

**THE LOCAL AND REGIONAL ECONOMIC  
IMPACTS OF THE  
PORT OF WILMINGTON**



**PREPARED FOR THE:  
DIAMOND STATE PORT CORPORATION  
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## TABLE OF CONTENTS

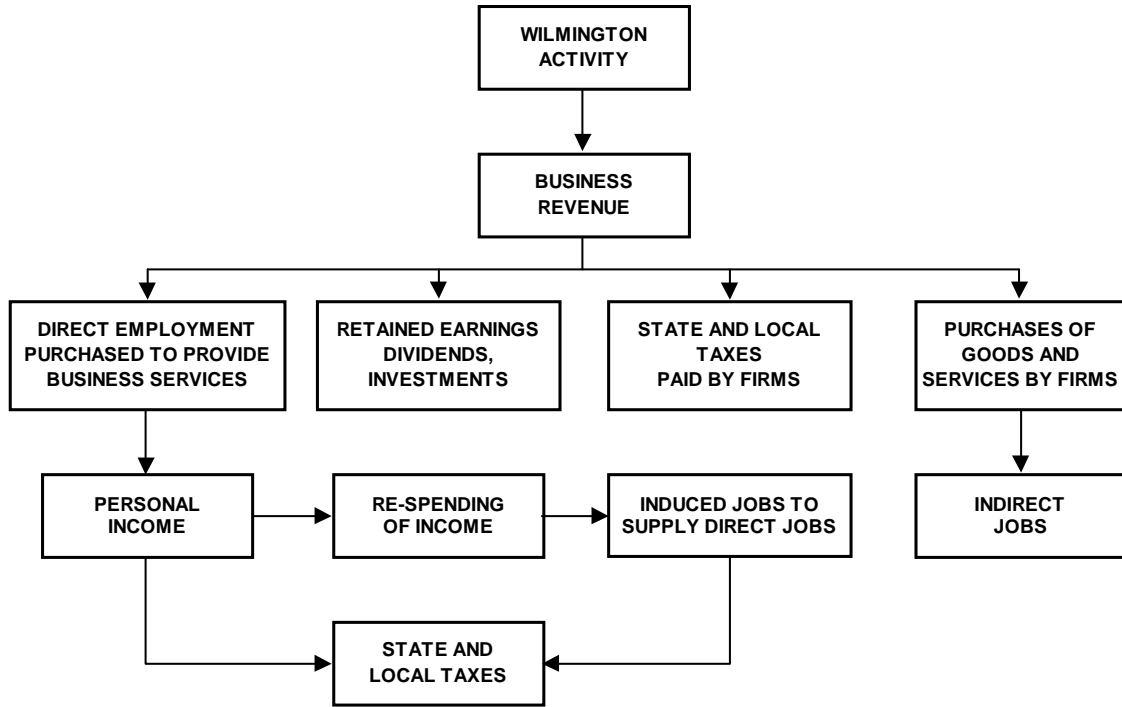
<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>I. OVERVIEW OF THE ANALYSIS .....</b>	<b>7</b>
1. <u>FLOW OF IMPACTS</u> .....	8
1.1 <u>Business Revenue Impact</u> .....	8
1.2 <u>Employment Impact</u> .....	9
1.3 <u>Personal Earnings Impact</u> .....	10
1.4 <u>Tax Impact</u> .....	10
2. <u>IMPACT STRUCTURE</u> .....	10
2.1 <u>The Surface Transportation Sector</u> .....	10
2.2 <u>The Maritime Services Sector</u> .....	11
2.3 <u>Diamond State Port Corporation</u> .....	12
3. <u>SUMMARY OF METHODOLOGY</u> .....	13
3.1 <u>Data Collection</u> .....	13
3.2 <u>Direct Jobs, Income, Revenue and Tax Impacts</u> .....	13
3.3 <u>Induced Impacts</u> .....	14
3.4 <u>Indirect Jobs</u> .....	14
3.5 <u>Related Impacts</u> .....	14
4. <u>COMMODITIES INCLUDED IN THE ANALYSIS</u> .....	15
<b>II. EMPLOYMENT IMPACTS.....</b>	<b>17</b>
1. <u>TOTAL EMPLOYMENT IMPACT</u> .....	17
2. <u>DIRECT JOB IMPACTS</u> .....	18
2.1 <u>Job Impacts by Sector</u> .....	18
2.2 <u>Direct Job Impacts by Commodity</u> .....	19
2.3 <u>Job Impacts Per Ton</u> .....	20
3. <u>DISTRIBUTION OF DIRECT JOBS BY PLACE OF RESIDENCE</u> .....	21
4. <u>INDUCED JOBS</u> .....	22
5. <u>INDIRECT JOBS</u> .....	22
6. <u>RELATED JOBS</u> .....	22
<b>III. REVENUE, INCOME AND TAX IMPACTS .....</b>	<b>24</b>
1. <u>TOTAL ECONOMIC ACTIVITY</u> .....	24
2. <u>DIRECT REVENUE IMPACT</u> .....	25
2.1 <u>Revenue Impacts by Economic Sector and Impact Category</u> .....	25
2.2 <u>Direct Revenue Impacts by Commodity</u> .....	26
3. <u>PERSONAL EARNINGS IMPACT</u> .....	27
4. <u>TAX IMPACTS</u> .....	28
<b>IV. COMPARISON OF ECONOMIC IMPACTS 2000-2006.....</b>	<b>30</b>
1. <u>COMPARISON OF TONNAGE</u> .....	30
2. <u>COMPARISON OF ECONOMIC IMPACTS</u> .....	31
3. <u>COMPARISON OF DIRECT JOB IMPACTS BY COMMODITY</u> .....	31

## **EXECUTIVE SUMMARY**

Martin Associates was retained by the Diamond State Port Corporation to update the economic impacts generated by marine cargo activity at the Port of Wilmington's marine terminals for 2011. These marine terminals include specialized temperature controlled facilities for handling fresh and frozen produce (i.e., grapes, oranges, bananas, and juice), facilities dedicated to processing imported and exported automobiles, breakbulk facilities for steel imports as well as dry and liquid bulk facilities. In 2011, these marine facilities handled 4.4 million tons of cargo. The impacts are measured for the tonnage handled in fiscal year 2011 and an economic impact model has been developed for the Port of Wilmington's marine terminals to provide for annual updates, as well as to test the sensitivity of the impacts to changes in such factors as marine cargo tonnage levels, labor productivity and work rules, new marine facilities development and expansion, and the number of vessel calls and vessel size. The model can also be used to compare the economic impacts of marine activity with non-maritime development of waterfront land along the Delaware River.

Exhibit E-1 graphically demonstrates how seaport activity impacts the local and regional economies. As this exhibit indicates, the marine cargo and vessel activity initially generates business revenue to the firms supplying marine services. This revenue is used to purchase employment (direct jobs) to provide the services, to pay stockholders and for retained earnings, and to purchase goods and services from local firms, as well as national and international firms (creating indirect jobs with these firms). Businesses also pay taxes from the business revenue.

Exhibit E-1  
Flows of Economic Impacts  
Through the Economy



The employees hired by the firms receive wages and salaries (personal income), a portion of which is saved, while another portion is used to buy goods and services such as food, housing, clothing, health care, etc. These purchases create a re-spending impact throughout the economy, known as the personal income multiplier. As a result of these local purchases, additional jobs (known as induced jobs) are created in the local economy. Finally, taxes are paid by individuals employed with the firms providing the services to the marine terminals.

