Port of Port Arthur	Berth 3-5 Toe Wall	$32,264,100
18	Port of Corpus Christi Authority	Ingleside Low Carbon Energy Terminal	$110,000,000
19	Sabine Pass Port Authority	Sheet Piling Wall Replacement	$6,000,000
20	Port of Galveston	Wharf Road Roadway and Utility Improvements and Gate Relocation	$14,000,000
21	Port of Port Mansfield	Bulkhead Repair	$11,300,000
22	Port of Victoria	Texas Logistics Center Rail Expansion	$26,400,000
23	Port of Brownsville	Brazos Island Harbor (BIH) Channel Infrastructure Feasibility Study	$3,000,000
24	Port of Brownsville	Bulk Cargo Dock No. 3 Rehabilitation and Expansion	$15,000,000
25	Port of Harlingen	Turning Basin Extension	$10,000,000
26	Port of Harlingen	Railyard Development	$30,000,000
27	Port Freeport	Area 6 Stabilization and Rail Spur	$10,000,000

Rank	Port	Project Name	Cost
28	Port of Corpus Christi Authority	Bulk Materials Terminal Facility Improvements	$150,400,000
29	Calhoun Port Authority	New Barge Fleeting Area	$24,000,000
30	Port of Orange	Trans Modal Containerized Project Cargo Loading Facility	$20,000,000
31	Port of Palacios	Turning Basin 4	$10,000,000
32	Port of Port Mansfield	Airport Runway Extension	$12,000,000
33	Port Freeport	Velasco Intake Reservoir	$6,000,000
34	Port of Port Arthur	2.6 Acre Multimodal Laydown Yard	$3,262,250
35	Port Freeport	Area 5 Stabilization	$15,000,000
36	Port of West Calhoun	Long Mott Harbor Liquid Cargo Dock Bulkhead and Improvements	$18,600,000
37	Port of Port Arthur	Railyard Flyover Project	$15,000,000
38	Port of Beaumont	South End Truck Queuing Area	$29,000,000
39	Port of Port Arthur	Truck and Trailer Cargo Queuing Area	$3,000,000
40	Port of Palacios	Truck Queuing Areas	$4,000,000
41	Port of Victoria	General Cargo Dock Development	$5,000,000
42	Port of Orange	Alabama Street Entrance Improvements	$5,400,000
43	Port of Brownsville	Fishing Harbor Wastewater Treatment Plant	$6,000,000
44	Port of Orange	DRAVO Additional Truck Queuing and Utility Enhancements	$6,600,000
45	Port of Victoria	Edna Ln, Bloomington Rd, and Black Bayou Rd Improvements	$4,586,465
46	Port of Orange	Dupont and South Childers Roadway Improvements	$2,800,000
47	Port of Galveston	Galveston Island Wayfinding Project	$1,600,000
48	Port of Port Arthur	Queuing and Staging Area	$12,291,000
49	Port of Orange	South Childers Roadway Improvements	$5,200,000
50	Port of Galveston	Pelican Island Berth Development	$35,000,000
51	Port of Galveston	West End Roadway Improvements Feasibility Study	$5,000,000

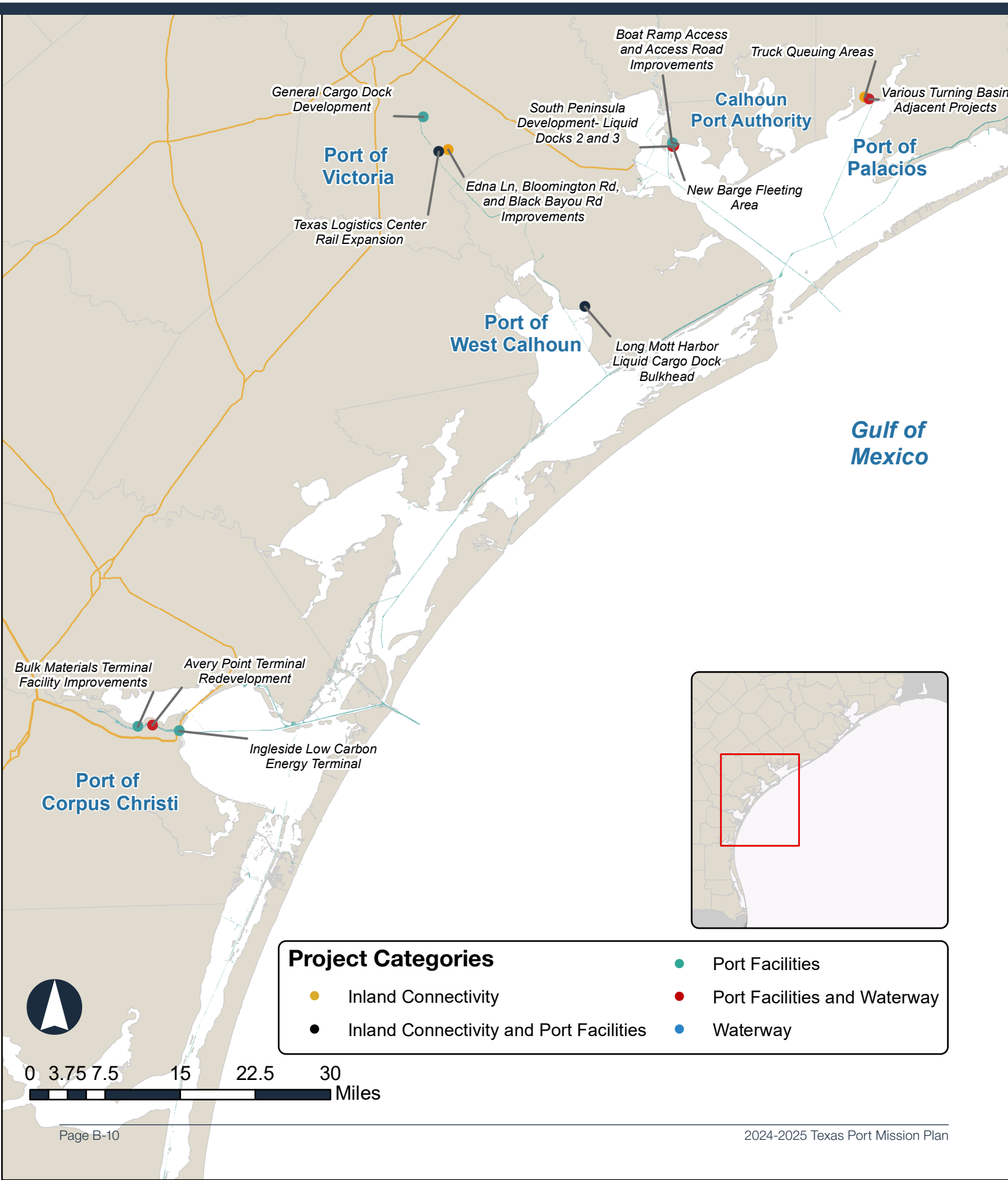
PORT CAPITAL PROJECTS



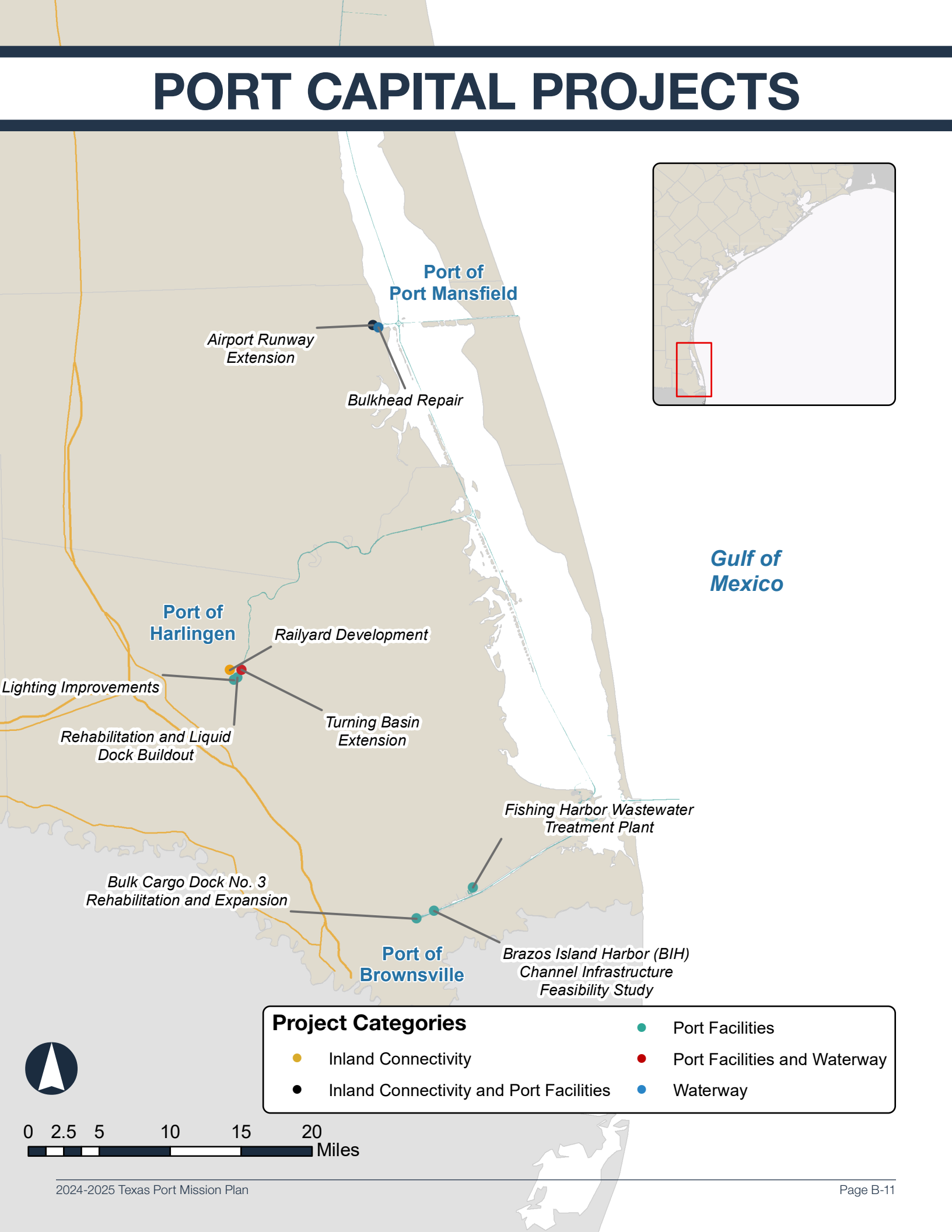
PORT CAPITAL PROJECTS



PORT CAPITAL PROJECTS



PORT CAPITAL PROJECTS



PROJECT PROFILES

Alabama Street Entrance Improvements
Port of Orange

Project Details

Port Facility	Port of Orange
County	Orange
Project Status	Scoping and Planning
Project Category	Inland Connectivity

Project Description

The Port proposes to widen Alabama Street to a two-lane, two-shoulder road. Improvements would be from the location of the current Alabama Street bridge crossing, extending to the entrance of Dupont Drive. The bridge crossing on Alabama Street is currently being improved to a two-lane, two-shoulder crossing, and the proposed Alabama Street improvements will extend the benefits of the crossing.

Funding

Total Cost	$5,400,000

Need for Funding

Without this improvement, Alabama Street will become a traffic bottleneck, resulting in congestion and truck idling. Alabama Street is the only land access to the docks at the Port of Orange. The Port expects an increase in traffic as it continues to grow and accumulate new customers that plan to move cargo by barge, rail, and truck. Failure to improve Alabama Street facilities will lead to delays and inefficiencies.

Project Benefits

Economic Impact

- Increases the current operating capacity for the Port's customers
- Supports future growth for new and existing customers, including a local chemical plant that is undergoing an $8 billion expansion
- Accommodates increased truck traffic
- Expected to create 500 permanent jobs

Safe and Secure Operations

- Facilitates safer and more efficient truck access
- Expedites the transfer of cargo and equipment shipments
- Decreases traffic congestion and idling time

DRAVO Additional Truck Queuing and Utility Enhancements Port of Orange

Project Details

Port Facility	Port of Orange
County	Orange
Project Status	Scoping and Planning
Project Category	Port Facilities & Inland Connectivity

Project Description

A RIDER grant provided funding for the DRAVO Peninsula Industrial Site, which was included in the previous iteration of the Port Capital Investment Report. This previous project included road improvement and greenfield stabilization needed to ensure traffic safety and enable economic growth at the Port of Orange DRAVO Peninsula Industrial site. This project will add to and enhance benefits achieved through the completion of this past project. The proposed projects includes the addition of truck queuing areas, utility enhancements including lighting, and security improvements.

Funding

Total Cost	$6,600,000

Need for Funding

The existing roadway leading to this area of the Port has only two lanes and no shoulders. As a result, traffic bottlenecking and congestion frequently occur. As the Port of Orange continues to grow, it expects increased traffic and the need for additional truck queuing areas to decrease traffic congestion and reduce costly delays. As part of the truck queuing areas, drainage improvements would also be required to mitigate the runoff effects of heavy rainfall. Utility enhancements include the relocation of overhead utilities so that these lines do not cause incumbrances to the increased traffic load and larger trucks expected at the Port. Additionally, the proposed lighting and security improvements will support safe Port operations. These proposed projects will aid in attracting and retaining longstanding tenants, supporting the growth of the Port with business development and new jobs.

Project Benefits

Economic Impact

- Adds truck capacity and increases cargo movement
- Eliminates costly delays caused by frequent traffic congestion
- Supports future growth to attract new customers and retain existing ones

Safe and Secure Operations

- Reduces overhead obstructions for traffic from nearby utilities, removing safety hazards for port tenants and reducing the risk of damage to utilities
- Increases security and lighting, allowing for safer truck access

Dupont and South Childers Roadway Improvements

Port of Orange

Project Details

Port Facility	Port of Orange
County	Orange
Project Status	Scoping and Planning
Project Category	Inland Connectivity

Project Description

The proposed project is in the Orange city limits and includes roadway and utility improvements from the intersection of Dupont Drive and the portion of South Childers Road that is in the city limits. Currently, this road is a two-lane road with no shoulders and as a result, traffic bottlenecking and congestion frequently occurs. The Port is proposing to extend the roadway to allow for safer and improved access in and out of the DRAVO Peninsula Industrial Site. This project will also be accompanied by drainage work on both sides of the proposed roadway, to provide additional lettable area and mitigate the runoff effects of heavy rainfall, effectively reducing costly delays due to weather hazards and annual road maintenance. These proposed projects will aid in retaining longstanding tenants and support growth of the Port with business development and creating new jobs.

Funding

Total Cost	$2,800,000

Need for Funding

This improvement will reduce traffic, reduce wait time, and increase efficiency of loading and unloading at the DRAVO peninsula. The project will also allow the area to be used during and after a storm event, reducing down time. This project amplifies the recent improvements to the arterial roadway to the DRAVO peninsula.

Project Benefits

Economic Impact

- Supports future growth and diversity of new and existing customers
- Ensures Childers Road is safe for use in all weather conditions, which will be valuable to customers
- Increases Port productivity and creates jobs

Operational Impact

- Facilities safer truck access for Port customers
- Expedites the transfer of cargo and equipment shipments
- Increases transfers per day and decreases traffic congestion
- Allows expansion of DRAVO peninsula operations
- Facilitates the development of the marine industrial site for vessel repairs, new vessel buildouts, and project cargo
- Reduces standing water in the road, allowing the peninsula to remain operational in wet weather conditions

Proposed Roadway Improvements Area

South Childers Roadway Improvements
Port of Orange

Project Details

Port Facility	Port of Orange
County	Orange
Project Status	Scoping and Planning
Project Category	Inland Connectivity

Project Description

The proposed project is outside the Orange city limits and includes roadway and utility improvements within the Orange city limits on South Childers Road south to the current Industrial project site. Currently, this road is a two-lane road with no shoulders and as a result, traffic bottlenecking and congestion frequently occurs. The Port is proposing to extend the roadway to allow for safer and improved access in and out of the DRAVO Peninsula Industrial Site. This project will also be accompanied by drainage work on both sides of the proposed roadway, to provide additional lettable area and mitigate the runoff effects of heavy rainfall, effectively reducing costly delays due to weather hazards. This project will also be accompanied by drainage work on both sides of the proposed roadway, to provide additional lettable area and mitigate the runoff effects of heavy rainfall, effectively reducing costly delays due to weather hazards. These proposed projects will aid in retaining longstanding tenants and support growth of the Port with business development and creating new jobs.

Funding

Total Cost	$5,200,000

Need for Funding

This improvement will reduce traffic, reduce wait time, and increase efficiency of loading and unloading at the DRAVO peninsula. The project will also allow the area to be used during and after a storm event, reducing down-time. This project amplifies the recent improvements to the arterial roadway to the DRAVO peninsula.

Project Benefits

Economic Impact

- Supports future growth and diversity of new and existing customers
- Ensures Childers Road is safe for use in all weather conditions, which will be valued among customers
- Increases Port productivity and creates jobs

Operational Impact

- Facilitates safer truck access for Port customers
- Expedites the transfer of cargo and equipment shipments
- Increases transfers per day and decreases traffic congestion
- Allows expansion of DRAVO peninsula operations
- Facilitates the development of the marine industrial site for vessel repairs, new vessel buildouts, and project cargo
- Reduces standing water in the road, allowing the peninsula to remain operational in wet weather conditions

Proposed Roadway Improvement Area

Trans Modal Containerized Project Cargo Loading Facility

Port of Orange

Project Details

Port Facility	Port of Orange
County	Orange
Project Status	Engineering and Geotech Completed
Project Category	Port Facilities

Project Description

The Trans Modal Containerized Project Cargo Loading Facility, or Trans Modal Yard, shown in yellow in the aerial figure to the right, has been previously constructed but needs to be rebuilt. This container on barge facility is the only one in the Port of Orange. The entire area currently cannot be used because it is a safety hazard and is sinking. This project will remove the current Trans Modal Yard surface. After removal, the soil will be stabilized, and pilings will be installed. The top surface will be paved with concrete.

Funding

Total Cost	$20,000,000

Need for Funding

The Port of Orange is located within 5 miles of many major industrial Orange County employers including: Invista, Honeywell, Chevron Phillips, Solvay-Solexis, Arlanxeo, and Lion Elastomers, including an estimated $8 billion expansion underway at CP Chem. Each of the mentioned plants will benefit from this Trans Modal Yard. A lack of container on barge access for this Port hurts both the Port and the surrounding industrial companies that are closely located to this port.

Project Benefits

Economic Impact

- Restores the Port's container barge facilities, which are in-demand and needed to keep up with industry growth
- Allows the Port to capitalize on its proximity to the Mississippi River
- Creates jobs in local industries

Operational Impact

- Restores barge services, a core part of the Port's business
- Saves costs that currently go into diverting tugs towing barges up the tributary
- Increases diversity of options for container on barge customers

Cargo Loading Facility Area

Main Street Terminal 2
Port of Beaumont

Project Details

Port Facility	Port of Beaumont
County	Jefferson
Project Status	Conceptual Design Completed
Project Category	Port Facilities & Inland Connectivity

Project Description

This project includes the demolition and reconstruction of a new dock facility and transit shed at the Port of Beaumont, specifically Main Street Terminal 2, that will be capable of handling large shipments of break bulk. The current terminal, constructed in the 1950's, can no longer accommodate modern vessels and has a deck load capacity of 500 psf, as opposed to the 1,200 psf capacity of modern docks at the port. Additionally, the adjacent storage sheds, though still in operation, are difficult to maneuver and lack sufficient storage space. This project also proposes to upgrade the surrounding rail and enlarge the apron area, increasing the efficiency of the terminal.

Funding

Total Cost	$150,000,000

Need for Funding

The Port of Beaumont receives significant demand from shippers but lacks the necessary number of facilities to accommodate potential business opportunities. Due to the current layout of the shed, with columns throughout the structure, the design is not optimal for efficient movement of cargo. The current number of columns present a safety and facility damage hazard and the low shed roofs limit cargo handling opportunities. In addition to challenges associated with the outdated shed design, the current apron is too narrow to adequately handle significant cargo volumes and modern vessels.

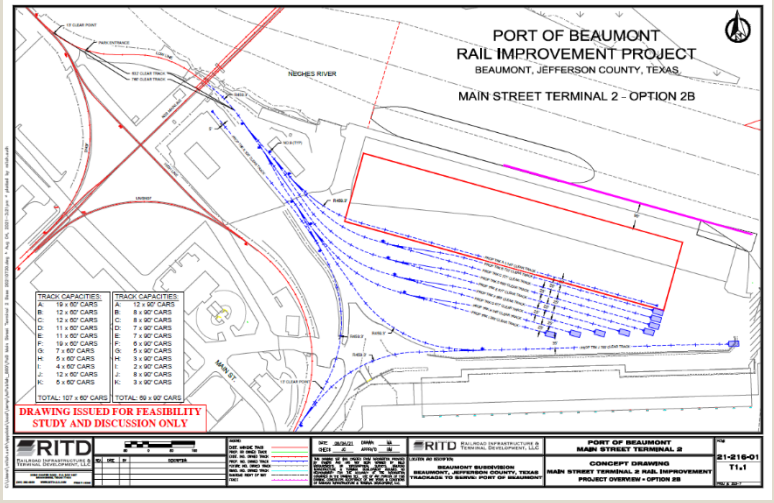
Project Benefits

Economic Impact

- Increases import and export volumes for the port, specifically for break bulk cargo
- Creates jobs and economic development opportunities, at an estimated 15,000 jobs for every $1 billion spent
- Allows an estimated additional 1,000,000 tons per year to be moved through Port of Beaumont terminals
- Increases track car capacity and volume of product moved

Operational Impact

- Alleviates the surplus of customers lining up to come into the port and relieves stress at other docs
- Reduces congestion at the truck loading area, lag, and idling times
- Enhances the benefit provided by Main Street Terminal 1 upgrades and compounds the initial investment



Conceptual Project Drawings for Rail Improvements

Current Conditions of the Terminal

South End Truck Queuing Area
Port of Beaumont

Project Details

Port Facility	Port of Beaumont
County	Jefferson
Project Status	Preliminary Engineering Complete, ROW & Land Acquisition in Progress
Project Category	Port Facilities

Project Description

The proposed South End Truck Queuing area will remove idling dump trucks from city streets and improve port operating efficiency. Previous truck queuing areas have addressed congestion concerns around the Port's main gate. This queuing area will address congestion at the South End of the Port, primarily caused by dump trucks entering and exiting the dry bulk terminal. This proposed queuing area will include the hard surfacing of thirty-seven acres that will serve 100,000+ dump trucks that call on the Port annually. To maximize the potential of this area, the lot will also be used as a laydown area for general cargo and U.S. Military cargo, when not being used to queue trucks.

Funding

Total Cost	$29,000,000

Need for Funding

On days with heavy truck traffic, commuters on Buford and Carroll streets are often delayed when traveling between home, work, or school. Trucks waiting to enter the Port of Beaumont idle on city streets, which can result in blocked intersections, causing delays that affect operational efficiency. There are also safety concerns associated with the high volume of trucks moving in and out of this area daily. With more than 100,000 dump trucks entering and exiting the Carroll Street and Buford Street Gates each year, a designated truck queuing area for this type of truck is necessary.

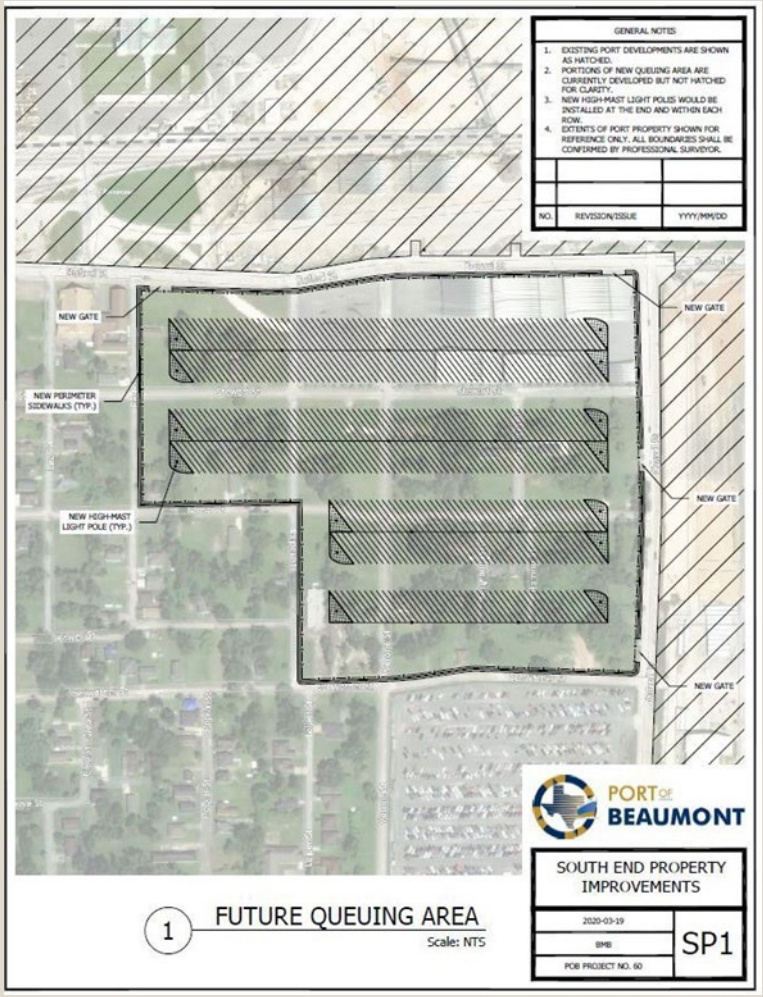
Project Benefits

Safe and Secure Operations

- Alleviates multiple hazards that result from 100,000+ dump trucks queuing on city streets
- Prevents instances such as cracked windshields and low visibility due to dust
- Reduces the risk of car collisions due to City traffic congestion
- Provides safety improvements in and around the project site

Operational Impact

- Provides direct access to Port facilities
- Reduces delays by minimizing congestion on adjacent City roads
- Accommodates sustainable Port growth by providing more space for additional vehicles and a second intermodal cargo exchange and staging area
- Provides stabilized areas for laydown that can be used for wet weather periods



Berth 3-5 Toe Wall
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Design Phase
Project Category	Port Facilities

Project Description

The Sabine-Neches Waterway is being currently being deepened to 48 feet, however Berths 3, 4, and 5 can currently only accommodate 40-foot drafts. To enhance productivity and safety during berthing operations, it is essential to match the berth depths to the channel depths. Under current conditions, vessels that serve the Port of Port Arthur are required to load light, which reduces the efficiencies and earning power of these movements.

The sheet pile wall along Berths 3, 4, and 5 will be approximately 2,000 linear feet long. It will be placed near the face of the dock and driven below the mudline. The project also involves the removal and replacement of the existing fendering system with added mooring bollards to accommodate breasting lines. These berth areas will be dredged from 40 feet to 48 feet in a separate, future project.

Funding

Total Cost	$32,264,100

Need for Funding

The Berth 3, 4, and 5 sheet pile wall construction project supplements the Port's deepening project, complementing the ongoing Sabine-Neches Navigation District's current project to deepen the waterway to a depth of 48 feet. This project is the first step in the deepening for that area and will be followed with dredging in a separate project.

Project Benefits

Economic Impact

- Provides sustainable jobs
- Allows the port to continue to serve existing customers as vessel size increases
- Meets customer demand for deeper drafts

Operational Impact

- Optimizes proposed waterway improvements
- Allows larger and fully loaded vessels to use the Port's berths
- Reduces waterway congestion
- Increases under keel clearance, which improves vessel operation safety

Berth 1-2 Toe Wall Construction
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Design Phase
Project Category	Port Facilities

Project Description

The Sabine-Neches Waterway is currently being deepened to 48 feet. However, Berths 1 & 2 can currently only accommodate 40-foot drafts. To enhance productivity and safety during berthing operations, it is essential to match the berth depths to the channel depths. Under current conditions, vessels that serve this Port are required to load light, which reduces the efficiencies and earning power of these movements.

The sheet pile wall at Berths 1 & 2 will be approximately 1,500 linear feet long. It will be placed near the face of the dock and driven below the mudline. The project also involves removal and replacement of the existing fendering system with added mooring bollards to accommodate breasting lines. These berth areas will be dredged from 40 feet to 48 feet in a separate, future project.

Funding

Total Cost	$23,848,000

Need for Funding

The Berth 1 and 2 sheet pile wall supplements the Port's deepening project, complementing the ongoing Sabine- Neches Navigation District's current project to deepen the waterway to a depth of 48 feet. This project is the first step in the deepening for that area and will be followed with dredging in a separate project.

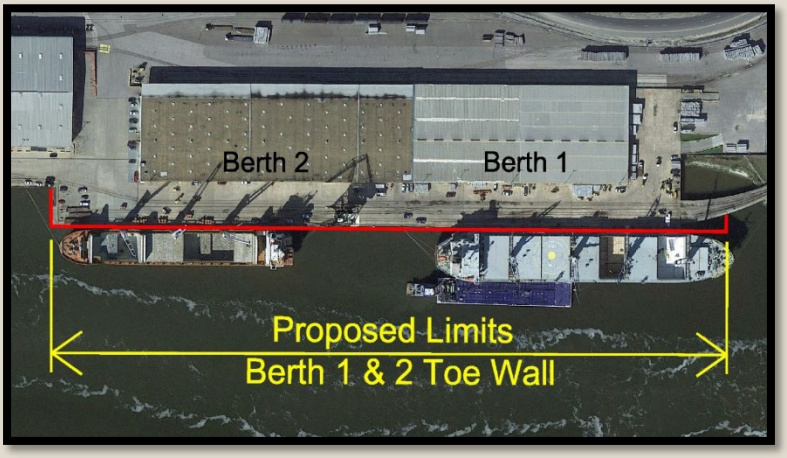
Project Benefits

Economic Impact

- Provides sustainable jobs
- Allows the port to continue to serve existing customers as vessel size increases
- Meets customer demand for deeper drafts

Operational Impact

- Optimizes proposed waterway improvements
- Allows larger and fully loaded vessels to use the Port's berths
- Reduces waterway congestion
- Increases under keel clearance, which improves vessel operation safety



2.6 Acre Multimodal Laydown Yard
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	10% Design Completed
Project Category	Port Facilities

Project Description

Existing conditions of the site consist of two metal framed warehouse/maintenance buildings; one of which is attached to a 1947 vintage office structure. Proposed improvements include the demolition of one metal warehouse structure and its attached office building. Overhead utilities will be removed or re-routed around the project area with some utilities being relocated to an underground location. The site will be stabilized and paved with reinforced concrete pavement, including multiple driveways. High efficiency site lighting will be installed as well as a perimeter fence and gates.

Funding

Total Cost	$3,262,250

Need for Funding

Due to its proximity to the Port, specifically the docks, this site is ideal for an additional laydown storage area outside of the Port to be used for cargo laydown, military laydown and staging, project cargo or other expanded needs. The additional laydown area in this project will support the added cargo stemming from recently completed or ongoing construction projects at Berth 5 (614 LF of dock) and Berth 6 (1,000 LF of dock).

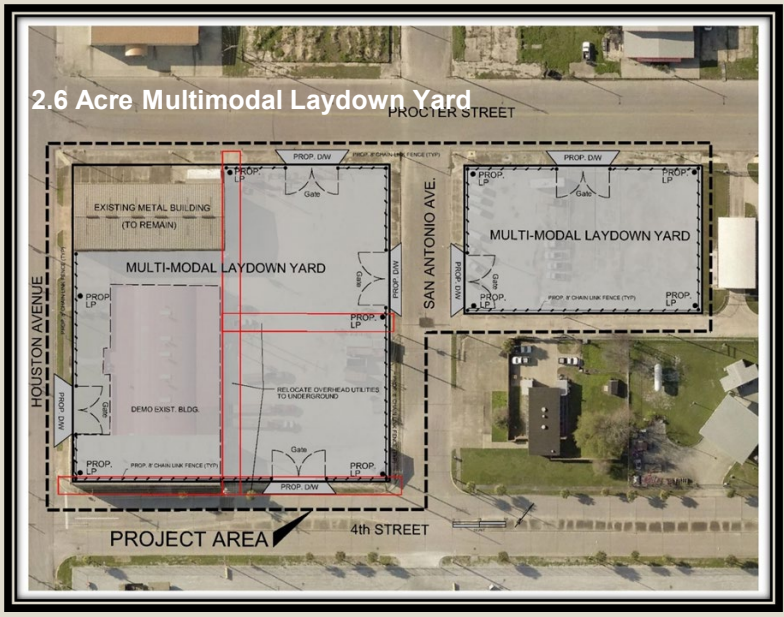
Project Benefits

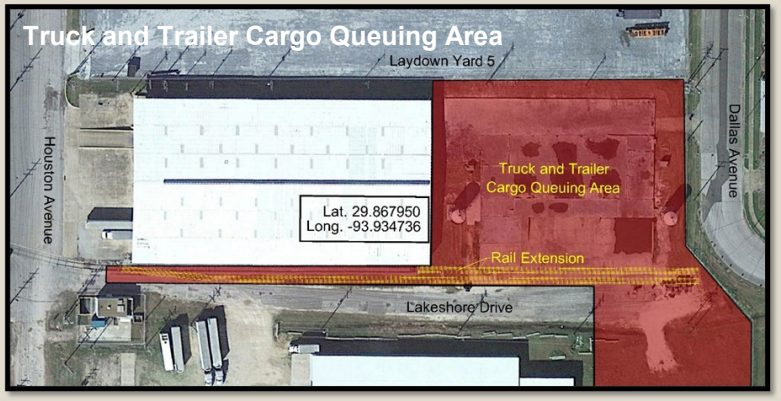
Economic Impact

- Provides sustainable jobs
- Supplements the need for added laydown capacity for various cargo
- Increases the volume and diversity of cargo moved, resulting in higher port revenues

Operational Impact

- Supports the smooth flow of cargo and trucks in and out of the port
- Reduces congestion and dwell time
- Allows for storage lane capacity for the staging of 18-wheel commercial vehicles outside of the existing road infrastructure
- Provides an area for cargo separation and sorting





Queuing and Staging Area
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Scoping and Planning Completed
Project Category	Port Facilities

Project Description

The Port of Port Arthur currently has a relatively limited amount of cargo staging area to handle project, steel, wind energy, and military cargoes. This project will stabilize approximately 20 acres, formerly a railroad lay down area, allowing the Port to make better use of limited property area as a multifunctional space. This stabilized area will enhance the Port's ability to serve the energy production and the export capability of Texas and the nation. Local refiners and export terminals import a considerable volume of project cargo to support an estimated $50 billion in expansions for Southeast Texas. Most of the project cargo by the ton is expected to move through the Port over the next 10 years.

Funding

Total Cost	$12,291,000

Need for Funding

The improved area will provide vessel-to-ground staging and appropriate staging, insulating and sequencing for various projects. The project promotes economic gain for the State by supporting Texas exports in energy and forest products and streamlines import commodities to Texas and US markets of project cargo, steel, aluminum, and forest products. The project will also allow the area to be used during and after a storm event.

Project Benefits

Economic Impact

- Allows more cargo to be stored in transit for Berth 1 and landside rail/truck docks
- Increases the quantity of roll-on/roll-off cargo
- Supports the transport of military cargo, construction material, and energy products
- Helps the Port retain customers and develop businesses

Operational Impact

- Increases truck loading options, improving the efficiency and volume of truck loading
- Provides more space for enhanced sorting, slotting, and sequencing of cargo
- Allows for use of the area during and after storm events, which are common for the region

Proposed Queuing and Staging Area

Railyard Flyover Project
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Design Phase
Project Category	Inland Connectivity

Project Description

In order to accommodate potential customers within a new development area for the Port, cargo movement into and out of this area needs to be amplified. Flood protection levees in this area are being modified by the US Army Corps of Engineers and will significantly impact Port operations. This project extends Denbo Road over the railroad intersection using an elevated flyover roadway, so that Denbo traffic can continue without stopping at the intersection, essentially bypassing the railroad intersection and providing additional access during levee closures. The details of this passage will be determined during the design phase.

Funding

Total Cost	$15,000,000

Need for Funding

This project is needed to connect the port to Denbo Road. Without this flyover, operations will be significantly hindered. Additionally, it optimizes the struggling adjacent areas predominantly owned by the City of Port Arthur. Currently these areas require maintenance and are used as dumps for tires and other debris, costing the City maintenance funding and becoming an eyesore.

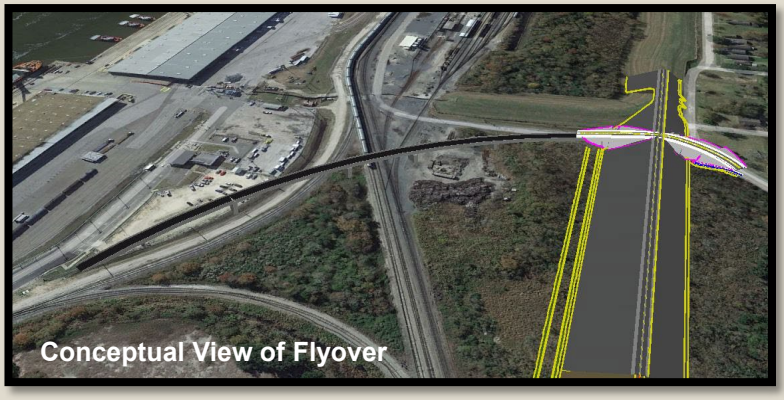
Project Benefits

Economic Impact

- Improves marketability and speed of development of the adjacent brownfield tracts as cargo and staging areas
- Turns a tire dumping yard into a thriving Port property
- Creates jobs and increases revenue for the Port
- Invites new customers and helps the Port diversify

Enhances Connectivity

- Improves the connections from the Port to Denbo Road
- Allows a previously inaccessible and undeveloped area to be used
- Reduces response times for emergency services



Conceptual View of Flyover

Terminal Rail Expansion
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Scoping and Planning
Project Category	Inland Connectivity

Project Description

The purpose of this project is to enhance port connectivity and rail accessibility at the Port of Port Arthur by constructing approximately 15,000 feet of railroad track parallel to the existing alignment. The addition of these tracks will change the way the rail is loaded and unloaded. The trains can be bulk handled directly onto trucks or barge. This direct handling keeps the trains from being pulled apart and put back together, a process that is time consuming, logistically complex, and occasionally unsafe.

Funding

Total Cost	$7,931,310

Need for Funding

This railyard is currently limited by the existing space, especially when operating at approximately 75% capacity when the area can become congested. The improvement to the railroad will assist particularly with roll-on/roll-off cargo, including military, wind energy, and other large-scale cargo. The terminal rail expansion aligns with the Port's mission plan for increased safety and economic development.

Project Benefits

Enhances Connectivity

- Circumvents the requirement for trains to be broken up and loaded separately, which causes significant idling
- Improves loading/unloading movements, which increases efficiency for handling larger cargo
- Allows trains to run concurrently to fill ships and move directly forward on the rail

Safe and Secure Operations

- Removes the current inefficient and labor-intensive method of handling individual train cars
- Reduces the risk of train-to-train and train-to-person collisions
- Removes trucks from the unloading process, eliminating risk of truck-to-rail accidents
- Reduces delays at residential and commercial crossing, providing safer passage

Proposed Rail Expansion

Truck and Trailer Cargo Queuing Area with Rail
Port of Port Arthur

Project Details

Port Facility	Port of Port Arthur
County	Jefferson
Project Status	Near Shovel Ready
Project Category	Port Facilities & Inland Connectivity

Project Description

In order to provide additional area for truck drivers to safely drop and hook trailers, and for the ability to transloading between truck and rail, the Port of Port Arthur proposes a project to expand and stabilize the area at the end of Lakeshore Drive with concrete pavement and extend the existing rail track. This area is currently partially paved and partially vegetated. A building adjacent to the site has been recently removed and now offers additional space for queueing. The Port and its shippers are expanding the use of trailer shuttling to mitigate dwell time by drivers and ensure more efficient scheduling of cargo deliveries as well as providing rail loading/unloading areas within close proximity to the Port.

