Report to Congress for Future Water Resources Development (WRRDA 7001) Submission Package

Proposal Name: Freeport Harbor Channel Improvement Project, Brazoria County, Texas

Submission Date: 08/08/2017

Proposal ID Number: d89323a1-efde-457d-ad73-71e4429db8dd

Purpose of Proposal: The Freeport Harbor Channel Improvement Project was authorized in Section 7002 o f the Water Resources Reform and Development Act (WRRDA) 2014. Shortly after authorization, it was determined that the design vessel would have difficulty safely navigating around the Dow Thumb (see atta ched figure). The Galveston District and Port Freeport are in the process of conducting a General Reeval uation Report (GRR) to address this issue. The GRR is on schedule to be completed and approved by the ASA in July 2018. No additional federal authorization is required to construct the project. Port Freeport is working with the Galveston District to initiate Preconstruction Engineering and Design (PED) and exec ute a Project Partnership Agreement for the much needed improvements as laid out in the WRRDA 2014 Authorization. Considerable effort and time has been spent to get the design correct. Since the project w as authorized in 2014, it has been actively worked on by the Corps and the Port; it has not been sitting idl e. This 7001 request is that the WRRDA 2014 PED appropriation be considered to be construction dolla rs so that the project will not be subject to the seven year de-authorization timeframe as described in Secti on 6003 of WRRDA 2014.

1. Administrative Details

Proposal Name: Freeport Harbor Channel Improvement Project, Brazoria County, Texas

by Agency: Port Freeport

Locations: TX

Date Submitted: 08/08/2017

Confirmation Number: d89323a1-efde-457d-ad73-71e4429db8dd

Supporting Documents

File Name	Date Uploaded
support.pdf	08/08/2017
Section 7001 request.pdf	08/08/2017
PF Economic Impact Analysis 2016.pdf	08/08/2017

2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

Sponsor	**Letter of Support**
Port Freeport(Primary)	Port Freeport continues to support the Freeport Harbor C hannel Improvement project and continues to be a full par tner with the Federal Government during the ongoing GR R. Port Freeport has the taxing authority to fully fund th e non-federal share of the project.

3. State if this proposal is for a feasibility study, a modification to an authorized USACE feasibility study or a modification to an authorized USACE project. If it is a proposal for a modification, provide the authorized water resources development feasibility study or project name.

[x] Modification to an Authorized USACE Project : Freeport Harbor Channel Improvement Project, Br azoria County, Texas

4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.

The Freeport Harbor Channel Improvement Project was authorized in Section 7002 of the Water Resources Reform and Development Act (WRRDA) 2014. Shortly after authorization, it was determined that the de sign vessel would have difficulty safely navigating around the Dow Thumb (see attached figure). The Galv eston District and Port Freeport are in the process of conducting a General Reevaluation Report (GRR) to address this issue. The GRR is on schedule to be completed and approved by the ASA in July 2018. No additional federal authorization is required to construct the project. Port Freeport is working with the Ga lveston District to initiate Preconstruction Engineering and Design (PED) and execute a Project Partnersh ip Agreement for the much needed improvements as laid out in the WRRDA 2014 Authorization. Conside rable effort and time has been spent to get the design correct. Since the project was authorized in 2014, it has been actively worked on by the Corps and the Port; it has not been sitting idle. This 7001 request is that the WRRDA 2014 PED appropriation be considered to be construction dollars so that the project will not be subject to the seven year de-authorization timeframe as described in Section 6003 of WRRDA 2014.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	**Non-Federal**	**Total**
Study	$0	$0	$0
Construction	$0	$0	$0

Explanation (if necessary)

All costs for the project are currently accounted for in the Chief's Report and the GRR. There would be n o new expenditure required to accept this proposal.

6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.

Recent changes in the regional and local economy has spurred growth on the Texas Coast. Development o f the shale oil and gas fields in Texas has produced abundant quantities of oil, gas, and gas byproducts. A part of the natural gas is liquefied here and exported from Freeport, Texas. A part of the gas is turned int o plastic resign here and exported from Freeport, Texas. The opening of the new Panama Canal locks will increase trade efficiencies between the Gulf Coast and Asian markets. The WRRDA 2014 authorization of the Freeport Harbor Channel Improvement Project has spurred development and expansions in Brazoria C ounty, Texas that includes facilities to export liquefied LNG, crude oil, produce plastic resin, and steel drill ing pipe manufacturing totaling $25 Billion. These industries are counting on a viable, efficient Freeport Harbor to move their products. Currently the NED benefits associated with the Freeport Harbor Channel Improvement Project are estimated to be $67.8 Million annually. Without the channel improvements it is likely that much of the products from Brazoria County, Texas will be shipped from other facilities at a far greater transportation cost, and increasing traffic on already burdened railways and roadways. A recent st udy (attached) indicates Port Freeport is directly responsible for 125,000 jobs, $522 Million in taxes annual ly. To date the Federal Government and Port Freeport have spent a total of $12.5 Million producing the Feasibility Report and the GRR for this project. Port Freeport and Local Industry have spent over $25 B illion in investment which desperately needs the Freeport Harbor Channel Improvement Project completed to realize the full benefits to the economy.

7. Does local support exist? If 'Yes', describe the local support for the proposal.

[x] Yes

Local Support Description

8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?

[x] Yes

Primary Sponsor Letter of Support

(As uploaded)

support.pdf

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August 8, 2017

COL. Lars Zetterstrom, P.E.
U.S. Army Corps of Engineers, SWG
P.O. Box 1229
Galveston, TX 77553-1229

Dear COL. Zetterstrom:

Port Freeport continues to support the Freeport Harbor Channel Improvement Project and the completion of the General Reevaluation Report. Port Freeport sees the amount of expansion and investment made by local industry since the WRRDA 2014 authorization, and we know that industry is now counting on this project to be completed so those investments can maximize the growth of the U.S. economy.

Sincerely,

Phyllis Saathoff
Executive Director/CEO

PORT COMMISSION

PAUL KRESTA, CHAIRMAN; JOHN HOSS, VICE CHAIRMAN; SHANE PIRTLE, SECRETARY; BILL TERRY, ASST. SECRETARY;
RUDY SANTOS, COMMISSIONER; RAVI K. SINGHANIA, COMMISSIONER; PHYLLIS SAATHOFF, EXECUTIVE DIRECTOR/CEO

