

The Local and Regional Economic Impacts of the Indiana Maritime Industry



Prepared for:

PORTS OF INDIANA

150 W. Market Street, Ste 450

Indianapolis, IN 46204

(317) 232-9200



Prepared by:

MARTIN ASSOCIATES

941 Wheatland Avenue, Suite 203

Lancaster, PA 17603

(717) 295-2428

August 28, 2020

TABLE OF CONTENTS

EXECUTIVE SUMMARY 3

I. INTRODUCTION 6

 1. IMPACT DEFINITIONS8

 2. METHODOLOGY9

 3. ECONOMIC IMPACT MODELS10

 4. SUMMARY OF RESULTS.....11

II. ECONOMIC IMPACTS OF INDIANA WATERBORNE ACTIVITY 13

 1. IMPACT STRUCTURE15

 1.1. *The Surface Transportation Sector*.....15

 1.2. *The Maritime Services Sector*.....15

 1.3. *Port Companies, Terminals and Dependent Shipper/Consignees Sector*.....17

 2. COMMODITIES INCLUDED IN THE ANALYSIS17

 3. MARITIME CARGO EMPLOYMENT IMPACTS18

 3.1. *Direct Maritime Cargo Jobs*19

 3.2. *Induced Jobs*.....20

 3.3. *Indirect Jobs*.....20

 3.4. *Related User (Shipper/Consignee) Jobs*.....21

 4. TOTAL ECONOMIC OUTPUT, BUSINESS REVENUE, INCOME AND TAX IMPACTS.....21

 5. PERSONAL EARNINGS IMPACTS23

 6. TAX IMPACTS24

EXECUTIVE SUMMARY

Martin Associates was retained by the Ports of Indiana to measure the local, regional and state economic impacts generated by maritime activity at Indiana's public and private maritime terminals along the 400 miles of navigable waterways bordering the state on the Ohio River and Lake Michigan. Economic impacts generated at the cargo and industrial facilities include the impacts generated by steel products, steel input commodities such as iron ore and coal/coke, cement, fertilizer, grain/soybean products, limestone, as well as other dry and liquid bulk cargoes. In 2019, according to preliminary U.S. Army Corps of Engineers Waterborne Commerce Statistics, about 62.1 million tons of foreign and domestic maritime cargoes were handled by Indiana terminals on Lake Michigan and the Ohio River. Approximately 31.2 million tons of cargo were handled by Indiana terminals on the Ohio River and 30.8 million tons were handled by the state's Lake Michigan terminals. Interviews were conducted with 143 terminals, industrial tenants, and service providers on Lake Michigan and the Ohio River. Tonnages were estimated based upon these interviews and U.S. Army Corps of Engineers (USACE) 2019 preliminary statistics and USACE 2018 final detailed commodity-specific statistics.

Indiana waterways are unique in the fact that three separate modes of waterborne commerce are currently used in the shipment and receipt of raw materials and finished product. These include: international ships moving cargo through the St. Lawrence Seaway ("salties"), lake ships moving international and domestic shipments throughout the Great Lakes ("lakers"), and barges of international and domestic cargoes moving along the Inland Waterways System. It is this unique convergence of water transportation modes that provides steel mills and other industries with the ability to use cost-effective methods for receiving raw materials such as iron ore, coal and limestone and for shipping finished products to domestic and international markets. Without water transportation, production costs would undoubtedly increase and therefore potentially hinder future operations and negatively impact the state's levels of manufacturing.

Impacts are presented into two distinct regions. The "Northern Indiana Maritime District", which is defined as all Indiana counties bordering Lake Michigan, which include Lake, Porter and LaPorte counties. This includes the entire Indiana shoreline on Lake Michigan (approx. 40 miles), starting where the state line intersects the Lake Michigan shoreline from the west in Hammond to the east in Michiana Shores. Indiana's shoreline on Lake Michigan accounts for over 50% of U.S. shipping activity on the Great Lakes, over 25% of the nation's steel production in annual shipments by ocean vessels, lakers and barges. While the "Southern Indiana Maritime District", which is defined as all Indiana counties bordering the Ohio River, which include Posey, Vanderburgh, Warrick, Spencer, Perry, Crawford, Harrison, Floyd, Clark, Jefferson, Switzerland, Ohio, and Dearborn counties. This includes the entire Indiana shoreline on the Ohio River (approx. 356 miles), starting where the state line intersects the Ohio River shoreline from the east in Lawrenceburg near Mile Marker 492 to the west in Mount Vernon near Mile Marker 848. On the Ohio River, Indiana has over 80 ports, terminals, marinas, casinos and shipbuilders and these businesses ship primarily bulk agricultural and industrial cargoes.

This study focuses on impacts generated in the 2019 Calendar Year. In addition to the

baseline impact estimates, computer models specific to each terminal operation have been prepared that can be used in evaluating the sensitivity of impacts to changes in tonnage, labor productivity, labor work rules, commodity mix, inland origins/destinations of commodities and vessel size.

In 2019, the Indiana Waterways handled an estimated 62.1 million tons of waterborne cargo including key commodities such as coal, iron ore, steel products, grain, soybean products, ethanol, DDG, fertilizer, dry bulks, and minerals. The economic impacts generated by the Indiana maritime industry are presented in terms of jobs, income, business revenue, economic output and state & local taxes and are summarized in Exhibit E-1.

Exhibit E-1 - Local and Regional Economic Impacts Economic Impacts of Waterborne Shipping Activity on Indiana's Waterways¹ CY2019*

	Northern Indiana Maritime District	Southern Indiana Maritime District	TOTAL INDIANA
JOBS			
DIRECT	18,430	11,782	30,211
INDUCED	20,563	9,543	30,106
INDIRECT	27,424	8,467	35,892
RELATED	<u>32,048</u>	<u>29,343</u>	<u>61,391</u>
TOTAL JOBS	98,465	59,136	157,600
PERSONAL INCOME			
DIRECT	\$1,180,908,922	\$501,461,399	\$1,682,370,322
INDUCED/RE-SPENDING	\$2,554,660,272	\$1,084,811,445	\$3,639,471,717
INDIRECT	\$1,391,787,123	\$384,309,052	\$1,776,096,174
RELATED INCOME	<u>\$1,518,419,484</u>	<u>\$1,021,080,451</u>	<u>\$2,539,499,935</u>
TOTAL PERSONAL INCOME	\$6,645,775,801	\$2,991,662,347	\$9,637,438,148
VALUE OF ECONOMIC ACTIVITY			
BUSINESS SERVICES REVENUE	\$865,439,090	\$1,165,621,773	\$2,031,060,864
TENANT/DEPENDENT SHIPPER REVENUE	\$9,834,231,000	\$1,786,069,246	\$11,620,300,246
<i>Dependent Revenue Subtotal</i>	\$10,699,670,090	\$2,951,691,019	\$13,651,361,109
RELATED REVENUE	<u>\$7,065,440,125</u>	<u>\$6,256,220,115</u>	<u>\$13,321,660,240</u>
TOTAL VALUE OF ECONOMIC ACTIVITY	\$17,765,110,215	\$9,207,911,134	\$26,973,021,350
LOCAL PURCHASES	\$2,624,872,492	\$1,075,982,035	\$3,700,854,528
STATE & LOCAL TAXES			
DIRECT, INDUCED AND INDIRECT	\$1,111,738,336	\$357,642,233	\$1,469,380,570
RELATED TAXES	<u>\$144,249,851</u>	<u>\$97,002,643</u>	<u>\$241,252,494</u>
TOTAL STATE & LOCAL TAXES	\$1,255,988,187	\$454,644,876	\$1,710,633,064

* Totals may be rounded.