Funding

Total Cost	$3,000,000

Need for Funding

This area will provide the Port with space to segregate the trailers by customer and provides the added benefits of reduced truck idling, reduced congestion at the Port, and increased safety for motor carriers. Improvements to this area can also benefit the shrimpers, allowing them to expand their already booming business.

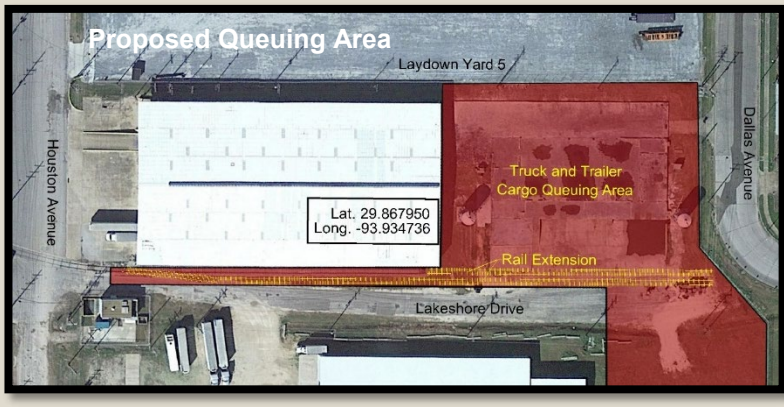
Project Benefits

Economic Impact

- Accommodates increased demand for Port services
- Supports growth in project cargo, wind energy, military cargo industries, and the Port's existing client base
- Allows more trucks to serve the Port, increasing efficiency and revenues

Operational Impact

- Provides an area for trucks to drop and load up trailers, allowing for more trucks to service the Port
- Increases the space between trucks and cargo and provides additional space outside of the active areas of the Port for transloading between rail and truck
- Allows cargo to be segregated by type, increasing efficiency of loading and unloading
- Benefits the adjacent shrimping operation with more laydown and storage area



Sheet Piling Wall Replacement
Sabine Pass Port Authority

Project Details

Port Facility	Sabine Pass Port Authority
County	Jefferson
Project Status	Preliminary Engineering and Design Underway
Project Category	Port Facilities

Project Description

This project includes the replacement of 900 feet of a sheet pile wall at Sabine Pass. The existing sheet piling is suffering from age and deterioration. In some cases, sheet piling is leaning into the deep draft shipping channel. Replacing the sheet piling will add strength and stability to the docks and remediate the currently hazardous condition.

Funding

Total Cost	$6,000,000

Need for Funding

These docks are always active, mostly utilized by commercial shrimp fisherman. The vessels bang up against the piling regularly. The existing sheet piling is a safety hazard for the traffic using the docks. Additionally, this hazard presents a risk to impact the operationality of the docks. A portion of the sheet piling could potentially collapse into the channel, creating a serious obstruction for vessels and reducing the stability of the adjacent dock.

Project Benefits

Safety and Secure Operations

- Lowers the risk of significant damage to boat traffic, reducing safety concerns for boat patrons
- Removes an obstruction to traffic
- Increases stability of adjacent docks

Operational Impact

- Saves customers and users of the channel time by improving the navigation of the docks
- Creates stability in the adjacent dock and improves efficiency within the channel
- Supports production within the local shrimp industry

Barbours Cut Terminal Container Yard 6 Upgrade Port Houston

Project Details

Port Facility	Port Houston
County	Harris
Project Status	30% Design Completed
Project Category	Port Facilities

Project Description

To keep up with double digit growth in container shipping from year to year, the Port Houston is proposing upgrades to the Barbours Cut Terminal Container Yard 6. The area of the proposed container yard improvements is approximately 40 acres. This project encompasses the existing container yard, which will be reconstructed using roller-compacted concrete to create a stronger, seamless pavement structure. This plan is a part of a larger modernization program at the terminal to increase cargo handling efficiency and capacity. It includes replacing Panamax cranes with larger Post Panamax ship-to-shore cranes, dock improvements, yard reconfiguration and expansion, and rehabilitation of the gate.

Funding

Total Cost	$42,250,000

Need for Funding

Container cargo continues to be an important area of growth for the Port of Houston, with double digit growth multiple years running. The container yard has only received minimal improvements and repairs in the more than 40 years since its construction. Reconstructing Container Yard 6 will alleviate some of the constraints that might otherwise limit industry growth.

Project Benefits

Economic Impact

- Increases efficiency, which is estimated to result in a gain of $230 million from undiscounted benefits
- Reduces emissions from idling, which accounts for an additional $91 million of undiscounted benefits
- Accommodates increasing demand within the port and allows for continued market growth

Operational Impact

- Prevents delays caused by aging infrastructure and allows business to meet required turnaround times
- Reduces truck turn time by streamlining and maintaining a good state of repair in the yard
- Allows for higher stacking of containers than is currently feasible, increasing efficiency

Barbours Cut Terminal Container Yard 7 Upgrade

Port Houston

Project Details

Port Facility	Port Houston
County	Harris
Project Status	30% Design Completed
Project Category	Port Facilities

Project Description

To keep up with double digit growth in container shipping from year to year, the Port Houston is proposing upgrades to the Barbours Cut Terminal Container Yard 7. The area of the proposed container yard improvements is approximately 29 acres, which encompasses the existing container yard as well as an area to the north that used to serve as a water storage area but is no longer being utilized by the port. Improvements will include reconstruction using roller-compacted concrete to create a stronger, seamless pavement structure.

Funding

Total Cost	$53,300,000

Need for Funding

Container cargo continues to be an important area of growth for the Port of Houston, with double digit growth multiple years running. The container yard has only received minimal improvements and repairs in the more than 40 years since its construction. Reconstructing Container Yard 7 and expanding it further to the north will alleviate some of the constraints that might otherwise limit industry growth.

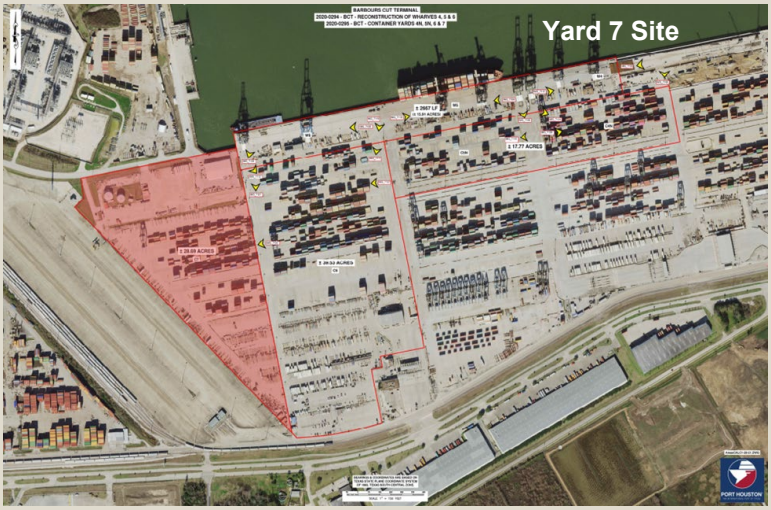
Project Benefits

Economic Impact

- Increases efficiency, which is estimated to result in a gain of $230 million from undiscounted benefits
- Reduces emissions from idling, which accounts for an additional $89 million of undiscounted benefits
- Accommodates increasing demand within the port and allows for continued market growth

Operational Impact

- Prevents delays caused by aging infrastructure and allows business to meet required turnaround times
- Reduces truck turn time by streamlining and maintaining a good state of repair in the yard
- Allows for higher stacking of containers than is currently feasible, increasing efficiency



Barbours Cut Terminal Container Wharf Upgrade
Port Houston

Port Facility	Port Houston
County	Harris
Project Status	30% Design Completed
Project Category	Port Facilities

Project Description

To keep up with double digit growth in container shipping from year to year, the Port Houston is proposing upgrades to 1,334 linear feet of wharves in the Barbours Cut Terminal. These upgrades would improve part of Wharf 4 and all of Wharves 5 and 6. Tasks involved as part of this project include surveying, dredging, drilled shaft foundations, structural concrete, crane rails, fender systems, utilities, and a support building. This infrastructure will support ship-to-shore cranes as part of the port's future improvement plans. Overall, the improvements will allow the terminal to berth larger ships and will increase container storage capacity.

Funding

Total Cost	$69,342,000

Need for Funding

As vessel sizes continue to increase and call on this area, it is important that the port upgrade its wharf infrastructure to be able to service modern ships effectively. Limited Post Panamax capabilities at the Barbours Cut Terminal are currently hindering port efficiency and reducing economic gains for container cargo. This project will help the port keep up with double digit growth and remain competitive in the market.

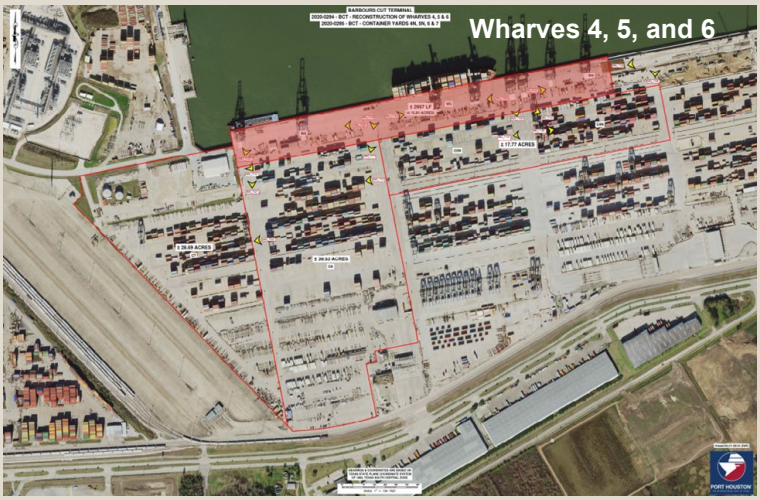
Project Benefits

Economic Impact

- Reduces ship delays, resulting in $61 million undiscounted benefits
- Reduces emissions from idling, which accounts for an additional $109 million of undiscounted benefits
- Increases the amount of cargo moving in and out of the port, generating more jobs and revenue

Operational Impact

- Allows all six wharves to be able to service larger vessel sizes, including Post Panamax vessels
- Allows Post Panamax Vessels to moor more frequently
- Reduces delays caused by congestion and increases the efficiency of the Port



Bayport Terminal Yard Expansion
Port Houston

Project Details

Port Facility	Port Houston
County	Harris
Project Status	10% Design Completed
Project Category	Port Facilities & Inland Connectivity

Project Description

To keep up with recent and projected growth in the container cargo industry, the Port Houston plans to create a 46-acre expansion of the Bayport Terminal Yard. The Port considers the Bayport Terminal to be the most modern and environmentally sensitive container terminal on the U.S. Gulf Coast. The terminal features electronic data interchange capabilities and a computerized inventory control system that tracks the status and location of individual containers. Trucking access to and from the terminal gates is continuous with two dedicated flyover ramps connecting Texas 146 and Port Road. This project, in tandem with the previous 54-acre container yard expansion, will complete the development of the Bayport Terminal on the north side of Port Road, increasing the ports container cargo capabilities through five years of expected double digit growth while maintaining efficient turn times.

Funding

Total Cost	$95,418,093

Need for Funding

This project would increase the capacity for one of the most important container terminals in the Gulf of Mexico. The Bayport Terminal is currently operating at capacity, and container growth at the Port is expected to be in the double digits for the next five years. This project will alleviate current issues with longer turn times and provide additional yard space in order to increase the amount of goods moving through the port. The project is critical for the port and will have no issues matching the timeline of the PMP. Significant progress has already been made on the engineering and planning of the project.

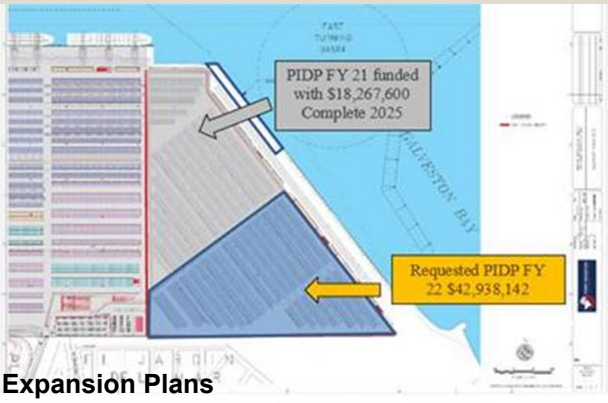
Project Benefits

Economic Impact

- Creates an estimated annual $22.9 million in undiscounted benefits
- Enables the port to take more clients and generate additional revenue
- Creates an estimated 958 direct jobs, 1,382 induced jobs, and 855 indirect jobs
- Reduces emissions from idling, which accounts for an additional $4.66 billion of undiscounted benefits

Operational Impact

- Increases available container space, reducing congestions and decreasing truck turn times
- Saves an estimated 29 million hours of truck idling over 25 years



Yard Expansion Plans

Cruise Terminal Walkway Circulation Improvements Port of Galveston

Port Facility	Port of Galveston
County	Galveston
Project Status	90% Design
Project Category	Port Facilities & Inland Connectivity

Project Description

This project will reopen the elevated walkway between the SMP Garage and Cruise Terminal One for use by the public and more than 1 million anticipated annual cruise passengers. This project scope of work includes installing air conditioning, two elevators, two escalators, structural repairs, and pedestrian improvements at both ends of the walkway. The project will reduce traffic on Harborside Drive, encourage visits to the restaurants at the waterfront and Galveston's historic downtown, secure ADA compliance, and will provide safer travel for pedestrians by moving the foot traffic on the Harborside Drive up to the overhead walkway.

Funding

Total Cost	$2,724,574

Need for Funding

Currently, the walkway is not in use, and with the presence of over six million annual visitors to the island, the intersection of Harborside Drive and 25th Street is a potentially dangerous place. Opening the walkway to the public after installing the improvements will not only help the Port continue its vision of accessibility, but will process passengers more expeditiously, conveniently, and safely. In addition, it encourages pedestrians to visit the nearby local historical districts, potentially increasing revenue for both the city and state.

Project Benefits

Economic Impact

- Restores the cruise terminal walkway and makes it accessible to the public
- Creates a pathway for reducing delays, improving system performance
- Provides efficient and reliable movement of people, goods, and services
- Meets the Port's objective of development and optimization of the Port's assets

Operational Impact

- Serves both individuals who travel by vehicle and individuals who travel by mass transit
- Allows travel around the island via the Historical Trolly System
- Enables efficient and accessible transportation on the island and surrounding areas
- Facilitates reliable movement of goods and services across the walkway

Aerial of Walkway

Galveston Island Wayfinding Project
Port of Galveston

GALVESTON WHARVES

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Planning in Progress
Project Category	Port Facilities

Project Description

The scope of this project includes redeveloping signage within the Port to help alleviate traffic impacts from the Port of Galveston's future growth plans. Wayfinding is needed to aid motorists and pedestrians, particularly visitors to the cruise terminal who may not be familiar with the area. The current wayfinding scheme is non-standard and has become ineffective over time, and the new cruise terminal scheduled to open in 2022 will make navigation more complicated for passengers.

Funding

Total Cost	$1,600,000

Need for Funding

The Port's ambitious cruise terminal and industrial expansion plans will invite more people and traffic to the Port, which will exacerbate the current problems with the existing wayfinding scheme. The wayfinding project will help restore efficiency in movement across the Port and keep up with the increasing growth and demand. Promoting ease of access to, from and within the area will make Galveston a desirable destination for cruise travelers and vacation goers, boosting the local economy.

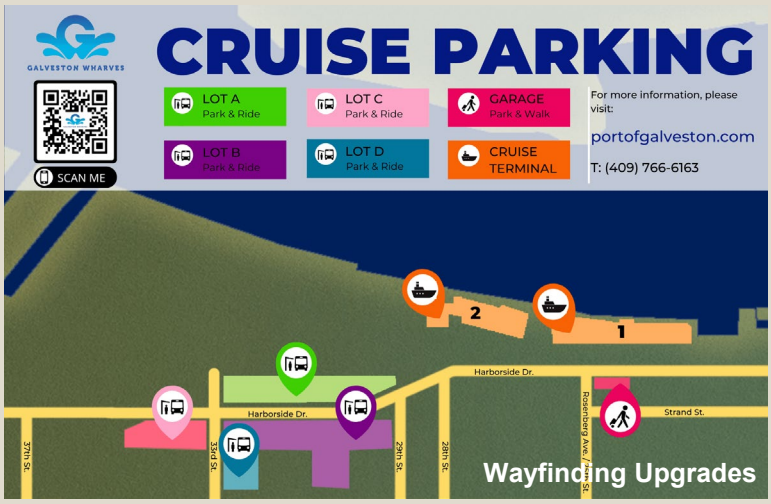
Project Benefits

Safe and Secure Operations

- Increases driver and pedestrian safety
- Improves traffic flow in and out of the Port and alleviates traffic through residential areas
- Improves cruise passenger on-boarding efficiency

Other Benefits

- Enhances tourism and the brand of the Port by providing cohesion to the visitor experience
- Encourages economic activity throughout the region by allowing travelers to identify points of interest via signage
- Supports businesses from both Galveston and the mainland



Pelican Island Berth Development
Port of Galveston

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Planning and Design
Project Category	Port Facilities

Project Description

To keep up with continued growth, particularly in the petrochemical industry, the Port of Galveston plans to construct a 500' x 75' pile supported deck at the east end of the Pelican Island area to provide additional ship berthing. The project includes additional upland development to support the new deck. The new deck will increase roll-on/roll-off (RoRo) capabilities within the port. Additionally, the new deck would provide an area for barges to stop for activities such as crew changes or inspections, making the Port of Galveston more attractive to businesses and customers. This project would be the initial phase of the development, with an additional 100 acres available from a placement area nearby for future/ additional development.

Funding

Total Cost	$35,000,000

Need for Funding

Creating the new berthing area will allow for the expansion of the Port, creates more business and jobs, and helps to increase the volume of goods moving through the port. Increasing the port's RoRo capabilities will also make the Port of Galveston competitive with regards to attracting new potential customers. The utility of the deck will entice businesses to ship into and out of the Port.

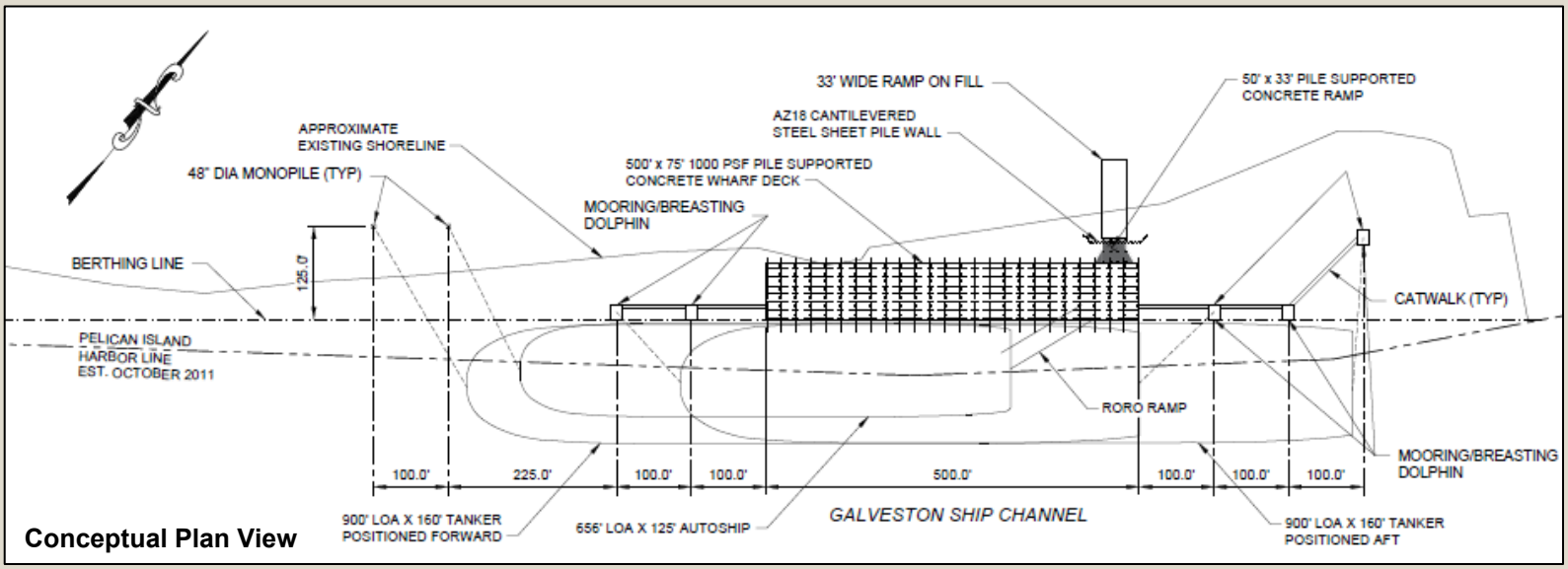
Project Benefits

Economic Impact

- Creates short-term jobs during construction and long-term jobs associated with increased port activity
- Allows ships to berth and provides and area for ships to change crews or stop for inspection
- Fulfills a key need for the petrochemical industry, which is important to the local economy

Operational Impact

- Project location is accessible for petrochemical and RoRo customers
- Allows multiple types of barges to approach
- Creates a flexible space for customers to fulfill their needs, and demand is strong



Conceptual Plan View

Pelican Island Projects - Phase 1
Port of Galveston

GALVESTON WHARVES

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Pre-planning
Project Category	Port Facilities & Inland Connectivity

Project Description

The scope of this project includes improving the connectivity of Pelican Island to Galveston Island, as well as the initial work for an island-wide roadway infrastructure improvement to facilitate future development of the island. Also included is the development of an LNG terminal and an automobile processing and roll-on/roll-off (RoRo) facility. This project would constitute Phase 1 of a larger project to develop Pelican Island into an industrial development with RoRo capabilities.

Funding

Total Cost	$51,200,000

Need for Funding

The Port seeks to take advantage of increased international shipping and increased use of LNG as a shipping fuel. An expansion onto Pelican Island would provide additional capacity and revenue on both fronts. Phase 1 of the Pelican Island expansion would provide the basis for private enterprise to take advantage of future market trends.

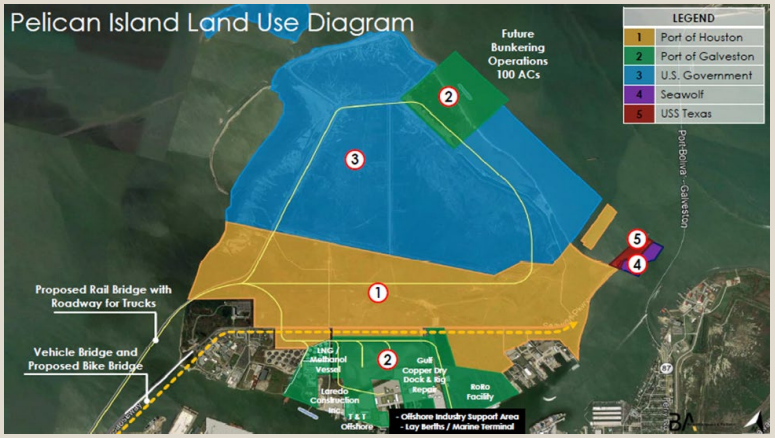
Project Benefits

Economic Impact

- Provides a basis upon which long-identified industrial and cargo operation expansion can be developed
- Serves a projected increase of 26% automobile/RoRo imports/exports through 2035 through Port of Galveston
- Will generate a total of 1,203 jobs (407 direct), $104.8 million in personal income and consumption, $152.7 million in revenue to local businesses, and $7.9 million of state and local taxes annually

Enhances Connectivity

- Enables easy shipping across the country and extends the Port of Galveston's capacity to ship around the world
- Allows direct access to the Galveston Railway and then onto Union Pacific or BNSF rail networks
- Allows access to I-45 and onto national interstate networks while leaving smaller vehicle traffic across the causeway undisturbed



Terminal Parking Garage
Port of Galveston

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Procurement
Project Category	Port Facilities

Project Description

A new cruise terminal parking structure is needed for cruise Terminals 1 and 2 to accommodate cruise line passengers. This project would construct a parking garage at Pier 25 to serve both Terminals 1 and 2. This garage could be split into multiple phases, as needed. Constructing the garage would require the modification of cruise terminals to create the space for the garage. In the future, this project may be expanded to include a parking garage for Terminal 3.

Funding

Total Cost	$131,000,000

Need for Funding

Many cruise passengers sailing from the Port of Galveston area come from a drive radius of 8-12 hours and encompass travelers from the South and Midwest, including all the major cities of Texas. Many families arrive via car and park in the adjacent port and private lots in Galveston, providing for additional revenue opportunities. Parking options for cruise passengers currently include lots A and B, located at the intersection of 33rd Street and Harborside Drive, and the multi-level parking garage at 150 25th Street. To supplement these lots, new parking structure(s) are recommended to accommodate 3,000-vehicles in the mid-Port area. Based on the growing demand of cruise travelers for this Port this project is critical.

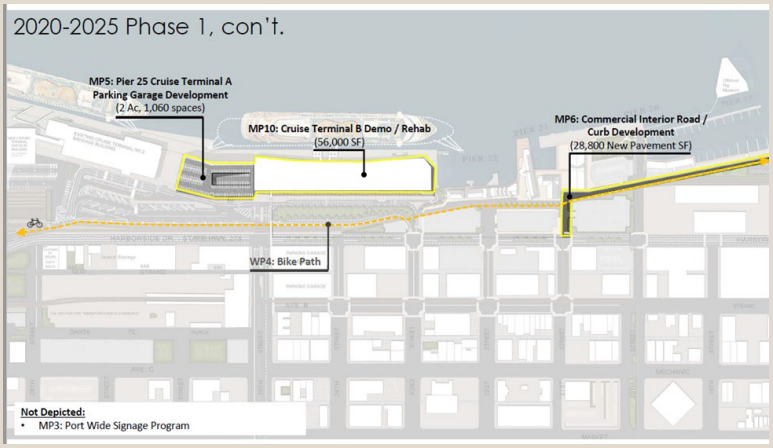
Project Benefits

Economic Impact

- Parking generates a significant source of revenue for the port and allows for investment in other critical areas
- Provides an additional 3,000 parking spaces for cruise passengers
- Enhances the environment of Downtown Galveston with parking structures that promote and complement the area's existing retail

Safe and Secure Operations

- Reduces traffic volumes of cars and shuttles on the roadways between the cruise terminals and the parking lots
- Increases effectiveness of lighting, visibility of signage and wayfinding capability, and reduces operational costs of signing and lighting
- Includes Automatic Vehicle Identification (AVI) systems and License Plate Recognition (LPR) systems
- Includes handicap accessibility



West End Cargo Expansion
Port of Galveston

GALVESTON WHARVES

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Scoping and Planning
Project Category	Port Facilities

Project Description

The purpose of this project is to fill outdated ship slips between the Port of Galveston's Piers 38-39 and Piers 39-40, effectively repairing damaged and decaying infrastructure not currently being utilized. The scope of work includes dredging, constructing two fill- retaining structures, placement of fill, improving storm sewers, installing flexible pavement, and replacing the deteriorated bulkhead at piers 39-40. This project will ultimately fill the slip between Piers 38 and 39, and between Piers 39 and 40. Additionally, the project includes the replacement of a deteriorated T-Head bulkhead at Piers 39-40. This would allow for the increase of berth depth by up to 45' Mean Lower Low Water (MLLW).

Funding

Total Cost	$60,704,452

Need for Funding

The project funds key elements of a larger project to create additional uplands in the west end of the Port. The uplands are needed to support growing break bulk and roll-on/roll-off cargo operations. The uplands will be created by placing fill material behind the bulkhead. When complete, the project will allow the Port to fill the area immediately south of the bulkhead.

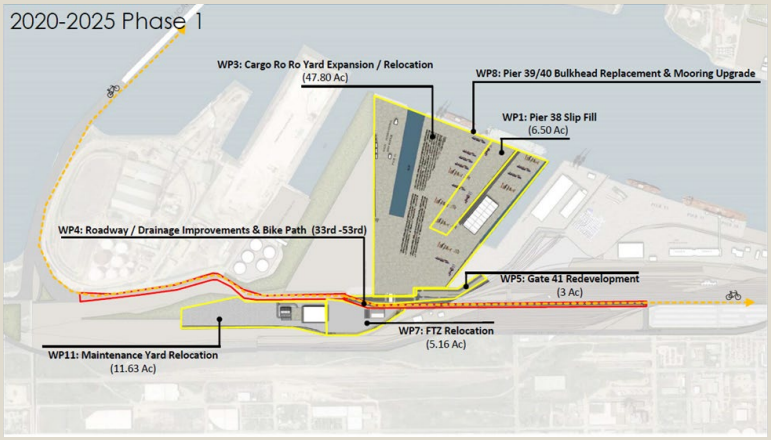
Project Benefits

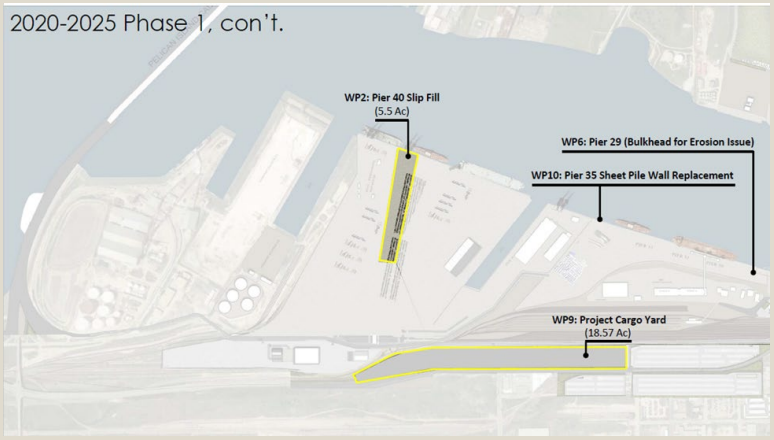
Economic Impact

- Reduces the travel of big trucks and consolidates logistics to one area of the port
- Reduces congestion challenges of combining operations of cruise and cargo, which will reduce the cost factor of moving cargo
- Combined with Phase 2 of this project, will generate 239 jobs (81 direct, 112 induced, and 45 indirect)

Operational Impact

- Increases the Port's ability to handle all cargo operations and will allow the Port to accommodate new business
- Improves safety and accessibility along the intermodal rail corridor between the Port of Galveston and freight destinations
- Achieves greater levels of utilization than the existing roadway capacity
- Provides congestion mitigation, emissions reductions, and truck travel time savings





West End Roadway Improvements Feasibility Study Port of Galveston

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Feasibility Study
Project Category	Inland Connectivity

Project Description

The scope of this project includes conducting a feasibility study regarding the connectivity improvements for roads on Galveston Island, particularly located in the West End area, including the I-45 causeway connecting to the mainland. The Port currently experiences difficulty with traffic moving north and south in this area.

Funding

Total Cost	$5,000,000

Need for Funding

Due to road connectivity and traffic issues in the area, there are some businesses using local warehouse space that must drive off-island to ship from other ports. This results in revenue loss for the Port. The Port of Galveston has identified approximately 10 potential roadway projects that would improve connectivity in this location. A feasibility study should be performed to determine all possible roadway solutions that would improve the connectivity of the area, making this West End more beneficial to the port by reducing traffic and improving efficient movement. This feasibility study will be integral in determining the road layout and traffic solutions in conjunction with the Port's Pelican Island project to prevent any redesign and streamline planning.

Project Benefits

Economic Impact

- Promotes efficient movement of more trucks through the West End area, allowing more cargo to move in and out of the Port
- Allows the Port to grow without being limited by land access

Operational Impact

- Supplements the Port's West End improvement project
- Accommodates for traffic increases caused by other West End improvement projects
- Improves connectivity in conjunction with Pelican Island improvements

I-45 Causeway Leading to Galveston Island

Wharf Road Roadway and Utility Improvements and Gate Relocation

Port of Galveston

GALVESTON WHARVES

Project Details

Port Facility	Port of Galveston
County	Galveston
Project Status	Phase I Under Construction
Project Category	Port Facilities & Inland Connectivity

Project Description

The project includes the development of Wharf Road, an internal road within the Port of Galveston to support the Port's growing cruise and cargo sectors and the Port of Galveston's 20-Year Strategic Master Plan. The improvements should take thousands of cars, trucks, and buses off Harborside Drive each year by giving them internal road access to the Port. The Port has identified four separate phases for the roadway:

- Phase 1: Wharf Road between 29th Street and 33rd Street
- Phase 2: Wharf Road between 20th Street and 14th Street
- Phase 3: Wharf Road between 33rd Street and 41st Street
- Phase 4: Wharf Road connecting Phase 1 and 2 (the Pier 21 commercial district)

This project also includes relocating the 40th Street gate, the Port's main gate for cargo entering and exiting the Port of Galveston.

Funding

Total Cost	$14,000,000

Need for Funding

The Port plans to continue to seek additional grant funding for the Port's project match. Expanding the interior Wharf Road is expected to alleviate both cargo and cruise traffic on Harborside Drive, improving traffic flows into the port and downtown. The project is also anticipated to provide the benefit of further distancing cruise passenger traffic from traffic generated by cargo and other industrial activities by consolidating cargo movement to the West Port area, away from cruise activities. The Port has known drainage issues on West Port cargo area roadways during rainfall events, which could be resolved, at least in part, by this project. A wider roadway is anticipated to improve motor vehicle safety for all users.

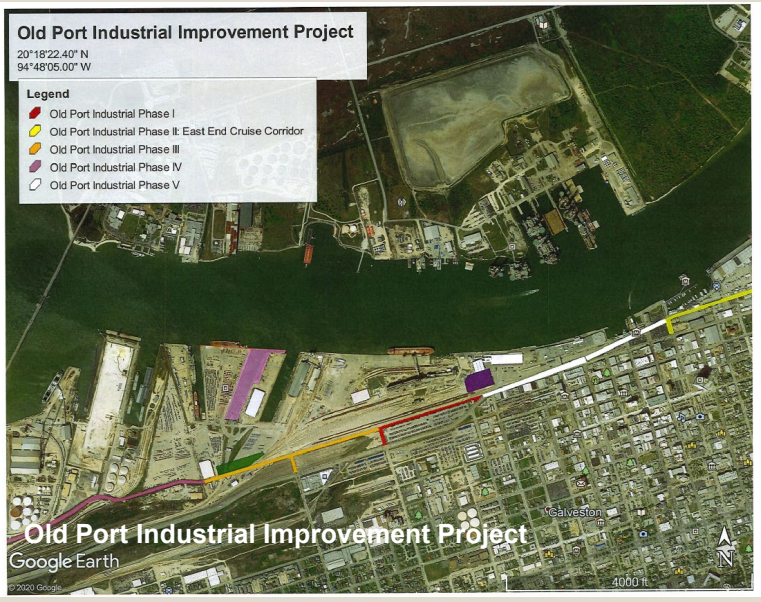
Project Benefits

Operational Impact

- Improves the efficiency of traffic moving into the Port and adding an extra entrance to allow traffic to enter from Harborside Drive onto Wharf Road
- Large trucks that supply cruise ships will be removed from Harborside Drive and rerouted to the interior roads within the Port
- Relocating the 40th Street gate will allow two existing cargo yards to be combined and the gate to be relocated closer to the new Wharf Road.

Enhances Connectivity

- Creates sustainable, viable, and more accessible alternative to larger vehicles carrying cargo and vehicles entering the port
- Improves connectivity between port and Texas highway system
- Removes some traffic congestion in Galveston downtown area
- Allows operations to be consolidated to one streamlined location within the port
- Modernizes the gate technology to allow for more efficient processing of cargo as it enters/exits the port.



Area 5 Stabilization
Port Freeport

Project Details

Port Facility	Port Freeport
County	Brazoria
Project Status	10% Design
Project Category	Port Facilities

Project Description

The port continues to pursue the expansion of the Velasco Terminal concurrently with the construction of a new multipurpose dock. The Area 5 Stabilization project includes the concrete pavement of a 15-acre storage yard (currently limestone aggregate) on a highly utilized portion of Velasco Terminal

Funding

Total Cost	$15,000,000

Need for Funding

The Port is nearing completion of the expansion of the Velasco Terminal, which includes the addition of a new multipurpose dock. The Port of Freeport is also undertaking the Freeport Harbor Channel Improvement Project (FHCIP), which is intended to deepen and widen the channel by 2023. Additionally, the Port has received funding to develop the Velasco Terminal Access Project which will significantly improve the road transportation to and from the terminal. The surface in this area is currently limestone aggregated, which restricts certain cargo from using the area. This concrete stabilization will create precious storage space for this newly constructed, bustling, adjacent terminal. This space makes laydown easy and efficient, conveniently located close to the new multipurpose dock.

The improvement of the surface for this area, will provide flexibility for the Port's cargo customers and expand the diversity of their customers.

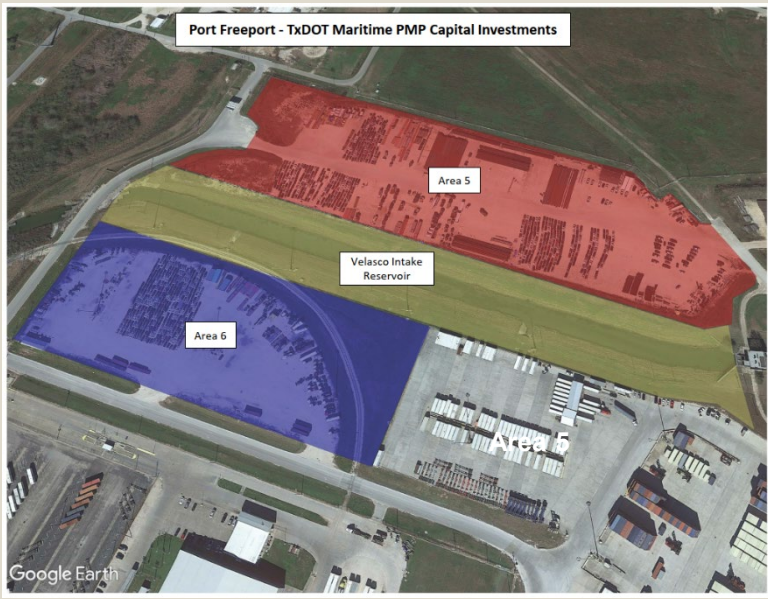
Project Benefits

Economic Impact

- Increases diversity of the type of cargo that this Port and area can manage
- Increases cargo volume throughout leading to the creation of port and customer jobs
- Creates a streamline to the new all-purpose dock, attracting many customers

Operational Impact

- Creates access to the new multi-purpose dock to avoid trans versing the Terminal area
- Allows all types of cargo to access with supreme surface
- When combined with the Velasco Intake Reservoir and Area 6 project , creates a very large and optimal laydown area that is both efficient to enter and exit from



Area 6 Stabilization and Rail Spur
Port Freeport

Project Details

Port Facility	Port Freeport
County	Brazoria
Project Status	10% Design
Project Category	Port Facilities & Inland Connectivity

Project Description

This project includes the addition of concrete pavement to an existing 7-acre storage yard on Velasco Terminal. This area is currently stabilized with limestone aggregate which allows for the Port to store limited cargo, such as used cars. Paving the area with concrete will allow the Port to store new cars in addition to other cargo, where concrete surfacing is required.

This project also includes removing and relocating the existing rail spur to remove current rail/ truck intersections and allow for more efficient movement within the terminal.

