THE 2017 ECONOMIC IMPACT OF THE PORT OF BALTIMORE IN MARYLAND

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MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

Maryland Port Administration

Inter-Office Memorandum

TO: File

DATE: October 22, 2018

SUBJECT: MPA comments concerning the Study of Economic Impacts of Port of Baltimore in 2017, by Martin Associates

The MPA commends the excellent work by Martin Associates in completing a comprehensive report of the economic impacts of Port of Baltimore's cargo activity in 2017. The report is dated October 15, 2018, and it also includes the prior activity associated with the Port's cruise business. (A comprehensive report of the cruise impacts was not undertaken because cruise activity has been stable since the prior report.)

There are two features in the current report that the MPA chooses not to use: induced and indirect *related* jobs and the total economic activity measure that includes the *related* jobs. Although other ports may use these attributes, the MPA elects not to include them when highlighting the Port's impacts on the regional economy for the following reasons:

- The related impacts measure the jobs, personal income, and associated state and local taxes that occur at each stage of production of exports or consumption/use of imported cargo. This includes induced and indirect related jobs that are supported by the direct related jobs. The report's inclusion of total related jobs provides a very comprehensive but overly broad view of the economic impact of the cargo moving via the Port of Baltimore. Upon further consideration of the report, the *induced and indirect related* jobs are not consider sufficiently linked to Port activity to be included by the MPA when it reports the economic impacts of the Port of Baltimore.

- The Port "total economic activity" should focus on the direct, induced and indirect jobs generated by maritime activity. The comprehensive study includes the total economic activity of all the related jobs also. It is believed that these are too peripheral to be counted.

It should be noted that this report of economic impacts is a "snap shot in time" of the Port's waterborne cargo and cruise activity in 2017. The Port's cargo volumes and overall activity in 2018 continue an upward trend.

Attached is a summary of the economic impacts to the State of Maryland from activity at the Port of Baltimore during 2017.

MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND PORT ADMINISTRATION

ECONOMIC IMPACTS GENERATED BY THE PORT OF BALTIMORE

Periodically, the Maryland Port Administration updates the economic impacts of the Port of Baltimore on the State of Maryland. The economic impacts measured for cargo and cruise activity are as follows: (2017 data)

- **Approximately 37,300 jobs in Maryland are generated by port activity.**
  - **15,330** are **direct jobs** generated by cargo and vessel activities at the Port. Examples include jobs with railroads, trucking companies, terminal operators, cargo handling (International Longshoreman Association), manufacturing, security agencies, towing, pilots, ocean carriers, agents, freight forwarders, Customs and Border Protection, Coast Guard, etc.
  - **16,780** are **induced jobs**, i.e. jobs supported by the local purchases of goods and services by direct employees. These jobs would be lost in the short term if the direct jobs were lost. Examples include sales clerks, mechanics, teachers, dry cleaners, restaurateurs, coffeeshop owners, tutors, government employees, dentists, etc.
  - **5,190** are **indirect jobs**, i.e. jobs supported by the business purchases of the employers who create the direct jobs. These jobs, too, would be lost in the short term if the direct jobs were lost. Examples include those who provide office supplies and equipment, utilities, communications, repair, legal, architectural, engineering and financial services, etc.

- **The Port of Baltimore is a major source of personal and business revenues in the State of Maryland**.
  - The Port was responsible **for $3.3 billion in personal income**.
  - The Port's average annual salary for the direct job holder is **9.5% higher** than the average annual wage for the State of Maryland, (as reported by the U.S. Bureau of Labor Statistics).
  - The Port generated **$2.6 billion in business revenues**.
  - Activities of the Port generated **$395 million in state, county and municipal tax revenues**.

- **Approximately 101,880** other jobs in Maryland are directly **related to activities at the Port**. Related jobs are those jobs with Maryland companies that chose to import and export their cargo through the Port of Baltimore, but they have the option of shipping their products or supplies (e.g. containerized items, autos or steel products for construction) through other ports. These companies (e.g. manufacturing firms, distributers, coal mines, automobile dealers, etc.) benefit from having a healthy port nearby in Baltimore to assist their logistics. If the Port of Baltimore were not available to them, these firms could suffer an economic penalty over the longer term but would likely survive by shipping through another port. Note: Although the number of related jobs is high, this category of impact is much less dependent upon the Port than the impacts that are generated by the direct, induced and indirect jobs.

- Combining direct, induced and indirect jobs with related jobs, there are over **139,180 jobs linked to the Port**.

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EXECUTIVE SUMMARY

The Port of Baltimore is a 50 foot deep-water port located on the Chesapeake Bay and consists of public marine terminals owned by the Maryland Port Administration (MPA) as well as private marine terminals. The public marine terminals include Seagirt Marine Terminal, Dundalk Marine Terminal, South Locust Point Marine Terminal, North Locust Point Marine Terminal, Hawkins Point and the Masonville/Fairfield Terminal area. These terminals handle general cargo commodities including containerized cargo, automobiles and other roll-on/roll-off cargo, forest products and other break bulk cargoes, such as iron and steel and palletized cargo. A variety of bulk commodities are handled at MPA's Hawkins Point and North Locust Point Marine Terminals. The private marine terminals include Curtis Bay Coal and Ore Pier, Consolidation Coal Pier, Chesapeake Terminal, Atlantic Terminal, Rukert Terminals Corporation and Canton Marine Terminal in addition to several others. Most of the private terminals handle bulk cargoes, steel and metals, and a small amount of containerized cargo and break bulk cargo including steel, pulp and miscellaneous cargo, while Chesapeake and Atlantic Terminals handle automobiles. In 2017, these public and private marine terminals in the Baltimore Port District handled 44.6 million tons of international and domestic cargo for exporters and importers located within the State of Maryland, as well as throughout the United States. It is the purpose of this study to quantify the economic impacts generated by the cargo and vessel activity at these marine terminals.

In addition to the economic impacts generated by cargo activity handled at the public and private marine terminals at the Port of Baltimore, the Maryland Port Administration has developed a successful cruise business since the opening of the Cruise Maryland Terminal in 2006. The Port is currently served by two of the world's top cruise lines: Carnival and Royal Caribbean on a year-round basis for service to such destinations as Bermuda, the Bahamas and the Caribbean Islands. In 2017, the Port of Baltimore was home to 86 homeport cruises and 10 port of call cruises. A total of 195,743 passengers embarked on these 86 homeport cruises, while 14,879 passengers arrived on port of call cruises. The impact of these cruises was estimated as part of this economic impact study and are included with the 2017 cargo generated economic impacts in this Executive Summary. However, the remainder of this report focuses only on the Port's cargo economic impacts during 2017.

Exhibit 1
Summary of the Economic Impacts of the Port of Baltimore

	MPA TERMINALS	PRIVATE TERMINALS	TOTAL CARGO	CRUISE	TOTAL WITH CRUISE
JOBS					
DIRECT	8,717	6,402	15,119	209	15,329
INDUCED	9,963	6,729	16,692	88	16,780
INDIRECT	2,945	2,163	5,107	81	5,188
TOTAL	21,625	15,293	36,919	378	37,297
PERSONAL INCOME (MILLIONS $)					
DIRECT	$574.5	$378.7	$953.2	$8.0	$961.2
RE-SPENDING/LOCAL CONSUMPTION	$1,272.3	$838.8	$2,111.2	$6.3	$2,117.5
INDIRECT	$144.1	$105.8	$250.0	$2.7	$252.7
TOTAL	$1,990.9	$1,323.4	$3,314.4	$17.0	$3,331.4
BUSINESS REVENUE (MILLIONS $)	$1,138.0	$1,371.7	$2,509.8	$62.2	$2,571.9
LOCAL PURCHASES (MILLIONS $)	$348.8	$256.1	$604.9	$5.0	$609.9
STATE & LOCAL TAXES (MILLIONS $)	$229.6	$162.8	$392.4	$2.8	$395.2
RELATED USER IMPACTS IN-STATE					
RELATED IMPACTS					
JOBS					
DIRECT	98,385	3,494	101,880	NA	101,880
INDUCED/INDIRECT	142,919	5,076	147,995	NA	147,995
TOTAL	241,304	8,571	249,875	NA	249,875
PERSONAL INCOME/WAGES (MILLIONS $)					
DIRECT	$5,694.6	$173.3	$5,867.9	NA	$5,867.9
INDUCED/INDIRECT	$7,118.2	$216.7	$7,334.9	NA	$7,334.9
TOTAL	$12,812.7	$390.0	$13,202.7	NA	$13,202.7
[This shaded section is not considered by MPA; see Memo to File, dated October 22, 2018]					
BUSINESS REVENUE/VALUE OF OUTPUT (MILLIONS $)					
DIRECT	$28,516.4	$423.1	$28,939.4	NA	$28,939.4
INDUCED/INDIRECT	$28,231.2	$418.8	$28,650.0	NA	$28,650.0
TOTAL	$56,747.6	$841.9	$57,589.5	NA	$57,589.5
STATE/LOCAL TAXES (MILLIONS $)					
DIRECT	$603.6	$18.4	$622.0	NA	$622.0
INDUCED/INDIRECT	$754.5	$23.0	$777.5	NA	$777.5
TOTAL	$1,358.2	$41.3	$1,399.5	NA	$1,399.5

Totals may not add due to rounding.