As demonstrated by this chart, four types of impacts are measured:

- Jobs;
- Employee earnings;
- Business revenue; and
- State and local taxes.

With respect to jobs, four types of job impacts are measured. These are direct, induced, indirect and related jobs. The job impacts are defined as follows:

- Direct jobs are those jobs with local firms providing support services to the seaport. These jobs are dependent upon this activity and would suffer immediate dislocation if the seaport activity were to cease. Seaport direct jobs include jobs with railroads and trucking companies moving cargo to and from the Port's marine terminals, members of the International Longshoremen's Association (ILA), steamship agents, freight forwarders, ship chandlers, warehouse operators, fruit importers, terminal operators, stevedores, etc.
- Induced jobs are jobs created locally and throughout the regional economy due to purchases of goods and services by those directly employed. These jobs are with grocery stores, the local construction industry, retail stores, health care providers, local transportation services, etc., and would also be discontinued if seaport activity were to cease.
- Indirect jobs are those jobs generated in the local economy as the result of local purchases by the firms directly dependent upon seaport activity. These jobs include jobs in local office supply firms, equipment and parts suppliers, maintenance and repair services, utilities, etc.
- Related jobs are with distribution and manufacturing firms -- such as steel fabrication firms using the steel imported through the marine terminals. Related jobs are not dependent upon the seaport marine terminals to the same extent as are the direct, induced and indirect jobs. For example, these firms can and do use other ports. It is the demand for the final product, i.e. exported automobiles or imported bananas or fresh fruit, which creates the demand for the employment with auto producers or grocery distributors, not the use of a particular seaport or marine terminal.

The employee earnings consist of wages and salaries and include a re-spending effect (local purchases of goods and services by those directly employed), while business revenue consists of total business receipts by firms providing services in support of the marine activity. State and local taxes include taxes paid by individuals, as well as firms dependent upon the seaport activity.

The study is based on interviews with nearly 90 firms providing services to the cargo and vessels handled at the Port of Wilmington’s marine terminals along the Delaware River. These firms represent more than 95 percent of the firms in the Wilmington seaport community, underscoring the defensibility of the study. For the most part, multiple interviews were conducted with several persons in each firm. A 100 percent response rate was achieved for this study. Furthermore, the impacts can be traced back to the individual firm. The data collected from the interviews were then used to develop an operational model of the Port of Wilmington’s marine terminals.

**SUMMARY OF IMPACTS GENERATED BY THE DIAMOND STATE PORT CORPORATION**

The economic impacts generated by the Diamond State Port Corporation’s marine terminals are summarized in Table E-1.

Table E-1  
Summary of the Economic Impacts Generated by  
the Port of Wilmington

	<b>PORT OF WILMINGTON</b>
<b>JOBS</b>	
DIRECT	2,203
INDUCED	1,673
INDIRECT	444
<b>TOTAL</b>	<b>4,321</b>
<b>PERSONAL INCOME (1,000)</b>	
DIRECT	\$89,057
RE-SPENDING/LOCAL CONSUMPTION	\$209,178
INDIRECT	\$17,736
<b>TOTAL</b>	<b>\$315,972</b>
<b>DIRECT BUSINESS REVENUE (\$1,000)</b>	<b>\$337,040</b>
<b>STATE AND LOCAL TAXES (\$1,000)</b>	<b>\$31,361</b>
<b>LOCAL PURCHASES (\$1,000)</b>	<b>\$52,615</b>
<b>RELATED IMPACTS WITH SHIPPERS/CONSIGNEES</b>	
<b>RELATED JOBS</b>	12,556
<b>VALUE OF ECONOMIC ACTIVITY (\$1,000)</b>	\$1,678,030
<b>RELATED PERSONAL INCOME (\$1,000)</b>	\$456,359
<b>RELATED STATE AND LOCAL TAXES (\$1,000)</b>	\$45,295

Specifically, the marine cargo and vessel calls at the facilities owned and operated by the

Diamond State Port Corporation generated the following impacts in 2011:

- 2,203 direct jobs are generated by the marine terminals. It is estimated that 36 percent of these jobs are held by residents of New Castle County, while 32 percent of the direct jobs are held by residents of the City of Wilmington.
- As the result of local and regional purchases by those 2,203 individuals holding the direct jobs, an additional 1,673 induced jobs are supported in the regional economy.
- Because of the \$52.6 million of local purchases made by the firms directly providing services to the Port of Wilmington, 444 indirect jobs were supported in the local economy.
- A total of \$316 million of personal wages and salaries and local consumption expenditures were created in the local economy as the result of maritime activity at the Port Wilmington, of which \$89.1 million was directly earned by the 2,203 direct employees, representing an average salary of more than \$40,430 annually. As the result of re-spending this income, an additional \$209.2 million of income and consumption expenditures were created. Those holding the indirect jobs received \$17.7 million in wages and salaries.
- Businesses providing services at the marine terminals received \$337.0 million of revenue, excluding the value of cargo shipped through the marine terminals.
- \$31.4 million of state and local taxes were generated by activity at the marine terminals, of which \$23.6 million was received by the State of Delaware, as well as county and municipal governments in Delaware. Because businesses and their employees located in New Jersey, Pennsylvania and Maryland also provide services at the Diamond State Port Corporation's marine terminals, the remaining \$7.8 million of state and local taxes were paid to the state governments and county and municipalities in the states of Pennsylvania, New Jersey and Maryland.
- 12,556 related jobs were also supported by activity at the Port of Wilmington. These include jobs with grocery and produce distributors using the Port of Wilmington to import fresh fruit, containerized bananas and pineapples, and apples and kiwis; auto producers exporting vehicles through the Port; and steel importers and manufacturers importing steel through the Port. These jobs are classified as related, not directly dependent upon the Port of Wilmington facilities, because the employment with these distributors and manufacturers is driven by the demand for the product, not by the use of the Port facilities. The value of the economic activity generated with the users of the marine terminals is measured at \$1.7 billion, while the 12,556 related users received \$456.4 million of total wages and salaries. A total of \$45.3 million of related state and local taxes were created by the shippers/consignees using the Port of Wilmington to ship and receive cargo.

Martin Associates conducted a similar study in 2006. Since 2006, cargo activity at the Port of Wilmington has declined by 106,800 tons, reflecting the loss of forest products at the Port. This tonnage loss has resulted in a decline in the direct economic impacts generated by the cargo activity at the Port of Wilmington, as direct jobs fell by 92 jobs over the 5 year period. Exhibit E-2 compares the economic impacts created by the Port of Wilmington in 2006 with those created in 2011. The 2011 economic impacts are based upon the baseline economic impact model generated for the Diamond State Port Corporation in 2006 and updated using the current fiscal year 2011 tonnages at the Port of Wilmington. Revenue decreased by \$72.1 million over the period, while local purchases by port tenants and service providers fell by \$11.3 million, resulting in a reduction in indirect jobs. Also, the reduced number of indirect jobs reflects an increase in productivity in the sectors of the state economy that provide the goods and services. This growth in productivity results in fewer indirect jobs being generated for a given level of dollar purchases in 2011 as compared to 2006. Direct personal income declined by nearly \$4.8 million as the result of the decrease in the average salary earned by the direct workers.