Map Document

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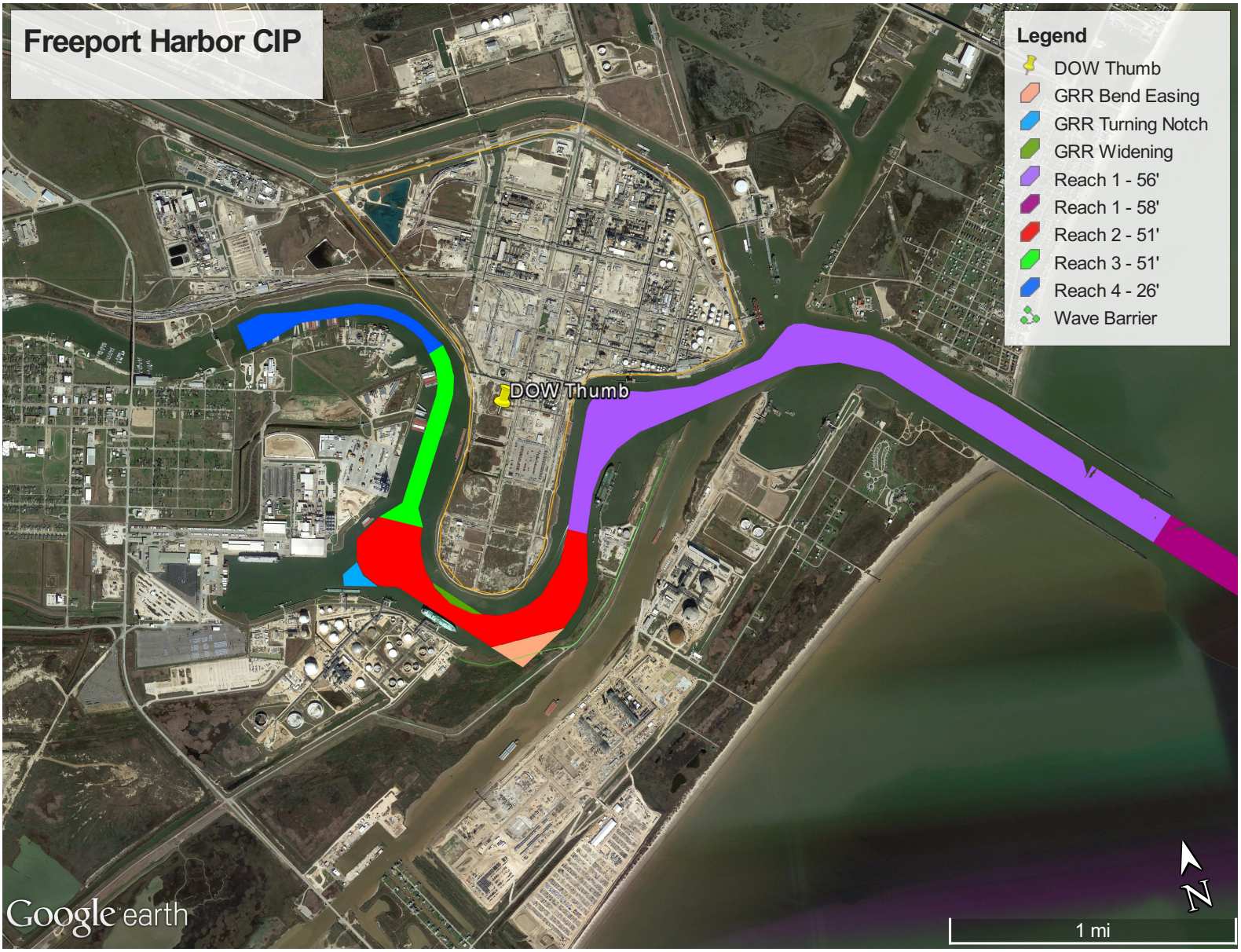
Section 7001 request.pdf


Freeport Harbor CIP
Legend
DOW Thumb
GRR Bend Easing
GRR Turning Notch
GRR Widening
Reach 1 - 56'
Reach 1 - 58'
Reach 2 - 51'
Reach 3 - 51'
Reach 4 - 26'
Wave Barrier
DOW Thumb
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Additional Proposal Information

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PF Economic Impact Analysis 2016.pdf

Port Freeport Economic Impact Analysis

Final Report

Prepared by the Infrastructure Investment Analysis Program

The Texas A&M Transportation Institute

The Texas A&M University System

College Station, Texas

February 2016

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EXECUTIVE SUMMARY

This report, prepared by researchers at the Texas A&M Transportation Institute (TTI), estimates the total economic impact of operations at Port Freeport. In order to develop a better understanding of the ports in Texas, researchers investigated the major stakeholders, key statistics and impact on the economy, and funding legislation of the Texas Port System. In addition, researchers investigated the history, current development, and terminal additions of Port Freeport.

To perform the economic impact analysis, TTI researchers collected data from companies within the inner harbor and private terminal owners. These data were used as inputs into an input-output (I-O) model maintained by TTI staff. In this report, local means Brazoria, Galveston, and Matagorda Counties.

Results of the analysis showed that operations at Port Freeport have the following estimated impacts:

- **16,400** local direct jobs as a result of Port Freeport.
- **69,500** local indirect and induced jobs supported by operations at Port Freeport.
- **40,100** jobs elsewhere in Texas supported by operations at Port Freeport.
- **126,000** jobs economy wide directly or indirectly supported by operations at Port Freeport.
- **$1.5 billion** in direct personal income generated as a result of Port Freeport.
- **$3.8 billion** in indirect income supported by Port Freeport.
- **$2.3 billion** in income generated elsewhere in Texas.
- **$7.6 billion** in income generated economy wide.
- **$46.2 billion** in economic activity supported economy wide.
- **$522 million** in annual tax impacts economy wide.

PROJECT DESCRIPTION AND METHODOLOGY

This report estimates Port Freeport's total economic impact generated from marine vessel activity through public marine terminals in the inner harbor of the Port Freeport and by operations and production of companies operating private marine terminals within the port complex. Outputs resulting from the economic analysis are presented in terms of jobs, personal income, and state and local tax impacts. For the purpose of this report, the study region included Brazoria and surrounding coastal counties. The study year is 2014, the last year for which all of the required data were available.

As one of the largest port systems in the United States, Texas ports play a vital role in the state's total economic activity. Port Freeport, which handled over 19.7 million short tons of cargo in 2013 (*1*), generates a significant portion of this economic activity. To better understand this system, and the impacts of Port Freeport, researchers examined the major stakeholders, key impacts, and funding for Texas Ports as well the history, defining characteristics, and current development of Port Freeport.

To estimate the economic impact of Port Freeport, researchers investigated employment, payroll, and marine activity of tenants and private terminal owners within the study region. Additionally, researchers estimated the sales tax impacts of port operations and the property tax revenue of the port. Data were collected through various means of communication with the various port tenants and private terminal owners. This communication was done through face-to-face interviews, phone interviews, and email. Additional data were collected through local agencies such as the Economic Development Alliance for Brazoria County (EDA) and from the Port Authority itself.

