The significant economic contribution the Port of New York and New Jersey makes to this Region is demonstrated once again in this the 6th iteration of The Economic Impact Study of the New York-New Jersey Port Industry.

The value of this study as a resource is noteworthy, especially when you hear the facts and figures often referenced in speeches or see it quoted in national and international publications. However, more importantly, these numbers provide a quantitative measurement of the jobs, incomes, production of goods and services and revenue for the respective states and federal government produced by the maritime activities taking place in the Region. Clearly the regional economy is interwoven with the Port.

When decisions are being made in terms of investment in infrastructure that connects the Port to the roads, rails and bridges that facilitate the movement of cargo, there is no more important and necessary information to emphasize the critical connection.

As we look toward continued growth in cargo and port efficiencies, we will continue to evolve in the Port of New York and New Jersey to remain a substantial, lasting and stable economic driver for our regional economy.

Sincerely,

John J. Nardi
President

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Executive Summary

2014 was a year of change and growth for the New York-New Jersey Port Industry that provided a glimpse of what the future holds. The Port solidified its position as a global hub of commerce. Containerized cargo movements grew as the national economy recovered, international trade expanded and shippers shifted cargo movements away from the West Coast port uncertainties. International bulk movements of commodities, such as petrochemicals, decreased as use of domestic crude oil increased.

The increasing volumes through the Port combined with the characteristics of the New York-New Jersey-Eastern Pennsylvania Region to further accentuate the area as one of the most highly desirable locations for supply chain activities. The Region is the country’s most densely populated area and among the top affluent markets. Supply chain operations have rapidly grown as residents and businesses increasingly embraced fast-paced ecommerce.

Industrial brokers and developers often note the importance of proximity to the Port in the demand for space to easily and rapidly serve such a densely populated area. Large-scale distribution centers, many exceeding one million square feet, have been built and leased, with new industrial construction continuing to meet accelerating demands for space. More distribution centers now receive more or all of their cargo through the New York-New Jersey Port.

The end result is the Port’s economic value to the region has grown. The Port Industry’s impact grew from 296,000 jobs supported in 2012 to 336,600 jobs in 2014.

The impacts generated by Port Industry operations included:

- 190,100 direct jobs
- 336,600 total jobs in the Region
- Over $21.2 billion in personal income
- Nearly $53.5 billion in business income
- Close to $7.1 billion in federal, state and local tax revenues, with local and state tax revenues of over $2.3 billion and federal tax revenues of over $4.7 billion

The growth in containerized cargo movements and international trade rippled through the region, with expansions in associated jobs and businesses. In New Jersey and the Lehigh Valley area of Pennsylvania, the increase in jobs also reflects the growth in Port-related distribution operations. In New York City, the growth also reflects the vibrancy of the maritime related financial industry and visitor spending by cruise passengers.

The capital investments made during the last five years helped set the stage for the current and future growth. During this five-year investment period, nearly $2.2 billion were invested by public and private sector port entities (not including the work completed to date on the raising of the Bayonne Bridge roadbed). These investments included substantial work to terminals, roadway and rail infrastructure, along with extensive expenditures for new equipment.

Between 2010 and 2015, approximately 2,960 direct jobs and 4,925 total jobs were supported annually in the region by these projects. The capital projects generated nearly $3.6 billion in business income and $620 million in federal, state and local tax revenues over the five-year period.
Introduction

This report summarizes the current economic contributions of the New York-New Jersey Port Industry and is the latest in a continuing series of economic impact reports produced by the New York Shipping Association, Inc., with the input of the Port Community. The report reflects the maritime activity that occurred in 2014 and the resulting economic impacts generated in the Region, New York, New Jersey and New York City.

For the New York-New Jersey Port Industry, the activities during 2014 demonstrated a glimpse of what the future holds. In 2014, the Port solidified its position as a global hub of commerce and supply chain activities. Port and supply chain users saw the investments being made to the freight transportation infrastructure:

- The Port Authority of New York and New Jersey continued work to raise the Bayonne Bridge roadbed to accommodate the larger classes of vessels, while some “post Panamax” vessels began to call the Port at GCT Bayonne.
- The State of New Jersey completed the New Jersey Turnpike widening project which facilitates faster and more consistent access to and from the large warehouse clusters.

In addition, Superstorm Sandy, a devastating event in 2012, demonstrated the determination, cooperation and resiliency of the Port Community to work together to recover and resume business quickly. That collaboration continued with the formation of the Council on Port Performance, which began work to address the issues critical to the Port’s future success.