Exhibit E-2  
Comparison of Economic Impacts  
2006 -2011

	FY2011 IMPACTS	2006 IMPACTS	CHANGE
<b>JOBS</b>			
DIRECT	2,203	2,295	(92)
INDUCED	1,673	1,766	(93)
INDIRECT	444	539	(95)
<b>TOTAL</b>	<b>4,321</b>	<b>4,601</b>	<b>(279)</b>
<b>PERSONAL INCOME (1,000)</b>			
DIRECT	\$89,057	\$93,856	(\$4,799)
RE-SPENDING/LOCAL CONSUMPTION	\$209,178	\$191,700	\$17,478
INDIRECT	\$17,736	\$21,529	(\$3,793)
<b>TOTAL</b>	<b>\$315,972</b>	<b>\$307,085</b>	<b>\$8,887</b>
<b>BUSINESS REVENUE (\$1,000)</b>	<b>\$337,040</b>	<b>\$409,112</b>	<b>(\$72,072)</b>
<b>STATE AND LOCAL TAXES (\$1,000)</b>	<b>\$31,361</b>	<b>\$28,650</b>	<b>\$2,711</b>
<b>LOCAL PURCHASES (\$1,000)</b>	<b>\$52,615</b>	<b>\$63,866</b>	<b>(\$11,251)</b>
<b>RELATED JOBS</b>	<b>12,556</b>	<b>14,660</b>	<b>(2,104)</b>

## **I. OVERVIEW OF THE ANALYSIS**

Martin Associates was retained by the Diamond State Port Corporation to update the local and regional economic impacts generated by cargo and vessel activity at the marine terminals owned and operated by the Diamond State Port Corporation (Port of Wilmington). The impacts are estimated for the 4.4 million tons of marine cargo and 367 vessel calls handled at the Port in 2011. In addition to quantifying the baseline impacts of the Port of Wilmington's marine terminals, an economic impact model has been developed to 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. The model can also be used to evaluate the impacts of new terminal development and for annual updates. Martin Associates conducted a similar analysis for the Port in 2006, and, as a result, comparisons can be made between the Port's economic contribution in 2006 and in the year 2011.

The methodology used in this analysis has been developed by Martin Associates and has been used to estimate the economic impacts of seaport activity at more than 100 ports, including the Port of Philadelphia and the South Jersey Port Corporation Terminals. In addition to the impact studies for the other Delaware River Ports, Martin Associates has used this methodology to estimate the economic impacts generated by activity at such ports as:

- *Baltimore, Maryland*
- *Virginia Port Authority*
- *Richmond, Virginia*
- *Wilmington, North Carolina*
- *Morehead City, North Carolina*
- *Port Everglades, Florida*
- *Tampa, Florida*
- *Houston, Texas*
- *Corpus Christi, Texas*
- *Los Angeles, California*
- *Long Beach, California*
- *San Francisco, California*
- *Oakland, California*
- *Portland, Oregon*
- *Seattle, Washington*
- *Longview, Washington*
- *Providence, Rhode Island*
- *Sacramento, California*
- *Brunswick, Georgia*
- *Montreal, Quebec*
- *Saint John, New Brunswick*
- *Halifax, Nova Scotia*
- *Vancouver, British Columbia*
- *Thunder Bay, Ontario*
- *Windsor, Ontario*
- *18 U.S. Ports on the Great Lakes*

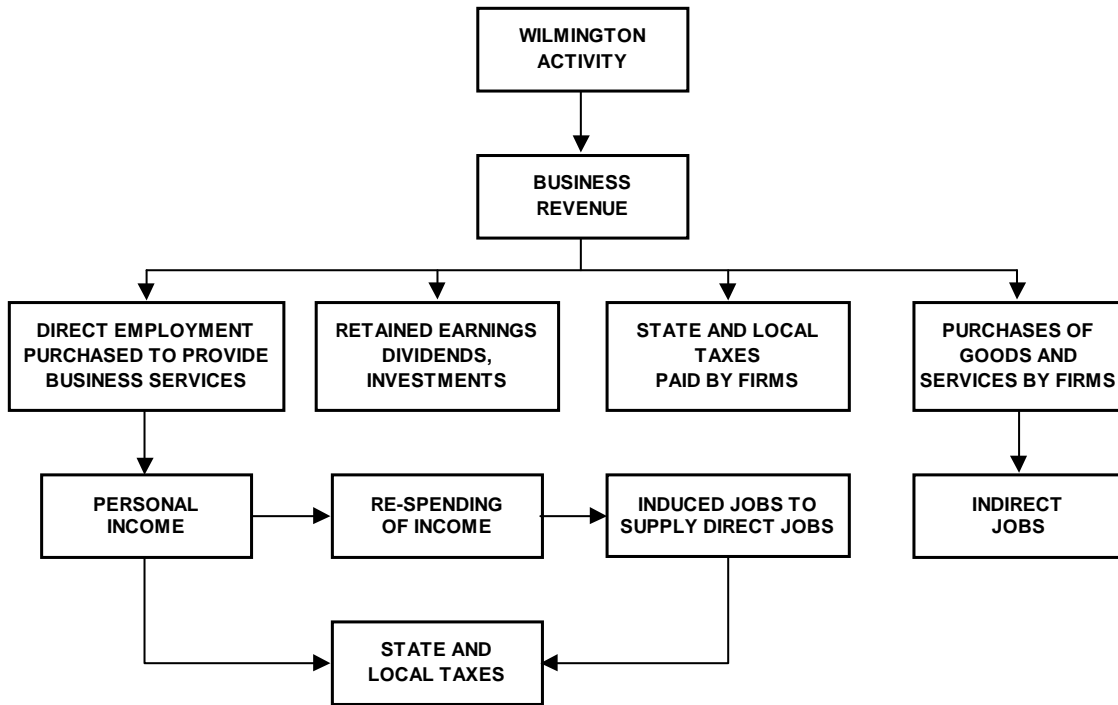
The remainder of this chapter presents an overview of the economic impact analysis and consists of the following sections:

- Flow of economic impacts through the local and regional economies;
- The structure of the impact analysis;
- Summary of the methodology; and
- Commodities included in the analysis.

# 1. FLOW OF IMPACTS

Waterborne activity at a seaport contributes to the local and regional economy by generating business revenue to local and national firms providing vessel and cargo handling services at the marine terminals. These firms, in turn, provide employment and income to individuals, and pay taxes to state and local governments. Exhibit I-1 shows how activity at marine terminals generates impacts throughout the local, state and national economies. As this exhibit indicates, the impact of a seaport on a local, state or national economy cannot be reduced to a single number, but instead, the seaport activity 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 I-1 shows graphically how activity at the Port of Wilmington’s marine terminals generates the four impacts.

Exhibit I-1  
Flow of Economic Impacts Generated by  
Marine Activity



## 1.1 Business Revenue Impact

At the outset, activity at the port 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 economy are those portions paid out in salaries to local employees, for local purchases by individuals and businesses directly dependent on the seaport, in contributions to state and local taxes, and in lease payments and wharfage, dockage and handling fees paid to the Diamond State Port Corporation. In addition, the total economic value attributed to the cargo activity at the Port with the shippers/consignees using the marine terminals is computed. This measures the economic value added at each stage of handling the cargo after it is moved from the Port facilities, including the distribution impact and final sales for the fruit and bananas handled at the port as well as the economic value of the imported steel used as an intermediate product in the local steel fabrication business and construction activity.