Funding

Total Cost	$10,000,000

Need for Funding

The Port is nearing completion of the expansion of the Velasco Terminal, which includes the addition of a new multipurpose dock. The Port of Freeport is also undertaking the Freeport Harbor Channel Improvement Project (FHCIP), which is intended to deepen and widen the channel by 2023. Additionally, the Port has received funding to develop the Velasco Terminal Access Project which will significantly improve the road transportation to and from the terminal. This concrete pavement will create precious storage space for this newly constructed, bustling, adjacent terminal. This space makes laydown easy and efficient, conveniently located close to the new multipurpose dock.

In addition, the project relocates a rail spur that currently runs through storage areas and intersects multiple places within the Velasco Terminal requiring truck/rail crossings. Removing and relocating the rail spur will free up space and allow for more efficient movement within the terminal. It is a shorter and easier commute for the rail users into the terminal, by avoiding Area 6 and connecting directly to the terminal.

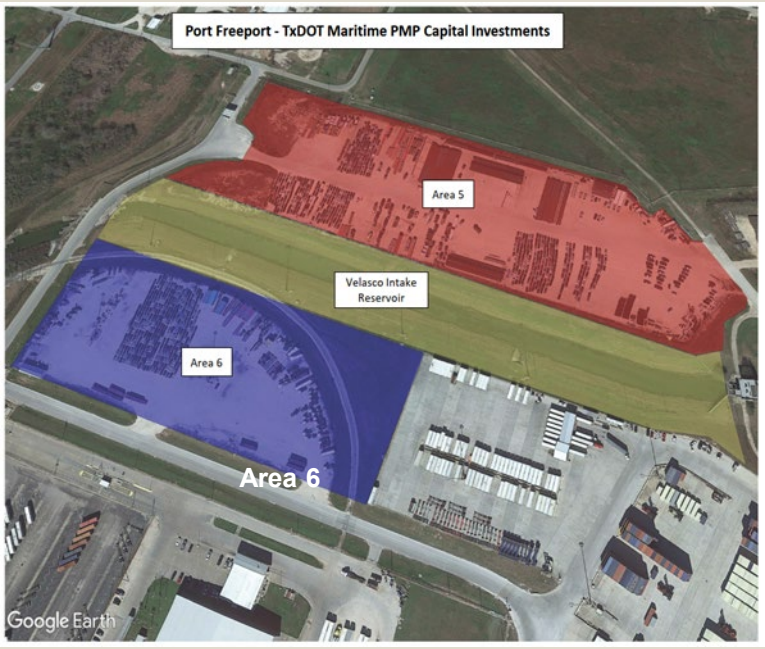
Project Benefits

Economic Impact

- Creates more versatile terminal capacity and increase cargo and cargo diversity
- Additional storage adds more jobs for the port and for the customers
- Attracts more precious and a higher volume of cargo generating more revenue for the Port, as well as local and state constituents
- Protects jobs and attracts jobs for customers

Safe and Secure Operations

- Improves safety by relocating the rail spur, reducing the danger of truck/ rail intersections
- Adds surface that improves accessibility, replacing inefficient way that cars have been unloaded at Brazos Harbor Velasco Terminal
- Reduces congestion within port by reducing distance cargo is transported
- Allows for two-way traffic within the channel to prevent idling



Velasco Intake Reservoir
Port Freeport

Project Details

Port Facility	Port Freeport
County	Brazoria
Project Status	10% Design
Project Category	Port Facilities

Project Description

This project includes the installation of box culverts for the length of the existing drainage canal that extends along the Velasco intake reservoir. After box culvert installation, the project also includes concrete paving of the entire area.

The Velasco intake reservoir area is located between Areas 5 and 6 as shown in the figure. The box culverts will maintain adequate flow and cause no adverse impact to the current drainage flow.

Funding

Total Cost	$6,000,000

Need for Funding

The concrete pavement in the area will create 15-acres for storage of containers, rolling (RoRo), breakbulk, and project cargo. Additionally, this project will connect the two surrounding storage areas, Areas 5 and 6 for one large concrete storage and laydown area.

Port Freeport has clients that are eager to utilize the new and improved port infrastructure, including this area. This project will improve operationality of the terminal and increase cargo space. Currently the reservoir restricts access to Area 5 from the rest of the terminal, and this pavement and box culvert project would create a well-sized, easy to access, multipurpose laydown yard.

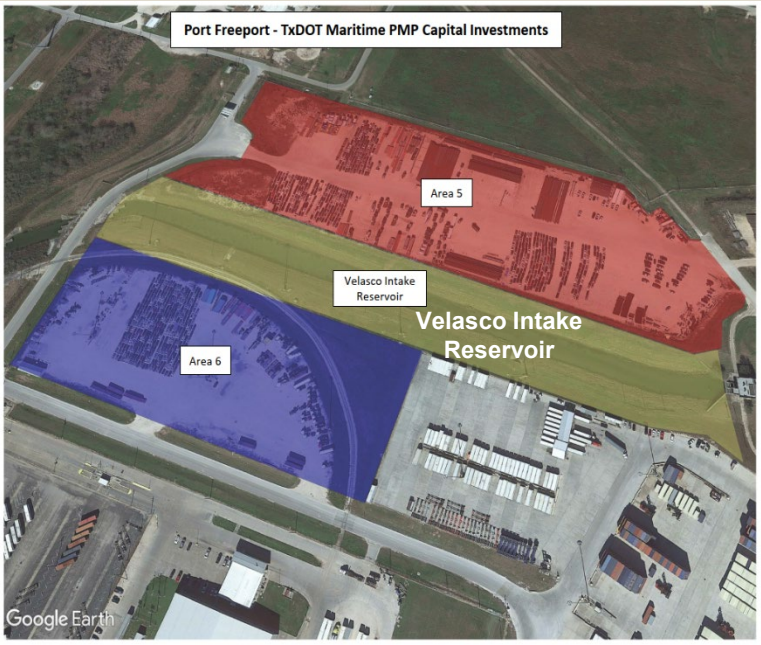
Project Benefits

Economic Impact

- Increases terminal capacity and increases cargo volume, leading to greater revenue
- Creates storage for containers, new vehicles, breakbulk, and project cargo that is not currently available
- Attracts new and more diverse customers
- Add more jobs to the port and it's customers

Safe and Secure Operations

- Reduces the distance and intersections that cargo cars need to be moved, increasing safety
- Removes trucks from interior Port roads and crossings
- Alleviates traffic congestion within the Port



Truck Queuing Areas
Port of Palacios

Project Details

Port Facility	Port of Palacios
County	Matagorda
Project Status	Conceptual Development
Project Category	Inland Connectivity

Project Description

In order to eliminate queuing trucks from overflowing from the Port of Palacios onto State Highway 35 and Main Street, Palacios' busiest roadway and largest road that enters the City of Palacios, the Port proposes the addition of two concrete truck queuing areas to handle overflow volumes during peak times. The proposed queuing areas would be located adjacent to the port's newly constructed roadway connection to SH 35. State highway 35 in this area is two-lane with no shoulder, therefore truck idling and queueing in this area is a significant traffic disturbance.

Funding

Total Cost	$4,000,000

Need for Funding

In 2019 the Port received $800,000 to resurface its roads. The Port also recently built a new $1.2 million road on its property. Without the proposed queuing area, the lifespan of these roadway improvements will be drastically reduced due to constantly be traversed by heavily loaded trucks idling on the improved roads.

The City of Palacios is fully supportive of this project as it will reduce traffic on SH 35 and remove wear and tear from city streets. The TxDOT Yoakum district has expressed its support for this project, as the new queuing areas will serve to isolate idle trucks from other highway traffic, improving safety for both the Port users and the region at-large.

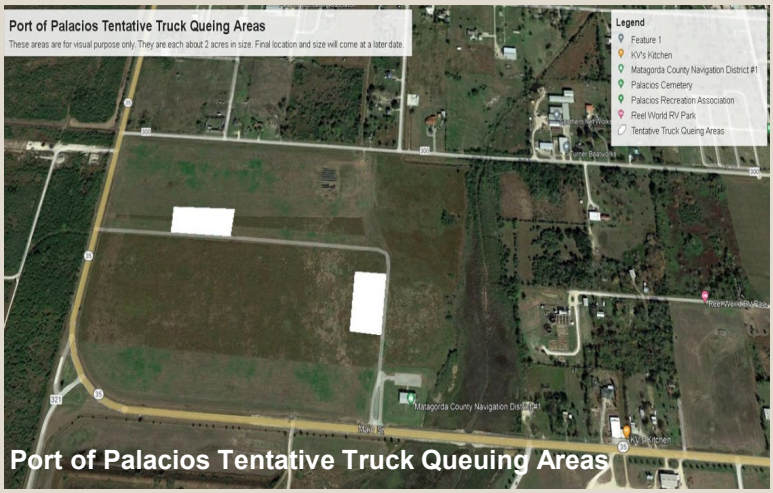
Project Benefits

Safe and Secure Operations

- Improves the safety along SH 35 by separating port traffic from other highway users
- Reduces hazard for road users created by trucks idling on the sides of SH 35, obstructing the lanes of the two-lane with no shoulder highway
- Relocated trucks that currently idle on the Port's internal roads

Operational Impact

- Increases the efficiency of trucks coming in and out of the port by eliminating congestion on internal port roads
- Extends the life span of the port and city roads, reducing operation and maintenance costs by creating designated areas for trucks to queue
- The Port will benefit from versatility provided by a stabilized surface may be multipurpose, and serve as a laydown yard if needed, as the Port does not currently have a space designated for this purpose



Port of Palacios Tentative Truck Queuing Areas

Turning Basin 4
Port of Palacios

Project Details

Port Facility	Port of Palacios
County	Matagorda
Project Status	Conceptual Development
Project Category	Port Facilities & Waterways

Project Description

This project includes the improvement of Turning Basin 4 at the Port of Palacios. When originally designed in 2008, the turning basin was supposed to be "T"-shaped. Lack of funding at the time of construction required the port to amend the design to its current "L" shape, which significantly reduced docking capabilities and navigation abilities within the turning basin. As part of this project, the port proposes to construct the additional area within the turning basin (shown in blue) to create additional docking space for boats and improve navigation within the port.

Funding

Total Cost	$10,000,000

Need for Funding

A lack of usable docking space is one of the primary problems the Port of Palacios currently faces. During shrimping season every dock is being utilized and the lack of capacity leads to boat idling or having multiple vessels tie up simultaneously at a single dock. This kind of congestion significantly reduces navigation ability within the port and can be hazardous. Also, during severe weather events in the gulf, vessels from all along the Gulf Coast come to the port seeking refuge behind the breakwaters. The demand for the boats during these events further amplifies the need for additional dock space.

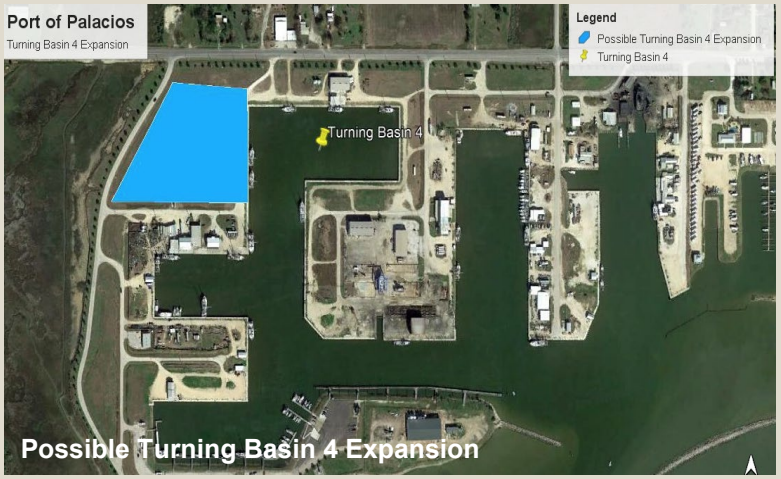
Project Benefits

Economic Impact

- Increases number of docks that the Port of Palacios can lease out to its customers
- Adds cargo capacity, increasing cargo volume and revenue
- Increases volumes of goods moving through the Port by improving efficiency for loading and unloading
- Adds jobs to the port and it's customers by diversifying its type of customers

Safe and Secure Operations

- Allows for safer navigation by reducing idling and queuing vessels from the waterways within the port
- Eliminates the necessity to load and unload from triple tied vessels, which is a safety hazard
- Created additional dock space for boats seeking safety shelter during hurricane season in the Gulf of Mexico



Boat Ramp Access and Access Road Improvements

Calhoun Port Authority

Project Details

Port Facility	Calhoun Port Authority
County	Calhoun
Project Status	Engineering Design
Project Category	Port Facilities

Project Description

The project will consist first of replacing the dirt and gravel roads with asphalt roads to provide all-weather access to the area and prevent future rutting problems. The western limit of the improved roadway will be the junction to the access road leading to FM 1539 and the eastern limit will be the port gate. This stretch of roadway would be widened to two lanes and include a shoulder to remove conflicts between traffic and parked vehicles. Between this road and the smaller roadway leading to the boat ramp, the total distance is approximately 750 linear feet.

In addition to the roadway construction, the project will also include the extension of the boat ramp to reduce the grade. This will alleviate the problem of trailers and vessels bottoming out, creating instability and uncertainty when boats enter the water at this location. The adjacent dock would also be replaced to allow easier and safer access.

Funding

Total Cost	$1,356,100

Need for Funding

Under existing conditions, the road tying into the end of FM 1593 is a two-way dirt and gravel road with no shoulder. Contractors working on dredging vessels park along the edge of this roadway to walk down another dirt and gravel roadway to board at the gangway near the boat ramp. The path to the boat ramp roadway has frequent rutting varying in depth between 12-18 inches, which often results in trailers bottoming out and potentially damaging vessels. The boat ramp itself has a steep angle which also causes trailers and vessels to bottom out during launching.

Project Benefits

Safe and Secure Operations

- Increases access for emergency response vehicles, contractors, and consultants
- Allows for safer staging and parking of vehicles and safer flow of traffic
- The asphalt road surface will be resistant to rutting and less steep, preventing vehicles from bottoming out
- Removes construction traffic from public roads

Operational Impact

- Allows for larger and more numerous vehicles to operate from the boat ramp and dock
- Reduces traffic and congestion in the port
- Provides access to towing and mooring companies to operate in the port

New Barge Fleeting Area
Calhoun Port Authority

Project Details

Port Facility	Calhoun Port Authority
County	Calhoun
Project Status	Construction Ready
Project Category	Port Facilities & Waterways

Project Description

The construction of Liquid Dock 1 at the Calhoun Port Authority removed approximately 800 linear feet of barge fleeting area available for use by vessels. This project includes a new and improved fleeting area, expected to hold 15-18 barges to service both liquid bulk chemicals and inland barges.

Funding

Total Cost	$24,000,000

Need for Funding

Under current conditions, the lack of fleeting area for this port authority results in barge queuing and light loading, as well as slows the flow of traffic through the Port Authority.

The Port Authority is averaging about 1,100 barges a year, and the construction of this new fleeting area would increase the operational efficiency and provide significant economic benefits by meeting growing capacity demands from existing and potential new customers and tenants.

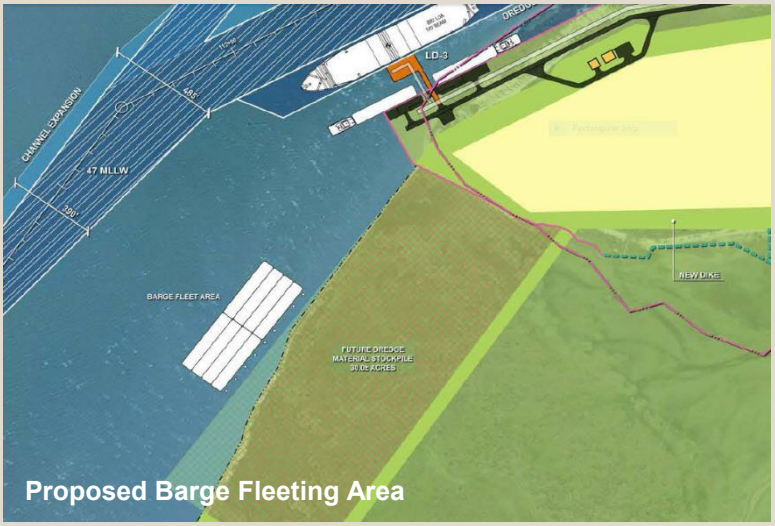
Project Benefits

Economic Impact

- Increasing the area available for barge fleeting will reduce shipping costs associated with delays
- Attracts potential customers to this port
- Boosts the economic viability of the port authority by adding capacity for fleet barges
- Increases the volume of product moved, increasing revenue

Operational Impact

- Improves cargo movement by reducing barge wait times and providing improved access
- Directs traffic out of the turning basin and the main port area, creating more usable cargo movement areas and reducing wait times



Proposed Barge Fleeting Area

South Peninsula Development – Liquid Docks 2 and 3

Calhoun Port Authority

Project Details

Port Facility	Calhoun Port Authority
County	Calhoun
Project Status	Construction Ready
Project Category	Port Facilities & Waterways

Project Description

The Calhoun Port Authority would like to complete the construction of Liquid Docks 2 and 3 by deepening the area in front of the docks The channel deepening will be down to -47 +2/+2 feet for both Liquid Dock 2 and Liquid Dock 3 to match the dimensions of the existing improved, adjacent ship channel and allow Aframax sized liquid bulk ships. These barges typically carry 750-800 thousand bbls (barrels) of oil and are the largest, and most efficient.

Funding

Total Cost	$150,000,000

Need for Funding

As part of the continued development of the South Peninsula, the Calhoun Port Authority is proposing the construction of Liquid Docks 2 and 3. This is a portion of a bigger project that includes the construction of three deep water bulk liquid petrochemical berths and six brown water barge bulk liquid petrochemical berths. The project goal is to meet the growing demand from existing and new tenants for additional brown water and deep-water facilities for the import and export of petrochemical products and crude oil.

The proposed project will make the Calhoun Port Authority a more attractive provider by doubling the amount of product carried and therefore reducing transportation costs to customers. The port authority is expecting business with current and new customers who have indicated they are ready for this expansion and would be able to utilize the new dredged depth immediately.

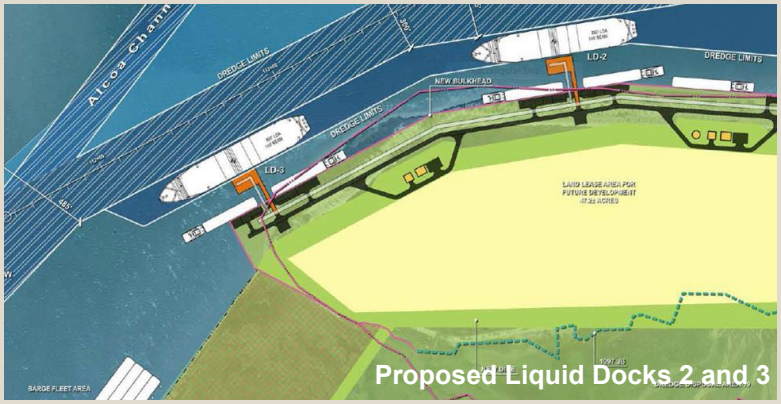
Project Benefits

Economic Impact

- The two new liquid docks and berth deepening will invite the largest barge class to transport liquid bulk to this Port Authority, moving more product more quickly
- Increases moved cargo volume (expected to double), increasing revenue and attracting new customers
- Creates additional jobs at the Port Authority
- Generates revenue soon after completion, as current and future customers are ready for this expansion immediately

Operational Impact

- Doubles the volume of liquid bulk to move both in and out of the Port Authority
- Reduces light loading and idling in both directions
- Allows the Port Authority to keep up operationally with the volume of moving cargo



Proposed Liquid Docks 2 and 3

Long Mott Harbor Liquid Cargo Dock Bulkhead and Improvements Port of West Calhoun

Project Details

Port Facility	Port of West Calhoun
County	Calhoun
Project Status	10% Design
Project Category	Port Facilities & Inland Connectivity

Project Description

The project includes the construction of approximately 3,300 linear feet of steel bulkhead, fleeting area, paved entrance road and limestone paved working area. These improvements are located at an underutilized location within Long Mott Harbor, a coveted location within the port that provides direct access to the Gulf Intracoastal Waterway (GIWW).

Funding

Total Cost	$18,600,000

Need for Funding

The proposed improvements would add much-needed capacity for shallow draft barge movements, and movement of the containerized, breakbulk, and other project cargoes. Currently the port is not able to service many types of cargo because they are restricted by lack of infrastructure.

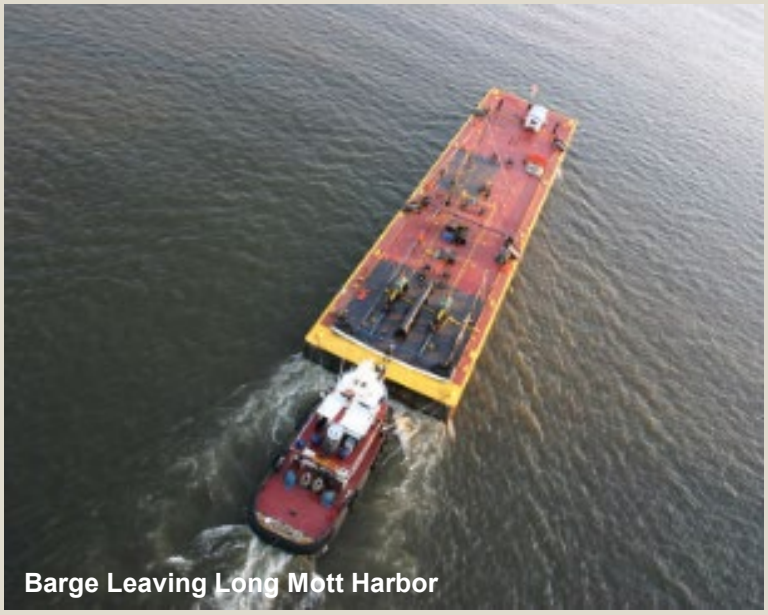
Project Benefits

Economic Impact

- Improves access to and enhances ease of using the shallow draft Port facility
- Generates revenue that has previously been nil
- Provides access to US Highway 35, State Highways 185 and 59, and Interstate 69
- Allows for expanded usage and development of current port facilities
- Creates new business investments and job opportunities

Operational Impact

- Revamps a historically underutilized Port asset
- Creates additional capacity for shallow draft barge movements within the Port
- Allows for significant expansion in the movement of containerized, breakbulk, and varied project cargoes



Barge Leaving Long Mott Harbor

Edna Ln, Bloomington Rd, and Black Bayou Rd Improvements

Port of Victoria

Project Details

Port Facility	Port of Victoria
County	Victoria
Project Status	Scoping and Planning
Project Category	Inland Connectivity

Project Description

The project includes the extension of the county road Edna Lane between Black Bayou Road and McCoy Road and to widen and the improvement of the existing Old Bloomington Road from Black Bayou to McCoy Road.

This project is considered a transportation infrastructure project and an off-system roadway project for the Port of Victoria. On Edna Lane, the narrow, structurally deficient, existing county road would be upgraded to a 24' wide heavy haul road. Old Bloomington Rd would be reconstructed as a 28' wide, heavy haul road.

Funding

Total Cost	$4.586,465

Need for Funding

The existing narrow roads currently experience frequent congestion and as a result, commercial traffic experiences increased bottlenecking and delays. This proposed project will provide additional access to the port's South site and direct access for heavy trucks and commercial traffic.

After completion, Edna Lane and Old Bloomington Road would be suited for commercial traffic.

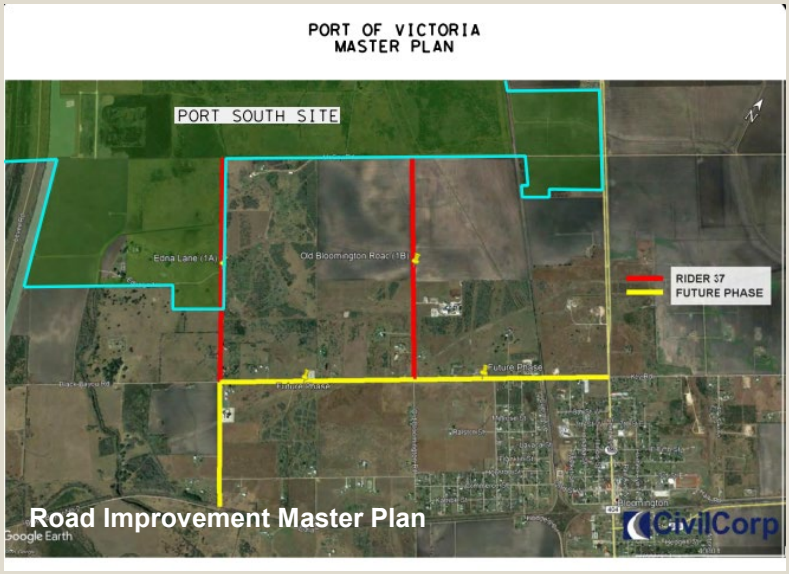
Project Benefits

Economic Impact

- Creates additional jobs in the community as port activities increase due to the multiple entry points
- Increases the volume of cargo through the Port increasing Port revenue
- Attracts new customers

Operational Impact

- Provides direct access for heavy truck and commercial traffic to port properties from SH 185
- Provides new operational capability by allowing development of port property that currently has limited or no access
- Reduces truck queuing times



General Cargo Dock Development
Port of Victoria

Project Details

Port Facility	Port of Victoria
County	Victoria
Project Status	Pending Engineering Design
Project Category	Port Facilities

Project Description

The proposed development includes constructing an additional general cargo dock to supplement the existing dock on the North site. Currently, a two-lane road with two queuing lanes is being added in this proposed dock location as part of a Rider 38 grant. By adding a dock to move more commodities, it will use the enhanced connectivity of this additional two-lane road.

Funding

Total Cost	$5,000,000

Need for Funding

As the Port of Victoria continues to grow, it must further develop its existing facilities to better accommodate increased traffic and potential new business opportunities. The proposed dock will assist with the anticipated overflow and service multiple customers, including shipments of plastics, bulk, break bulk cargo, frack sand, and steel. This project would also enable the future connection of its existing rail lines to the cargo docks, creating a critical avenue to move goods into or out of the port.

The Port of Victoria is excited about what the enhanced infrastructure, multimodal capabilities, and community support will offer current and future tenants. Centrally located two hours from Houston, Austin, and San Antonio and positioned within a Foreign Trade Zone and a Texas Enterprise Zone, the Port of Victoria is the perfect location for growing economic development.

Project Benefits

Economic Impact

- Provides additional jobs by adding more employment opportunities at the general cargo dock and the surrounding area
- Generates additional revenue with increased cargo volume, attracting new customers and retaining existing customers
- Encourages local economic growth in a historically underutilized, greenfield area

Operational Impact

- Increases cargo movement with additional space, reduces barge traffic, and improves cargo access and overall efficiency.
- Manages overflow from the existing dock, improving the efficiency of operations of other dock facilities
- Reduces truck congestion and idling with the ability to connect cargo directly to the adjacent rail and a commercial road
- Decreases the wear and tear of the Port roads, because of the capability to connect directly to commercial road and railroad

Proposed General Cargo Dock Location

Texas Logistics Center Rail Expansion
Port of Victoria

Project Details

Port Facility	Port of Victoria
County	Victoria
Project Status	Conceptual Design Completed
Project Category	Port Facilities & Inland Connectivity

Project Description

The Port of Victoria proposes to design and construct a significant rail expansion and create a multi-modal facility capable of handling 286,000-pound railcars. This facility will provide the needed local rail capacity as well as regional rail network capacity through additional track that can work over 1,000 rail cars. This project will address challenges such as the need for intermodal facilities, accommodation of heavier railcars and the need for increased operating capacity.

Funding

Total Cost	$26,400,000

Need for Funding

This project is the culmination of a ten-year effort to increase the rail capacity of the Port of Victoria. The Port's strategic plan for rail was initiated with the development of the North Port Site. That first phase was completed in 2021 with the addition of a 1.9-mile rail loop and 2,000 feet of additional storage tracks and improved rail access. The Port wishes to continue its expansion by developing the South Port Site as it currently does not have direct rail access to the south from the completed North Port Side.

This additional capacity would allow the Port to serve freight trains of over 100 cars in length which would significantly increase the volume and velocity of goods moving through the port and enhance freight rail service throughout the entire region. This project would also leverage the benefits provided through the completion of its North Port Site funded by a $6 million CARES Act Grant through the Economic Development Administration.

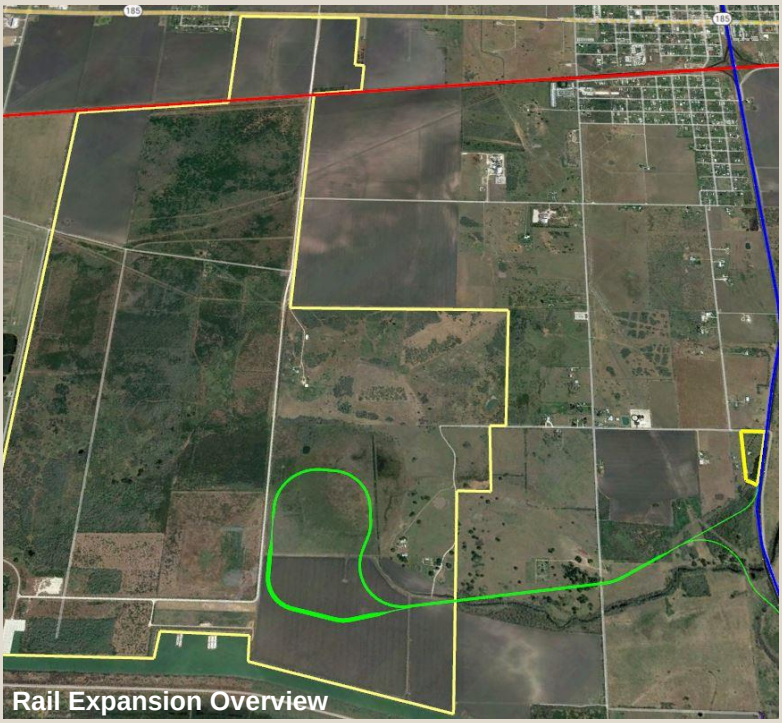
Project Benefits

Economic Impact

- Provides the ability to move more product through the Port, increasing revenue and the attractiveness of this Port to retain existing customers and gain new customers
- Generates more jobs, both blue and white collar because of the additional rail and cargo movement capabilities
- Encourages economic growth and development of the local community categorized as a Historically Disadvantaged Community
- Creates new business opportunities for potential customers on the South Site of the Port interested in movements needing rail infrastructure and a planned logistics center

Operational Impact

- Increases cargo volume movement and speed
- Reduces vehicle wait times
- Provides direct water access to rail in an underutilized area of the port
- Removes trucks from the roads, allowing the port roads to transverse with less traffic



Rail Expansion Overview

Avery Point Terminal Redevelopment
Port of Corpus Christi Authority

Project Details

Port Facility	Port of Corpus Christi Authority
County	Nueces
Project Status	Feasibility Study Completed
Project Category	Port Facilities & Waterways

Project Description

The three liquid bulk docks at the Avery Point Terminal (Avery Point), situated on the south side of the Inner Harbor of the Corpus Christi Ship Channel (CCSC), are the Port of Corpus Christi Authority's (PCCA) most productive Port-owned docks. The proposed project is a phased redevelopment of the Avery Point Terminal. The project would remove the three existing, aged liquid docks, and replace them with new, advanced dock structures.

Funding

Total Cost	$155,508,988

Need for Funding

There are several critical issues with the current configuration of the terminal. Avery Point Docks are on average 56 years old and display moderate to severe degradation of key components. Docks 4, 7, and 11 cannot currently accommodate modern vessel fleets (three Suezmax class vessels cannot dock simultaneously). The docks also have several safety and operational constraints issues, including protrusion into the CCSC creating a choke point for passing vessels.

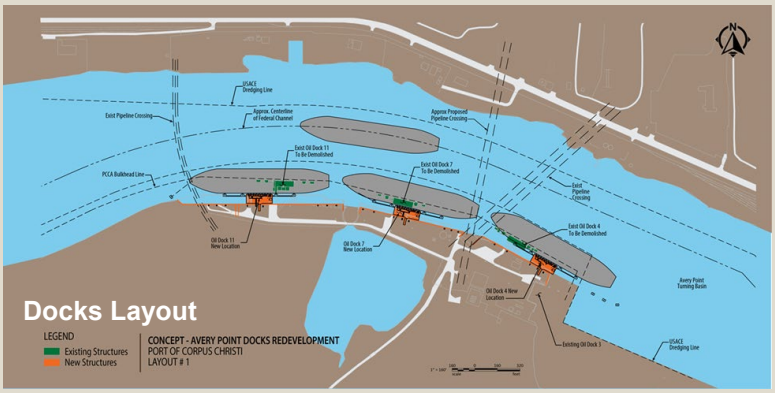
Project Benefits

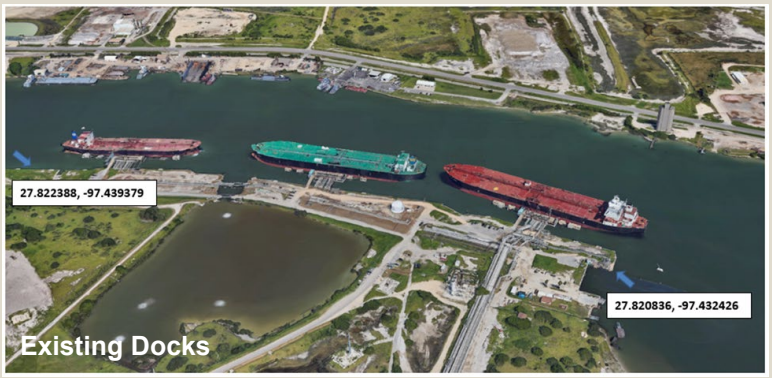
Economic Impact

- Increases crude export volumes for a Port that is already a top exporter, increasing revenue
- Progresses port growth, ensuring the vitality of the port which will retain existing and attract new customers
- Increases revenue and adds jobs to the Port

Operational Impact

- Increases distance between docks which allows for Suezmax vessels to dock simultaneously
- Ensures that mooring lines holding the vessel will not cross each other
- Removes the potential choke point in CCSC, which occurs currently when all three liquid docks are being used





Ingleside Low Carbon Energy Terminal
Port of Corpus Christi Authority

PORT CORPUS CHRISTI

Project Details

Port Facility	Port of Corpus Christi Authority
County	Nueces
Project Status	Planning
Project Category	Port Facilities

Project Description

Port of Corpus Christi Authority's (PCCA) Ingleside Low Carbon Energy Terminal will be the nation's premiere terminal for export of liquid hydrogen derivatives and carrier molecules and will thus play a prominent role in domestic balance of energy trade and energy transition objectives. This PCCA owned, multi-user terminal will feature best-in-class maritime and topside infrastructure and will provide the most efficient access to deep water of any alternative energy terminal on the Gulf Coast. The terminal will provide access to international markets for hydrogen and hydrogen derivatives (e.g., ammonia, methanol, MCH) produced by multiple customers on a 4,000 + acre, port-owned, hydrogen ecosystem campus, located a few kilometers to the northwest. This campus will consolidate all links in the hydrogen value chain, including renewable electron generation (solar), hydrogen production from multiple feedstock, and production of multiple hydrogen derivatives with geologic storage of pressurized CO2 in the pore space underneath.

Funding

Total Cost	$110,000,000

Need for Funding

With over a dozen hydrogen and hydrogen derivative projects under development, the Port of Corpus Christi is emerging as a world-scale producer and exporter of low-carbon energy. Port staff are pursuing federal funding through the Infrastructure Investment and Jobs Act (IIJA) to accelerate the development of this burgeoning hydrogen hub, both in its own right and as an anchor of a Gulf-coast regional hub. The Ingleside Low Carbon Energy Terminal is a cornerstone in the Port's strategy, as it will be the path for product to get to deep water (and thus a gateway to foreign markets) for multiple world-scale producers of low carbon hydrogen and hydrogen derivatives.

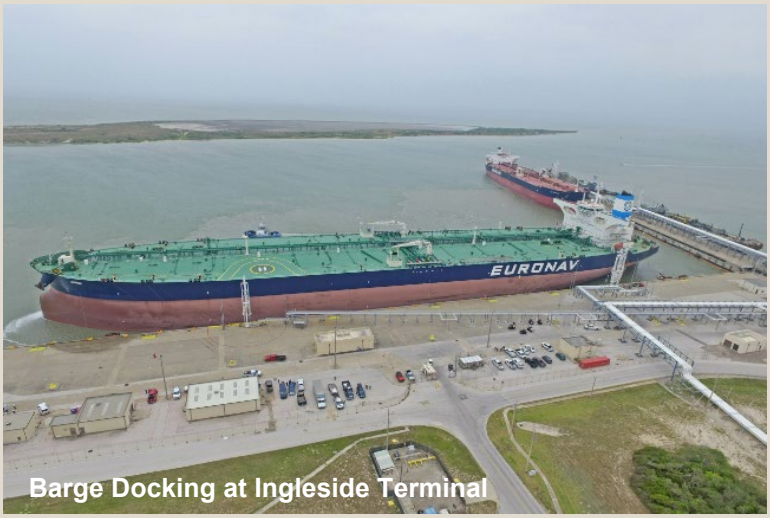
Project Benefits

Economic Impact

- Furthers federal energy transition objectives, as defined in the IIJA
- Increases revenue and tax revenue for the area and state
- Contributes to domestic GDP, energy security, and balance of trade
- Creates and sustains both high and low paying jobs in the local low carbon energy economy

Operational Impact

- Expands the Port's capacity to export low-carbon energy
- Increases operational efficiency and margin of safety relative to existing/aging maritime infrastructure
- Maintains ship channel fluidity and avoids channel congestion by further segmenting export operations



Barge Docking at Ingleside Terminal

Bulk Materials Terminal Facility Improvements

Port of Corpus Christi Authority

Project Details

Port Facility	Port of Corpus Christi Authority
County	Nueces
Project Status	Planning
Project Category	Port Facilities

Project Description

The Port of Corpus Christi Authority's (PCCA) Bulk Materials Terminal (BMT) facility is located on the north side of the Corpus Christi Ship Channel (CCSC) and is parallel to Joe Fulton International Trade Corridor (JFC), providing multimodal cargo freight move capabilities. The proposed project entails the addition of a new export/import facility with related berthing structure, ship loading equipment, rail tracks, and associated landside and waterside improvements. PCCA seeks to purchase equipment to enhance operational efficiencies. The equipment will move along the rail and berthing structure continuously loading and unloading commodities and supplies to a conveyance system or stockpile for export/import.

Funding

Total Cost	$150,400,000

Need for Funding

The current baseline stevedoring infrastructure at the BMT is inadequate to accommodate new opportunities for material exports and poses safety issues for vessel operators, PCCA employees, and partners' employees due to its age and operability.

The increase in export capacity envisioned by PCCA is unattainable without additional dock and equipment at the project site. These challenges limit commercial growth, and thus economic competitiveness, of the PCCA gateway in the mineral export market.

Project Benefits

Economic Impact

- Relieves supply chain constraints and supports the global market to meet demands worldwide
- Enhances the overall system fluidity and directly supports the efficient movement of cargo
- Allows the Port to sustainably handle more cargo, thus increasing PCCA revenue and local and state tax revenue

Operational Impact

- Removes the bottleneck from cargo handling
- Allows for up to three post-Panamax sized vessels to be either loaded or unloaded at a time
- Reduces berth times and delays of goods shipped
- Reduces idling times

Aerial View of Bulk Terminal

Airport Runway Extension
Port of Mansfield

PORT MANSFIELD

Project Details

Port Facility	Port of Mansfield
County	Willacy
Project Status	Engineering and Design
Project Category	Port Facilities & Inland Connectivity

Project Description

This project includes the extension of the existing airport runway to a length that would allow larger cargo aircraft. This runway provides a unique service for the Port and the community of Port Mansfield. Currently, the airport handles commuter aircraft and has consistent traffic. The runway has become so busy that an extension from 3,800 feet to 5,000 feet is supported by several public and private stakeholders. This project also includes the addition of hangar storage space at the runway for cargo storage and staging.