For the industrial real estate community, the Region emerged as the perfect trifecta for supply chain operations – the centroid of the most densely and affluent population in the nation; a location to rapidly serve residents and businesses that were embracing fast-paced ecomerce; and possessing a multimodal freight network where investments continue to meet 21st Century needs. Significant square footage was added to the region’s inventory and leased. Industrial brokers and developers noted the importance of proximity to the Port in the demand for space in the area.

The 2014 analysis continues using the regional definition that includes counties in Southern New Jersey and Eastern Pennsylvania where warehouses and distribution centers are closely tied to the New York-New Jersey Port. The 31-County region includes:

- 12 counties in New York State: Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, and Westchester
- Four PA counties: Northampton, Lehigh, Monroe and Pike Counties
The Port and the Economic Impact Generated in 2014

The economic impact assessment provides a snapshot of the contributions made by the New York-New Jersey Port Industry as measured in jobs, personal and business income and tax revenues supported. This economic value is ongoing – the jobs and revenues generated are sustained by the continuing activities of the Port Industry. As those activities grow and change, the economic value generated reflect the new conditions.

The Growth in the Port as a Lead International Gateway and Hub for North American Distribution led to Growth in the Economic Value

In 2014, the New York-New Jersey Port handled:

- Nearly 5.8 million twenty foot equivalent containers (TEUs)
- Over 42 million tons of bulk cargo
- Nearly 100,800 tons of breakbulk cargo
- Over 640,800 vehicles
- 274 cruise vessel calls

Containerized volumes grew as did the distribution center facilities that received and shipped products through the Port. Containerized cargo movements grew as the national economy recovered, international trade expanded and shippers shifted cargo movements away from the West Coast port uncertainties. International bulk movements of commodities, such as petrochemicals, decreased as use of domestic crude oil increased. While the number of vehicles processed through the Port was lower in 2014, the stage was set for renewed growth in 2015. The cruise vessels calling on the Port grew in passenger capacity.

The growth was most evident at locations outside of the Port facilities – at the warehouses and distribution centers that have grown in number and size, as well as increasing receipt of cargo from the Port. The region’s warehousing and distribution center industry’s full recovery from the Great Recession was evident in the tightening supply of available facilities and new construction throughout the area. Supply chains continued to shift, with more of the distribution center facilities receiving and shipping product through the Port rather than “landbridging” shipments through the West Coast ports.

In 2014, the economic value supported by ongoing Port Industry operations included:

- 190,100 direct jobs
- 336,600 total jobs in the Region
- Over $21.2 billion in personal income
- Nearly $53.5 billion in business income
- Close to $7.1 billion in federal, state and local tax revenue

Close to $7.1 billion in federal, state and local tax revenue

The number of total jobs supported by the Port Industry grew from 296,060 in 2012 to 336,600 in 2014. The Port hired and trained new workers. More cargo through the Port required more workers to process the shipments and move them to and from distribution and industrial facilities. More and larger distribution centers translated into the need for more workers. As a comparison, the New York-New Jersey Port Industry in 1993, as measured for a smaller region, supported a total of 166,500 jobs and generated $6.2 billion in personal income.
The Port Industry Generates Significant Economic Impacts throughout New York and New Jersey

The Port Industry contains a wide range of activities, including physical activities, information and financial flows, transportation arrangements, and governmental agencies. These activities are spread throughout New York and New Jersey and extend into Pennsylvania, primarily in the Lehigh Valley area.

State of New Jersey

In the State of New Jersey, the Port Industry supports:
- 163,125 direct jobs
- 284,800 total jobs in the State
- Nearly $16.9 billion in personal income
- Over $43.5 billion in business income
- Nearly $5.7 billion in federal, state and local tax revenues, with local and state tax revenues of over $1.8 billion and federal tax revenues of nearly $3.9 billion

The State of New Jersey has seen growth in industrial and distribution centers throughout the State, with some new buildings exceeding one million square feet. Locations in southern New Jersey have benefitted from the New Jersey Turnpike widening, which alleviated congestion and reduced travel times between these areas and the Port.
New York City

In New York City, the Port Industry supports:

- 17,970 direct jobs
- 35,850 total jobs in the City
- Nearly $3.4 billion in personal income
- Almost $7.9 billion in business income
- Close to $1.1 billion in federal, state and local tax revenues, with local and state tax revenues of almost $430 million and federal tax revenues of nearly $670 million

New York City saw an increase in financial and insurance industry workers, as well as the economic contributions of cruise passengers who extended their vacations either before or after their trip and spent their visitor dollars in the City.

