PORT AUTHORITY ADVISORY COMMITTEE

2022-2023
TEXAS PORT MISSION PLAN

87TH LEGISLATIVE SESSION
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LETTER FROM THE CHAIRWOMAN

As chair of the Port Authority Advisory Committee (PAAC), I am pleased to present the 2022-2023 Texas Port Mission Plan. Texas is a port-driven state and relies on a strong port system to maintain its leading position as the nation’s top exporter and importer by tonnage. In 2018, Texas ports moved nearly 568 million tons of cargo and nearly 2.2 million cruise passengers in 2019. According to the Texas Ports Association, in 2019 Texas ports provided more than $386 billion in economic value to the state. The state’s maritime system continues to be a critical gateway to international trade, which is vital to the Texas economy.

Our ports have some of the highest export revenue growth in the nation due to the increasing export demand of commodities such as oil, gas, liquefied natural gas (LNG), and plastics. Four Texas ports were cited among the top ten fastest growing ports in the U.S. ports from 2018-2019 in terms of export revenue. Despite the recent economic downturn and residual effects from COVID-19, export revenue is expected to continue to grow and oil and gas production in Texas is still forecasted to nearly triple by 2025.

The growth in the energy sector, combined with a steady economic recovery and growing consumer demand worldwide, indicates a strong upward trend in cargo to be handled at Texas ports for the foreseeable future. Keeping up with such growth is challenging with limited funding to modernize our port system. These funding challenges can be seen at the local, state, and federal level. Five Texas ports have authorized federal channel improvement projects that are receiving insufficient federal funding, causing delays at a time when they should be a national priority. Authorization for two more Texas channel improvement projects are pending.

Texas ports are investing heavily in upgrading their facilities. In the last five years, our ports have invested over $1.7 billion into port facilities and have leveraged $385.6 billion of private investments. We have also seen great support for ports from their surrounding communities, with two separate voter-approved bond packages that will help repair failing port facilities and fund the local cost-share to deepen one of our ship channels.

All Texas ports, large and small, stand to benefit from investments in the Texas port system. This plan identifies over $3.6 billion of planned projects in the port system. Ports themselves will invest over $3.2 billion into their port facilities and to cover their local share of ship channel deepening and widening of projects by 2023. We anticipate that this will leverage over $68.7 billion of additional private investment in the next five years alone.

Presented in this Port Mission Plan are high-value projects that will enhance port efficiency, improve the movement of freight through intermodal systems, create new jobs, and attract private investment. The PAAC approved this document and requested state funding of $2.19 billion. The Transportation Commission has included $460 million of the PAAC’s total request in their 2022-2023 Legislative Appropriations Request. State funding for these strategic, capital investments will help accelerate the implementation of these projects needed to support the growing Texas economy, currently the 9th largest economy in the world, for decades ahead.

We ask for your support of our ports, because investing in ports is investing in Texas.

THE PORT AUTHORITY ADVISORY COMMITTEE (PAAC)

The Port Authority Advisory Committee (PAAC) develops the biennial Texas Port Mission Plan. This report highlights 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.”

PORT AUTHORITY ADVISORY COMMITTEE MEMBERS

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<thead>
<tr>
<th>Name</th>
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<th>Title</th>
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<tr>
<td>Phyllis Saathoff</td>
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<td>Michael Plank</td>
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<td>Chris Fisher</td>
<td>Port of Beaumont</td>
<td>Upper Coast Representative</td>
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<td>Larry Kelley</td>
<td>Port of Port Arthur</td>
<td>Upper Coast Representative</td>
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<td>Ronald Mills</td>
<td>Port of Port Mansfield</td>
<td>Lower Coast Representative</td>
</tr>
<tr>
<td>Sean Strawbridge</td>
<td>Port of Corpus Christi</td>
<td>Lower Coast Representative</td>
</tr>
<tr>
<td>Walker Smith</td>
<td>Port of Harlingen</td>
<td>Lower Coast Representative</td>
</tr>
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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
Texas ports are critical to the economic growth of Texas. In 2018, Texas ranked second nationwide for total waterborne tonnage handled and first nationwide for total foreign waterborne tonnage of imports and exports. Ten of the state’s ports ranked among the top 100 U.S. ports in total tonnage and five of the state’s ports are ranked in the top 20 ports in the U.S. in total tonnage. 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 9th largest economy when comparing Texas GDP to national GDPs. 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. Each Texas port is unique and has its own infrastructure challenges and funding needs. The Port Authority Advisory Committee (PAAC) puts forward the 2022-2023 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), and Port Connectivity Report.

Collectively, the PMP highlights the importance of investing in the port system in order to benefit the state and meet the growth potential of global trade opportunities.

**INVESTMENT STRATEGY**

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PORT INVESTMENT IS A STATEWIDE GROWTH STRATEGY

In order 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 $96 billion backlog of federal water resource projects nationwide. 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.

Resiliency

Resiliency of the Texas maritime system is often overlooked until emergencies and disasters occur. 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. Investing in port infrastructure, multimodal connections, and ship channels can improve the ability for the port system to both withstand and recover from a disaster.

Hurricanes can have major economic implications for the Texas ports. In 2017, Hurricane Harvey affected nearly every major port in Texas. It is estimated that Harvey:
- Caused $17.4 billion in economic impacts due to port closures and associated industry impacts.
- Caused nearly $250 million in infrastructure impacts through damage to port facilities and channel shoaling.
- Cost $1 to $2 million per rerouted vessel.

Three Texas ports were among the top five fastest growing U.S. ports from 2018-2019 in terms of absolute export revenue.

#1. Port of Corpus Christi Authority ($5.47 billion in growth)
- Petroleum exports grew by 22%, an increase in value equal to $4.5 billion.
- Pure iron exports grew by 1,000%, an increase in value of $250 million from 2016 to 2019 with completion of the Voestalpine Facility.

#3. Port Houston ($3.43 billion in growth)
- Petroleum exports grew by 7%, an increase in value equal to $3 billion.
- Containerized plastics exports grew by 19%, an increase in value equal to $1.4 billion.

#4. Port of Beaumont ($3.16 billion in growth)
- Petroleum exports grew by 24%, an increase in value equal to $3.4 billion

Other noteworthy news:
- Port of Brownsville is facilitating the construction and use of a SpaceX launch facility in Boca Chica, Texas.
- Port Freeport saw a $400 million increase in automobiles imported and has been exporting close to $1.5 billion in autos assembled in Texas annually from 2015 to 2019 with the completion of a new Ro/Ro facility.
- Port of Galveston saw a $400 million increase in automobiles imported and processed from 2015 to 2019 with the completion of a new Ro/Ro facility.

PORT INVESTMENT IS A STATEWIDE GROWTH STRATEGY

DID YOU KNOW?

Three Texas ports were among the top five fastest growing U.S. ports from 2018-2019 in terms of absolute export revenue.

Did you know...

The Orange County Terminal is a public-private partnership between the Port of Beaumont and Jefferson Energy Companies. At full build-out, the capital investment of Jefferson Energy Companies will be approximately $1 billion.
TYPES OF PORT FACILITIES

Ports vary greatly from one to the next, in large part based on their types of commercial activity. 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 port 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.

- **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.

- **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.

- **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 and is projected to be the largest LNG exporter in the country.

- **Fishing ports** provide dockside access for fleets of commercial fisherman who catch finfish, shrimp, oysters, and crabs. Three Texas ports are among the top thirty largest commercial fishing ports in the country including the Port of Palacios, the Port of Galveston, and the combined Ports of Brownsville and Port Isabel.

- **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, layberthing, ship recycling, support of offshore oil and gas, and support of emerging industries, such as space exploration by private companies.

PORT TYPOLOGIES

<table>
<thead>
<tr>
<th>Ports*</th>
<th>![](Image 36x599 to 576x757)</th>
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<tr>
<td>Ports</td>
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*Ports listed from Upper to Lower Coast

Indicates emerging
WATERWAYS
The integrity of marine highways is critical to a healthy shipping system.

INLAND CONNECTIVITY
The roads and railroads leaving each port connect to the transportation system that delivers to both consumers and suppliers. The quality and capacity of these vital connections translates directly to consumer prices as well as port economic health.
Waterways

Any vessel entering or leaving a Texas seaport relies on well-maintained navigable waterways also known as ship channels. These waterways are the critical thoroughfares of trade, serving as marine “highways” that allow for the movement of goods and people 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

The port facilities are the backbone of a port’s operations. The port infrastructure and equipment is used by workers to help move goods and people between vessels 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, 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.

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 supply chains and also bring in goods from across the world to our doorsteps. Ports rely on a strong network of inland connections that can help move goods to and from the port in a safe, quick, and reliable manner.

Domestic and international waterborne trade, the energy industry, seafood and commercial fishing markets, and cruising and tourism revenues all depend on the state of the Texas ports.

The Port of Palacios is one of the largest shrimping ports in the state.

The Houston Ship Channel is 52 miles long and is the busiest waterway in the United States.

Trucks entering the Port of Brownsville.

Bulk Dock #1 at the Port of Corpus Christi can load commodities directly to rail or trucks from a vessel.

The port system supports the movement of military cargo at the Port of Beaumont.

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 parts 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 all of these parts 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 the 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 are in working order. The port system’s success requires thoughtful coordination and investment across all three areas.
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 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 Capital Investment Report

The 2022-2023 Texas Port Capital Investment Report 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 PAAC elevates matters related to maritime transportation to the Texas Transportation Commission 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 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 2022-2023 PCIR includes 30 capital projects and one study at eight different ports whose total project cost is just over $2.18 billion. The PCIR project list includes the cost of four authorized ship channel improvement projects, which are also reflected in the Ship Channel Improvement Report and are eligible for funding from the Ship Channel Improvement Revolving Fund. All ports are willing to provide a minimum cost share of 25% for each project and study. The PCIR has not resulted in funding for these port projects from the State previously.

Port Capital Investment Projects

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<th>Cost ($M)*</th>
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<tr>
<td>Port of Orange</td>
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<td>South End Truck Queuing Area</td>
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<td>Puzzle Switch</td>
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<td>Port of Brownsville</td>
<td>Brazos Island Harbor Channel Improvement Project</td>
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</table>

* 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 across the state. 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 project cost. 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 (SB) 28, establishing the Ship Channel Improvement Revolving Fund (SCIRF) and Loan Program. This creates a program to help finance the modernization of ship channels. By providing financing through the SCIRF, Texas has the ability to move forward on navigation projects in spite of limited federal appropriations and invest in the port system, enhance the state’s economy, and be repaid through the loan process.

<table>
<thead>
<tr>
<th>Channel</th>
<th>Cost ($M)*</th>
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* Costs provided by ports/navigation districts

Port Connectivity Report

The Port Connectivity Report assesses the current state of landside connectivity at 18 maritime ports along the Texas seacoast, focusing on roadway connections between port gates and major freight corridors. Transportation conditions and needs are unique to each port. These can include issues as diverse as incompatible surrounding land uses, modal incompatibility and conflicts, operational inefficiencies, and insufficient facility design for the needs of freight operators. In combination, these issues lead to inefficiencies for multimodal freight movement. This report evaluates the existing conditions of landside port access, identifies problems and areas of concern, and proposes potential solutions.
The Port Capital Investment Report is a prioritized list of projects that includes port facilities, waterways, and inland connections. The PAAC voted to recommend a funding request of $130 million to help fund the projects included in the 2022-2023 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: $130 Million

**Ship Channel Improvement Revolving Fund (SCIRF)**

Funding the SCIRF will help provide financing for eligible navigation projects that modernize waterways and allow for increased growth of waterborne commerce. There are five 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 $2.06 billion, the amount required to fully fund all five eligible projects. The Commission has elected to include $330 million in the 2022-2023 LAR to cover the estimated drawdown for the eligible projects in fiscal years 2022-2023.

Funding Requested: $330 Million

**Total Funding Requested: $460 Million**

Texas ports require continual enhancements and expansion to attract private investment for new industrial facilities. The funding requested represents a fraction of the biennial need, but is critical to give these projects the traction 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.

**2022-2023 Port Capital Investment Report**

The Commission has elected to include $330 million in the 2022-2023 LAR to cover the estimated drawdown for the eligible projects in fiscal years 2022-2023.

**Funding Requested: $330 Million**

**Total Funding Requested: $460 Million**

**TEXAS PORT FUNDING NEEDS**

**PLANNED PORT SYSTEM INVESTMENT**

Total cost for all five authorized ship channel improvement projects.*

**$2.7 BILLION**

Total Cost

$3.6 BILLION

Total cost for inland connectivity projects that serve public ports.*

$258 MILLION

Planned facilities investments for public ports between 2018 and 2023.*

$683 MILLION

**PUBLIC FUNDING VS. PRIVATE FUNDING**

**TEXAS PORTS**

<table>
<thead>
<tr>
<th>Public Funding</th>
<th>Private Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Needs</strong></td>
<td><strong>Investment</strong></td>
</tr>
<tr>
<td>$258 MILLION</td>
<td>$95.6 BILLION</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>Total Cost</strong></td>
</tr>
<tr>
<td>$3.6 BILLION</td>
<td>$3.7 BILLION</td>
</tr>
</tbody>
</table>

*Costs provided by the ports and navigation districts.
BEYOND THE TEXAS COAST

Texas is a Port-Driven State

The Texas economy is largely driven by commodity supply chains that move goods to and from the state. Inland markets across the state rely on a strong multimodal freight network to get the goods to the ports for export. Enhancing our port system helps Texas stay competitive on the global market by ensuring that our inland export commodities can continue to reach their destinations worldwide.

Connecting with the Nation

The deep and shallow draft channels that allow for 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 truck congestion on roadways. The Texas portion of the Gulf Intracoastal Waterway (GIWW) connects all Texas ports to each other and to a robust network of Gulf Coast and inland waterways.

DID YOU KNOW?

An average of 80 million short tons per year were transported along the Texas portion of the GIWW between 2015 and 2018.
INTRODUCTION

The 2022-2023 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 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 $130 million to help fund the projects included in the 2022-2023 PCIR. This is only a fraction of the combined project cost, which is approximately $2.18 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.
Port Capital Investment Report Eligibility

All Texas public ports and navigation districts may submit capital projects and studies that meet the eligibility requirements. The 20 public Texas ports and navigation districts were invited to submit proposed projects to be considered for the 2022-2023 Port Capital Investment Report. Eight public ports or navigation districts elected to submit projects.

Project Eligibility

<table>
<thead>
<tr>
<th>Eligible Projects</th>
<th>Project Examples</th>
<th>Minimum Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans or Studies</td>
<td>Planning Efforts</td>
<td>Meets Texas Transportation Ch. 55 eligibility</td>
</tr>
<tr>
<td></td>
<td>Feasibility Studies</td>
<td>Port will provide minimum 25% cost share</td>
</tr>
<tr>
<td></td>
<td>Project Development*</td>
<td>Project lettable by the end of FY 2023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project could be completed by the end of FY 2026</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shows economic, environmental, and engineering feasibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Has proven project support</td>
</tr>
<tr>
<td>Capital Projects</td>
<td>Port Facilities</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Inland Connectivity</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Waterways</td>
<td>9</td>
</tr>
</tbody>
</table>

*Up to 20% of design engineering

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.

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.

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 under $850,000 to just over $650 million.

Results Summary

<table>
<thead>
<tr>
<th>Project Type(s)</th>
<th>Eligible Projects</th>
<th>Cost Range of Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Facilities Only</td>
<td>15</td>
<td>&lt; $1 M to $155 M</td>
</tr>
<tr>
<td>Inland Connectivity Only</td>
<td>3</td>
<td>$1.5 M to $15 M</td>
</tr>
<tr>
<td>Waterways Only</td>
<td>5</td>
<td>$3 M to $651 M</td>
</tr>
<tr>
<td>Port Facilities + Inland Connectivity</td>
<td>7</td>
<td>$2 M to $62 M</td>
</tr>
<tr>
<td>Port Facilities + Waterways</td>
<td>1</td>
<td>$62 M</td>
</tr>
</tbody>
</table>

“As the nation’s top exporting state, Texas plays a key role in ensuring American products reach markets across the globe, and international trade and the movement of goods are crucial to the Texas economy. Texas’ seaports play a critical role in maintaining our state’s economic strength, and keeping those ports competitive will be an important part of Texas’ growth in the coming decades.”