The vessel, barge and cargo activity at Indiana's maritime industry generated the following estimated impacts in the regional and state economy in 2019:

¹ The total impacts include related jobs which are not dependent upon Indiana marine terminals to the same extent as are the direct, induced and indirect jobs since it is the demand for the final products which creates the demand for the employment with these related shippers/consignees, not the use of a particular port or maritime terminal, and therefore these firms can, and do use other ports.

- **157,600 direct, induced, indirect, and related jobs** are in some way related to the cargo and industrial activity at Indiana’s facilities. **It must be emphasized that only the 96,209 direct, induced, and indirect jobs are generated by Indiana maritime activity.** The 61,391 related jobs are users of Indiana’s marine terminals and are related to the terminal activity in 2019, and represent the sphere of influence of Indiana’s maritime activity.
 - Of the 157,600 jobs, **30,211 direct jobs** are generated directly by the vessel and barge activity.
 - As the result of local and regional purchases by those 30,211 individuals holding the direct jobs, an additional **30,106 induced jobs** are supported in the regional economy.
 - **35,892 indirect jobs** are supported by \$3.7 billion of local purchases and capital expenses by businesses supplying services at the terminals and by businesses dependent upon Indiana facilities for the shipment and receipt of cargo.
 - The inbound and outbound cargo moving via Indiana facilities supports **61,391 related user jobs** with the state’s manufacturing, farming, wholesale and distribution industries, and the in-state industries supporting the processing, movement and distribution of all commodities, specifically ore, steel, grain and fertilizer using the port terminals for shipment and receipt of cargo. These are users of the marine terminals on Lake Michigan and the Ohio River and are related to the terminal activity in 2019, and represent the sphere of influence of Indiana’s maritime activity.
- **\$1.7 billion of direct wages and salaries** were received by those 30,211 directly employed, representing an average salary of \$55,680. As the result of re-spending this income, an additional \$3.6 billion of income and consumption expenditures were created. The 35,892 indirect job holders received \$1.8 billion of indirect wages and salaries. In total, about **\$7.1 billion of direct, induced and indirect personal wages and salaries** were generated by vessel and cargo activity at Indiana’s public and private terminals. In addition, the 61,391 related user job holders received **\$2.5 billion in personal income**.
- In 2019, businesses providing services to Indiana’s cargo terminals received **\$2 billion of revenue**. Revenue from **tenant and on-site dependent shippers and consignees totaled \$11.6 billion**. In addition, the cargo activity created an additional **\$13.3 billion of related economic output** in Indiana, the majority of which is created by the movement of steel, ore, grain, ethanol, DDG, fertilizer and dry bulks, and the in-state industries supporting these industries.
- **\$1.5 billion of state and local taxes** were generated by activity at the cargo industry and tenant base throughout the state. Related users generated another \$241.3 million of state and local taxes in the state.

I. INTRODUCTION

Martin Associates was retained by the Ports of Indiana to measure the local, regional and state economic impacts generated by maritime activity at Indiana's maritime terminals, including the state's three public ports as well as the many private terminals on Lake Michigan and the Ohio River. Economic impacts generated at the cargo and industrial facilities include the impacts generated by steel products, steel input commodities such as iron ore and coal/coke, cement, fertilizer, grain/soybean products, limestone, as well as other dry and liquid bulk cargoes. In 2019, according to preliminary U.S. Army Corps of Engineers Waterborne Commerce Statistics, about 62.1 million tons of foreign and domestic cargoes were handled on the 400 miles of navigable waterways bordering the state on Lake Michigan and the Ohio River. Interviews were conducted with 143 terminals, industrial tenants, and service providers on Lake Michigan and the Ohio River. Tonnages were estimated based upon these interviews and U.S. Army Corps of Engineers (USACE) 2019 preliminary statistics and USACE 2018 final detailed commodity-specific statistics.

The study employs methodology and definitions that have been used by Martin Associates to measure the economic impacts of port activity at more than 500 ports in the United States and Canada, and at the leading airports in the United States. It is to be emphasized that only measurable impacts are included in this study. In order to ensure defensibility, Martin Associates' approach to economic impact analysis is based on data developed through an extensive interview and telephone survey program of the port tenants and the firms providing cargo and logistics services on Indiana waterways. Specific re-spending models have been developed for the state of Indiana to reflect the unique economic and consumer profiles of the regional economy. To further underscore the defensibility of the study, standardized impact models, such as the MARAD Port Kit were not used. Instead, the resulting impacts reflect the uniqueness of the state's port and maritime operations, as well as the surrounding regional economy.

The impacts presented in this report represent the economic activity associated with all maritime activity within the state, including at the public docks and waterways. Indiana waterways are unique in the fact that three separate modes of waterborne commerce are currently used in the shipment and receipt of raw materials and finished products. These include: international ships moving cargo through the St. Lawrence Seaway ("salties"), lake vessels carrying international cross-lake and domestic intra-lake shipments ("lakers"), and barges moving international and domestic cargoes along the Inland Waterways System. It is this unique convergence of water transportation modes that provides steel mills and other industries with the ability to use cost-effective methods for receiving raw materials such as iron ore, coal and limestone and shipping finished products to domestic and international markets. Without water transportation, production costs would undoubtedly increase and therefore potentially hinder future contracts and levels of manufacturing.

Throughout the report, impacts are presented into two distinct regions: the Northern Indiana Maritime District and Southern Indiana Maritime District as shown in Exhibit I-1.

Exhibit I-1 Northern and Southern Indiana Maritime Districts



Source: Ports of Indiana

The “Northern Indiana Maritime District”, which is defined as all Indiana counties bordering Lake Michigan, which include Lake, Porter and LaPorte counties. This includes the entire Indiana shoreline on Lake Michigan (approx. 40 miles), starting where the state line intersects the Lake Michigan shoreline from the west in Hammond to the east in Michiana Shores. Indiana's shoreline on Lake Michigan accounts for over 50% of U.S. shipping activity on the Great Lakes, over 25% of the nation’s steel production and 30 million tons in annual shipments by ocean vessels, lakers and barges.