Funding

Total Cost	$12,000,000

Need for Funding

The only paved runway in the County belongs to the navigational district. A longer runway would attract larger cargo planes and leer jets. Potential customers have approached the Port about using the runway to airlift cargo out of port and would benefit from this improvement. This project would give this Port a unique capability along the Texas coast.

Project Benefits

Economic Impact

- Meets a demand expressed by Port customers
- Allows the Port to generate revenue leasing hangars to potential customers
- Creates jobs and grows the economic potential of both the Port and the County by attracting larger aircraft to the port

Operational Impact

- Gives the Port a unique capacity not shared by other Texas Ports
- Allows the airport to move cargo efficiently in a larger capacity
- Enhances the benefits provided by a nearby roadway improvement project

Aerial View of Airport

Bulkhead Repair
Port of Mansfield

Project Details

Port Facility	Port of Mansfield
County	Willacy
Project Status	Shovel Ready
Project Category	Port Facilities & Waterways

Project Description

This project includes the repair and construction of 1,590 linear feet of deteriorating bulkhead. The existing bulkhead was built in the 1940's. The Port has approximately 1800 linear feet of seawall space, of which 40% has no seawall left, and 60% is in very poor condition.

Two options for bulkhead and site development have been prepared by the port engineering consultant. Option 1 includes coated sheet plies and 50 feet of heavy-duty concrete paving adjacent to a bulkhead. Option 2, at a lower cost, is for uncoated A690 steel piles and does not include the concrete paving. This cost estimate is for Option 1.

Funding

Total Cost	$11,300,000

Need for Funding

The Port of Port Mansfield needs this seawall to build a planned six-acre queuing yard adjacent to the water. The US Army Corps of Engineers recently spent $25M deepening the adjacent channel from 6 feet to 17 feet. However, the port currently does not have enough facilities to accommodate its potential customers. The bulkhead repair and construction will accelerate port growth and capitalize on the channel improvements.

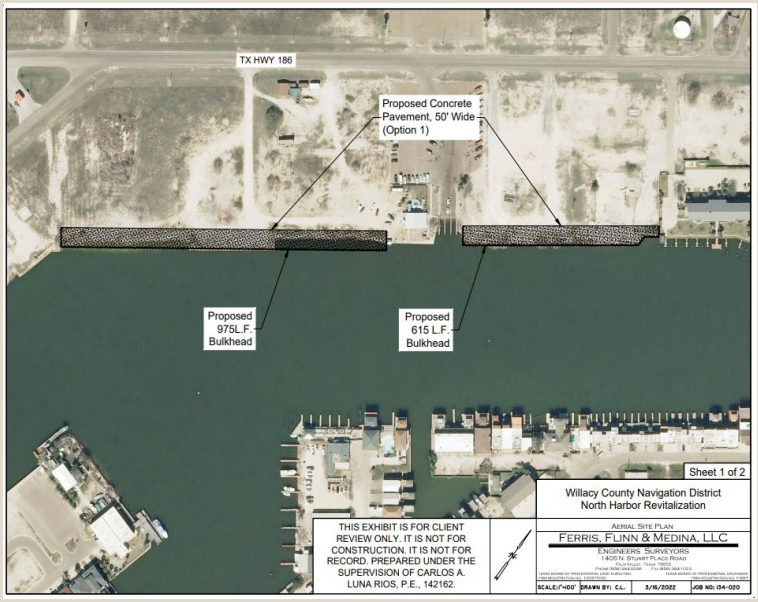
Project Benefits

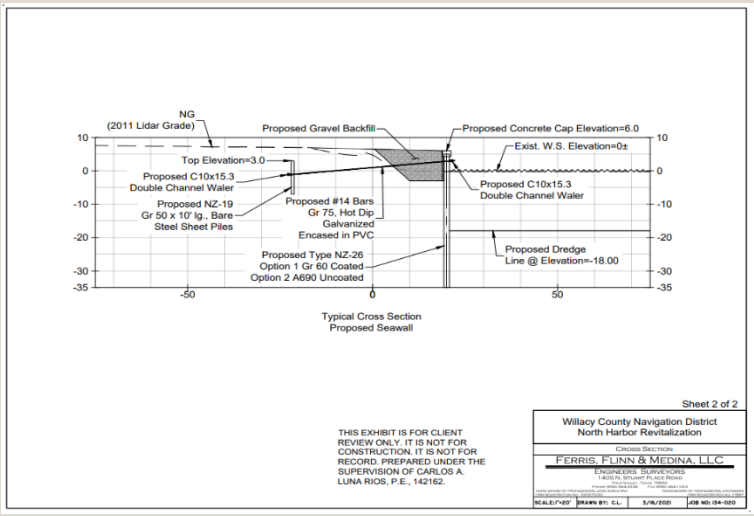
Economic Impact

- Utilizes adjacent six-acre queuing yard and recent channel improvements
- Brings new customers to the Port and provides jobs
- Allows for more diverse industries to be serviced by the Port
- Increases port revenue

Operational Impact

- Without this project, the bulkhead and queuing area cannot be removed, and commercial operations will not be possible
- Creates high functioning barge access to the Port





Lighting Improvements
Port of Harlingen

Project Details

Port Facility	Port of Harlingen
County	Cameron
Project Status	50% Design Completed
Project Category	Port Facilities

Project Description

This project includes lighting improvements to four port roads and three queuing areas. Improved lighting conditions will remove safety hazards to protect port workers, truck drivers, and cargo. Improved visibility will also lead to an increase in efficiency for nighttime operations.

Funding

Total Cost	$2,000,000

Need for Funding

The Port of Harlingen is located in a very rural area and can often experience pitch black working conditions during nighttime operations. The port operates around the clock, and the lack of visibility on its roads and staging areas presents operational and safety hazards.

Providing lighting to these roads will improve conditions for the port's existing customers and make the Port of Harlingen more attractive to potential tenants.

Project Benefits

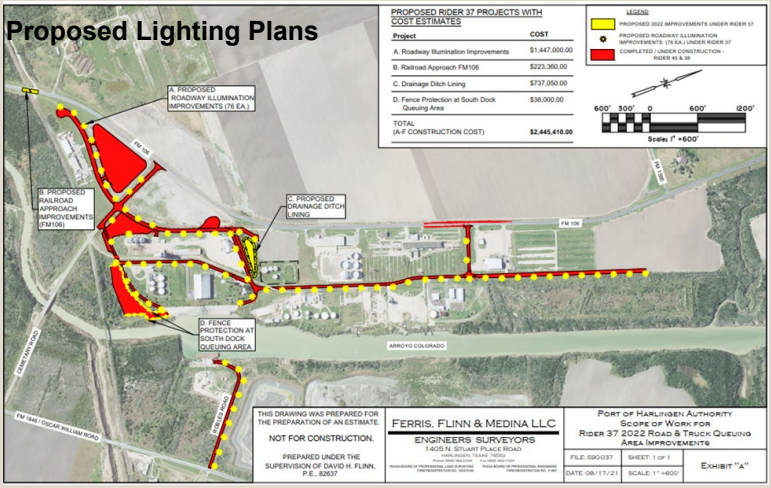
Safe and Secure Operations

- Reduces risk when driving on port roads during nighttime and therefore the chance of vehicle accidents
- Creates a theft deterrent and reduces chances of crime

Operational Impact

- Helps drivers make correct turns and know where to queue during nighttime conditions
- Gives operators better visibility when completing tasks, increasing efficiency
- Allows the Port to be accessed at all hours

Proposed Lighting Plans



Railyard Development
Port of Harlingen

Project Details

Port Facility	Port of Harlingen
County	Cameron
Project Status	Property Acquisition
Project Category	Inland Connectivity

Project Description

In order to kickstart a nearly non-existent rail business, the Port of Harlingen plans to develop a new railyard on recently acquired land and expand its rail capabilities.

Currently, the port only has 3,700 LF of single lead track and rail accounts for less than 1% of tonnage moving through the Port. This project would establish a storage yard and additional lead tracks into Port facilities. The proposed railyard will be able to handle four unit-car trains per week.

Funding

Total Cost	$30,000,000

Need for Funding

The Port of Harlingen sees rail as an area with large potential growth. Completing this project will allow the Port to be more competitive in the market and effectively offer all three modes of cargo transportation by re-establishing rail as a potential means of transport. The project will improve the ports capabilities in aggregate bulk and liquid bulk industries with the addition of this connectivity.

Project Benefits

Economic Impact

- Expands trade opportunities with Mexico, where the most common cargo is bulk aggregate and liquid bulk
- Bolsters existing customer trade by being able to move cargo more efficiently
- Capitalizes on an underutilized mode of transportation in the port
- Increases port revenue and creates new jobs

Operational Impact

- Improves connectivity by adding a third mode of transportation for the Port
- Increases the port's import and export volumes
- Reduces congestion and port traffic on arterial roads by removing trucks from streets
- Reduces wear and tear on roads from trucks by replacing them with rail

Rehabilitation of Liquid Dock Buildout
Port of Harlingen

Project Details

Port Facility	Port of Harlingen
County	Cameron
Project Status	Shovel Ready
Project Category	Port Facilities

Project Description

This rehabilitation and buildout project will repair the dock's structural deficiencies and replace mooring structures along the dock and around the turning basin. The scope of this project would include repairs such as replacing the fendering systems with composite wood instead of regular timber in order to improve energy absorption and deflection, leading to a longer life cycle for the system. One dock will have damaged portions of its concrete cap removed and repaired, along with having its anchoring system replaced. This project would provide maintenance and repair to the dock structures, allowing the dock to be fully utilized while meeting modern safety standards.

Funding

Total Cost	$5,200,000

Need for Funding

The main dock at the Port of Harlingen is in dire need of maintenance and repairs. The dock was built in the early 1960s and has not received significant improvements since 1992. Over the years, features of the dock have been damaged by both natural decay and by activity within the port. Portions of the dock fendering system have been destroyed and the sheet piling is exposed and in danger of being damaged. The concrete cap has been damaged in some areas and is in need of repair. One of the docks currently has a high potential for failure due to a compromised anchoring system.

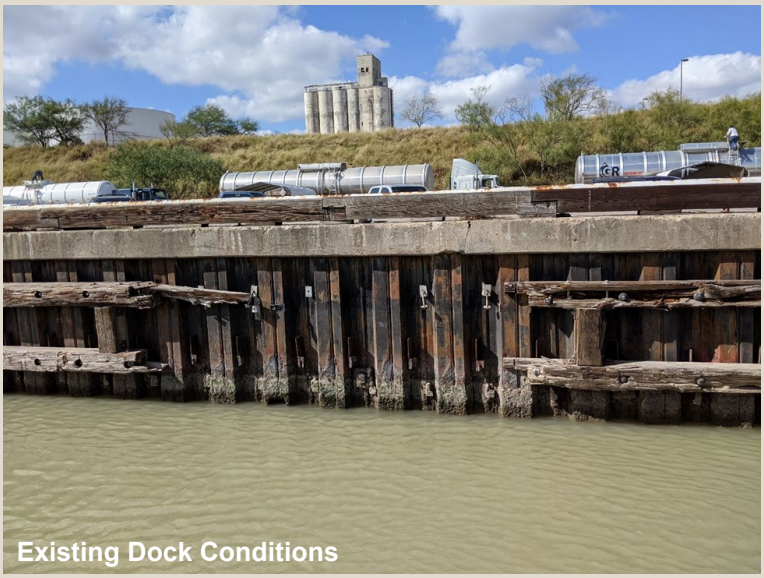
Project Benefits

Operational Impact

- Improves the overall efficiency of activities within this area of the Port, as currently loading and unloading of break bulk cargo cannot be performed
- Allows for heavy equipment to operate on the docks
- Prevents further loss of function for key port infrastructure

Safe and Secure Operations

- Prevents eventual catastrophic failure of Port infrastructure
- Helps the Port meet modern safety standards



Existing Dock Conditions

Turning Basin Extension
Port of Harlingen

Project Details

Port Facility	Port of Harlingen
County	Cameron
Project Status	20% Design Completed
Project Category	Port Facilities & Waterways

Project Description

This project includes the extension of a turning basin at the Port of Harlingen. The existing turning basin configuration has worked well for many years, but the Port has outgrown it over time and now needs more space to operate. Currently, shipping lanes are congested with vessel traffic and the turning basin lacks maneuverability, causing safety and operation problems. Additionally, the Port is partially bottlenecked by this tight turning basin.

Funding

Total Cost	$10,000,000

Need for Funding

The Port of Harlingen has outgrown its current turning basin configuration and this project has the potential to make a significant impact on the Port's future growth. This project will greatly aid the port in its attempts to diversify its client base into the container barge, liquid bulk, and aggregate industries.

Without it, growth opportunities may become limited and could result in economic stagnation for the port.

Project Benefits

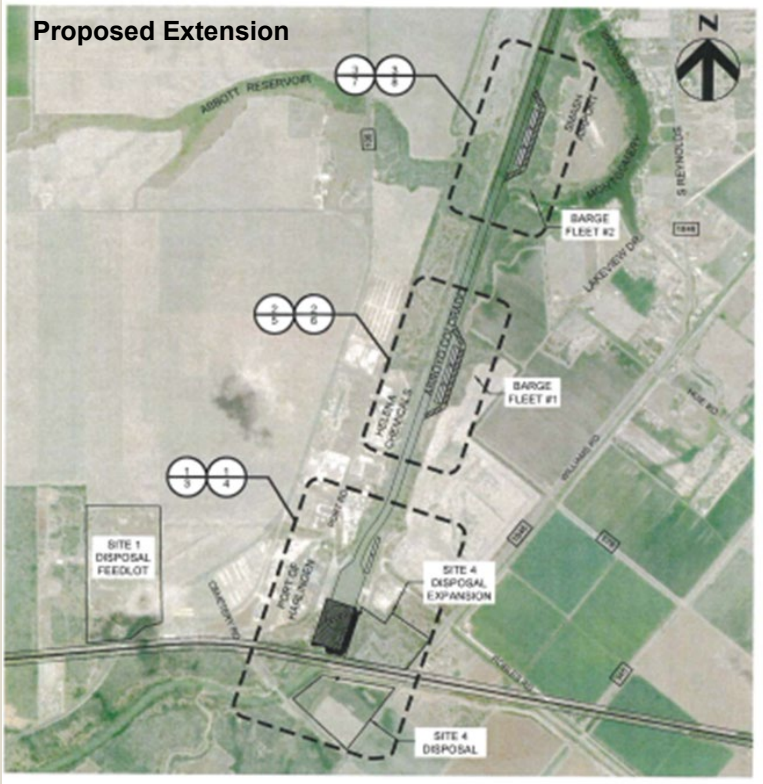
Economic Impact

- Allows existing clients to expand their presence and provides space for new tenants
- Doubles the available dock space in the location
- Allows the Port to diversify its capabilities
- Allows for further expansion into the liquid bulk and aggregate cargo industries
- Increases revenue and creates port and customer jobs

Safe and Secure Operations

- Relieves congestion caused by insufficient geometries
- Reduces the chance of vessel collision or grounding
- Provides additional mooring and fleeting areas, allowing barges more safe distance

Proposed Extension



Brazos Island Harbor (BIH) Channel Infrastructure Feasibility Study

Port of Brownsville

Project Details

Port Facility	Port of Brownsville
County	Cameron
Project Status	Study Authorized
Project Category	Port Facilities

Project Description

The US Congress has authorized the deepening of a significant reach of the Brazos Island Harbor (BIH) Ship Channel from its previous authorized depth of 42 feet to its current authorized depth of 52 feet, including deepening of the entrance channel and jetties to 54 feet minimum. In order to leverage on this deepening, the port would like to consider the addition of a dock system along the BIH. This includes six total docks, with varying functions. This project would be an evaluation on the feasibility and economic viability of the addition of this infrastructure.

Funding

Total Cost	$3,000,000

Need for Funding

To fully utilize the BIH channel improvements being implemented in the deepening project slated to begin construction in 2022, the port needs to evaluate an update to their dock infrastructure along the channel. The port has identified six docks within the channel footprint that will need significant upgrades to take advantage of the hundreds of millions of dollars of investment towards deepening the channel.

When complete, the Port of Brownsville will be among the deepest ports on the Gulf of Mexico, enhancing its competitiveness by closely aligning with the design features of the expanded Panama Canal.

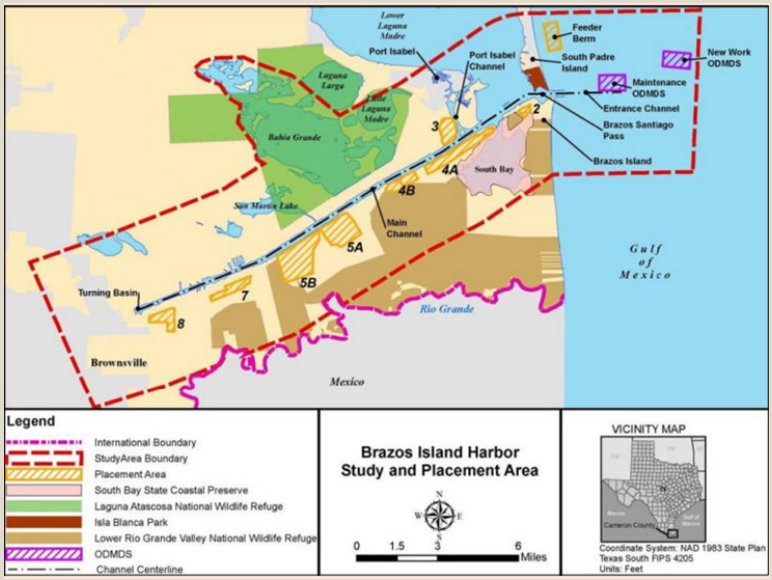
Project Benefits

Economic Impact

- Enhances the trading of many major commodities, such as petroleum products, dry bulk materials, and wind turbine components as well as the fuel trade between southern Texas and northern Mexico
- Increases revenue and creates jobs for the port and for its customers
- Attracts new customers to the port

Operational Impact

- Increases the amount of cargo movement and reduces transit times
- Provides direct access for large, fully loaded vessels
- Reduces the number of vessels needed to pass through the port, reducing congestion
- Removes the need for barges and vessels to light load



Bulk Cargo No. 3 Rehabilitation and Expansion
Port of Brownsville

Project Details

Port Facility	Port of Brownsville
County	Cameron
Project Status	Planning
Project Category	Port Facilities

Project Description

The Port of Brownsville is in the planning stages for the complete reconstruction of Dock No. 3, and Phase 1 of this effort is scheduled to finish construction by Q3 2023. To gain additional use from this significant Dock 3 investment, the port is planning additional phases of dock improvements and expansions. This project would fund Phases 3 and 4 of the rehabilitation and expansion of the dock needed to support growing cargo operations and increase operational efficiency.

Funding

Total Cost	$15,000,000

Need for Funding

Expanding cargo dock capabilities at this site is important to accommodating future growth. The port will invest approximately $30 million into the construction of Dock No. 3 over the next few years and this project will allow for better utilization of the new dock. Development of expanded cargo dock facilities will make overall operations more efficient by reducing congestion and idling. The project will make the port more attractive to potential tenants and will create revenue and job growth for the port and the region.

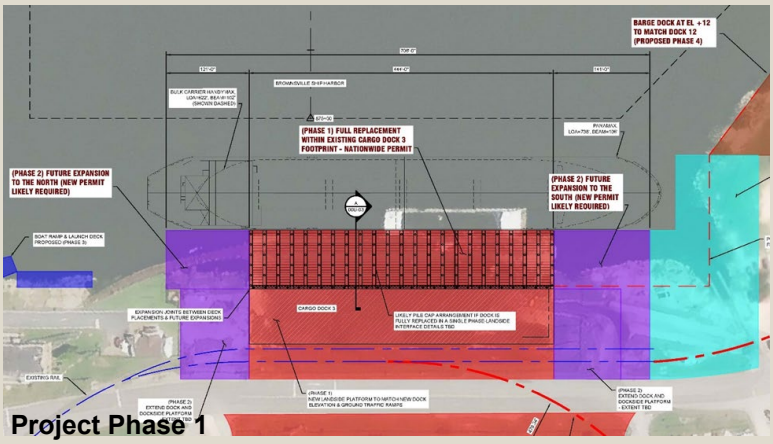
Project Benefits

Economic Impact

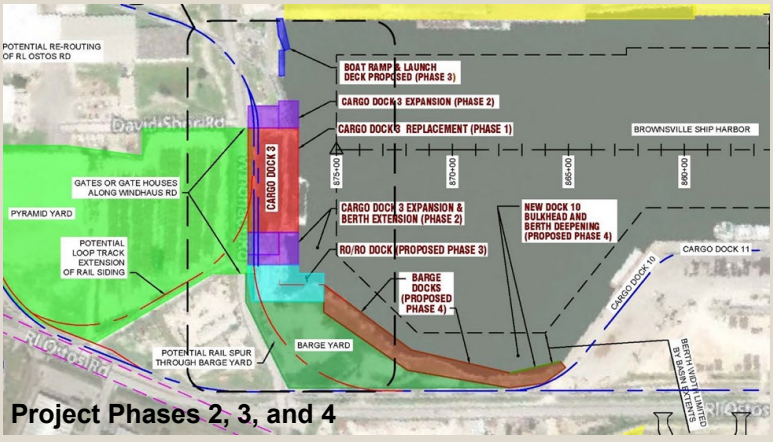
- Allows for the continued growth of the Port by increasing the volume of cargo movement, increasing revenue
- Reduces transit times, improving efficiency
- Diversifies industry within the Port by allowing for growth in cement, wind energy components, steel coil, and steel scrap industries
- Provides additional jobs at the Port and its customers

Safe and Secure Operations

- Reduces the number of vehicle miles traveled, enhancing safety
- Alleviates congestion within the Port
- Allows electrical equipment to be used to move Portland cement from the dock, rather than trucks



Project Phase 1



Project Phases 2, 3, and 4

Fishing Harbor Wastewater Treatment Plant

Port of Brownsville

Project Details

Port Facility	Port of Brownsville
County	Cameron
Project Status	Scoping and Planning
Project Category	Port Facilities

Project Description

The Port must treat hydrocarbon runoff from adjacent industry, and the current wastewater treatment plant is undersized and only services the western side of the port. This project will replace the existing outdated Fishing Harbor wastewater treatment plant to the eastern side of the port adding equipment to manage the hydrocarbon runoff and load. This proposed project plans for the addition of efficient and well-maintained utility systems with capacities that meet current and future consumer demands.

Funding

Total Cost	$6,000,000

Need for Funding

The Port of Brownsville is anticipating new liquid natural gas customers and other potential tenants to use this area of the port. Expanding wastewater treatment capabilities at this site is important to accommodating future growth. Without this project the port may need to turn customers away.

Project Benefits

Economic Impact

- Allows for continued growth on the eastern side of the Port
- Creates necessary infrastructure for new tenants and businesses seeking to operate in the eastern side of the port
- Creates additional jobs to staff the plant, both blue and white collar

Safe and Secure Operations

- Improves wastewater treatment methods
- Oil separators will efficiently process influents with higher hydrocarbons
- Allows the plant to address larger-scale contamination
- Ensures compliance with regulatory agencies such as TCEQ and the EPA
- Includes remote monitoring technologies

Existing Fishing Harbor Wastewater Treatment Plant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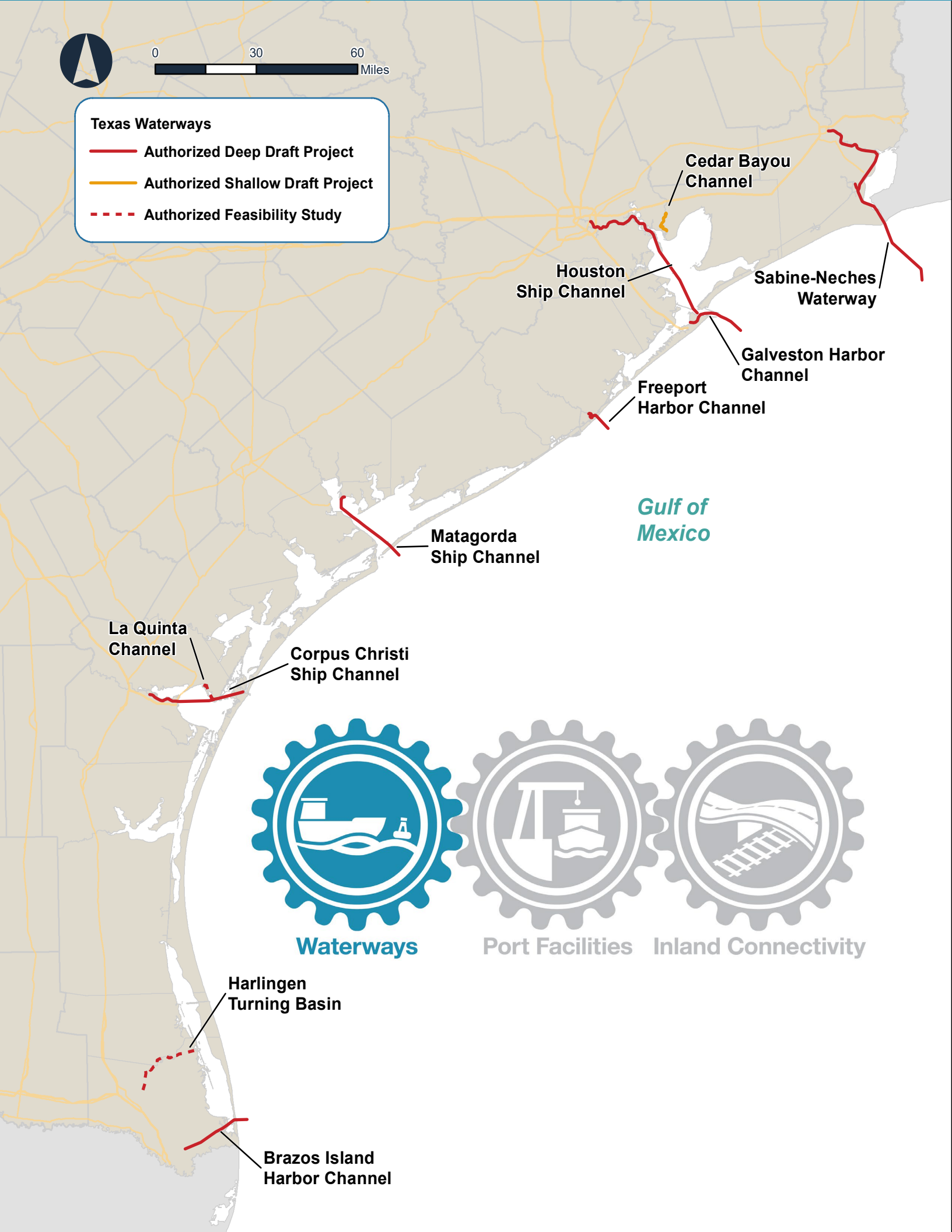
ORIENTAL
PAN QUEST
PANAMA
BEWARE OF PROPELLER

SHIP CHANNEL IMPROVEMENT REPORT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Miles
Texas Waterways
Authorized Deep Draft Project
Authorized Shallow Draft Project
Authorized Feasibility Study
Cedar Bayou Channel
Houston Ship Channel
Sabine-Neches Waterway
Galveston Harbor Channel
Freeport Harbor Channel
Gulf of Mexico
Matagorda Ship Channel
La Quinta Channel
Corpus Christi Ship Channel
Waterways
Port Facilities
Inland Connectivity
Harlingen Turning Basin
Brazos Island Harbor Channel

TEXAS SHIP CHANNELS

Any vessel visiting a Texas seaport relies on well-maintained, navigable ship channels. These waterways are critical thoroughfares of trade, serving as marine "highways" that allow goods to be moved into and out of ports. This Ship Channel Improvement Report is part of the 2024-2025 Texas Port Mission Plan (PMP), the maritime plan required in Chapter 55 of the Texas Transportation Code, developed by the Texas Department of Transportation (TxDOT) Maritime Division in coordination with the Port Authority Advisory Committee (PAAC). The PMP highlights the importance of the State of Texas investing in its port system to meet the growth potential of global trade opportunities.

The U.S. Army Corps of Engineers (USACE) operates and maintains ship channels as federal projects. Local ports and navigation districts act as non-federal sponsors (NFS) for their respective channel improvement projects and are responsible for funding portions of the project costs through a funding match. However, securing federal funding for navigation projects remains a challenge. The congressional authorization and appropriation process can take decades, contributing to the nearly $109 billion backlog of federal water resources projects nationwide.[1]

Ship channel improvement projects are investments that are costly and time sensitive. Delays in funding and construction can increase overall project costs, missed opportunities for attracting business, and diminished returns on the overall investment. As project costs rise, NFS often end up footing more of the bill than originally expected to keep business from stagnating. Similar to the investments that the State of Texas makes in its highway infrastructure, it is in the State's best economic interest to invest in its ship channels. Ship channel improvements are sound financial investments in the Texas economy.

This Report summarizes the status of congressionally authorized ship channel improvement projects and feasibility studies across the state. In addition, this Report considers some non-federal projects that NFS are undertaking to meet the demands of the industry and keep Texas competitive with global markets.

Texas Port System

The Texas port system includes:

- Eleven deep-draft ports and nine shallow-draft ports.
- 270 miles of deep-draft channels (channel depths > 30 feet) allowing large, ocean-going vessels carrying goods to and from foreign and domestic markets to Texas ports.
- 750 miles of shallow-draft channels allowing transit for barges and other smaller vessels moving goods around the Gulf of Mexico and incorporating domestic trade from other Texas waterways.

The width, depth, and navigability of the waterways that serve a port affect the types of vessels and markets a port can serve. Texas waterways need to be maintained so vessels can continue to transit channels safely and efficiently; therefore, certain channels must be deepened and widened in an effort to equip Texas ports to receive the next generation of larger vessels and accommodate more cargo tonnage.

TEXAS SHIP CHANNEL IMPROVEMENT OVERVIEW THROUGH FY 2022

Authorized Projects	8
Total Cost	$3.66 B
Federal Share	$2.19 B
Percent Funded	31%
Non-Federal Share	$1.47 B
Percent Funded	55%
SCIRF Funding Request	**$400 M**

SHIP CHANNELS DRIVE THE ECONOMY

Texas ship channels have a powerful impact on the Texas and U.S. economies and help transfer Texas' exports worldwide. These assets must be looked after to ensure they meet future demands to continue economic success. An investment in ship channel improvements is a guarantee to increase Texas' revenue and opens opportunities for not just the state but also the nation.

The Houston Ship Channel Expansion Project is currently under construction. (Credit: Port Houston)

NEED FOR CHANNEL IMPROVEMENTS

TRANSIT SAFETY

Deepening and widening ship channels is important for safety. Deeper channels mean fewer vessels risk running aground. Wider channels mean vessels can pass more easily, allowing more ships and barges through and making it safer for seafarers to navigate the channel. This is especially important in Texas, as many of the vessels traveling to and from the ports are tankers carrying hazardous materials or cargo ships carrying high-value cargo or consumer goods.

The world fleet is increasing in number and sizes of vessels. The Panama Canal, which had been the limiting factor in regard to size for vessels traveling to the U.S. since its original construction in 1914, was expanded in 2016 to accommodate newer, larger ships coming to Texas from across Asia-Pacific. Even before the Panama Canal was expanded, larger vessels were already calling on Texas ports via other oceanic trade routes as the trade industry began transitioning its maritime fleet to larger sizes.

Ships can only stop or "call" at ports with deep channels to accommodate their draft, which is the vertical distance between the waterline and the bottom of the ship. At ports where the depth of the channel is too shallow, larger vessels must be "light-loaded" to allow clearance into the channel. Light loading allows larger ships to call on Texas ports, but it reduces cargo capacity, increases the cost of transportation, and impacts the Texas economy.

Shippers enjoy substantially lower costs when they can use larger vessels. As technological advances allow the trade industry to build and operate larger ships and the global demand for goods grows, shippers reap the benefits of the economies of scale that larger ships provide. Even if these larger ships don't call at Texas ports now, there will likely be a cascade effect later as they replace aging fleets, increasing the average size of ships calling on ports over time. Investing in ship channels now will increase private investment in the port system as suppliers have confidence that the infrastructure will allow larger vessels in the future.

In 2020, Texas's robust maritime system ranked first in the nation in total tonnage handled and first in total exports.[2]

Vessel Trends

In 2016, the Panama Canal Authority completed a major expansion project by constructing two new sets of locks that allow larger ships to transit the canal. Today, container ships having nearly triple the previous capacity, as well as a new generation of liquefied natural gas (LNG) and bulk carriers, can safely transit the canal. As the Panama Canal is the most efficient trade route between Texas and East Asia, Texas shippers can export the state's energy, chemical, and agricultural products competitively worldwide.

"Panamax" is a shipping industry term describing the maximum size vessel that could traverse the 1914 Panama Canal. With the completed expansion in 2016, larger "New Panamax" vessels are now able to transit the canal, increasing traffic to the Gulf of Mexico.

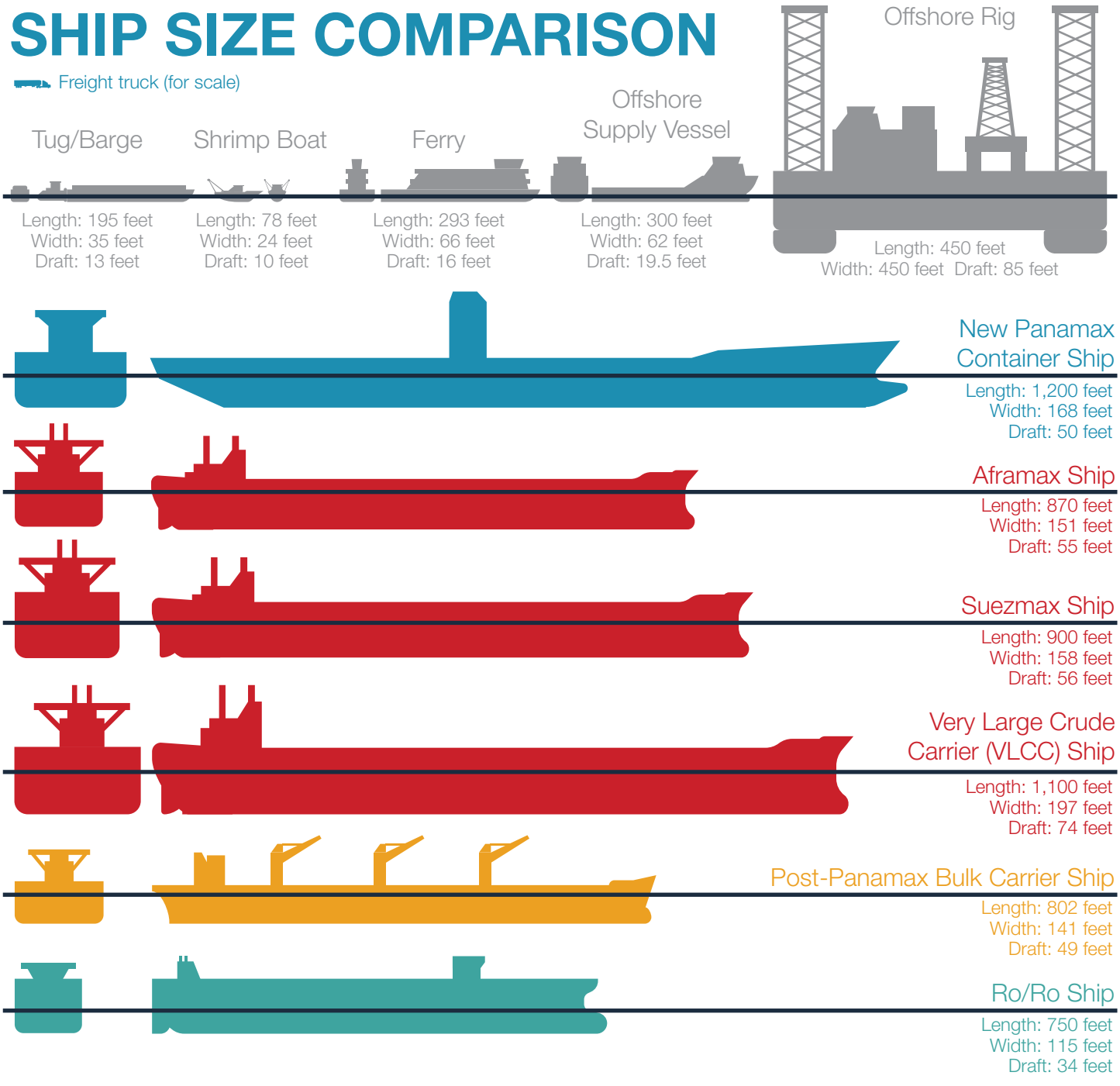
	PANAMAX[3]	NEW PANAMAX[4]
Length	965 ft	1,200 ft
Width	106 ft	168 ft
Draft	39.5 ft	50 ft

In their current state, many Texas ports cannot accommodate the largest New Panamax vessels, which have a draft of 50 feet and maximum beam width of 168 feet. As an example, Panamax containerships generally have a capacity of 5,000 TEUs (twenty-foot equivalent units). The Panama Canal extension allows access to the New Panamax containerships with a capacity of up to 14,400 TEUs.[5] Increasing deep-draft channel capacity in Texas will help ensure that Texas ports can accommodate larger vessels and remain economically competitive. The range of vessels calling on Texas ports is highlighted on the following page.[3]

MOST COMMON TYPES OF SHIPS

- **CONTAINER SHIPS –** Cargo ships carrying their entire load in truck-size intermodal containers that can be directly off-loaded onto semitrucks or trains.
- **TANKERS OR BULK LIQUID CARRIERS –** Ships fitted with tanks to carry liquid bulk cargo such as crude petroleum, petroleum products, chemicals, liquefied gases, wine, and molasses.
- **BULK CARRIER –** Vessels designed to carry various cargos in bulk quantities such as grain, fertilizers, ore, coal, and cement.
- **SPECIALIZED VESSELS –** Ro/Ro ships carrying cars, trucks, or wheeled containers; ships carrying refrigerated or insulated cargo; or heavy lift ships carrying oversized cargo.

SHIP SIZE COMPARISON



SHIP CHANNEL IMPROVEMENT COMPONENTS

To the casual onlooker, a ship channel may look like just water, but beneath the surface there is a complex infrastructure network that supports ship movement. Like roadways, ship channels are designed to move goods and users in a safe and efficient manner. Their design considers the types of markets they serve—such as breakbulk or container—as well as the vessels that use the channels now and any anticipated future vessels.

Because the depth of a channel directly affects the size of ships and the volume of cargo a port can receive, ports look to channel deepening as a way to remain economically competitive. However, ports are unable to deepen their channels on their own, outside of the lengthy federal authorization process. USACE spends roughly $155 million in Texas each year to maintain the ship channels—a cost that would be too significant for ports or navigation districts to try to shoulder directly. [6,7,8,9,10] For ports to be assured that the federal government will maintain their ship channels as transportation assets of economic importance to the nation, the allowable depth for federal maintenance of each channel must be determined by USACE and authorized by Congress.