State of New York

In the State of New York, the Port Industry supports:

- 23,695 direct jobs
- 47,120 total jobs in the State
- Nearly $4 billion in personal income
- Close to $9.5 billion in business income
- Over $1.3 billion in federal, state and local tax revenues, with local and state tax revenues of over $420 million and federal tax revenues of nearly $795 million

The New York impacts include the New York City impacts, as well as the Port customers in Long Island and other portions of the State. In addition to including some warehousing, transportation arrangement, and other Port Industry activities, New York benefits from the ripple effects of Port Industry suppliers and workers located in the State.

Lehigh Valley

In the Lehigh Valley Area of Pennsylvania, the New York-New Jersey Port Industry supports warehousing and distribution center activities estimated to include:

- 15,160 direct jobs
- 24,410 total jobs in the four counties included in the Lehigh Valley area of the Region
- Over $1.1 billion in personal income
- Nearly $2.6 billion in business income
- Close to $336 million in federal, state and local tax revenues, with local and state tax revenues of $103 million and federal tax revenues of nearly $233 million.
Economic Impact of 2010-2015 Port Related Investments

The public and private sector partners invested nearly $2.2 billion in the Port of New York and New Jersey to ensure that the waterside, terminal and landside facilities can handle increasing cargo and passenger volumes efficiently and in an environmentally sustainable manner. Note that this sum does not include the funds that have been spent to date on raising the Bayonne Bridge roadbed.

Larger post-Panamax vessels require larger cranes. Superstorm Sandy dramatically identified infrastructure that needed to be upgraded to handle future disruptive events. Enhanced use of information technologies and security systems required investments. On-dock and near-dock rail facilities continued to be expanded to handle increasing container volumes and an expanding market reach.

Capital Investments in Port-Related Infrastructure Made between 2010 and 2015

<table>
<thead>
<tr>
<th>Capital Improvements Made (2010 – 2015)</th>
<th>Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadways and Bridge Improvements</td>
<td>$ 233.6</td>
</tr>
<tr>
<td>Terminal Improvements (Berths, Buildings, Utilities and Equipment)</td>
<td>$ 1,198.9</td>
</tr>
<tr>
<td>Rail Improvements and Equipment</td>
<td>$ 527.2</td>
</tr>
<tr>
<td>Channel Deepening</td>
<td>$ 182.5</td>
</tr>
<tr>
<td>Security Equipment</td>
<td>$ 8.9</td>
</tr>
<tr>
<td>Information Technology Purchases</td>
<td>$ 28.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 2,179.5</strong></td>
</tr>
</tbody>
</table>

*In Millions of 2015 dollars. Does not include Bayonne Bridge expenditures.*

In the New York-New Jersey region, the construction and capital investment activity made between 2010 and 2015 supported over the construction period:

- 14,800 direct jobs during construction or about 2,960 jobs in the region annually.
- 24,630 total jobs in the Region during construction or about 4,925 jobs annually.
- Over $1.7 billion in personal income
- Nearly $3.6 billion in business income
- $620 million in federal, state and local tax revenues, with local and state tax revenues of $278 million and federal tax revenues of nearly $342 billion

Significant funds are anticipated to be invested as capital projects are undertaken such as a new on-dock ExpressRail yard to serve GCT-Bayonne, enhanced truck gates, improved roadways, and additional cargo handling equipment and container cranes.
Appendix A: Port Industry Definitions

This section provides definitions for the Port Industry Terminology.

Port Cargo Movements

- **Containerized cargo handling** refers to the handling of cargo loaded in maritime containers. Each container, which can accommodate a nearly complete range of commodities, is handled as a single unit. The most commonly used types of containers are either 20 or 40 feet in length. A common measure used in the maritime industry refers to a “twenty-foot equivalent unit” or TEU. A TEU equals one 20 foot container. A 40 foot container would equate to two TEUs.

- **Breakbulk cargo handling** is the traditional means of handling general cargo. It describes the handling of a broad variety of commodities as individual pieces or as palletized cargo. Breakbulk handling techniques are used to move such commodities as forest products, paper, bananas, fresh fruit, steel and cocoa beans.

- **Bulk cargo handling** refers to the handling, in a continuous operation, of dry and liquid uniform commodities, such as petroleum, petrochemicals, grain and coal. The cargo is not divided into individual units.

- **Auto and vehicle transport** describes the waterborne movement of motorized, wheeled units. Typically these vehicles are “rolled on and rolled off” (RO/RO) vessels with multiple decks by terminal workers.