The “Southern Indiana Maritime District”, which is defined as all Indiana counties bordering the Ohio River, which include Posey, Vanderburgh, Warrick, Spencer, Perry, Crawford, Harrison, Floyd, Clark, Jefferson, Switzerland, Ohio, and Dearborn counties. This includes the entire Indiana shoreline on the Ohio River (approx. 356 miles), starting where the state line intersects the Ohio River shoreline from the east in Lawrenceburg near Mile Marker 492 to the west in Mount Vernon near Mile Marker 848. On the Ohio River, Indiana has over 80 ports, terminals, marinas, casinos and shipbuilders and these businesses ship approximately 30+ million tons of cargo by barge each year, dominated by bulk agricultural and industrial cargoes.

1. IMPACT DEFINITIONS

The impacts are measured separately for Indiana waterway cargo activity and industrial activity. The impacts are measured in terms of:

- Jobs [direct, induced, indirect and related shipper/consignee (related users)];
- Personal income;
- Business revenue; and
- State and local taxes.

Each impact measurement is described below:

➤ **Direct, Induced, Indirect and Related Jobs:**

Direct jobs are those that would not exist if activity at Indiana waterway terminals were to cease. Direct jobs created by cargo activity at the maritime terminals are those jobs with the firms directly providing cargo handling and vessel services, including trucking companies, terminal operators and stevedores, members of the International Longshoremen's Association (ILA), International Union of Operating Engineers, International Brotherhood of Teamsters and United Steelworkers, vessel agents, pilots and tug assist companies.

Induced jobs are jobs created in Indiana by the purchases of goods and services by those *individuals* directly employed by each of the terminals' lines of business. These jobs are based on the local purchase patterns of area residents. The induced jobs are jobs with grocery stores, restaurants, health care providers, retail stores, local housing/construction industry, and transportation services, as well as with wholesalers providing the goods to the retailers.

Indirect jobs are created throughout the area as the result of purchases for goods and services by the *firms* directly impacted by Indiana maritime activity, including the tenants, terminal operators and the firms providing services to cargo – which includes steel, general cargo, dry bulks and liquid bulks. The indirect jobs are measured based on actual local purchase patterns of the directly dependent firms, and occur with such industries as utilities, office supplies, contract service providers, maintenance and repair, and construction.

Related user jobs are jobs with shippers and consignees (exporters and importers) including the state's manufacturing, farming, retail, wholesale, distribution industries, and the in-state industries supporting the movement and distribution of cargo imports and exports using the port terminals for shipment and receipt of cargo. While these impacts occur for all commodities, the majority of Indiana's maritime shippers and consignees impacts involve the import and export of steel, coal, grain, fertilizers, salt, limestone and miscellaneous dry and liquid bulk commodities. A large number of dependent steel users are already accounted for in the port tenant/dependent user category due to the fact that the Ports of Indiana's Burns Harbor and Jeffersonville facilities maintain a large steel manufacturing and processing presence. ***Related jobs are not dependent upon the port marine terminals to the same extent as are the direct, induced and indirect jobs since it is the demand for the final products, which creates the demand for the employment with these***

shippers/consignees, not the use of a particular port or maritime terminal, and therefore these firms can, and do use other ports. For example, when hurricane devastation renders a port's container and breakbulk terminals inoperable, essentially suspending operations at the port, the direct, induced and indirect jobholders are immediately affected with similar consequence. However, the jobs held with related users such as manufacturing as well as wholesale and retail distribution throughout the unaffected areas of state will continue to operate. These firms are required to find alternative ports to ship and receive cargo in order to maintain given levels of operation. Therefore, viable port operations are essential to long-term retention of import and export related jobs throughout the state.

- **Personal income impact** consists of wages and salaries received by those directly employed by port and waterway activities, and includes a re-spending impact which measures the personal consumption activity in Indiana of those directly employed as the result of Indiana waterway cargo and industrial activity. Indirect personal income measures the wages and salaries received by those indirectly employed.
- **Business revenue** consists of total business receipts by firms providing services in support of the cargo activity. **Local purchases for goods and services** made by the directly impacted firms are also measured. These local purchases by the dependent firms create the indirect impacts. Revenues from port tenants, dependent shippers and consignees and waterway terminals are included.
- **State and local taxes** include taxes paid by individuals as well as firms dependent upon Indiana waterway cargo and industrial tenant activity.

2. METHODOLOGY

The impacts of Indiana's maritime industry presented in this report were estimated based on telephone interviews and data collected from 143 firms in Indiana. This represents the universe of cargo and related industrial businesses (with the exception of trucking firms) on Indiana's approximately 400 miles of navigable waterways along its 40 miles of Lake Michigan shoreline as well as the length of the Indiana bank of the Ohio River. It is to be emphasized that a 95+% response rate was achieved from these firms located on Ports of Indiana property as well as those on the privately-held lands within the Northern and Southern Indiana Maritime Districts.

The direct impacts are measured at the firm level of detail, and aggregated to develop the impacts for each of the terminals' lines of business. Terminals and Ports of Indiana tenants surveyed provided Martin Associates with detailed employment levels (both full time and part time), annual payroll, local purchases and the residence of the employees. Additional data collected from the private Indiana waterway terminals includes: employment, vessel and barge tonnage, vessel and barge calls, revenues and expenditures.

The induced impacts are based on the current expenditure profile of residents of Indiana as estimated by the U.S. Bureau of Labor Statistics, “Consumer Expenditure Survey.” This survey indicates the distribution of consumer expenditures over key consumption categories for Indiana residents. The consumption categories are: Food at Home; Food at Restaurants; Housing; Home Furnishings; Apparel; Transportation equipment and Services; Entertainment; and Health Care.

The re-spending impact is developed by deriving an implied marginal propensity to consume from income multipliers for the water transportation industry, as developed by the Bureau of Economic Analysis. The estimated consumption expenditure generated as a result of the re-spending impact is distributed across the above consumption categories. Associated with each consumption category is the relevant retail and wholesale industry. Jobs to sales ratios in each industry are then computed for Indiana, and induced jobs are estimated for the relevant consumption categories. It is to be emphasized that induced jobs are only estimated at the retail and wholesale level, since these jobs are most likely generated in each terminal’s region. Further levels of induced jobs are not estimated since it is not possible to defensibly identify geographically where the subsequent rounds of purchasing occur.