## 1.2 Employment Impact

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

- Direct employment impact - jobs directly generated by seaport activity. Direct jobs generated by marine cargo include jobs with railroads and trucking companies moving cargo between inland origins and destinations and the marine terminals, longshoremen, 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 the Port of Wilmington's marine terminals were to be discontinued.
- Induced employment impact - jobs created throughout the local economy because **individuals** directly employed due to seaport 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 local and regional purchases.
- Indirect Jobs - 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. It is to be emphasized that special care was taken to avoid double counting, since the current study counts certain jobs as direct (i.e., trucking jobs, jobs with railroads, jobs with off-dock warehouses, etc.) which are often classified as indirect by other approaches, notably the input/output model approach.
- Related user employment impact - jobs with firms using the seaport to ship and receive cargo. While the facilities and services provided at the Port's marine terminals are a crucial part of the infrastructure allowing these jobs to exist, they would not necessarily be immediately displaced if marine activity were to cease. The related user job impact measures the jobs generated at each stage of delivery of the final product or intermediate product, including all support jobs required in the final sales or use of the imported cargo.

### 1.3 Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to seaport 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 made by individuals that are spent within the Wilmington region. 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 seaport activity.

The total wages and salaries of the users are also included in the analysis.

### 1.4 Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced and indirect jobs) by activity at the marine terminals. An estimate of the taxes paid by the related users has also been developed.

## 2. **IMPACT STRUCTURE**

The four types of 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
- Diamond State Port Corporation.

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

### 2.1 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.

## 2.2 The Maritime Services Sector

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

- Cargo Marine Transportation;
- Vessel Operations;
- Cargo Handling; and
- Federal, State and Local Government Agencies.

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

### ➤ Cargo Marine Transportation

Participants in this category are involved in arranging for inland and water transportation for export or import freight. The freight forwarder/customhouse broker is the major participant in this category. The freight forwarder/customhouse broker arranges for the freight to be delivered between the terminals and inland destinations, as well as the ocean transportation. This function performed by freight forwarders and customhouse brokers is most prevalent for general cargo commodities.

### ➤ Vessel Operations

This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters the port; the agents arrange for pilot services and towing, for medical and dental care of the crew, and for ship supplies. 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 along the Delaware River to and from the Port of Wilmington's marine terminals;
- Bunkering firms - provide fuel to the vessels;
- Marine surveyors - inspect the vessels 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. Included in this category are the following participants:

- Longshoremen - are members of the International Longshoremen's Association (ILA), and are involved in the loading and unloading of cargo from the vessels, as well as handling the cargo prior to loading and after unloading.
- Stevedoring firms - manage the longshoremen and cargo-handling activities. Stevedoring services at the Port of Wilmington's marine terminals are provided by private stevedoring companies.
- Terminal operators - are often stevedoring firms who operate the marine terminals where cargo is loaded and off-loaded. At the Port of Wilmington's marine terminals, the Port leases the marine terminals to private terminal operators such as Dole Fresh Fruit and Chiquita Brands.
- Warehouse operators - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots. At the Port's terminals, these warehousemen are hired by the Diamond State Port Corporation. Private warehouse operators also are involved in storing cargo, such as grapes, apples, kiwis, and other fruit. The Diamond State Port Corporation also provides terminal services and hires local labor to provide terminal and warehouse work in support of terminal operations by private terminal operators. These warehouse employees are members of the International Longshoremen's Association.

➤ Government Agencies

This service sector involves Federal, state and local government agencies that perform services related to cargo handling and vessel operations at the Port. U.S. Customs, Bureau of Immigration, U.S. Department of Labor, U.S. Department of Agriculture, U.S. Coast Guard, the Army Corps of Engineers and U.S. Department of Commerce employees are involved. These services are provided by the government offices located in the Wilmington area.

### 2.3 Diamond State Port Corporation

The Diamond State Port Corporation Sector includes those individuals employed whose purpose is to oversee port activity at the Port of Wilmington's marine terminals. Only the Port's administrative employees are included in this category. The warehouse employees hired by the Port of Wilmington are included in the warehouse job category.

### 3. SUMMARY OF METHODOLOGY

The purpose of this section is to provide a summary of the methodological approach used to estimate the economic impacts of the Port of Wilmington.

#### 3.1 Data Collection

The cornerstone of the Martin Associates approach is the collection of detailed baseline impact data from firms providing services at the Port of Wilmington's marine terminals and the private terminals. To ensure accuracy and defensibility, the baseline impact data were collected from interviews with 87 firms in the Wilmington, Philadelphia, South Jersey and Delaware River port and maritime community. These firms represent the universe of firms providing services at the Diamond State Port Corporation's marine terminals, as identified by the following sources:

- "The Journal of Commerce", Transportation Telephone Tickler;
- The Diamond State Port Corporation's internal customer and tenant lists; and
- The Philadelphia Maritime Exchange, Port Directory.

These firms represent a greater than 95 percent coverage of all firms identified in the seaport community. For the most part, multiple interviews were conducted with several persons in each firm. A 100 percent response rate was achieved for this study.

#### 3.2 Direct Jobs, Income, Revenue and Tax Impacts

The results of these interviews were then used to develop the baseline direct job, revenue and income impacts for the economic sectors and job categories associated with the Port's marine terminals.

The direct tax impacts are estimated at a state, county and local level based on data supplied by the Tax Foundation.

This baseline survey data was also used to develop an operational model which can be used to update the impacts of the Port of Wilmington's marine terminals on an annual basis and to evaluate the impacts of changes in:

- Marine cargo tonnage, by commodity;
- Seaport labor productivity, and work rules;
- Modal distribution of seaport cargo (what percent of the inland transportation of a commodity is truck versus rail), as well as the geographical distribution of each commodity; and
- Vessel calls and vessel size.

Also, the operational model can be used to evaluate alternative facilities expansion projects

and new marine terminal construction.

### 3.3 Induced Impacts

Induced impacts are those generated by the purchases of the individuals employed as a result of seaport activity. For example, a portion of the personal earnings received by those directly employed due to activity at the marine terminals is used for purchases of goods and services, both regionally, as well as out-of-the region. These purchases, in turn, create additional jobs in the region which are classified as induced. To estimate these induced jobs, a regional personal earnings multiplier was developed from data provided by the Bureau of Economic Analysis, Regional Income Division. This personal earnings multiplier is used to estimate the total personal earnings generated in the Wilmington area as a result of the activity at the Diamond State Port Corporation's marine terminals. A portion of this total personal earnings impact is next allocated to specific local purchases (as determined from consumption data for Wilmington residents, as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey). These purchases are next converted into retail and wholesale induced jobs in the regional economy.

***Induced jobs are not estimated at lower levels of purchasing rounds (after the wholesale round) since it is not possible to trace with a sufficient degree of accuracy, geographically, where purchases at the remaining levels occur. However, about 80 percent of the consumption will likely occur at the first two rounds of purchases, which are most likely local retail and wholesale purchases. It is not possible to divide the re-spending impact by the induced jobs to develop an average salary for induced workers, since this would result in an overestimation of the induced income.***

### 3.4 Indirect Jobs

Indirect jobs are generated in the local economy as the result of purchases by firms that are directly dependent upon cargo and vessel activity at the marine terminals. These purchases are for goods such as office supplies and equipment, maintenance and repair services, communications and utilities, transportation services and other professional services. To estimate the indirect economic impact, local purchases, by type of purchase, were collected from each of the 87 firms interviewed. These local purchases were then combined with employment to sales coefficients in local supplying industries. To develop these job multipliers, an input-output model for Delaware was developed for Martin Associates by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System.