Cargo Movement Activities

<table>
<thead>
<tr>
<th>VESSEL ACTIVITIES</th>
<th>TERMINAL ACTIVITIES</th>
<th>TRANSACTION ACTIVITIES</th>
<th>INLAND MOVEMENT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilotage, Tugs,</td>
<td>Cranes, Stevedoring,</td>
<td>Banking, Insurance,</td>
<td>Trucking, Rail, Barge</td>
</tr>
<tr>
<td>Provisions, Fuel, Crew Shore Leave, etc.</td>
<td>Yard Handling, Cargo</td>
<td>Data Processing,</td>
<td>and/or Pipeline</td>
</tr>
<tr>
<td></td>
<td>Manipulation,</td>
<td>Freight Forwarding,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inspections, etc.</td>
<td>Customhouse Brokers, etc.</td>
<td></td>
</tr>
</tbody>
</table>

Cargo moves inland in a variety of ways, including:

- **Long Distance Truck** – the fee charged by trucking firms for the inland movement of the cargo beyond the port region. Usually, long distance trucking rates are developed and drivers compensated on a mileage basis.

- **Short Distance Truck** – the fee charged by trucking firms for the inland movement of cargo to a destination or from an origin within the port region (such as a warehouse or manufacturing facility). Usually, shorter distance trucking rates are quoted and drivers compensated on a flat-rate basis.

- **Barge** – Barges are a means used for conveying cargo between vessels and ports/terminals other than the one where the vessel is docked.

- **Rail** – Inland rail movements are defined as including the truck drayage fee associated with moving the cargo from the terminal to the rail yard, along with the costs incurred by the railroad(s) for moving the shipment. Rail costs include expenditures associated with rail terminal operations, switching and line haul movements.

- **Pipeline** – Pipeline movements are generally associated with the movement of liquid bulk commodities.
Cruise Passenger Movements

- Cruise passenger movements include the vessels that carry passengers on recreational cruises of various durations.

- Cruise passengers may also spend time in the Region before or after their voyages, generating additional economic impacts through their visitor expenditures. The cruise operations, based on surveying, reflect the various characteristics of the three terminals in New York and New Jersey and the cruise lines that call on this region.

- Inland transportation involving cruise passengers includes air, private car, bus, transit, limousines, taxis, and walking.

Passenger Movement Activities

<table>
<thead>
<tr>
<th>VESSEL ACTIVITIES</th>
<th>TERMINAL ACTIVITIES</th>
<th>PRE- AND POST-CRUISE VISITOR ACTIVITIES</th>
<th>INLAND MOVEMENT ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilotage, Tugs, Provisions, Fuel,</td>
<td>Stevedoring, Passenger Services, Inspections, Immigration, etc.</td>
<td>Hotels, Restaurants, Local Attractions and Other Visitor Activities In The Port Area</td>
<td>Private Car, Taxi/Limo, Bus/Transit/Airline, Walking, etc.</td>
</tr>
<tr>
<td>Crew Shore Leave, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Background on the Economic Impact Methodology

Working closely with Port Partners, A. Strauss-Wieder, Inc. (ASWinc) conducted surveys of the port industry terminals, carriers and other transportation providers, as well as reviewed the most recent US Census County Business Patterns information on such sectors as finance and insurance to review overall business trends. In addition, ASWinc developed square footage estimates and the employment associated with Port-related warehousing and distribution centers. The review of the distribution industry also included assessing trends and conditions, field visiting key nodes of distribution centers activities, and talking with industry professionals.

The 2014 Port Industry analysis continues the use of a customized multi-region (MRIO) economic impact model based on IMPLAN. This is the same model that was used for the 2012 analysis updated to 2015 (current) dollars. The 2014 analysis reflects updated expenditure patterns based on the information obtained from Port Partners. Please note that some definitions and impacts will differ from Port Industry economic impact studies prior to 2012 that used a different input-output model as a base.

The IMPLAN model includes current economic data, enables multi-regional and county-level assessments, and is used by public agencies throughout the US, including transportation authorities in the New York-New Jersey region. Implan is a complete economic assessment package including data and software. More information on Implan can be found at http://implan.com

Multi-Regional Input-Output models (MRIO) capture the economic impacts occurring in several connected economic regions, along with “trade flows.” Trade flows are defined as the purchase of goods and services among each of the identified regions. In addition to the trade flows, the models consider and reflect the purchase of goods and services from sources outside the identified regions. These leakages reduce impacts. For example, some suppliers and workers may come from outside of New Jersey. The impacts associated with these expenditures accrue to the locations outside of the State rather than to New Jersey.