The “Consumer Expenditure Survey” does not include information to estimate the job impact with supporting business services, legal, social services, state and local governments, and educational services. To estimate this induced impact, a ratio of state of Indiana employment in these key service industries to total state of Indiana employment is developed. This ratio is then used with the direct and induced consumption jobs to estimate induced jobs with business/financial services, legal, educational, governmental and other social services.

The indirect impacts are estimated based on the local purchases by the directly dependent firms, combined with indirect job, income and revenue coefficients for the supplying industries in the state of Indiana as developed for Martin Associates by the U.S. Bureau of Economic Analysis, Regional Input/Output Modeling System (RIMS II).

3. ECONOMIC IMPACT MODELS

The impacts are measured for CY2019 – based on interviews, Ports of Indiana data and the latest USACE data (preliminary 2019) available at the time of this report, computer models for cargo and industrial operations have been developed to test the sensitivity of the impacts to changes in economic conditions and facility utilization. It is to be emphasized that this study is designed to provide a framework which Ports of Indiana can use in formulating and guiding future development of shipping facilities and policies for the state of Indiana.

The cargo impact model is designed to test the sensitivity of impacts to changes in such factors as maritime tonnage levels, port productivity and work rules, new port facilities development, inland distribution patterns of cargo, number of vessel/barge calls and the introduction of new carrier services. The cargo impact model can also be used to assess the impact of developing a parcel of land as a maritime terminal versus other non-cargo land uses. Finally, the maritime cargo impact model can be used to assess the economic benefits of increased maritime activity due to

infrastructure development and the opportunity cost of not undertaking specific maritime investments such as dredging, new terminal development or warehouse development.

4. SUMMARY OF RESULTS

Exhibits I-2 provides a breakdown by region for the economic impact analysis of the maritime activity on Indiana waterways.

Exhibit I-2 Local and Regional Economic Impacts Economic Impacts of Waterborne Shipping Activity on Indiana's Waterways² CY2019*

	Northern Indiana Maritime District	Southern Indiana Maritime District	TOTAL INDIANA
JOBS			
DIRECT	18,430	11,782	30,211
INDUCED	20,563	9,543	30,106
INDIRECT	27,424	8,467	35,892
RELATED	<u>32,048</u>	<u>29,343</u>	<u>61,391</u>
TOTAL JOBS	98,465	59,136	157,600
PERSONAL INCOME			
DIRECT	\$1,180,908,922	\$501,461,399	\$1,682,370,322
INDUCED/RE-SPENDING	\$2,554,660,272	\$1,084,811,445	\$3,639,471,717
INDIRECT	\$1,391,787,123	\$384,309,052	\$1,776,096,174
RELATED INCOME	<u>\$1,518,419,484</u>	<u>\$1,021,080,451</u>	<u>\$2,539,499,935</u>
TOTAL PERSONAL INCOME	\$6,645,775,801	\$2,991,662,347	\$9,637,438,148
VALUE OF ECONOMIC ACTIVITY			
BUSINESS SERVICES REVENUE	\$865,439,090	\$1,165,621,773	\$2,031,060,864
TENANT/DEPENDENT SHIPPER REVENUE	\$9,834,231,000	\$1,786,069,246	\$11,620,300,246
<i>Dependent Revenue Subtotal</i>	\$10,699,670,090	\$2,951,691,019	\$13,651,361,109
RELATED REVENUE	<u>\$7,065,440,125</u>	<u>\$6,256,220,115</u>	<u>\$13,321,660,240</u>
TOTAL VALUE OF ECONOMIC ACTIVITY	\$17,765,110,215	\$9,207,911,134	\$26,973,021,350
LOCAL PURCHASES	\$2,624,872,492	\$1,075,982,035	\$3,700,854,528
STATE & LOCAL TAXES			
DIRECT, INDUCED AND INDIRECT	\$1,111,738,336	\$357,642,233	\$1,469,380,570
RELATED TAXES	<u>\$144,249,851</u>	<u>\$97,002,643</u>	<u>\$241,252,494</u>
TOTAL STATE & LOCAL TAXES	\$1,255,988,187	\$454,644,876	\$1,710,633,064

*Totals may be rounded.

In 2019, waterborne shipping at Indiana waterway facilities in some way supported 157,600 jobs in the region. Of these jobs, 30,211 jobs were directly created by cargo shipping and dependent industrial activities, while another 30,106 induced jobs were generated in the state as a result of local

² The total impacts include related jobs which are not dependent upon Indiana marine terminals to the same extent as are the direct, induced and indirect jobs since it is the demand for the final products which creates the demand for the employment with these related shippers/consignees, not the use of a particular port or maritime terminal, and therefore these firms can, and do use other ports.

purchases made by those directly employed by Indiana waterway terminals and Ports of Indiana cargo and tenant activity. In addition, there were 35,892 indirect jobs supported in Indiana as the result of nearly \$3.7 billion of local purchases. A further 61,391 jobs were in some way related to Indiana maritime cargo. The majority of these jobs were associated with the processing and movement of steel products, fertilizer, grain and dry bulk cargoes at the individual terminals. It must be emphasized that only the 96,209 direct, induced, and indirect jobs are generated by, and thus dependent upon, the Indiana maritime and associated industrial activity.

The 30,211 direct jobs received \$1.7 billion of direct wage and salary income, for average earnings of \$55,685 per direct employee. As a result of local purchases with this \$1.7 billion of direct wages and salaries, nearly \$3.6 billion of additional income and local consumption expenditures were created in Indiana. It is this re-spending impact that supported the 30,106 induced jobs.³ The indirect jobs holders received nearly \$1.8 billion in personal income. Related users in the state received another \$2.5 billion of personal income. In total, \$9.6 billion of personal income is in some way related to Indiana waterborne shipping operations.

Local maritime service businesses received \$2 billion of revenue from providing services supporting cargo activity. Port tenants and dependent shippers generated \$11.6 billion of revenue from processing and manufacturing activities at their facilities. In addition, \$13.3 billion of output was generated throughout the state by related users using the marine terminal facilities for shipment and receipt of cargo.