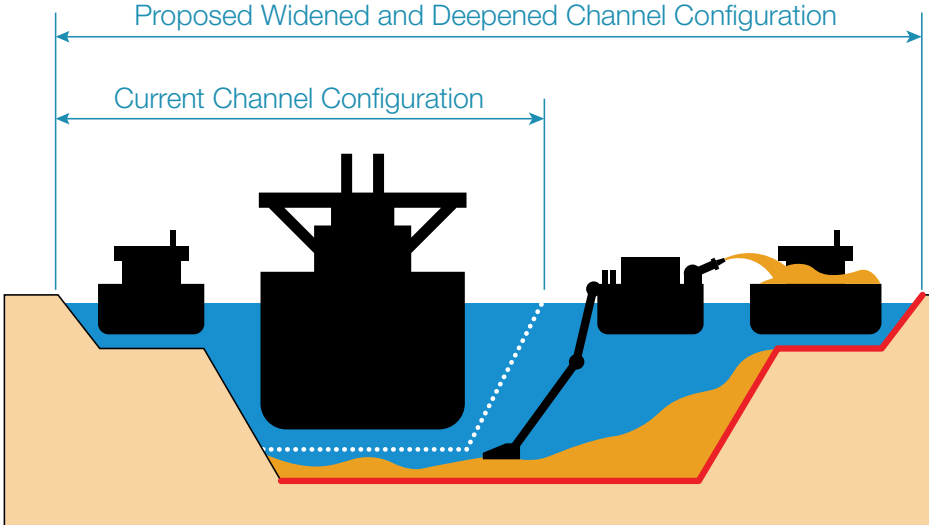
Operations and Maintenance—Ship channel depths do not remain constant but decrease over time through "shoaling", or filling in, when sediment is disturbed as the channel is used. When this happens, the channel needs to be dredged out again to maintain its authorized depth. With timely planning, the dredged material can be used to create islands, widen beaches, and more.

Channel Width and Depth

The width and depth of the ship channel determine the size of ships that can use it and the amount of cargo that the ships can carry. The depth should be adequate to safely accommodate the ship with the deepest draft expected to use the waterway. Deeper channels reduce the risk of ships running aground when loaded, minimizing the need for vessels to be lightly loaded and allowing ships to transit at full capacity. Often, vessels calling on Texas ports that could carry more cargo have to light load to maintain a safe draft, thus reducing the port's impact on the economy.

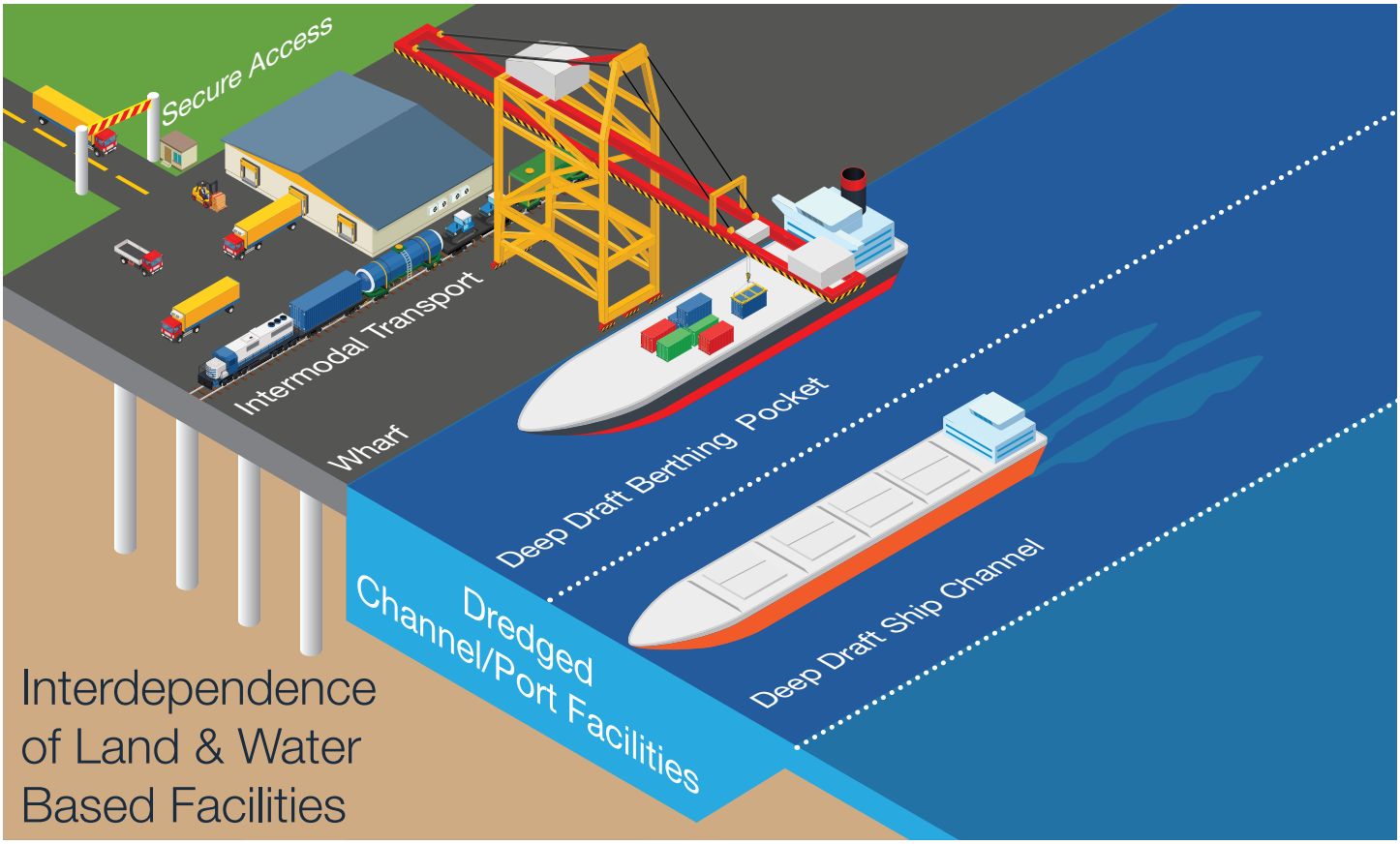
Similarly, ships also need room to safely navigate the channel, including passing other vessels and turning. Wider channels reduce the number of ships that must wait to enter the channel because of vessel traffic.

The ship channel width is measured by the flat bottom of the channel and can be widened on one side or both. The minimum channel width for a specific project will depend on the size and maneuverability of the vessels, channel alignment, traffic congestion, currents, and wind conditions. The amount of ship traffic and the length of a channel determine whether one-way or two-way traffic is appropriate. Some channels are equipped with barge lanes, or shallower lanes adjacent to the main channel, that keep slower-moving barge traffic out of the main channel. Additionally, some channels have single or multiple turning basins, which are wider areas of water located at the port or the end of the ship channel that allow ships to turn around and reverse direction.



950,000 cubic yards of dredged material from Houston Ship Channel maintenance created 9,300 feet (1 ¾ miles) of emergent beach at Babe's Beach in Galveston, Texas in 2021.[11]

Channel improvements not only allow for larger vessels to call on Texas ports, but they also can allow for two-way vessel traffic or shallow-draft barge lanes that accommodate smaller vessels, increasing the economic impacts and safety along the channels.



Ship Channel Typical Elements

In addition to channel deepening and widening, other navigation improvements help ships move to and from seaports. Typical elements needing improvements include jetties and breakwaters; locks and floodgates; turning and other areas for vessel maneuvering, such as anchorages and mooring areas; removal of wrecks, obstructions, and debris; and bridge replacements or modifications.

Ship Channel Component	Description
Anchorage Area	An area where ships anchor to wait for berthing areas to become available or for more favorable transit conditions.
Barge Lane (or Shelves)	A narrower, shallower channel adjacent to the main channel for the purpose of separating the faster, deep-draft ship traffic from the slower, shallow-draft barge traffic.
Bend	An even curve that allows a channel to turn in a specific direction.
Berth, Dock, or Wharf	A designated location in a port or harbor where a vessel may be moored or anchored, usually for the purposes of loading and unloading.
Channel Limits	The location of the authorized channel as designated on project design documents and depicted on hydrographic survey sheets, often provided as a channel width on navigation charts.
Entrance Channel	The main access channel into a shallower bay, harbor, or port from the deeper ocean.
Harbor	A fully or partially enclosed body of water offering safe anchorage or reasonable shelter to vessels against adverse weather conditions.
Interior Channel	The access channel inside a bay or harbor that connects the entrance channel to port facilities.
Passing or Maneuvering Lane	A widened portion of channel where a vessel can safely pass an approaching vessel. The maneuvering lane should be wide enough to account for current, wind, and bank effect.
Turning Basin	A large, excavated area that provides for the complete turning of a ship in order to change direction, enter a dock or berth, or depart from the port. Turning basins are usually located at the upper end of the interior channel.

PROJECT DEVELOPMENT AND FUNDING

Ship channel improvement projects must go through a lengthy and costly federal process in order to be approved by USACE and authorized by Congress. The process begins with a Feasibility Study, which an NFS can initiate through a Memorandum of Agreement (MOA) with USACE (as allowed by Congress in past Water Resources Development Acts [WRDAs]).

Channel improvement projects are evaluated based on total construction costs, or "hard costs," including real estate and engineering costs. However, "soft costs" related to the Feasibility Study must be incurred upfront, and the NFS must pay 50% of these costs. The upfront feasibility study costs can become burdensome for the NFS to pay. While upfront costs can create initial challenges, the feasibility study is necessary to justify to Congress that it is of federal interest to construct the channel improvement project. NFS delays in paying this soft cost can delay schedules and diminish the economic benefits of implementing the proposed project.

Once the feasibility study is approved and Congress authorizes a ship channel improvement project, it is not guaranteed federal funding for construction. Congressional appropriations are needed for construction. Congressional authorization only obligates the federal government to maintain the improved ship channel upon successful completion of the project. Under WRDA Section 204(f), it is possible to have a channel improvement project constructed without federal funds while maintaining the federal obligation to fund and conduct maintenance dredging. In an ideal scenario, a Congressionally authorized project will also eventually receive budget appropriations that fund portions of its construction.

Key Terminology

Authorization	Projects are authorized by the U.S. Congress in a Water Resources Development Act or equivalent
Appropriation	Funds are included in the USACE Civil Works Budget for a given fiscal year to fund an authorized project
Allocation	Funds are committed in the USACE Work Plan for a given fiscal year to implement a particular project

WHAT IS THE SCIRF?

Senate Bill 28 established the Ship Channel Improvement Revolving Fund (SCIRF) in 2017 to help finance congressionally authorized ship channel deepening and widening projects. The SCIRF has not yet been capitalized—should it receive funding, it would help NFS to advance projects while waiting for federal funding.

Investing in ship channel expansion is a sound financial decision that generates immediate returns on the initial investment. Each project authorized by Congress undergoes a rigorous National Economic Development review to ensure that the project will be cost-effective and benefit the U.S. economy.

In 2017, the **Texas State Legislature** passed SB28, creating the **Ship Channel Improvement Revolving Fund** (SCIRF).

The revolving loan program uses funds to aid financing of the **local share** of qualified project costs through **low-interest loans and longer, more flexible loan repayment terms**.

Qualified projects must:
1) Deepen or widen a ship channel
2) Be authorized by the U.S. Congress
3) Meet any other standards set by the Texas Transportation Commission

Maintenance dredging is not qualified.

Upon approval, the **Texas Transportation Commission** administers SCIRF funds to **Navigation Districts and Port Authorities**.

**Texas Transportation Code Section 56[12]*

Status of Texas Projects

The table below shows the Texas ship channel improvement projects that have been authorized by Congress for construction or a feasibility study to determine whether a project is a sound infrastructure investment that should be considered for authorization in the future. Construction projects are often completed in phases, so even partial funding allows projects to take initial steps toward completion.

More information on the federal funding process for channel improvements is provided in the following pages. Current project funding amounts, including local NFS funds and federal funds, are shown in the project profiles later in this report for each proposed project.

TEXAS SHIP CHANNEL AUTHORIZATIONS

Ship Channel	Non-Federal Sponsor (NFS)	Authorization	Depth* (Current | Proposed)	Project Cost ($M)**	Federal Share ($M)	Non-Federal Share ($M)	Federally Allocated Funds ($M)	SCIRF Eligible
Authorized Ship Channel Improvement Projects						*Total Cost: $3.66 Billion* *Total Local Cost: $1.47 Billion*		
Sabine-Neches Waterway	Sabine-Neches Navigation District	WRRDA 2014	*40 ft | 48 ft*	$1,400	$840	**$560**	$103.2	Yes
Cedar Bayou Navigation Channel	Chambers County-Cedar Bayou Navigation District	WRDA 2007	*8 to 10 ft (varies) | 11 ft*	$52.8	$47.5	**$5.3**	$41.7	Yes
Houston Ship Channel Expansion	Port of Houston Authority	WRDA 2020	*37 to 41 ft (varies) | 39 to 46 ft (varies)*	$669.4	$354.8	**$314.6**	$162	Yes
Galveston Harbor Channel Expansion	Port of Galveston	WRDA 2018	*41 ft | 46 ft*	$13.4	$10.8	**$2.6**	$10.8	Yes
Freeport Harbor Channel	Port Freeport	WRRDA 2014	*45 ft | 56 ft*	$324.6	$172	**$152.6**	$43.9	Yes
Matagorda Ship Channel	Calhoun Port Authority	WRDA 2020	*38 ft | 47 ft*	$218.3	$163.7	**$54.6**	$1.81[a]	Yes
Corpus Christi Ship Channel (-54')[b]	Port of Corpus Christi Authority	WRRDA 2014	*47 ft | 54 ft*	$681.6	$415.8	**$265.8**	$248.4	Yes
Brazos Island Harbor Deepening	Brownsville Navigation District (Port of Brownsville)	WRDA 2016	*42 ft | 52 ft*	$302	$187.2	**$114.7**	$68	Yes
Authorized Feasibility Studies								
La Quinta Channel Expansion	Port of Corpus Christi Authority	Section 203 WRDA 1986	*47 ft | 54 ft*	$212	$106	**$106**	$1.5[a]	No
Port of Harlingen Turning Basin Expansion	Port of Harlingen Authority	Section 107 River and Harbor Act	*0 ft | 16 ft*	$8	$7.2	**$0.8**	$0.15[a]	No

WRDA - Water Resources Development Act *WRRDA - Water Resources Reform and Development Act*
**Depths may vary along length of channel* ***Costs provided by ports and navigation districts in 2022*
[a] *Funds allocated for investigations, not construction*
[b] *The Port of Corpus Christi Authority is also conducting an independent study to deepen the Corpus Christi Ship Channel to -75 feet*

Port Direct Investments & Funding Obligations

Federal maintenance of NFS constructed channel improvements may be authorized through Section 204(f) of the 1986 WRDA if the channel improvements comply with federal environmental, economic, and engineering standards. This authorization is termed “federal assumption of maintenance.” Each year, USACE allocates a portion of appropriations for maintenance dredging to federal channels in Texas. In addition to paying the NFS share of federal channel deepening and widening projects, Texas ports and navigation districts are tasked with funding maintenance for non-federal components of the navigation channels.

Maintenance dredging of federal channels is only a portion of the NFS responsibility. Ancillary channel components, such as connector channels stemming off from the main channel, and harbor facilities, such as wharves and docks, likewise need to be dredged to match the depth of the main channel and then maintained. The costs to maintain the depth of connector channels and harborside facilities are not covered by the federal government. They can either be funded by the NFS directly or through agreements with port users. If maintenance funding is delayed from USACE for main channel dredging, those costs are also sometimes borne by ports and navigation districts. Moreover, dredged material disposal areas for new work and maintenance material are always the NFS’s responsibility, regardless of cost. This includes providing all lands, easements, and disposal areas, the sum of which can increase the NFS cost share above the agreed-upon amount for a channel improvement project.

Federal grant money is available for deepening connecting channels and pier access if applied for by a port authority. The amount of the non-federal match improves the likelihood of a grant award through the highly competitive process.

Port Funding Alternatives

Port authorities and navigation districts manage public dock facilities, which contribute a substantial number of users to the ports’ navigation channels. However, most cargo volume is shipped by private businesses adjacent to the channels. This is especially true for petrochemical facilities using tankers, grain elevators using bulk carriers, and shipyards moving offshore platforms. The lower cost of maritime transportation provided by improved navigation channels has facilitated much of the industrial development of Texas.

Texas port authorities can turn to these private businesses to help fund channel improvements. Also, as public entities, port authorities and navigation districts have specific powers granted by Texas statutes that can be used to fund project needs beyond relying on their own capital funds.

- **Public/Private Partnerships** – PPPs (or P3s) are agreements between one or more public entities and one or more private interests that collectively commit to funding channel or harborside improvements or maintenance. Because any construction resulting from the P3 would benefit all of the involved parties, the cost burden is shared among those entering into the agreement. Typically, the private entity finances the project up-front, and the public entity pays back its share of the funding using revenues from taxes or user fees resulting from the construction.
- **Private Capital Investments** – Private businesses that want access to a federal navigation channel or a port facility will pay for the design, construction, and maintenance of their access channel and wharf.

Who is Responsible for Operations and Maintenance Costs?

Periodic dredging is required maintenance to keep ship channels at the proper depths. This can be costly over time.

Generally, the following parties are responsible for covering the various operations and maintenance costs of dredging the ship channels and port facilities.

MAIN CHANNELS
For authorized projects, the **U.S. Army Corps of Engineers** is responsible for covering the costs of dredging the main channels. Non-federal sponsors are still required to provide a match. See Section 204 of the WRDA.

CONNECTOR CHANNELS
The **non-federal interest** is responsible for the costs of dredging connector channels to match the main ship channel depth.

PORT FACILITIES
The **non-federal interest** is responsible for the costs of dredging to maintain depths of port facilities, such as docks and boat slips.

- **Local Taxation** – Texas port authorities have the power to levy ad valorem taxes to fund port operations and maintenance needs, if approved by voters through a majority vote. With electorate support, ports may also pay for other channel and port improvements using tax dollars. In most cases, the port authority will need buy-in from the electorate that the proposed port activities will benefit the local economy through more or better jobs and higher wages.
- **Bond Sales** – Port authorities in Texas are legally authorized to sell revenue bonds that are repaid through funds amassed from increased taxes or user fees resulting from the improvements.
- **User Fees** – Ports and navigation districts may charge fees for shippers to use their channels, docks, or other facilities. The Sabine-Neches Navigation District, for example, charges $0.20 per ton of hydrocarbon cargo and $0.02 per ton of non-hydrocarbon cargo for commercial vessels using its waterway.[13]

Value of Texas Ship Channels

Texas ship channels generate significant value for local, state, and national economies. Collectively, the Texas port system provides more than $1.3 trillion in economic impact to the nation and $449.6 billion to the state.[14] Ports bring well-paying local jobs, not only at the ports themselves, but also among the industries that serve ports or are generated as a result of port activities. Moreover, ports bolster direct incomes locally, drive local spending, and generate federal, state, and local tax revenues. For example, Port Houston, the busiest waterway in the U.S., generates $802 billion in annual national economic value, supplies 20.6 percent of the Texas gross domestic product, and supports 3.2 million port-related jobs. As of 2018, Port Houston supported $38.1 billion in federal, state, and local tax revenue through maritime activity related to the port, nearly $5.7 billion of which was in Texas.[15]

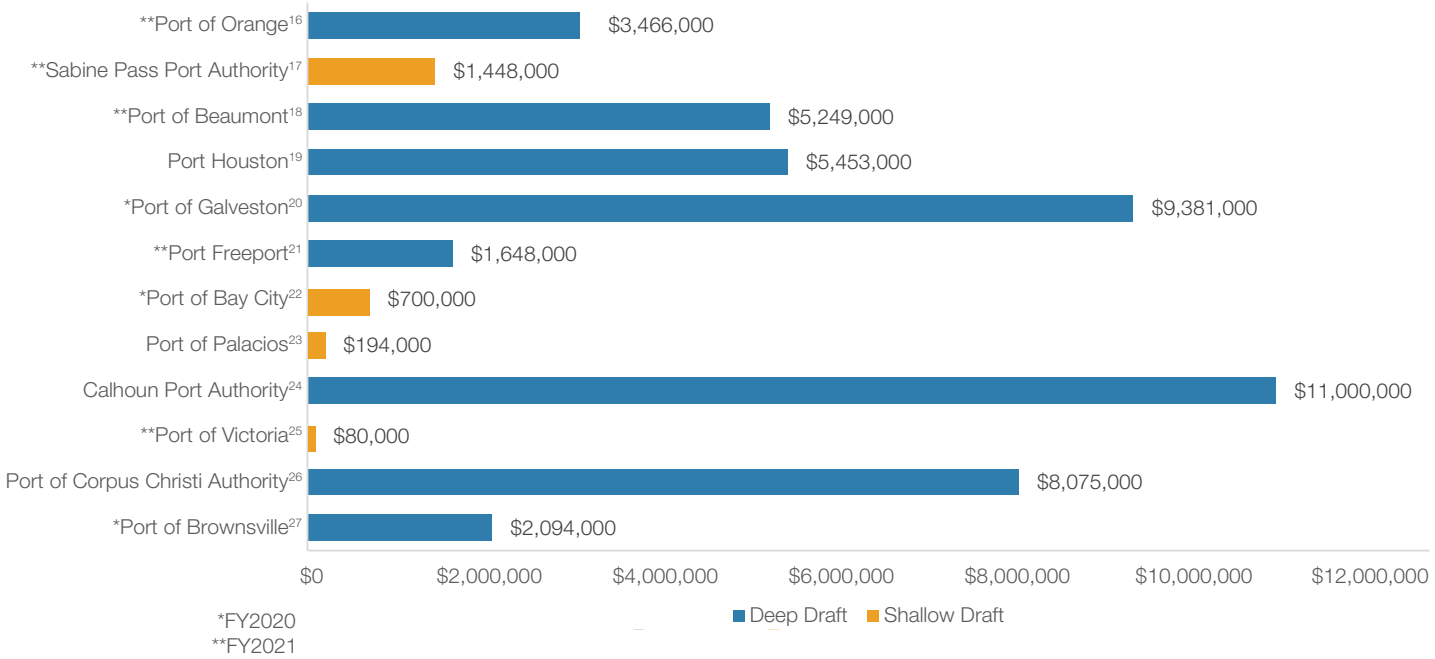
Annual Port Expenditures

In a typical year, Texas ports spend more than $48 million on operations and maintenance costs for ship channels in Texas. These expenditures are over and above other expenditures toward port capital and connectivity project needs. Additionally, local sponsors for federal ship channel improvement projects expect to spend $1.47 billion for channel improvements that are currently authorized. However, the exact timelines for these expenditures are uncertain and depend on federal funding schedules.

Annual O&M Budgets of Texas Ports

FY2022, unless otherwise noted

Total: $48,788,000



In addition to paying the NFS share of federal channel deepening and widening projects, Texas ports and navigation districts are tasked with funding maintenance for non-federal components of the navigation channels and the cost of running the ports. This graph shows self-reported annual operations and maintenance budgets of ports in Texas where port-specific data was available.

THE PROJECT DEVELOPMENT PROCESS

FEASIBILITY STUDY INITIATION

- Section 203 of WRDA 1986 and amendments from recent WRDA issuances allow the NFS to initiate the study through a Memorandum of Agreement (MOA)
- NFS is obligated to fund at least 50 percent of the feasibility study
- USACE funding and participation require allocations in their annual Work Plan budget for the specific study

FEASIBILITY STUDY

- Evaluates proposed solutions and alternatives
- Identifies plan that maximizes National Economic Development (NED) benefits
- Intended to be a standardized three-year process, many Texas ship channel studies have taken over a decade
- Culminates with a USACE-approved signed Chief's Report (Assistant Secretary of the Army)

CONGRESSIONAL PROJECT AUTHORIZATION

- An individual project requires Congressional authorization for construction through a signed bill or WRDA
- WRDAs have been issued as frequently as biennially or as infrequently as once a decade

PROJECT FUNDING, DESIGN AND CONSTRUCTION

- A Project Partnership Agreement (PPA) provides a legally binding agreement between the Federal Government and NFS for construction
- The PPA documents the required local match percentage designated in the approved Chief's Report, which varies based on the improvements
- Federal funding can be infrequent and variable, presenting a need for local and State funds to initiate work and leverage federal allocations
- Over time, a project that has been inactive might need to be updated through a Limited Reevaluation, or worse, could be deauthorized and have to restart the Feasibility Study process
- Five of eight authorized channel projects in Texas are awaiting full federal funding

The federal funds allocated to date account for about 31 percent of the costs of the authorized channel improvement projects in Texas.

Project Development

The development required to get projects to the authorization stage takes many years and incurs significant costs to both the federal and non-federal sponsors. Texas currently has eight authorized projects, including seven deep-draft and one shallow-draft (see *Texas Ship Channel Authorizations* table above). Since 2000, five WRDAs have passed in 2007, 2014, 2016, 2018, and 2020. The actual construction phase of the project begins once sufficient funding has been secured for the project through the federal government and the NFS. Once construction has started, it can still take many years to complete a project if there are delays in funding it. The WRDA legislation has provisions to deauthorize projects if construction funds are not obligated within five fiscal years of project authorization.

Project Funding

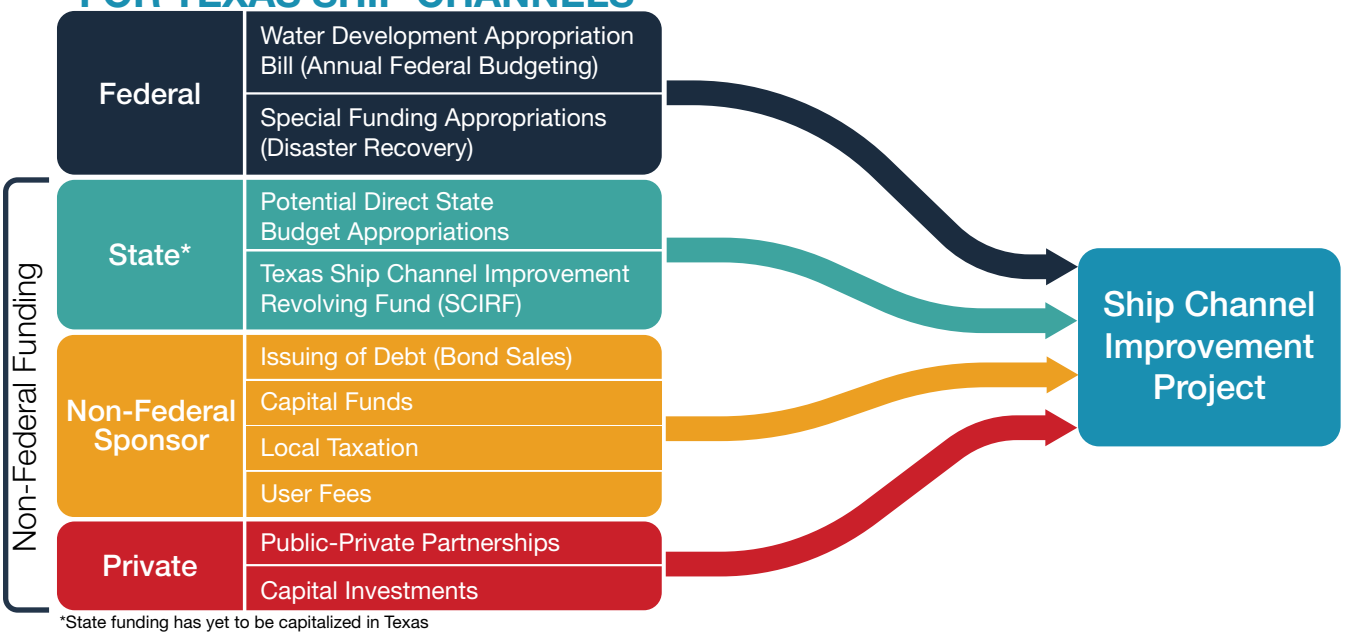
Even after a lengthy authorization process, project construction is not guaranteed. While feasibility studies are typically much less expensive than construction phase expenses, delays in funding for feasibility studies will delay federal authorization for construction. Delays in funding construction can increase project costs due to mobilization and demobilization costs, problems scheduling dredges, and other inefficiencies.

For all projects, federal and non-federal project cost shares vary based on federal statues and the channel improvement dimensions and components. The cost-share is defined in the Chief's Report and subsequent Project Partnership Agreement (PPA). Once authorized, the project may get funding from any of the four funding arms available for construction: federal funding, state funding, ports and navigation districts (typically serving as the NFS), and private investments.

Federal Funding

Historically, Texas ship channel projects, once authorized, have been in a holding pattern for construction while waiting for federal funds to be appropriated. Only the Corpus Christi Ship Channel, Cedar Bayou Channel Improvement, and Galveston Island Harbor Extension projects have received full federal appropriations for funding through FY 2022 in amounts of $405.7 million, $41.7 million, and $10.8 million, respectively.[28,29] The Sabine-Neches Waterway Channel, the Matagorda Ship Channel Improvement, and Freeport Harbor Channel Improvement projects have received less than 10 percent of construction funding each.

FUNDING SOURCES FOR TEXAS SHIP CHANNELS



*State funding has yet to be capitalized in Texas

State of Texas Funding

Funding for ship channel improvement projects in Texas could take the form of direct state budget appropriations for specific, strategic projects. Alternatively, capitalizing the SCIRF would create a stable funding source for SCIRF-eligible projects while earning interest on revolving loans. If the Texas State Legislature capitalizes the SCIRF, it will allow improvement projects to be constructed sooner, further benefitting the state economy.

Non-Federal and Private Funding

Because of the unpredictable and infrequent nature of securing federal funds for navigation construction projects, as outlined in the "Federal Funding Challenges" section, it is important for Texas ports and navigation districts to identify other opportunities for funding projects to ensure that they can accommodate larger vessels and remain competitive. Non-federal funds that are made available by any of the three remaining funding arms may kick-start project implementation and help obtain federal appropriations. Private funding from industry partners can also be used to speed up the process of constructing ship channel improvements.

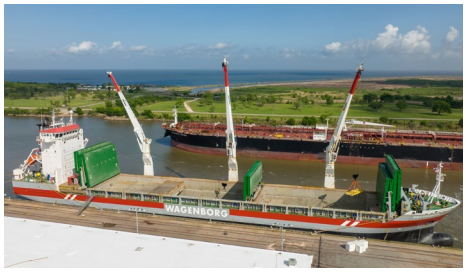
For example:

- Both the Port of Corpus Christi Authority and Port Freeport passed bonds in 2018 in excess of $100 million each to provide local funds to accelerate their associated ship channel projects.[30,31]
- In January 2021, the Calhoun Port Authority approved a public-private partnership with Max Midstream to deepen and widen the Matagorda Ship Channel. It is anticipated that Max Midstream will invest approximately $360 million into the project.[32]
- In May 2021, the Sabine-Neches Navigation District implemented a user fee to finance the non-federal share of project costs.[14]
- In the 2022-2023 biennium, Port Houston spent approximately $667 million in port and private industry funding to begin the expansion of the Houston Ship Channel.[33]

SCIRF FUNDING

Funding the SCIRF will provide financing for eligible navigation projects to modernize waterways and allow for increased growth of waterborne commerce. Eight projects in Texas are eligible to draw on the fund once it is capitalized. The PAAC voted to request funding in the amount of $400 million to cover the estimated drawdown for the eligible projects in Fiscal Years 2024-2025.

FUNDING REQUESTED: $400 MILLION



The Port of Port Arthur received a $20 million federal BUILD grant to expand its berthing areas and accommodate the deeper Sabine-Neches Waterway. [34]

The Freeport Harbor Channel Improvement Project will provide port access for larger deep-draft vessels and see significant improvements in the ability of vessels to maneuver in the meandering channel layout safely.[34]

The Brazos Island Harbor Channel deepening project will improve the economy of deep-draft vessels calling on the Port of Brownsville. In 2022, the channel was awarded $68 million for its construction.[29]

NEED FOR STATE INVESTMENTS

Federal Funding Challenges

WRDA legislation is solely to authorize projects for funding. The funding to implement authorized studies and projects is provided separately under the U.S. Congress annual appropriations budgetary process. The funding needed to construct authorized projects typically exceeds the annual appropriations; therefore, not all authorized projects receive appropriations. This issue is particularly important for newly authorized, "new start" projects, which must be reauthorized with a feasibility study if they do not receive appropriations to start construction within three years.

Annual USACE appropriations for civil works projects, including navigation projects, have remained steady or slightly increased during the last decade, ranging from $4.5 billion to just under $7 billion. Typically, about 40 to 50 percent of these funds are appropriated to the navigation sector. The FY 2022 Civil Works Budget, at roughly $6.8 billion, was the highest annual discretionary funding ever proposed for USACE and included nearly $3.5 billion for the study, design, construction, operation, and maintenance of inland and coastal navigation projects nationwide.[35]

Texas has received an average of $136 million annually in the last five years for navigation construction projects, with the highest appropriation in FY 2022 of $221 million, which included $142.5 million for the Houston Ship Channel, $68 million for the Brazos Island Harbor Channel, and $10.8 million for the Galveston Harbor Channel Extension.[8,9] From 2018 to 2022, O&M funding has averaged $155.1 million annually.[7,8,9,10] The federal funds allocated to date account for about 31 percent of the costs of the authorized channel improvement projects in Texas.

FEDERAL ALLOCATIONS

FOR CURRENTLY AUTHORIZED SHIP CHANNEL CONSTRUCTION THROUGH FY 2022

Corpus Christi Ship Channel**	$248.4 M
Houston Ship Channel	$162 M
Sabine-Neches Waterway	$103.2 M
Brazos Island Harbor Channel	$68 M
Freeport Harbor Channel	$43.9 M
Cedar Bayou Navigation Channel*	$41.7 M
Galveston Harbor Channel Expansion*	$10.8 M

**Fully funded for construction*
***Funds are fully appropriated for construction, but not yet allocated*

Impacts of Funding Delays on Projects

As mentioned above, ship channel improvement projects are time-sensitive investments. Delayed funding for projects can have many negative impacts on projects. Each cycle of funding authorization in which the project does not get funded can present the following consequences:

- **Increase in Project Cost** – Project costs continue to increase while waiting for funding due to inflation, growth of the U.S. economy, competition for dredges, and increases in construction and material costs after the initial authorization of a project.
- **Post Authorization Change Report (PACR)** – If the cost of an authorized ship channel project exceeds a specified threshold before construction starts, the USACE will request an updated economic and cost analysis, known as a PACR. Each time a PACR is conducted, it costs the project another year or more and results in missed Congressional budget cycles. The cost of channel dredging projects has been increasing steadily because of the increasing cost of dredged material disposal.
- **Opportunity Cost** – Increases in overall project costs between congressional authorization and execution of the PPA, as well as missed opportunities for attracting tenants that need improved channel access, lessening the potential future earning capacity is driven by the ship channel improvement project and the return on investment.
- **Loss of Economic Benefit** – Delays in funding can reduce the project's economic benefits to the port, the supported industries, and the affected communities.
- **Deauthorization** – Approved projects can be deauthorized if the project has not started construction or signed a PPA within seven to ten years, depending on the authorizing WRDA (Section 6001, WRRDA 2014; Section 1302, WRDA 2016; Section 1302, WRDA 2018; and Section 301, WRDA 2020), and must go through the lengthy and costly process to become reauthorized.

Additionally, even if projects are included in the federal budget, the appropriations may fall significantly short of what is actually needed (as most projects are not fully funded in any one fiscal year) and continue to delay construction.

With $405.7 million of USACE appropriations for the Corpus Christi Ship Channel, the Port of Corpus Christi Authority has received the most federal funding for any authorized channel improvement project in Texas. Texas ports will still have to compete for additional federal funding to support other channel improvements in the upcoming fiscal years.

CASE STUDY: THE CORPUS CHRISTI SHIP CHANNEL

- The Corpus Christi Ship Channel 54-foot deepening and widening was authorized by Congress in 1990, but has taken nearly 30 years to complete the feasibility study and receive the federal funding necessary to begin construction.[36]
- During the ten years it took to go from authorization to execution of the PPA, the project costs increased from $188 million to $327 million.[36] The current project cost is estimated to be $681 million.
- Through 2022, the federal government has allocated $248.4 million for construction of the Corpus Christi Ship Channel, the full federal responsibility to construct the channel improvements, based on the original $327 million project cost. The Port of Corpus Christi Authority shouldered the non-federal cost, and the resulting industrial development and lower cost of transportation for exports benefitted the entire state.[37]

The Galveston Harbor Channel received the full $10.8 million in federal allocations for its expansion. The Port of Galveston is the 4th busiest cruise terminal in the U.S.[38]

CASE STUDY: THE SABINE-NECHES WATERWAY

One study from 2017 estimated the net benefits of deepening the Sabine-Neches Waterway, which serves the Port of Beaumont, Port of Sabine Pass, Port of Port Arthur, and the Port of Orange, to be $103.2 billion in gross product and an additional 529,000 permanent direct jobs in the United States.[39] This accounts for $67.4 billion in gross product and an additional 336,000 permanent jobs in Texas. Despite its manifold benefits, the project took 17 years to gain congressional authorization and has only received a small portion of appropriations for the federal cost share.[39]

BENEFITS OF SHIP CHANNEL IMPROVEMENTS

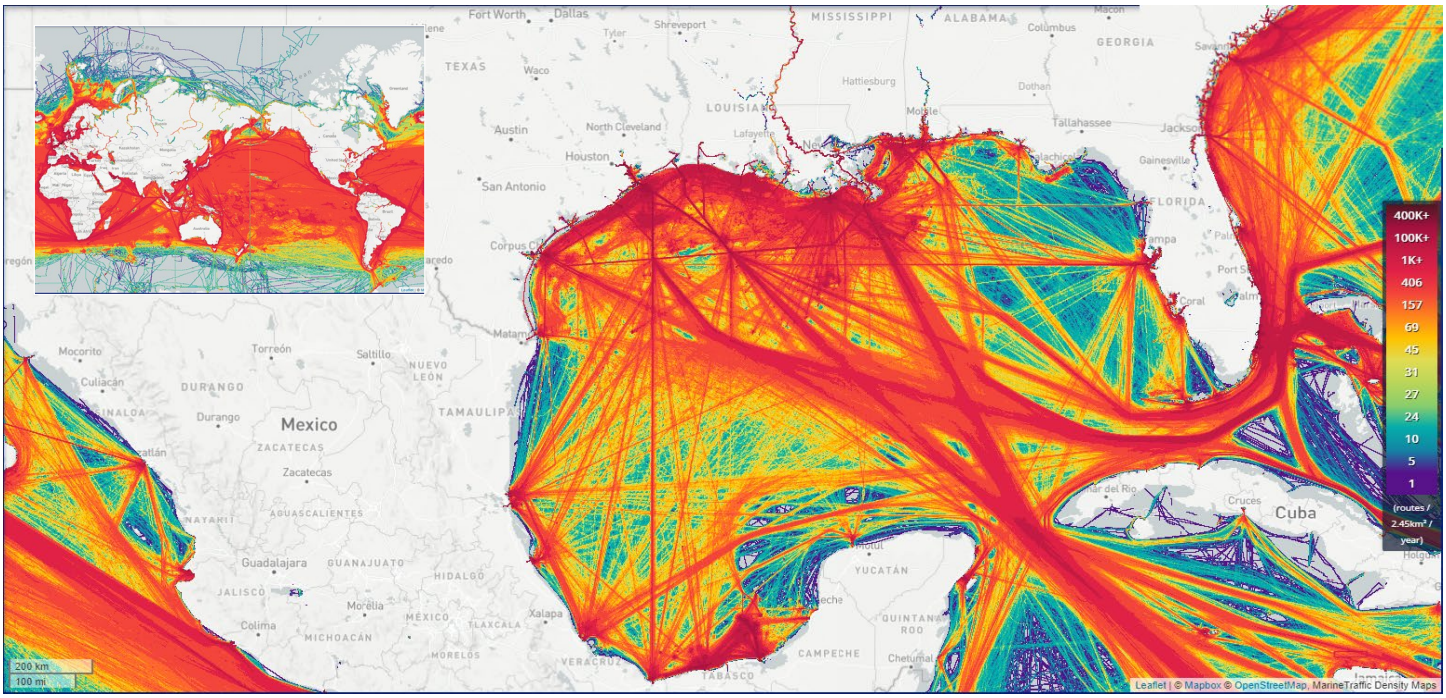
Texas's navigation industry is an economic engine for the nation. Like roadways, ship channels also require maintenance and upgrades so that Texas ports remain competitive and don't lose business to other states.