Glenn Hegar
Texas Comptroller of Public Accounts
## 2022-2023 Port Capital Investment Report Projects by Rank

<table>
<thead>
<tr>
<th>Rank</th>
<th>Port</th>
<th>Project Name</th>
<th>Project Type</th>
<th>Cost*</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port of Beaumont</td>
<td>Puzzle Switch</td>
<td></td>
<td>$1,462,600</td>
<td>B-12</td>
</tr>
<tr>
<td>2</td>
<td>Port of Corpus Christi Authority</td>
<td>La Quinta Channel Deepening Study</td>
<td></td>
<td>$3,000,000</td>
<td>B-38</td>
</tr>
<tr>
<td>3</td>
<td>Port of Corpus Christi Authority</td>
<td>Corpus Christi Ship Channel Improvement Project</td>
<td></td>
<td>$651,085,000</td>
<td>B-35</td>
</tr>
<tr>
<td>4</td>
<td>Port of Port Arthur</td>
<td>Multimodal Queuing Area</td>
<td></td>
<td>$2,415,000</td>
<td>B-20</td>
</tr>
<tr>
<td>5</td>
<td>Port of Orange</td>
<td>DRAVO Peninsula Industrial Site</td>
<td></td>
<td>$2,535,000</td>
<td>B-9</td>
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<tr>
<td>6</td>
<td>Port of Brownsville</td>
<td>Brazos Island Harbor Channel Improvement Project</td>
<td></td>
<td>$301,952,000</td>
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<tr>
<td>7</td>
<td>Port of Port Arthur</td>
<td>Berth 5 Backlands</td>
<td></td>
<td>$3,010,000</td>
<td>B-19</td>
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<tr>
<td>8</td>
<td>Port of Beaumont</td>
<td>Orange County Dock 2</td>
<td></td>
<td>$61,600,000</td>
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<tr>
<td>9</td>
<td>Port of Port Arthur</td>
<td>Berth 1-2 Toe Wall Construction</td>
<td></td>
<td>$211,800,000</td>
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<tr>
<td>10</td>
<td>Port of Port Arthur</td>
<td>Berth 3-5 Toe Wall Construction</td>
<td></td>
<td>$29,331,000</td>
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<tr>
<td>11</td>
<td>Port of Corpus Christi Authority</td>
<td>Rincon Complex Multimodal Infrastructure Development</td>
<td></td>
<td>$14,000,000</td>
<td>B-37</td>
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<tr>
<td>12</td>
<td>Port of Galveston</td>
<td>Old Port Industrial Road Utility Improvements and Gate Relocation</td>
<td></td>
<td>$14,000,000</td>
<td>B-27</td>
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<tr>
<td>13</td>
<td>Port Freeport</td>
<td>Freeport Harbor Channel Improvement Project</td>
<td></td>
<td>$324,590,000</td>
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<tr>
<td>14</td>
<td>Port Freeport</td>
<td>Velasco Terminal Berths 9 and 10</td>
<td></td>
<td>$45,000,000</td>
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<td>15</td>
<td>Calhoun Port Authority</td>
<td>Matagorda Ship Channel Improvement Project</td>
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<td>$218,325,000</td>
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<td>16</td>
<td>Port of Beaumont</td>
<td>South End Truck Queuing Area</td>
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<td>$9,000,000</td>
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<tr>
<td>17</td>
<td>Port of Corpus Christi Authority</td>
<td>Avery Point Terminal Redevelopment</td>
<td></td>
<td>$155,508,988</td>
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<tr>
<td>18</td>
<td>Port Freeport</td>
<td>Parcel 14 Stabilization and Rail Development Phase II</td>
<td></td>
<td>$55,700,000</td>
<td>B-31</td>
</tr>
<tr>
<td>19</td>
<td>Calhoun Port Authority</td>
<td>South Peninsula Development Phase I</td>
<td></td>
<td>$62,311,295</td>
<td>B-34</td>
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<tr>
<td>20</td>
<td>Port of Galveston</td>
<td>Terminal Parking Garage</td>
<td></td>
<td>$29,150,000</td>
<td>B-25</td>
</tr>
<tr>
<td>21</td>
<td>Port of Galveston</td>
<td>Terminal 3 Site Owner Obligations Project</td>
<td></td>
<td>$14,000,000</td>
<td>B-26</td>
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<tr>
<td>22</td>
<td>Port of Port Arthur</td>
<td>In Port Cargo and Trailer Staging Area</td>
<td></td>
<td>$1,500,000</td>
<td>B-21</td>
</tr>
<tr>
<td>23</td>
<td>Port of Port Arthur</td>
<td>Terminal Rail Expansion</td>
<td></td>
<td>$7,210,282</td>
<td>B-18</td>
</tr>
<tr>
<td>24</td>
<td>Port of Port Arthur</td>
<td>Shed 1 Rehabilitation</td>
<td></td>
<td>$10,225,000</td>
<td>B-17</td>
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<tr>
<td>25</td>
<td>Port of Galveston</td>
<td>Pelican Island Projects Phase I</td>
<td></td>
<td>$51,200,000</td>
<td>B-24</td>
</tr>
<tr>
<td>26</td>
<td>Port of Port Arthur</td>
<td>Queuing and Staging Area</td>
<td></td>
<td>$11,199,000</td>
<td>B-16</td>
</tr>
<tr>
<td>27</td>
<td>Port of Galveston</td>
<td>West End Cargo Expansion</td>
<td></td>
<td>$65,704,452</td>
<td>B-23</td>
</tr>
<tr>
<td>28</td>
<td>Port of Galveston</td>
<td>Galveston Island Wayfinding Project</td>
<td></td>
<td>$1,600,000</td>
<td>B-29</td>
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<tr>
<td>29</td>
<td>Port of Port Arthur</td>
<td>Railyard Flyover Project</td>
<td></td>
<td>$15,000,000</td>
<td>B-15</td>
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<tr>
<td>30</td>
<td>Port of Galveston</td>
<td>Cruise Terminal Walkway Circulation Improvements</td>
<td></td>
<td>$2,724,574</td>
<td>B-28</td>
</tr>
<tr>
<td>31</td>
<td>Port of Port Arthur</td>
<td>Truck and Trailer Cargo Queuing Area</td>
<td></td>
<td>$829,000</td>
<td>B-22</td>
</tr>
</tbody>
</table>

**TOTAL WITHOUT SHIP CHANNEL PROJECTS** $682,855,191

*Costs provided by the individual Ports, Port Authorities, or Navigation Districts

---

## PROJECT COST BY PORT

- **Port of Orange**: $2.5 M
- **Port of Beaumont**: $72.1 M
- **Port of Port Arthur**: $102.4 M
- **Port of Galveston**: $173.4 M
- **Port of Freeport**: $425.3 M
- **Calhoun Port Authority**: $280.6 M
- **Port of Corpus Christi Authority**: $823.6 M
- **Port of Brownsville**: $302 M

**Prioritized Projects**
- Inland Connectivity
- Inland Connectivity and Port Facilities
- Waterway

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**Gulf of Mexico**

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**TxDOT Maritime Division**

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**Port Capital Investment Report**

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**2022-2023 Texas Port Mission Plan**
### Project Details

<table>
<thead>
<tr>
<th>Port Facility</th>
<th>Port of Orange</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Orange</td>
</tr>
<tr>
<td>Project Status</td>
<td>Design Not Started</td>
</tr>
</tbody>
</table>

#### Project Description

South Childers Road is an unpaved gravel road that runs north-south along a thirteen-acre greenfield leading to the Port’s dock slip on the Sabine River. Currently, road degradation from heavy use and rainfall requires repairs at least four times a year to accommodate traffic. Upgrading the road to asphalt paving will increase the reliability of Port access, allow safe passage of heavier cargo loads, and decrease traffic congestion. Stabilizing the greenfield, which is currently unusable during and after rain events, will provide additional lettable area and mitigate the runoff effects of heavy rainfall. This will reduce costly delays due to weather hazards and annual road maintenance.

### Funding & Support

| $ Total Cost | $2,535,000 |

#### Need for Funding

Road improvement and greenfield stabilization are needed to ensure traffic safety and enable economic growth at the Port of Orange DRAVO Peninsula Industrial site. The proposed project will increase current operating capacity and provide reliable port access that will assist in retaining long-standing tenants and support growth of the Port with business development and new jobs.

#### Project Support

- Port of Orange
- Orange County Economic Development Corporation
- Orange County
- Bludworth

### Project Benefits

#### Economic Impact

- Increased traffic and equipment transportation will increase current operating capacity
- Upgraded roads will attract new customers, such as a local chemical plant that has designated Orange County as one of two potential sites for an $8 billion plant expansion
- Eliminates costly delays such as frequent maintenance and traffic congestion due to hazardous path conditions during and following rain events

#### Operational Impact

- Increased truck access to customers of the Port, expediting the transfer of cargo and equipment shipments
- Shorter transfer times will allow for an increase in transfers per day and decreased traffic congestion
- Facilitates development of the marine industrial site for vessel repairs and new vessel buildouts
This project includes the creation of a new dock facility at the Port of Beaumont that will be capable of loading and unloading Suezmax vessels and will support foreign and domestic demand. The new facility will include an approachway, access roads, and pipeline connectivity that will allow the Port to respond to growth in the crude oil and Ultra Low Sulphur Diesel (ULSD) market.

**Project Benefits**

**Economic Impact**
- Capable of loading and unloading at a rate of 30,000 barrels/hr.
- Export products can be moved quickly from pipelines instead of train cars/trucks
- Annual estimated $450 million increase in economic activity
- Docks would support movement of in-demand products including crude oil and ULSD

**Safe and Secure Operations**
- Prevents the unintended release of hazardous materials by completing a pipeline-barge connection point
- Includes a control system to minimize oil spills at Port
- Allows for the multi-modal transfer of products from rail-to-ship, pipeline-to-ship, and ship-to-land
- Improves safety by transporting liquid fuel through a pipeline instead of truck or rail

**Funding & Support**

| Total Cost | $61,600,000 |

**Need for Funding**

For a project of this scale, state funding is needed. Due to the Port's continued increase in liquid bulk cargo volume, the expected approval of the TransCanada Keystone XL pipeline, and the additional $450 million of improvements taking place across the Port of Beaumont, the need for increased efficiency and volume of energy product movement at the Port of Beaumont will be amplified.

**Project Support**

- Port of Beaumont Board of Commissioners
- City, County & Chamber of Commerce
- Local, State & Federal Representatives
- Southeast Texas Economic Development Foundation
- Golden Triangle Business Roundtable
- Entergy Texas

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**South End Truck Queuing Area Project Details**

<table>
<thead>
<tr>
<th>Port Facility</th>
<th>Port of Beaumont</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Jefferson</td>
</tr>
</tbody>
</table>

**Project Status**

- Design Phase

**Project Category**

- Terminal with Dock 1

**Project Description**

This project will include the hard surfacing of thirty-seven acres that will serve 100,000+ dump trucks currently causing significant traffic on adjacent City roads by removing dump trucks and heavy haul tractor trailer traffic. The proposed specialized paving will address the heavy truck traffic that occurs on City streets outside the Port of Beaumont terminal affecting public commutes to schools, work, etc. This project is also expected to bolster the relationship between the Port and the public.

**Project Support**

- Port of Beaumont Board of Commissioners
- Local, State & Federal Representatives
- County and City officials

**Funding & Support**

| Total Cost | $9,000,000 |

**Need for Funding**

This project is a continuation of the 2014 Port of Beaumont Master Plan to alleviate inter-city dump truck traffic congestion, by paving an underutilized area adjacent to the Port. The proposed specialized paving will address the heavy truck traffic that occurs on City streets outside the Port of Beaumont terminal affecting public commutes to schools, work, etc. This project is also expected to bolster the relationship between the Port and the public.

**Operational Impact**

- Provides direct access to Port facilities for trucks entering the Port gate
- Minimizes congestion on adjacent City roads by removing dump trucks and heavy haul tractor trailer traffic
- Provides a second intermodal cargo exchange and staging yard

**Bird’s Eye View of Proposed Staging Area in Port**

**Project Overall Layout**
**Puzzle Switch**

**Port of Beaumont**

**Project Details**

<table>
<thead>
<tr>
<th>Port Facility</th>
<th>Port of Beaumont</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Jefferson</td>
</tr>
<tr>
<td>Project Status</td>
<td>90% Complete Design</td>
</tr>
<tr>
<td>Project Category</td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>This project will replace the existing, aged railroad puzzle switch with a custom puzzle switch. The new puzzle switch will have the possibility of setting four routes, allowing the Port to move a high volume of cars within a compact space. This new puzzle switch will also increase the reliability of the rail switch to ensure maximum cargo handling for the Port by rail.</td>
</tr>
</tbody>
</table>

**Project Benefits**

**Operational Impact**

- Improves efficiency and operability of cargo movements due to an improved switch design
- Ensures that reliable cargo movement of two unit trains can continue
- Saves the Port an estimated $15,000 annually in switch maintenance costs
- Increases the safety for rail cargo handlers, who will be able to handle two unit trains simultaneously
- Decreases the possibility for derailments, which are currently very common
- Replaces the current deteriorating puzzle switch that has lower structural integrity and bearing load than recommended
- Increases activity and cargo volume for various exports, such as wood pellets and diesel

**Safe and Secure Operations**

- Allows for increased vessel size and loading, increasing job sustainability and competitiveness for Texas industries and port stakeholders at large
- Reduces congestion with fewer vessels and enhances port facility's ability to operate more efficiently
- Improves efficiency by allowing larger and fully-loaded vessels to use berths
- Increases activity and cargo volume for various exports, such as wood pellets and diesel

**Funding & Support**

<table>
<thead>
<tr>
<th>$</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1,462,600</td>
</tr>
</tbody>
</table>

**Need for Funding**

This project will replace an aged, unreliable puzzle switch with a custom switch with optimized efficiency. The condition of the current puzzle switch impedes operations and is a safety hazard for cargo movements within this area of the Port. The engineering and permitting for this project are nearly complete, and this switch could be installed within a short amount of time.

**Project Support**

- Port of Beaumont Board of Commissioners
- Kansas City Southern
- Burlington Northern Santa Fe
- Union Pacific
- Southeast Texas Regional Planning Committee
- Louis Dreyfus Company

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**Berth 3-5 Toe Wall Construction**

**Port of Port Arthur**

**Project Details**

<table>
<thead>
<tr>
<th>Port Facility</th>
<th>Port of Port Arthur</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Jefferson</td>
</tr>
<tr>
<td>Project Status</td>
<td>Design Phase</td>
</tr>
<tr>
<td>Project Category</td>
<td></td>
</tr>
<tr>
<td>Project Description</td>
<td>This project includes the addition of a subsurface, sheetpiling retaining wall to provide stability for the berths and docking system for Berths 3, 4, and 5. The wall will measure 2,000 linear feet long and will be driven below the mudline to 48 feet in depth. The berth depth will match the proposed improvement of the adjacent Sabine-Neches Waterway to -48 feet that is currently underway. This project also involves the removal and replacement of the existing fendering system with added mooring bollards to accommodate breasting lines.</td>
</tr>
</tbody>
</table>

**Project Benefits**

**Economic Impact**

- Allows for increased vessel size and loading, increasing job sustainability and competitiveness for Texas industries and port stakeholders at large
- Attracts customers to the area based on fully-loaded vessel handling
- Increases activity and cargo volume for various exports, such as wood pellets and diesel

**Operational Impact**

- Improves efficiency by allowing larger and fully-loaded vessels to use berths
- Reduces congestion with fewer vessels and enhances waterway traffic management
- Allows the third largest Port nationally for cargo handled at this location to operate more efficiently

**Funding & Support**

<table>
<thead>
<tr>
<th>$</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$29,331,000</td>
</tr>
</tbody>
</table>

**Need for Funding**

The Sabine-Neches Waterway is currently being deepened to -48 feet; however, Berths 3, 4, and 5 can only accommodate vessels having up to 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 light load, which significantly reduces the efficiencies and the earning power of these movements.

**Project Support**

- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at large

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**Bird’s Eye View of Proposed Toe Wall Project**
### Berth 1-2 Toe Wall Construction
**Port of Port Arthur**

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Port Facility</th>
<th>Port of Port Arthur</th>
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</thead>
<tbody>
<tr>
<td>County</td>
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<tr>
<td>Project Category</td>
<td>Port Facility</td>
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</tr>
</tbody>
</table>

**Project Description**
This project includes the addition of a subsurface, sheetpile retaining wall to provide stability for the berth and docking system for Berths 1 and 2. The wall will measure 2,000 linear feet long and will be driven below the mudline to 48 feet in depth. The berth depth will match the proposed improvement of the adjacent Sabine-Neches Waterway to -48 feet that is currently underway. This project also involves the removal and replacement of the existing fendering system for Berths 1 and 2. The wall will measure 2,000 linear feet long and will be driven below the mudline to 48 feet in depth.