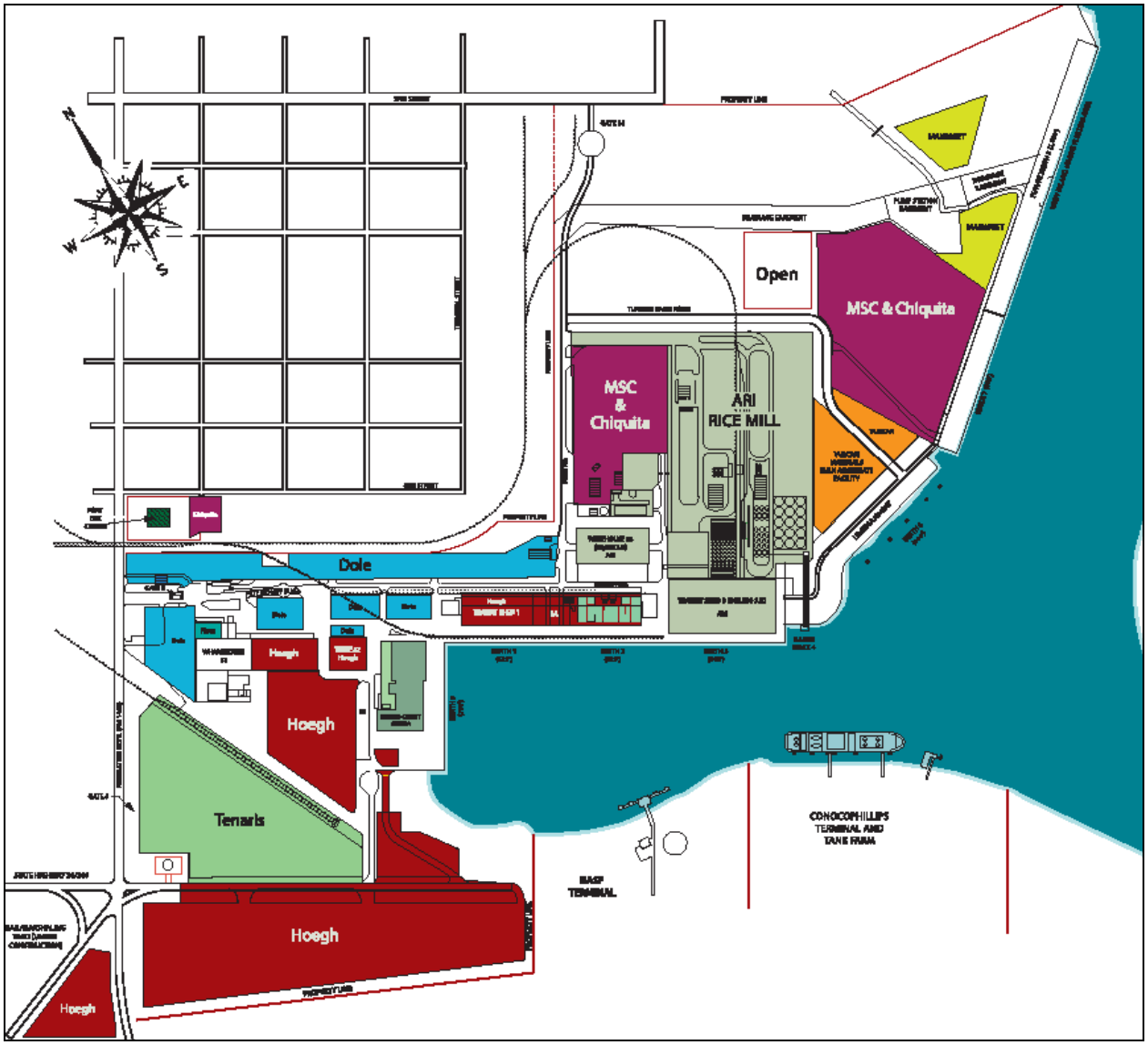
These data were used as inputs into an I-O model maintained by TTI staff to analyze the economic impacts of the port operation. The I-O model was also used as a basis for determining sales and property tax impacts. Separate calculations were performed, based on income estimates from the I-O model, to estimate sales tax collections by various political subdivisions.

INTRODUCTION

PURPOSE OF STUDY

This report estimates the total annual economic impact of Port Freeport operations for the year 2014. The economic impacts to be estimated include the primary and secondary effects of the port's operation on employment, production, income, and tax revenues across industry sectors, the study area, and the statewide impact of Port Freeport operations.

For the purposes of this study, facilities included in the study are those owned and operated by the port and those leased to others (e.g., Dole, Chiquita, et al.) within the inner harbor. Figure 1 shows the inner harbor. Estimates for private port facilities in the port district and their corresponding production facilities owned and operated by Dow, Phillips 66, and BASF have been included in this report as well. Businesses located outside of the inner harbor shown in Figure 1, excluding private terminals and their corresponding production facilities, were not investigated as part of this report.



Source: (21)

Figure 1. Inner Harbor Port Facilities

THE TEXAS PORT SYSTEM

The Texas port system is one of the largest in the United States and plays a major role in the economy and supply chain of both the state and the nation. The system is comprised of 11 deep draft ports and numerous shallow water ports that process commercial goods. Deep draft ports are those that have channels that are 39 ft or deeper, while shallow draft ports are those less than 25 ft deep. The ports are all connected via the Gulf Intracoastal Waterway (GIWW), a shallow (12 ft) channel, of which approximately 379 miles run along the Texas coast (*2*).There are nearly 1,000 docks, piers, or wharves along the Texas coast that handle various cargoes (*3*). The port system serves to complement intermodal transportation and aid in a wider distribution of traffic across multiple modes. (See Table 1 for more details on the characteristics of individual Texas ports.)

Table 1. Overview of Texas Ports

Port	Draft Class	Major Assets/Attributes	Primary Goods Handled/Specialties	2013 Tonnage (U.S. Rank)*
Port of Orange	Deep	• Home to barges that service deep water oil rigs • 4 berths and 8 warehouses • Used to service, repair, and maintain military reserve fleet	Lay berthing, vessel construction, and repair	Total: 758,969 (150th) Domestic: 758,671 (126th) Foreign: 298 (121st)
Port of Port Arthur	Deep	• Served by 2 Class 1 rail lines (Union Pacific and Kansas City Southern) • Approx. 3100 ft of docks • 116,000 sq meters of storage	Exports: Forest products, petroleum, coke, steel pipe, project cargo Imports: Steel slabs, forest products, project cargo, misc. steel	Total: 34,699,150 (18th) Domestic: 9,539,380 (30th) Foreign: 25,159,770 (16th)
Port of Beaumont	Deep	• Served by 3 Class 1 rail lines • Roll-on/Roll-off Ramp • 9 berths • 620,000 sq ft of covered storage space • Over 80 acres of open-air storage	Exports: bulk grain, forest products, potash, project cargo Imports: forest products, steel, project cargo, aggregate	Total: 94,403,631 (4th) Domestic: 33,371,149 (9th) Foreign: 61,032,482 (5th)
Port of Houston	Deep	• Largest petrochemical complex in the United States • Access to 3 Class 1 Railroads	Exports: Resins & plastics, chemicals & minerals, machinery, appliances, and electronics, food & drink, automotive, steel & metal, fabrics Imports: food & drink, hardware & construction material, machinery, appliances, & electronics, steel & metals, chemicals & minerals, retail consumer goods, furniture	Total: 229,246,833 (2nd) Domestic: 69,695,842 (2nd) Foreign: 159,550,991 (1st)
Port of Galveston	Deep	• Roll-on/Roll-off Ramp • Major cruise line terminal • Served by 2 Class 1 rail lines	Exports: bulk grains, containers, machinery, vehicles, linerboard & paper, carbon black, light fuels Imports: wind power equipment, agricultural equipment, machinery, vehicles, fertilizer products, lumber products, military-related cargos	Total: 11,406,750 (49th) Domestic: 7,120,873 (38th) Foreign: 4,285,877 (47th)
Port Freeport	Deep	• 14 berths • 45 ft deep Freeport Harbor Channel • 70 ft deep berthing area • Access to Union Pacific rail line	Exports: automobiles, chemicals, clothing, food, paper goods, resins, rice, liquefied natural gas (LNG) Imports: aggregate, chemicals, clothing, crude, foods, LNG, paper goods, resins, wind turbines, automobiles, machinery, steel pipe, project cargo	Total: 19,716,053 (32nd) Domestic: 7,230,811 (36th) Foreign: 12,485,242 (27th)