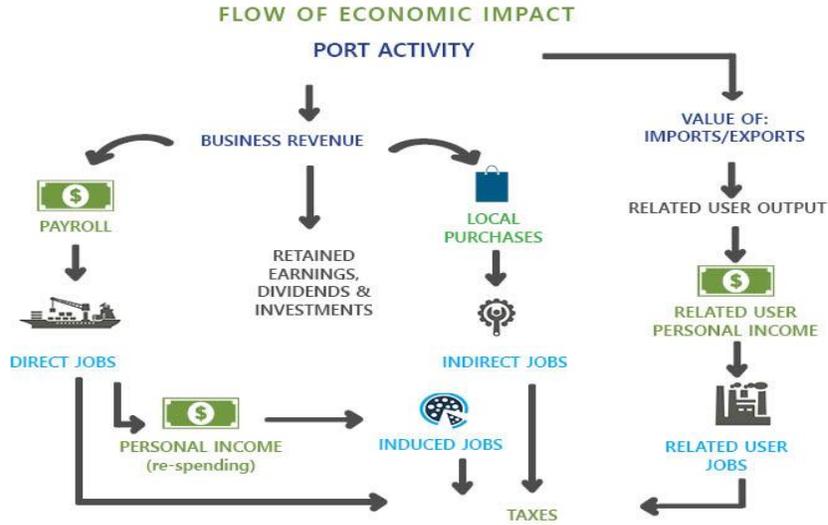
As a result of the cargo and industrial activity at Indiana waterway terminal facilities, a total of \$1.5 billion of state and local tax revenue was generated. A further \$241.2 million of related taxes bring the total state and local taxes that are in some way related to maritime and cargo activity to over \$1.7 billion.

³The induced income impact also includes local consumption expenditures and should not be divided by induced jobs to estimate the average salary per induced job. This re-spending throughout the region is estimated using a regional personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within the area. For instance, when a dockworker purchases grocery, the entire value of the purchase is included in the re-spending impact, but only a portion of that is used to pay the wages of grocery store employees. The balance of that money is applied to the wholesale cost of goods purchased, used to pay the grocery store's utility bills, etc. Hence, to divide the re-spending by induced employees would result in an overestimated average salary.

II. ECONOMIC IMPACTS OF INDIANA WATERBORNE ACTIVITY

Waterborne cargo activity at a port or cargo terminal contributes to the state economy by generating business revenue to local and national firms providing vessel and cargo handling services at the terminals. These firms, in turn, provide employment and income to individuals, and pay taxes to state and local governments. Exhibit II-1 shows how activity at maritime terminals generates impacts throughout the local, state and national economies. As this exhibit indicates, the impact of waterborne shipping on a local, state or national economy cannot be reduced to a single number, but instead creates several impacts. These are the revenue impact, employment impact, personal income impact, and tax impact. These impacts are non-additive. For example, the income impact is a part of the revenue impact, and adding these impacts together would result in double-counting. Exhibit II-1 shows graphically how activity at Indiana waterway facilities generates the four impacts.

Exhibit II-1 Flow of Economic Impacts Generated by Maritime Activity



At the outset, activity at the maritime terminals generates business revenue for firms which provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and services, and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments, or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the local/regional economy are those portions paid out in salaries to local employees, for local purchases by individuals and businesses directly dependent on the port, in contributions to state and local taxes, in lease payments by tenants, and wharfage and dockage fees paid to a port.

The employment impact of maritime activity consists of four levels of job impacts:

- ***Direct employment impact*** -- jobs directly generated by waterway activity. Direct jobs generated by cargo include jobs with railroads and trucking companies moving cargo between inland origins and destinations and the terminals, longshoremen and dockworkers, steamship agents, freight forwarders, stevedores, etc. It is to be emphasized that these are classified as directly generated in the sense that these jobs would experience near term dislocation if the activity at Indiana maritime terminals were to be discontinued.
- ***Induced employment impact*** -- jobs created throughout the local economy because individuals directly employed due to maritime activity spend their wages locally on goods and services such as food, housing and clothing. These jobs are held by residents located throughout the region, since they are estimated based on in-state purchases.
- ***Indirect Jobs*** -- are jobs created locally due to purchases of goods and services by firms, not individuals. These jobs are estimated directly from local purchases data supplied to Martin Associates by the companies interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc.
- ***Related User jobs*** are jobs with shippers and consignees (exporters and importers) including the state's manufacturing, farming, retail, wholesale, distribution industries, and the in-state industries supporting the movement and distribution of cargo imports and exports using the port terminals for shipment and receipt of cargo. While these impacts occur for all commodities, the majority of Ports of Indiana shippers and consignees impacts involve the import and export of steel, coal, grain, fertilizers, salt, limestone and miscellaneous dry and liquid bulk commodities. A large number of dependent steel users are already accounted for in the port tenant/dependent user category due to the fact that the Ports of Indiana's Burns Harbor and Jeffersonville facilities maintain a large steel manufacturing and processing presence. ***Related jobs are not dependent upon the port marine terminals to the same extent as are the direct, induced and indirect jobs since it is the demand for the final products, which creates the demand for the employment with these shippers/consignees, not the use of a particular port or maritime terminal, and therefore these firms can, and do use other ports.*** For example, when hurricane devastation renders a port's container and break-bulk terminals inoperable, essentially suspending operations at the port, the direct, induced and indirect jobholders are immediately affected with similar consequence. However, the jobs held with related users such as manufacturing as well as wholesale and retail distribution throughout the unaffected areas of the state will continue to operate. These firms are required to find alternative ports to ship and receive cargo in order to maintain given levels of operation. Therefore, viable port operations are essential to long-term retention of import and export related jobs throughout the state.

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to port activity. Re-spending of these earnings throughout the regional economy for purchases of goods and services is also estimated. This, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the region is estimated using a regional personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within the area. The re-spending effect varies by region -- a larger re-spending effect occurs in regions that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with regions that import a relatively large share of consumer goods and services (since personal earnings “leak out” of the region for these out-of-regional purchases). The direct earnings are a measure of the local impact since they are received by those directly employed by local maritime activity.

Tax impacts are payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced jobs) by activity at the marine terminals.

1. IMPACT STRUCTURE

Economic impacts are created throughout various business sectors of the state and local economies. Specifically, three distinct economic sectors are impacted as a result of activity at the marine terminals. These are the:

- Surface Transportation Sector;
- Maritime Services Sector; and
- Port Companies, Waterway Terminals and Dependent Shippers/Consignees Sector.

Within each sector, various participants are involved. Separate impacts are estimated for each of the participants. A discussion of each of the economic impact sectors is provided below, including a description of the major participants in each sector.

1.1. The Surface Transportation Sector

The surface transportation sector consists of both the railroad and trucking industries. The trucking firms and railroads are responsible for moving the various cargoes between the marine terminals and the inland origins and destinations.

1.2. The Maritime Services Sector

This sector consists of numerous firms and participants performing functions related to the following maritime services:

- Maritime Cargo Transportation;
- Vessel Operations;

- Cargo Handling; and
- Federal, State and Local Government Agencies.