**Project Benefits**

<table>
<thead>
<tr>
<th>Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Allows for increased vessel size and loading, increasing job sustainability and competitiveness for Texas</td>
</tr>
<tr>
<td>• Attracts customers to the area based on fully-loaded vessel handling</td>
</tr>
<tr>
<td>• Increases activity and cargo volume for various exports, such as wood pellets and diesel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operational Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improves efficiency by allowing larger and fully-loaded vessels to use berths</td>
</tr>
<tr>
<td>• Reduces congestion with fewer vessels and enhances waterway traffic management</td>
</tr>
<tr>
<td>• Allows the third largest Port nationally for cargo handled at this location to operate more efficiently</td>
</tr>
</tbody>
</table>

**Funding & Support**

<table>
<thead>
<tr>
<th>$</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$21,680,000</td>
</tr>
</tbody>
</table>

**Need for Funding**
The Sabine-Neches Waterway is currently being deepened to 48 ft, however Berths 1 and 2 can only accommodate vessels having up to 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 light load, which significantly reduces the efficiencies and the earning power of these movements.

**Project Support**
- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

### Railyard Flyover Project
**Port of Port Arthur**

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Port Facility</th>
<th>Port of Port Arthur</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Jefferson</td>
<td></td>
</tr>
<tr>
<td>Project Status</td>
<td>Design Phase</td>
<td></td>
</tr>
<tr>
<td>Project Category</td>
<td>Port Facility</td>
<td></td>
</tr>
</tbody>
</table>

**Project Description**
This project will extend Denbo Avenue under or over the railroad intersection, so that public and Port traffic can continue without stopping at the intersection. This will decrease points of conflicts between trucks and trains and also give direct access to this portion of the Port. The improved access will aid in the development of the adjacent area, and expand the Port’s footprint.

**Project Benefits**

<table>
<thead>
<tr>
<th>Economic Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improves safety by removing potential conflicts between trains and road traffic</td>
</tr>
<tr>
<td>• Provides access to an underutilized area the Port wants to develop for growth</td>
</tr>
<tr>
<td>• Allows for quick and reliable access from Denbo Avenue to the Port for cargo traffic, increasing cargo volumes</td>
</tr>
<tr>
<td>• Can create jobs and increase revenue with the potential for accessible, future development</td>
</tr>
<tr>
<td>• Encourages new customers to join Port, helping the Port to diversify</td>
</tr>
</tbody>
</table>

**Funding & Support**

<table>
<thead>
<tr>
<th>$</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$15,000,000</td>
</tr>
</tbody>
</table>

**Need for Funding**
The Port of Port Arthur seeks to enhance the efficiency and value of its intermodal operations at the Class 1 railroad with a flyover to Denbo Avenue. This would decrease points of conflicts between trucks and trains and promote the development of land adjacent to the railyard for Port use. This proposed area requires City-funded maintenance because of the illegal dumping of tires and other large trash items.

**Project Support**
- Construction Committee for the Board of Commissioners of the Port of Port Arthur
- City of Port Arthur
- Kansas City Southern Railroad

**Enables Connectivity**

- Removes conflict of rail and road, improving safety
- Improves efficiency of traffic along Denbo to the Port without the rail interruption
- Reduces response times for emergency services in case of accidents
Queuing and Staging Area

Port of Port Arthur

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Project Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port Facility</strong></td>
<td><strong>Economic Impact</strong></td>
</tr>
<tr>
<td>Port of Port Arthur</td>
<td>• Allows more cargo to be stored in transit for Berth 1 and landside rail/truck docks, allowing the Port to handle more cargo</td>
</tr>
<tr>
<td><strong>County</strong></td>
<td>• Increases revenue and creates jobs for the Port</td>
</tr>
<tr>
<td>Jefferson</td>
<td>• Supports the following cargoes:</td>
</tr>
<tr>
<td><strong>Project Status</strong></td>
<td>- Military cargo</td>
</tr>
<tr>
<td>Design Phase</td>
<td>- Construction material</td>
</tr>
<tr>
<td><strong>Project Category</strong></td>
<td>- Energy project cargo</td>
</tr>
<tr>
<td><strong>Project Description</strong></td>
<td>Makes the Port more attractive to existing and potential customers</td>
</tr>
</tbody>
</table>

This project will stabilize a former railroad lay down area, adding 19 acres of usable space for the Port. Currently, the Port struggles with limited multifunctional space, and this project will assist with this need as the Port continues to rapidly grow. The project will include adding pavement for a cargo staging and queuing area, located close to Berth 1. The project will also include lighting and cameras for improved cargo security.

<table>
<thead>
<tr>
<th>Funding &amp; Support</th>
<th>$11,159,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost</strong></td>
<td>$11,159,000</td>
</tr>
</tbody>
</table>

Need for Funding

State funding is needed to help the Port meet both current and future cargo demands for clients. The Port of Port Arthur currently has a limited amount of multiuse area that can be used to handle and store various types of cargo. Local refineries 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. The project promotes economic gain for the State by supporting Texas exports and streamlines import commodities to Texas and U.S. markets.

<table>
<thead>
<tr>
<th>Project Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Board of Trustees of Port of Port Arthur</td>
</tr>
<tr>
<td>• City, County &amp; Chamber of Commerce</td>
</tr>
<tr>
<td>• State &amp; Federal Representatives</td>
</tr>
<tr>
<td>• Industries and Port Stakeholders at Large</td>
</tr>
</tbody>
</table>

Shed 1 Rehabilitation

Port of Port Arthur

<table>
<thead>
<tr>
<th>Project Details</th>
<th>Project Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port Facility</strong></td>
<td><strong>Economic Impact</strong></td>
</tr>
<tr>
<td>Port of Port Arthur</td>
<td>• Increases cargo volume that can be stored in transit served by Berth 1</td>
</tr>
<tr>
<td><strong>County</strong></td>
<td>• Enables the Port to operate during inclement weather, decreasing the downtime of the Port</td>
</tr>
<tr>
<td>Jefferson</td>
<td>• Provides a 40% increase in storage efficiency by constructing a clear span facility</td>
</tr>
<tr>
<td><strong>Project Status</strong></td>
<td>• Provides a 25% increase in truck loading efficiency, allowing more cargo to move and generating more revenue</td>
</tr>
<tr>
<td>Design Phase</td>
<td><strong>Project Description</strong></td>
</tr>
<tr>
<td><strong>Project Category</strong></td>
<td>This project will reconstruct Warehouse 1 and enhance the mobility within. The project will provide increased storage density and covered areas for loading/unloading truck or rail cargo. This project increases cargo capacity and reduces dwell time for trucks by adding all-weather access.</td>
</tr>
<tr>
<td><strong>Operational Impact</strong></td>
<td>• Adds 20,000 square feet of storage space to Warehouse 1</td>
</tr>
<tr>
<td>• Allows for additional cargo to be moved and stored, removing the possibility of weather delays</td>
<td></td>
</tr>
<tr>
<td>• Expands the range of cargo through the construction of higher clearance heights in the warehouse and removal of internal columns</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Funding &amp; Support</th>
<th>$10,225,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost</strong></td>
<td>$10,225,000</td>
</tr>
</tbody>
</table>

Need for Funding

State funding is needed to help the Port improve the storage of cargo moving through the Port. Jefferson County, one of the wettest counties in the state, frequently has rainfall that causes shut downs both before and after the storm event. Warehouse 1 is currently dilapidated and has interior columns and low rack heights which provides operational changes inside the warehouse. This project includes the construction of a clear span facility which will allow for trucks and rail loading/unloading to be covered. This construction will enable the Port to operate in all weather conditions and will protect against revenue losses incurred by weather delays. Improvements within the warehouse will allow the cargo to be stored and moved more efficiently.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>• Board of Trustees of Port of Port Arthur</td>
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<td>• City, County &amp; Chamber of Commerce</td>
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<tr>
<td>• State &amp; Federal Representatives</td>
</tr>
<tr>
<td>• Industries and Port Stakeholders at Large</td>
</tr>
</tbody>
</table>
Terminal Rail Expansion  
Port of Port Arthur

### Project Details
- **Port Facility:** Port of Port Arthur
- **County:** Jefferson
- **Project Status:** Design Phase
- **Project Category:** B-19

### Project Description
This project will enhance port connectivity and rail accessibility at the Port of Port Arthur by constructing approximately 15,000 feet of railroad track over four lines, parallel to the existing alignment. This project will allow loading and unloading of rail cargo to be done in bulk trains versus car by car, a significant operational improvement.

### Funding & Support
- **Total Cost:** $7,210,282

#### Need for Funding
State funding is needed to help improve Port connectivity and rail accessibility. The railyard is currently limited by the existing space, and operates at approximately 75% capacity during peak times. These additional lines would allow the trains to be bulk handled directly onto trucks or barges. This handling keeps the trains from being pulled apart and put back together, a process that is time consuming, logistically complex, and occasionally unsafe.

### Project Support
- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

### Project Benefits

#### Enhances Connectivity
- Provides significant operational improvement through rail connectivity options
- Improves loading techniques by requiring double handling
- Benefits larger cargo that Port typically services, including:
  - Military cargo
  - Wind energy cargo
  - Other large-scale items

#### Safe and Secure Operations
- Reduces the physical handling of railcars from Port personnel, increasing safety
- Eliminates multiple hazards that result from moving railcars, by reducing breaking trains
- Reduces the potential for truck-to-rail accidents
- Reduces delays at residential and commercial crossings

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Berth 5 Backlands  
Port of Port Arthur

### Project Details
- **Port Facility:** Port of Port Arthur
- **County:** Jefferson
- **Project Status:** Near Shovel Ready
- **Project Category:** B-19

### Project Description
Berth 5 is currently being constructed by this Port. This project adds pavement to allow better operational access to cargo and support the Berth 5 investment. This pavement will optimize the berth usage, allowing for more cargo volume to be moved around the berth. The addition of this pavement will also enhance the safety of personnel when handling steel in a purpose-built area.

### Funding & Support
- **Total Cost:** $3,010,000

#### Need for Funding
State funding is needed to help the Port improve their cargo connectivity and rail accessibility. The adjacent cargo storage area to Berth 5 is currently nearing completion, the Port of Port Arthur needs to improve the adjacent cargo storage area to better serve Berth 5. This project provides enhanced surface connectivity, operational efficiency, and port development. Improving the project site supports Texas exports and streamlines import commodities to Texas and U.S. markets.

### Project Support
- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

### Economic Impact
- Supports a $40 million berth expansion, currently underway
- Adds sustainability and cargo diversity to Port
- Increases area for the Port to store cargo by paving the area behind Berth 5
- Enhances utilization and allows more goods to be moved
- Allows area to be used during wet weather events, reducing downtime
- Increases Port revenue and creates jobs

### Operational Impact
- Creates an open laydown area that minimizes traffic congestion for trucks
- Allows cargo access to high and wide trucks
- Increases cargo handling and allows for more cargo diversity
- Creates the Port’s only true open laydown area adjacent to a deep draft dock
**Multimodal Queuing Area**

**Port of Port Arthur**

**Project Details**

- **Port Facility**: Port of Port Arthur
- **County**: Jefferson
- **Project Status**: Design Not Started
- **Project Category**: Design Phase

**Project Description**

This project will create a new laydown yard and queuing area in what is currently a vehicle maintenance shed. The current location is partially paved, and this project will fully pave the area, allowing for use in all weather conditions. This project will also extend an existing rail within the loading area.

**Project Benefits**

**Operational Impact**

- Improves the flow of cargo and trucks in and out of the Port
- Reduces truck congestion and truck idling
- Promotes efficient cargo handling
- Allows trucks to load directly onto rail from both sides, ideal for specialty cargo
- Allows for a forklift to load and unload cargo on concrete

**Enhances Connectivity**

- Enhances freight connectivity for marine-rail-truck cargo
- Allows more efficient movement of cargo, including cargo that is difficult to move
- Increases storage lane for 18-wheeler commercial vehicles off of existing road infrastructure
- Reduces modal conflicts

**Funding & Support**

- **Total Cost**: $2,415,000

**Need for Funding**

State funding is needed to promote multiple connectivity nodes that provide enhanced surface connectivity and operational connectivity, and create opportunity for additional Port development. This project reduces the number of nodal conflicts on roadways and railroad in the port area and local area. This project also:

- Provides an increased measure of separation between motorists, pedestrian, and cargo traffic.
- Creates a multiuse area less than 800 feet from Berth 1.
- Adds cargo staging in an area where facilities handle a variety of railcars transloading to/from center beam, tanker, bulk, hopper and gondola cars.
- Creates a new staging area that allows for truck queuing.

**Project Support**

- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

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**In Port Cargo and Trailer Staging Area**

**Port of Port Arthur**

**Project Details**

- **Port Facility**: Port of Port Arthur
- **County**: Jefferson
- **Project Status**: Design Phase
- **Project Category**: Design Phase

**Project Description**

This project will resurface the staging area near the Port of Port Arthur’s Command Center. The area would also be expanded to a total area of approximately 1.5 acres, which would provide more utility space for the Port. This project area is critical to the Port because of its proximity to the Command Center. Increasing the size and durability will aid with Port operations.

**Project Benefits**

**Operational Impact**

- Increases the loading and unloading rate for trucks and trailers, allowing more cargo to move through the area
- Prevents gridlock when servicing long trains of cargo for continuous operation
- Adds sustainable longshore labor jobs
- Expands the diversity of the Port

**Economic Impact**

- Increases the storage capacity for the Port for specialty goods requiring secure storage
- Expands secure truck loading options
- Reduces traffic congestion by utilizing part of the longshore lot for parking
- Allows goods to move more efficiently and more securely within the area
- Raises productivity and efficiency
- Limits congestion caused by trucks requiring escorts through the Port

**Funding & Support**

- **Total Cost**: $1,500,000

**Need for Funding**

State funding is needed to help improve and expand the surface and operational area within the Port. This area has many functions for the Port, including providing port security to stage truck drivers and trailer storage, and providing storage for certain cargoes of a sensitive nature that require segregation. This area within the Port services sensitive military cargoes and this cargo is usually moved in trucks, typically in groups of 10-12. The process for unloading this cargo halts the traffic to this area, restricting customers to enter the area during its use. This often results in traffic gridlock within the Port until the entire shipment is ready to be moved to the next destination. Expanding the limits of the staging area will also improve safety by providing more space for vehicle storage and increasing distance between vehicle traffic and Port personnel.

**Project Support**

- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

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Project Details

Project Description

This project will pave a currently underutilized area that can be used for additional storage for cargo and truck queuing. The area is currently partially paved and partially vegetated. The Port of Port Arthur would like to provide additional area for truck drivers to safely drop and hook trailers, increasing the amount of available storage and expanding usage options by increasing the area.

Project Benefits

Economic Impact

- Supports additional truck cargo moving in and out of the Port
- Increases efficiency for customers
- Increases Port revenue
- Allows for movement of more goods, leads to more jobs
- Expands the use of trailer shuttling to mitigate dwell time by drivers

Operational Impact

- Reduces truck idling and congestion at the Port
- Increases safety for motor carriers by increasing distances
- Allows for more trucks to service the Port and increases the space between trucks and cargo
- Increases the efficiency of loading and unloading by allowing for cargo to be segregated by type
- Expands the volume of truck cargo
- Reduces in-Port congestion by giving trucks a queuing area to keep the trucks off of the road
- Supports local shrimpers’ ability to increase operations because of the increasing demand

Funding & Support

Need for Funding

State funding is needed to help the Port improve the efficiency and operations of cargo deliveries. To do this, the Port of Port Arthur wants to expand and stabilize the area located at the end of Lakeshore Drive. The tenant next to this proposed area is a large commercial shrimp yard that provides 95% of the County shrimp and 20% of the State shrimp. The land is owned by the Port and rented by the shrimp business owner. Improvements to this area would also allow the shrimpers to expand their already booming business.

Project Support

- Board of Trustees of Port of Port Arthur
- City, County & Chamber of Commerce
- State & Federal Representatives
- Industries and Port Stakeholders at Large

Project Details

Project Description

This project proposes 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.

