

THE LOCAL AND REGIONAL ECONOMIC IMPACTS OF THE PORT OF LONGVIEW



Prepared for the:
THE PORT OF LONGVIEW
10 Port Way
Longview, WA 98632
(360)425-3305
www.portoflongview.com



Prepared by:
MARTIN ASSOCIATES
941 Wheatland Ave., Suite 203
Lancaster, PA 17603
(717) 295-2428
www.johncmartinassociates.com

June 26, 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
I. OVERVIEW OF THE ANALYSIS AND SUMMARY OF RESULTS	3
1. ECONOMIC IMPACT STRUCTURE.....	4
2. COMMODITIES INCLUDED IN THE ANALYSIS.....	8
3. DATA COLLECTION.....	9
4. IMPACT SUMMARY.....	11
II. EMPLOYMENT IMPACTS	12
1. TOTAL EMPLOYMENT IMPACT.....	12
2. DIRECT JOB IMPACTS.....	13
2.1 <i>Job Impacts by Sector</i>	14
2.2 <i>Job Impacts by Commodity</i>	15
3. GEOGRAPHIC DISTRIBUTION OF DIRECT JOB IMPACTS.....	16
4. INDUCED JOBS.....	18
5. INDIRECT JOBS.....	19
6. RELATED JOBS.....	19
III. ECONOMIC VALUE, REVENUE, INCOME AND TAX IMPACTS	20
1. REVENUE IMPACT—TOTAL ECONOMIC ACTIVITY.....	20
2. PERSONAL INCOME IMPACTS.....	22
3. LOCAL PURCHASES.....	23
4. TAX IMPACTS.....	23
IV. COMPARISONS WITH CALENDAR YEAR 2012 IMPACTS	24
1. COMPARISON OF TOTAL IMPACTS.....	24
2. COMPARISON OF DIRECT JOB IMPACTS.....	25
3. SUMMARY OF IMPACT COMPARISONS.....	26

EXECUTIVE SUMMARY

The marine terminals owned by the Port of Longview, located on the Columbia River, handle bulk agriculture products, bulk chemicals, bulk minerals, logs, steel products, wind energy and general cargoes. In calendar year 2018, 10.4 million tons of cargo moved via these terminals and were produced and consumed by exporters and importers located within the metropolitan region, the states of Washington and Oregon, as well as throughout the Pacific Northwest and 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 calendar year 2018, 19,203 jobs in the Longview region and the Pacific Northwest were in some way related to maritime activity at the Port of Longview marine terminals. Of the 19,203 jobs:

- 1,261 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 vessel and cargo activity at the Port of Longview. These jobs are with the International Longshore and Warehouse Union, terminal operators, stevedores, trucking firms, railroads, steamship agents, freight forwarders and customhouse brokers, federal and state government agencies, towing companies, pilot organizations, and marine construction companies. Nearly sixty-five percent of these jobs are held by residents of Washington State. Of the sixty-five percent of Washington State residents, roughly fifty-two percent are residents of Cowlitz County.
- 1,989 are **induced** jobs, or those jobs supporting the local purchases made by the 1,261 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 job holders would also be lost. These jobs are with local grocery stores, retail outlets, restaurants, transportation services, local government services, schools, hospitals, etc.
- The firms dependent upon the marine activity at the Port of Longview made \$88.5 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 1,495 **indirect** jobs in the regional economy.
- In addition to the direct, induced and indirect job impacts, 14,458 regional and national jobs are related due to cargo exported and imported over Port of Longview marine terminals. 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 Longview 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.

In 2018, marine cargo activity at the Port of Longview generated a total of \$2.8 billion of total economic activity in the region.

- Of the \$2.8 billion, \$491.2 million is the direct business revenue received by the firms directly dependent upon the Port and providing maritime services and inland transportation services to the cargo handled at the marine terminals and the vessels calling the Port; \$187.4 million of re-spending and local consumption impact; and the remaining \$2.2 billion represents the value of the output to the Washington/Oregon region that is created due to the cargo moving via the Port of Longview. 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 at the Port of Longview and are consumed by industries within the region.
- Marine activity created \$341.2 million of direct, induced and indirect personal wage and salary income and local consumption expenditures for Longview region residents. An additional \$345.4 million of direct, induced and indirect income was received by the related users of the Port of Longview. The 1,261 direct job holders received \$94.3 million of wage and salary income for an average salary of \$74,763.