A brief description of major participants in these four categories is provided below:

- Maritime Cargo Transportation: Participants in this category are involved in providing and arranging for inland and water transportation for inbound and outbound freight. For example, a freight forwarder/customs house broker arranges for the freight to be delivered between the terminals and inland destinations, as well as the freight transportation, while the line haul barge operator provides transportation on the river system to port facilities.
- Vessel/Barge Maritime Service Operations: This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters a port. The agents arrange for medical and dental care of the crew, for ship supplies as well as payment of various expenses including port charges. The agents are also responsible for vessel documentation. In addition to the steamship agents arranging for vessel services, those providing the services include:
 - Chandlers - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);
 - Towing firms - provide the tug service to guide the vessel to and from port;
 - Pilots - assist in navigating the vessels to and from the maritime terminals;
 - Bunkering firms - provide fuel to the vessels;
 - Barge Fleeting/Cleaning – provide fleeting services for barges at the terminals;
 - Marine surveyors - inspect the vessels/barges and the cargo; and
 - Shipyards/marine construction firms - provide repairs (either emergency or scheduled) as well as marine pier construction and dredging.
- Cargo Handling: This category involves the physical handling of the cargo at the terminals between the land and the vessel/barge. Included in this category are the following participants:
 - Longshoremen & dockworkers - include members of the International Longshoremen's Association (ILA), International Union of Operating Engineers, International Brotherhood of Teamsters and United Steelworkers as well as those dockworkers with no union affiliation that are involved in the loading and unloading of cargo from the vessels/barges, as well as handling the cargo prior to loading and after

unloading;

- Stevedoring firms - manage the longshoremen and cargo-handling activities;
- Cargo terminal operators - provide services to operate the maritime terminals, track cargo movement and provide security where cargo is loaded and off-loaded;
- Warehouse operators - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots. In many cases, the freight forwarders and consolidators are also involved in warehousing activity; and
- Government Agencies: This service sector involves federal, state and local government agencies that perform services related to cargo handling and vessel/barge operations at the port. Department of Homeland Security (DHS), which includes Customs and Border Protection (CBP), U.S. Immigration and Customs Enforcement (ICE) and U.S. Coast Guard, U.S. Department of Agriculture (grain inspection) and the U.S. Army Corps of Engineers (USACE), are involved. These services are provided by the government offices located in the Great Lakes region.

1.3. Port Companies, Terminals and Dependent Shipper/Consignees Sector

Port companies, terminal and shipper/consignee jobs consist of jobs with dependent shippers/consignees that operate cargo terminals on or near Indiana waterways, including steel mills and petroleum refineries as well as port companies shipping and receiving cargo through the cargo terminals at the Ports of Indiana facilities. The Ports of Indiana is unique in the fact that many of the tenants of each facility are users of the waterborne cargo handled at the ports' docks. Furthermore, many of the operations performed by these companies, specifically in the steel manufacturing and steel processing are inter-dependent upon each other. It is to be noted that only a portion of the raw materials and finished products used and produced by the port companies is received/shipped via vessel or barge. There is also a large portion of this cargo that enters/leaves the marine terminals via rail and truck. However, the advantage of having access to the Great Lakes and Inland River System with the low-cost option of vessel and barge shipments, as well as the presence of other complementary companies, is a key attribute in attracting and maintaining such a strong maritime sector and economic cluster along Indiana's waterways. In addition, the Ports of Indiana has, over the years, been successful in creating a steel processing campus at its two ports in Burns Harbor and Jeffersonville, and therefore, for the purpose of this analysis, all of the port company and dependent shipper/consignee jobs are included.

2. COMMODITIES INCLUDED IN THE ANALYSIS

A major use of an economic impact analysis is to provide a tool for terminal development planning. As a port or terminal grows, available land and other resources for facilities become scarce, and decisions must be made as to how to develop the land and utilize the resources in the most efficient manner. Various types of facility configurations are associated with different

commodities. For example, containers, automobiles and RoRo require a large amount of paved, open storage space, while certain types of break bulk cargoes such as steel coils, lumber and plywood may require covered storage. Perishable commodities require temperature-controlled warehouses and some dry bulk cargo requires covered storage and special dust removing equipment, while tank farms are needed to store liquid bulk cargo.

An understanding of the commodity's relative economic value in terms of employment and income to the local community, the cost of providing the facilities, and the relative demand for the different commodities is essential in making future development plans. Because of this need for understanding relative commodity impacts, economic impacts are estimated for the following commodities handled at the public and private cargo terminals:

- Steel coils;
- Ore;
- Steel slabs;
- Plate and other steel;
- Coal and coke;
- Project/oversized cargo and other break bulk;
- Grain, soybeans ethanol and DDG;
- Bulk metals and scrap;
- Fertilizer;
- Cement;
- Limestone and other dry bulks;
- Salt; and
- Other liquid bulks.

It should be emphasized that commodity-specific impacts are not estimated for each of the economic sectors described in the last section. Specific impacts could not be allocated by individual commodities with any degree of accuracy for maritime construction, ship repair, or the state and federal government due to the fact that it is difficult to estimate the percentage of resources that are dedicated to one commodity over another. For example, maritime construction may occur at a terminal that is multi-use and cannot be attributed to a specific commodity. Similarly, law enforcement and security operations cannot be attributed to a single commodity.

3. MARITIME CARGO EMPLOYMENT IMPACTS

Employment generated by maritime cargo activity on Indiana waterways is estimated.

- First, the total employment that is in some way related to maritime activity is estimated from the interview process of 143 Indiana waterway terminals, port companies and service providers as well as data provided by the Ports of Indiana and USACE as described in the methodology;

- Second, the subset of total employment that is judged to be totally dependent (i.e., direct jobs) on port activity is analyzed as follows:
 - The direct job impact is estimated by detailed job category, i.e., trucking, dockworkers, barge operators, steamship agents, chandlers, surveyors, etc.;
 - The direct job impact is estimated for each of the key commodities/commodity groups;
- Induced and indirect jobs are estimated; and
- Finally, jobs related to the maritime activity at the cargo terminals are described.

It is estimated that 157,600 jobs are in some way related to the maritime activity at the cargo terminals on Indiana waterways. Of the 157,600 jobs:

- 30,211 jobs are directly generated by activities at the cargo terminals and if such activities should cease, these jobs would be discontinued over the short term.
- 30,106 jobs (induced jobs) are supported by the local purchases of the 30,211 individuals directly generated by port activity at the cargo terminals. An additional 35,892 indirect jobs were supported by nearly \$3.7 billion of purchases in the state of Indiana by firms providing direct cargo handling and vessel/barge services. Direct, induced and indirect categories total 96,209 jobs. These are the jobs that may be considered dependent upon Indiana waterway activity and would experience immediate disruption if that activity were to cease.
- 61,391 jobs are related to inbound and outbound cargoes transiting Indiana waterway facilities. These jobs are supported in the state's steel processing, manufacturing, farming, construction, retail, wholesale and distribution industries, and the in-state industries supporting the movement and distribution of all commodities, primarily concentrated with steel, coal, grain, limestone, salt and fertilizer cargo imports and exports using Indiana waterway terminals.