Project Benefits

Economic Impact

- Consolidates cargo to West End area and reduces congestion of other traffic
- Reduces cargo movement, which reduces costs
- Generates 239 jobs, including 81 direct jobs, 112 induced jobs, and 45 indirect jobs
- Estimated $20.7 million total income/consumption impact
- Estimated $9.3 million total for local businesses to receive as a result of sales revenue
- Results in a total of $1.6 million of direct induced and indirect state and local revenue to be generated annually throughout the State

Operational Impact

- Increases laydown capacity to 15 acres
- Relieves congestion on roads through professional management of the corridor
- Reduces emissions
- Mitigates congestion by reducing idle time
- Reduces truck travel time, allowing for more cargo movement

Funding & Support

Need for Funding

State funding is needed to create additional uplands in the West End area of the Port. The uplands would support growing break bulk and Ro/Lo cargo operations. The uplands will be created by placing fill material behind the bulkhead. The balance of this project includes dredging of the slip to create a solid foundation for fill material, demolition of the deteriorated wharf structure, hydraulic placement of fill material, and installation of wick drains to accelerate consolidation of sediment.

Project Support

- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex
### Pelican Island Projects Phase I

**Port of Galveston**

#### Project Details
- **Port Facility**: Port of Galveston
- **County**: Galveston
- **Project Status**: Design Not Started
- **Project Category**:

#### Project Description
This project will begin the initial work for an island-wide roadway infrastructure improvement to prepare for future development of the island. Phase 1 of this project includes developing an LNG terminal and an automobile processing Ro/Ro facility, improving the existing Pelican Island Causeway (including the addition of a bicycle path), developing a new truck road and rail bridge with access to I-45, and beginning initial design work of the interior roadway system.

#### Funding & Support
- **Total Cost**: $51,200,000

#### Project Support
- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex

### Project Benefits

#### Economic Impact
- Provides infrastructure to aid industrial and cargo expansion
- Increases automobile (Ro/Ro) imports/exports by 26% through 2035 after the construction of an automobile processing Ro/Ro facility
- Leads to the diversification of products by attracting other rail networks through the construction of a dedicated channel crossing for truck-based shipping

#### Enhances Connectivity
- Extends the Port of Galveston’s capacity to ship around the world
- Enables direct access to Galveston Railway and then on to other rail networks through the construction of a rail bridge across West Bay
- Reduces truck traffic and truck idling time on the causeway through the construction of a dedicated channel crossing for truck-based shipping

### Terminal Parking Garage

**Port of Galveston**

#### Project Details
- **Port Facility**: Port of Galveston
- **County**: Galveston
- **Project Status**: Shovel Ready
- **Project Category**: Port Facility

#### Project Description
The Port of Galveston is seeking to optimize and expand its existing cruise business. In order to expand, the Port must improve its insufficient infrastructure and facilities to provide for operational efficiency and enhance the cruise experience for passengers. This project is important because of the increasing sizes of cruise ships and the trend of increasing numbers of cruise passengers.

#### Funding & Support
- **Total Cost**: $29,150,000

#### Project Support
- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex

#### Economic Impact
- Provides an additional 3,000 parking spaces for cruise passengers, a significant source of revenue for the Port
- Prepares for increases in cruise passengers, estimated to be 5 million annually by 2038
- Enhances the dynamic environment of Downtown Galveston by promoting and complementing existing retail, dining, entertainment, accommodation, and meeting venues; increasing revenue and opportunity for Galveston businesses

#### Safe and Secure Operations
- Reduces traffic volume of cars and shuttles on the roadway, enhancing safety of cruise passengers and the public
- Increased effectiveness of lighting with fewer dark and potentially dangerous areas
- Increased visibility of signage and wayfinding capability
- Reduced operational costs associated with signing and lighting
- Increased handicap accessibility with vehicles close to stair and elevator cores having a direct path to key movement patterns of the facility
- Avoidance of carbon monoxide build-up when air flow is adequately designed for through mechanical and/or natural ventilation
Terminal 3 Site Owner Obligations Project
Port of Galveston

Project Details
Port Facility: Port of Galveston
County: Galveston
Project Status: Planning and Design Phase
Project Category: In Procurement

Project Description
This project would improve the ground parking areas around the proposed Terminal 3, as well as the ability of the wharf to support larger, more modern cruise ships, specifically the Royal Caribbean “Oasis Class” vessels. The proposed Terminal 3 will be located on Pier 10. The wharf on Pier 10 was originally designed in the 1970s to berth container ships and is not adequate to berth modern cruise ships. Improvements/rehabilitation of the existing structure are proposed, as well as the installation of 15 berthing and 6 mooring dolphins. Adjacent wharf structures built in the 1940s must also be rehabilitated.

The project also includes a planned 2,000-space ground parking area that will be designed with shuttle stations, access roads, and designated pedestrian walkways. This area is intended to be flexible enough to be used for alternative revenue activities when not being used for parking. This project is specifically for the utility improvements, and the remaining project components will be funded by Royal Caribbean.

Project Benefits
Economic Benefits
- Cruise industry in Galveston generated $1.5 billion and 26,000 jobs in Texas in 2018, and this revenue is expected to significantly increase
- Increases in vessel capacity to support more cruise passengers with expected growth over the next 5 years
- Increased revenue through multipurpose parking garage

Enhances Connectivity
- Improved throughput of passengers embarking and disembarking from cruise ships
- Improved ground transportation access to cruise terminal
- Alternative traffic plans being studied to help alleviate traffic off Harborside Drive
- Shuttle stations to be built throughout parking lot to lessen traffic from around the island

Funding & Support
Total Cost: $14,000,000

Need for Funding
State funding is needed to improve Old Port Industrial Road, a critical road for Port access. The first phase of this road improvement (between 28th and 33rd Streets) began in 2019 and was funded equally by the Port and the Texas Department of Transportation. This funding request is for the second phase of the road improvements, which includes the addition of a 40th Street gate. This project also includes adding security fencing; raising, paving, widening the road to three lanes; and adding a bike path alongside the roadway. This improvement will allow additional traffic (cruise passenger and commercial supply trucks) into the Port.

Project Support
- Board of Trustees of the Galveston Wharves
- Royal Caribbean
- Stakeholders within Port complex

Old Port Industrial Road Utility Improvements and Gate Relocation
Port of Galveston

Project Details
Port Facility: Port of Galveston
County: Galveston
Project Status: In Procurement
Project Category: Design Phase

Project Description
The project includes the development of Old Port Industrial Road, an internal road within the Port. This project will be completed in sections, and supports the Port’s growing cruise and cargo sectors. The improvements will remove thousands of cars, trucks, and buses from Harborside Drive each year by giving them internal road access to the Port.

Project Benefits
Operational Impact
- Improves the efficiency of traffic moving into the Port by adding an additional entrance from Harborside Drive to Old Port Industrial Road
- Re-routes large trucks supplying cruise ships from Harborside Drive to Port interior for faster access and deliveries with less congestion
- 40th Street gate relocated to demarcate the new Old Port Industrial Road and include truck scale for more efficient processing
- Consolidates two cargo lots for more versatility and improved internal handling

Enhances Connectivity
- Creates sustainable, viable, and more accessible alternative routes for trucks and cruise passengers
- Provides a more direct path to Port facilities for larger vehicles carrying cargo
- Greater connectivity between the Port and Texas highway system
- Increases access to the Texas highway system for non-Port traffic

Funding & Support
Total Cost: $14,000,000

Need for Funding
State funding is needed to improve Old Port Industrial Road, a critical road for Port access. The first phase of this road improvement (between 28th and 33rd Streets) began in 2019 and was funded equally by the Port and the Texas Department of Transportation. This funding request is for the second phase of the road improvements, which includes the addition of a 40th Street gate. This project also includes adding security fencing; raising, paving, widening the road to three lanes; and adding a bike path alongside the roadway. This improvement will allow additional traffic (cruise passenger and commercial supply trucks) into the Port.

Project Support
- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex
Cruise Terminal Walkway Circulation Improvements  Port of Galveston

**Project Details**
- **Port Facility:** Port of Galveston
- **County:** Galveston
- **Project Status:** Near the End of Design Phase
- **Project Description:**
  This project will improve the existing 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, and two escalators, as well as 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 from Harborside Drive up to the overhead walkway.

**Project Benefits**
- **Economic Impact**
  - Enhances local economy’s sustainability by reviving a vital artery between divided areas of the downtown sector
  - Reduces delays, improving system performance and throughput
  - Increases the efficiency of moving people, goods, and services on and off ships
  - Attracts more cruise customers with the ease of boarding and off boarding

- **Operational Impact**
  - Continues the Port’s vision of accessibility by integrating advanced technologies and improvements into transportation system management and operations
  - Platform digital displays communicate real time transportation information, improving mobility and reducing congestion
  - Reduces potential traffic-related incidents occurring between motorists and the pedestrians
  - Eliminates congestion of pedestrians attempting to cross Harborside

**Funding & Support**
- **Total Cost:** $2,724,574

**Need for Funding**
The walkway is already in existence and approximately 90% of the architectural and engineering design has been completed for the structural and interior improvements. However, funding is still needed to install elevators, escalators, air conditioning, and pedestrian improvements at both ends of the walkway that will allow reopening of the elevated walkway to the public. 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 Port and City of Galveston.

**Project Support**
- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex

---

Galveston Island Wayfinding Project  Port of Galveston

**Project Details**
- **Port Facility:** Port of Galveston
- **County:** Galveston
- **Project Status:** Planning and Scoping
- **Project Description:**
  The scope of this project includes redeveloping signage within the Port complex for opportunities to consolidate signs. The resulting wayfinding scheme is non-standard and has proven ineffective to the Port exacerbating problems with the existing wayfinding system. A concise, legible, and non-intimidating wayfinding system would plan for cohesion, legibility from a distance, and attractiveness. Integration with local architectural themes is intended.

**Project Benefits**
- **Safe and Secure Operations**
  - Improves driver and pedestrian safety by improving wayfinding system
  - Improves traffic flow in and out of the Port
  - Alleviates traffic through residential areas surrounding the Port, carrying benefits of safety improvements to residential areas

- **Other Benefits**
  - Enhances tourism and the Port’s brand through providing cohesive wayfinding system to the visitor experience
  - Improves ease of access to and from the mainland through coordination with TxDOT signage at I-45
  - Benefits tenants, tourists, residents, and cruise passengers

**Funding & Support**
- **Total Cost:** $1,600,000

**Need for Funding**
State funding is needed to complete this ambitious terminal and industrial expansion plan which will invite more people and traffic to the Port exacerbating problems with the existing wayfinding scheme. A concise, legible, and non-intimidating wayfinding system will improve driver and pedestrian safety. The wayfinding project will help restore efficiency in movement across the Port.

**Project Support**
- Board of Trustees of the Galveston Wharves
- City of Galveston
- Stakeholders within Port complex

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Congress authorized this project in the Water Resources Reform and Development Act of 2014 (WRRDA 2014) to widen the main channel and deepen it from the 45-foot existing channel depth down to 55 feet. This will accommodate Post-Panamax container ships and millions of dollars in additional revenue will be created.

**Economic Impact**
- Benefit-cost ratio of 1.53
- $13.9 million net benefits through transportation cost reduction
- Could add 15,000-30,000 distribution and industrial jobs within the SH 36A corridor, with ⅔ of these in Freeport
- $800 million increase in annual income and sales tax revenues
- Major commodities impacted by this project are:
  - Crude oil, petroleum, and chemical products
  - Containerized goods like consumer products
  - Offshore service and exploration vessel

**Operational Impact**
- Will accommodate larger Panamax class vessels
- Improved safety for all vessels at berth or in transit
- Accommodates larger vessels and supports more efficient vessel movements

**Need for Funding**
The federal cost share for this project is 60% and the Port will need to match the other 40%. State funding is needed to complete the remaining reaches for timely completion of the Freeport Harbor Channel project. The additional depth will allow larger vessels to navigate the channel, leading to an increase in cargo volume entering the port. Thousands of direct and indirect jobs and millions of dollars in additional revenue will be created in the area as a result of the finished channel expansion.

**Project Support**
- Port Freeport Commission
- U.S. Army Corps of Engineers approved
- Congressional approval through WRRDA 2014

---

**Parcel 14 Stabilization and Rail Development Phase II**

**Economic Impact**
- Economic Impact Statement calculates $180 million in total economic benefits
- Additional 80 acres for Ro/Ro cargo expected to support 120 new jobs producing an annual payroll of approximately $3.75 million per year
- Facility will have capacity to process 72,000 vehicle equivalent units/year, generating more than $2 million annually in fees, local purchases, and taxes

**Operational Impact**
- Stabilization of Parcel 14 would help the Port manage the OORo cargo, like autos and construction equipment
- Project and heavy lift cargo, like cranes
- Conventional breakbulk and containers
- Plastic resin

**Need for Funding**
Funding this project would promote major growth for manifest rail moves and Ro/Ro cargo of all types. This project includes the construction of a multimodal facility to accommodate this growth in phases. Currently, 21,000 feet of track are already under construction at Parcel 4. Funding is needed to add four 5,000-foot loading track lines which will primarily be utilized to move aggregate, resin, and Ro/Ro cargo.

**Project Support**
- Port Freeport Commission
- Energy and petrochemical industry

---

**Port Facility**
- Port Freeport

**County**
- Brazoria

**Project Status**
- Design Phase

**Project Category**
- Shovel Ready

**Project Description**
Port Freeport is currently constructing a multi-modal rail facility on Parcel 14. This project will include the stabilization of approximately 180 acres of property on this site as needed. The project will also establish warehousing for resin packaging and cross-dock operations like CES customs exams and cargo transfers. Lastly this project includes the second phase of the rail development, which has already begun.

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**Funding & Support**

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<tr>
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**Project Benefits**

**Economic Impact**
- Accommodates larger vessels and supports more efficient vessel movements
- Improved safety for all vessels at berth or in transit
- Will accommodate larger Panamax class vessels
- Will be completed for timely completion of the Freeport Harbor Channel project. The additional depth will allow larger vessels to navigate the channel, leading to an increase in cargo volume entering the port. Thousands of direct and indirect jobs and millions of dollars in additional revenue will be created in the area as a result of the finished channel expansion.

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**Funding & Support**

| Total Cost       | $55,700,000 |

**Project Benefits**

**Economic Impact**
- Accommodates larger vessels and supports more efficient vessel movements
- Improved safety for all vessels at berth or in transit
- Will accommodate larger Panamax class vessels
- Will be completed for timely completion of the Freeport Harbor Channel project. The additional depth will allow larger vessels to navigate the channel, leading to an increase in cargo volume entering the port. Thousands of direct and indirect jobs and millions of dollars in additional revenue will be created in the area as a result of the finished channel expansion.

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**Authorized project footprint**

**Plan view of Parcel 14: rail-served multimodal industrial park**

**Ongoing construction of the 15,000 feet of new rail serving the multimodal industrial park**

**Feeder rail connecting to Parcel 14 under construction**
Velasco Terminal - Berths 9 and 10
Port Freeport

**Project Details**
- **Port Facility**: Port Freeport
- **County**: Brazoria
- **Project Status**: Shovel Ready
- **Project Category**: 2022 – 2023 Texas Port Mission Plan: Port Capital Investment Report

**Project Description**
This project will expand the Velasco Terminal to support growth of the container and Ro/Ro cargo. This project includes the construction of three berths which will add 1,600 feet of berth and a Ro/Ro ramp at the port facilities. The terminal will be equipped with five new cranes. Additionally, the project will stabilize the remaining nearby staging area.

**Project Benefits**
- **Economic Impact**
  - At full buildout, Velasco Terminal could create 3,182 direct jobs, 2,340 induced jobs, and 3,462 indirect jobs
  - The Velasco Terminal may generate $350 million or more in economic impact annually, based on full build out of this terminal
  - Local business revenue would increase by $405 million
  - Local purchases would increase by $375 million
  - An additional $424 million generated in state and local taxes
- **Operational Impact**
  - Provides opportunity for the Port to expand into Panamax vessel operations
  - Improves Port’s overall throughput capability
  - Project would support movement of:
    - Containerized goods, such as fresh fruit and plastic resin up to 1.5M-2M TEUs annually at full build-out
    - Project cargo and breakbulk operations
    - Heavy lift and containers

**Funding & Support**
- **Total Cost**: $45,000,000

**Need for Funding**
- Port Freeport is the second largest container handling port in Texas. State funding would support the construction of the Velasco Terminal project, which is being built in phases. The Port will construct berths 8, 9, and 10 to provide additional container and Ro/Ro dock space. Also, the Port aims to purchase five state-of-the-art Post-Panamax container cranes and stabilize all backlands.