The economic impacts were identified for:

- The 31-county New York-New Jersey-Pennsylvania Region
- New York City
- The State of New Jersey
- The State of New York

The impacts shown are total impacts at each geographical level, with the impacts originating in the various regions. For example, maritime cargo and passenger operations originate at the terminals where the vessels call. Warehousing locations are found throughout the 31-County region, with key clusters along the New Jersey Turnpike, the Lehigh Valley area of Pennsylvania and in the immediate vicinity of Port terminals.
MRIO analyses require several considerations and reviews beyond single region economic impact models:

- Each region within a MRIO model is separate and do not overlap. The NYSA MRIO model has separate regions for:
  - New York City
  - The rest of the New York counties in the 31-county region
  - The rest of New York State
  - The New Jersey counties in the 31-county region
  - The rest of New Jersey
  - The four Pennsylvania counties in the 31-county region

Without the creation of separate regions, a duplication of impacts would occur.

- In general, the economic characteristics within each region in a MRIO model will vary, which reflects the differences in costs and other considerations in each area. Indeed, costs can be different between locations in New York City and the Lehigh Valley area of Pennsylvania. These differences (such as in employee/output ratios) are considered in developing the inputs for the model.
Definitions

The economic impact assessment estimates the total impacts, which are defined to include:

- **Direct** – the spending at the site of the economic activity. Direct effects are the focal point of an impact analysis.

- **Indirect** – the purchases of goods and services by suppliers. By definition, the first round of indirect impacts includes the purchase of supplies and services that are required to produce the direct effects. Subsequent purchases of supplies and services generate other rounds of indirect impacts. Such purchases continue to ripple through the economies of each of the regions in the MRIO model.

- **Induced** – the purchases (of such items as food, clothing, personal services, vehicles, etc.) that arise, in turn, from the increase in the aggregate labor income of households.

The total economic impact consists of the direct, indirect and induced effects as shown above.

The economic measurements included in this analysis are:

- **Employment Effects** – Jobs generated or supported, including:
  - Direct employment: onsite full- and part-time equivalent jobs or jobs in the initial Industry/business development.
  - Total employment: The total number of full-time equivalent jobs (direct, indirect and induced) generated in each of the geographically defined regions.

- **Business Output/Revenue** – Output represents the value of industry production. In IMPLAN, these are annual production estimates for the year of the data set and are in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For Retail and wholesale trade, output = gross margin and not gross sales.

- **Personal Income Effects** – Includes all forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.

- **State and Local Tax Effects** – defined as revenues collected by state and sub-state governments. The taxes include employee, personal, proprietor, business, household and corporate taxes.

- **Federal Tax Effects** – defined as revenues collected by the federal government from corporate income, personal income, social security, and excise taxes.
Input-output (I-O) modeling is among the most accepted means for assessing economic impacts. The approach provides a concise and accurate means for articulating the interrelationships among industry sectors. I-O modeling focuses on the interrelationships among sectors in an economy. Within the I-O model, the economy of an area is mapped out in table form, with each industry listed across the top as a consuming sector (or market) and down the side as a producing sector.

The basic framework for I-O analysis originated over 250 years ago when François Quesenay published Tableau Economique in 1758. Quesenay’s “tableau” graphically and numerically portrayed the relationships between sales and purchases of the various industries of an economy. More than a century later, his description was adapted by Leon Walras, who advanced input-output (I-O) modeling by providing a concise theoretical formulation of an economic system (including consumer purchases and the economic representation of “technology”).

Wassily Leontief greatly advanced Walras’s theoretical formulation and was awarded the Nobel Prize in 1973. Leontief first used his approach in 1936 when he developed a model of the 1919 and 1929 U.S. economies to estimate the effects of the end of World War I on national employment. Recognition of his work awaited wider acceptance and use of the approach. This meant development of a standardized procedure for compiling the requisite data (today’s national economic census of industries) and enhanced capability for calculations (i.e., the computer). The federal government immediately recognized the importance of Leontief’s development and has been publishing input-output tables of the U.S. economy since 1939.

The models can be quite detailed. The current U.S. and IMPLAN models have more than 400 sectors. This level of detail provides a consistent and systematic approach, as well as a more accurate means for assessing the multiplier effects of changes in economic activity.

I-O Analysis makes several key assumptions. First, the information used to create an input-output model is for a given point in time. The information in the model reflects a “snapshot” of the technical requirements and industry relationships at a given point in time. Because of this, input-output models are regularly updated.

Regional input-output models, such as the one used in this economic impact assessment, need to account for the percentage of the demand for an industry’s output or the requirements for a transportation project that can be readily supplied by firms within the specified region. Firms within the specified region may not be able to supply all the products needed. Therefore, goods and services may need to be purchased from outside of the specified region. The default “regional purchase” coefficients within the IMPLAN model were used for this analysis.