3.1. Direct Maritime Cargo Jobs

In CY2019, about 62.1 million tons of domestic and foreign waterborne cargo moved via Indiana waterways. As a result of this activity, 30,211 full-time jobs were directly created⁴. These jobs would vanish immediately if shipping operations on Indiana waterways were to cease.

Most of the 30,211 jobs considered to be generated directly by maritime activity can be associated with the handling of specific commodities or commodity groups. Certain employment categories such as government employees and maritime construction firms cannot be identified with

⁴ Jobs are measured in terms of full-time worker equivalents. If a worker is employed only 50 percent of the time by activity at a cargo terminal, then this worker is counted as .5 jobs.

a specific commodity. As a result, employment in these groups (which totaled 2,302) was not allocated to specific commodity. Exhibit II-2 presents the relative employment impacts in terms of commodity groups.

Exhibit II-2 Direct Employment by Commodity, 2019*

	Northern Indiana Maritime District	Southern Indiana Maritime District	TOTAL INDIANA
STEEL COILS	5,926	1,016	6,942
ORE	6,601	0	6,601
PLATE/OTHER STEEL	359	0	359
SLAB	282	0	282
COAL/COKE	2,255	836	3,091
OTHER BREAKBULK/PROJECT CARGO	5	318	323
GRAIN/SOYBEANS	33	1,392	1,426
BULK METALS/SCRAP	122	15	137
FERTILIZER	76	678	755
CEMENT	0	286	286
LIMESTONE/OTHER DRY BULK	1,371	4,103	5,474
SALT	45	103	148
LIQUID BULKS	1,089	996	2,085
NOT COMMODITY SPECIFIC	<u>265</u>	<u>2,037</u>	<u>2,302</u>
TOTAL	18,430	11,782	30,211

*Totals may be rounded.

As this exhibit shows, steel products – coils, plat and slab - and iron ore generate the largest employment impacts followed by limestone/other dry bulks and coal/coke.

3.2. Induced Jobs

The 30,211 directly employed individuals due to activity at the cargo terminals received \$1.7 billion of wages and salaries, a part of which was used to purchase local goods and services such as food, housing, clothing, transportation services, etc. As a result of these local purchases, 30,106 induced jobs in the regional economy were supported. The majority of the induced jobs are with private sector social services, business services, educational services and state and local government agencies, followed by jobs in the food and restaurant sector, and then jobs in the construction and home furnishings sector.

3.3. Indirect Jobs

In addition to the induced jobs generated via purchases by directly employed individuals, the firms providing the direct services and employing the 30,211 direct jobs make in-state purchases and capital expenditures for goods and services. These purchases by the firms dependent upon the cargo facilities generated additional Indiana jobs – indirect jobs. Based on interviews and data, these firms made \$3.7 billion of local and in-state purchases and capital expenditures. These purchases created an additional 35,892 indirect jobs in the local economy.

3.4. Related User (Shipper/Consignee) Jobs

It is estimated that 61,391 jobs are supported in Indiana with shippers/consignees that use Indiana waterway facilities. To estimate the related user impact for cargo, the average value per ton of imports and exports was estimated using data from the U.S. Army Corps of Engineers and U.S. Maritime Administration, Foreign Trade Statistics and Ports of Indiana. The employment to value of output coefficient for the retail sector related to the exported and imported cargoes was then computed from Bureau of Economic Analysis, Regional Input-Output Model for the state of Indiana.

For break bulk cargoes, the associated consuming and producing industries were identified with each commodity. For example, for inbound iron and steel products, relationships were developed to convert the dollar value of these materials into a dollar value of output in the key consuming industries, which include construction and metal fabrication. Relationships between the values of inputs to the value of outputs in these industries were estimated using data from the U.S. Bureau of Census, Census of Manufacturing and Census of Construction. These ratios were then used to convert the dollar value of the imported break bulk and bulk cargoes into a dollar value of output in the consuming industries in the state. Using the respective jobs to value of output multipliers for these industries from the Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II) model, the value of the break bulk and bulk cargoes moving via the maritime terminals and remaining in (or produced in) the state of Indiana was converted into related shipper/consignee jobs with these users and associated supporting industries within the state. A similar methodology was used in estimating related user jobs for agricultural products.

Finally, the direct, induced and indirect maritime sector job impacts (waterway shippers, port companies and dependent shippers) associated with each of the cargoes for which related shipper/consignee jobs were estimated were subtracted from the total related jobs (by commodity and cargo type) to avoid double-counting. The related shipper/consignee jobs include job impacts at each stage of handling the imported and exported cargo, such as the port activity, the trucking activity and the rail activity used to move the cargo to and from the waterway terminals and the induced and indirect jobs associated with the direct terminal activity.

It is to be further emphasized that when the impact models are used for planning purposes and sensitivity analysis, related jobs should not be used to judge the economic benefits of a particular project. Related jobs are not estimated with the same degree of defensibility as are the direct, induced and indirect jobs. Therefore, only these three types of job impacts should be used in evaluating port investments. The purpose of the related jobs estimate is to provide a proxy for the magnitude of the more general economic development impact of the private and public port facilities.

4. TOTAL ECONOMIC OUTPUT, BUSINESS REVENUE, INCOME AND TAX IMPACTS

The 62.1 million tons of steel, ore, coal, agribusiness, general cargo and other bulk (dry and

liquid) cargo handled on Indiana's terminals included in the study generated revenue for firms in each of the economic sectors. For example, revenue is received by the railroads and the trucking companies within the surface transportation sector as a result of moving outbound cargo to the terminals and distributing the inbound commodities inland after receipt at the cargo terminals. The firms in the maritime services sector receive revenue from arranging for transportation services, cargo handling, providing services to vessels/barges and repairs to vessels/barges calling on the terminals. Ports receive revenue from terminal leases and port charges such as wharfage and dockage assessed on cargo and vessels. In addition, revenue is received by dependent shippers/consignees from the sales of cargo shipped or received via the cargo terminals and from the sales of products made with raw materials received through the terminals. Since this chapter is concerned with the revenue generated from providing maritime services, the shipper/consignee revenue (i.e., the value of the cargo shipped or received through the waterway terminals, as well as the value of the products produced by the port-dependent shippers/consignees) will be excluded from the remaining discussion.

The revenue generated by port and waterway terminal activity consists of many components. For example, gross revenue is used to pay employee salaries and taxes. It is also distributed to stockholders of the companies providing the vessel and cargo handling services, and it is used for the purchases of equipment and maintenance services. Of these components, only three can be isolated geographically with any degree of accuracy. These are the personal income component of revenue, which can be traced to geographic locations based on the residence of those receiving the income, the payment of state and local taxes, and the local purchases made by firms dependent upon the maritime activity. The balance of the revenue is distributed in the form of payments to firms located outside the state of Indiana providing goods and services to the economic sectors and for the distribution of company profits to shareholders. Many of these firms and owners are located outside of the state of Indiana and, thus, it is difficult to trace the ultimate location of the distributed revenue (other than personal income, taxes and local purchases). The value of output created by in-state related shippers/consignees of the port is attributed to the state of Indiana, and the local purchases from other firms within the state are also included in this user output measure, as defined by the in-state output coefficients (for the user industries) developed from the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II).