**Project Support**
- Port Freeport Commission
- Energy industry and area petrochemical resin producers
- Included in the Port’s 5-year capital plan

![Conceptual layout showing berths and container yard](image)

View of the current 800-foot berth at Velasco Terminal. Permit to extend container terminal berths an additional 1600 feet has been approved

Matagorda Ship Channel Improvement Project
Calhoun Port Authority

**Project Details**
- **Port Facility**: Calhoun Port Authority
- **County**: Calhoun
- **Project Status**: Permit Received
- **Project Category**: 2022 – 2023 Texas Port Mission Plan: Port Capital Investment Report

**Project Description**
This project proposes modification of the Matagorda Ship Channel, including a turning basin expansion to accommodate larger vessels, extension of the Entrance Channel to allow for deepening to -49 feet and widening to 550 feet, and deepening and widening of the Main Channel to -47 feet and 300 feet, respectively. The Port will also relocate 16 pipelines and create a 165-acre sand engine through Beneficial Use of Dredged Material.

**Project Benefits**
- **Economic Impact**
  - Increases the capacity of the Port to export bulk liquid products, increasing revenue
  - Creates temporary and permanent jobs
  - Supports development of new business ventures for the Port and the region
  - Attracts customers and tenants to the Port

- **Operational Impact**
  - Improves cargo movement capabilities by modifying aids to navigation
  - Reduces vehicle wait times
  - Improves vessel access
  - Increases safety with wider channel
  - Moves more cargo more efficiently by having the capacity to use larger and heavier loaded ships

**Funding & Support**
- **Total Cost**: $218,325,000
  - **Federal Cost Share**: $138,664,000
  - **Local Cost Share**: $79,664,000

**Need for Funding**
- The Section 10/404 permit has been approved, as of September 2020, and state funding is needed to begin the construction phase of this project. The design is fully complete, and funding the improvements to this ship channel would be a substantial benefit to this area and the customers and tenants that use the channel.

**Project Support**
- Calhoun Port Authority Board of Commissioners
- Future Industries, Tenants, and Stakeholders
- U.S. Army Corps of Engineers – Galveston District

![Typical cross sections of channel modifications](image)
The Calhoun Port Authority is planning the construction of one deep-water berth (Liquid Cargo Ship Dock) and two barge berths (Liquid Cargo Barge Docks), along with onshore infrastructure. This is Phase 1 of a larger project that includes the construction of three deep-water bulk liquid petrochemical berths and six brown-water barge bulk liquid petrochemical berths.

**Economic Impact**
- Creates 50 full-time permanent jobs at the Port and locally
- Increases the economic potential of the Port by increasing the diversity and volume capability
- Allows local industry to move more product used in the manufacturing of plastic and crude oil exports, increasing revenue

**Operational Impact**
- Improved cargo movement capabilities
- Improved barge access
- Will reduce truck transport of crude oil on public highways
- Docks would support the movement of:
  - Crude oil and natural gas condensate
  - Liquid petrochemical products, including those used in plastics manufacturing

**Project Details**
- **Port Facility:** Calhoun Port Authority
- **County:** Calhoun
- **Project Category:** Cultural
- **Project Status:** Permit Received

**Funding & Support**
- **Total Cost:** $62,311,295

**Need for Funding**
- Calhoun Port Authority Board of Commissioners
- Current and Future Industries, Tenants, and Stakeholders

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**Corpus Christi Ship Channel Improvement Project**

As the leading exporter of American energy to global markets, the highest priority capital project at the Port of Corpus Christi Authority (PCCA) is the Corpus Christi Ship Channel Improvement Project. Deepening and widening of the Corpus Christi Ship Channel will extend the channel into the Gulf of Mexico an additional two miles and deepen the entire 34-mile channel from -47 feet to -54 feet Mean Lower Low Water (MLLW). The project also includes widening the channel to 530 feet and adding barge shelves on each side of the channel for the safe passage of shallow-draft vessels.

**Economic Impact**
- Increases goods exports value by nearly $35 billion annually, reducing the national trade deficit
- Increases export of oil and gas, supporting U.S. trading partners and bolstering domestic energy production
  - PCCA exported $6 billion of crude oil in 2017
  - Provides over $100 million in annual transportation cost savings, not including crude oil exports
  - Supports a future $18 billion liquefied natural gas (LNG) liquefaction facility with capacity of 22 million tons annually

**Operational Impact**
- Accommodates deeper draft vessels and allows two-way traffic without channel closure, which will create an operational advantage and provide for a more secure port through less standby traffic
- Deeper/wider channel supports movement of:
  - Petroleum products and crude oil (especially exports from Permian and Eagle Ford shale production)
  - Bulk grain, including sorghum and corn
  - Goods for Port ranked 4th in U.S. in total tonnage

**Project Details**
- **Port Facility:** Port of Corpus Christi Authority
- **County:** Nueces
- **Project Category:** Cultural
- **Project Status:** Construction Ready

**Funding & Support**
- **Total Cost:** $651,085,000
- **Federal Cost Share:** $394,125,000
- **Local Cost Share:** $256,960,000

**Need for Funding**
- In September 2017, through the Project Partnership Agreement with the U.S. Army Corps of Engineers, PCCA approved accelerating funding of $32 million to expedite initial construction. In March 2018, the Port Commission approved a Plan of Finance specifically to support this project. PCCA has developed a robust and aggressive capital improvement program to build new infrastructure to meet these growing demands and to accelerate the deepening and widening of its ship channel. To date, Federal funding allocated for this project totals $148 million. The project has been included in the USACE budget at $100.4 million for the 2021 federal fiscal year.

**Project Support**
- Port of Corpus Christi Commission
- Congressional Authorization through WRRDA 2014
- U.S. Army Corps of Engineers
- City of Corpus Christi
- Stakeholders within Port Complex

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**View of the Inner Harbor portion of the Corpus Christi Ship Channel**

**Aerial view of existing site**

**Project plan of Phase I for liquid cargo docks**

**Bird's eye view of the Corpus Christi Ship Channel at Harbor Bridge**
## Avery Point Terminal Redevelopment

### Port of Corpus Christi Authority

### Project Details
- **Port Facility:** Port of Corpus Christi Authority
- **County:** Nueces
- **Project Status:** Design Phase
- **Project Category:** Design Phase
- **Project Description:**
  The three liquid bulk docks at the Avery Point Terminal—situated on the south side of the Inner Harbor of the Corpus Christi Ship Channel (CCSC)—are the Port of Corpus Christi Authority’s most productive Port-owned docks. The proposed project is the phased redevelopment of the Avery Point Terminal, as there are several critical issues with the current configuration of the terminal. The Avery Point Docks (4, 7, and 11) 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, and three Suezmax class vessels cannot dock simultaneously. The docks pose various safety and operational constraints/concerns, including protrusion into the CCSC that creates a choke point for passing vessels.

### Project Benefits

#### Economic Impact
- Increases export crude volumes, which increases revenue and amplifies U.S. trade within the international crude trade market
- Provides an entire additional dock for exporting
- Increases capacity to hold Suezmax fully-loaded vessels, which will move a significantly increased amount of cargo
- Allows for three docks to be used simultaneously, significantly increasing the operational capacity

#### Operational Impact
- Improves safety and operational concerns over mooring lines holding the vessels, formerly crossing each other per dock—a significant improvement from two of three
- Relocates docks out of the ship channel and closer to shore
- Allows for two-way traffic within the channel to prevent idling

### Funding
- **Total Cost:** $155,508,988

### Need for Funding
Because of the high utilization of these docks, they cannot be decommissioned long enough to allow for reconstruction unless the berth capacity can be recreated elsewhere. The expansion of Oil Dock 3 (Phase 1 of 4, funded through a 2020 USDOT Maritime Administration Port Infrastructure Development Grant) will create 44% capacity at each of Docks 4, 7, and 11 by allowing 90% of barge traffic to be diverted to Dock 3. This will create enough surplus capacity to allow for phased decommissioning and reconstruction (Phases 2 to 4) of each of the three Avery Point Docks.

### Project Support
- Port of Corpus Christi Commission
- City of Corpus Christi
- Stakeholders within Port Complex

## Rincon Complex Multimodal Infrastructure Development

### Port of Corpus Christi Authority

### Project Details
- **Port Facility:** Port of Corpus Christi Authority
- **County:** Nueces
- **Project Status:** Under Construction
- **Project Category:** Under Construction
- **Project Description:**
  The Joe Fulton International Trade Corridor (JFC), which stretches approximately 7 miles along the north side of the Inner Harbor of the Corpus Christi Ship Channel, is the Port of Corpus Christi Authority’s primary freight corridor. This project will extend the JFC the full length of Rincon Road by adding 3,400 linear feet of paved roadway surface. To complete the multi-modal terminal at the Rincon Industrial Complex, the project will also add approximately 3,800 linear feet of bulkhead with relieving platforms along Rincon Canal B to provide additional barge berths and waterfront storage, and to facilitate intermodal operations (barge/rail/truck). The proximity to industries within this area is a specialty for the Port, and these industries will flourish with the improvements.

### Project Benefits

#### Economic Impact
- Increases wharf utilization in a specialized area, promoting the ability to move more product through
- Allows the Port to pursue opportunities involving pipelines for crude transport
- This type of loading is already in demand in this area from requesting customers; the Port's revenue will increase and jobs will be created

#### Operational Impact
- Rail connectivity allows the transloading process to occur directly from barge to rail to unload oil
- Reduces the number of vehicles and congestion within the Port, with vehicle freight being moved to barge
- Crude oil and other products will be moved more efficiently and safely, and will draw more customers to the Port

### Funding
- **Total Cost:** $14,000,000

### Need for Funding
This project has multiple phases that are on different schedules. The three ladder tracks of rail are considered at substantial completion. The roadway design in currently underway as of July 2020. The bulkhead for this project is at approximately 10% construction. However, without external funding, completing this construction will be difficult to fund independently.

### Project Support
- Port of Corpus Christi Commission

![Concept drawing of the Rincon Complex Multimodal Infrastructure Development Concept]
La Quinta Channel Deepening Study
Port of Corpus Christi Authority

Project Details

<table>
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<td>Nueces</td>
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Project Description

The 2016 Water Infrastructure Improvements for the Nation (WIFIN) Act study for the Corpus Christi Ship Channel includes the La Quinta Channel, a segment of the Corpus Christi Ship Channel (CCSC) system. The study will evaluate the feasibility of deepening the La Quinta Channel to -54 feet MLLW to match the authorized depth of the main Corpus Christi Ship Channel.

Project Benefits

Economic Impact

- Reduced transportation costs by allowing fully laden Very Large Crude Carrier (VLCC) vessels to operate the channel with a deeper draft, one-way traffic turning basin
- Increased movement of a larger volume of LNG out of the channel with additional trains scheduled to be built, which increases the volume of cargo in and out of the Port

Operational Impact

- Reduced transit times and increased efficiency for multiple customers in the La Quinta Channel area
- Allows fully laden VLCC fleet to transit into the channel from the Gulf of Mexico, allowing the fleet to move cargo more efficiently and economically
- The study will be a step towards allowing larger vessels into the channel, decreasing traffic and creating a safer channel

Funding

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Need for Funding

The La Quinta Channel reach serves some of the Port of Corpus Christi Authority’s largest customers, including an $18 billion liquefied natural gas (LNG) liquefaction facility with the capacity of 22 million tons annually and a world-scale steel producer. Although both operations are years away from full production capacity, traffic on this channel reach has increased markedly year over year for the last several years. Deepening the La Quinta Channel to match the depth (-54’ MLLW) of the rest of the CCSC will allow for deeper draft vessels and more efficient cargo movements out of La Quinta, thereby effectively increasing channel capacity and supporting incremental growth in maritime commerce. This Channel Deepening Study is the critical first step toward ultimately deepening the La Quinta Channel to match the authorized depth of the rest of the CCSC.

Project Support

- Port of Corpus Christi Commission
- U.S. Army Corps of Engineers
- City of Corpus Christi
- Stakeholders within Port Complex

Brazos Island Harbor Channel Improvement Project
Port of Brownsville

Project Details

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Project Description

Congress authorized this project in WRDA 2016 (formally the Water Infrastructure Improvements for the Nation Act of 2016). This project will deepen 16 miles of the Brazos Island Harbor (BIH) Ship Channel from its previously authorized depth of -42 feet MLLW down to -52 feet MLLW. The project includes deepening of the entrance and jetty channels from Station (Sta.) -17+000 to Sta. 0+000 from -44 feet to -54 feet MLLW, which is 2 feet deeper than the interior channel to allow for vessel pitch, roll, heave and yaw from strong currents, waves, and wind. Deepening from Sta. 0+000 to Sta. 84+200 will be from the current -42 feet to -52 feet MLLW.

Deepening the BIH Channel is expected to generate approximately 18 million cubic yards of new work material and 94 million cubic yards of maintenance material over the 50-year period of economic evaluation. New work material is to be placed into a new work Ocean Dredged Material Disposal Site and existing Placement Areas. Dredged material placement for this project is to be provided in accordance with the Dredged Material Management Plan developed during the study that identified the least-cost base plan for placement of dredged material.

Project Benefits

Economic Impact

- Benefit-cost ratio of 6.4 to 1
- The major commodities enhanced by this project include:
  - Oil drilling rigs
  - Petroleum products
  - Steel products
  - Steel products
  - Petroleum products

Operational Impact

- Increased cargo movement
- Reduced transit times
- Enhances operational safety by allowing deeper, more fully loaded vessels to carry cargo and reduce the number of vessels in transit; allowing them to pass more easily side by side
- Reduced risk of grounding
- Deeper channel supports the increased movement of:
  - Petroleum products and crude oil
  - Dry bulk material, like limestone and sand
  - Fabricated metal, iron ore, iron, and steel
  - Large semi-submersible oil rigs – this port and the Port of Pascagoula in Mississippi have the only dry docks in the US for jack-up and semi-submersible rig service

Funding

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Need for Funding

The Chief of Engineers of the U.S. Army Corps of Engineers reports that this project will contribute significantly to the economic efficiency of commercial navigation in the region.

Project Support

- Brownsville Navigation District Commission
- Congressional Authorization under WRDA 2016
- Broad Community and Regional Support

View of the La Quinta Ship Channel

1st US crude oil export departing on the Theo T via the Corpus Christi Ship Channel

Bird’s eye view of channel at Liquid Cargo Dock

Break bulk cargo at Docks 15 and 16

Port Authority Advisory Committee
Any vessel entering or leaving 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.

Texas has 270 miles of deep-draft channels that allow large, ocean-going vessels carrying goods to and from foreign and domestic markets to Texas ports. Another 750 miles of shallow-draft channels in Texas support barges and other smaller vessels that move goods around the Gulf of Mexico and other Texas waterways. The width, depth, and navigability of a waterway that serves a port directly affect the kinds of vessels and markets a port can serve. It is important to both maintain Texas waterways so that vessels can continue to move in and out of ports safely and efficiently, and also to deepen and widen certain channels so that they are equipped to receive the next generation of larger vessels to accommodate an anticipated increase in cargo tonnage.

Texas is home to 11 deep-draft ports with ship channels at least 30 feet deep and seven shallow-draft ports, all of which rely on their waterways to move goods in and out of the port. The U.S. Army Corps of Engineers (USACE) operates and maintains the federal ship channels with ports and navigation districts serving as Non-Federal Sponsors (NFS) that are responsible for funding a portion of channel improvement project costs. Securing federal funding for navigation projects remains a challenge. The congressional authorization and appropriation process provides funding, but it will serve as a financial tool for Non-Federal Sponsors to advance projects while they await federal funding.

This Ship Channel Improvement Report is part of the 2022-2023 Texas Port Mission Plan (PMP), the maritime port mission plan required in Chapter 55 of the Texas Transportation Code, developed by the Texas Department of Transportation (TxDOT) Maritime Division. The PMP highlights the importance of investing in the port system in order to meet the growth potential of global trade opportunities. 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. The Ship Channel Improvement Report summarizes the status of congressionally-authorized ship channel improvement projects and feasibility studies across the state.