Port	Draft Class	Major Assets/Attributes	Primary Goods Handled/Specialties	2013 Tonnage (U.S. Rank)*
Port of Palacios	Shallow	• 4 turning basins with 13,000 ft of dock space • 800 acres of developable land	Shrimping, vessel construction/repair	N/A
Port of Port Lavaca-Point Comfort	Deep	• 3 liquid cargo facilities • Dry bulk dock that can handle carriers up to 740 ft long • Served by Point Comfort and Northern Railway	Chemicals, fertilizers, petroleum products, bauxite	Total: 10,888,384 (51st) Domestic: 3,164,179 (71st) Foreign: 7,724,205 (37th)
Port of West Calhoun	Shallow	• Berths for seafood production, and oil & gas exploration	Petroleum coke and chemicals	N/A
Port of Victoria	Shallow	• Center that can be utilized by chemical, construction, and steel fabrication and agribusiness industries	Chemicals, petrochemicals, frac sand, crude oil, liquid fertilizers, dry fertilizers, grain, aggregates	Total: 5,519,511 (74th) Domestic: 5,519,511 (54th) Foreign: 0 (N/A)
Port Corpus Christi	Deep	• Over 295,000 sq ft of covered storage space • 125 acres of open storage Access to 3 Class 1 rail lines	Petroleum, dry bulk, grain, chemicals, liquid bulk, break bulk	Total: 76,157,693 (7th) Domestic: 31,911,008 (11th) Foreign: 44,246,685 (7th)
Port of Harlingen	Shallow	• 650 ft dry/liquid cargo wharf • 100 ft dry bulk wharf • 150 acres of open storage	Exports: raw sugar, cotton, sorghum, corn Imports: liquid fertilizer, sand, aggregates, gasoline, diesel, ethanol	N/A
Port of Port Isabel	Deep	• 5 docks (2 cargo, 1 roll-on/roll-off, 2 oil)	Exports: N/A Imports: concrete, sand, aggregate	N/A
Port of Brownsville	Deep	• 12 cargo docks; 4 oil docks, 1 liquid cargo dock; 1 bulk cargo dock • 40,000 acres of land • 65 acres of covered storage, 13 acres covered storage	Steel products, lubricants, gasoline, diesel, jet fuel, grain, aluminum, windmill components (*4*)	Total: 5,533,332 (73rd) Domestic: 3,117,593 (72nd) Foreign: 2,415,739 (57th)
Port of Texas City	Deep	• Privately owned by the Union Pacific and BNSF Railways	Imports: Crude oil Exports: Gasoline, diesel, jet fuel, intermediate chemicals, petroleum coke (*5*)	Total: 49,674,036 (13th) Domestic: 19,281,961 (17th) Foreign: 30,392,075 (12th)

* Tonnage and rankings based on data from (*1*). ** Source: (*6*) unless otherwise denoted

MAJOR STAKEHOLDERS

As a complex system and one that has far-reaching impacts not only in Texas but the entire United States, the port system has multiple stakeholders that work to ensure that it operates efficiently and safely. The Maritime Division of the Texas Department of Transportation monitors the system on behalf of the agency. The division has three stated goals:

1. Promote the development and intermodal connectivity of Texas ports, waterways, and marine infrastructure and operations.
2. Serve as a resource to increase the use of the GIWW.
3. Promote waterborne transportation to maintain Texas's economic competitiveness (*7*).

In addition to TxDOT, there are numerous other stakeholders involved in the activities and development of Texas ports. The Texas Ports Association aims "to advance the development of Texas ports, enabling them to compete with ports outside of Texas and thereby strengthen the economy of Texas" (*8*). Also under the purview of TxDOT is the Port Authority Advisory Committee that "provides a forum for the exchange of information between the Transportation Commission, TxDOT staff, and committee members representing the port industry in Texas and others who have an interest in ports" (*9*). The Committee is responsible for reviewing prospective projects that are eligible to be funded via the Port Access Account Fund (see the Funding section of this report for a description) and is required to submit a report every two years that details the projects that are recommended and funding levels (*10*). It is also responsible for developing the Texas Ports Capital Program that outlines "…the goals and objectives of the committee concerning the development of maritime port facilities and an intermodal transportation system" (*10*). The Galveston District of the United States Army Corps of Engineers possesses some responsibility for aspects related to the Texas port system as well, namely maintaining the GIWW and all of the ship channels. All of these entities contribute vital resources and information to the effort to ensure that the Texas port system, and consequently the Texas economy, remains economically competitive.

KEY STATISTICS AND IMPACTS ON THE ECONOMY

Texas's port system is a key part of the state economy, contributing nearly $280 billion each year in economic activity across the state (*11*). According to TxDOT, these ports handle more than 550 million tons of cargo annually, accounting for 20 percent of all U.S. port tonnage (*12*). The majority (51.5 percent) of cargo handled at Texas ports was going to or coming from a foreign country (*6*). The Texas port industry contributed to over 1.4 million jobs statewide and provided over $6.5 billion in tax revenues for both the state and local governments in 2011 (*13*).

A key aspect of the state's port system is its proximity to the GIWW. From 2007 to 2011, Texas led the United States in intrastate cargo being moved (305.7 million tons), most of which happened along the GIWW, accounting for over 30 percent of the cargo being transported through Texas ports over that time period (6). Ninety-one percent of the cargo transported along the GIWW in 2010 was characterized as petroleum or chemical products (*14*). This movement of goods along the GIWW is significant for a number of reasons; among them is the fact that the GIWW helps reduce congestion on other surface transportation facilities, such as highways and rail lines (*14*).

Various industries are supported by activity at these ports. For instance, the Port of Galveston welcomed more than 900,000 passengers in 2013, making it the fourth busiest cruise port in the United States (*15*). Oil and gas products have traditionally been the primary commodity being moved through Texas Ports. In fact, 70 percent all of cargo can be classified as oil and/or petroleum products (*7*). Agriculture and food products make up a significant portion of the goods handled. The United States military is also a major client of the Texas port system, as Port Beaumont is recognized as the busiest military port in the world (*16*).

FUNDING

With the key role that the port system plays in the Texas economy, funding for infrastructure and security projects is critical for Texas ports in order to maintain their competitive edge with other ports along the Gulf Coast and across the United States. For a long time, unlike the other Gulf Coast states, Texas ports have been self-sufficient, receiving no direct funding from the state for their infrastructure needs. In 2001, the Texas Legislature passed a law establishing the Port Access Account Fund in order to finance port infrastructure projects and security improvements, but no money has been appropriated for this fund in the years since (*6,* pg. 49–50). Chapter 55 of the Texas Transportation Code authorizes spending of money from this account on:

1. Construction or improvement of transportation facilities within the jurisdiction of a maritime port.
2. The dredging or deepening of channels, turning basins, or harbors.
3. The construction or improvement of wharves, docks, structures, jetties, piers, storage facilities, cruise terminals, or any other facilities necessary or useful in connection with maritime port transportation or economic development.
4. The construction or improvement of facilities necessary or useful in providing maritime port security.
5. The acquisition of container cranes or other mechanized equipment used in the movement of cargo or passengers in international commerce.
6. The acquisition of land to be used for maritime port purposes.
7. The acquisition, improvement, enlargement, or extension of existing maritime port facilities.
8. Environmental protection projects that:
    a. Are required as a condition of a state, federal, or local environmental permit or other form of approval;
    b. Are necessary for the acquisition of spoil disposal sites and improvements to existing and future spoil sites; or
    c. Result from the undertaking of eligible projects (*10*).