A total of \$34.1 million of state and local tax revenue was generated by maritime activity at the Port of Longview in calendar year 2018. In addition, \$32.1 million of state and local taxes were created due to the economic activity of the related users of the cargo moving via the Port of Longview.

I. OVERVIEW OF THE ANALYSIS AND SUMMARY OF RESULTS

Martin Associates was retained by the Port of Longview to measure the local and regional economic impacts generated by maritime activity at the Port of Longview. This study focuses on impacts generated by marine cargo handled at the marine facilities in the harbor area of the Port of Longview. It is to be emphasized that all cargo considered in this analysis is handled at facilities owned and leased by the Port of Longview. Impacts are estimated in terms of jobs, personal earnings, business revenue, and state and local taxes. The impacts are estimated for marine cargo activity in calendar year 2018. In addition to the baseline impact estimates, a computer model specific to the Port of Longview has been prepared which can be used in evaluating the sensitivity of impacts to changes in tonnage, labor productivity, labor work rules, commodity mix, inland origins/destinations of commodities and vessel size. The model can also be used to evaluate the impacts of new terminal development and for annual updates.

The methodology used in this analysis has been used by Martin Associates to estimate the economic impacts of seaport activity at most of the ports in the United States and Canada, including:

- *Seattle*
- *Tacoma*
- *Longview*
- *Grays Harbor*
- *Vancouver, BC*
- *Vancouver, WA*
- *Portland, OR*
- *Los Angeles*
- *Long Beach*
- *San Diego*
- *San Francisco*
- *Oakland*
- *Sacramento*
- *Houston*
- *Texas City*
- *Freeport, TX*
- *Galveston*
- *Beaumont/Port Arthur, TX*
- *Victoria, TX*
- *Port Lavaca/Point Comfort, TX*
- *Corpus Christi*
- *Baton Rouge*
- *New Orleans*
- *Gulfport*
- *Port Everglades*
- *Canaveral*
- *Miami*
- *Jacksonville*
- *Tampa*
- *Palm Beach*
- *Wilmington, NC*
- *Morehead City, NC*
- *Baltimore*
- *Philadelphia*
- *Cleveland*
- *Ports of Indiana*
- *Wilmington, DE*
- *Boston*
- *Montreal*
- *Belledune*
- *Halifax*
- *13 U.S. Great Lakes Ports*

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

- The types of economic impacts estimated;
- The economic sectors for which impacts have been estimated; and
- The commodities/commodity types for which impacts have been estimated.

In addition, a summary of the data sources used in the analysis is presented.

1. ECONOMIC IMPACT STRUCTURE

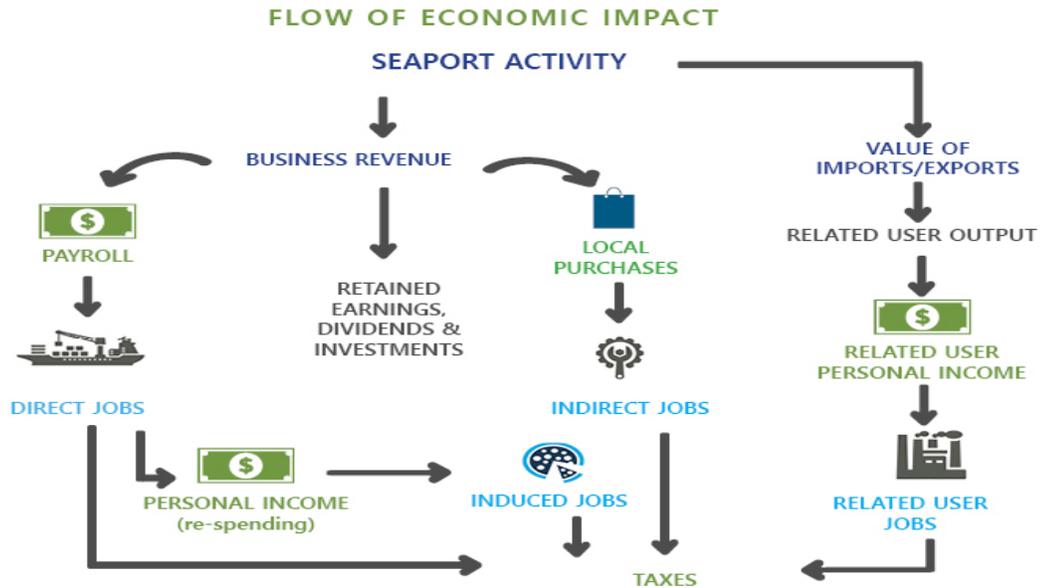
A deep water port such as Longview, contributes to the local, regional and national economies by providing employment and income to individuals, tax revenues to local and state governments, customs fees to the federal government and revenue to businesses engaged in handling, shipping, and receiving cargo via the port. Exhibit 1 illustrates the flows of economic impacts throughout the economy. As this exhibit shows, activity at a seaport (i.e., 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 economy 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, state and local taxes are paid by those directly employed due to port activity and those employed as a result of the in-state purchases of goods and services by those individuals directly employed.