### 3.5 Related Impacts

Related impacts measure the jobs with shippers and consignees moving cargo through the Port's marine terminals and private terminals. These jobs are classified as related jobs, since the firms using the marine terminals for the movement of cargo can and do use other seaports and marine terminals. For example, firms importing breakbulk fruit can and do use the Port of Philadelphia or other private terminals along the Delaware River, such as Gloucester City. Similarly, importers of steel often use freight forwarders, who in turn choose the port of import based on

market locations. Because of the proximity of other ports such as Philadelphia, Camden, Chester, Gloucester City, and Baltimore to the Port of Wilmington's marine terminals, importers as well as exporters of breakbulk cargo have some flexibility in port choice, and jobs with these exporters and importers cannot be counted as dependent upon the marine terminals owned and operated by the Diamond State Port Corporation.

These jobs are estimated based on the volume and value per ton of each commodity moving over the Port of Wilmington's marine terminals. Ratios of jobs to the value of inputs for the corresponding consuming and producing industries are then developed from U.S. Bureau of Economic Analysis, RIMS II data base developed for the State of Delaware. The job multipliers for the retail and wholesale sectors are then applied to the value of the containerized and breakbulk bananas and fruit imports moving via the Port's terminals to estimate related jobs.

#### **4. COMMODITIES INCLUDED IN THE ANALYSIS**

A major use of an economic impact analysis is to provide a tool for port development planning. As a port grows, available land and other resources for port 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, fresh fruit requires temperature-controlled facilities, while autos require a large, open storage area.

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 port development plans. Because of this need for understanding relative commodity impacts, economic impacts are estimated for the following commodities handled at the Port of Wilmington's marine terminals.

- Containerized Cargo (primarily bananas);
- Fresh Fruit;
- Breakbulk Beef/Livestock;
- Iron and Steel Products;
- Breakbulk Juices;
- Autos;
- Salt;
- Project Cargo
- Minerals and Other Dry Bulk Commodities;
- Bulk Juice; and
- Petroleum Products

It should be emphasized that commodity-specific impacts are not estimated for each of the economic sectors described in the last section. Specific impacts by commodity could not be allocated to individual commodities with any degree of accuracy for the government sector and

marine construction sector. In addition, taxes have not been displayed by specific commodity since these tax impacts will reflect the same distribution over commodities as the employment impact.

## **II. EMPLOYMENT IMPACTS**

In this chapter, the employment generated by maritime activity at the Port of Wilmington's marine terminals is estimated. The chapter is organized as follows:

- First, the total employment that is in some way related to the activities at the Port of Wilmington is described;
- Second, the subset of total employment that is judged to be totally dependent (i.e., direct jobs) on port activity is detailed as follows:
  - The direct job impact is estimated in terms of key economic sectors, i.e., surface transportation sector, maritime services sector, etc;
  - The direct job impact is estimated by detailed job category, i.e., trucking, ILA, warehousemen, terminal employees, etc;
  - The direct job impact is estimated for each of the key commodities/commodity groups;
- The direct job impact is estimated based on the residency of those directly employed;
- Induced jobs are presented;
- Indirect jobs are described; and
- Finally, jobs related to the marine activity are described.

### **1. TOTAL EMPLOYMENT IMPACT**

It is estimated that 16,877 jobs are in some way related to port activities at the Port of Wilmington's marine terminals. Of the 16,877 jobs:

- 2,203 are directly generated by activities at the Port of Wilmington's marine terminals and if such activities should cease, these jobs would be discontinued over the short term.
- 1,673 jobs (induced jobs) are supported by the local purchases of the 2,203 individuals directly generated by port activity at the Port of Wilmington's marine terminals. An additional 444 indirect jobs were generated due to \$52.6 million of purchases made in the local and regional economy by firms providing direct cargo handling and vessel services.

- An additional 12,556 jobs are related to cargo imported and exported via the Port of Wilmington's marine terminals. These jobs are with local and national produce and grocery distributors handling the imported fruit, steel fabrication companies, and automobile manufacturers. These jobs are considered to be related to activities at the Port of Wilmington's marine terminals, but the degree of dependence on these terminals is difficult to estimate. It is to be emphasized that the level of employment with these importers is based on the demand for the final product, i.e., automobile exports, imported fruit, etc., not by the use of the Port of Wilmington's marine terminals. However, if other terminals were used, it is likely that the cost of importing would increase, which could have long run implications on the level of employment with the related importers.

## 2. **DIRECT JOB IMPACTS**

In fiscal year 2011, 4.4 million tons of cargo moved via marine terminals owned and operated by the Diamond State Port Corporation. As a result of this activity, 2,203 full-time jobs were directly created<sup>1</sup>. In this section the jobs are analyzed in terms of:

- Distribution by economic sector;
- Distribution by job category;
- Distribution by commodity group; and
- Distribution by county and state of residency.

These distributions are developed in more detail below.

### 2.1 **Job Impacts by Sector**

Exhibit II-1 presents the distribution of the 2,203 direct jobs among the following economic sectors and job categories.

As this exhibit shows, the largest job impacts are with trucking and the majority of these trucking jobs are generated by the movement of automobiles, petroleum products, breakbulk fruit, and containerized cargo (primarily bananas and pineapples handled by Dole and Chiquita) from the Port of Wilmington's marine terminals to destinations throughout the Northeast, Mid-Atlantic and Mid-western states. The second largest direct job impact is with terminal operators leasing space from the Port of Wilmington. These include fresh fruit importers located at the Port during the winter months when the South American and Australian fruit arrives at the Port, as well as employees with terminal operators that lease facilities from the Diamond State Port Corporation, such as Dole Fresh Fruit, Chiquita Brands, as well as the auto processors. The 303 jobs with members of the ILA are generated by the loading and discharge of vessels at the Port, while the 322

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<sup>1</sup> Jobs are measured in terms of full-time worker equivalents. If a worker is employed only 50 percent of the time by activity at the marine terminals, then this worker is counted as .5 jobs.

jobs with warehouse operators include jobs with private warehouses (both temperature controlled as well as dry cargo warehouses), as well as International Longshoremen hired by the Port of Wilmington to provide terminal related and warehousing services.

Exhibit II-1  
Direct Jobs by Category and Sector

	<b>DIRECT JOBS</b>
<b>SURFACE TRANSPORTATION</b>	
RAIL	5
TRUCK	778
<b>SUBTOTAL</b>	<b>782</b>
<b>MARITIME SERVICES</b>	
TERMINAL OPERATIONS	404
ILA	303
TOWING	16
PILOTS	39
AGENTS	14
SURVEYORS/CHANDLERS/MISCELLANEOUS	35
FORWARDERS	88
WAREHOUSE	322
GOVERNMENT	26
MARINE CONSTRUCTION	98
BARGE	8
<b>SUBTOTAL</b>	<b>1,354</b>
<b>PORT OF WILMINGTON ADMINISTRATION*</b>	<b>67</b>
<b>TOTAL</b>	<b>2,203</b>

\*EXCLUDES ILA WAREHOUSE WORKERS HIRED BY THE PORT OF WILMINGTON

2.2 Direct Job Impacts by Commodity

Most of the 2,203 jobs considered to be generated by port activity can be related to the handling of specific commodities or commodity groups. Certain employment categories such as government employees, employees with marine construction and ship repair, and Diamond State Port Corporation employees cannot be identified with a specific commodity. As a result, employment in these three groups (which totaled 227 jobs) was not allocated to commodity groups.

Exhibit II-2 presents the relative employment impacts in terms of commodity groups. This exhibit indicates that the handling of containerized cargo generated the greatest number of direct

jobs (599 direct jobs), followed by imported breakbulk fresh fruit (539 direct jobs). The distribution of processing of import and export automobiles supported 291 direct jobs. For example, the majority of the direct jobs generated by the breakbulk fruit imports are held by truckers, followed by warehousing and the ILA. The majority of the jobs generated by the containerized cargo are with truckers, followed by members of the ILA discharging and loading the vessels, and warehousing and terminal jobs. The majority of the jobs generated by autos are with auto processors and trucking jobs.