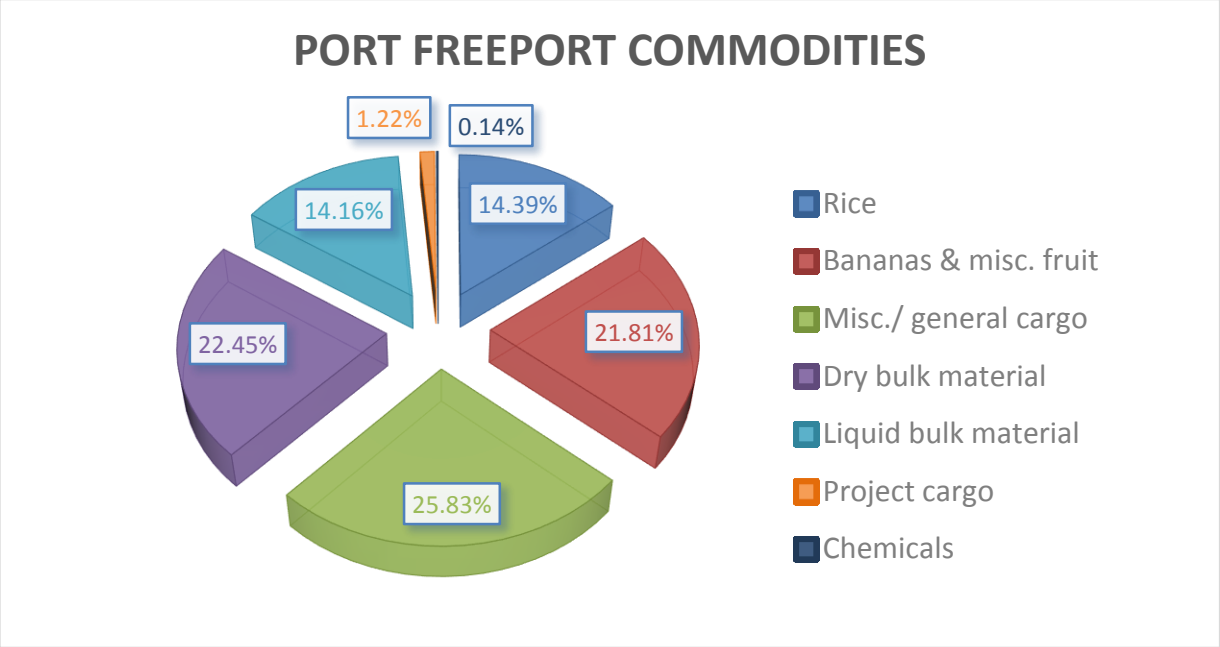
This trend of no state funding appeared to change with the recently completed 84th Legislative Session. The state budget for the 2016–2017 biennium included Rider 48, which authorizes the allocation of up to $20 million from the Texas Mobility Fund (TMF) to be spent on port capital improvement projects (*17*). This action has only recently been made possible through the passage of House Bill 1 in 2013 and the subsequent approval of a constitutional amendment by Texas voters. House Bill 1 provides that money from the Texas Mobility Fund can be used to fund (through a loan or otherwise) any port security or transportation project as well as any projects that fall under Texas Transportation Code Chapter 55 referenced above, opening the door for funds from the Texas Mobility Fund to be appropriated for port purposes (*18*). However, Texas Governor Gregg Abbot raised concerns over this allocation of funds via a signing message attached to House Bill 1. The Governor stated (*18*):

> While capital improvement projects for Texas ports and the resulting trade opportunities are vital to the state's economic future, using the Texas Mobility Fund for this purpose raises considerable concerns as it may violate the Texas Constitution. The Legislature should make a meaningful commitment to port capital improvement projects, but it should do so in a manner that is consistent with the Constitution.

In the past, other than some federal funding programs such as Transportation Investment Generating Economic Recovery (TIGER), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Economic Development Administration grants, the ports have been self-sufficient and most capital projects have been funded by the ports themselves. Funding is garnered through a variety of mechanisms, although primarily through use of port revenues such as port usage fees, ground leases, taxation, investments, and grants. There are a number of other potential sources that port authorities are considering. One such possibility is the transportation reinvestment zone (TRZ). A TRZ is an area in which a project can be financed and completed using the growth in future tax revenues that are expected to be realized as a result of the project (*19*). Senate Bill 971 opened up the possibility for port authorities to use TRZs as a funding method in 2013. The bill added port projects that are "necessary or convenient for the proper operation of a maritime port or waterway and that will improve the security, movement, and intermodal transportation or cargo or passengers in commerce and trade, including dredging, disposal, and other projects," to the approved list of uses of TRZs (*20*).

PORT FREEPORT

Port Freeport is a deep water port located in Brazoria County, Texas. Its' jurisdiction covers about 85 percent of the county. The inner harbor, which is home to the main operations of the port, is located in Freeport, Texas. The port is approximately 60 miles south of Houston. As a political subdivision within Texas, it is governed by a Port Commission made up of six members, five of which represent a geographic location with the sixth as an at-large position. Each commissioner serves a six-year term. Currently, the port encompasses 186 acres of developed land and roughly 7,000 acres of undeveloped land, 1,400 acres of which have been environmentally mitigated (*21*). In addition to the land assets, the port has 18 public and private docks with berthing areas at a depth of up to 45 feet and a 70 ft deep hole accessible via the Freeport Harbor Channel, which has an authorized depth of 45 ft (*22*). The oil and gas industry is a major client of the port. Other important commodities handled by the port are clothing, fresh fruits and vegetables, rice, paper goods, project cargo, plastic resins, aggregate, autos, and windmill components (*23*). In 2013, the port handled over 19.7 million tons of cargo (*1*). Among U.S. ports, it ranked as the 27th busiest in foreign tonnage, 36th in domestic tonnage, and 32nd in total tonnage (*1*). In addition, activities at Port Freeport were responsible for an estimated $17.9 billion in economic activity throughout Texas in 2011 (*23*). (Note: It is the conclusion of this analysis that the estimated statewide economic impact of Port Freeport in 2014 was $45.6 billion.) Major tenants of the port include Dole Fresh Fruit Company, American Rice, and Chiquita. In addition to these port tenants, there are also private terminal owners present at the port such as Dow Chemical Company and BASF. There are several modes of land transportation nearby that facilitate the movement of goods to and from the port, including State Highway 36, State Highway 288, and a rail line operated by the Union Pacific Railroad.