The revenue impact is a measure of the *total economic activity* in the state that is generated by the cargo moving via Indiana waterways. In 2019, maritime cargo and port industrial activity on Indiana waterways and related activities generated a total of \$27 billion of total economic activity in the state. Of the \$27 billion, \$2 billion is the direct business revenue received by the firms directly dependent upon the terminals and providing maritime services and inland transportation services to the cargo handled at the maritime terminals and the vessels calling on the terminals, while another \$11.6 billion of revenue is generated by the waterway shippers, port tenants and on-site dependent shippers/consignees. The remaining \$13.3 billion represents the value of the output to the state of Indiana that is created due to the cargo moving via the port and waterway terminals. This includes the value added at each stage of producing an export cargo, as well as the value added at each stage of production for the firms using imported raw materials and intermediate products that flow via the marine terminals and are consumed by industries within the state of Indiana.

Exhibit II-3 shows the direct revenue impact by commodity. It is to be emphasized that the revenue received by shippers/consignees from the sales of the products (value of the commodities) moving via the port terminals is not included, since product value is determined by the demand for the product, not the use of the cargo terminals.

Exhibit II-3 Direct Revenue by Commodity, 2019*

	Northern Indiana Maritime District	Southern Indiana Maritime District	TOTAL INDIANA
STEEL COILS	\$270,683,493	\$53,501,876	\$324,185,369
ORE	\$335,383,812	\$0	\$335,383,812
PLATE/OTHER STEEL	\$4,769,494	\$0	\$4,769,494
SLAB	\$30,365,625	\$0	\$30,365,625
COAL/COKE	\$52,649,201	\$222,794,633	\$275,443,834
OTHER BREAKBULK/PROJECT CARGO	\$314,683	\$170,313	\$484,995
GRAIN/SOYBEANS	\$4,288,800	\$231,916,236	\$236,205,036
BULK METALS/SCRAP	\$4,385,964	\$2,552,614	\$6,938,577
FERTILIZER	\$9,851,949	\$69,688,914	\$79,540,862
CEMENT	\$0	\$46,034,613	\$46,034,613
LIMESTONE/OTHER DRY BULK	\$95,662,831	\$149,926,215	\$245,589,046
SALT	\$7,807,747	\$9,824,442	\$17,632,189
LIQUID BULKS	\$29,622,126	\$52,602,453	\$82,224,579
NOT COMMODITY SPECIFIC	\$19,653,365	\$326,609,466	\$346,262,831
TOTAL	\$865,439,090	\$1,165,621,773	\$2,031,060,864

*Totals may be rounded.

As this exhibit indicates iron ore, coils generate the largest direct revenue impacts, followed by coal/coke, limestone and grain.

5. PERSONAL EARNINGS IMPACTS

The income impact is estimated by multiplying the average annual earnings (excluding benefits) of each port participant, i.e., truckers, steamship agents, pilots, towing firm employees, longshoremen, warehousemen, etc., by the corresponding number of direct jobs in each category. The individual annual earnings in each category multiplied by the corresponding job impact resulted in \$1.7 billion in personal wage and salary earnings. It is important to emphasize that the average annual earnings of a marine terminal-dependent job is \$55,685. By comparison, based on data available from the Bureau of Labor Statistics (BLS), the annual mean wage for all occupations in Indiana was \$46,770 in 2019.⁵ Therefore, these relatively high paying jobs will have a much greater economic impact in the economy through stimulating induced jobs than a job paying lower wages.

The impact of re-spending this direct income for local purchases is estimated using a personal earnings multiplier. The personal earnings multiplier is based on data supplied by the Bureau of Economic Analysis (BEA), Regional Input-Output Modeling System (RIMS II). The BEA estimates that for every one dollar earned by direct employees generated by activity at the

⁵ U.S. Bureau of Labor Statistics, May 2019, State Occupational Employment and Wage Estimates, Indiana.

cargo terminals, an additional \$2.16 of personal income and consumption expenditures would be created as a result of re-spending the direct income for purchases of goods and services produced locally. Hence, a personal earnings multiplier of \$3.16 was used to estimate the total income and consumption impact of nearly \$3.7 billion, inclusive of the re-spending effect. This additional re-spending of the direct income generates the 30,106 induced jobs.

The 35,892 indirect job holders earned \$1.8 billion in indirect wages and salaries. The 61,391 related shipper/consignee jobs tied to cargo moving via marine terminals received nearly \$2.5 billion of personal income.

Therefore, the total personal income impact and consumption impact created by Indiana waterway cargo shipments and related industrial activity is estimated at just over \$9.6 billion. However, it must again be emphasized that the \$2.5 billion received by the related shipper/consignee jobs cannot be said to be dependent upon Indiana’s maritime industry.

6. TAX IMPACTS

State and local tax impacts are based on per employee tax burdens which are developed at the county, local and state jurisdictional levels. These tax per employee burdens are essentially tax indices that are used to allocate total taxes at each level of government to economic activity generated by the cargo terminals. To estimate the per employee tax indices, total taxes received at each governmental level in Indiana was developed by applying indices from the Tax Foundation⁶ to dependent and related incomes. These indices represent total state and local taxes paid by residents as a percent of total personal income. Also included is the estimated corporate tax paid to Indiana.

Cargo and marine terminal activity generated \$1.5 billion of state, county and local taxes. As a result of the economic activity created by the related shipper/consignees, an additional \$241.2 million of state and local taxes were generated for a total cargo tax impact of \$1.7 billion. The State of Indiana receives approximately 59.4% of the tax revenues while local governments received 40.6% of the tax impact as illustrated in Exhibit II-4.⁷

Exhibit II-4 CY2019 Distribution of State and Local Tax Revenue*

TAXES BY CATEGORY	STATE	LOCAL	TOTAL
DIRECT, INDUCED & INDIRECT	\$872,812,058	\$596,568,511	\$1,469,380,570
RELATED	\$143,303,981	\$97,948,512	\$241,252,494
TOTAL TAXES	\$1,016,116,040	\$694,517,024	\$1,710,633,064

*Totals may be rounded

⁶ Tax Foundation, *Indiana’s State and Local Tax Burden*, < <http://taxfoundation.org/article/indianas-state-and-local-tax-burden>>

⁷ United States Census Bureau, *2012 Census of Governments: State & Local Finances*.