As can be seen from Exhibit 1, and the previous discussion, the flow of economic impacts throughout an economy creates four separate and non-additive types of impacts.

Exhibit 1
Flows of Economic Activity
Through the Economy



These four types of impacts are:

- Employment Impact - the number of full-time equivalent jobs generated by activity at the Port of Longview terminals. This consists of jobs directly generated by port activity as well as induced jobs, or jobs created due to the purchase of goods and services by those individuals directly dependent upon port activity. In addition, indirect jobs, or those jobs generated in the regional economy due to the local purchases of goods and services by firms directly dependent upon maritime activity at the Port of Longview are also measured as part of the employment impact.
- Income Impact - the level of earnings associated with the jobs created by port activity, and adjusted to reflect re-spending throughout the economy.
- Revenue Impact - the sales generated by firms engaged in handling and transporting cargo through the Port of Longview. 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.

- Tax Impacts - the state and local tax revenues generated by port activity. These are taxes paid by individuals and firms directly dependent upon the maritime activity.

The Port of Longview marine terminals generate economic activity in various business sectors of the state and local economy. The following economic sectors are involved in providing cargo and vessel handling services at the Port of Longview. These are the:

- Surface Transportation Sector;
- Maritime Service Sector; and
- Marine Division of the Port of Longview.

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

(1) 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. The railroads are most involved in moving bulk agriculture, minerals and chemicals to the Port.

Many local and national trucking firms serve the marine terminals at the Port of Longview, as do numerous individual owner-operators. The trucking industry's major involvement is in moving steel, logs, and general cargoes for local distribution.

Barge transportation is also a key component in moving cargo to and from the Port of Longview, and is included in the maritime services sector, which follows.

(2) The Maritime Service Sector

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

- Cargo Marine Transportation;
- Vessel Operations;

- Cargo Handling;
- Linehaul Barge Operators on the Columbia and Snake River System; and
- Federal, State, and Local Government Agencies.

A brief description of the major participants in each of these five 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 Longview. 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 marine terminals and inland destinations, as well as the ocean transportation. This function performed by freight forwarders and customhouse brokers is most prevalent for general cargo commodities. For bulk cargo, arrangements are often made by the shipper/receiver.
- Vessel Operations - This category consists of several participants. The steamship agents provide a number of services for the vessel as soon as it enters the Port; the agents arrange for pilot services and towing, for medical and dental care of the crew, and for ship supplies. The agents are also responsible for vessel documentation. In addition to the steamship agents arranging for vessel services, those providing the services include:
 - Chandlers - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);
 - Pilots - provide navigation services to ensure safe transit of vessels between the harbor entrance and docks, along the Columbia river transit, and across the Columbia River Bar;
 - Towing firms - provide the tug service to guide the vessel to and from the berth;
 - 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;
 - 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 capital improvements of marine facilities;

- 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 Longshore and Warehouse Union, and are involved in the loading and unloading of cargo from the vessels, as well as handling the cargo prior to loading and after unloading;
 - Stevedoring firms - manage the longshoremen and cargo-handling activities;
 - Terminal operators - are often stevedoring firms who operate the maritime terminals where cargo is loaded and off-loaded;
- Barge Operators - move grain and petroleum products along the Columbia, Willamette, and Snake River Systems between Longview and various locations in Washington, Oregon, and Idaho. Barge is very important in the movement of grain from Washington, Oregon, and Idaho to export elevators in Longview. About 10 percent of grain exports arrive by barge at the Port of Longview for export. Bunkers to vessels calling the Port of Longview berths are served by tug and barge operators on the Columbia River.
- Government Agencies - This service sector involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at the Port. U.S. Customs, Bureau of Immigration, U.S. Department of Labor, Washington State Grain Inspection, 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.