Exhibit II-2  
Distribution of Direct Job Impact by Commodity

	FY 2011 DIRECT JOBS
<b>CONTAINERS</b>	599
<b>BREKBUK FRUIT</b>	539
<b>BREKBUK BEEF/LIVESTOCK</b>	12
<b>LUMBER/NEWSPRINT</b>	0
<b>BB JUICE</b>	31
<b>STEEL</b>	32
<b>AUTOS</b>	291
<b>SALT</b>	103
<b>PROJECT CARGO</b>	10
<b>OTHER DRY BULK</b>	243
<b>BULK OJ</b>	37
<b>PETROLEUM</b>	77
<b>NOT ALLOCATED</b>	<u>227</u>
<b>TOTAL</b>	<b>2,203</b>

### 2.3 Job Impacts Per Ton

The assessment of the job impacts on a per 1,000 ton basis provides a tool for port planners to use in evaluating the relative importance of different commodities as economic generators. Exhibit II-3 also presents the job impacts per 1,000 tons for each commodity moving via the Port of Wilmington's marine terminals.

As this exhibit indicates, project cargo holds the greatest number of direct jobs per 1,000 tons, followed by automobiles. Despite the large number of jobs generated by the movement of containerized cargo (primarily bananas) containers generate only .36 jobs per 1,000 tons moved.

Direct Job Impacts per 1,000 tons of Cargo

	DIRECT JOBS	TONS 1,000	JOBS/ 1,000 TONS
CONTAINERS	599	1,685	0.36
BREAKBULK FRUIT	539	212	2.54
BREAKBULK BEEF/LIVESTOCK	12	39	0.32
LUMBER/NEWSPRINT	0	0	N/A
BB JUICE	31	66	0.47
STEEL	32	82	0.39
AUTOS	291	87	3.35
SALT	103	245	0.42
PROJECT CARGO	10	3	3.42
OTHER DRY BULK	243	905	0.27
BULK OJ	37	49	0.76
PETROLEUM	77	1,063	0.07
NOT ALLOCATED	<u>227</u>	-	
<b>TOTAL</b>	<b>2,203</b>	<b>4,436</b>	

This relatively low job impact generated per 1,000 tons reflects the high productivity in handling containerized cargo at the Port of Wilmington, and the fact that the majority of the containers move out of the Port area -- only a small percentage of the containers are stripped prior to the final delivery. Autos generate a relatively large impact per 1,000 tons, reflecting the labor intensive processing function at the Port. Bulk cargoes such as other dry bulk cargoes and petroleum generate relatively small impacts per 1,000 tons, reflecting the less labor intensive handling process of bulk cargoes. It is to be emphasized that the impacts per 1,000 tons generated by dry bulk cargoes at the Port of Wilmington tend to be higher than at other ports for which Martin Associates has conducted similar studies, reflecting the fact that several of the receivers of the dry bulk cargo have terminal facilities and processing facilities on the Port terminal. Petroleum products generate the lowest job impact per 1,000 tons, due to relatively low labor intensive handling requirements -- pipelines are used to discharge the liquid bulk and the petroleum is shipped out by barge for bunkering activities and distributed locally by truck.

**3. DISTRIBUTION OF DIRECT JOBS BY PLACE OF RESIDENCE**

To underscore the geographic scope of the impacts generated by the Port of Wilmington's marine terminals, Exhibit II-4 presents the distribution of the 2,203 direct jobs by place of residency. The residency analysis is based on the results of the interviews. As this exhibit indicates, 36 percent of the direct jobs generated by activity at the Port of Wilmington's marine terminals are held by residents of New Castle County (excluding City of Wilmington), followed by residents of the City of Wilmington (32 percent). Nearly 11 percent of the direct jobs are held by residents of Pennsylvania, another 9.8 percent by residents of New Jersey, and 4 percent by residents of Maryland. Nearly 4 percent of the direct employees reside each in Kent and Sussex Counties.

Exhibit II-4  
Distribution of Direct Jobs by  
Place of Residency

	PERCENT	DIRECT JOBS
WILMINGTON	32.1%	708
NEWCASTLE COUNTY	36.1%	795
KENT COUNTY	3.6%	79
SUSSEX COUNTY	3.5%	77
PENNSYLVANIA	10.9%	239
MARYLAND	4.0%	89
NEW JERSEY	9.8%	216
<b>TOTAL</b>	<b>100.0%</b>	<b>2,203</b>

**4. INDUCED JOBS**

The 2,203 directly employed individuals due to activity at the Port of Wilmington's marine terminals received 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, 1,673 jobs in the regional economy were supported. The induced jobs are with local and regional social services; state and county government employees; business services and educational services; jobs with local construction and housing industry; jobs with restaurants and grocery stores; and health care.

**5. INDIRECT JOBS**

In addition to the induced jobs generated by the purchases of the 2,203 directly employed individuals, the **firms** providing the direct services and employing the 2,203 direct jobs make local purchases for goods and services. These purchases by the firms' dependent upon the Port of Wilmington's facilities generate additional local jobs -- indirect jobs. Based on interviews with the maritime community, an additional 444 indirect jobs were generated in the local economy as the result of \$52.6 million of **local purchases** by the firms directly dependent upon the Port of Wilmington's marine terminals.

**6. RELATED JOBS**

It is estimated that 12,556 jobs in the local area (Delaware, Pennsylvania, New Jersey and Maryland) are related to cargo moving via the Port of Wilmington's marine terminals. These jobs are with grocery and produce distributors and retailers handling the imported breakbulk fruit and containerized bananas; and importers and manufacturers receiving imported steel via the Port of

Wilmington's marine terminals. To estimate these related jobs, using U.S. Bureau of Economic Analysis RIMSII data, Martin Associates developed ratios of jobs to value of output for the relevant import consuming industries. For fruit and bananas the job multipliers for the retail sector were developed and applied to the gross margin of the value of the imported bananas and fruit moving via the Port of Wilmington. The values per ton of the relevant import commodities were estimated from data supplied to Martin Associates by the U.S. Maritime Administration, as well as breakbulk fruit importers, banana importers, and steel importers. These value per ton ratios were multiplied by relevant tons moving via the Port of Wilmington's marine terminals, to estimate the import cargo value. The relevant cargo values were multiplied by the jobs to value of input ratios for each relevant commodity to estimate related jobs. For steel imports, the relationship between the value of output in construction and the cost of materials for that industry were first developed from the US Bureau Census, Economic Census 2007. This ratio was then used to convert the value of steel imported via Wilmington in 2011 into the value of output produced in construction. The job multiplier for construction activity in the State of Delaware was then used to convert the steel import values into related jobs.

It is to be emphasized that these are related jobs, and would not likely disappear if the Port of Wilmington's marine terminals or the Delaware River were to close to marine cargo activity. Given a level of demand for the fruits, steel, and autos, the cargo would be imported through another port such as Philadelphia, Camden, Gloucester City, Baltimore, Norfolk or New York.