In 2017, cargo and cruise activity at the public and private marine terminals at the Port of Baltimore generated 37,297 direct, induced and indirect jobs:

- 15,329 are **direct** jobs. These jobs are generated by activities at the Port, and if such activities should cease, the jobs would be discontinued over the short term. It is these jobs that are most directly dependent upon the Port of Baltimore. The direct jobs are with the International Longshoremen's Association, terminal operators, stevedores, trucking firms, railroads, steamship agents, freight forwarders and customhouse brokers, warehousemen, federal and state government agencies, towing companies, pilot organizations, marine construction

companies, chandlers, etc. The majority, about 60 percent, of the direct jobs are held by residents of the City of Baltimore and Baltimore County.

- 16,780 are **induced** jobs, or those jobs supporting the local purchases made by the 15,329 individuals holding the direct jobs due to port activity. Should the direct jobs be lost from the economy, the induced jobs supported by the purchases of the direct jobs would also be lost. Jobs with local grocery stores, retail outlets, restaurants, transportation services, local government services, schools and hospitals are examples of induced jobs.

- The firms' dependent upon the Port of Baltimore made $609.9 million of local purchases for office supplies, equipment, utilities, communications, maintenance and repair services, transportation services, professional services and goods and services. These purchases supported 5,188 **indirect** jobs in the Maryland economy.

- In addition to the direct, induced and indirect job impacts, the port activity supports 249,875 jobs within the state that are **related** to the Port of Baltimore. Of these 249,875 related jobs, 101,880 jobs are directly related to the cargo moving via the Port of Baltimore, while the balance, 147,995 jobs, are indirect and induced related jobs. The direct related jobs are held by employees of the firms exporting and importing cargo through the Port of Baltimore and include such varied entities as manufacturing firms, coal mines, and automobile dealers. In addition, the related jobs include the induced and indirect jobs created at each level of production that are related to an imported product (through the Port of Baltimore) used as an intermediate input in a manufacturing activity, as well as the jobs created at each level of activity to produce an export product moved via the Port of Baltimore. For consumer imports, the related jobs include all jobs and economic activity that are required to the point of final sale. These jobs are considered to be **related** to activities at the Port, but the degree of dependence on the Port is difficult to estimate and should not be considered as dependent on the Port as are the direct, induced and indirect jobs. If the Port of Baltimore were not available to these organizations, they would suffer an economic penalty over the longer term. Such a penalty would vary from a loss of employment opportunities in some cases to an increase in total transportation costs in other cases, which could, in turn, result in employment reductions and corporate relocations.

Port activity generated $3,331.4 million in personal wage and salary income for Maryland residents.

- The individual annual earnings in each category multiplied by the corresponding number of employees resulted in $961.2 million in personal income, for an average annual salary of about $62,708 per year for each job directly generated by maritime cargo and cruise activity at the Port of Baltimore.[1] The Port has over 300 years of longevity, provides employment

[1] The average salary generated by cargo activity is $63,047, or 10.0 percent higher than the average state-wide salary in 2017.

opportunities for a wide range of skill levels, and it is noteworthy that this average annual salary is 9.5 percent higher than the 2017 average annual wage for the State of Maryland, $57,270, as reported by the U.S. Bureau of Labor Statistics.

- As a result of the multiplier effects of using a portion of this income for local purchases, $2,117.5 million in induced income and local consumption expenditures were created in the state.[2]

- The 5,188 indirectly employed received $252.7 million of indirect income. It is to be noted that these are full time equivalent indirect employees.

Businesses providing maritime services at the Port of Baltimore received $2,571.9 million of revenue.

- The $2,571.9 million of revenue received by the businesses providing the services at the Port does not include the value of the cargo moving over the marine terminals, since the value of the cargo is determined by the demand for the cargo, not the use of the Port of Baltimore. It is to be emphasized that only the portion of the revenue paid out in direct salaries, in state and local taxes, and for local purchases can be identified as a "Maryland impact".

- Of the $2,571.9 million, $961.2 million was paid out in terms of direct salaries to the Maryland residents employed by these firms.

- A total of $609.9 million of in-state purchases were made by the firms directly dependent on the Port of Baltimore. These expenditures supported the 5,188 indirect jobs.

A total of $395.2 million of state and local tax revenue was generated by port activity in 2017.

In total, the economic value of the Port of Baltimore to the State of Maryland is $4,689.4 million, which includes the direct business revenue and the re-spending/local consumption impact. These two dollar values are independent of each other an hence can be added together to represent a total economic value to the State.

[2] The multiplier effect represents the spending of a portion of the direct income earned by each directly created job for purchases of goods and services. A portion of these purchases are used to pay the employees providing the goods and services, while the other portion of the purchases are for the value of the goods and services provided less than the income paid to the induced employees. The total effect of the re-spending or multiplier impact is $2,117.5 million. This total re-spending impact includes the induced income component received by the induced job holders providing the goods and services, as well as the value of the goods and services provided at the various levels of re-spending. Therefore, the total re-spending impact cannot be divided by induced jobs to estimate induced salary, as this would be an overestimate of personal income as it also includes the value of the purchases (less the income paid to the induced job holders).

In addition to the direct, induced and indirect impacts, cargo moving via the Port of Baltimore in 2017 generated $57,589.5 million of ***related*** economic activity. This represents the value of the output to the State of Maryland that is created due to the cargo moving via the Port of Baltimore's public and private 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 products that flow via the marine terminals and are consumed within the state. Also included is the revenue generated at each stage of delivery of a consumer import (via the Port) to the final sale. Of the $57,589.5 million of related economic activity, $28,939.4 million was directly received by the importers and exporters, while the balance was used for the purchase of support goods and services. The majority of these user impacts are associated with imported containerized cargo via the Maryland Port Administration marine terminals. The 249,875 related direct, induced and indirect users of the Port of Baltimore received $13,202.7 million of total wages and salaries. Finally, the cargo activity at the Port of Baltimore generated $1,399.5 million of state and local taxes with the related users.

When the related impacts are included, the total economic value of the Port of Baltimore's marine cargo and cruise operations is estimated at $62,278.9 million. The $62,278.9 million is a measure of the economic value of the marine cargo and cruise vessel activity at a given point in time, 2017, and consists of the direct business revenue impact generated by marine cargo and cruise activity the public and private terminals, $2,571.9 million, plus the related economic value of the cargo activity, $57,589.5 million, and the induced/re-spending impact generated by the marine cargo activity at the public and private terminals and the cruise activity, $2,117.5 million. These components exclude double counting and represent the total economic value of the cargo activity at the Port of Baltimore public and private marine terminals.

Comparison of Cargo Generated Economic Impacts – 2014-2017

The last economic impact study conducted for the Port of Baltimore was conducted by Martin Associates in 2014. Since the last study, cargo activity at the public and private marine terminals has increased by 9.8 million tons. This increase in tons reflects the growth in coal exports (6.3 million tons), containerized cargo (1.4 million tons), and other liquid bulk cargo (2.5 million tons) which also includes the LNG exports estimated at Cove Point, MD. During that same period, cruise passenger activity remained nearly constant, and therefore is not included in the comparisons.

As a result of the growth in cargo activity at the Port of Baltimore's public and private marine terminals, total direct, induced and indirect jobs generated by the marine cargo activity increased by 3,442 jobs, business revenue grew by $386.6 million, local purchases increased by $85.2 million and state and local taxes increased by $85.2 million over the 2014 levels. Of the 3,442 increased total jobs, 778 of this job increase was driven by the growth of activity at the marine terminals owned and leased by the Maryland Port Administration.

I. OVERVIEW OF THE ANALYSIS AND SUMMARY OF METHODOLOGY – MARINE CARGO

Martin Associates was retained by the Maryland Port Administration to update the Economic Impact Study of the Port of Baltimore conducted in 2014. For the most part, this update uses the same methodology and impact definitions as the 2014 study, and, hence, the results are directly comparable to the earlier study.[3] Furthermore, a computer model specific to the Port of Baltimore has been prepared which can be used in evaluating incremental impacts resulting from changes in tonnage, labor productivity, labor work rules, commodity mix, inland origins/destinations of commodities and vessel size. In addition, the model will be useful in:

- Projecting the impacts of the recruitment of a new ocean carrier or a new shipper or consignee to the Port of Baltimore;
- Evaluating potential investments in port facilities; and
- Preparing annual reports on the economic impacts of the Port.

The methodology used in this analysis has been developed by Martin Associates and used to estimate the economic impacts of seaport activity at the majority of the seaports in the United States and Canada.