*Private terminal tonnage is not reported. Source: (*24*)

Figure 2. Tenant Cargo Totals from September 30, 2005, to September 30, 2014

HISTORY

Since its establishment as the Brazos River Harbor Navigation District in 1925, the port and its operations have expanded significantly. The port's first two docks were built in the 1950s through the issuance of a series of ad valorem tax and port revenue bonds (*24*). Construction on various buildings and facilities continued over the next two decades, and in 1980, most of the land that the port currently owns was acquired through the issuance of additional ad valorem tax bonds (24). In 1988, the port established Foreign-Trade Zone (FTZ) No. 149, which enables businesses operating within the port's jurisdiction to postpone or eliminate customs duties on goods being imported. The FTZ includes Brazoria and Fort Bend Counties. As a result of the existence of the FTZ, there were over $1.4 million in savings by port industries on customs duties in 2012 (23). Expansion of the port's facilities continued in the 2000s. A cool storage facility was finished in 2005, and a receiving facility for LNG was completed in 2008. The port also recently acquired two new cranes to be used in moving containers onto and off of ships. In 2007, via the passage of House Bill 542, the Brazos River Harbor Navigation District was officially renamed Port Freeport.

CURRENT DEVELOPMENT

Currently, there are two significant projects underway that will widen and deepen the channel in order to serve larger ships. With the passage of the Water Resources Reform and Development Act of 2014 came authorization for a project that will deepen the port's channel to a depth of 55 ft from its current depth of 45 ft (24). Once completed, the expansion will make Port Freeport the deepest port on the Gulf of Mexico (23). In addition, Freeport LNG recently reached an agreement with the port to widen the entrance of the channel from 400 ft to 600 ft in order to accommodate larger ships and increase efficiency when it comes to ships traveling in and out of the channel. Freeport LNG is also funding this project. Companies such as Phillips 66 and BASF are in the process of expanding their operations at Port Freeport as well. Phillips 66 is currently constructing a $2.06 billion terminal expansion while BASF recently completed a $90 million emulsion polymers manufacturing plant. Security improvements, including the addition of a security boat, an emergency response center, and closed circuit video surveillance capabilities, are being made to Port Freeport through grants from the U.S. Department of Homeland Security (23).

Table 2 is complete list of recently completed projects or projects underway provided by the EDA. These projects provide thousands of temporary construction jobs for Port Freeport. Once completed, these projects will create hundreds of new direct and indirect jobs within their respective companies.

Table 2. Port Freeport Project Success – 2013–2014

Company & Location	Project Description	Construction Status	Estimated New Capital Investment	Construction Workers at Peak	New Direct Company Jobs	Total Direct & Indirect New Jobs
Freeport LNG Quintana/Oyster Creek	Natural Gas Liquefaction – Train 1	Underway; 2018	$4.7 Billion	1,200	88	414
Freeport LNG Quintana/Oyster Creek	Natural Gas Liquefaction – Train 2	Underway; 2018	$4.7 Billion	1,400	52	244
Freeport LNG Quintana/Oyster Creek	Natural Gas Liquefaction – Train 3	Underway; 2019	$4.6 Billion	1,200	23	108
Dow Chemical Co. Oyster Creek	Propane Dehydrogenation Plant	Underway; Finish 2015	$1 Billion	1,000	80	377
Dow Chemical Co. Oyster Creek	Ethylene Cracker	Underway; Finish Late 2017	$1.7 Billion	2,000	100	471
BASF Corporation Freeport	Emulsion Polymers Manufacturing Plant	Completed	$90 Million	Not Applicable	20	59
Dow AgroSciences Freeport	Dichlorophenol Plant	Underway; Finish Early 2015	$150 Million	155	10	36
Air Liquide Oyster Creek	Liquid Oxygen Storage Tank & Vaporization Facility	Completed	$10 Million	Not Applicable	0	0
Nalco Freeport	H_2S Scavenger Expansion	Underway; Finish 2015	$5.2 Million	Unknown	Unknown	Unknown
Dow Chemical Co. Lake Jackson	Administration Building and R&D Labs and Offices	Underway; Finish 2016	Unknown	1,000	30	75
Phillips 66 Sweeny & Freeport	Liquefied Petroleum Gas (LPG) Export Terminal	Underway; Finish 2016	$2.06 Billion	700	24	126

Source: (*25*)

TERMINAL ADDITIONS

Port Freeport further expanded its terminal operations through the design and construction of the Velasco terminal. The design for the addition started in 2004 with construction beginning in 2006 (24). The terminal construction is moving in multiple phases, with the Phase I, Berth 7, being completed in 2013. An additional 800 linear feet of berth space was created through the construction of Berth 7. When all phases are completed, the Velasco terminal will add a total of 2,400 linear feet of berth space and 100 acres of backland development. This additional space could handle as many as 800,000 to 1 million twenty-foot-equivalent (TEU) container units annually (*26*). Two ship-to-shore cranes were purchased in conjunction with completion of Phase I of the terminal to support the economic growth in the inner harbor.

In 2013, Port Freeport signed a 40-year contract with steel manufacturer Tenaris. Through this agreement, Freeport becomes Tenaris' main import facility in Texas (*27*). Tenaris will also generate additional economic impact throughout the region with the creation of a state-of-the-art manufacturing facility in Bay City, Texas. This facility is

estimated to create an additional 600 direct jobs in the region (27). The significant volumes of steel handled at the port will support the production activity in Bay City.

In 2015, Höegh Autoliner Inc. opened operations at a new facility at Port Freeport. The terminal is operated by Horizon Terminals LLC, which is a wholly owned subsidiary of Höegh Autoliners Logistics AS developed between Port Freeport and Horizon Terminals (*28*). Port Freeport has been regarded as an ideal location because of its direct access to the Intercostal waterway, state highway facilities, and rail (*29*). The president of Höegh Autoliners Inc. and Director of Horizon Terminals, Per Folkesson, also praises the economic advantages of the new facilities located at Port Freeport (28):

> Being able to now handle imports through a state-of-the-art facility to a fast growing state like Texas and other neighboring states will reduce lead time, cost, alleviate pressure on inland transportation and not the least have a positive impact on the environmental footprint as opposed to hauling vehicles from the west or east coasts of the U.S. to the mid-Gulf region. We are of the belief that this facility can equally become a relevant entry point also for Mexican production as some of the vessel capacity calling Freeport will be proceeding from Mexican ports.

The addition of the Horizon terminal has generated a significant increase in freight traffic to and from the port. A press release from Höegh Autoliner estimates approximately 135,000 vehicles will be transferred on and off of the marine vessels annually. The operation is expandable, with construction of new facilities increasing the annual throughput by an additional 500,000 vehicles (29).

METHODOLOGY

To summarize the economic impact of operations at Port Freeport, TTI research staff collected and analyzed data from numerous sources to be used in an I-O model that has been developed and maintained in-house by TTI. Tenants and private terminal owners were contacted through various means of communication, then the data collected were cross referenced with existing data sources to ensure accuracy.

DATA COLLECTION

The results of this study are based on information collected through various forms of communications with port tenants and private terminal owners within the inner harbor, or inside the gate, of Port Freeport. Employment of facilities directly related to port activity, such as chemical production plants and oil refineries, were included in this study because of their dependency of operations at the port. Businesses outside of the inner harbor area, excluding the petroleum and chemical manufacturing plants previously mentioned, were not included in this study.

In November 2015, TTI research staff traveled to Port Freeport and met with contacts from several companies located within the port district. These Included Horizon Terminals, Dole, Ports America, and Phillips 66. Researchers conducted personal interviews to determine their role within the port, their employment, and personal income impacts on the system. The remaining tenants and private dock owners, which included but are not limited to, American Rice, Mediterranean Shipping Company, Chiquita, Freeport LNG, G&H Towing Company, Bryan Coastal Services, Vulcan, Paradise Trucking, BASF, Seaway/Enterprise, Union Pacific Railroads, and Dow were contacted via phone or email. Additional data were collected from local agencies, such as the EDA and the Port Authority. Only a small number of companies were unable to be reached during the data collection process. Missing data were noted and approximated through reports, press releases, and data collection agencies where available.