### **III. REVENUE, INCOME AND TAX IMPACTS**

The 4.4 million tons of cargo and related vessel activity in 2011 at the Diamond State Port Corporation's marine terminals generate revenue for firms providing cargo and vessel handling services. For example, revenue is received by the railroads and the trucking companies within the surface transportation sector as a result of moving export cargo to the marine terminals and distributing the imported commodities inland after receipt at the marine terminals. The firms in the maritime services sector receive revenue from arranging for transportation services, cargo handling, warehousing cargo, and providing services to vessels in port and repairs to vessels calling the Port facilities. The Diamond State Port Corporation receives revenue from terminal leases, handling charges and dockage and wharfage fees.

The revenue generated by port activity consists of many components. For example, gross revenue is used to pay employee salaries and taxes, it is 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 components 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 Wilmington region providing goods and services to the three sectors and for the distribution of company profits to shareholders.

Since it is difficult to trace all the components of the revenue beneficiaries, an estimate of revenue is developed, but no conclusions are formulated as to how the revenue (other than personal income, taxes and local purchases) is distributed, geographically. It is more accurate to trace the distribution of personal income (which is a subset of revenue) through the geographic locations of individuals receiving the income.

#### **1. TOTAL ECONOMIC ACTIVITY**

Marine cargo activity at the Port's terminals generated a total of \$2.0 billion of total economic activity in the region. Of the \$2.0 billion, \$337 million is the direct business revenue received by the firms directly dependent upon the Port's Marine Terminals and providing maritime services and inland transportation services to the cargo handled at the marine terminals and the vessels calling the terminals. The remaining \$1.7 billion represents the value of the output to the State that is created due to the cargo moving via the Diamond State Port Corporation's Marine 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 and final products that flow via the marine terminals and are consumed within the region.

The balance of the discussion focuses on the \$337 million of direct business revenue generated from the provision of services to the cargo and vessels.

## **2. DIRECT REVENUE IMPACT**

The maritime activity at the Port of Wilmington generated \$337 million of business revenue to the firms providing cargo handling and vessel services.

Included in the \$337 million revenue impact is \$89.1 million of direct personal earnings, \$52.6 million of local purchases by those firms directly dependent upon the Port of Wilmington's marine terminals. Also included are direct tax impacts. The \$52.6 million of local purchases were estimated from the interview results and used to estimate the indirect jobs described in the last chapter. The income and tax impacts are the subject of the last two sections of this chapter.

### **2.1 Revenue Impacts by Economic Sector and Impact Category**

Exhibit III-1 presents the total revenue estimated to have been generated by marine activity in 2011. This revenue includes the revenue received by firms providing services to the commodity and vessel activity at the marine terminals, and includes revenue received by trucking firms, stevedores, the Diamond State Port Corporation, warehouse operators, agents, pilots, towing companies, freight forwarders, etc. About 71 percent of the \$337 million revenue impact (\$238.1 million) is received by the firms in the marine services sector, of which marine construction, dredging and ship repairs received the majority, followed by firms providing terminal operations and warehousing services at the Port. The surface transportation sector received about 24 percent of the revenue impact, the majority of which is received by the trucking companies moving the cargo to and from the Port of Wilmington. The Diamond State Port Corporation received \$19.1 million, primarily from charges for wharfage, dockage, handling and other terminal operations, as well as leases.

Exhibit III-1  
Total Revenue Generated by  
Port Activity

	<b>REVENUE (\$1,000)</b>
<b>SURFACE TRANSPORTATION</b>	
RAIL	\$4,529
TRUCK	<u>\$75,375</u>
<b>SUBTOTAL</b>	<b>\$79,904</b>
<b>MARITIME SERVICES</b>	
TERMINAL EMPLOYEE	\$41,955
TOWING	\$2,407
PILOTS	\$9,988
AGENTS	\$879
SURVEYORS/CHANDLERS	\$4,860
FORWARDERS	\$26,400
WAREHOUSE&CONTAINER REPAIR	\$34,200
GOVERNMENT	NA
MARINE CONSTRUCTION	<u>\$117,378</u>
<b>SUBTOTAL</b>	<b>\$238,066</b>
<b>PORT OF WILMINGTON</b>	<b>\$19,070</b>
<b>TOTAL</b>	<b>\$337,040</b>

TOTALS MAY NOT ADD DUE TO ROUNDING

2.2 Direct Revenue Impacts by Commodity

Exhibit III-2 shows the total revenue impact by commodity and the revenue per ton. It is to be emphasized that the revenue received by shippers/consignees from the sales of the products and value of the commodities moving via the Port of Wilmington's marine terminals is not included, since product value is determined by the demand for the product, not the use of the Port of Wilmington's marine terminals. This value is included in the related revenue of \$1.7 billion.

Exhibit III-2  
Revenue Impacts by Commodity

	REVENUE \$1,000	TONS 1,000	REVENUE/ TON
CONTAINERS	\$66,519	1,685	\$39.48
BREKBULK FRUIT	\$58,525	212	\$276.06
BREKBULK BEEF/LIVESTOCK	\$1,375	39	\$35.27
LUMBER/NEWSPRINT	\$0	0	N/A
BB JUICE	\$7,131	66	\$108.05
STEEL	\$2,526	82	\$30.81
AUTOS	\$23,681	87	\$272.19
SALT	\$6,838	245	\$27.91
PROJECT CARGO	\$1,134	3	\$378.04
OTHER DRY BULK	\$17,731	905	\$19.59
BULK OJ	\$3,357	49	\$68.51
PETROLEUM	\$6,916	1,063	\$6.51
NOT ALLOCATED	<u>\$141,307</u>	-	
<b>TOTAL</b>	<b>\$337,040</b>	<b>4,436</b>	

The exhibit shows that:

- In terms of total revenue, containerized cargo generates the greatest revenue impact, followed by breakbulk fruit and automobiles;
- In terms of per ton revenue, project cargo and breakbulk fruit create the largest revenue impacts per ton, followed by the revenue per ton of automobiles; and
- Other dry bulk cargoes, bulk orange juice and petroleum products generate a small revenue per ton, which reflects the relatively low labor intensive vessel discharge and loading process of these cargoes.

### **3. PERSONAL EARNINGS IMPACT**

In the previous section of this chapter, the total revenue generated by port activity was identified. As described earlier, the personal income received by those directly dependent upon port activity is paid from the business revenue received by the firms supplying direct services at the Port of Wilmington's marine terminals.

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 \$89.1 million in personal wage and salary earnings. This represents an average annual earnings per employee of about \$40,430.

The impact of the re-spending of 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) for the Wilmington region. It is estimated that for every one dollar earned by direct employees generated by activity at the Port of Wilmington’s marine terminals, an additional \$2.35 of personal income and consumption expenditures would be created as a result of re-spending the income for purchases of goods and services produced locally. Hence, a personal earnings multiplier of 3.35 was used to estimate the induced income and consumption impact of \$209.2 million. This additional re-spending of the direct income generates the 1,673 induced job impact, described in the previous chapter. It is to be emphasized that the \$209.2 million of re-spending and consumption impact includes consumption expenditures by those directly employed, as well as salaries. Therefore, the \$209.2 million of re-spending and consumption impact cannot be divided by the 1,673 induced job holders to estimate an average induced salary, as this would result in an overestimation of induced wages and average salary income per induced job.

Those 444 indirect jobholders earned \$17.7 million of wages and salaries. Therefore, the total personal wage and salary impact is estimated at \$316 million.

The 12,556 related users earned \$456.4 million in wages and salaries.

#### 4. **TAX IMPACTS**

State and local tax impacts are based on per capita income tax indices which are developed for Delaware, Pennsylvania, Maryland and New Jersey residents. These state and local tax indices for each state were developed from the Tax Foundation, and reflect total state and local taxes paid per dollar of income for residents of each of the four states. The indices are then applied to the percent of income (direct, induced and indirect) created in each state, based on the residency of the direct employees.