This chapter presents an overview of the economic impact analysis by defining the following:

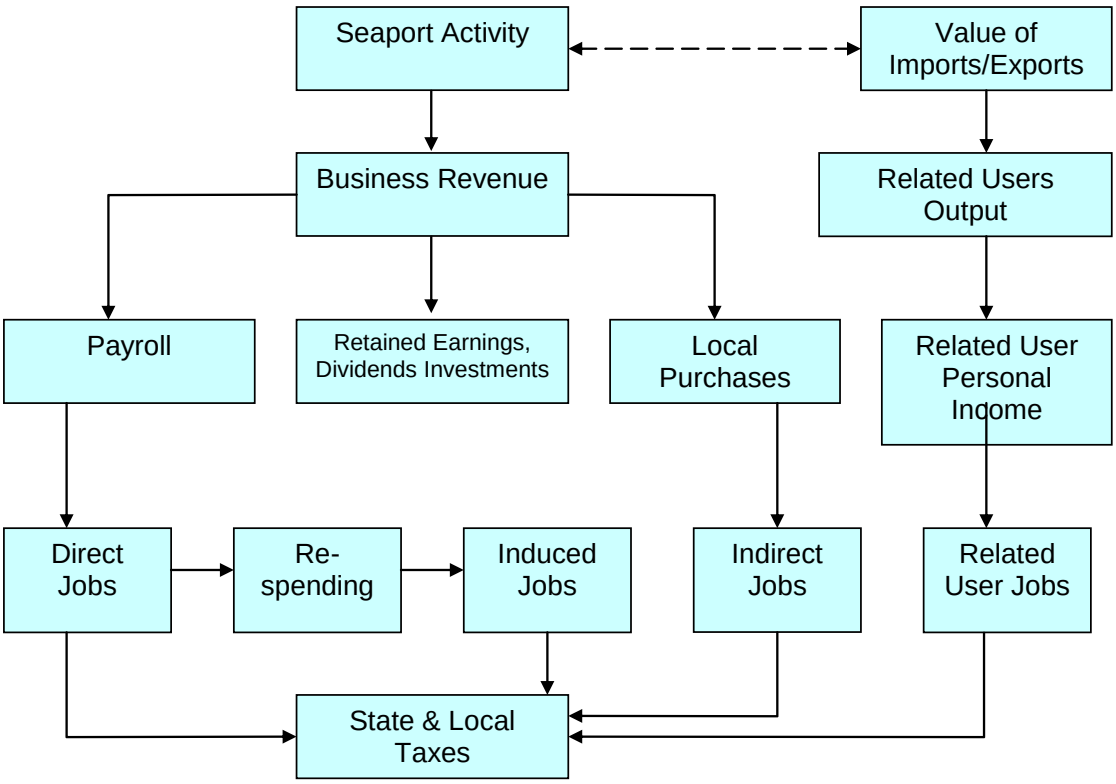
- The types of economic impacts estimated;
- The four economic sectors for which impacts have been estimated;
- The commodities/commodity types for which impacts have been estimated; and
- A summary of the data sources used in the analysis is presented.

1. ECONOMIC IMPACT STRUCTURE

A deep-water port such as Baltimore contributes to the local, regional and national economies by providing employment and income to individuals, tax revenues to local and state governments and revenue to businesses engaged in handling, shipping and receiving cargo via the seaport. Exhibit I-1 shows the flow of economic impacts created by seaport activity at the public and private marine terminals at the Port of Baltimore.

[3] The Local and Regional Economic Impacts of the Port of Baltimore, 2014, prepared for the Maryland Port Administration, July 30, 2015.

Exhibit I-1
Flow of Economic Activity Created by the Port of Baltimore



Activity at a seaport (i.e., manufacturing, the handling of cargo and the servicing of vessels) initially creates business revenue to firms providing those cargo handling and vessel services.

This revenue is in turn used for several purposes:

- To hire employees to provide the services;
- To pay stockholders dividends, retire debt, and invest;
- To buy goods from other firms; and
- To pay federal, state, and local taxes.

The hiring of employees generates personal income. This personal income is spent throughout the state, local and national economies to purchase goods and services. This re-spending of income is known as the multiplier effect, which in turn creates induced jobs throughout the economy. Finally, federal, state and local taxes are paid by those directly employed in port activity, as well as the induced and indirect jobs holders.

The flow of economic impacts throughout an economy creates four separate and non-additive types of impacts. These four types of impacts are described below.

1.1 Employment Impact

The employment impact consists of direct jobs, induced jobs, indirect jobs and related jobs. The servicing of the vessels, the handling of cargo and manufacturing at the Port generates the direct employment impact. These direct jobs would not exist in the absence of cargo and vessel activity at the Port. The induced jobs are supported by the purchases of goods and services by those directly employed, and would also cease to exist if the direct jobs were discontinued. Hence, the induced jobs are dependent upon the direct jobs and the associated level of wages and salaries, as well as the resulting local purchases made by those directly employed (direct jobs) by activity at the Port of Baltimore.

In addition to the direct and induced jobs, another type of employment impact supported by seaport activity is the indirect job impact. These indirect jobs are generated in the local economy by the purchases of goods and services by the firms, which provide the direct jobs. For this study, indirect jobs are estimated based on the regional re-spending patterns of the firms providing the vessel and cargo handling services at the Port of Baltimore, and by the shippers/consignees directly dependent upon the Port for the shipment and receipt of cargo.

The last component of the employment impact is the related job impact. Related jobs are jobs with shippers/consignees using the Port of Baltimore for the export and import of cargo. However, these shippers/consignees also can and do use other ports and are not completely dependent upon the Port of Baltimore. The level of employment with these firms is driven by the demand for the firms' products, not because the Port of Baltimore is used. Therefore, these related jobs are not dependent upon port activity, and their degree of dependence on the Port of Baltimore is much less than the other components of the job impact.[4]

1.2 Personal Income Impact

Personal income impact is derived from three sources. First, personal income impact is the measurement of the wages and salaries generated by port activity and paid to those holding the direct jobs. As the result of local purchases by the direct employees who received the wages and salaries, a re-spending effect also occurs in the local economy. This personal income multiplier effect, which is also included in the measurement of the personal income impact, generates the induced jobs. An indirect income impact is estimated as part of this study in order to capture the wage and salary income received by those indirectly employed due to the local purchases by the firms' dependent upon the Port of Baltimore. An estimate is also developed for the wages and salaries received by the related users.

[4]The related jobs, income, value of output and taxes should not be used when evaluating the incremental economic impacts of specific port projects or the impacts of changes in cargo volume.

1.3 Revenue Impact

The business revenue impact measures the sales generated by firms engaged in handling and transporting cargo through the Port of Baltimore. This impact includes national, as well as, local and state revenue. The value of shipments through the Port is not included as a revenue impact for the purposes of this analysis because the value of a particular commodity shipped or received via the Port of Baltimore is determined by the demand for that particular commodity, not by the fact that the commodity moves via the Port of Baltimore. A portion of this revenue generated by providing vessel services and cargo handling services at the Port is then used to pay wages and salaries to those holding the direct jobs and to purchase goods and services to support port activity.

A measure of the total value of economic activity created in the state by cargo moving via the Port is developed to demonstrate the magnitude of the value of the economic activity supported by cargo moving via the Port.

1.4 Tax Impacts

The tax impacts measure the state and local tax revenues generated by port activity. These are taxes paid by both corporations and those holding the direct, induced, indirect and related jobs. The tax revenue impacts include the following types of taxes:

- State taxes, including personal and corporate income tax, state sales and use taxes, motor fuel tax, vehicle registration tax, property tax, property transfer tax, shellfish tax, recordation tax, death tax, horse racing tax, telecommunication tax and miscellaneous taxes;
- County taxes, including property and income taxes, as well as licensing and permit taxes;
- Municipal taxes, including the local share of the income tax and property tax;
- State and local taxes created by the related use activity are also quantified; and
- Federal taxes are not included, since the purpose of this report is to estimate the local and regional economic impacts of maritime activity at public and private facilities at the Port of Baltimore.

2. ECONOMIC IMPACT SECTOR ANALYSIS

Shipments through the Port of Baltimore generate economic impacts in various business sectors of the state and local economy. Specifically, four distinct economic sectors are involved in activity at the Port of Baltimore. These are the:

- Surface Transportation Sector;
- Maritime Service Sector;
- Shippers/Consignees using the port; and
- Maryland Port Administration.

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.

2.1 The Surface Transportation Sector

The surface transportation sector consists of both the railroad and trucking industries. These sectors are responsible for moving the various cargoes between the Port and their inland origins and destinations. Two mainline railroads serve the Port of Baltimore.

Many local and national trucking firms serve the Port of Baltimore, as do numerous individual owner-operators. The trucking industry's major involvement is in moving general cargo commodities, primarily automobiles, break bulk cargo and containerized cargo. In addition, the trucking industry plays a major role in the distribution of other dry bulk commodities, such as sugar, salt, fertilizer, ores, liquid bulk commodities, and petroleum products.

2.2 The Maritime Service Sector

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

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

A brief description of the major participants in each of these 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 through the Port of Baltimore. 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 Port 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. For bulk cargo, arrangements are usually made by the shipper/receiver, and the cargo passes over privately owned terminals.

- **Vessel Operations and Support Services** - This category consists of several participants. The steamship agents and land-side steamship line personnel based in the port city provide a number of services for the vessel as soon as it enters the Port. For example, the agents and land-side steamship line personnel arrange for pilot services and towing, for medical and dental care of the crew, and for ship supplies. The agents and land-side steamship line personnel are also responsible for vessel documentation. Land-side steamship line personnel are also often involved in marketing the ocean carrier's services and overseeing vessel and terminal operations while the vessel is in port. In addition to the steamship agents and steamship line personnel based in the port city, other participants providing vessel services include:

  - ***Chandlers*** - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);
  - ***Towing firms and pilots*** - the towing firms provide the tug service to guide the vessel to and from port while the pilots assist in navigating the vessels along the Chesapeake Bay, the Chesapeake & Delaware Canal and the harbor channels;
  - ***Barge/tug operators*** - provide the towing services to domestic and international cargo moving to and from the Port of Baltimore, primarily on the Chesapeake Bay and along the Chesapeake & Delaware Canal;
  - ***Bunkering firms*** - provide fuel to the vessels;
  - ***Marine surveyors*** - inspect the vessels and the cargo;
  - ***Launch services*** - provide transportation for the crew between land and vessel;
  - ***Chemical testing services*** - test cargo, such as coal, for proper chemical composition, water content, etc.; and
  - ***Shipyards/marine construction firms*** - provide repairs, either emergency or scheduled, as well as marine pier construction and dredging. Also included in this category are one-time impacts generated by the construction of new marine facilities, as well as on-going maintenance.