Ship channel improvements are only authorized if they generate a positive return on investment. For instance, an economic study completed in 2015 for the proposed Brazos Island Harbor Deepening Project estimated that the project would inject $6 billion into Cameron County's economy during construction.[40] After construction, it would return $326 million to the County's gross product annually, increasing 3.7%.[40] All Texas's authorized ship channel projects exceed a minimum of $1.50 returned to $1.00 invested based on each channel's final USACE feasibility study. These returns on investment are based on port users and commodity movement at the time of each study. They do not account for new private investment to build or enhance facilities resulting from the increased shipping efficiencies created by ship channel improvement projects.

While most of the focus of this report is on deep-draft channels, shallow-draft channels are also a critical part of the freight network. Barge transport is a highly fuel-efficient means to transport bulk and liquid cargo that also reduces truck congestion on roadways. Barge shipments have significantly more cargo capacity than their land-based freight counterparts. A single barge can carry the equivalent of 70 to 144 trucks worth of cargo or 16 to 46 rail cars worth of cargo, depending on the cargo type.[41] It is important to deepen and widen deep-draft channels as well as maintain and improve the shallow-draft channels and facilities, such as locks and floodgates. They are the means to a state-wide network between our ports, allowing them to function as a comprehensive system rather than independent entities.

Texas's ship channel system is interconnected and intermodal. Smaller ports offer a safe harbor for barge traffic up and down the GIWW, and they can include satellite container yards servicing larger ports. Improvements made by ports and navigation districts support smaller port users, bolstering the economic development of each. Landside transportation avenues like rail lines and truck routes support the efficiency with which goods can move through ports. The rising tide raises all ships, and improvements to any of these systems can support the overall growth of the trade industry as a whole.

The Port of Palacios has been authorized to begin a feasibility study to expand its turning basin. The expansion will support increased barge traffic at the port.



Gulf of Mexico shipping routes by tonnage with global inset (credit: marinetraffic.com).

U.S. Trends: State-Funded Ship Channel Improvements

Some states have appropriated funds for ship channel projects, apart from any ongoing programs. These subsidized port enhancements can make non-Texas ports more attractive to shippers and potential tenants, luring firms, trade, and jobs away from Texas. To remain competitive, Texas can invest in modernizing its port system, and pursue public and private partners to generate a strong consensus to invest in the navigation and shipping industries.

Examples of state-funded improvements include:

- In 2018, the **Port of Boston** began a three-year, $350 million dredging project to deepen the channel. The state and Port of Massachusetts Authority are committing $130 million, with the federal government funding the remaining $220 million.[42]
- In 2019, the **Port of Virginia** began dredging 2.5 years ahead of schedule to deepen its channels, with depths ranging from 55 feet to 59 feet, and to widen select areas to 1,400 feet to allow two-way traffic for ultra-large container vessels. The Virginia Legislature committed $350 million to fund the full cost of the project.[43]
- The **State of Florida** has a very active program to provide state funding to port authorities.[44] Florida is estimated to have spent $156 million on the Jacksonville Harbor Deepening beginning in 2018 and $144 million on the Port Everglades Ship Channel in 2020.[45,46] The harbor deepening project is anticipated to be completed in the summer of 2022, three years ahead of schedule, and the channel deepening is expected to be completed by 2025.

Other U.S. ports competing with Texas ports receive state-funded subsidies to attract new tenants and have access to grants or low-interest loans for their channel improvement projects (through economic development funds, general revenue, tax incentives, or transportation programs). These revenues subsidize channel deepening and widening, dockside infrastructure, and cruise terminal improvements.

The Port of Harlingen is conducting a federally-authorized feasibility study on expanding turning basins to increase maneuverability and safety in the channel.

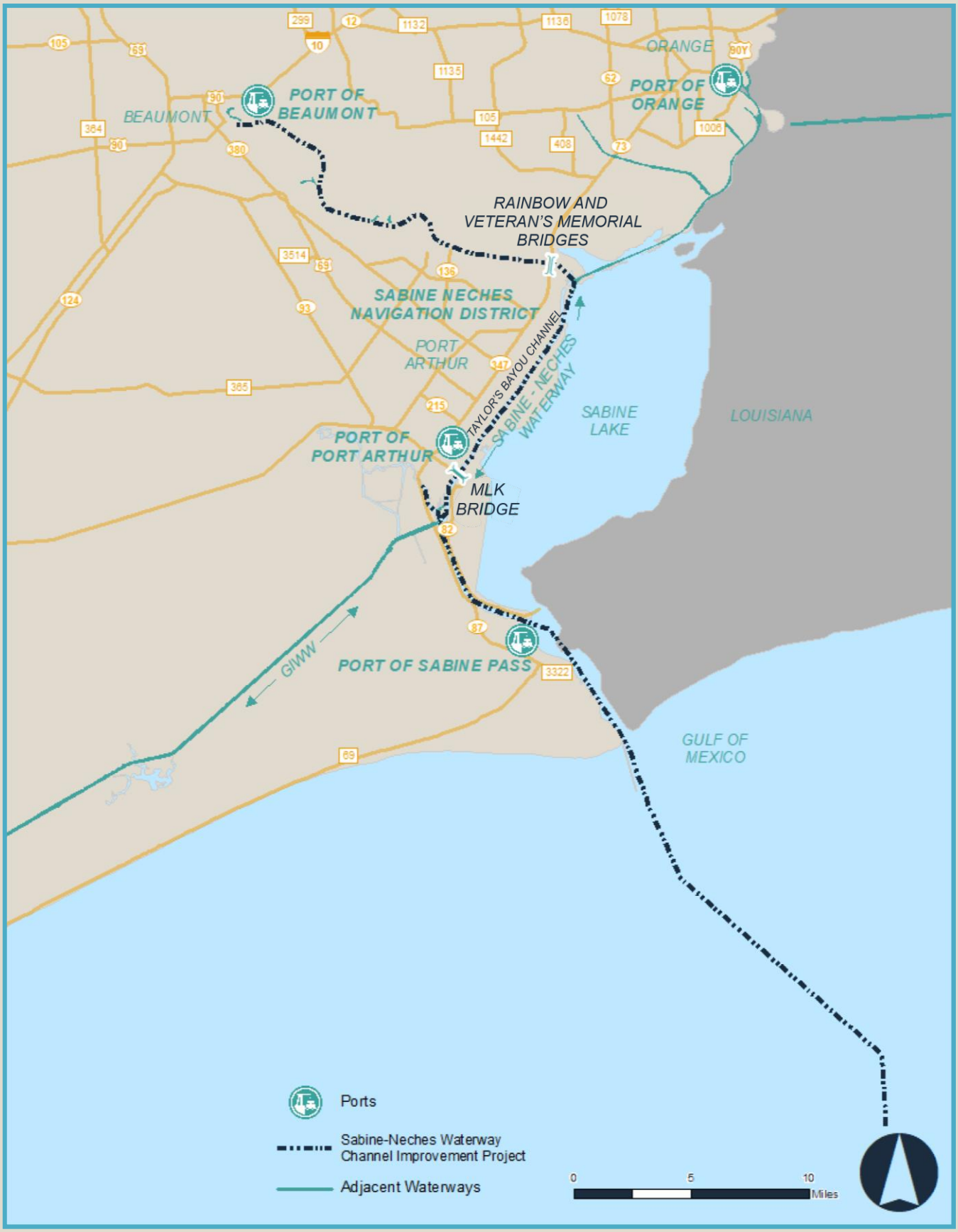
FEDERALLY AUTHO

Texas Department of Transportation

ORIZED PROJECTS

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.

SABINE-NECHES WATERWAY CHANNEL IMPROVEMENT PROJECT



SCIRF Eligible

Texas Department of Transportation

Project Details

Non-Federal Sponsor (NFS)	Sabine-Neches Navigation District (SNND)
Project Authorization	WRRDA 2014
Channel Length (Current | Authorized)	64 miles | **77 miles**
Channel Depth [Ft, MLLW**] (Current | Authorized)	40' | **48'** *Inshore* 42' | **50'** *Offshore*
Channel Width [Ft] (Current | Authorized)	700' | **700'**

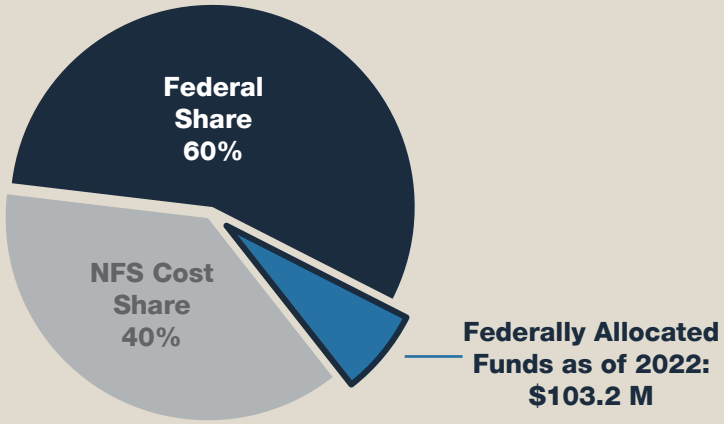
***Mean lower low water (MLLW) refers to the lowest of the two low tides per day, averaged over a 19-year period (currently 1983 to 2001).*

Waterway and Project Description

The Sabine-Neches Waterway (SNWW) is an approximately 64-mile federally authorized and maintained waterway located in Jefferson and Orange counties in southeast Texas. The area surrounding the waterway contains four deep draft ports, the ports of Beaumont, Port Arthur, Orange and Sabine Pass. The system includes Sabine Pass, the Port Arthur Ship Canal, the Sabine-Neches Canal, and the Neches River. Sabine Pass is stabilized by jetties that extend 4.1 miles into the Gulf of Mexico.

The Sabine-Neches Canal portion that runs in front of the Port of Port Arthur can pose navigational challenges because it is used by both large vessels and barge traffic that are using the GIWW. There are three bridges crossing over the waterway that limit the vertical clearance of the vessels that can use the waterway. The authorized project will deepen the waterway throughout by 8 feet and extend the channel 13 miles further into the Gulf of Mexico. The project will enhance the safety of vessels transiting the waterway by widening Taylor Bayou Channel and existing turning and anchorage basins.

Project Cost: $1,400,000,000



Key Waterway Facts

- #1 bulk liquid cargo waterway in the U.S.
- #5 largest U.S. waterway, combining tonnage from the ports of Sabine Pass, Port Arthur, Beaumont, and Orange
- 194 million tons of cargo annually
- $40 billion in gross product
- 375,000 permanent jobs provided
- Two of the U.S. Military's Strategic Commercial Seaports, Port of Port Arthur and Port of Beaumont

Project Benefits

The Sabine-Neches Waterway has grown tremendously since its last improvement project, which was authorized more than 50 years ago in 1962. According to the Sabine-Neches Navigation District, expanding and deepening the channel by 8 feet will keep Texas competitive with other U.S. ports, and generate $330 billion in new business activity along with 528,000 additional jobs that are maintained on a continuous basis. Additionally, the project will increase tax revenue, better manage waterway traffic, and stimulate further economic development by allowing larger vessels to access the ports and by reducing the need to light load existing vessels.

Project Readiness and Implementation

This project was authorized in WRRDA 2014 and is currently seeking federal appropriations for construction. The SNND and USACE signed a PPA in August 2019. This project was awarded $18 million in New Start appropriations in the USACE FY 2019 Work Plan to begin work, $16.62 million in the FY20 Work Plan to dredge the Sabine Pass jetty channel, and $68.6 million in the FY21 Work Plan to continue dredging the jetty channel and start dredging the Sabine Bank Channel. In May 2021, the SNND implemented a user fee to finance the non-Federal share of project costs. Construction is estimated to take seven to 10 years.

Waterway Supported Port Facilities

CEDAR BAYOU CHANNEL IMPROVEMENT PROJECT

SCIRF Eligible

Project Details

Non-Federal Sponsor (NFS)	Chambers County-Cedar Bayou Navigation District
Project Authorization	WRDA 2007
Channel Length (Current | Authorized)	6 miles | **14 miles**
Channel Depth [Ft, MLLW] (Current | Authorized)	8-10' | **11'**
Channel Width [Ft] (Current | Authorized)	40-170' | **100'**

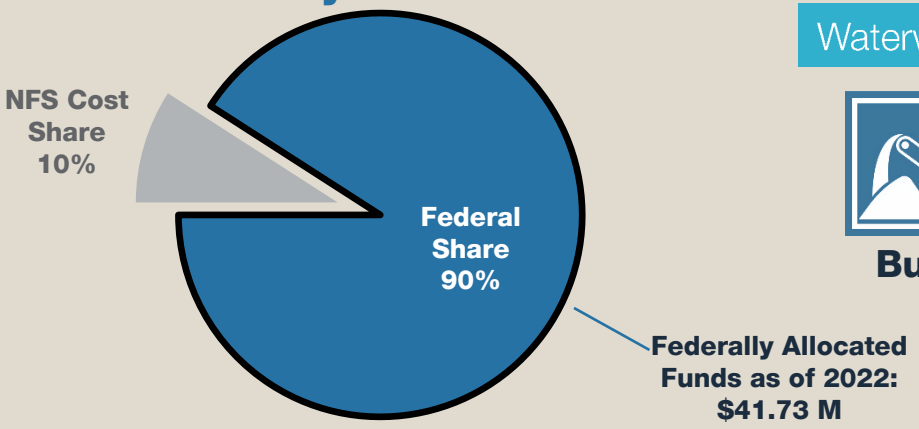
Waterway and Project Description

Cedar Bayou is a natural stream originating in Liberty County, flowing 45 miles to its confluence with Galveston Bay. The bayou becomes navigable south of State Highway 146, along the eastern portion of the City of Baytown. Upon its confluence with Galveston Bay, the Cedar Bayou Channel provides direct connection to the deep-draft Houston Ship Channel. The existing, improved portion of the channel extends from its junction with the Houston Ship Channel to the mouth of Cedar Bayou and upstream 3 miles. The shallow-draft channel is authorized to be 11 feet deep by 100 feet wide, but existing depths vary.

This authorized and fully funded project will extend the maintained portion of the channel upstream from mile 3 to mile 11 where it intersects with the Highway 146 bridge. While this section of the channel is currently navigable and is in use for barge transport, standardizing the channel depth will enhance barge access and improve navigation safety. The project will include lowering pipelines, constructing two bend easings, and straightening Devil's Elbow.

Project Cost: $52,800,000

Fully Funded



Key Waterway Facts

- Carries more than 1.5 million tons of cargo per year
- The channel primarily serves chemical, aggregate, steel and asphalt industries
- Supports container-on-barge movement with connections to Port Houston container terminals
- Rapidly increasing traffic due to additional commodities and increase in industry in the area

Project Benefits

Standardizing the depth in the channel through mile 11 and easing several of the bends will improve barge operations from the Houston Ship Channel to Baytown. Straightening the bend at Devil's Elbow will provide much safer access for barge traffic in an area that is currently challenging to navigate. Together, these improvements will benefit navigability in the channel as development in the area increases so that operators don't have to light load or reduce speed like they would in the unmaintained channel. The U.S. Army Corps of Engineers will assume maintenance of the channel once the improvements are in place.

The final channel design was selected to minimize the environmental impact along the channel shoreline. Land will be restored and set aside for conservation as part of this project, including a marsh on Ijams Lake that will be created by beneficially using dredge materials.

Project Readiness and Implementation

This project is fully funded and currently being implemented. The Devil's Elbow cut, both upland dredge material placement areas and the Ijams Lake beneficial use placement area are under construction. Upon completion in the 3rd quarter 2022 the channel will be dredged from the JSW Steel Dock at mile 3 north to mile 11. The authorized project is expected to be completed in May 2023.

Waterway Supported Port Facilities

Bulk

Container

Break Bulk

HOUSTON SHIP CHANNEL EXPANSION PROJECT

**Note that the NFS funds include allocatio for the non-federal Locally Preferred Plan.

SCIRF Eligible

Texas Department of Transportation

Project Details

Non-Federal Sponsor (NFS)	Port of Houston Authority
Project Authorization	WRDA 2020
Channel Length (Current | Proposed)	52 miles | **52 miles***
Channel Depth [Ft, MLLW] (Current | Proposed)	37.5' | **41.5'** *Sims Bayou to IH 610* 41.5' | **46.5'** *Boggy Bayou to Sims Bayou* 46.5' | **46.5'**
Channel Width [Ft] (Current | Proposed)	400' | **530'** Boggy Bayou to Sims Bayou 530' | **700'** *Bolivar Roads to Barbours Cut*

**Total length of the Houston Ship Channel is 52 miles. The non-federal portion of the channel improvements totals 13 miles, so length of improvements for the federally authorized project is 39 miles.*

Waterway and Project Description

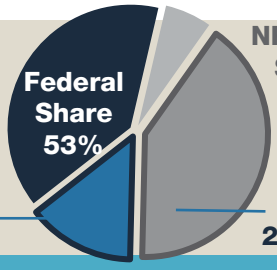
The Houston Ship Channel (HSC) crosses portions of Harris, Galveston, and Chambers counties. In addition to the main 52-mile-long channel, the HSC system facilitates four deep-draft tributary channels and several shallow-draft channels and cuts.

The HSC Expansion Project, which has gone through the National Economic Development (NED) review process, will widen the HSC to 700 feet from Bolivar Roads to Barbours Cut. The HSC has various width and depth configurations, reducing in both depth and width as the channel moves upstream to Sims Bayou and ultimately terminates at the main turning basin immediately upstream of the Sidney Sherman Bridge. This project is addressed as six unique segments: four segments in the main channel, plus Barbours Cut and Bayport Ship Channel (BSC). Two segments, from Redfish Island to BSC and from BSC to Barbours Cut, are not in the federal plan and so must be built by local interests. See the associated non-federal project on page C-52.

The project includes a wide range of channel improvements—widening the HSC as described, deepening the HSC from Boggy Bayou to the Main Turning Basin, federalization of NFS improvements to Barbours Cut and BSC, and various bend easings and flare expansions.

Project Cost: $669,401,000

Federally Allocated Funds as of 2022: $162 M



Non-Federal Funds as of 2022: $400 M**

Key Waterway Facts

- #1 U.S. port for waterborne tonnage
- $802 billion in annual national economic value
- Handles more than 275 million tons of cargo annually, exceeding the next largest port by 50 million tons
- Serves the largest petrochemical complex in the nation
- 3.2 million port-related jobs

Project Benefits

As the busiest waterway in the U.S., the HSC serves a large and diverse group of users and, as a result, provides transit access for a varied vessel fleet. Project 11 will provide more safe and efficient vessel transit along HSC, reducing delays and increasing safety and economic growth. Benefits include:

- Reduced lightering for Very Large Crude Carriers
- Increased barge movement efficiency and safety
- Reduced one-way traffic and channel congestion
- Access to vessels longer than 1,200 feet via bend easings

Roughly $81.8 million from the total cost will be used to mitigate environmental impacts by placing dredge material to create 20 acres of new bird islands, 376 acres of displaced oyster reefs, and 800 acres of new marshes.

Project Readiness and Implementation

The project was authorized by WRDA 2020 and almost immediately received New Start designation to begin construction. The project received $1.13 million in the USACE FY20 work plan for pre-construction, engineering and design and the first dredging contract was awarded in 2021. In January 2022, the project was awarded $142.5 million as part of the Infrastructure Investment and Jobs Act to complete Segment 3 of the project, which focuses on the Barbours Cut Container Terminal section. In 2021, Port Houston authorized $400 million in bonds to support the HSC expansion program. Completion of the project is estimated in 2025.

Waterway Supported Port Facilities


Ro/Ro


Bulk


Fishing


Energy


Break Bulk


Container

GALVESTON HARBOR CHANNEL EXTENSION PROJECT

SCIRF Eligible

Project Details

Non-Federal Sponsor (NFS)	Port of Galveston
Project Authority	WRDA 2018
Channel Length (Current | Proposed)	3.8 miles | **3.8 miles**
Channel Depth [Ft, MLLW] (Current | Proposed)	46' | **46'** *Reach 1* 41' | **46'** *Reach 2*
Channel Width [Ft] (Current | Proposed)	1075' | **1075'** *Reach 1* 1085' | **1075'** *Reach 2*

Waterway and Project Description

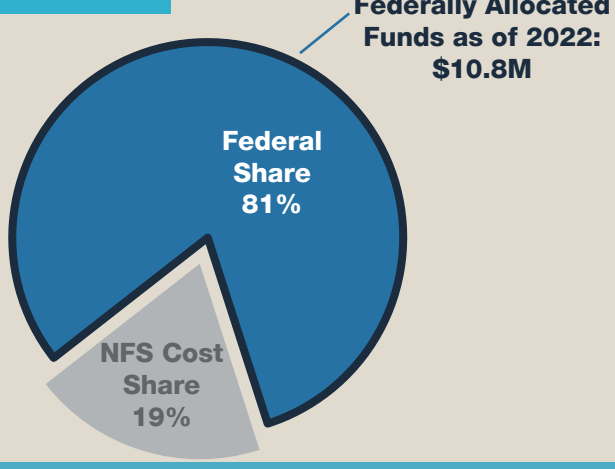
The Galveston Harbor Channel (GHC) is a unique deep-draft channel in that the traffic is composed of both cargo and cruise ships. The Port of Galveston is 4th busiest U.S. cruise port and is estimated to have an annual economic impact of $2.1 billion. The GHC is subdivided into two reaches. The first reach is 46 feet deep, intersects the Inner Bar Channel, and extends to Pier 38. The second reach is 41 feet deep and 2,571 feet long, extending from Pier 38 to 43rd Street.

The initial deepening of Reach 1 of the channel was completed in 2011. The remaining Reach 2 segment was deemed not economically justified at that time; however, increases in portside facilities utilizing that portion of the channel have now made the deepening economically beneficial.

The project proposes to deepen and expand the second reach, the westernmost 2,571 feet of the channel, from 41 feet to 46 feet. The deepening will allow this portion of the channel to accommodate larger cargo and cruise ships as the Port of Galveston continues to grow.

Project Cost: $13,400,000

Fully Funded



Key Waterway Facts

- $51.5 million in revenue in 2019
- 68% cargo ships and 32% cruise ships
- 4.3 million short tons of cargo annually
- 4th largest cruise port in US with 2.2 million cruise passengers in 2019
- Handles containerized cargo, grain, fertilizer, liquid, steel, livestock, and roll on/roll off
- 14,000 port-related jobs and $2.3 billion in economic impact

Project Benefits

Deepening the GHC will allow for larger vessels to enter the channel, creating greater efficiency and output for the Port of Galveston. The increased number of vessels and volume will result in greater economic impact for the local area and the state of Texas in addition to increased tax revenue at the local, state, and federal levels. USACE estimates the average annual benefit of the project to be $1.6 million. Although the coronavirus pandemic impacted the cruise market especially, the Port expects this market to recover in the future.

Project Readiness and Implementation

The Feasibility Study and Environmental Impact Statement were completed in 2016. The project was then authorized by WRDA 2018. Preconstruction, engineering and design of the channel deepening began in 2019. In March 2022, the project was awarded $10.8 million from USACE as part of the Infrastructure Bill, fully funding the project for construction.

Waterway Supported Port Facilities

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

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SCIRF Eligible

Texas Department of Transportation

Project Details

Non-Federal Sponsor (NFS)	Port Freeport
Project Authorization	WRRDA 2014
Channel Length (Current | Authorized)	9.2 miles | **11.9 miles**
Channel Depth [Ft, MLLW] (Current | Authorized)	N/A | **26'** *Reach 4* 46' | **51'** *Reaches 2, 3* 46' | **56'** *Reach 1* 48' | **58'** *Offshore*
Channel Width [Ft] (Current | Authorized)	400' | **400'** *Inshore* 600' | **600'** *Offshore*

Waterway and Project Description

The Freeport Harbor Channel (FHC) is a deep-draft navigation channel that connects industrial facilities in Freeport, Texas, with the Gulf of Mexico. The main channel consists of multiple segments, with reduced channel widths and depths as the channel approaches the 180 degree turn around the Dow complex. The channel also provides barge access through multiple adjacent waterways.

The authorized project will extend the existing Outer Bar Channel 1.3 miles further into the Gulf of Mexico while deepening it by 10 feet. It will also deepen the main channel by 10 feet and widen critical channel bends and turning basins. The middle segments of the channel will be deepened by 5 feet. The project will also reauthorize the upper portion of the channel, the section designated as Stauffer Channel, to open the potential for future work in that section.

Project Cost: $324,590,000

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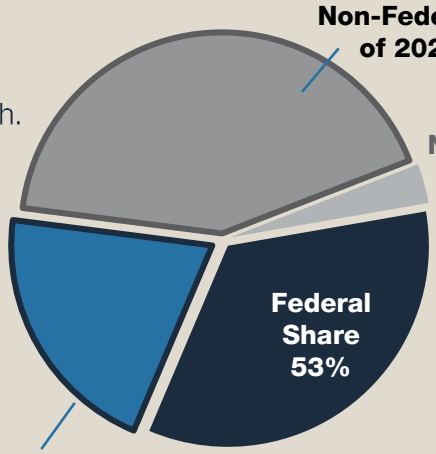


Key Waterway Facts

- $98.8 billion of economic activity annually for Texas
- 1,100 vessel calls in 2020
- 31 million tons of cargo carried annually
- #21 largest U.S. port in foreign trade
- #5 largest Texas port in total tonnage
- 151,000 port-related jobs
- Will be the deepest port in Texas after construction

Project Benefits

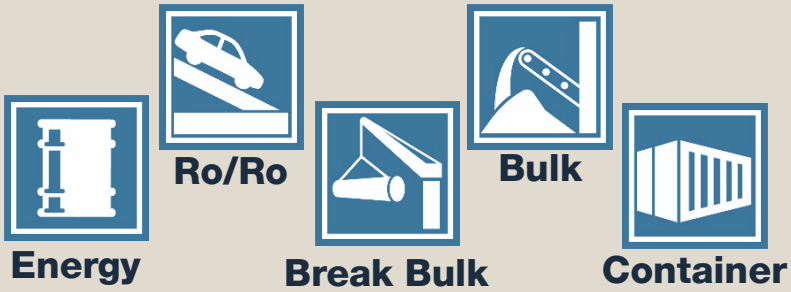
The Freeport Ship Channel supports a large oil and gas and petrochemical complex, which has invested over $27 billion in facility expansions. The project will support larger vessels and the expected 30%+ increase in vessels calling on FHC terminals. By increasing channel depth, vessels will be able to handle the growing import and export demand with greater efficiencies and more competitively serve Texas and Central America. Port Freeport has seen the jobs and economic impact from the facilities increase exponentially in the past 10 years. Providing waterway infrastructure to keep up with the growth will help attract additional economic investment and jobs in the region and state.

Project Readiness and Implementation

This project was authorized in WRRDA 2014 and is currently federally appropriated for construction. In May 2018, voters in the Port Freeport Navigation District approved a $130 million bond to support implementation of the project. In its FY21 Work Plan, USACE allocated an additional $24.9 million for construction.

Port Freeport and USACE signed a PPA in June 2020, moving the project into the construction phase. The first dredging contract to deepen Reach 3 to -51ft, was completed in November 2021. An $8.5 million contract for phase 2, the widening of Reach 2, was awarded in October 2021 and construction began in January 2022. It is anticipated that all project construction will be completed in 2024.

Waterway Supported Port Facilities



MATAGORDA SHIP CHANNEL IMPROVEMENT PROJECT

Federal
Funds
$1

SCIRF Eligible

Texas Department of Transportation

Project Details

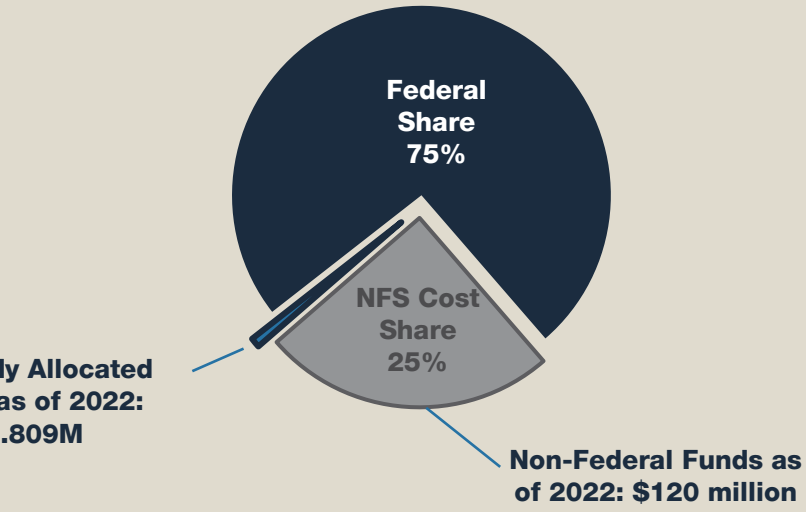
Non-Federal Sponsor (NFS)	Calhoun Port Authority
Project Authority	WRDA 2020
Channel Length (Current | Proposed)	26 miles | **28.5 miles**
Channel Depth [Ft, MLLW] (Current | Proposed)	38' | **47'** *Inshore* 40' | **49'** *Offshore*
Channel Width [Ft] (Current | Proposed)	200' | **300'** *Inshore* 300' | **550'** *Offshore*

Waterway and Project Description

The Matagorda Ship Channel (MSC) is a 26-mile federally authorized and maintained deep-draft waterway located in Calhoun and Matagorda counties. The channel provides access from the Gulf of Mexico to the Calhoun Port Authority (CPA) and accommodates shallow-draft vessels from Port Lavaca and the Port of Palacios. Most deep-draft users are located in the vicinity of the CPA facilities, which are located at the upstream terminus of the federal channel.

The USACE Chief's Report proposes adding a new 1,200-foot turning basin in the Lavaca Bay reach to accommodate the larger vessels; extending the entrance channel 13,000 feet into the Gulf of Mexico to allow for deepening to 49 feet; dredging a 1,600-foot-long sediment trap in the area of the offshore bar; widening the Entrance Channel from 300 to 550 feet and the Main Channel from 200 to 300 feet; deepening the Entrance Channel to 49 feet and the Main Channel to 47 feet.

Project Cost: $218,325,000



Key Waterway Facts

- $12.3 billion of economic activity
- $125.2 million in state and local taxes generated
- Supports 48,000 port-related jobs
- $2.6 billion created in overall personal income

Project Benefits

The existing channel was designed for vessels with loaded drafts of less than 38 feet and accommodates 25,000 to 30,000 deadweight ton (DWT) vessels. Under current market conditions, vessels up to 80,000 DWT access the channel and are required to light-load before entering the port. Once the improvements are completed, it is expected that the port will begin to see mid-size Aframax tankers, which will provide nearly double the tonnage capacity of the existing lightered Panamax vessels for transporting crude oil and petroleum products. Deepening and widening the channel will reduce lightering, reduce navigation costs, increase port efficiencies, and produce large amounts of sediments for beneficial use.

Project Readiness and Implementation

The Feasibility Report and Environmental Impact Statement were completed in August 2019 and the USACE Chief's Report was signed in December 2019. The project was ultimately authorized by WRDA 2020. The project is currently in the preconstruction, engineering, and design phase, having been awarded $1,809,000 in the USACE FY21 Work Plan.

In 2021, the Calhoun Port Authority entered a public-private partnership with Max Midstream to invest $360 million into the channel and other capital improvements. In June 2021, the CPA approved issuance of $120 million dollars in bonds to begin channel upgrades, including dock and wharf modifications ancillary to the federal project. Construction of the project will require dredging an estimated 20 million cubic yards of new work material that will be used to create islands, widen beaches, and more. Bidding and initiation of dredging is anticipated to begin in July 2022. Construction is anticipated to completed by the end of 2023.

Waterway Supported Port Facilities

Energy

Break Bulk

Bulk

CORPUS CHRISTI SHIP CHANNEL IMPROVEMENT PROJECT

SCIRF Eligible

Texas Department of Transportation

Project Details

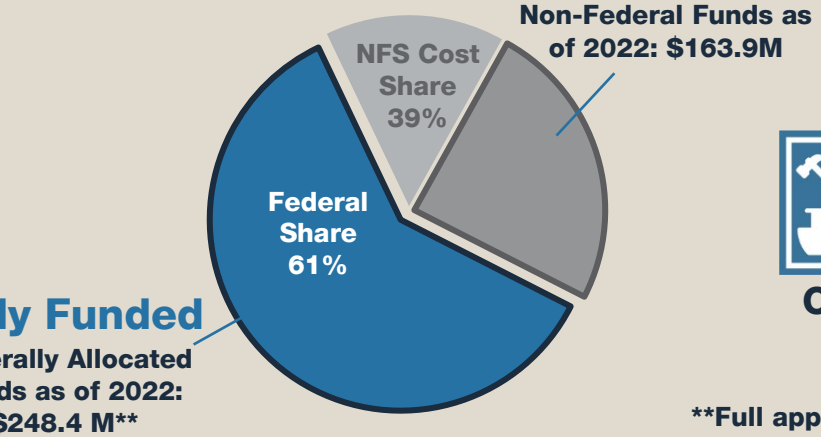
Non-Federal Sponsor (NFS)	Port of Corpus Christi Authority
Project Authorization	WRDA 2007 WRDA 2014 WRDA 2020 *Project Re-Authorized at Updated Costs*
Channel Length (Current | Authorized)	36 miles | **38 miles**
Channel Depth [Ft, MLLW] (Current | Authorized)	N/A | **14'** *Barge Lanes* 47' | **54'** *Upper/Lower Bay* 49' | **56'** *Offshore*
Channel Width [Ft] (Current | Authorized)	400' | **530'** *+400' for Barge Lanes* 700' | **700'** *Offshore*

Waterway and Project Description

The Corpus Christi Ship Channel (CCSC) provides deep water access from the Gulf of Mexico to the Port of Corpus Christi via Port Aransas, Redfish Bay, and Corpus Christi Bay. Access points include the La Quinta Channel, the Gulf Intracoastal Waterway, and the Rincon Canal. The CCSC extends from the Gulf of Mexico through the Port Aransas jettied entrance to the Corpus Christi Turning Basin and the landlocked industrial areas within the city known as the Inner Harbor.

The authorized project will deepen the Corpus Christi Ship Channel from the Gulf of Mexico to the Viola Turning Basin in the Inner Harbor. The channel will be widened to 530 feet in the Upper and Lower Bay reaches, and the offshore reach will be deepened to 56 feet. Barge lanes will be constructed from the CCSC junction with the La Quinta Channel to the entrance of the channel at the Inner Harbor and will be 200 feet wide and 14 feet deep on both sides of the CCSC.

Project Cost: $681,610,000



Key Waterway Facts

- #1 crude oil export port in the U.S.
- $150 billion of economic activity generated for the U.S.
- 167.3 million annual tonnage in 2021, up 4.7% from 2020
- $55 billion in private, regional investment generated in 2020
- 98,000 port-related jobs
- $1.08 billion in total assets
- #1 U.S. port by total revenue tonnage

Project Benefits

The Corpus Christi Ship Channel Improvement project is expected to add nearly $40 billion in incremental goods value exports. The project will provide $148 million in annual transportation cost savings. The addition of the two 200-foot barge shelves will reduce traffic conflicts between deep-draft vessels and barges while enabling more efficient movement of cargo. The project will provide dredge material to create 100+ acres of wetlands and 50+ miles of shoreline stabilization as part of a beneficial use program.

Project Readiness and Implementation

This project was re-authorized in WRDA 2020 at the updated project cost. In FY22, $157.26 million was included in the President's budget for the full funding of the remainder of the Port of Corpus Christi Ship Channel Improvement Project. As of 2022, the Port Authority has supplied $163.9 million for its portion of the total project cost share with the Federal government appropriating $405.7 million and allocating $248.4 million thus far.

Construction of Phase 1, the Offshore reach, was completed March 2020. Phase 2, awarded in April 2020, will improve the Lower Bay reach, and Phase 3, awarded in September 2021, will improve the Upper Bay reach. Both are currently under construction. Phase 4, which will improve the inner harbor, is expected to be awarded in 2022, and the full project is expected to be complete in 2023.

Waterway Supported Port Facilities

****Full appropriations have been made in the amount of $405.7 million**

**Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.*

BRAZOS ISLAND HARBOR CHANNEL IMPROVEMENT PROJECT

SCIRF Eligible

Texas Department of Transportation

Project Details

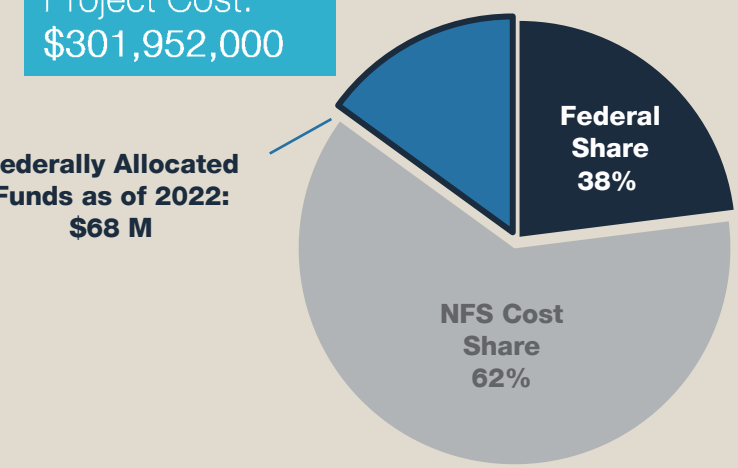
Non-Federal Sponsor (NFS)	Brownsville Navigation District (Port of Brownsville)
Project Authorization	WRDA 2016
Channel Length (Current | Authorized)	19.4 miles | **20.2 miles**
Channel Depth [Ft, MLLW] (Current | Authorized)	42' | **52'** *Inshore* 44' | **54'** *Offshore*
Channel Width [Ft] (Current | Authorized)	250' | **250'**

Waterway and Project Description

The Brazos Island Harbor (BIH) Channel, also known as the Brownsville Ship Channel, is an existing deep-draft navigation project located on the lower Texas coast, serving as the southernmost navigation channel in Texas. The channel passes south of South Padre Island through the mile-long jetties protecting the inlet from the Gulf of Mexico at Brazos Santiago Pass. The BIH Channel also serves as the southern origin of the Texas Gulf Intracoastal Waterway (GIWW), making BIH the gateway for movement of goods in and out of Mexico, a key trade partner for Texas.

The BIH Channel is the only deep-draft channel south of Corpus Christi. The authorized project will deepen the waterway by 10 feet and extend the channel 0.8 miles further into the Gulf of Mexico. The first 2 miles of dredging will provide beneficial use material that will be placed to enhance the South Padre Island beach and dune system, providing recreational and tourism benefits to the region. Construction of the authorized project will require dredging of an estimated 14.1 million cubic yards of new work material.

Project Cost: $301,952,000



Key Waterway Facts

- #2 foreign trade zone in the U.S. by value of exported commodities
- 11.6 million tons of diverse cargo in 2020
- $3 billion of economic activity for Texas
- 44,000 port-related jobs
- Operating revenues of $37 million in 2020
- The center of the U.S. ship-recycling industry and only U.S. port with EU ship recycling accreditation

Project Benefits

The Port has grown tremendously since its last improvement project authorized in 1980. Expanding and deepening the channel by 10 feet will keep Texas competitive with other U.S. ports and greatly improve the navigation efficiency of deep draft vessels and offshore oil rigs. The project will increase tax revenue, better manage waterway traffic, and stimulate economic development by allowing larger vessels access to the port and reducing the need to light load existing vessels.