Texas Waterways

Authorized Deep Draft Project
Authorized Shallow Draft Project
Authorized Study

**Depths may vary along length of channel**
**Costs provided by ports/navigation districts in 2020**

---

**TEXAS SHIP CHANNEL AUTORIZATION**

| Ship Channel | Non-Federal Sponsor (NFS) | Authorization | Depth (Current | Authorized) | Project Cost (SM$)** |
|--------------|---------------------------|---------------|---------------|---------------------|
| Sabine-Neches Waterway | Sabine-Neches Navigation District | WRRLA 2014 | 40 ft | 46 ft | $1,400 |
| Cedar Bayou Navigation Channel | Cedar Bayou Navigation District | WRRLA 2007 | N/A | 17 ft | $52.8 |
| Freeport Harbor Channel | Port Freeport | WRRLA 2014 | 45 ft | 56 ft | $324.6 |
| Corpus Christi Ship Channel -54)** | Port of Corpus Christi Authority | WRRLA 2014 | 47 ft | 54 ft | $651.1 |
| Brazos Island Ship Channel Expansion | Brownsville Navigation District (Port of Brownsville) | WRRLA 2016 | 42 ft | 52 ft | $302.0 |

| Authorized Feasibility Studies | (Current | Study) | Project Cost (SM$)** |
|------------------------------|----------|---------------------|
| Houston Ship Channel Expansion | Section 216 Study Authority | 46 ft | 46 ft | $876.8 |
| Matagorda Ship Channel Expansion | Calhoun Port Authority | Section 216 Study Authority | 38 ft | 47 ft | $218.3 |

WIIN - Water Infrastructure Improvements for the Nation Act
WRRLA - Water Resources Reform and Development Act
WI-IN - Water Infrastructure Improvements for the Nation Act

*Depths may vary along length of channel*  **Costs provided by ports/navigation districts in 2020**

***The Port of Corpus Christi Authority is also conducting an ongoing, independent study to deepen the Corpus Christi Ship Channel to -75 feet and has an ongoing federally authorized study for the smaller La Quinta Channel.

**WHAT IS THE SHIP CHANNEL IMPROVEMENT REVOLVING FUND?**

The 85th Texas Legislature passed Senate Bill (SB) 28 in 2017, establishing the Ship Channel Improvement Revolving Fund (SCIRF) and Loan Program. This creates a program to help finance congressionally-authorized ship channel deepening and widening projects. The SCIRF has not been capitalized, but should it receive funding, it will serve as a financial tool for Non-Federal Sponsors to advance projects while they await federal funding.
NEED FOR CHANNEL IMPROVEMENTS

The world vessel fleet is increasing both in number and vessel size. The Panama Canal, which had been the benchmark for vessel sizes traveling to the U.S. since its original construction in 1914, was expanded in 2016 to accommodate a newer, larger fleet connecting the Texas economy with countries across the Asian region. Even before the completion of the Panama Canal expansion, larger vessels were already calling on Texas ports via oceanic trade routes as the shipping industry began transitioning the maritime fleet operating along the U.S. coast to larger sizes. Shipyards are building these larger vessels for the increased capacity provided by the Panama Canal expansion, Panamax ships will not be able to accommodate the largest of the New Panamax vessels, which have a draft depth of 50 feet and maximum beam width of 168 feet. As an example of the increased capacity provided by the Panama Canal expansion, Panamax container ships generally have a capacity of 5,000 TEUs (twenty-foot equivalent units) and New Panamax container ships have a capacity of up to 14,400 TEUs.

Panama Canal

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. New container ships with nearly triple the previous capacity, as well as a new generation of liquefied natural gas (LNG) and bulk carriers, can safely transit the canal. Ships can only stop or “call” at ports with channels that are deep enough to accommodate their draft, which is the vertical distance between the waterline and the bottom of the ship. At ports where the current draft of the ship channel is not sufficient to support larger vessels, vessels must be light-loaded to allow shipping channel clearance into the channel. This process allows larger ships to call on Texas ports, but is inefficient and increases shipping costs. Shipping lines enjoy substantially lower costs with larger vessels. Between the current fleet, increasing the average size of ships calling at ports.

Vessel Trends

The range of vessels calling on Texas ports is highlighted on the following page. As the leading exporting state in the nation, Texas is well-positioned to take advantage of the Panama Canal expansion to increase exports to new and existing markets across the globe. Increasing deep-draft channel capacity in Texas will help ensure that Texas ports will be better able to accommodate larger ships and remain economically competitive. At their current channel depths and widths, Texas ports will not be able to accommodate the largest of the New Panamax vessels.

• CONTAINER SHIPS – Cargo ships carrying their entire load in truck-size intermodal containers.
• OIL TANKERS OR BULK LIQUID CARRIERS – Ships fitted with tanks to carry liquid bulk cargo such as crude petroleum, petroleum products, chemicals, liquefied gases, wine, molasses, and similar product tankers.
• 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; refrigerated “reefers” transporting insulated cargo; or heavy lift ships carrying oversized cargo.

MOST COMMON TYPES OF VESSELS:

• CONTAINER SHIPS – Cargo ships carrying their entire load in truck-size intermodal containers.
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• SPECIALIZED VESSELS – Ro/Ro ships carrying cars, trucks, or wheeled containers; refrigerated “reefers” transporting insulated cargo; or heavy lift ships carrying oversized cargo.
PROJECT DEVELOPMENT AND FUNDING

Ship channel improvement projects are required to go through a lengthy and costly federal process in order to be approved by the USACE and authorized by Congress. Under this process, a local entity can serve as the Non-Federal Sponsor (NFS) and can initiate a study to determine the feasibility of a channel improvement project, as permitted by past Water Resources Development Acts (WRDA) enacted by Congress, or the USACE can initiate the study through their annual work plan. While ship channel improvement projects are often viewed with a focus on construction costs or “hard costs”, they also incur significant “soft costs” that relate to the feasibility study, planning, engineering and design elements of the projects. Failing to plan for these soft costs can cause schedule delays, ultimately delaying the economic benefits of implementing these improvements.

While up front costs can create challenges to advancing projects, it is necessary to meet the requirements that are in place to justify authorization of federal funds. Once a ship channel improvement project is authorized for development, it is not guaranteed federal funding for the construction. Federal authorization of a project obligates federal funds to maintain the improved channel upon successful completion of the project. It is possible under WRDA Section 204(f) to have a ship channel improvement project constructed without federal funds while maintaining the federal obligation to fund and conduct maintenance dredging of the channel upon its deepening and/or widening.

Project Development

The project development required to get to project authorization takes many years and incurs significant costs to both the federal and non-federal sponsors. Texas currently has five authorized projects, including four deep-draft and one shallow-draft. These projects are further discussed in Ship Channel improvement projects. Private funding, while less common, can also be used to speed up the process to construct ship channel improvements. In the 2022-2023 biennium, Port Houston expects to spend approximately $667 million through port and private industry funding to begin construction of the Houston Ship Channel, once the project receives Congressional authorization for construction.

SCIRF FUNDING

Funding the SCIRF will help provide financing for eligible navigation projects that modernize waterways and allow for increased growth of waterborne commerce. There are five 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 $330 million to cover the estimated drawdown for the eligible projects in Fiscal Years 2022-2023.

FUNDING REQUESTED: $330 MILLION
FEDERAL APPROPRIATIONS FOR SHIP CHANNEL CONSTRUCTION THROUGH FY 2021

<table>
<thead>
<tr>
<th>Ship Channel</th>
<th>Appropriations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corpus Christi Ship Channel</td>
<td>$248.4 M</td>
</tr>
<tr>
<td>Sabine-Neches Waterway</td>
<td>$34.6 M</td>
</tr>
<tr>
<td>Freeport Harbor Channel</td>
<td>$19.0 M</td>
</tr>
<tr>
<td>Cedar Bayou Navigation Channel</td>
<td>$41.7 M</td>
</tr>
</tbody>
</table>

The Freeport Harbor Channel Improvement Project will not only provide port access for larger deep-draft vessels, but also see significant improvements in the ability for vessels to safely maneuver in the meandering channel layout.

The Brazos Island Harbor Channel was authorized under WRDA 2016. This deepening project will improve the economy of deep-draft vessels calling on the Port of Brownsville.

With $248 M 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. Although Texas channels received higher than typical level of appropriations for FY 2020, it does not cover the total cost of the authorized ship channel improvement projects. The ports representing the four other ship channels have to compete for additional federal funding in upcoming fiscal years.
In 2018, Texas’ robust maritime system ranked second in the nation in total tonnage (i.e. total tons handled) and first in total imports and exports.\textsuperscript{30}

Texas' 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 typically only authorized if they generate a positive return on investments. For instance, the proposed Brazos Island Harbor Deepening Project would inject $6 billion into Cameron County’s economy during construction; after construction, it would return $326 million to the County’s Gross Product annually—an increase of 3.7\%.\textsuperscript{31} All Texas 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 current port users and commodity movement. They do not account for new private investment to build or enhance facilities as a result of the increased shipping efficiencies captured 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 ship 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.\textsuperscript{32} It is important to not only deepen and widen deep-draft channels, but also maintain and improve the shallow-draft channels and facilities, such as locks and floodgates.

CASE STUDY: THE SABINE-NECHES WATERWAY

One study estimated the net benefits of deepening the Sabine-Neches Waterway, which serves the Port of Beaumont, Port of Port Arthur, and the Port of Orange, to be $103.2 billion in gross product and an additional 529,000 permanent jobs in the United States. In Texas, this accounts for $97.4 billion in gross product and an additional 386,000 permanent jobs. Despite this, the project took 17 years to gain congressional authorization and has only received a small portion of appropriations for the federal cost share.\textsuperscript{33}

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

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 projects, dockside infrastructure, and cruise terminals.

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, lure firms, trade, and jobs away from Texas. In order to remain competitive, Texas can invest in modernizing the port system, as well as pursue public and private partners to generate a strong consensus to invest in navigation and shipping industries. Examples of state-funded improvements include:

- In 2015, the Port of Miami completed $205.6 million of improvements to deepen the main harbor to 52 feet and widen the entrance channel to 800 feet. The project was made possible through a combination of federal, state, and local funds that accelerated the project schedule on the order of years.\textsuperscript{34} Since its completion, the port has seen an average annual growth of 5.8 percent for total tonnage, up from -2 percent average annual growth in the ten years prior to the improvements.\textsuperscript{35}
- 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.\textsuperscript{36}
- 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.\textsuperscript{37}

Ship Channels Drive the Economy

Texas ship channels have a powerful impact on the Texas and U.S. economies, and help to transfer Texas’ respected exports all over the world. 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 up opportunities for not just the state, but the country, as well.
SHIP CHANNEL IMPROVEMENT COMPONENTS

Ship channels are the critical roadways of waterborne commerce between the open ocean and ports. To the casual onlooker, a ship channel may look like just water, but beneath the surface there is a complex infrastructure network that supports the movement of ships. Like roadways, ship channels are designed to move goods and users in a safe and efficient manner. Their design takes into consideration the types of markets they serve—such as breakbulk or container—as well as the vessels that use these channels now and anticipated future vessels.

Ships can only stop or “call” at ports with channels that are deep enough to accommodate their draft, which is the vertical distance between the waterline and the bottom of the ship. Both the size of the ship and the volume of cargo it carries affect the required draft. In order to call at certain ports, larger ships might have to reduce their draft by carrying less cargo, a practice known as “light loading.” Even with light loading, some ports might not be accessible to larger ships. Because the depth of a channel has such a direct effect on the size of ships and quantity of cargo a port can receive, ports look to channel deepening as a way to remain economically competitive. However, a port alone is not able to deepen its channel and be assured of some ports might not be accessible to larger ships.

The depth of a ship’s channel is not constant, but fills in with sediment that is disturbed as the channel is used. When this happens, the ship channel needs to be dredged out again to maintain its authorized depth. With planning, the dredged material can be used to create islands, widen beaches, and more.

650,000 cubic yards of dredged material from Houston Ship Channel maintenance created 300 feet of emergent beach for 15 city blocks at Galveston Beach in 2015.

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

Channel Width and Depth

The depth and width of the ship channel determines the size of ships that can use it as well as 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. A ship needs enough water to safely move from the ocean to the port without touching the bottom of the channel. Deeper channels will reduce the risk of ships running aground when loaded.

Similar to needing adequate depth of channel, ships also need room to safely navigate in the channel, including passing other vessels and turning. Wider channels reduce the number of ships that have to wait to enter the channel based on channel capacity. This means a lower overall transit time for the ships and more goods moving in and out of the ports. The safety of wider channels is especially important in Texas, where many of the vessels traveling to and from the ports are oil tankers and ships carrying hazardous materials.

The width of a ship’s channel 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, current conditions, and wind conditions. The amount of ship traffic and the length of a channel determine whether one-way or two-way traffic is appropriate.

Interdependence of Land & Water Based Facilities

Ship Channel Typical Elements

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

<table>
<thead>
<tr>
<th>Ship Channel Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anchorage Area</td>
<td>An area where ships anchor to wait for berthing areas to become available or for more favorable transit conditions.</td>
</tr>
<tr>
<td>Barge Lane (or Shelves)</td>
<td>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.</td>
</tr>
<tr>
<td>Bend</td>
<td>An even curve that allows a channel to turn in a specific direction.</td>
</tr>
<tr>
<td>Berth, Dock, or Wharf</td>
<td>A designated location in a port or harbor where a vessel may be moored or anchored, usually for the purposes of loading and unloading.</td>
</tr>
<tr>
<td>Channel Limits</td>
<td>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.</td>
</tr>
<tr>
<td>Entrance Channel</td>
<td>The main access channel into a bay, harbor, or port from the deeper ocean.</td>
</tr>
<tr>
<td>Harbor</td>
<td>A fully or partially enclosed body of water offering safe anchorage or reasonable shelter to vessels against adverse weather conditions.</td>
</tr>
<tr>
<td>Interior Channel</td>
<td>The access channel inside a bay or harbor that connects the entrance channel to port facilities.</td>
</tr>
<tr>
<td>Passing or Maneuvering Lane</td>
<td>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.</td>
</tr>
<tr>
<td>Turning Basin</td>
<td>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.</td>
</tr>
</tbody>
</table>
SABINE-NECHES WATERWAY CHANNEL IMPROVEMENT PROJECT

Project Details

<table>
<thead>
<tr>
<th>Non-Federal Sponsor (NFS)</th>
<th>Sabine Neches Navigation District (SNND)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Authorization</td>
<td>WRRDA 2014</td>
</tr>
<tr>
<td>Channel Length (Current</td>
<td>64 miles</td>
</tr>
<tr>
<td>Authorized)</td>
<td></td>
</tr>
<tr>
<td>Channel Depth (Ft, MLLW**) (Current</td>
<td>40'</td>
</tr>
<tr>
<td>Authorized)</td>
<td>42'</td>
</tr>
<tr>
<td>Channel Width (Ft)</td>
<td>700'</td>
</tr>
</tbody>
</table>

**Mean lower low water (MLLW)** refers to the lowest of the two low tides per day, averaged over a 19-year period (currently from 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 is generally referred to as the "Golden Triangle" and is delineated by the three major Texas ports of Port Arthur, Beaumont, and Orange.

The SNWW is a system of navigation channels that has been dredged and maintained in the Sabine-Neches region. The system includes Sabine Pass, the Port Arthur Ship Canal, the Sabine Neches Canal, and goes upstream along the Neches River. The Sabine Neches Canal portion that runs in front of the Port of Port Arthur can pose some additional navigational challenges because it is used by both large vessels and barge traffic that are using the GIWW. There are three bridges that cross over the waterway that can limit the vertical clearance of the vessels that can use the waterway. Sabine Pass is stabilized by jetties that extend 4.1 miles into the Gulf of Mexico.

The authorized project will deepen the waterway by eight feet and extend the channel 13 miles further into the Gulf of Mexico. Additional widening of Taylor Bayou Channel and existing turning and anchorage basins will enhance the safety of vessels transiting the waterway.