- **Cargo Handling** - This category involves the physical handling of the cargo at the Port 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. Private terminals, such as

those handling dry bulk cargoes, typically do not use members of the International Longshoremen's Association, but instead use other union labor or non-union labor[5];

- ***Stevedoring firms*** – employ and manage the longshoremen and cargo-handling activities;
- ***Terminal operators*** - are often stevedoring firms who operate the maritime terminals where cargo is loaded and off-loaded. Terminal operators include those leasing facilities from the Maryland Port Administration, as well as those operating private terminals;
- ***Warehouse operators*** - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots;
- ***Container leasing and repair firms*** - provide containers to steamship lines and shippers/consignees and repair damaged containers;
- ***Freight consolidators*** - consolidate containerized cargo as well as full containers in order to achieve favorable transportation rates for their customers; and
- ***Automobile service/processing firms*** - service new automobiles after they are off-loaded from the vessels and process autos for export. These processors are sometimes terminal operators, as well. The processors also prepare RoRo cargo such as farm equipment and construction equipment prior to export and after import receipt.

- **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 and Border Protection, Bureau of Immigration, U.S. Department of Labor, U.S. Department of Agriculture, and U.S. Department of Commerce employees are involved. In addition, both civilian and military personnel with the U.S. Coast Guard and the U.S. Army Corps of Engineers have been included. Finally, the marine portions of the City police and fire departments are part of this category.

2.3 Shippers/Consignees

Two categories of shippers and consignees are considered in the analysis: those that are totally dependent on the Port of Baltimore and located in proximity to the Port with private marine terminals and those located throughout the State of Maryland and other states whose business is only related to the Port of Baltimore. Those in the first category would most likely shut down operations if the Port of Baltimore were not available for their use, while those in the second category would ship or receive materials via another port. Dependent shippers/consignees include such employers as National Gypsum and Domino Sugar. These companies rely on the use of their marine terminals to receive and ship cargo for use in the manufacturing activities. Because of this difference, employment with shippers/consignees dependent upon the Port is counted in the direct employment. Employment with shippers/consignees in the second category is considered port-related, and not included in the direct job impact.

[5]The International Longshoremen in this category include deep-sea longshore labor working on the vessel and on the terminal, as well as checkers and clerks, and members of the local warehousing union.

2.4 Maryland Port Administration

The Maryland Port Administration (MPA) includes those individuals employed by the State of Maryland whose purpose is to oversee port activity. The MPA leases terminal space to private operators, and maintains terminal space and infrastructure. Also, the MPA acts as the local sponsor to the U.S. Army Corps of Engineers for maintaining and improving the shipping channels leading to the Port.

3. 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, automobiles and RoRo cargo require a large area for storage, while forest products require covered storage.

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 via public and private facilities at the Port of Baltimore:

- Containerized cargo
- Automobiles
- RoRo cargo (agricultural equipment and heavy construction machinery)
- Iron and Steel products
- Paper
- Pulp
- Lumber
- Other break bulk cargo (excluding pulp, paper, iron and steel products)
- Coal/Coke
- Iron ore
- Other dry bulk
- Petroleum
- Other liquid bulk

4. DATA COLLECTION

The resulting economic impacts are based on a telephone survey of members of each of the economic sectors. Participants were identified from the Port of Baltimore Marine Services Directories, as well as the database developed by Martin Associates for the 2014 Economic Impact Study of the Port of Baltimore. Telephone interviews were used to achieve a greater than 95 percent coverage in all categories. A total of 421 firms were interviewed as part of this project. The number of interviews, by category, is shown in Exhibit I-2.

Secondary data sources include the following U.S. Bureau of Census publications:

- Census of Wholesale Trade;
- Census of Retail Trade;
- Census of Construction; and
- Census of Service Industries Annual Survey of Manufacturers.

Other published data included U.S. County Business Patterns and U.S. Bureau of Labor Statistics, Consumer Expenditure Survey. Indirect impacts and related user impacts were estimated using the U.S. Bureau of Economic Analysis, Regional Input-Output Model for the State of Maryland.

This model has been designed to update the port impact assessment on an annual basis, as well as to evaluate the incremental impacts due to changes in commodity tonnage, labor productivity, labor work rules, vessel calls (by type of vessel), pilotage and tug assist assumptions. Also, the model is designed to evaluate the impacts of new facilities development and new ocean carrier service.

Because the analysis is based on more than 95 percent coverage of the maritime community serving the Port of Baltimore, the baseline results are highly reliable and the direct impacts can be identified at the individual firm level. Since the resulting economic impact model is based on the economic relationships derived from the survey results, the incremental impacts estimated by the model have the same degree of reliability as the baseline measures.

Exhibit I-2
Summary of Interviews

Interview Summary	TOTAL
Lines/Agents	25
Government	24
Container Repair/Leasing	12
Divers/Ship Repair/Construction	19
Tug & Barge Operators	10
Warehouse & CFS	169
Marine Surveyors	14
Chandlers	31
Bunkering	4
Freight Forwarders	25
Maritime Services	47
Pilots	1
Railroads	2
Railroad Consolidators	5
Stevedores/Terminals	32
ILA	1
TOTAL	**421**

II. EMPLOYMENT IMPACTS – MARINE CARGO

In this chapter, the employment generated as a result of calendar year 2017 port and maritime cargo activity is estimated. The chapter is organized as follows:

- First, the total employment that is in some way associated with the activities at the Port is estimated. This employment impact includes the direct, induced, indirect and related job impacts described in the previous chapter.

- Second, the direct job impact is analyzed in four ways:

  - Direct jobs are estimated in terms of the surface transportation sector, maritime services sector, shippers/consignees sector and the Maryland Port Administration sector.
  - Direct jobs are distributed throughout the State of Maryland by place of residence of those holding the jobs.
  - Direct jobs are estimated for each of the key commodity groups.
  - Direct jobs are estimated on a per 1,000 ton basis.

- Thirdly, the induced and indirect job impacts are described.

- Finally, related jobs with users of the Port of Baltimore are analyzed.

1. TOTAL EMPLOYMENT IMPACT

In 2017, the marine cargo and cargo vessel activity supported 36,919 jobs in Maryland, either directly or indirectly. These 36,919 jobs include direct, induced and indirect jobs:

- 15,119 are direct jobs, in that these jobs are generated by activities at the Port, and if such activities should cease, these jobs would be discontinued over the short term. It is these jobs that are most directly dependent upon the Port of Baltimore.[6] Of the 15,119 direct jobs, the public facilities account for 8,717 direct jobs, while the private terminals generate 6,402 direct jobs.

- 16,692 are induced jobs, or those jobs supported by the local purchases made by the 15,119 individuals holding the direct jobs due to port activity. Should the direct jobs be lost from the economy, the induced jobs supporting the purchases of the direct jobs would also be lost. The

[6]Of the four job impact measures (direct, induced, indirect and related), the accuracy of the estimate is greatest for the direct jobs, since these jobs are based on the survey of the 421 firms in the Baltimore Maritime Community. The induced jobs are based on an estimate of the local consumption expenditures by those directly employed, and indirect jobs are based on an estimate of the local purchases by the port-dependent firms. The related jobs are based on the value of exports and imports multiplied by the jobs to value of output ratios developed from the U.S. Bureau of Economic Analysis.

MPA facilities account for 9,963 induced jobs, with private terminals accounting for the balance, 6,729 induced jobs.

- In 2017, the firms dependent upon the Port of Baltimore made $604.9 million in local purchases for office supplies, equipment, utilities, communications, maintenance and repair services, transportation services, professional services and goods and services. These purchases supported 5,107 indirect jobs in the Maryland economy. Firms directly dependent upon the MPA facilities spent $348.8 million for local purchases of goods and services, supporting 2,945 jobs. The firms directly dependent upon the private marine terminals made $256.1 million of local purchases supporting 2,163 indirect jobs.

In addition to the direct, induced and indirect job impacts, there are a total of 249,875 direct, induced and indirect jobs in Maryland ***related*** to the Port of Baltimore. Of these related jobs, 101,880 are directly related to the cargo activity at the Port of Baltimore, while the balance support induced and indirect jobs. These jobs are considered to be related to activities at the Port, but the degree of dependence on the Port is difficult to estimate. If the Port of Baltimore were not available to these organizations, they would suffer an economic penalty over the longer term. Such a penalty would vary from a loss of employment opportunities in some cases to an increase in total transportation costs in other cases, which could, in turn, result in employment reductions.

2. DIRECT JOB IMPACTS

This section is dedicated to the impacts of 15,119 direct jobs. As a result of port cargo activity, 15,119 full-time jobs for Maryland residents were directly supported.[7] In this section, the jobs are analyzed in terms of:

- Distribution by economic sector;
- Distribution by place of residence;
- Distribution by commodity group; and
- Distribution per 1,000 tons.

These distributions are developed in more detail below.

2.1 Direct Job Impacts by Sector

Exhibit II-1 presents the distribution of the 15,119 direct jobs among the following economic sectors and the subsector job categories. Furthermore, the exhibit shows the direct job distribution for public and private terminals.