Project Readiness and Implementation

This project was authorized in WRDA 2016. The Port of Brownsville is currently seeking federal appropriations for construction. In March 2022, USACE allocated $68 million for the completion of the deepening.

In 2019, the Port entered a public-private partnership with NextDecade to fund the ship channel deepening from the Gulf of Mexico to the western boundary of the company's proposed Rio Grande LNG project site at the Port of Brownsville. However, in early 2022, NextDecade deferred its investment decision on the LNG export facility that would bring in the revenues to support its interest in deepening the channel until late 2022.

Preconstruction engineering and design is complete, and the project was permitted in June 2019. Construction on Phase 1, including the federal approach from the Gulf of Mexico and the first 8 miles of improvements, could begin as early as 2022 and extend into 2025. Construction of Phase 2, consisting of the remainder of the channel, could begin in early 2023.

Waterway Supported Port Facilities

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Texas Department of Transportation

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*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.

LA QUINTA CHANNEL EXPANSION FEASIBILITY STUDY

Project Details

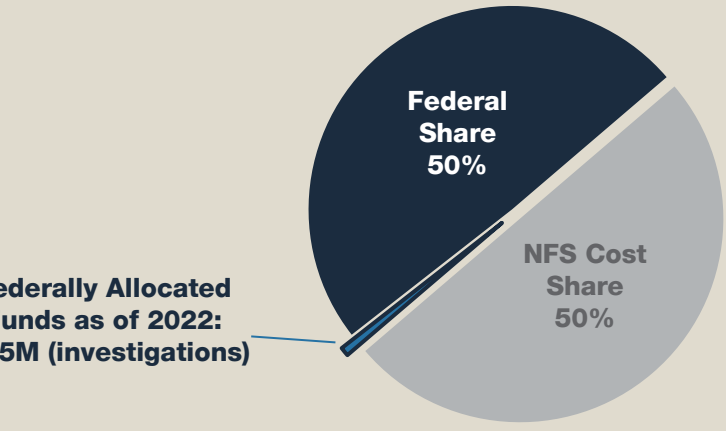
Non-Federal Sponsor (NFS)	Port of Corpus Christi Authority
Study Authority	Section 203
Channel Length (Current | Proposed)	7 miles | 7 miles
Channel Depth [Ft, MLLW] (Current | Proposed)	47'| 54'
Channel Width [Ft] (Current | Proposed)	400' | 400'

Waterway and Project Description

The La Quinta Channel (LQC) is a 7-mile-long channel intersecting the Corpus Christi Ship Channel (CCSC). The existing LQC configuration prevents deep-draft vessel use of the channel, which results in delaying in transiting the channel and restricts vessel movements. The Port of Corpus Christi Authority's (PCCA) goal is to deepen the LQC from 47 feet to 54 feet to match the current authorized depth of the CCSC.

PCCA is evaluating the feasibility of deepening the channel while maintaining its current width of 400 feet. Bend easing modifications to the channel junction of the LQC and CCSC to allow for easier vessel transitions is also being considered as an additional feature to either alternative.

Project Cost: $212,000,000



Key Waterway Facts

- #3 largest U.S. port by total tonnage
- #2 largest U.S. port in exports and total foreign tonnage
- #1 U.S. port by total revenue tonnage
- Services the 1,100-acre La Quinta Trade Gateway Terminal greenfield site, including three docks, nine ship-to-shore cranes, and an intermodal rail yard

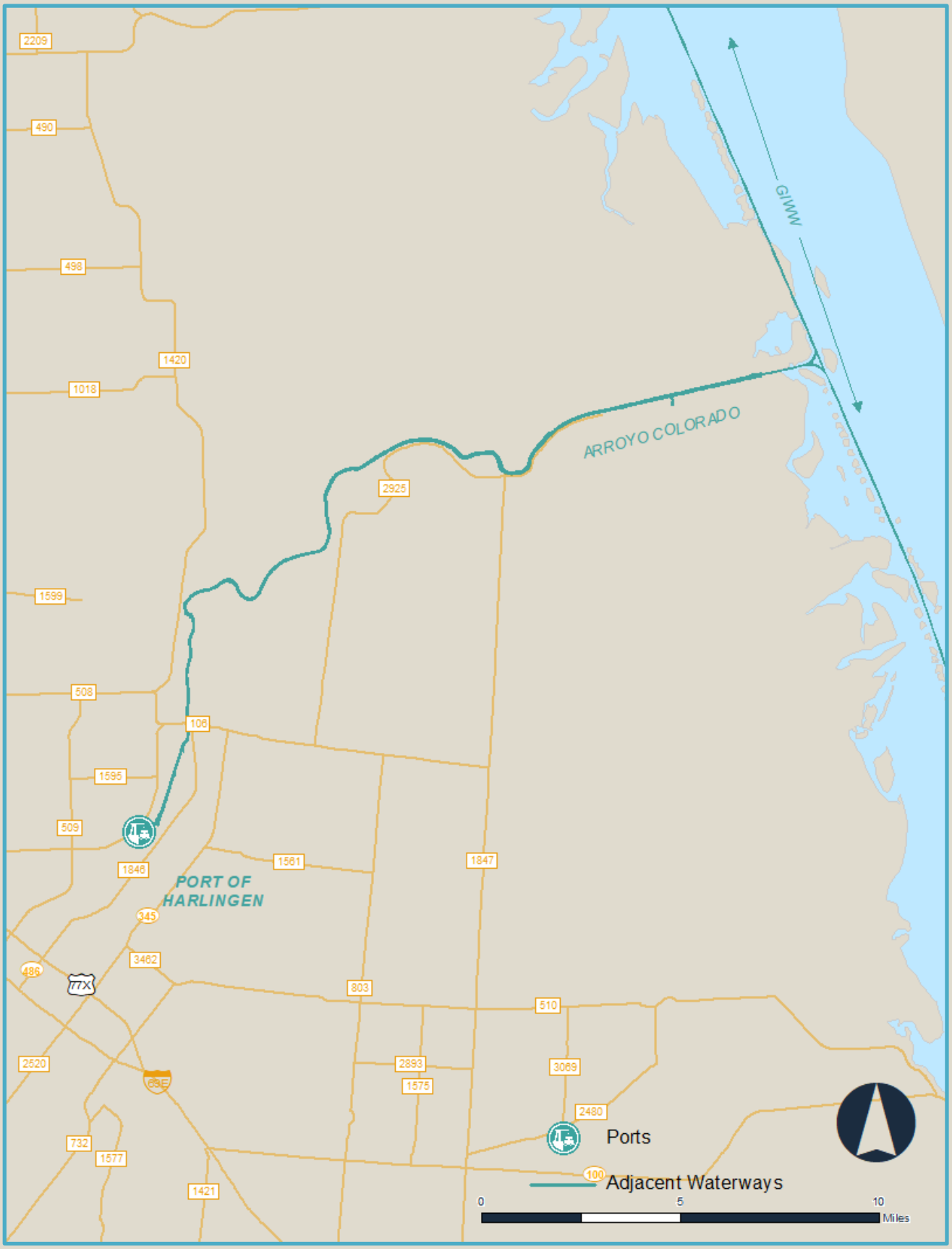
Project Benefits

The project's objective by deepening and widening the channel is to allow for the use of larger, more efficient vessels in the LQC, reducing delays in the channel. Improvements to the channel will benefit the economy and contribute to safe, reliable, and efficient travel in the channel. The proposed improvements will expand turning basins and bend easings to accommodate the larger vessels. By increasing efficiency, transportation costs of deep draft vessels will be reduced. Material resulting from the project would be beneficially used for environmental placement.

Project Readiness and Implementation

The Feasibility Study has been partially completed. The project has received $1.5 million in funding for investigations to complete the study from the USACE since 2018 in its FY18 and FY19 Work Plans.

Waterway Supported Port Facilities



East and
Strategic

Project Details

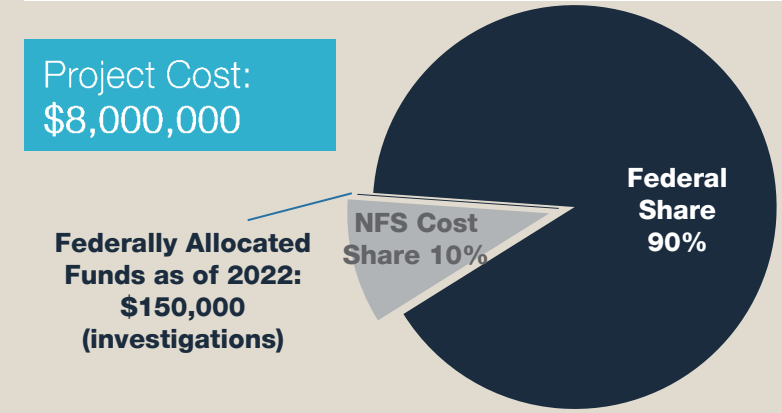
Non-Federal Sponsor (NFS)	Port of Harlingen Authority
Study Authority	Section 107 of the River and Harbor Act of 1960

Waterway and Project Description

The Port of Harlingen Authority is located near the southernmost tip of Texas on the Arroyo Colorado River. The Port is 25 miles inland of the GIWW and provides a key link for shallow-draft transport of goods exchanged between Texas and Mexico. The Port has experienced rapid growth in the past several years, seeing a 91% increase in vessel traffic from 2017 to 2020 due in large part to the expansion of the Panama Canal in 2016. With this growth comes the need for improvements to allow for the increased traffic to use the port safely and efficiently.

The Port of Harlingen is proposing to expand its existing turning basins, which would consist of widening the East Basin by approximately 7 acres and the West Basin by approximately 2 acres. The expansion would allow for the possibility of an expanded pier and additional waterfront property available for future tenants.

Project Cost: $8,000,000



d West turning basin expansion plans from the Port of Harlingen c Master Plan (2019)

Key Waterway Facts

- Crucial trade hub connecting Texas and Mexico
- 2021 total tonnage over 3 million tons
- 70% of commodities handled at the Port are petroleum
- 166% growth in waterborne tonnage between 2017 and 2021
- 520% increase in vessel calls between 2017 and 2021

Project Benefits

The expansion of the turning basins would improve the efficiency and safety of barges as the traffic and goods transported through the port continues to grow. These improvements would allow for better, more efficient and safer maneuverability of barge traffic.

Currently the Port has only 2.5 acres of land with waterfront access and two tracts totaling 28 acres with dock access near the existing turning basin. The lack of desirable waterfront land has placed the Port of Harlingen out of the running for major tenants looking for premium access to this waterway. Expanding the turning basin would provide additional waterfront access for opportunities the Port was previously unable to take advantage of, as well as provide space for additional dock access.

Project Readiness and Implementation

In January 2022, the Port of Harlingen received $150,000 from the Infrastructure Investment and Jobs Act, allowing the feasibility study to begin. It is expected that the project will take between 3 to 5 years to be completed.

Waterway Supported Port Facilities

Energy **Bulk** **Break Bulk**

Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.

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*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.

PORT OF PORT ARTHUR BERTH 6 EXPANSION PROJECT (NON-FEDERAL)

Project Details

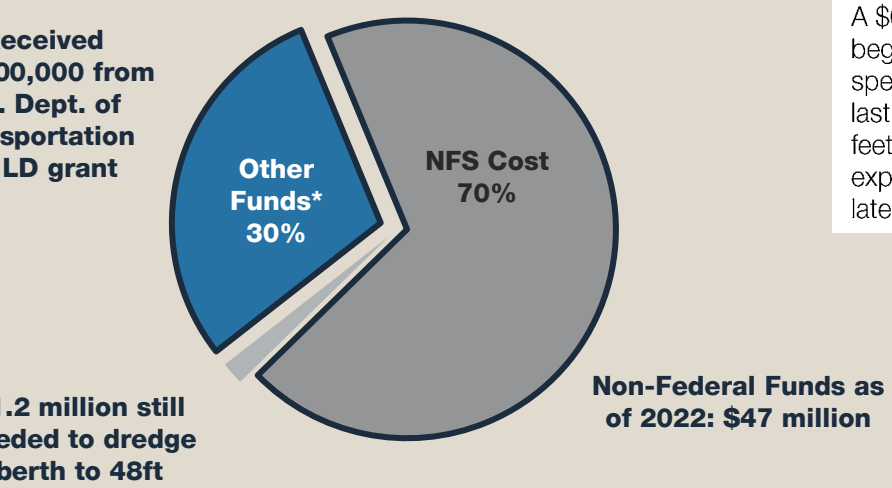
Non-Federal Sponsor (NFS)	Port of Port Arthur

Waterway and Project Description

The Sabine-Neches Waterway (SNWW) is an approximately 64-mile federally authorized and maintained waterway located in Jefferson and Orange counties in southeast Texas. The system connecting to the Port of Port Arthur includes Sabine Pass, the Port Arthur Ship Canal, and the Sabine-Neches Canal. Currently, the SNWW is being deepened by 8 feet (from 40 feet to 48 feet) and extended 13 miles into the Gulf of Mexico as part of a federally authorized project.

To connect to the SNWW and accommodate for the full channel deepening, the Port of Port Arthur is expanding Berth 6, creating a new 1,000-foot-long dock, and deepening the port's canal to add capacity and increase berth capability for larger ships. This project will construct Berth 6 as a crane-capable, pile-supported wharf, including a tied-back bulkhead and a cargo-handling laydown area. The current dredging design calls for dredging to a depth of 48 feet; ultimately, the depth will need to be increased to 52 feet, as the dock has been designed to accommodate the deeper SNWW, which will require a virgin cut.

Project Cost: $68,200,000



Key Waterway Facts

- A designated U.S. Strategic Seaport, more than 11,000 pieces of military equipment passed through the port in 2020
- 100,000 direct and indirect jobs provided
- $15.4 billion in gross domestic product in 2018
- $22.9 billion in total trade in 2018
- Exported over 25 million barrels of low-sulfur diesel in 2020

Project Benefits

The Port of Port Arthur is a multimodal port, moving diverse cargo by rail, ship, barge, truck, and pipeline. The Port has grown rapidly from its existing businesses and is expecting even greater vessel traffic from the deepening and expansion of the SNWW. Part of the increased traffic will include larger vessels that can be accommodated by the deeper channel.

The construction of Berth 6 at the Port of Port Arthur will create significant additional berthing capacity, increasing the capability for more and new types of cargo to pass through the port. The construction of the berth will also allow cargo to go straight off the ship and directly onto rail or other modes of transportation, and vice versa, allowing for more efficient passage of goods throughout the port.

Project Readiness and Implementation

In December 2018, Port of Port Arthur received $20 million from the U.S. Department of Transportation's BUILD grant program. A $67 million contract was awarded in September 2021 to begin construction of the project, dredging to the current design specified 46-foot depth. Construction of the dock began in the last quarter of 2021. Currently, the deepening of the berth to 48 feet is not funded and is estimated to cost $1.2 million. It is expected that construction of the full project will be complete in late 2024.

Drone photo showing construction progress at Berth 6.

PORT OF PORT ARTHUR BERTHS 1-2 EXPANSION PROJECT (NON-FEDERAL)

Project Details

Non-Federal Sponsor (NFS)	Port of Port Arthur

Waterway and Project Description

The Sabine-Neches Waterway (SNWW) is an approximately 64-mile federally authorized and maintained waterway located in Jefferson and Orange counties in southeast Texas. The system connecting to the Port of Port Arthur includes Sabine Pass, the Port Arthur Ship Canal, and the Sabine-Neches Canal. Currently, the SNWW is being deepened by 8 feet (from 40 feet to 48 feet) and extended 13 miles into the Gulf of Mexico as part of a federally authorized project.

To connect to the SNWW and accommodate for the full channel deepening, the Port of Port Arthur is expanding Berths 1 and 2 by deepening the port's canal to 48 feet at the 1,500-foot-long berth. This will add capacity and increase berth capability for the larger ships that will be traversing the main channel. The dock's design to accommodate the deeper SNWW will require a virgin cut.

Project Cost: $1,300,000

Key Waterway Facts

- A designated U.S. Strategic Seaport, more than 11,000 pieces of military equipment passed through the port in 2020
- 100,000 direct and indirect jobs provided
- $15.4 billion in gross domestic product in 2018
- $22.9 billion in total trade in 2018
- Exported over 25 million barrels of low-sulfur diesel in 2020

Project Benefits

The Port of Port Arthur is a multimodal port, moving diverse cargo by rail, ship, barge, truck, and pipeline. The Port has grown rapidly from its existing businesses and is expecting even greater vessel traffic from the deepening and expansion of the SNWW. Part of the increased traffic will include larger vessels that can be accommodated by the deeper channel. This project will allow the Port of Port Arthur to take full advantage of the increased depth of the main channel.

Project Readiness and Implementation

Currently, the deepening of Berths 1 and 2 to 48 feet is not funded and is estimated to cost $1.3 million. It is expected that construction of the full project will be complete in late 2024.

This project would require the Port to construct approximately 1,500 feet of sheetpile toe wall on its existing docks, at a cost of $22+ million, to support the added channel depth. The toe wall is not currently funded. Refer to the Port Capital section for more information on that related project.

PORT OF PORT ARTHUR BERTHS 3-5 EXPANSION PROJECT (NON-FEDERAL)

Project Details

Non-Federal Sponsor (NFS)	Port of Port Arthur

Waterway and Project Description

The Sabine-Neches Waterway (SNWW) is an approximately 64-mile federally authorized and maintained waterway located in Jefferson and Orange counties in southeast Texas. The system connecting to the Port of Port Arthur includes Sabine Pass, the Port Arthur Ship Canal, and the Sabine-Neches Canal. Currently, the SNWW is being deepened by 8 feet (from 40 feet to 48 feet) and extended 13 miles into the Gulf of Mexico as part of a federally authorized project.

To connect to the SNWW and accommodate for the full channel deepening, the Port of Port Arthur is expanding Berths 3, 4, and 5 by deepening the port's canal to 48 feet at the 2,300-foot-long berth. This will add capacity and increase berth capability for the larger ships that will be traversing the main channel. The dock's design to accommodate the deeper SNWW will require a virgin cut.

Project Cost: $2,100,000

Key Waterway Facts

- A designated U.S. Strategic Seaport, more than 11,000 pieces of military equipment passed through the port in 2020
- 100,000 direct and indirect jobs provided
- $15.4 billion in gross domestic product in 2018
- $22.9 billion in total trade in 2018
- Exported over 25 million barrels of low-sulfur diesel in 2020

Project Benefits

The Port of Port Arthur is a multimodal port, moving diverse cargo by rail, ship, barge, truck, and pipeline. The Port has grown rapidly from its existing businesses and is expecting even greater vessel traffic from the deepening and expansion of the SNWW. Part of the increased traffic will include larger vessels that can be accommodated by the deeper channel. This project will allow the Port of Port Arthur to take full advantage of the increased depth of the main channel.

Project Readiness and Implementation

Currently, the deepening of Berths 3, 4, and 5 to 48 feet is not funded and is estimated to cost $2.1 million. It is expected that construction of the full project will be complete in late 2024.

This project would require the Port to construct approximately 2,000 feet of sheetpile toe wall on its existing docks, at a cost of $30+ million, to support the added channel depth. The toe wall is not currently funded. Refer to the Port Capital section for more information on that related project.

SABINE PASS PORT AUTHORITY DOCK EXTENSION (NON-FEDERAL)

Project Details

Non-Federal Sponsor (NFS)	Sabine Pass Port Authority

Waterway and Project Description

The Sabine-Neches Waterway (SNWW) is an approximately 64-mile federally authorized and maintained waterway located in Jefferson and Orange counties in southeast Texas. The area surrounding the waterway contains four different deep draft ports, the ports of Beaumont, Port Arthur, Sabine Pass, and Orange. The system includes Sabine Pass, the Port Arthur Ship Canal, the Sabine-Neches Canal, and the Neches River. Sabine Pass is stabilized by jetties that extend 4.1 miles into the Gulf of Mexico.

The Sabine Pass Port Authority (SPPA) proposes creating a new large docking space to be able to accommodate barge traffic and provide additional vessel slips. SPPA is currently at 100% lease capacity for its existing dock space and has a waiting list for future users. The new dock will be located 65 feet from the existing shoreline, extending out toward the SNWW and then 400 feet south. The water depth at the new dock will be approximately 18-22 feet, and this project will support deepening the dock location to match the existing channel depth and provide sufficient access to the new dock.

Project Cost: $4,500,000

Key Waterway Facts

- #1 bulk liquid cargo waterway in the U.S.
- Holds 55% of the nation's strategic petroleum reserves
- 194 million tons of cargo annually
- $40 billion in gross product
- 375,000 permanent jobs provided

Project Benefits

SPPA is looking to diversify the shallow-draft industries and priorities they support, which include industrial laydown yards, marine vessel repairs, and fueling facilities. Expanding the existing dock will allow for more vessels to dock and utilize the SNWW. The project will also benefit the commercial shrimping industry. Even with construction of the new dock being in its initial phases, there is already a waiting list for the docking space, illustrating the increase in demand for docking space along the SNWW.

Project Readiness and Implementation

The project is in initial planning phases and is seeking funding for design and construction.

Dock extension layout provided by SPPA.

HOUSTON SHIP CHANNEL EXPANSION SEGMENTS 1B AND 1C (NON-FEDERAL)

Project Details

Non-Federal Sponsor (NFS)	Port of Houston Authority
Channel Length (Current | Proposed)	13 miles | **13 miles***
Channel Width [Ft] (Current | Proposed)	530' | **700'**

**Total length of the Houston Ship Channel Expansion Project is 52 miles. The non-federal portion of the channel improvements totals 13 miles.*

Waterway and Project Description

The Houston Ship Channel (HSC) crosses portions of Harris, Galveston, and Chambers counties. In addition to the main 52-mile-long channel, the HSC system facilitates four deep-draft tributary channels and several shallow-draft channels and cuts.

The HSC Expansion Project, referred to as Project 11 since it is the 11th improvement project in the history of the waterway, will widen the HSC to 700 feet from Bolivar Roads to Barbours Cut. Project 11 is addressed as six unique segments: four segments in the main channel, plus Barbours Cut and Bayport Ship Channel (BSC).

Two segments, from Redfish Island to BSC (Segment 1B) and from BSC to the Barbours Cut Ship Channel (Segment 1C), though not in the federal plan are critical to assure safe and efficient use of the HSC. This portion is the Locally Preferred Plan (LPP) and must be constructed by local interests.

The segment from Redfish Island to BSC is approximately 10 miles in length. This segment will be widened to a minimum of 700 feet with added bend easings. The segment from BSC to Barbours Cut is approximately 5 miles in length and will also be widened to 700 feet.

Project Cost: $339,128,000

Key Waterway Facts

- #1 U.S. port for waterborne tonnage
- $802 billion in annual national economic value
- Handles more than 275 million tons of cargo annually, exceeding the next largest port by 50 million tons
- Serves the largest petrochemical complex in the nation
- 3.2 million port-related jobs

Project Benefits

As the busiest waterway in the U.S., the HSC serves a large and diverse group of users and, as a result, provides transit access for a varied vessel fleet. Project 11 will provide more safe and efficient vessel transit along HSC, reducing delays and increasing safety and economic growth.

Environmental impacts of the construction of the two non-federal sections will be offset by constructing three bird islands, creating marshes in Galveston Bay, and mitigating for oyster habitat loss.

Project Readiness and Implementation

In an average year, Port Houston spends $250 to $300 million for future improvement projects. The Port in its 2022 Capital Investment Program anticipates that $460 million will be awarded to construct portions of Project 11, including the non-federal channel improvements for Segments 1B and 1C. Completion of the project is estimated in 2024.

GALVESTON HARBOR CHANNEL TURNING BASIN IMPROVEMENTS (NON-FEDERAL)

Project Details

Non-Federal Sponsor (NFS)	Port of Galveston

Waterway and Project Description

The Galveston Harbor Channel (GHC) is a unique deep-draft channel in that the traffic is composed of both cargo and cruise ships. The Port of Galveston is the 4th busiest U.S. cruise port and is estimated to have an annual economic impact of $2.1 billion.

To meet market demands and allow larger vessels to use the channel, the Port of Galveston identified the need for two new turning basins. The first turning basin will be the Western Turning Circle, located approximately 2/3 of the way into the channel, primarily for Suezmax vessels calling at the Texas International Terminals. Currently, cargo vessels at the part of the channel are having difficulties turning in this part of the channel. The second turning basin would be located at the East End. The port currently has a 1,400-foot turning basin off of Pier 10. This would be expanded through the Cruise Terminal 10 project to 1,500 feet; however, pilots utilizing the turning basin are recommending an expansion to as much as 1,700 feet. A portion of this basin would use the federal channel and there is a possibility that this project will become a federal project in the future.

Project Cost: $10-15 million

Key Waterway Facts

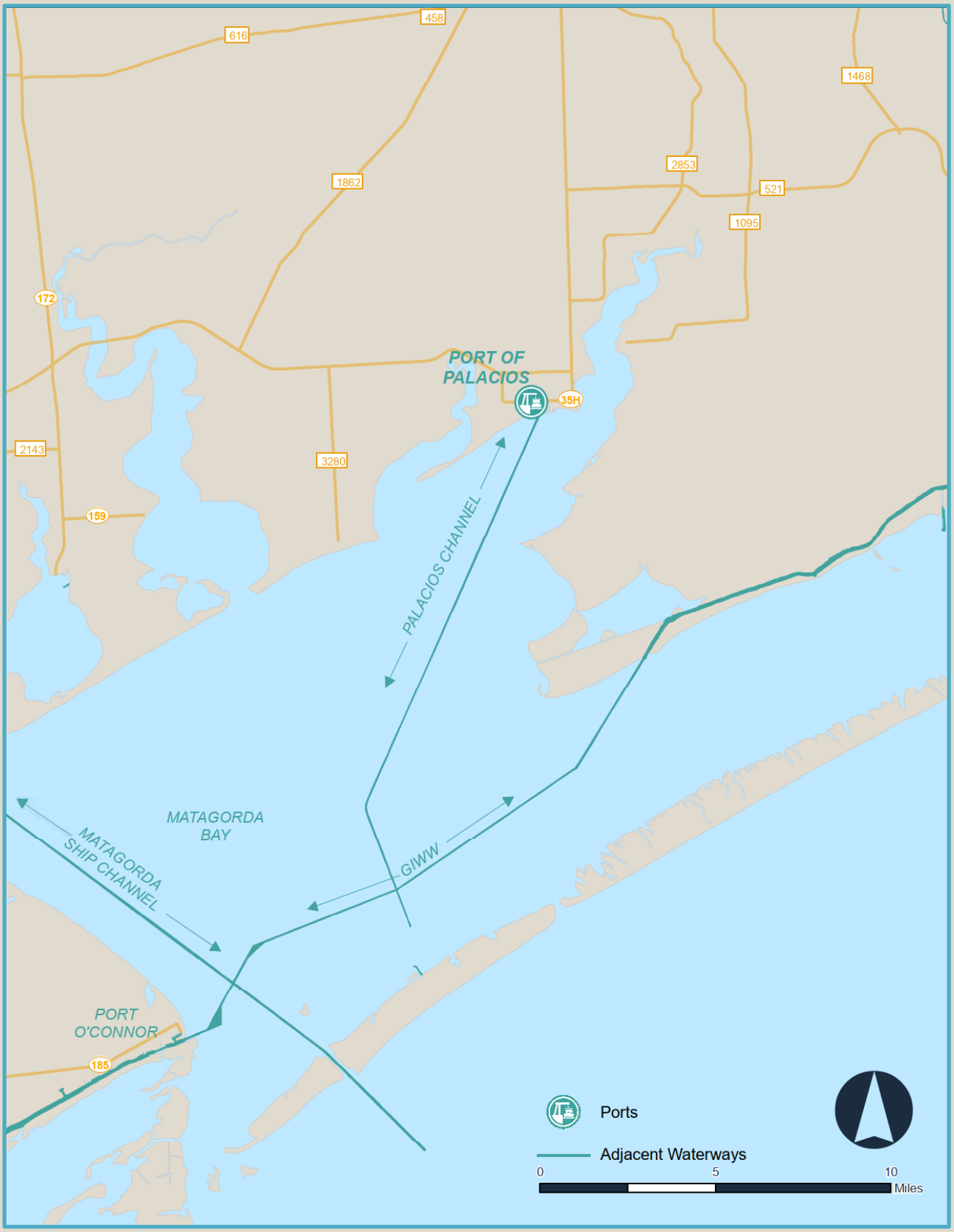
- 68% cargo ships and 32% cruise ships
- 4.3 million short tons of cargo annually
- 4th largest cruise port in US with 2.2 million cruise passengers in 2019
- 14,000 port-related jobs and $2.3 billion in economic impact

Project Benefits

As traffic increases in the GHC, the ability for large vessels to safely and efficiently transit the channel becomes even more vital. Currently, cruise ships can utilize the existing turning basin, but larger cargo vessels face challenges. By creating the two new turning basins, large Suezmax vessels will be able to better navigate the channel, allowing for greater economic growth in the area and greater safety for ships and pilots.

Project Readiness and Implementation

The project is in initial planning stages and is awaiting a Feasibility Study and Environmental Impact Statement.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Project Details

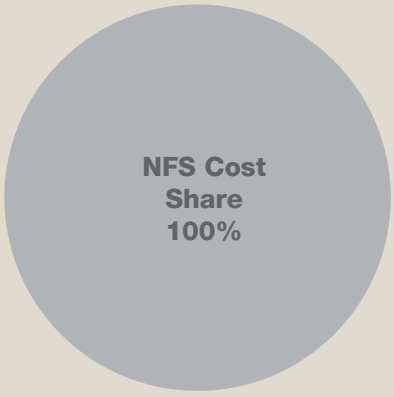
Non-Federal Sponsor (NFS)	Matagorda County Navigation District No. 1 (Port of Palacios)
Study Authority	Section 107 of the River and Harbor Act of 1960

Waterway and Project Description

The Port of Palacios is primarily a shallow-draft port for commercial fishing, with the shrimping industry being an economic engine for the Matagorda region. The port is accessible by the Gulf Intracoastal Waterway, which is federally maintained at a 125-foot width and 12-foot depth, via the Palacios Channel which is 400 feet wide and 12 feet deep. The harbor consists of four turning basins containing over 13,000 feet of linear dock.

Although the configuration of the Palacios Channel does not currently allow for barge capabilities, the Port of Palacios is looking to expand its services by improving its channel. As part of this effort, the Port is seeking to expand Turning Basin No. 4 with USACE through Section 107 of the River and Harbor Act of 1960. Turning Basin No. 4 currently receives and moors fishing vessels. The turning basin has a berthing distance of 2,800 feet and an alongside depth of 9 feet. This expansion project would transform the turning basin from an "L" shape to a "T" shape, allowing for barge maneuvering to occur.

Project Cost: $8,000,000



Key Waterway Facts

- Primarily supports commercial shrimping industry
- Over 14 million tons of shrimp were caught in 2020
- Supports fishing, tourism, and shipbuilding industries (tugboats, barges, and ferries)
- $41.2 million annual economic impact
- Provides safe harbor for commercial fishermen from Texas and other Gulf coast states during storms

Project Benefits

Expanding the turning basins to provide a safe and navigable waterway within the current footprint would allow for barge traffic to safely and efficiently use the Palacios Channel as the port continues to grow. The project would improve the Port's ability to service TxDOT ferries and other commercial vessels.

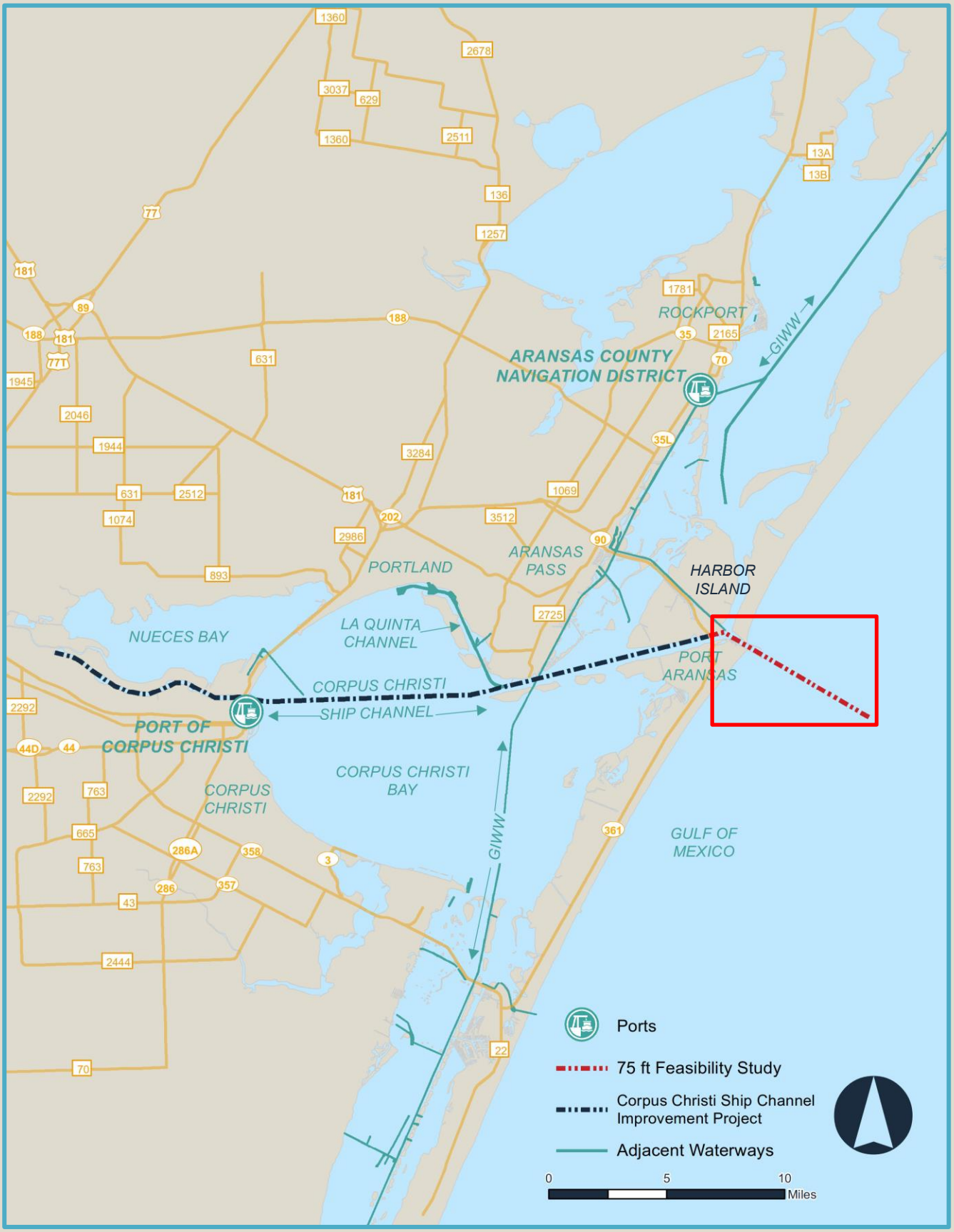
Project Readiness and Implementation

The Port of Palacios submitted a letter of intent to the USACE in early 2022, with hopes of receiving funding in the USACE FY23 Work Plan.

Waterway Supported Port Facilities

Fishing **Bulk** **Other**

Port of Palacios dockage facilities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GIWW
PORTLAND
ARANSAS PASS
HARBOR ISLAND
NUECES BAY
LA QUINTA CHANNEL
CORPUS CHRISTI SHIP CHANNEL
PORT ARANSAS
PORT OF CORPUS CHRISTI
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Texas Department of Transportation

Project Details

Non-Federal Sponsor (NFS)	Port of Corpus Christi Authority
Channel Length (Current | Proposed)	36 miles | **49 miles**
Channel Depth [Ft, MLLW] (Current | Proposed)	54' *Ongoing* | **75'** *Channel* 56' *Ongoing* | **77'** *Offshore*
Channel Width [Ft] (Current | Proposed)	530' | **530'** *Inshore* 700' | **700'** *Offshore*

Waterway and Project Description

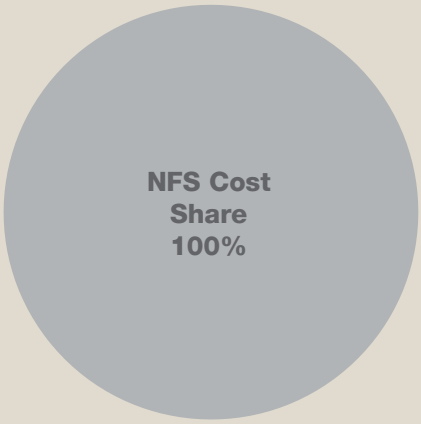
The Corpus Christi Ship Channel (CCSC) is currently authorized for deepening improvements as part of the 54-foot CCSC Improvement Project. The feasibility study for the 54-foot project was developed in 1990 but the project was not authorized by Congress until the 2007 WRDA. Foreseeing that the timeline for future construction could be decades, the Port of Corpus Christi Authority (PCCA) is conducting a new study concurrent with the 54-foot improvements to deepen the channel to 75 feet.

The main goal of the new study will be to allow PCCA to increase crude oil export efficiency from a proposed terminal at Harbor Island by eliminating or reducing light loading and accommodating fully-laden, larger vessels, such as Very Large Crude Carriers. It is expected that the channel depth with range from 75 feet in the channel to 77 feet offshore. To facilitate the deepening, the entrance channel will be extended an additional 10 miles into the Gulf of Mexico. No channel widening is expected.

PCCA has not received federal authorization for the 75-foot project study and is working to complete the study independently.

Project Cost: $525,000,000**

***Expected first construction cost provided by PCCA*



Key Waterway Facts

- #1 crude oil export port in the U.S.
- $150 billion of economic activity generated for the U.S.
- 167.3 million annual tonnage in 2021, up 4.7% from 2020
- $55 billion in private, regional investment generated in 2020
- Over 76,000 direct and indirect jobs
- $1.08 billion in total assets

Project Benefits

A full benefit-cost analysis has not yet been developed for this project. Qualitatively, the project is expected to eliminate or reduce the need for light-loading, thus increasing the efficiency of export facilities, reducing vessel congestion in the channel, and increasing the total tonnage moved through the port.