(3) Port of Longview

The Port of Longview includes those individuals employed by the Port whose purpose is to oversee port activity.

2. 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, logs require a large area for storage, while certain types of dry bulk cargoes require a direct rail car to terminal loading.

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 facilities at the Port of Longview:

- Bulk Agriculture Products:
 - Corn;
 - Soybeans;
 - Wheat;
 - Sorghum;
 - Soya Meal;
- Bulk Chemicals:
 - Coke;
- Bulk Minerals:
 - Potash;
 - Soda Ash;
 - Clay;
 - Iron Oxide Fines;
 - Talc/Chlorite;
 - Tropicote;
- Logs;
- Steel and Scrap;
- Wind Energy; and
- General Products.

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

3. DATA COLLECTION

This Economic Impact Study of the Port of Longview is based on a telephone survey of members of each of the economic sectors. Participants were identified from Merchants Exchange of Portland, Oregon, internal Port of Longview tenant lists, and internal data bases maintained by Martin Associates. Telephone interviews were used to achieve a 95 percent response rate in all sectors. In

addition to data collected from telephone interviews, published data was collected from several sources. These publications include:

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

Other published data was obtained from the U.S. Bureau of Census, County Business Patterns; U.S. Bureau of Economic Analysis, Regional Income Division; and U.S. Bureau of Labor Statistics, "Consumer Expenditure Survey, 2016/2017".

This model has been designed to update the port impact assessment on an annual basis, as well as to test sensitivities of impacts 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 test the impacts of new facility development.

4. IMPACT SUMMARY

The resulting economic impacts are presented in Table 1.

Table 1
Summary of Economic Impacts Generated by Port Activity in 2018

	ECONOMIC IMPACTS
JOBS	
DIRECT	1,261
INDUCED	1,989
INDIRECT	<u>1,495</u>
TOTAL	4,745
PERSONAL INCOME/LOCAL CONSUMPTION (\$1,000)	
DIRECT	\$94,283
RE-SPENDING/LOCAL CONSUMPTION	\$187,368
INDIRECT	<u>\$59,581</u>
TOTAL	\$341,232
BUSINESS REVENUE (\$1,000)	\$491,213
STATE AND LOCAL TAXES (\$1,000)	\$34,114
LOCAL PURCHASES (\$1,000)	\$88,495
RELATED USER IMPACTS	
USER JOBS	14,458
TOTAL VALUE OF OUTPUT (\$1,000)	\$2,167,195
USER INCOME (\$1,000)	\$345,438
USER STATE/LOCAL TAXES (\$1,000)	\$32,126

*Totals may not add due to rounding

II. EMPLOYMENT IMPACTS

In this chapter, the employment generated by maritime activity at the Port of Longview marine terminals is documented. The chapter is organized as follows:

- First, the total employment that is in some way influenced by the activities at the marine terminals is estimated;
- Second, the subset of total employment that is judged to be totally dependent on maritime activity is analyzed in the following ways:
 - ✓ Direct jobs are estimated in terms of key economic sectors, e.g., surface transportation sector;
 - ✓ Direct jobs are estimated for each of the key commodities/commodity groups;
- Third, the direct jobs are estimated by place of residence;
- Fourth, induced jobs generated by local purchases made by those directly employed as a result of port activity are described;
- Fifth, indirect jobs created by local purchases by the firms directly dependent on maritime activity at the Port's terminals are defined;
- Finally, jobs related by the cargo activity handled by the Port's marine terminals are discussed.

The impacts presented in this chapter are for the calendar year 2018.

1. *TOTAL EMPLOYMENT IMPACT*

It is estimated 19,203 jobs are influenced by cargo and vessel activity at the Port of Longview marine terminals.

- 1,261 direct jobs are generated by cargo moving over facilities at the Port of Longview. These jobs are classified as direct jobs and if activity at the Port of Longview were to cease, these jobs would be discontinued over the short term.
- 1,989 are employed by providing goods and services to the 1,261 individuals directly involved with port activity. Consequently, employment in this group is as directly dependent upon port

activity as the first group.