[7] Based on the number of hours worked annually in each category, the total person hour impact for that category was converted into full-time equivalent jobs. For example, two persons who are involved only 50% of the time with Port activity are counted as one full-time job.

Of the 8,717 direct jobs generated by the public terminal activity, the majority, 2,461 jobs are with truckers moving cargo to and from the MPA marine terminals, followed by 1,576 members of the International Longshoremen's Association. Another 1,438 jobs are government jobs, with another 758 jobs with terminal operators leasing facilities from the MPA.

With respect to the direct jobs created by the private marine terminals, 2,028 jobs are with truckers moving cargo to and from the terminals, followed by 1,276 jobs with terminal operators. In addition, 841 jobs are with dependent shippers/consignees using the private terminals. For the most part, these importers and exporters have their own docks and include Domino Sugar as well as wall board manufacturing operations. Another 959 jobs are with government agencies.

Exhibit II-1
Distribution of Direct Employment Impact
by Economic Sector and Job Category

	MPA DIRECT JOBS	PRIVATE TERMINALS DIRECT JOBS	TOTAL DIRECT JOBS
SURFACE TRANSPORTATION			
Rail	58	471	530
Truck	2,461	2,028	4,489
MARITIME SERVICES			
Terminal	758	1,276	2,033
ILA/Dockworkers	1,576	178	1,754
Tug Assist/Barge	43	118	160
Pilots	74	44	118
Agents	115	60	175
Maritime Services/Construction	430	324	754
Freight Forwarders	468	14	483
Warehouse	946	89	1,035
Government	1,438	959	2,397
MARYLAND PORT ADMINISTRATION	191	NA	191
DEPENDENT SHIPPERS/CONSIGNEES	160	841	1,001
TOTAL	8,717	6,402	15,119

Totals may not add due to rounding.

2.2 Direct Job Impacts by Residency

Exhibit II-2 demonstrates the Port's geographical impact in the State of Maryland. As this exhibit indicates, 31.7 percent live in Baltimore County followed by 28.3 percent living in Baltimore City, and 22.5 percent residing in Anne Arundel County.

Exhibit II-2
Distribution of Direct Jobs by Place of Residence (including Cruise)

JURISDICTION	SHARE	DIRECT JOBS (CARGO)	DIRECT JOBS (CRUISE)	TOTAL DIRECT JOBS
BALTIMORE CITY	28.29%	4,276	59	4,335
COUNTIES:				
ANNE ARUNDEL	22.54%	3,408	47	3,455
BALTIMORE	31.73%	4,797	66	4,863
HARFORD	5.26%	796	11	807
HOWARD	1.70%	256	4	260
OTHER MARYLAND	7.76%	1,173	16	1,189
OTHER US	2.73%	412	6	418
TOTAL	**100%**	**15,119**	**209**	**15,328**

Totals may not add due to rounding.

2.3 Direct Job Impacts by Commodity

Most of the 15,119 direct jobs can be associated with the handling of specific commodities or commodity groups. Certain employment categories such as shipyards, state, federal and local government agencies, and the MPA are difficult to assign to specific commodity groups, and if such an assignment is made, it is often done arbitrarily. As a result, direct jobs generated by port activity in government agencies (such as the U.S. Coast Guard, U.S. Army Corps of Engineers, U.S. Customs and Border Protection, etc.) marine construction, the MPA and with banks, law firms and insurance companies (which totaled 3,273 jobs) are not allocated to commodity groups.

In the remainder of this section, the number of employees that were assigned to commodity groups is detailed. Exhibit II-3 indicates that containerized cargo generated the greatest number of direct jobs port-wide, followed by automobiles and other dry bulk cargo. With respect to the MPA facilities, 2,016 direct jobs were with sectors of the economy that could not be allocated to a specific commodity. The majority of these jobs are with government agencies. For the balance of the direct jobs, containerized cargo generated the largest number of direct jobs, followed by 1,093 direct jobs with auto operations and 634 jobs with RoRo operations. Direct jobs handling paper created 282 jobs, followed by break bulk cargo moving via the MPA facilities created 231 direct jobs.

Exhibit II-3
Distribution of Direct Job Impact by Commodity

COMMODITIES	MPA DIRECT JOBS	PRIVATE DIRECT JOBS	TOTAL DIRECT JOBS
Containers	4,169	11	4,179
Steel Products	102	448	550
RoRo	634	54	688
Lumber	1	84	86
Paper	282	4	286
Pulp	58	68	126
Break Bulk	231	287	518
Automobiles	1,093	654	1,748
Coal	NA	565	565
Other Dry Bulk	76	1,902	1,978
Iron Ore	NA	NA	NA
Petroleum	NA	803	803
Other Liquid Bulk	54	264	318
Not Allocated	2,016	1,258	3,273
Total	8,717	6,402	15,119

Totals may not add due to rounding.

General cargo commodities -- containerized cargo, autos, RoRo, steel, forest products and other break bulk cargoes -- handled at the Port of Baltimore tend to generate the greatest direct job impact with firms in the maritime service sector. The direct maritime service sector jobs generated by containerized cargo are with longshoremen, freight forwarders/customhouse brokers, warehouses, and steamship agents, as well as with trucking firms and railroads in the surface transportation sector. The jobs generated by miscellaneous break bulk commodities and forest products are concentrated with longshoremen, while the job impacts generated by steel imports are concentrated with local trucking firms. Jobs generated by autos are concentrated with terminal operators and auto processing companies as well as longshoremen. Relatively small direct impacts are registered with chandlering firms due to the short length of time that general cargo vessels typically spend in port (and thus have only limited time to purchase ship stores).

In contrast, the majority of direct jobs generated by bulk commodities are concentrated with terminal operators, dependent shippers/consignees, and in the surface transportation sector.

Within the maritime service sector, the direct job impact from handling bulk cargo is concentrated with private terminal operators, who also provide warehousing services for dry bulk cargoes. The impact of bulk cargo on longshoremen is relatively small, as most bulk terminals are privately owned and hire their own employees to load or unload vessels, and bulk cargo handling is

not labor intensive. Longshoremen are employed by the handling of autos at private terminals located in the Masonville/Fairfield area of the Port.

These generalizations concerning the distribution of the direct jobs by detailed category also apply to the distribution of the direct income and revenue impacts.

A description of the distribution of the direct job impacts associated with each commodity is provided in the remainder of this section. The major direct job impacts by category are highlighted for each commodity.

2.3.1 Containerized Cargo

In 2017, 8.1 million short tons of containerized cargo, or 598,310 containers (both full and empty) passed through facilities at the Port of Baltimore, creating 4,179 direct jobs. The majority of the jobs are with firms in the maritime service sector and created by activity at Seagirt Marine Terminal, which handled 596,972 total containers. Within the maritime service sector, jobs are concentrated with the longshoremen category (861 jobs), trucking (1,554 jobs), warehousing and container repair operations (904 jobs) and with freight forwarder/customhouse brokers (449 jobs).

2.3.2 Iron and Steel Products

In 2017, 318,700 tons of non-containerized break bulk iron and steel products moved via the Port of Baltimore, creating 550 direct jobs. The majority of these jobs are concentrated with truckers and are handled at private terminals.

2.3.3 Forest Products

The 911,300 tons of non-containerized break bulk forest products moving via the Port of Baltimore in 2017 consisted of pulp, paper, and lumber, and created 498 direct jobs. Two hundred twenty-four of the jobs were created with truckers, followed by about 205 jobs with the longshoremen and the terminal operations.

2.3.4 Other Break Bulk Cargoes

About 388,800 tons of miscellaneous break bulk cargo commodities were handled at the Port in 2017, of which 173,700 tons were handled at the public MPA terminals. The majority of the 518 direct jobs created by other break bulk cargo are created with trucking firms and terminal operators.

2.3.5 Automobiles

The Port of Baltimore has become a leading port in handling import and export automobiles. In 2017, 800,269 import and export automobiles were handled at the Port of Baltimore, generating 1,748 direct jobs. The auto processing operations leased from the MPA handled about 585,696 cars and the balance moved via private terminals. Of the 1,748 direct jobs generated by automobile and truck imports and exports, the jobs are concentrated with terminal operations/auto processing (692 jobs), the ILA (552 jobs) and local trucking (356 jobs).

2.3.6 RoRo Cargo

The Port of Baltimore is a leading port handling RoRo cargo, such as agricultural and mining equipment. The 42,823 units of RoRo cargo handled in the Port supported 688 direct jobs. These jobs are concentrated with the ILA, terminal operators and truckers handling the RoRo cargo.

2.3.7 Coal

About 20.9 million short tons of coal were moved via Baltimore, generating 565 direct jobs in the surface transportation sector and maritime service sector. The majority of the jobs are with the railroads and the terminal operators.

2.3.8 Other Dry Bulk Cargo

The other dry bulk cargo category consists of ores (other than iron ore), gypsum, sugar, salt, chemicals and solid fertilizers, as well as exported iron and steel. About 5.6 million tons of these cargoes were handled at the Port, creating 1,978 full-time direct jobs. These jobs are mostly with shippers/consignees dependent on the use of the Port of Baltimore, truckers, and terminal operators associated with the dependent users. Interviews with the shippers/consignees having proprietary dry bulk terminals were used to determine the fraction of each firm's workforce that was dependent on port receipts. In several cases, firms responded that they would cease operations completely if the Port were not available for their use. For these firms, all employees are counted as part of the direct job impact.