Project Cost: $1,400,000,000

Key Waterway Facts

• #1 bulk liquid cargo waterway in the U.S.
• #3 largest waterway by cargo volume in the U.S.
• Projected to be the largest LNG exporter in U.S.
• Refineries produce 60% of the U.S. commercial jet fuel
• $40 billion in gross product
• 375,000 jobs provided by the SNWW currently

Project Benefits

The Sabine-Neches Waterway has grown tremendously since the last improvement project authorized in 1962, more than 50 years ago. According to SNND, expanding and deepening the channel eight feet will keep Texas competitive with other U.S. ports, and generate $330 billion in new business activity along with $28,000 permanent jobs. 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 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. This project was awarded $18 million in New Start appropriations in the USACE FY 2019 Work Plan, and an additional $16.62 million to dredge the Sabine Pass jetty channel in the FY 2020 Work Plan. The SNND is pursuing local and state funding options, including user fees and loan opportunities, while awaiting additional federal funds to be appropriated to the project. The SNND and USACE signed a PPA in August 2019. Construction is estimated to take seven to 10 years.

Waterway Supported Port Facilities

Federally Allocated Funds as of 2020: $34.62 M

NFS Cost Share 40%
Federal Share 60%

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.
CEDAR BAYOU CHANNEL IMPROVEMENT PROJECT

Project Details

Non-Federal Sponsor (NFS) | Cedar Bayou Navigation District (CBND)
--- | ---
Project Authorization | WRDA 2007
Channel Length (Current | Authorized) | 6 miles | 14 miles
Channel Depth [Ft, MLLW] (Current | Authorized) | Varies | 11'
Channel Width [Ft] (Current | Authorized) | Varies | 100'

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

Waterway and Project Description

Cedar Bayou is a coastal waterbody that is navigable as it runs 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 previously authorized and improved portion of the channel extends from the junction with the Houston Ship Channel to the mouth of Cedar Bayou and upstream 3 miles. This shallow-draft channel is 11 feet deep by 100 feet wide.

This authorized project will extend the maintained 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 in use for barge transport, this project will standardize the channel so that it is also 11 feet deep by 100 feet wide, enhancing barge access and improving navigation safety.

Project Cost: $52,800,000

Project Benefits

Standardizing this portion of the channel and easing several of the bends will improve barge operations in the area. The cutoff of the bend at Devil's Elbow will also provide a safer route for transporting goods. Together, these improvements will benefit navigability in the channel so that operators don't have to light load or slow down as much to navigate the currently unmaintained channel.

The final channel design was selected in order to minimize the environmental impact along the shoreline and placement areas. Land will be restored and set aside for conservation as part of this project.

Project Readiness and Implementation

This project was authorized in WRDA 2007 and is currently seeking federal appropriations for construction. Pre-Construction Engineering and Design are complete. As of 2020, the federal government has appropriated approximately $41.73 million for project implementation. A formal PPA was signed in September 2019 between USACE and CBND.

Construction is expected to begin in 2020.

Waterway Supported Port Facilities

- Bulk
- Container
- Break Bulk

Federally Allocated Funds as of 2020: $41.73 M

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.
FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

**Project Details**

<table>
<thead>
<tr>
<th>Non-Federal Sponsor (NFS)</th>
<th>Port Freeport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Authorization</td>
<td>WRRDA 2014</td>
</tr>
<tr>
<td>Channel Length (Current</td>
<td>Authorized)</td>
</tr>
<tr>
<td>Channel Depth [Ft, MLLW] (Current</td>
<td>Authorized)</td>
</tr>
<tr>
<td>Channel Width [Ft]</td>
<td>(Current</td>
</tr>
</tbody>
</table>

**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 project will extend the existing Outer Bar Channel 1.3 miles further into the Gulf of Mexico while deepening it by 10 feet. It also deepens the main channel by 10 feet, with widening at critical channel bends and at turning basins, while the main channel remains unchanged. The middle segments of the channel are 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

**Key Waterway Facts**

- $46.2 billion of economic activity annually for Texas
- More than 900 vessel calls per year
- Serves Port Freeport, the 21st largest U.S. port in foreign trade, and the 6th largest Texas port
- 122,000 port-related jobs

**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 Freeport Harbor 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 Middle America.

Port Freeport has seen the jobs and economic impact from the facilities double in a span of four years, from 2012 to 2016. 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 seeking federal appropriations for construction. In May 2018, the U.S. Army Corps of Engineers approved a reevaluation report for the project, adding additional project elements to address safety and navigation needs in addition to the 2012 approved feasibility study. In May 2018, voters in the Port Freeport Navigation District approved a $130 million bond to support implementation of the project.

Port Freeport and USACE signed a PPA in June 2020, moving the project into the construction phase. Engineering and design for the first segment and award of the first contract is expected in 2020. USACE included $19 million in funding for the project in its FY 2020 Work Plan as one of two projects nationwide to receive a “new start” designation to begin construction.

**Waterway Supported Port Facilities**

- Container
- Ro/Ro
- Break Bulk
- Bulk
- Energy

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsor.*
**CORPUS CHRISTI SHIP CHANNEL IMPROVEMENT PROJECT**

### Project Details

**Non-Federal Sponsor (NFS)**
- Port of Corpus Christi Authority

**Project Authorization**
- WWRDA 2007
- WRRDA 2014 Project Re-Authorized at Updated Costs

**Channel Length**
- Current: 36 miles
- Authorized: 38 miles

**Channel Depth**
- Current: N/A
- Authorized: 14’

**Barge Lanes**
- 47’
- 49’
- 54’
- 56’

**Channel Width (Ft)**
- Current: 400’
- Authorized: 530’

The authorized project will deepen the waterway by 7 feet and extend the channel 2 miles further into the Gulf of Mexico. The channel will be widened to 530 feet in the Upper and Lower Bay Reaches. Barge lanes will be constructed from the CCSC junction with the La Quinta Channel to the entrance of the channel at the Inner Harbor, which will be 200 feet wide and 14 feet deep on both sides of the CCSC.

### Key Waterway Facts
- $150 billion of economic activity for the U.S.
- $50 billion in regional investment
- 80,000 port-related jobs
- Home to the Port of Corpus Christi Authority:
  - #1 U.S.-produced crude oil export port
  - 2.3 million barrels/day forecasted for 2020
  - #3 largest U.S. port by 2019 tonnage
  - Greater than 140 million tons forecasted for 2021

### Project Cost: $651,085,000

### 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 waterway extends from deep water in 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 La Quinta Channel extends from the CCSC near Ingleside, Texas, and runs parallel to the eastern shoreline of Corpus Christi Bay to the San Patricio Turning Basin.

### Project Benefits

The Corpus Christi Ship Channel Improvement project is expected to add nearly $40 billion in incremental goods value exports, which will aid in reducing the rapidly expanding trade deficit. The project will provide over $100 million in annual transportation cost savings.

The proposed improvements to the Upper Bay Reach on the Main Channel include the construction of two 200-foot barge shelves, reducing traffic conflicts between deep-draft vessels and barges while enabling more efficient movement of cargo.

### Project Readiness and Implementation

This project was re-authorized in WRRDA 2014 and is currently seeking federal appropriations for construction. As of 2020, the federal government has allocated $148 million for project implementation. An additional $100.4 million is proposed in the USACE FY 2021 budget.

The Port of Corpus Christi has provided $78 million in funds to accelerate construction of the project, initiating contracting for work to be performed at the CCSC entrance. The Port of Corpus Christi Authority also sold $216.2 million in bonds in July 2018 to provide funds for the deepening and widening project along with other port capital projects.

### Waterway Supported Port Facilities

- Break Bulk
- Energy
- Ro/Ro
- Bulk

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.*
BRAZOS ISLAND HARBOR CHANNEL IMPROVEMENT PROJECT

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'
Channel Width [Ft] (Current | Authorized) | 250' | 250'

Waterway and Project Description

The Brazos Island Harbor Channel (BIH), 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 at Brazos Santiago Pass. The BIH also serves as the southern origin of the Texas Gulf Intracoastal Waterway (GIWW), which makes BIH the gateway for movement of goods in and out of Mexico, a key trade partner for Texas.

The BIH connects Brownsville and the Lower Rio Grande Valley to the Gulf of Mexico, as it is the only deep draft channel south of Corpus Christi. The authorized project will deepen the waterway by ten feet and extend the channel 0.8 miles further into the Gulf of Mexico. The first two miles of dredged material is identified as beneficial use material that will be placed to enhance the South Padre Island beach and dune system, providing additional recreational and tourism benefits to the region.

Project Cost:

$301,952,000

Key Waterway Facts

- #2 foreign trade zone in the U.S. by value of exported commodities
- 4 million square feet of storage
- $3 billion of economic activity for Texas
- 44,000 port-related jobs

Project Benefits

The Brazos Island Harbor Channel has grown tremendously since the last improvement project authorized in 1980, more than 30 years ago. Expanding and deepening the channel ten feet will keep Texas competitive with other U.S. ports, and greatly improve the navigation efficiency of deep draft vessels and offshore oil rigs. Additionally, the project will increase tax revenue, better manage waterway traffic, and stimulate further economic development by allowing larger vessels access to the ports and reducing the need to light load existing vessels.

Project Readiness and Implementation

This project was authorized in WRDA 2016 and the Port of Brownsville is currently seeking federal appropriations for construction. The Port is pursuing local and state funding options, including loan opportunities, while awaiting federal funds to be appropriated for the project. Pre-construction, engineering and design is underway. The project was permitted in June 2019 and construction is expected to begin as early as 2020.

Construction of the authorized project will require dredging of an estimated 14.1 million cubic yards of new work material, or enough to fill more than one million dump trucks.

Waterway Supported Port Facilities

- Energy
- Bulk
- Fishing
- Break Bulk
- Other

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.
HOUSTON SHIP CHANNEL EXPANSION CHANNEL IMPROVEMENT PROJECT FEASIBILITY STUDY

Project Details

Non-Federal Sponsor (NFS) | Port of Houston Authority
Study Authority | Section 216 - Flood Control Act of 1970
Channel Length | 50 miles | 50 miles
Channel Depth [Ft, MLLW] | 37.5' | 41.5' | 45.5' | 46.5' | 46.5' | 46.5'
Channel Width [Ft] | 400' | 530' | 530' | 700'

Key Waterway Facts

• The HSC is the busiest waterway in the U.S.
• Receives 8,000 vessel calls annually
• Transporting more than 230 million tons of cargo
• Serves the largest petrochemical complex in the nation
• Serves Port Houston which provides:
  • $265 million in economic impact
  • $5 billion in local & state taxes
  • 1.2 million jobs throughout Texas

Project Benefits

The HSC serves a large and diverse group of users, and as a result, provides transit access for a varied vessel fleet. This project would provide for more safe and efficient vessel transit along the channel. Examples of benefits that can be achieved through implementation of this project include:

• Reduced “lightering” for Very Large Crude Carriers, which entails the process of transferring cargo from larger to smaller draft vessels
• Increased barge movement efficiency and safety
• Vessels longer than 1,200-feet overall would have access, which they currently do not because of bend restrictions
• Vessels longer than 1,100-feet would not be restricted to one-way traffic, which causes channel congestion

The expansion project will help alleviate these issues by improving the use and navigation for current and future vessels. This will help reduce delays, and increase safety and economic growth.

Project Readiness and Implementation

The Feasibility Study and Environmental Impact Statement were completed in late 2019. Both were made public in January 2020. The USACE Chief’s Report was signed in April 2020. The project received $1.13 million in the USACE FY 2020 work plan for pre-construction, engineering and design. The project is awaiting federal authorization for construction.

Waterway Supported Port Facilities

Federal Share | 53%
NFS Cost Share | 47%

Project Cost:

$876,848,000**

** Expected first construction cost based on Feasibility Study

Federally Allocated Funds as of 2020: $1.1 M

*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.
MATAGORDA SHIP CHANNEL IMPROVEMENT PROJECT FEASIBILITY STUDY

Project Details

<table>
<thead>
<tr>
<th>Non-Federal Sponsor (NFS)</th>
<th>Calhoun Port Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Authority</td>
<td>Rivers and Harbors Act of 1958; Section 216 - Flood Control Act of 1970</td>
</tr>
<tr>
<td>Channel Length (Current</td>
<td>Proposed)</td>
</tr>
<tr>
<td>Channel Depth [Ft, MLLW] (Current</td>
<td>Proposed)</td>
</tr>
<tr>
<td>Channel Width [Ft] (Current</td>
<td>Proposed)</td>
</tr>
</tbody>
</table>

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 to the Gulf of Mexico for the Calhoun Port Authority, as well as shallow-draft vessels from Port Lavaca and the Port of Palacios. The majority of the deep-draft users are located in the vicinity of the Calhoun Port Authority facilities, which are located at the upstream terminus of the deep draft federal channel.

The USACE Chief’s Report recommends 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 MLLW; 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 from -40 to -49 feet and the Main Channel from -38 to -47 feet MLLW.

Project Cost: $218,325,000**

** Expected first construction cost based on Feasibility Study

Key Waterway Facts

- $12.3 billion of economic activity
- $125 million in state and local taxes
- $200 million in Federal taxes
- 48,000 port-related jobs

Project Benefits

The existing channel was designed for vessels with loaded drafts of less than 38 feet MLLW. Due to this, many larger vessels are forced to light-load before entering the port. Deepening and widening the channel will fix this issue, reduce navigation costs, increase port efficiencies, and produce large amounts of sediments for beneficial use.

The existing channel was built to accommodate 25,000 – 30,000 deadweight ton (DWT) vessels; under current use, vessels up to 80,000 DWT access the channel. In the future with-project condition, 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.

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 will require Congressional authorization to move forward with construction. USACE referenced the Matagorda Ship Channel Improvement project as a key project to support Congress’s consideration of introducing WRDA 2020.

Construction of the proposed project will require dredging of an estimated 20 million cubic yards of new work material, or enough to fill roughly 1.7 million dump trucks, which can be used to create islands, widen beaches, and more.

Waterway Supported Port Facilities

- Energy
- Break Bulk
- Bulk

Federal Share 64%

NFS Cost Share 36%

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

<table>
<thead>
<tr>
<th>Non-Federal Sponsor (NFS)</th>
<th>Port of Corpus Christi Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Authority</td>
<td>WIIN 2016/WRDA 2016</td>
</tr>
</tbody>
</table>

**Key Waterway Facts**

- $150 billion of economic activity for the U.S.
- $50 billion in regional investment
- 80,000 port-related jobs
- Home to the Port of Corpus Christi Authority:
  - #1 U.S.-produced crude oil export port
  - 2.3 million barrels/day forecasted for 2020
  - #3 largest U.S. port by 2019 tonnage
  - Over 140 million tons forecasted for 2021

**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, shown previously. The feasibility study for the 54-foot project was authorized in 1990; the Chief's Report was released in 2003, and the project was authorized by Congress in the 2007 WRDA. Additional studies of the main channel continued until 2015 while the La Quinta Channel was lengthened and deepened.

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. The main goals of the new study will be to allow PCCA to increase crude oil export efficiency from a proposed crude oil export terminal at Harbor Island by eliminating or reducing 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 could include:

- Accommodating future port growth/expansion;
- Beneficially using dredged material to construct special aquatic site habitats; and
- Reducing CO₂ emissions from hoteling vessels.

**Project Cost:**

$525,000,000**

** Expected first construction cost provided by PCCA

**Project Readiness and Implementation**

The Feasibility Study and Environmental Impact Statement have been initiated and are expected to be completed in 2022. Funding is entirely provided by the Port of Corpus Christi Authority.

**Waterway Supported Port Facilities**

- Ro/Co
- Bulk
- Energy
- Break Bulk

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*Project information provided by USACE project reports, comments from USACE project managers, and the Non-Federal Sponsors.*
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 through creating more efficient and safer transportation systems while supporting the state’s economic vitality. The state should consider both direct investments in port-centered connectivity improvements and work with the ports and their communities to secure funding from other non-state 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 evaluation as part of the 2022-2023 Texas Ports 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 in order to meet the growth potential of global trade opportunities. The Port Connectivity Concise Report summarizes an effort to assess the current state of inland connectivity at 20 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 evaluates potential solutions to address those issues. The outcome of this analysis is a list of recommended solutions directed at the ports’ most pressing connectivity issues that the ports and TxDOT can evaluate for potential implementation.