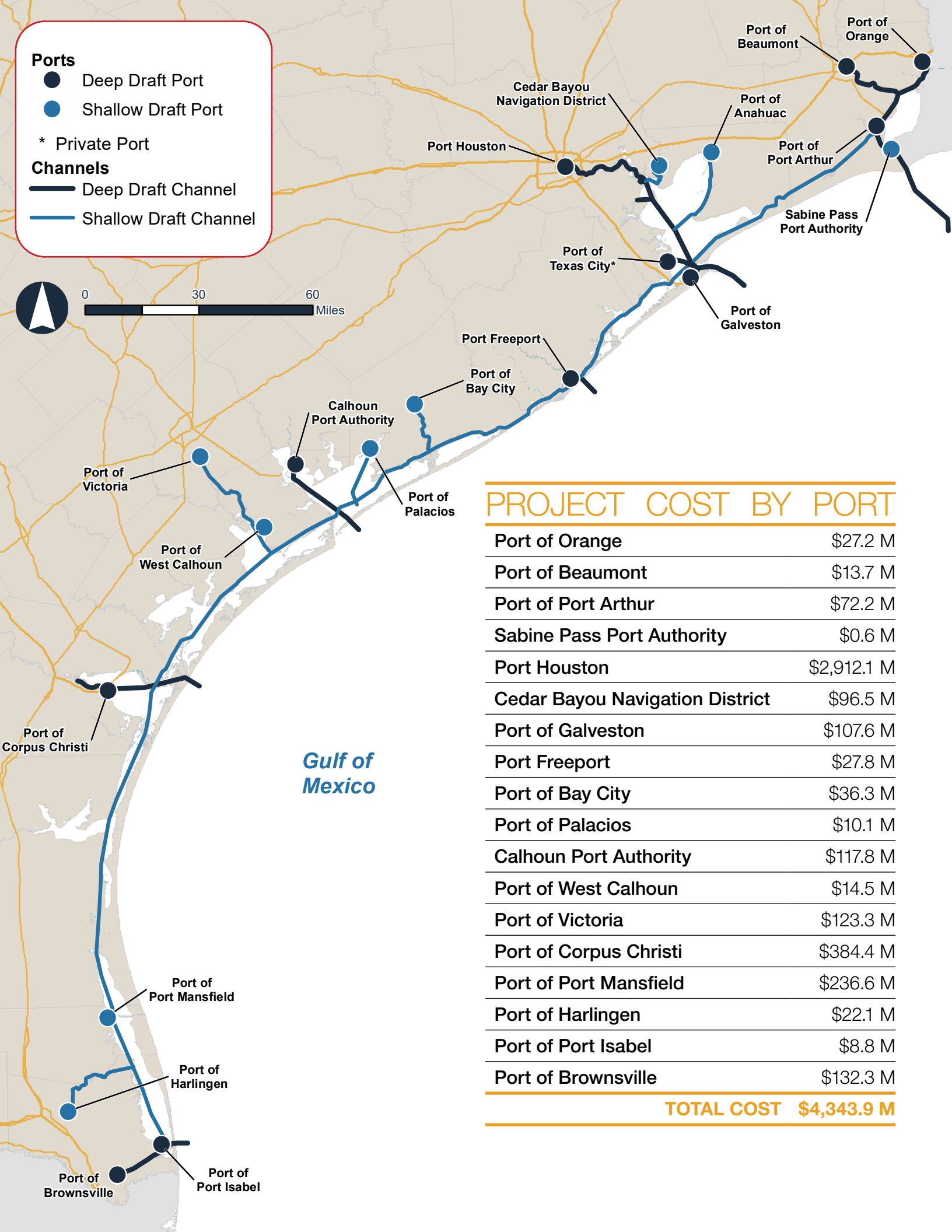
Other benefits are expected to include:

- Accommodating future port growth/expansion;
- Beneficially using dredged material to construct special aquatic site habitats; and
- Reducing CO_2 emissions from hoteling vessels.

Project Readiness and Implementation

The Feasibility Study and Environmental Impact Statement have been initiated and are expected to be completed in 2022. Funding for the study is being provided in full by the Port of Corpus Christi Authority. In future stages of this project, the Port of Corpus Christi Authority will seek funding through the federal process for the channel deepening.

PORT CONNECTIVITY REPORT



PROJECT COST BY PORT

Port of Orange	$27.2 M
Port of Beaumont	$13.7 M
Port of Port Arthur	$72.2 M
Sabine Pass Port Authority	$0.6 M
Port Houston	$2,912.1 M
Cedar Bayou Navigation District	$96.5 M
Port of Galveston	$107.6 M
Port Freeport	$27.8 M
Port of Bay City	$36.3 M
Port of Palacios	$10.1 M
Calhoun Port Authority	$117.8 M
Port of West Calhoun	$14.5 M
Port of Victoria	$123.3 M
Port of Corpus Christi	$384.4 M
Port of Port Mansfield	$236.6 M
Port of Harlingen	$22.1 M
Port of Port Isabel	$8.8 M
Port of Brownsville	$132.3 M
TOTAL COST	**$4,343.9 M**

INTRODUCTION

Texas seaports rely on a multi-modal freight network with safe and efficient landside connections – including roadways, railroads, and pipelines – that facilitate the movement of materials, goods, and people to and from the ports. Even the perception of landside mobility challenges can cause customers to route ships away from Texas ports. Investments in inland intermodal connectivity not only make the individual ports more competitive but can also benefit communities by creating more efficient and safer transportation systems while supporting the state's economic vitality.

The state can invest directly in port connectivity enhancements and pursue funding from other sources. These investments will sustain expected increases in shipping and support employment and improved quality of life in Texas's seaport cities. The Port Authority Advisory Committee (PAAC), working with the Texas Department of Transportation Maritime Division, has completed this report as part of the 2024-2025 Texas Port Mission Plan (PMP), the maritime mission plan required in Chapter 55 of the Texas Transportation Code. The PMP highlights the importance of investing in the port system to meet the growth potential of global trade opportunities.

The Port Connectivity Report summarizes an effort to assess the current state of inland connectivity at 18 public ports and navigation districts along the Texas Gulf Coast. It focuses on roadway connections – and in some instances rail and pipeline links – between the port gates and major freight corridors. This study evaluates the existing conditions of landside port access roads, identifies deficiencies or areas of concern, and documents potential solutions to address those issues.

Trucks queued during grain season on the Joe Fulton International Trade Corridor in Corpus Christi.

Challenges for Port Connectivity

Transportation conditions and needs are unique to each port. These can include diverse challenges like incompatible surrounding lands uses, modal conflicts, and design and operational inefficiencies. Texas's seaports face a range of intermodal connectivity issues that in combination create impacts rippling throughout the transportation system.

Some of the major challenges for port connectivity include:

- Freight Congestion and Road Safety
- Truck Turning
- Oversize/Overweight/Overheight Routes
- Truck Queuing and Traffic Operations

Port of Brownsville wind turbine cargo.

Issue	Problem Details	Case Study	Potential Solution
Freight Congestion and Road Safety	Congested roads see higher crash rates, and freight traffic exacerbates safety problems leading to delays and crashes.	Trucks accessing the Port of Orange increasingly utilize SH 62 as a link to I-10. The segment exhibits congestion, high rates of serious crashes and truck crashes.	Conducting a safety study, access management study, and implementing proven crash reduction design treatments – such as installing medians and reducing the number of driveways – will improve both safety and traffic operations, reducing delays.
Truck Turning	Tight turns on routes with heavy truck traffic leads to delays and congestion.	The intersection of 28th-29th St at Harborside Drive in the heart of the Port of Galveston operations sees significant truck traffic as well as automobile congestion from cruise passengers. The complex intersection requires tight turns from trucks, causing them to cross the roadway centerline, leading to slow travel speeds and conflicts with other vehicles.	An intersection redesign featuring increased turn radii, access point consolidation, or even the construction of a roundabout suitable for large vehicles would improve operations and safety at this important location
Oversize/ Overweight/ Overheight Truck Routing	Insufficient bridge clearances, sharp turns, steep grades, lack of acceleration lanes, and narrow lanes force large vehicles to take indirect routes.	The Port of Corpus Christi is expanding its reach into the wind energy component market. The extremely large wind turbine components cannot pass under several bridges on the most direct route to I-37, resulting in additional time and costs to find a suitable route.	Raising bridge clearances on connecting routes and I-37 would ease movement of OSOHOW vehicles; undertaking a large vehicle routing study would identify a consistent route for these vehicles and identify barriers to travel.
Truck Queuing and Traffic Operations	Trucks often must wait along state and local roadways to access the port entrances, exacerbating congestion and causing safety problems by blocking cross streets and creating bottlenecks for other traffic.	FM 3057 is the main access roadway serving the Port of Bay City's docks. The road has no shoulders, and trucks must frequently park along the narrow roadway as they wait their turn, blocking traffic and creating congestion.	Widening the roadway and paving shoulders in strategic locations would allow trucks to safely wait outside the travel lanes.

Freight Conscious Roadway Design

In general, roadways serving the ports would benefit from consideration of the particular needs of truck traffic in their design. Local roadway access routes between Texas ports and the highway network provide the final, critical link in the complex system that has evolved to move freight through the state and beyond. The location, design, and operational conditions of local truck routes affect both the efficiency of freight movement and the impacts of truck traffic on communities surrounding ports.

By designing roadways that better support the movement of trucks, connecting goods to the transportation system can be made more efficient, safer, and less disruptive to residents and the traveling public. Local roadways providing the "last mile" connections between ports and the highway freight network may have narrow lanes, lack sufficient shoulders, have small turning radii at key intersections, and may lack wayfinding signage. Additionally, these roads may not be constructed for large vehicles that are often traveling in and out of ports, which may deteriorate pavement conditions faster than anticipated.

Even on limited access facilities, freight design is important since trucks need longer acceleration and deceleration lanes than passenger vehicles. Because of their higher center of gravity, trucks are susceptible to overturning on sharp roadway curves. Changes in roadway elevation can limit sight distance, which can affect safe stopping distances. With the trends of freight movement by truck projected to increase, designing for freight is critical to maintaining safe and operational roadways.

Railroad crossing in Victoria.

Roadway design factors during rehabilitation or reconstruction planning for local roads that accommodate significant freight traffic:

Direct link to Highway Freight Network: A local freight route can minimize conflicts with other roadway users and adjacent land uses when it offers the most direct practical connection. The shortest route between the port and the freight network that offers the least indirection of travel for trucks is the most desirable. Routes that present few complexities such as turns or one-way street segments ease navigation.

Adequate Road Geometry: Trucks and other large vehicles operate most efficiently when roadway design is appropriate for their size, turning ability, and acceleration/deceleration characteristics. Important geometric considerations include number of lanes, intersections with adequate turning radii and queueing lanes for long vehicles, adequate shoulder width to allow disabled trucks to move out of traffic, absence of physical bottlenecks that can cause congestion, minimal steep grade changes, and the absence of right-of-way encroachments.

Adequate Bridge and Pavement Maintenance and Design: Deteriorated pavement and structures are causes of concern for truck operators. Trucks create high levels of wear on roadway surfaces and bridges. In some cases, pavement or bridge conditions may deteriorate to the point that weight restrictions are necessary, forcing trucks to find alternate connections to the freight network.

Adequate Vertical Clearances: Bridges, sign structures, utility lines, signal structures and other overhanging items can cause safety and operational issues for truck traffic. Older bridges, especially those not constructed to current vertical clearance standards, can be particularly problematic, especially if roadway overlays have gradually reduced these clearances even further turn phases, adequate signage, at-grade rail crossing characteristics such as the placement of crossing arms and track crossing angles.

Operational Characteristics: Several key roadway operational factors can affect the utility of truck routes. Such factors include adequate signal clearance phases or protected turn phases and adequate signage.

PREVIOUS CONNECTIVITY ACTIVITIES

$140 million has been committed to 47 connectivity projects between 2015 and 2021.

During past legislative sessions, the Texas Legislature has included four separate riders to help fund port access improvements. The 84th Legislative Session adopted Rider 48 which allocated up to $20 million to port capital improvements. The 85th Legislative Session adopted Rider 45, which allocated up to $20 million each fiscal year for a total $40 million to be spent on port access improvements. In 2019, Rider 38 allocated $40 million to be expended over two fiscal years, and in 2021, Rider 37 provided an additional $40 million for expenditure in 2022 and 2023. The $140 million from these riders has been committed to 47 public roadway projects proposed by the ports, selected by the Port Authority Advisory Committee, and approved by the Texas Transportation Commission. Sixteen of those projects are completed, and an additional seven projects are more than 50% completed.

PORT ACCESS IMPROVEMENT PROGRAM FUNDING

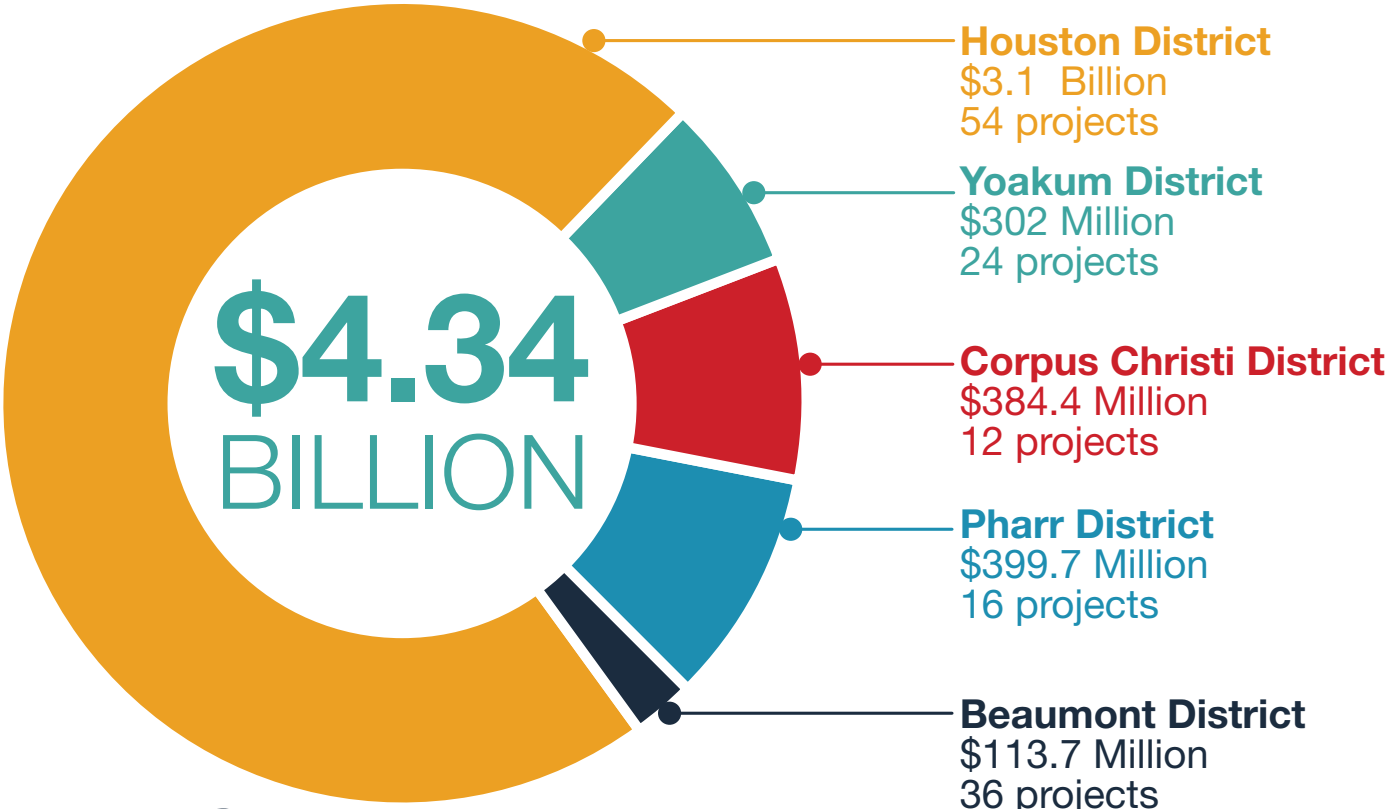
Port Access Improvement Program "Rider" Projects (47 projects 2015 through 2021)

Fiscal Year	Rider No.	Entity	Project Name
2016	48	Port of Beaumont	Old Highway 90
2016	48	Calhoun Port Authority	South end of FM 1593
2016	48	Port of Corpus Christi	Joe Fulton International Trade Corridor
2016	48	Port of Galveston	Old Port Industrial Road/SH 275
2016	48	Port Houston	Jacintoport Blvd/Penninsula Street
2016	48	Port of Palacios	Landbridge on SH 35 Business
2016	48	Port of Port Arthur	Lakeshore Drive
2016	48	Port of Victoria	McCoy Rd, Canal Rd, and Old Bloomington Rd.
2018	45	Port of Beaumont	Carroll Street Bridge
2018	45	Port of Harlingen	Port Road and Cemetery Road
2018	45	Port of Palacios	Richman Road
2018	45	Port of Port Arthur	4th Street Crossing
2018	45	Port of Port Arthur	Lakeshore Road
2018	45	Port of Victoria	McCoy Road and Bayer Road
2019	45	Port of Brownsville	South Port Connector Road
2019	45	Calhoun Port Authority	FM 1593 Rehabilitation
2019	45	Port of Corpus Christi	JFITC Intersection Improvements
2019	45	Port of Corpus Christi	Truck Queuing Lane
2019	45	Port Houston	Port Road Expansion, Phase 3
2019	45	Port of Palacios	Holsworth Road Rehabilitation
2020	38	Port of Beaumont	Truck Queuing at Emmett Ave.
2020	38	Port of Corpus Christi	Rincon Road Expansion
2020	38	Port of Harlingen	Truck Queuing at Robles Road
2020	38	Port Houston	Jacintoport Blvd. Expansion
2020	38	Port of Port Mansfield	Truck Queuing at SH 186, Phase 1
2020	38	Port of Port Arthur	Truck Queuing at Port Arthur
2020	38	Port of Victoria	Truck Queuing at Weaver Road
2020	38	Port of West Calhoun	Expansion of Long Mott Road
2021	38	Calhoun Port Authority	FM 1593 Improvements
2021	38	Port of Corpus Christi	JFITC Capacity Project, Phase 2
2021	38	Port Freeport	SH 36 Widening
2021	38	Port of Port of Galveston	Cruise Corridor
2021	38	Port of Palacios	SH 35 Improvements
2021	38	Sabine Pass Port Authority	First Ave. Reconstruction
2022	37	Port Freeport	Velasco Terminal Access
2022	37	Port of Orange	DRAVO Site
2022	37	Port of Orange	Alabama Street
2022	37	Port of Port Arthur	Multimodal Queuing Area
2022	37	Port of Port Isabel	Port Road Rehabilitation
2022	37	Sabine Pass Port Authority	Mechanic Street
2023	37	Port of Galveston	Old Port Industrial Road
2023	37	Port of Beaumont	Franklin & Park Truck Queuing
2023	37	Port of Corpus Christi	Navigation Boulevard
2023	37	Port of Port Arthur	Queuing and Staging Area
2023	37	Port of Port Mansfield	Airport Paved Access
2023	37	TxDOT Houston District	Pelican Island Causeway
2023	37	Calhoun Port Authority	FM 1593 Improvements

CONNECTIVITY FUNDING NEEDS

In 2017, TxDOT completed a comprehensive freight mobility plan, which identified, among other items, $3.2 billion in projects designed to improve port-related freight movement. Approximately $3 billion worth of those port related projects have yet to be undertaken or funded. The 2024-25 Port Mission Plan has identified $4.34 billion in potential inland connectivity projects; these represent the most up-to-date and complete list of connectivity needs for the ports. The majority of these projects are currently unfunded.

Intermodal connectivity at Port of Port Arthur.



Port Connectivity Report Projects

IDENTIFYING PORT CONNECTIVITY NEEDS

To assess each port's connectivity to the roadway, rail, and pipeline networks, and to identify deficiencies in those connections, the study team interviewed port administrators and analyzed technical data. This effort provided a snapshot of port connectivity issues and identified needs as the ports evolve to serve emerging freight markets.

Interviews were conducted with port administrators to identify the key multimodal connectivity issues facing the ports at the interface between maritime navigation and the state's other transportation systems. The interviews focused on five elements:

- Connectivity projects begun or completed since the 2022-2023 PMP
- Future of port operations and markets
- Major roadway issues facing the port and its tenants
- Major rail or pipeline issues facing the port and its tenants
- Desired connectivity improvements

The information compiled from these interviews complements a thorough review of connectivity data to identify key issues and a suite of shorter- and longer-term improvements to the overall transportation systems moving goods from the ports across the globe.

To assess each port's connectivity to the roadway network, relevant roadway data were compiled into a Geographic Information System to provide a visual assessment of the current conditions and needs, and to identify and locate barriers to connectivity. Following this needs assessment, potential solutions were identified, evaluated for their ability to address identified needs, and evaluated against performance criteria to generate a final list of solutions to enhance port connectivity. The performance criteria included the likelihood of the project to address identified port connectivity issues; its likelihood to be implementable in the biennium; and any significant barriers to implementation, such as complex environmental impacts. These recognize both current and projected issues and as the ports respond to emerging market opportunities over the next decade.

Inland Connectivity Project Evaluation Factors

Selected Data

Data Collected

- National Highway Freight Network (NHFN)
- Texas Highway Freight Network (THFN)
- Oversize/Overweight (OSOW) Routes
- Class I Railroads
- Other Railroads
- 5-years (2016-2019) of crashes, including those related to trucks and rail
- Railroad crossing type (at-grade, overpass, underpass)
- Vertical clearances at bridges
- United States Army Corps of Engineers (USACE) dock locations
- USACE maintained dredged channels

Landside Connection Evaluation Criteria

Roadway Network Data

- Roadway Related
- Known Railroad Conflicts
- Public Road
- TxDOT Facility
- Connected to NHFN
- On THFN
- Connected to THFN

Port Connectivity Data

- Serves Developed Terminal
- Serves Emerging Terminal

Performance Data

Mobility

- Peak hour/peak direction Volume to Capacity (v/c) ratio
- Number of at-grade rail crossing
- Daily truck volume
- Texas Critical Freight Corridors

Structures

- Bridge posting
- Sufficiency rating
- Vertical clearance

Safety

- Fatal crashes per mile
- Incapacitating injury (K & A) crashes per mile

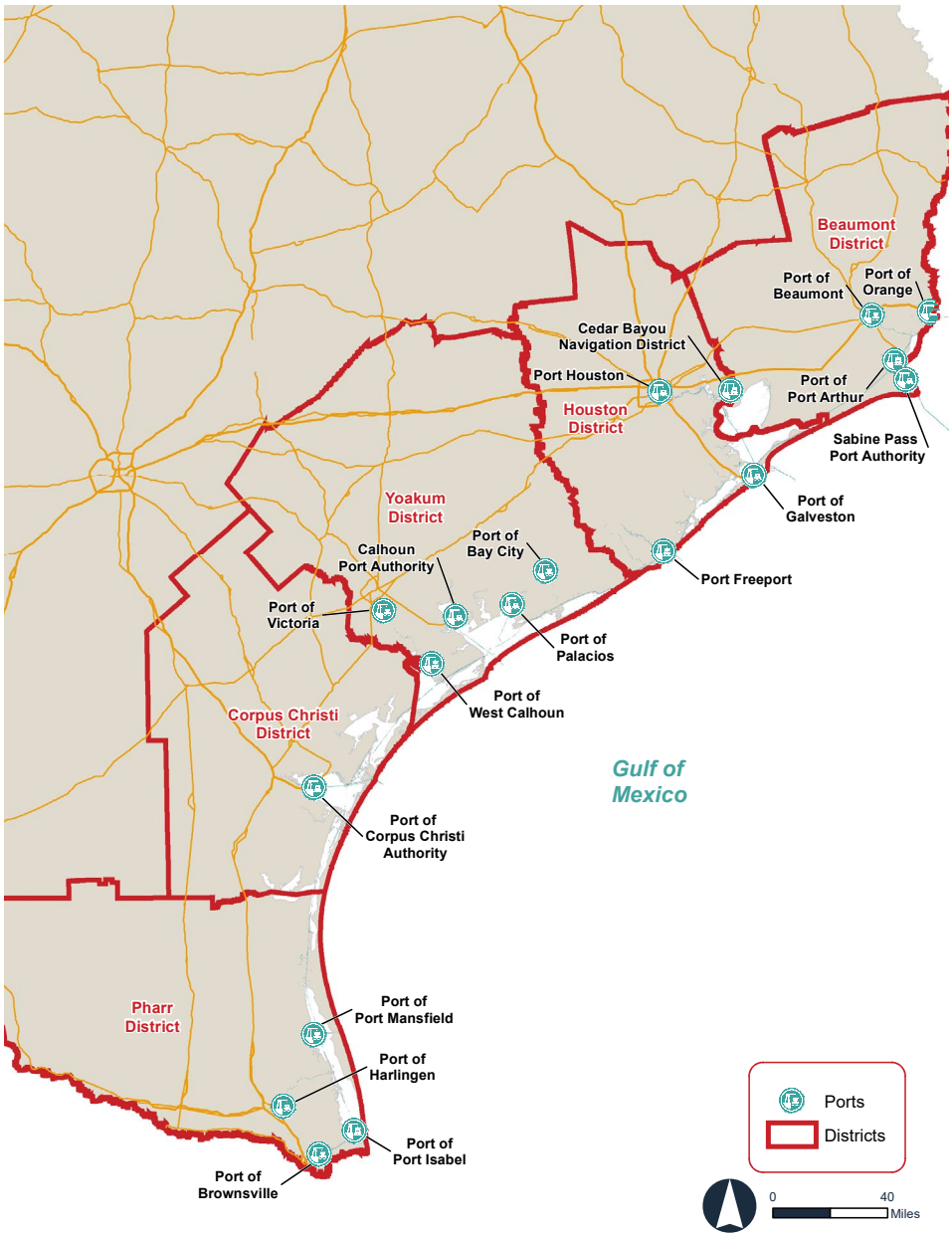
CONNECTIVITY SOLUTIONS

The analysis culminated in a list of solutions to address key port connectivity deficiencies. The ports and TxDOT may continue to evaluate these solutions for implementation. These solutions were derived from three sources:

- Projects developed or requested by port administrations
- Projects developed or recommended in previous iterations of the PMP
- Projects developed by the study team, including the input of planners, roadway designers, structural engineers, and other professionals.

The potential solutions were developed conceptually to a point that allowed a consistent level of construction cost estimate. They were categorized by the connectivity issue they address, and were evaluated for their potential to improve port connectivity, for their complexity in project development and implementation – for example, did they involve the potential for significant environmental impacts or require acquisition of significant right of way, for their likelihood to be implemented within the two-year time horizon of the PMP, and for the variety of potential funding sources available. The projects were not prioritized but are described for the potential to support travel and goods movement to and from the ports.

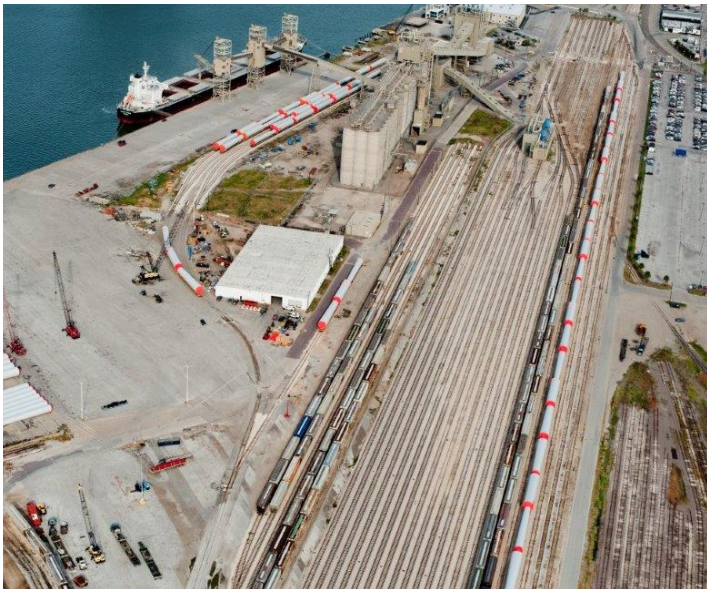
The 142 projects included in the list below range from small safety studies to major interchange construction. All are considered to improve connectivity for the goods transported through the state's seaports, and many have the potential to improve transportation more generally for all travelers.



The potential projects are characterized by the connectivity issues they address and are evaluated for their ability to improve port connectivity, their complexity, and their ability to be implemented in the 2024-25 biennium.

Galveston cruise terminal.

Beaumont truck route, Sycamore and Madison.
Photo Credit: TxDOT



Galveston wharf area wind cargo.

Port of Corpus Christi

PORT CONNECTIVITY PROJECT LIST

#	Project Name *(projects are not prioritized)*	Cost Estimate for Defined Roadway Projects ($M)*
	Beaumont District	
	Port of Orange	
1	Improve intersections of FM 1006 with Alabama St and Childers St	$0.7
2	Improve county-owned portion of Childers Rd from FM 1006 to recent Rider 37 improvement (south end)	$1.4
3	Straighten out RR near FM 1006 and Childers/Alabama intersection	N/A
4	Construct switch yard near port entrance and improve rail along Alabama St	N/A
5	Straighten out RR near West Orange/Walmart to allow six axle train cars	N/A
6	Install wayfinding signage on FM 1006, SH 73 and SH 87	$0.06
7	Expand and resurface FM 1006 for heavy haul	$8.1
8	Improve SH 73 (SH 87 to I-10) to reduce truck crashes and improve access	$16.0
9	Improve low vertical clearance ped bridges along FM 1006	$1.0
	Port of Beaumont	
1	Reconstruct Pine St for heavy haul	$2.2
2	Connect Fulton Ave/Lee St to SH 380 with a flyover	$7.3
3	Improve intersection of Washington St and SH 380 for safety	$0.2
4	Improve intersection of Park St and Franklin St for truck movements	$0.1
5	Conduct an access management study on SH 380 to improve operations and safety	$0.5
6	Reconstruct last mile of Franklin St at port gates for heavy haul	$1.8
7	Improve wayfinding signage in downtown Beaumont, in-vehicle wayfinding	$0.06
8	Improve bridge vertical clearances along SH 380	$1.4
9	Reconstruct RR lift bridge over Neches River (RR owned)	N/A
	Port of Port Arthur	
1	Study to determine best alternative for MLK bridge to improve vertical clearance for ship channel	$0.5
2	Reconstruct SH 82/SH 87 intersection with grade separation and flyover over RR	$9.4
3	Signalize slip lanes and add all red phase to intersection	$0.2
4	Address local traffic conflicts with railroads along Joe Louis Av and Houston Av between 9th and 19th Sts	$6.9
5	Grade separate RR Crossing at SH 215	$5.7
6	Add medians to prevent weaving through RR gates at SH 215 crossing	$0.1
7	Increase bridge vertical clearance on SH 215 at SH 73	$4.8
8	Improve signal design/phases along US 69 between SH 73 and 87	$1.0
9	Add separation/median along US 69 between SH 73 and 87	$1.9
10	Undertake access management study of US 69 from SH 73 to SH 87	$0.5
11	Improve RR bridge with low vertical clearance along US 69	$2.1
12	Improve SH 87 to address congestion and problem intersections at SH 215 and Houston Ave	$28.8
13	Improve RR bridge with low vertical clearance along SH 87	$1.3
14	Construct flyover at Denbo St to link to new dock	$8.2
15	Improve intersection at W Rev Dr Ransom Howard Dr & Houston Ave	$0.8
	Sabine Pass Port Authority	
1	Widen SH 87 and add long merging lanes near Golden Pass Operation (north of Sabine Pass)	$0.6
2	Add RR line from Port Arthur to Sabine Pass	N/A
3	Add internal access roads to new port property (SE of existing operations)	$0.03

#	Project Name *(projects are not prioritized)*	Cost Estimate for Defined Roadway Projects ($M)*
	Houston District	
	Port Houston	
1	Install lights, crossing arms, safety mechanisms on at grade RR crossings	$0.3
2	Improve and widen Jacintoport Rd	$27.0
3	Develop direct connectors from Jacintoport Rd to BW 8	$25.0
4	Expand Barbours Cut Blvd to six lanes	$5.9
5	Eliminate access points from residential areas to south by dead ending streets	$0.6
6	Widen median to allow for two stage crossing	$0.5
7	Undertake an access management and safety study on Clinton Dr	$0.5
8	Improve northbound connectivity on Independence Pkwy to SH 225	$15.0
9	Improve northbound connectivity on SH-330 to I-10 (improve NB connectiviity to I-10 - 2 lanes or direct)	$10.0
10	Improve truck operations on BW-8: direct connectors to SH 225; WB to 8 N; NB to E/W SH 225; EB to 8S	$180.0
11	Improve FM 1942 from Hatcherville Rd to SH 146	$1.7
12	Widen and add turn lanes on FM 565 from SH 146 to SH 99	$11.2
13	Widen Hatcherville Rd from FM 1942 to Liberty/Chambers County Line	$8.3
14	Reconstruct and widen Old SH 146	$20.6
15	Improve SH 146 from I-10 to Bus 146 (Alexander Dr)	N/A
16	Widen Fairmont Pkwy and incorporate turning improvements from Canada Rd to SH 146	$18.2
17	Improve I-10/Sheldon Rd intersection for truck movements (Rider 37 submission)	$13.6
18	Improve Appelt Rd (Sheldon to Market)	$8.3
19	Address congestion on Independence Pkwy	$6.1
20	Undertake PEL study for improving SH 225 from 8-East to SH 146 interchange	N/A
21	Undertake PEL study for improving SH 225 and I-610 Interchange	N/A
22	Undertake PEL study for expanding SH 225 from 8-West to I-610 interchange	N/A
23	Develop direct connectors for truck movements between SH 99 and I-45 NB to Dallas	$24.5
24	Develop director connectors for truck movements between SH 99 and I-69 SB to Port Houston	$15.5
25	Develop Penn City Connector	$17.5
26	Develop I-69 bypass around east side of Houston	N/A
27	Extend Haden Rd to Penn City Rd	$9.5
28	Improve Bayport mainline rail track	$79.0
29	Improve I-610 bridge over Houston Ship Channel	$2,400.0
30	Improve Spencer Highway bridge over Bayport rail mainline	$13.2
	Cedar Bayou Navigation District	
1	Reconstruct SH 146 and widen from Baytown to Mont Belvieu for heavy haul	$90.7
2	Grade separate RR crossing at intersection of FM 565/FM 1405	$5.8

#	Project Name *(projects are not prioritized)*	Cost Estimate for Defined Roadway Projects ($M)*
	Houston District *(continued)*	
	Port of Galveston	
1	Improve Harborside Dr to I-45 NB connection; include overpass over RR	$12.8
2	Improve bike/ped connections at south terminus of planned Pelican Island bridge	$16.3
3	Develop connection from Port Industrial Rd to Harborside Dr near Savage Sulphur operation	$10.1
4	Improve RR crossings on Harborside Dr at 37th St; potential grade separation	$7.3
5	Improve intersections at Port Industrial Rd/Harborside Dr with 28th/29th St for truck movements	$0.2
6	Develop connection at 61st St from Harborside Dr to I-45 interchange	$18.7
7	Improve existing pedestrian bridge (over Haborside Dr and RR) to parking structure	$0.9
8	Improve pedestrian access and wayfinding from downtown Galveston	$0.5
9	Add sidewalks along Harborside Dr between 25th and 37th St	$3.8
10	Add cruise passenger parking structure at mid-port terminal (near pedestrian bridge over Harborside Dr)	$30.0
11	Improve 33rd St and Holiday Dr and sign as main N/S connections to accommodate cruise passenger traffic	$2.7
12	Replace TWTL on SH 275 with raised median to improve safety	$3.3
13	Designate SH 275 primary truck route from I-45 to Harborside Dr; improve wayfinding signage	$0.4
14	Undertake access management study on SH 87 (Broadway Ave J) from 59th St to 33rd St	$0.5
	Port Freeport	
1	Add RR along SH 36 to reduce freight on roads and avoid Houston RR congestion	N/A
2	Improve SH 36/Velasco Rd intersection	$0.5
3	Improve access from SH 36 to new port development west of FM 1495	$1.0
4	Install RR crossing gates and warning devices	$0.3
5	Improve intersection of FM 1495 and SH 36 for safety and operations	$0.2
6	Improve intersection of FM 1495 and FM 523 for safety and operations	$0.3
7	Widen FM 1495 and FM 523	$10.0
8	Reconstruct Pine Street Bridge	$15.5
	Yoakum District	
	Port of Bay City	
1	Improve capacity on FM 2668	$23.5
2	Expand FM 3057 for permanent truck queuing	$6.2
3	Add RR to existing port facilities	N/A
4	Improve FM 259 and intersection of FM 259 and SH 60 to facilitate access to port expansion area	$6.5
	Port of Palacios	
1	Widen SH 35 west of port	$4.6
2	General safety and operational improvements on SH 35 (Henderson Ave)	$0.5
3	Construct truck queuing area on new road to Matagorda Nav Dist office	$0.1
4	Reconstruct 12th St as primary port access	$4.9
	Calhoun Port Authority	
1	Widen and improve SH 35 causeway over Lavaca Bay for OSOW; historic bridge	$92.6
2	Improve and widen SH 35 bridge over Caruncahua Bay	$15.5
3	Improve intersection of SH 35 and SH 172 for safety and operations	$9.0
4	Add RR loop to serve south port operations area	N/A
5	Pave westernmost 1,500 feet of FM 1593	$0.7
	Port of West Calhoun	
1	Create truck staging in Seadrift	$6.0
2	Conduct access study to improve truck and recreational vehicle access to Port O'Connor	$0.5
3	Improve truck route into Seadrift	$1.6
4	Develop new RR to port	N/A
5	Construct Long Mott Dock area truck staging	$6.5

#	Project Name *(projects are not prioritized)*	Cost Estimate for Defined Roadway Projects ($M)*
	Yoakum District *(continued)*	
	Port of Victoria	
1	Improve SH 35 Bridge over Victoria Barge Channel; raise profile	$9.2
2	Improve SH 185 intersection at FM 1686 for truck movements	$2.5
3	Improve RR crossing/safety improvements in Bloomington on SH 185	N/A
4	Add RR switch on south side and loop on north side of port	$28.0
5	Improve road grid in south site; improve Edna Ln and Old Bloomington Rd	$8.6
6	Replace RR lift bridge over the Victoria Barge Canal	$75.0
	Corpus Christi District	
	Port of Corpus Christi	
1	Upgrade JFITC traffic signals with higher clearance and coordinate signal timings	$1.3
2	Improve connection to I-37 at west end of port	$0.6
3	Upgrade intersection near ADM elevator	$1.0
4	Upgrade Suntide Rd for OSOW, create non-bridge connection	$2.2
5	Add 5,100' of frontage road along the inside of future rail corridor adjacent to JFTC	$5.5
6	Undertake study to recommend OSOWOH Route from Port to T/NHFN	$0.5
7	Upgrade Kay Bailey Hutchison Rd for OSOW - private road	$9.5
8	Improve capacity and operations on FM 2725	$23.2
9	Improve RR crossing signage and warning devices on FM 1069	$0.3
10	Elevate Nueces Bay Causeway (US 181) for improved ship passage and flood risk mitigation	$340.0
11	Improve RR crossing signage and warning devices on SH 361	$0.3
12	Undertake study to address ship-traffic conflicts for Port Aransas Ferry	$0.5
	Pharr District	
	Port of Port Mansfield	
1	Designate SH 186 as Heavy Haul Route, upgrade for OSOW	$121.3
2	Designate FM 1420 as Heavy Haul Route, upgrade for OSOW	$112.6
3	Improve intersection of SH 186 and FM 2209 in San Perlita for safety (add turn lane)	$0.4
4	Lengthen airport runway from 3,600' to 5,000' to support commercial fishery	$2.2
	Port of Harlingen	
1	Install lighting, drainage, rail crossing improvements on Port Rd	$2.3
2	Improve FM 1595 for OSOW to access port expansion area and link to airport	$10.4
3	Widen and Improve FM 106 to accommodate OSOW and regular heavy haul	$8.0
4	Improve intersection of FM 106 and FM 509 for truck turning movements	$1.4
	Port of Port Isabel	
1	Develop bypass road from port to SH 48	$8.8
	Port of Brownsville	
1	Create new connection from Ostos Rd to SH 4 at east end of port	$5.2
2	Develop frontage road north of SH 48 connecting ramps from FM 511 and SH 550	$3.6
3	Improve internal port roads (Ostos Rd)	$5.4
4	Develop East Loop Connector to bypass central Brownsville	$101.4
5	Widen shoulder or develop recreation parking on SH 48 near Bahia Grande	$2.5
6	Widen SH 48 to six lanes with raised median from SH 4 to FM 550	$14.1
7	Reconstruct rail bridge near SH 48/SH 511	N/A

**Cost estimates not available for rail projects and some studies due to lack of consistent data.*

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Front Cover: Port Houston.
Back Cover: Port of Corpus Christi.

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