Nearly 590 jobs are generated in the surface transportation sector. The fact that trucks are used to a much greater extent than rail in the distribution of other dry bulk products (primarily gypsum products, ores and sugar) is reflected in the composition of the surface transportation impact; 841jobs are with dependent shippers/consignees, and about 450 jobs are with terminal operators.

2.3.9 Iron Ore

With the closing of RG Steel, iron ore movements at the Port have been reduced dramatically and a small amount of iron ore now handled at Trade Point Atlantic is ore that was previously stockpiled and is now exported via the Port rather than imported.

2.3.10 Liquid Bulk Products

The liquid bulk products consist primarily of petroleum products, chemicals, molasses and liquid fertilizers. In addition, an estimate of the LNG currently and projected to be exported via Cove Point is included in this analysis. About 3.3 million tons of other liquid bulk was handled at the Port facilities and at the Cove Point LNG export terminal, and created 318 direct jobs. The majority of these direct jobs are with local trucking firms, followed by jobs with terminal operators. In addition, 2.7 million tons of petroleum and petroleum products moved via the private terminals, supporting about 803 direct jobs, the majority involved in delivering the product to local consumers.[8]

2.4 Direct Job Impacts per 1,000 Tons

The assessment of the direct 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-4 presents the job impacts per 1,000 tons for each commodity moving via the Port of Baltimore. As this exhibit indicates, the general cargo commodities generate larger direct job impacts per 1,000 tons than do bulk cargoes, which reflects the more labor intensive handling process required to load and off-load general cargo commodities (break bulk cargo, automobiles, RoRo, paper and containers). These general cargo commodities also make a more intensive use of the maritime service infrastructure (use of agents, forwarders and warehousing services) than bulk commodities. The relatively high impact per 1,000 tons of other dry bulk reflects truck distribution of these products.

[8] The jobs included with the liquid bulk and petroleum products operations also include the trucking jobs associated with all liquid bulk and petroleum products handled at the terminals, regardless of the volume received and shipped by water. Without the ability to ship and receive product by water, these operations would not be located within the Port of Baltimore.

Exhibit II-4
Job Impacts per 1,000 Tons

COMMODITIES	DIRECT JOBS/ 1,000 TONS
Containers	0.52
Steel Products	1.73
RoRo	0.95
Lumber	0.51
Paper	0.58
Pulp	0.50
Break Bulk	1.33
Automobiles	1.13
Coal	0.03
Other Dry Bulk	0.35
Iron Ore	0.00
Petroleum	0.30
Other Liquid Bulk	0.10

Note: The jobs per 1,000 ton ratio for iron ore is less than 0.001

The handling of break bulk steel products generates the greatest direct jobs per 1,000 tons, followed by the handling of general break bulk cargoes, automobiles and RoRo cargo. The high job impact per 1,000 tons for automobiles reflects the labor intensive import servicing operations and export preparations conducted at the Port, the reliance on trucks for import distribution, and the labor intensive vessel off-loading and loading process. The high job impact per 1,000 tons for break bulk cargoes reflects the highly labor intensive nature of vessel loading and discharging operations associated with break bulk cargo, as well as warehousing operations and trucking.

It is to be emphasized that these jobs per 1,000 ton ratios reflect only the current situation and should not be used to estimate new impacts as the result of increases or decreases in tonnage. The direct impacts do not change in direct proportion to tonnage changes. Some jobs reflect changes in vessel calls, while other jobs are driven by tonnage. However, other jobs are fixed and do not reflect changes in throughput or vessel calls. For example, construction jobs and jobs with dependent shippers and consignees are not dependent on the number of vessel calls.

3. INDUCED JOBS

The in-state purchases by the 15,119 direct job holders with the direct income earned from port activity create induced jobs throughout Maryland. In 2017, $953.2 million dollars of wages and salaries were received by those 15,119 individuals holding direct jobs created by activity at the Port of

Baltimore. As a result of the re-spending of a portion of this income for purchases in the State of Maryland, 16,692 induced jobs were generated throughout the State.

These induced jobs are estimated based on the current expenditure profile of residents in the Baltimore area, 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 Baltimore area residents.

The estimated consumption expenditure generated as a result of the re-spending impact is distributed across these consumption categories. Associated with each consumption category are the relevant retail and wholesale industries. Jobs to sales ratios in each industry are then computed for the Baltimore Metropolitan Statistical Area, 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 the Baltimore area and the State of Maryland. Further levels of induced jobs are not estimated, since it is not possible to accurately 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/financial services, legal, social services and educational services, as well as state and municipal and county government agencies. To estimate this induced impact, a ratio of State of Maryland employment in these key service industries and government agencies to total state employment is developed. This ratio is then used with the direct and induced consumption jobs to estimate induced jobs with business/financial services, legal, social services, educational services and state and local government agencies.

4. INDIRECT JOBS

Indirect jobs are those jobs supported in the state economy as the result of local purchases by the firms directly engaged in Port activity in Baltimore. Based on the survey of port tenants and service providers, a total of $604.9 million of local purchases were made by the Port dependent industries. These purchases were for goods and parts, office supplies, communications and utilities, repair and maintenance services, non-port related transportation services, etc. The local purchases were then multiplied by the respective jobs to value of output coefficients for the supplying industries within the State of Maryland, as developed for this study by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System, for the State of Maryland. These indirect jobs multipliers indicate the second and third order spin-off impacts associated with delivery of a good or service in the State of Maryland.

Using the local purchases derived from the surveys and the indirect employment coefficients derived from the Bureau of Economic Analysis, it is estimated that 5,107 indirect jobs were also supported in the state due to the $604.9 million of local purchases by Port-dependent firms.

5. RELATED JOBS

It is estimated that about 101,880 jobs with Maryland companies using the Port to ship and receive waterborne cargo are classified as directly related to the public and private marine terminals. These jobs are with importers of steel, forest products (paper, pulp, lumber), producers and consumers of containerized cargo and break bulk cargo, and consumers of the gypsum, ore, coal and coke moving through the public and private marine terminals. In addition to the directly related jobs, an additional 147,995 jobs are induced and indirect jobs that support the direct production of the export cargo or the use of the intermediate products and final consumption goods.

To estimate the related user impact of the Port of Baltimore, the types of containerized cargo moving via the Port were identified from USA Trade On-Line. The average value per ton of each commodity type was then estimated using the USA Trade On-Line data. A weighted average dollar value per ton of containerized cargo moving via the Port of Baltimore was developed from this data. Next, for each of the top containerized cargo commodities (accounting for 50 percent of the value of export and import containerized cargo moving via the Port of Baltimore), a producing industry for export commodities and a consuming industry (for intermediate and raw material inputs) for imported commodities were identified from the U.S. Bureau of Economic Analysis, RIMS II data base. For consumer imports, the retail sales margin was used to adjust the value of imported consumer goods via the Port of Baltimore. For imported raw materials and intermediate inputs, the consuming industry was first identified. Next, for each industry, the ratio of value of inputs to the value of output was developed from U.S. Census of Manufacturing Industry Series. This ratio was used to adjust the associated employment multiplier for a containerized imported raw material or intermediate input. Using this methodology, the job multiplier associated with each containerized import or export commodity was then weighted by the value of the associated containerized import or export commodity moving via the Port of Baltimore to develop a weighted average job multiplier for imported and exported containerized cargo commodities. The value of containerized cargo imported and exported via the Port of Baltimore was then estimated using the weighted average value per ton for containerized export and import cargo. To estimate related container jobs in Maryland, these values were then multiplied by the weighted average job multipliers developed for exported and imported containerized cargo. The related jobs were then adjusted by the share of imported and exported containerized cargo estimated to be consumed or produced in the state.

A similar method was used to estimate jobs related to steel imports, forest products, coal, ore and other dry bulk cargoes. For break bulk cargoes, the associated consuming and producing industries were identified with each commodity. For example, for imported steel, a relationship was developed to convert the dollar value of these imported materials into a dollar value of output in the key consuming industries, which include construction and metal fabrication industries. 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 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 RIMS II model, the value of the break bulk cargoes (i.e., steel products),

moving via the Port and remaining in (or produced in) the State of Maryland was converted into related shipper/consignee jobs with these users and associated supporting industries within the state.

Finally, the direct, induced and indirect port sector job impacts 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, as the related shipper/consignee jobs include job impacts at each stage of handling the imported and exported cargo, such as the port activity, distribution center activity, and the trucking and rail activity to move the cargo to and from the Port and the induced and indirect jobs associated with the direct port activity. Also included as related jobs are the job impacts generated at each stage of delivering an export product to the port for export, including raw material purchases, purchases of labor and capital to produce the export product, purchases of supporting services and goods to be used in the production process, the final delivery of the export cargo to the Port of Baltimore, and the induced jobs supporting the directly related jobs.

Income and value of output coefficients were developed using a similar methodology to estimate related income and total value of output in the state. These related income and value of output measures are described in the following chapter.

It is to be emphasized that these users are related to the Port in that if the Port were not available, these users could ship and receive cargo via other ports. In fact, the majority of these users currently use multiple ports for export and import, especially those moving containerized cargo through the Port. Furthermore, the level of employment with the related users is driven by the demand for the products produced by these firms, and not by the provision of cargo handling or vessel support services at the Port of Baltimore.