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 Conscious Roadway Design
- Truck Queuing
- Modal Conflicts
- Incompatible Land Uses

PROJECT COST BY PORT

<table>
<thead>
<tr>
<th>Port</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port of Orange</td>
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<tr>
<td>Port of Beaumont</td>
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</tr>
<tr>
<td>Port of Port Arthur</td>
<td>$1.7 M</td>
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<td>Port Houston</td>
<td>$28.2 M</td>
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<tr>
<td>Port of Galveston</td>
<td>$37.0 M</td>
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<tr>
<td>Port Freeport</td>
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<tr>
<td>Port of Bay City</td>
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<tr>
<td>Port of Palacios</td>
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<td>Calhoun Port Authority</td>
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<td>Port of Victoria</td>
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<td>Port of Corpus Christi Authority</td>
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<td>Port of Port Isabel</td>
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<tr>
<td>Port of Brownsville</td>
<td>$30.4 M</td>
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<tr>
<td>Regional</td>
<td>$0.4 M</td>
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</table>

Waterways Port Facilities Inland Connectivity

2022-2023 Texas Port Mission Plan
Description of Issue
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 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 oversize/overweight (OS/OW) 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 mass, 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.

Solution
Consider these roadway design factors during rehabilitation or reconstruction planning for local roads that accommodate significant freight traffic:

1. 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.

2. 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.

3. 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.

4. 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.

5. 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 for trucks to utilize designated routes for port access.
TRUCK QUEUING

Description of Issue
Safely and efficiently accommodating high volumes of truck traffic is critical to port operations and requires specially designed facilities. These accommodations include truck queuing lanes, designated truck parking areas, and designated staging areas. During peak activity, 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 along thoroughfares. Not providing proper accommodations for trucks creates inefficient and unsafe conditions for trucks and other users.

Case Study
The Port of Corpus Christi Authority experiences an influx of truck traffic along the Joe Fulton International Trade Corridor during the grain season when product must be transferred quickly to its destinations. Currently, the port facilities have limited parking and queuing areas for trucks waiting to access loading areas. There is limited roadway space on the access route and trucks often have to wait on the side of the road, affecting mobility in the area. The Port of Corpus Christi Authority was recently awarded Port Access Improvement Program funding for a roadway improvement project adding a truck queuing area with a buffer zone to separate waiting trucks from moving traffic. Construction improved safety and eased congestion on the Joe Fulton International Trade Corridor.

Solution
Texas ports generate high volumes of truck traffic. Without adequate storage, accommodating these volumes can have negative consequences for safety and operations of the roadway system. Transportation officials can identify appropriate areas to provide truck queuing lanes, staging areas, and parking for trucks. The facilities can be located in proximity to port terminals and intermodal operations and can be designed to facilitate truck movement to and from the regional highway system.

MODAL CONFLICTS

Description of Issue
When thinking about mobility needs for ports, it is important to consider the various types of commercial activity and users a port serves. Mixing multiple modes such as trains, trucks, passenger vehicles, and pedestrians can cause safety issues and may lead to increased congestion, even in areas where land use is largely industrial or devoted to port activities. At-grade railroad crossings can cause significant delays for trucks and passenger vehicles as well as safety concerns at more remote crossings which may be located on higher speed roadways with limited signage and advanced warning. Additional safety concerns arise when pedestrians and cyclists are mixed with vehicular traffic, both with and without proper accommodations such as sidewalks and shared use paths. It is difficult for pedestrians to cross streets with heavy truck traffic due to the vehicles’ slow acceleration and deceleration and limited maneuverability.

Case Study
The Port of Galveston is the only cruise port in Texas and is the 4th busiest in the United States. The Port also handles containerized cargo, dry and liquid bulk, break-bulk, roll-on/roll-off cargo, and project cargo. Cruise terminals require civilian access separated from the secured port operating facilities. Port Industrial Road serves as one of the principal routes taken by traffic entering and exiting the Port of Galveston facilities. In addition to serving heavy truck traffic, this road is used by cruise ship passengers, many of whom park in the parking lots west of the terminal and then walk to the terminal. Although shuttles to the cruise terminal are provided, some passengers choose to walk to the terminal even though the road is in poor condition and doesn’t have pedestrian facilities. This leads to safety concerns for pedestrians.

Solution
Transportation facilities should balance the mobility needs of various users. Pedestrian facilities should be provided where needed for public safety. Such facilities would benefit cruise passengers and port employees by safely separating them from truck and rail traffic. This could include improvements such as sidewalks or separated paths, pedestrian signals at intersections, street hardscaping, pedestrian lighting, and wayfinding.
INCOMPATIBLE LAND USES

Description of Issue
Many cities grew up around ports, but as port operations and industries have grown, the presence of the port can impact community quality of life. Truck traffic can create conflicts with surrounding land uses due to noise and emissions from diesel engines, induced congestion, increased safety risk, vehicle width, hazardous cargo and other factors. Heavy truck traffic is especially disruptive to residential areas and conflicts may arise between transportation users in areas with considerable pedestrian and bicycle activity, such as schools, parks, small scale retail districts, transit routes, or areas sensitive to noise such as hospitals, cemeteries, and community facilities.

Case Study
The Port of Beaumont is located adjacent to a residential area with parks, schools and places of worship. Trucks and trains accessing the Port must traverse through this neighborhood. As the Port facilities have expanded over time to handle increasing port activity, safety has become a major concern for the residents due to conflicts between port traffic and others. Aggregate material dump trucks accessing the east port entrance and trucks accessing the Exxon facility don't have a direct access route and must drive along residential streets to reach their destinations. Because of the lack of a direct route for industrial uses, trucks carrying hazardous cargo to and from the Exxon facility often use the same road that serves as a bus route through the community.

Solution
Designated or highly utilized truck routes should be located in areas with low intensity uses, lower traffic volumes, and lower development density such as industrial or agriculture areas. Where feasible, provide alternate routes to remove truck traffic from areas with incompatible land uses and to separate heavy truck traffic from local traffic such as passenger vehicles, pedestrians and bicyclists.

PREVIOUS CONNECTIVITY ACTIVITIES

While the state has funded multi-modal infrastructure, funds are limited since they can only come from sources that are not constitutionally dedicated to highway purposes. This greatly limits flexibility to fund port access roads, many of which are off-system facilities that do not fall under traditional TxDOT planning processes and funding sources.

During past legislative sessions, the Texas Legislature has included three separate riders to help fund port access improvements. The 84th Legislative Session adopted Rider 48 which allocated up to $20 million of Texas Mobility Fund (TMF) funds 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. Finally, in 2019, Rider 38 allocated an additional $40 million to be expended over two fiscal years. The $100 million from these riders has been committed to 34 public roadway projects proposed by the ports, selected by the Port Authority Advisory Committee, and approved by the Texas Transportation Commission. As of September 2020, 11 of these projects were completed, and eight were underway.
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 2020-2021 Texas Ports Mission Plan Connectivity Analysis identified a further 42 projects worth approximately $210 million to benefit port-related mobility. These included projects in seven categories: interchange/intersection improvements, capacity enhancement, new roadway construction, rail crossing improvements, bridge projects, safety enhancements, and pedestrian improvements.

This report identifies and prioritizes projects drawn from both those planning efforts, as well as new projects designed to enhance port connectivity in response to emerging markets served by Texas seaports. The 2022-2023 PMP prioritizes an additional 43 projects in those seven categories worth approximately $258 million. The majority of those projects are currently unfunded.

### Port Connectivity Report Projects

- **Bridge**
  - $33.9 Million
  - 2 projects

- **Pedestrian**
  - $0.8 Million
  - 2 projects

- **Railroad Crossing**
  - $25.3 Million
  - 2 projects

- **Safety**
  - $2.6 Million
  - 8 projects

- **Interchange/Intersection**
  - $24.9 Million
  - 4 projects

- **New Roadway**
  - $35.8 Million
  - 5 projects

- **Capacity**
  - $134.3 Million
  - 18 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 full picture of existing port connectivity issues and identified future 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 ports operate at varying scales, to facilitating the transport of a range of goods including petroleum products, agricultural goods, finished cargoes, and the catches of the commercial fishery.

The interviews focused on five elements:

- Connectivity projects begun or completed since the 2020-2021 PMP
- Future of port operations
- Major roadway issues facing the port and its tenants
- Major rail or pipeline issues facing the port and its tenants
- Desired connectivity projects

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.

### Table Reporting the Type of Crashes on Each Roadway at Port Freeport

<table>
<thead>
<tr>
<th>Access Route</th>
<th>Fatal and Injuries (K&amp;A crashes)</th>
<th>Railroad Related</th>
<th>Truck Related</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crash Count</td>
<td>Crashes/ mile</td>
<td>Crash Count</td>
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<tr>
<td>E. Broad Street</td>
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<td>1</td>
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<tr>
<td>Pine St-Terminal St</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Terminal Street</td>
<td>0</td>
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<tr>
<td>E. 6th Street</td>
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<tr>
<td>Pine St</td>
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<td>Navarre Rd</td>
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<tr>
<td>Nolan Ryan Expressway</td>
<td>2</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: TxDOT Crash Data, 2013–2017

Table reporting the type of crashes on each roadway at Port Freeport.
IDENTIFYING PORT CONNECTIVITY NEEDS

To assess each port’s connectivity to the roadway network, relevant roadway data were collected and analyzed. The TxDOT Maritime Division Performance Data next decade. 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.

TxDOT’s performance-based process for prioritizing and programming potential transportation projects was used to evaluate the universe of potential projects for their ability to improve these factors: Safety, Preservation, Congestion, Connectivity, Environmental, Economic. Solutions were also evaluated for their readiness for implementation.

Key solutions with the greatest potential to meet port connectivity needs and provide additional local and regional transportation benefits are highlighted in the PMP Connectivity Report and its appendices. These solutions feature additional improvements to the roadway and rail systems and range in scale from small studies and operational adjustments to major infrastructure investments. 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.

This study identified 43 priority solutions to address connectivity and safety concerns within the study area. These projects total approximately $258 Million.

CONNECTIVITY SOLUTIONS

The analysis culminated in a list of recommended 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:

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## PORT CONNECTIVITY PROJECT LIST

<table>
<thead>
<tr>
<th>Port</th>
<th>Improvement Type</th>
<th>Project Name</th>
<th>Cost Estimate ($M)</th>
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</thead>
<tbody>
<tr>
<td><strong>Port of Orange</strong></td>
<td>Safety</td>
<td>Add medians along SH 87 between I-10 and Green Ave</td>
<td>$1.5</td>
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<tr>
<td></td>
<td>Safety</td>
<td>Complete access management study along SH 87 between I-10 and Green Ave</td>
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<tr>
<td></td>
<td>Capacity</td>
<td>Expand Alabama St</td>
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</tr>
<tr>
<td><strong>Port of Beaumont</strong></td>
<td>Capacity</td>
<td>Improve Marina St access to Industrial Island for OS/OW including bridge over Necches River</td>
<td>$6.1</td>
</tr>
<tr>
<td></td>
<td>New Roadway</td>
<td>Construct Carroll Street overpass</td>
<td>$10.0</td>
</tr>
<tr>
<td><strong>Port of Port Arthur</strong></td>
<td>Safety</td>
<td>Safety &amp; Access Management Study of US 69 from SH 73 - SH 87</td>
<td>$0.1</td>
</tr>
<tr>
<td></td>
<td>Intersection</td>
<td>Intersection of SH 82/87 - Signalize slip lanes and add all red traffic signal phase to intersection</td>
<td>$0.9</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Reduce at grade RR crossings by dead ending local streets north of port entrance</td>
<td>$0.7</td>
</tr>
<tr>
<td><strong>Port of Houston</strong></td>
<td>Safety</td>
<td>Jacintoport Road Area Freight Safety and Operations Plan</td>
<td>$0.3</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Jacintoport Road Improvements</td>
<td>$27.0</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td>Federal Road access management and safety study</td>
<td>$0.3</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Upgrade Clinton Dr to 3 lane with two way left turn lane</td>
<td>$0.3</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td>Barbour's Cut Area Operations &amp; Safety Study</td>
<td>$0.3</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Develop Port to I-45 Connectivity Plan</td>
<td>$0.4</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Four lane extension on 61st St from Broadway/SH87 to Harborside Drive/SH-275</td>
<td>$17.3</td>
</tr>
<tr>
<td></td>
<td>Bridge</td>
<td>Improve Pelican Island Causeway Bridge to increase loading and reconfigure roadways around Texas A&amp;M Galveston campus</td>
<td>$18.5</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td>Add sidewalks along Harborside Dr between 37th and 25th St</td>
<td>$0.1</td>
</tr>
<tr>
<td></td>
<td>Pedestrian</td>
<td>Improve pedestrian bridge over Harborside Dr and RR</td>
<td>$0.7</td>
</tr>
<tr>
<td><strong>Port of Galveston</strong></td>
<td>Safety</td>
<td>FM 1495 Operations &amp; Safety Study</td>
<td>$0.03</td>
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<tr>
<td></td>
<td>Bridge</td>
<td>Replace Pine St bridge</td>
<td>$15.0</td>
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<tr>
<td></td>
<td>New Roadway</td>
<td>Develop frontage/backage roadway system to SH 36 for port expansion</td>
<td>$2.8</td>
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<tr>
<td></td>
<td>Capacity</td>
<td>Roadway improvements, signage, and security system for main gate complex</td>
<td>$1.7</td>
</tr>
<tr>
<td><strong>Port of Freeport</strong></td>
<td>Capacity</td>
<td>FM 2668 widening/capacity improvements</td>
<td>$23.2</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>FM 3007 expansion for permanent truck queuing</td>
<td>$1.1</td>
</tr>
<tr>
<td><strong>Port of Bay City</strong></td>
<td>Safety</td>
<td>Designate Henderson Ave (SH 35) as primary truck route</td>
<td>$0.01</td>
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<tr>
<td></td>
<td>Safety</td>
<td>Conduct access management study and complete safety improvements</td>
<td>$0.04</td>
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<tr>
<td><strong>Calhoun Port Authority</strong></td>
<td>Safety</td>
<td>Improvements to intersection of SH 35/FM 159J</td>
<td>$0.7</td>
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<tr>
<td><strong>Port of West Galhoun</strong></td>
<td>Capacity</td>
<td>Improve truck route into Seadrift: truck route designation, Gates Rd improvement, intersection improvement</td>
<td>$2.5</td>
</tr>
<tr>
<td><strong>Port of Victoria</strong></td>
<td>Intersection</td>
<td>Intersection of US 59/SR 165 congestion &amp; safety improvements (Texas U-turn, one-way frontage roads)</td>
<td>$3.3</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Widens public access road to allow for truck queuing that doesn't restrict movement</td>
<td>$0.6</td>
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<tr>
<td></td>
<td>Railroad</td>
<td>Replace Rail Lift Bridge over the Victoria Barge Canal at Bloomington</td>
<td>$25.0</td>
</tr>
<tr>
<td><strong>Port of Corpus Christi</strong></td>
<td>New Roadway</td>
<td>Add 5,100’ of frontage road along the inside of future rail corridor adjacent to I-41 Corridor</td>
<td>$5.5</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Planning to develop OSOW Route from Port to TNHFN - Study</td>
<td>$0.2</td>
</tr>
<tr>
<td></td>
<td>Railroad</td>
<td>Improve RR crossing signage and warning devices on SH 361</td>
<td>$0.3</td>
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<tr>
<td></td>
<td>New Roadway</td>
<td>New Roadway (SH 200) - West of Inglisde</td>
<td>$14.0</td>
</tr>
<tr>
<td><strong>Port of Harlingen</strong></td>
<td>Capacity</td>
<td>Widens and Improve PM 106 to accommodate OS/OW</td>
<td>$9.2</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Designate FM 509 to FM 106 as primary truck route; capacity improvements at FM 509/106 intersection</td>
<td>$0.2</td>
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<tr>
<td><strong>Port of Port Isabel</strong></td>
<td>New Roadway</td>
<td>Bypass road from Port to SH 48</td>
<td>$3.5</td>
</tr>
<tr>
<td><strong>Port of Brownsville</strong></td>
<td>Intersection</td>
<td>Improvements to SH 550 - high-congestion at SH 511 interchange</td>
<td>$20.0</td>
</tr>
<tr>
<td></td>
<td>Capacity</td>
<td>Internal Port Road Improvements (Dosts Rd)</td>
<td>$10.4</td>
</tr>
<tr>
<td><strong>Regional Projects</strong></td>
<td>Bridge</td>
<td>MLK Bridge improvement and location study</td>
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<tr>
<td></td>
<td>Bridge</td>
<td>Develop OSOW plan for SH 35 bridges between Bay City and Corpus Christ</td>
<td>$9.1</td>
</tr>
</tbody>
</table>

**Total** $257.7

*Blue shading represents the TxDOT Beaumont District and green shading represents the Yoakum and Corpus Christi Districts.*