Wages for companies that did not report payroll data were estimated using the EDA's 2014 average wages by occupation dataset. These approximations were made by selecting hourly wage rates that most closely matched the information provided by each company. These data were used to validate model outputs.

DATA INPUT

The data collected and compiled by research staff served as primary inputs into the I-O model. The model employed for this analysis is a 157 sector model that allows the analysis to be tailored for the specific economic activity recorded in the port. The inner harbor of Port Freeport is highly industrial in nature and is not home to any marine-oriented leisure or sporting activities. These businesses were outside the scope of work and were not included in this report.

The employment and payroll data collected were categorized and distributed into three distinct sectors within the model. Those sectors are as follows:

- Water Transportation and Related Industries.

  This category includes the terminal operators and their corresponding administrative and supporting staff. This also includes an approximation of freight movement employment created through port activities. In addition, this category contains types of employment that acts in a supporting capacity to the tenants. Building maintenance and government workers are examples of employees that fall within this category. Finally, this includes employment that handles cargo directly from vessels, rail, and/ or barges. Stevedores, longshoremen, and warehousing employees are examples of employment types included in this category.

- New Heavy Construction and Related Industries.

  The jobs created as a result of new construction projects. While temporary in nature, it is estimated that there have been over 7,000 construction jobs generated. These jobs are a result of the numerous expansion projects underway at the port.

- Petroleum Products, Refining and Related Industries.

  This includes employment at oil refining and chemical production plants dependent on port activity within the study region including private port activity.

The data collected resulted in the following estimated employment totals shown in Table 3.

Table 3. I-O Model Employment Inputs

Category	Direct Jobs
Water Transportation	2,029
New Heavy Construction	7,735
Petroleum Products, Refining and Related Industries	6,678
Total	**16,442**

Source: TTI.

INPUT-OUTPUT MODEL

To estimate the economic impacts of Port Freeport operations, researchers used an I-O model maintained by TTI staff. The I-O model is a single function program that generates a snapshot of the economy at a particular time. The model relies on a series of defined multipliers and the input of several variables by the user to produce the results. The program runs in a single cycle and calculates income, employment, and economic impact using one known variable to calculate the remaining two variables. For the purpose of this analysis, employment was used to estimate the resulting income and economic impact variables. Results are shown in of the employment, income, and economic activity estimate for the economic sector being analyzed and for the economy as a whole.

The I-O model uses Bureau of Labor Statistics data and historic multipliers as controls in the calculation series. As the baseline, this model uses output per employee, which is a measure that represents the value of goods or services a person engaged in a particular occupation can produce over an interval of time, such as a year, regardless of the actual number of hours worked.

The I-O model estimated the flows into and out of different industries within a regional economy. The model was given the direct employment for each industry sector and applied the appropriate multipliers across each of the 157 sectors to estimate income and economic activity. From this analysis (given direct employment as the input), the outputs are:

- Employment.
    - Local employment within the industry and related sectors (direct jobs).
    - Local indirect and induced employment supported in whole or in part from local employment within the industry and related sectors (local indirect and induced).
    - Employment elsewhere in Texas supported in whole or in part by port operations.
    - Economy wide (includes direct, induced, and indirect jobs).
- Personal Income.
    - Personal income derived from employment within the industry and related sectors (local direct income).
    - Local indirect and induced personal income derived from employment supported in whole or in part from local employment within the industry and related sectors (local indirect and induced personal income).
    - Personal income derived from employment elsewhere in Texas supported in whole or in part by port operations.
    - Economy wide (includes direct, induced, and indirect income).
- Production.
    - Within the industry and related sectors (economic value).
    - Economy wide (total economic impact of port operations including all forms of income and production value).

Production is the change in money paid to the sector. For example, change in production to water transportation is a change in the money that is paid for moving goods from one place to another.

To calculate production values resulting from the employment numbers at the port, the model multiplies the production per worker variable internal to the model by the number of employees in each of the corresponding industry sectors. Production per worker is a factor of the direct employment variable.

Employment (jobs) is a change in the number of people who are employed in a particular sector plus jobs indirectly supported or induced by port activities.

Jobs within each industry sector are the original input to the model in this analysis. The number of direct sector jobs entered is then multiplied by the corresponding employment multiplier for that industry. This produces the number of indirect and induced jobs economy wide associated with each industry sector.

Personal income is a change in the amount of money paid to households. Most personal income is paid in wages, but some may also come from profits from royalty or stocks, or similar payments generated by production.

Personal income for each industry sector is calculated by multiplying the number of jobs by the direct income variable. The resulting personal income for the sector is then multiplied by the industry's income multiplier to produce personal income economy wide.

Economic activity economy wide is the resulting change in economy in the state of Texas. This value is calculated by multiplying the production value by the final demand variable for each industry.

It is the total impact of all direct, induced, and indirect economic activity resulting from the sectors or activity considered in the analysis.

RESULTS OF THE ANALYSIS

Table 4 shows total production, jobs, income, and economic activity for 2014. In sum, port activities are estimated to have an aggregate production value of $18,442.3 million annually and help support over 126,000 jobs economy wide with a wage income of more than $7 billion over the analysis period. The total economic impact of port operations economy wide is estimated to be $46.2 billion annually. Table 5 shows the economic impacts by industry.

Table 4. Total Economic Impacts

	TOTAL IMPACTS
Production (in millions)	$18,442.3
Number of Jobs	
Local	
Local Direct	16,442
Local Indirect and Induced	69,489
TOTAL LOCAL	85,931
Elsewhere in Texas	40,139
Economy Wide	126,070
Personal Income (in millions)	
Local	
Local Direct	$1,529.8
Local Indirect and Induced	$3,812.5
TOTAL LOCAL	$5,342.3
Elsewhere in Texas	$2,257.3
Economy Wide	$7,599.6
Economic Impact Economy Wide	$46,214.8

Table 5. Total Economic Impacts by Industry

	Water Transportation and Related Industries	New Heavy Construction and Related Industries	Petroleum Products, Refining and Related Industries
Production (in millions)	$470.2	$226.4	$17,745.6
Number of Jobs			
Local			
Local Direct	2,029	7,735	6,678
Local Indirect and Induced	3,011	1,761	64,717
TOTAL LOCAL	5,040	9,496	71,395
Elsewhere in Texas	1,740	1,017	37,382
Economy Wide	6,780	10,513	108,777
Personal Income (in millions)			
Local			
Local Direct	$193.5	$337.9	$998.4
Local Indirect and Induced	$130.6	$127.0	$3,554.9
TOTAL LOCAL	$324.1	$464.9	$4,553.3
Elsewhere in Texas	$75.4	$128.5	$2,053.4
Economy Wide	$399.5	$593.4	$6,606.7
Economic Impact Economy Wide	$1,527.9	$1,430.1	$43,256.8

TAX IMPACTS

In addition to analyzing the economic impacts of the port, researchers also examined the local and aggregate tax impacts of port operations.