III. REVENUE, PERSONAL INCOME AND TAX IMPACTS – MARINE CARGO

The movement of cargo via the Port of Baltimore generates revenue throughout the state and national economies. For example, revenue is received by the surface transportation firms (both railroads and trucks) as a result of moving export cargo to the Port and distributing the imported commodities inland after receipt at the Port. The firms in the maritime service sector receive revenue from arranging for transportation services, cargo handling, providing services to vessels in port and repairs to vessels calling the Port. The Maryland Port Administration (MPA) receives revenue from terminal and equipment leases at Dundalk Marine Terminal, the concession of Seagirt to Ports America Chesapeake, Masonville, Fairfield, Hawkins Point, North and South Locust Point Terminals, and from the World Trade Center. In addition, revenue is received by shippers/consignees from the sales of cargo shipped or received via Baltimore and from the sales of products made with raw materials received through the Port.[9]

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, 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 state and local tax impacts, and the local purchases made by the firms directly dependent on the Port of Baltimore.

The direct personal income impact within the state accounts for about 40 percent of the total revenue generated by the port activity in 2017. The balance of the revenue is distributed in the form of payments to firms providing goods and services to the four sectors, for the distribution of company profits to shareholders and to the payment of state, local, and federal taxes. Many of these firms and owners are located outside of Maryland, and, thus, it is difficult to trace the ultimate location of the distributed revenue (other than personal income and taxes).

Since it is difficult to trace 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 by firms) is distributed, geographically. The distribution of personal income and the income from indirect jobs supported by the local purchases can be traced accurately through the geographic location of individuals receiving the income.

The value of output created by users of the Port is measured for the State of Maryland and

[9] The revenue from the sales of goods produced with the imported cargo using the public and private terminals as well as the revenue from the sales of exports using the Port of Baltimore is not included in the direct revenue impact. An estimate was made of the revenue earned by the direct shippers/consignees, but this revenue is not included in direct revenue due to if these companies were to relocate to another port, the revenue from the sales of these products would be generated as long as there exists a demand. The direct jobs and income would, however, be lost from the Baltimore area should these dependent shippers/consignees relocate away from the Port of Baltimore to another port city.

the local purchases from other firms within the region 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).

1. TOTAL ECONOMIC ACTIVITY

The revenue impact is a measure of the ***total economic activity*** in the state that is generated by the cargo moving via the Port of Baltimore. In 2017, marine cargo at the Port generated $62,210.5 million of total economic activity in the State. This economic value provides the economic value of the marine cargo activity at a given point in time, 2017, and consists of the $2,509.8 million of direct business revenue impact generated by marine cargo and cruise activity at the public and private terminals, plus the related economic value of the cargo activity which is measured at $57,589.5 million, and the induced/re-spending impact generated by the marine cargo activity at the public and private terminals, $2,111.2 million. These components exclude double counting and represent the total economic value of the cargo at the Port of Baltimore public and private marine terminals. [10]

The balance of the discussion focuses on the $2,509.8 million of direct business revenue generated from the provision of services to the cargo and vessels handled at the Port of Baltimore public and private marine terminals.

2. DIRECT BUSINESS REVENUE IMPACT

Exhibit III-1 presents the total revenue, $2,509.8 million generated by marine cargo activity in 2017 both at public and private terminals.

[10] The remaining $57,589.5 million represents the value of the output to the State of Maryland that is created due to the cargo moving via the Port of Baltimore. 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, as well as consumer products that flow via the marine terminals at the Port of Baltimore and are consumed by industries and individuals within the region.

Exhibit III-1
Total Revenue Generated by Port Cargo Activity
(Thousands)

	MPA TERMINALS $1,000	PRIVATE TERMINALS $1,000	TOTAL REVENUE $1,000
SURFACE TRANSPORTATION			
Rail	$52,369	$392,529	$444,898
Truck	$281,019	$322,753	$603,772
Pipeline	NA	$124,483	$124,483
MARITIME SERVICES			
Terminal	$307,724	$308,652	$616,376
Tug Assist	$12,768	$20,565	$33,333
Pilots	$88,855	$52,033	$140,889
Agents	$5,296	$2,897	$8,194
Maritime Services/Construction	$119,509	$132,369	$251,878
Freight Forwarders	$78,008	$2,411	$80,420
Warehouse	$140,481	$13,054	$153,535
Government	NA	NA	NA
MPA	$52,000	NA	$52,000
DEPENDENT SHIPPERS/CONSIGNEES	NA	NA	NA
TOTAL	$1,138,029	$1,371,748	$2,509,777

Totals may not add due to rounding.
Dockworkers/ILA revenue included with terminal operators. No revenue was estimated for the dependent shippers/consignees.

The MPA facilities generate $1,138.0 million of the revenue impact compared to $1,371.7 million generated by cargo and vessel activity at the private terminals. The largest revenue impact created by the MPA terminals was with stevedores and terminal operators, followed by revenue received by the trucking industry serving the MPA terminals, and revenue received from maritime services/marine construction. For the activity at private terminals, railroads received the largest revenue impact, primarily from the transport of coal and other bulk cargoes, followed by revenue received by truckers and then terminal operations. It is to be emphasized that commodity value and gross revenue from the sales of products moving via the Port of Baltimore are not included as part of the revenue impact, since the value of the cargo and level of product sales is determined by the demand for the product, not by the use of the Port of Baltimore. This value is included in the economic value of output of the Port to the State -- **$57,589.5** million.

Exhibit III-2 shows the total revenue impact by commodity and Exhibit III-3 presents the revenue per ton. These exhibits show that:

- In terms of total revenue, containerized cargo generates the greatest revenue impact at the Port, followed by coal.

- In terms of revenue per ton, automobiles and break bulk cargo generate the greater revenue impacts per ton, reflecting the higher value added associated with the handling of general cargo commodities. Petroleum generates a large revenue impact per ton due to the truck revenue involved in the distribution of petroleum products, including the product that arrives at the terminals by pipeline and then distributed locally by truck.

Exhibit III-2
Revenue Impacts by Commodity
(Thousands of Dollars)

COMMODITIES	MPA TERMINALS $1,000	PRIVATE TERMINALS $1,000	TOTAL $1,000
Containers	$556,777	$1,247	$558,024
Steel Products	$3,670	$20,840	$24,511
RoRo	$43,935	$719	$44,654
Lumber	$175	$14,890	$15,065
Paper	$26,025	$694	$26,719
Pulp	$13,081	$4,260	$17,341
Break Bulk	$23,148	$28,676	$51,824
Automobiles	$280,480	$112,333	$392,813
Coal	NA	$472,948	$472,948
Other Dry Bulk	$14,412	$231,787	$246,199
Iron Ore	NA	$768	$768
Petroleum	NA	$287,100	$287,100
Other Liquid Bulk	$9,416	$65,987	$75,403
Not Allocated	$166,910	$129,500	$296,410
Total	$1,138,029	$1,371,748	$2,509,777

Totals may not add due to rounding.

Exhibit III-3
Revenue per Ton

COMMODITIES	REVENUE/TON
Containers	$69.3
Steel Products	$76.9
RoRo	$61.3
Lumber	$89.9
Paper	$54.5
Pulp	$68.4
Break Bulk	$133.3
Automobiles	$253.2
Coal	$22.6
Other Dry Bulk	$44.0
Iron Ore	$8.4
Petroleum	$105.5
Other Liquid Bulk	$23.0

3. PERSONAL INCOME IMPACTS

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 one of three components of revenue that can be traced to the State of Maryland with a high degree of accuracy.

The income impact is estimated by multiplying the average annual earnings of each port participant, i.e., railroad employees, truckers, steamship agents, freight forwarders, bankers, insurance agents, etc., by the corresponding number of jobs in each category. The individual annual earnings in each category multiplied by the corresponding number of employees resulted in $953.2 million in personal income, for an average annual salary of about $63,047 per year for each job directly generated by maritime cargo activity at the Port of Baltimore. The Port has over 300 years of longevity, provides employment opportunities for a wide range of skill levels, and it is noteworthy that this average annual salary is 10.1 percent higher than the 2017 average annual wage for the State of Maryland, as reported by the U.S. Bureau of Labor Statistics, which is $57,270.

Based on data developed by the U.S. Bureau of Economic Analysis, Regional Input Output Multiplier System (RIMS II), for every one dollar earned by Maryland residents holding the direct jobs as a result of port activity, an additional $2.22 of income and consumption expenditures would be created in-state as a result of re-spending the income for purchases of Maryland produced goods and

services. Hence, an income multiplier of 3.22 was used to estimate the re-spending/consumption impact of $2,111.2 million. This additional re-spending of the direct income supports the 16,692 induced job impact, described in the previous chapter.[11]

In addition to the re-spending impact, income was also received by those individuals indirectly employed due to activity at the Port of Baltimore. The 5,107 indirectly employed workers received wage and salary income of $250.0 million. Therefore, the total personal income and consumption impact of the Port of Baltimore is estimated at $3,314.4 million in the year 2017.

Finally, it is estimated that the 249,875 direct, induced and indirect related users earned $13,202.7 million of total personal income.

4. TAX IMPACTS

The state and local taxes for which estimates have been developed include:

- State taxes, including personal and corporate income tax, state sales and use taxes, motor fuel tax, vehicle registration tax, death tax, property tax and property transfer tax, recordation tax, shellfish tax, horse racing tax, telecommunication tax, boating tax, and other miscellaneous taxes.
- County taxes including property and income tax, and licensing and permit taxes.
- Municipal taxes including the local share of the state and county income and property taxes allocated to the local level.