Exhibit III-3  
State and Local Tax Impacts

STATES	TAXES (MILLIONS \$)
DELAWARE	\$23.6
PENNSYLVANIA	\$3.4
MARYLAND	\$1.3
NEW JERSEY	\$3.1
<b>TOTAL</b>	<b>\$31.4</b>

As this exhibit indicates, activity at the Port of Wilmington’s marine terminals generated \$31.4 million of state, county and local taxes. Of this \$31.4 million of taxes collected, \$23.6 million were collected by the State of Delaware and county and local governments within Delaware. The Commonwealth of Pennsylvania received \$3.4 million of state and local tax receipts due to Port activity at Wilmington, while the State of New Jersey and local jurisdictions within the state received \$3.1 million of state and local tax revenues due to maritime activity at the Port of

Wilmington. The remaining \$1.3 million was received by Maryland and local jurisdictions and counties within Maryland.

## **IV. COMPARISON OF ECONOMIC IMPACTS 2000-2006**

This chapter compares the economic impacts generated by seaport activity at the Port of Wilmington in 2006 and 2011. The methodology used by Martin Associates to estimate the economic impacts generated by seaport activity in 2006 is, for the most part, the same as the methodology used to measure the current 2011 economic impacts.

The 2011 economic impacts are based upon the baseline economic impact model generated for the Diamond State Port Corporation in 2006 and updated using the current fiscal year 2011 tonnages at the Port of Wilmington.

The focus on the comparisons should be on the direct job impacts, since the same methodology to measure the direct impacts was used both in estimating the impacts in 2006 and in this current study.

### **1. COMPARISON OF TONNAGE**

Tonnage handled at the Port of Wilmington fell by about 106,800 tons between 2006 and 2011. Exhibit IV-1 compares the tonnage levels in the two study years.

Exhibit IV-1  
Comparison of Tonnage

	TONS (1,000) FY2011	TONS (1,000) 2006	CHANGE 1,000 TONS
<b>CONTAINERS</b>	1,685.0	1,570.4	114.6
<b>BREKBUK FRUIT</b>	212.0	304.8	(92.8)
<b>BREKBUK BEEF/LIVE</b>	39.0	53.9	(14.9)
<b>LUMBER/NEWSPRINT</b>	0.0	154.1	(154.1)
<b>BB JUICE</b>	66.0	95.1	(29.1)
<b>STEEL</b>	82.0	133.9	(51.9)
<b>AUTOS</b>	87.0	187.3	(100.3)
<b>SALT</b>	245.0	117.0	128.0
<b>PROJECT CARGO</b>	3.0	-	3.0
<b>OTHER DRY BULK</b>	905.0	491.0	414.0
<b>BULK OJ</b>	49.0	39.3	9.7
<b>PETROLEUM</b>	<u>1,063.0</u>	<u>1,396.0</u>	<u>(333.0)</u>
<b>TOTAL</b>	<b>4,436.0</b>	<b>4,542.8</b>	<b>(106.8)</b>

While tonnage fell for most cargo, containerized cargo increased by 114,600 tons, salt increased by 128,000 tons and other dry bulk commodities increased by 414,000 tons, reflecting an increase in pet coke at the Port of Wilmington.

These changes in tonnage levels will have direct impacts on the level of jobs, personal

income, business revenue and state and local taxes generated by the Port of Wilmington.

## 2. COMPARISON OF ECONOMIC IMPACTS

Exhibit IV-2 compares the impacts generated by cargo and vessel activity between 2006 and 2011.

Exhibit IV-2  
Comparison of Economic Impacts

	FY2011 IMPACTS	2006 IMPACTS	CHANGE
<b>JOBS</b>			
DIRECT	2,203	2,295	(92)
INDUCED	1,673	1,766	(93)
INDIRECT	444	539	(95)
<b>TOTAL</b>	<b>4,321</b>	<b>4,601</b>	<b>(279)</b>
<b>PERSONAL INCOME (\$1,000)</b>			
DIRECT	\$89,057	\$93,856	(\$4,799)
RE-SPENDING/LOCAL CONSUMPTION	\$209,178	\$191,700	\$17,478
INDIRECT	\$17,736	\$21,529	(\$3,793)
<b>TOTAL</b>	<b>\$315,972</b>	<b>\$307,085</b>	<b>\$8,887</b>
<b>BUSINESS REVENUE (\$1,000)</b>	<b>\$337,040</b>	<b>\$409,112</b>	<b>(\$72,072)</b>
<b>STATE AND LOCAL TAXES (\$1,000)</b>	<b>\$31,361</b>	<b>\$28,650</b>	<b>\$2,711</b>
<b>LOCAL PURCHASES (\$1,000)</b>	<b>\$52,615</b>	<b>\$63,866</b>	<b>(\$11,251)</b>
<b>RELATED JOBS</b>	<b>12,556</b>	<b>14,660</b>	<b>(2,104)</b>

This tonnage loss has resulted in a decline in the direct economic impacts generated by the cargo activity at the Port of Wilmington, as direct jobs fell by 92 jobs over the 5 year period. For the most part, the same methodology was used to measure the Port's contribution in 2006 and 2011. Revenue decreased by \$72 million over the period, and local purchases by port tenants and service providers fell by \$11.3 million, resulting in a reduction in indirect jobs. Also, the reduced number of indirect jobs reflects an increase in productivity in the sectors of the state economy that provide the goods and services. This growth in productivity results in fewer indirect jobs being generated for a given level of dollar purchases in 2011 as compared to 2006. Direct personal income fell by nearly \$4.8 million as the result of the decrease in the average salary earned by the direct workers.

## 3. COMPARISON OF DIRECT JOB IMPACTS BY COMMODITY

Exhibit IV-3 compares the direct jobs generated by commodity in 2006 and 2011.

Exhibit IV-3  
Comparison of Direct Job Impacts by Commodity

	FY 2011 DIRECT JOBS	2006 DIRECT JOBS	CHANGE
<b>CONTAINERS</b>	599	486	113
<b>BREKBUK FRUIT</b>	539	630	(91)
<b>BREKBUK BEEF/LIVESTOCK</b>	12	43	(31)
<b>LUMBER/NEWSPRINT</b>	0	68	(68)
<b>BB JUICE</b>	31	41	(10)
<b>STEEL</b>	32	47	(15)
<b>AUTOS</b>	291	359	(68)
<b>SALT</b>	103	58	45
<b>PROJECT CARGO</b>	10	-	10
<b>OTHER DRY BULK</b>	243	170	73
<b>BULK OJ</b>	37	32	5
<b>PETROLEUM</b>	77	93	(16)
<b>NOT ALLOCATED</b>	<u>227</u>	<u>268</u>	<u>(41)</u>
<b>TOTAL</b>	<b>2,203</b>	<b>2,295</b>	<b>(92)</b>

The key changes in jobs generated by commodity reflect the changes in tonnage and the loss of lumber/newsprint (68 job loss). Jobs with containerized cargo grew by 113 jobs, reflecting the growth in containerized cargo, and a 73 job increase in other dry bulk commodities, as a result of the growth in pet coke handled at the Port. There was also a 91 job loss with breakbulk fruit, and a 68 job loss with autos, as a greater share of autos are now exported via the Port, and the export autos require less processing (and labor) than imports. The loss of frozen beef tonnage also explains the loss in direct jobs generated by frozen beef and livestock exports, as does the loss of petroleum products tonnage.