Researchers investigated the property tax produced by companies within the port's taxing district. The district, which overlaps with 34 different taxing districts, covers 85 percent of Brazoria County. The estimated market value for all real, personal, and tax-exempt property within the port's taxing district equaled $12.4 billion, $2.8 billion, and $4.7 billion, respectively. These amounts grew nearly 10 percent total growth in property value from 2013 (*24*).

For the year 2014, ad valorem tax collected by the port within the Port Freeport taxing district totaled $4.7 million (*24*). This represented a decrease of 11 percent from the $5.2 million collected in 2013. This decrease was due to a change in tax rates from 5.15 cents per hundred dollars valuation in 2013 to 4.5 cents per hundred dollars valuation in 2014. From fiscal years 2005 to 2014, the port saw a total increase in the taxable valuation for all property within the port taxing district increase from $8 to $10.5 billion, which represents an increase of 31 percent in valuation. Nearly 18 percent of the levied amount came from DOW Chemical Company (*24*).

With respect to the sales tax, the impact of Port Freeport operations is significant to local jurisdictions. For example, it is estimated that port operations contribute, directly or indirectly, an estimated $1.8 million accruing to the City of Freeport alone.

With respect to the total tax impact of port operations on all taxing entities (state, counties, cities, school districts, and special districts) the port helps generate an estimated $522 million in tax revenue annually. This estimate is calculated on the average amount of total tax burden paid per thousand dollars of income. The estimated amount of the total taxes generated that is locally induced is $383 million with the balance, $139 million, generated by economic activity elsewhere in Texas as a result of port operations.

STRATEGIC OPPORTUNITIES

As noted previously, the economic impact analysis of Port Freeport has revealed that the port generates a significant amount of economic output statewide. However, the port must continue to advance its operations and bolster its presence within the area to attract new businesses, generate more revenue, and strengthen the surrounding economy. This section briefly highlights topics that may be of interest to Port Freeport as potential areas of high growth.

DEVELOPABLE LAND

The potential for new development is an interesting area of focus for Port Freeport. The port owns several thousand acres of developable land, but only a small percentage of the land has been built out. According to the Port Freeport FY 14 Comprehensive Annual Financial Report, there is approximately 7,540 total acres of land owned by the port. Only approximately 540 acres of that has been developed, leaving roughly 7,000 acres available, 1,400 acres of which is environmentally mitigated (*21*). All of the available parcels for lease are accessible by water, rail, and highway (*21*).

In addition to the available land, the port has noted several objectives to increase the attractiveness of port facilities to prospective businesses. This includes widening and deepening of the ship channel to allow for larger class vessels to have access, the Post-Panamax vessels in particular. This, in concert with the development of the Velasco terminal discussed earlier in this report, would only increase the value of all available land.

FUTURE PROJECTS

In addition to the developable land currently vacant, some land has been leased and is currently under development. As noted previously in this report, these temporary construction jobs represent a sizeable portion of total work in the port district. The total number of construction workers estimated by the EDA is slightly higher than the total number of direct jobs found at the port. Various projects are underway, and there are several projects expected in the upcoming years. One example of generated construction employment with more work confirmed at a later time is the work being done for Freeport LNG.

In addition to the thousands of new jobs generated through the projects currently underway by Freeport LNG, this fourth project, as listed by the EDA, will generate approximately 1,000 new temporary construction jobs and 282 new direct and indirect jobs for the company. Table 6 shows the information produced by the EDA.

Table 6. Announced Projects

Company & Location	Project Description	Projected Start and Finish Dates	Estimated New Capital Investment	Construction Workers at Peak	New Direct Company Jobs	Total Direct and Indirect New Jobs**
Freeport LNG Quintana/Oyster Creek	Natural Gas Liquefaction – Train 4	2016–2020	$3 Billion	1,000	60	282

* - Project construction is pending.
** - As per the economic impact analysis' North American Industry Classification System (NAICS) employment multipliers.
Source: (*30*)

There are also several projects the EDA is predicting to start construction in the next few years. These projects, as shown in Table 7, approximate $3.4 billion in capital investments made by companies located at the port and several thousand new temporary and permanent jobs being produced in the region.

Table 7. Serious Prospects

Company & Location	Project Description	Projected Construction Start and Finish Dates	Estimated New Capital Investment	Construction Workers at Peak	New Direct Company Jobs	Total Direct and Indirect New Jobs*
Nalco Freeport	Nalmet Metal Scavenger Expansion	2014–2015	$9 Million	Unknown	5	24
BASF Corporation Freeport	Methane-to-Propylene Plant	2016–2019	$1 Billion	2,100	50+	311
Phillips 66 Sweeny – Frac 2	Fractionation of Natural Gas Liquids	2016–2017	$1.1 Billion	500	30	141
Praxair Freeport	Hydrogen Plant	2015–2016	$277 Million	150	9	42
Dow Chemical/ MEGlobal Oyster Creek	Ethylene Glycol Plant	2017–2018	$1 Billion	1,400	35	172

* - As per the economic impact analysis' NAICS multipliers.
** - Name of new company created by Ascend Performance Materials (Project Bambino)
Source: (*31*)

Estimating the economic impact these jobs have on the local economy, especially construction work, can be difficult due to the short-term nature of the construction industry. However, development of new land not only generates long-term economic growth, but the temporary growth due to construction may have a large impact on various employment sectors in the region.

TRANSPORTATION FACILITIES

During data collection, researchers identified a significant increase in surface transportation traffic to and from port facilities in the year 2014. According to Port Freeport officials, the total ingress and egress through port gates increased by nearly 300,000 freight and privately owned vehicle occupants from 2013 to 2014. While the basis of this increase is unknown, the vast number of construction projects and general activity increase at Port Freeport leads researchers to believe that transportation facilities may be at or near capacity in the next several years.

An initiative in place to encourage growth of transportation facilities in the region is the Highways 36A Coalition. The Highway 36A Coalition is a group of citizens and local officials promoting an expanded transportation route from Port Freeport to State Highway 6 north of Hempstead, Texas (*32*):

> The Highway 36A Coalition promotes public and private investment in a regional free-flowing transportation corridor originating in and around the Freeport area of the Gulf Coast, through southern Brazoria, western Fort Bend, and Waller Counties connecting to SH 6 north of Hempstead to provide opportunities for economic growth, hurricane evacuation, and quality of life through these facilities.

In addition to the expansion of highway facilities, the coalition also seeks the creation of rail linkages throughout the region. This may not only boost economic outputs by existing businesses, but also be used to attract new businesses to the port.

These needs for facility maintenance expansion not only play a vital role within the Freeport community, but also in regional connections. It would be advantageous to analyze and identify any connectivity or congestion issues to and from the port to keep the movement of goods unrestricted.

SUMMARY

Port Freeport, as one of the largest ports in Texas, has seen substantial growth in recent years. The port has seen the addition of new tenants and expansion of business already located at the port, and currently has a significant list of projects expected by the EDA to begin construction in the upcoming years. These expansions, additions, and construction projects generate thousands of new jobs and millions of dollars in economic impact.

Researchers have shown that Port Freeport has a significant impact on the local economy and the statewide economy. This impact is represented in terms of employment, personal income, and sales tax impacts. These direct employment figures generate a large number of indirect, related, and induced jobs to support the regional economy and supplement the impact of the Texas port system statewide. In addition, the personal earnings for these employment figures generate a sizeable tax impact for both the regional and statewide economies.

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