In total, marine cargo activity created $392.4 million of state and local taxes. These state and local tax impacts are based on a per capita income basis, from data estimated for the State of Maryland by the Tax Foundation, as well as data from the U.S. Bureau of Census, State and Local Government Finances. The tax impacts include taxes collected at the state, county and local levels throughout the State. Exhibit III-4 presents the breakdown of the $392.4 million of state and local taxes based on the direct, induced and re-spending and indirect income impacts. Of the $392.4 million of state and local taxes, $222.2 million are received by the State of Maryland, while $170.2 million are received by the county and local governments in the state.

[11]The multiplier effect represents the spending of a portion of the direct income earned by each directly created job for purchases of goods and services. A portion of these purchases are used to pay the employees providing the goods and services, while the other portion of the purchases are for the value of the goods and services provided less than the income paid to the induced employees. The total effect of the re-spending or multiplier impact is $2,111.2 million. This total re-spending impact includes the induced income component received by the induced job holders providing the goods and services, as well as the value of the goods and services provided at the various levels of re-spending. Therefore, the total re-spending impact cannot be divided by induced jobs to estimate induced salary, as this would be an overestimate of personal income as it also includes the value of the purchases (less the income paid to the induced job holders.

Exhibit III-4
Composition of Direct, Induced and Indirect State and Local Taxes Generated by Cargo
($1,000)

Tax	State	County/Local	Total
Property	$3.6	$45.6	$49.2
Sales and Gross Receipts	$60.2	$13.7	$73.8
Personal Income	$40.2	$25.8	$66.0
Corporate Income	$4.8	NA	$4.8
License	$2.3	NA	$2.3
Other	$111.1	$85.1	$196.2
Total	$222.2	$170.2	$392.4

Totals may not add due to rounding.

The cargo activity at the Port of Baltimore generated $1,399.5 million of state and local taxes with the related users.

IV. COMPARISONS WITH 2014 MARINE CARGO GENERATED IMPACTS

The purpose of this chapter is to provide a comparison of the 2017 economic impacts generated by the public and private marine terminals at the Port of Baltimore with the impacts generated by maritime activity at the Port in 2014. The methodology used by Martin Associates to measure the direct local and regional economic impacts generated by the Port in 2017 is, for the most part, identical to the methodology used to measure the direct impacts generated by maritime activity at the Port of Baltimore in 2014.

1. COMPARISON OF TONNAGE ACTIVITY

The last economic impact study conducted for the Port of Baltimore was conducted by Martin Associates in 2014. Since the last study, cargo activity at the public and private marine terminals has increased by 9.8 million tons. This increase in tons reflects the growth in coal exports (6.3 million tons), containerized cargo (1.4 million tons), and other liquid bulk cargo (2.5 million tons) which also includes the LNG exports estimated at Cove Point, MD. The tonnage comparison is shown in Exhibit IV-1.

Exhibit IV-1
Tonnage Comparison - All Terminals at the Port of Baltimore
(1,000 short tons)

	2017 1,000 Tons	2014 1,000 Tons	Change 1,000 Tons
Containers	8,048.6	6,625	1,424.1
Steel Products	318.7	311	7.9
RoRo	728.0	862	-133.9
Lumber	167.5	48	119.3
Paper	490.4	332	158.5
Pulp	253.5	449	-195.6
Break Bulk	388.8	211	177.6
Automobiles	1,551.5	1,499	52.0
Coal	20,946.2	14,628	6,318.4
Other Dry Bulk	5,601.3	5,342	259.2
Iron Ore	91.2	360	-268.9
Petroleum	2,720.4	3,357	-636.5
Other Liquid Bulk	3,278.0	732	2,545.9
Total	44,584.1	34,756	9,828.2

Totals may not add due to rounding.

Tonnage handled at the MPA public facilities grew by 726,000 tons. The changes in tonnage handled at MPA facilities is shown in Exhibit IV-2.

Exhibit IV-2
Tonnage Comparison – Public Facilities Owned by the Maryland Port Administration
(1,000 short tons)

	2017 1,000 Tons	2014 1,000 Tons	Change 1,000 Tons
Containers	8,048.6	6,624.5	1,424.1
Steel Products	31.0	47.3	-16.3
RoRo	728.0	861.9	-133.9
Lumber	1.9	9.1	-7.1
Paper	477.7	331.9	145.8
Pulp	191.2	449.0	-257.8
Break Bulk	173.7	178.6	-4.9
Automobiles	1,107.8	1,135.1	-27.3
Coal	0.0	0.0	0.0
Other Dry Bulk	327.9	815.3	-487.4
Iron Ore	0.0	0.0	0.0
Petroleum	0.0	0.0	0.0
Other Liquid Bulk	234.0	143.2	90.8
Total	11,321.8	10,595.8	726.0

Totals may not add due to rounding

2. COMPARISON OF TOTAL IMPACTS

Exhibit IV-3 shows the total port-wide impacts generated by maritime activity at the public and private facilities at the Port of Baltimore in 2017 and 2014. Overall direct, induced and indirect jobs grew by 3,442. Of which 778 jobs were generated by the growth in cargo activity at the marine terminal owned and leased by the Maryland Port Administration.

Direct jobs grew by 1,679 jobs, reflecting the growth in cargo activity at the public and private terminals. Similarly, direct income grew by $117.0 million, business revenue increased by $386.6 million, local purchases made by directly dependent firms increased by $85.2 million and state and local taxes also increased by $85.2 million.

Exhibit IV-3
Comparison of Cargo Impacts – Port-Wide

	2017 Impacts	2014 Impacts	Change Impacts
JOBS			
DIRECT	15,119	13,440	1,679
INDUCED	16,692	15,762	930
INDIRECT	5,107	4,274	833
TOTAL	36,919	33,476	3,442
PERSONAL INCOME (MILLIONS $)			
DIRECT	$953.2	$836.2	$117.0
RE-SPENDING/LOCAL CONSUMPTION	$2,111.2	$1,852.1	$259.0
INDIRECT	$250.0	$210.0	$40.0
TOTAL	$3,314.4	$2,898.3	$416.0
BUSINESS REVENUE (MILLIONS $)	$2,509.8	$2,123.1	$386.6
LOCAL PURCHASES (MILLIONS $)	$604.9	$519.7	$85.2
STATE & LOCAL TAXES (MILLIONS $)	$392.4	$307.2	$85.2

Totals may not add due to rounding.

3. COMPARISON OF DIRECT JOB IMPACTS

Exhibit IV-4 shows the direct job impacts generated by commodity.

Exhibit IV-4
Comparison of Direct Jobs by Commodity, 2014-2017

	2017 Direct Jobs	2014 Direct Jobs	Change Direct Jobs
Containers	4,179	3,576	603
Steel Products	550	461	89
RoRo	688	735	-46
Lumber	86	27	59
Paper	286	164	122
Pulp	126	135	-9
Break Bulk	518	406	112
Automobiles	1,748	1,295	453
Coal	565	560	5
Other Dry Bulk	1,978	1,810	169
Iron Ore	0	32	-31
Petroleum	803	1,003	-200
Other Liquid Bulk	318	165	153
Not Allocated	3,273	3,072	202
Total	15,119	13,440	1,679

Totals may not add due to rounding

The growth in 1.4 million tons of containerized cargo is reflected in the growth of 603 direct jobs with containerized cargo. Other major job increases include job growth with automobiles, as well as dry bulk cargo, and other liquid bulk cargo (including LNG exports, petrochemicals, molasses, and liquid fertilizers).

Exhibit IV-5 shows changes in jobs by category. Job growth was recorded for nearly all transportation sector and maritime services categories. The largest growth in jobs was with trucking, as well as terminal operations, particularly associated with handling autos at both public and private terminals. The growth in the size of ships calling the Port is reflected in the slight reduction in direct jobs with tug operations and agents.

Exhibit IV-5
Comparison of Direct Jobs by Job Category – Port-Wide

	2017 Direct Jobs	2014 Direct Jobs	Change
SURFACE TRANSPORTATION			
Rail	530	406	124
Truck	4,489	4,004	484
MARITIME SERVICES			
Terminal	2,033	1,403	630
ILA	1,754	1,684	70
Tug Assist/Barge	160	178	-17
Pilots	118	122	-4
Agents	175	202	-27
Maritime Services/Construction	754	797	-43
Freight Forwarders	483	394	89
Warehouse	1,035	935	100
Government	2,397	2,057	340
MARYLAND PORT ADMINISTRATION	191	207	-16
DEPDENDENT SHIPPERS/CONSIGNEES	1,001	1,051	-50
TOTAL	15,119	13,440	1,679

Totals may not add due to rounding.

4. SUMMARY OF IMPACT COMPARISONS

The Port of Baltimore continues to be a key economic generator for the State of Maryland. Overall, the Port of Baltimore cargo activity added 3,442 direct, induced and indirect jobs to the local economy since 2014. The continued growth of cargo, particularly containerized cargo at Seagirt Marine Terminal, and the associated development of near port distribution center activity has added more than 600 direct jobs to the local economy. This growth in economic contribution of the Port of Baltimore underscores the importance of continued investment in port infrastructure, the maintenance of the 50 foot channel to accommodate the ever increasing size of containerships calling the Port of Baltimore, and the continued improvement, investment and maintenance of the rail and highway access to the marine cargo terminals. In addition, the ability to continue to attract new distribution centers in proximity to the Port's marine terminals will stimulate further growth in containerized cargo.