- Firms directly dependent on maritime activity at the Port of Longview made \$88.5 million of local purchases for office supplies, parts and equipment, maintenance and repair services, business services, utilities, communications services and fuel. These local purchases supported 1,495 indirect jobs in the local economy.
- An additional 14,458 jobs are with firms that ship and receive cargo via the marine terminals at the Port of Longview. These jobs are considered to be related by activities at the Port, but the degree of dependence on the Port is difficult to estimate. The majority of these related jobs are related to grain and log exports. If the marine terminals 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.

These related jobs are with regional shippers, exporters, and importers using the marine terminals, as well as other ports and private terminals to ship log and grain products. Grain shippers can use other Columbia River and Puget Sound Ports, as well as the Gulf of Mexico Ports.

The next section of this chapter is dedicated to the 1,261 direct jobs generated by the Port of Longview.

2. DIRECT JOB IMPACTS

As a result of port activity, 1,261 full-time jobs were directly created by activity at the marine terminals at the Port of Longview.

In this section the direct jobs are analyzed in terms of:

- Distribution by economic sector; and
- Distribution by commodity group.

These distributions are developed in more detail below.

2.1 Job Impacts by Sector

Table 2 shows the job impacts by detailed job category. As this table shows, the largest job impacts are with the railroads, members of the ILWU, terminal operators, and trucking firms.

Table 2
Employment Impacts by Job Category

IMPACT CATEGORY	DIRECT JOBS
SURFACE TRANSPORTATION	
RAIL	397
TRUCK	84
SUBTOTAL	481
MARITIME SERVICES	
TERMINALS	205
ILWU	210
TOWING	47
PILOTS	22
AGENTS	16
SURVEYORS/CHANDLERS/MARITIME SERVICES	67
FORWARDERS	7
GOVERNMENT	74
MARITIME EQUIPMENT/CONSTRUCTION	18
BARGE	25
TENANTS	12
SUBTOTAL	703
PORT AUTHORITY	77
TOTAL	1,261

Note: Totals may not add due to rounding

2.2 Job Impacts by Commodity

Most of the 1,261 jobs considered to be generated by port activity can be related to the handling of specific commodities or commodity groups. Employment with certain types of firms and organizations such as local, state and federal government agencies, and marine construction firms, is extremely difficult to assign to specific commodity groups, and if such an assignment is made, it is often done so arbitrarily. As a result, employment in these groups (which totaled 248 jobs) was not allocated to commodity groups.

Table 3 presents the direct employment impacts in terms of commodity/commodity group.

Table 3
Distribution of Direct Job Impact by Commodity

COMMODITIES	DIRECT JOBS
BULK AGRI-PRODUCTS	487
BULK CHEMICALS	58
BULK MINERALS	103
LOGS	107
STEEL / SCRAP	250
WIND ENERGY / GENERAL	8
NOT ALLOCATED	<u>248</u>
TOTAL	1,261

This table indicates that in the year 2018, the handling of grain created the largest number of direct jobs, 487 jobs, while the movement of steel at the Port generated 250 direct jobs. Although, roughly three percent of total tonnage handled at the Port of Longview is steel and scrap, the Port has several tenants and customers in the area who use the Port of Longview to move products. These facilities hire quite a few individuals and also move additional steel products by rail and truck in and out of their facilities. In contrast, the majority of impacts generated by bulk commodities are concentrated with the terminal operations and surface transportation firms. The employment impacts for grain are concentrated with rail operations.

3. GEOGRAPHIC DISTRIBUTION OF DIRECT JOB IMPACTS

The distribution of the direct jobs by place of residence is a useful measure of the geographic importance of the Port to the local economy. Except for rail crew and rail headquarter employment, the direct jobs were identified by place of residence of those holding the direct jobs. The majority of the firms responding to the interviews provided Martin Associates with the zip code distribution of their workforce. Based on these zip codes, the direct jobs (excluding the rail crew and rail headquarters employment) were allocated to a city and county level of detail. Rail crew jobs and rail headquarter jobs are not included in the distribution of the jobs by place of residence, since rail crew jobs and headquarters jobs are, for the most part, held by non-residents of the Longview area. Also, the rail crew jobs were estimated from the average number of crew changes per rail linehaul required to move the rail cargo for each commodity group, and, as a result, it is not possible to trace the exact location of the residence of these crew jobs.

Table 4 shows the distribution of the direct jobs by place of residence. Roughly sixty-five percent of those directly employed (excluding rail crew and rail headquarter employment) due to port activity live in Washington State, while another nearly thirty-five percent reside in Oregon. Fifty-two percent live in Cowlitz County.

Table 4
 Distribution of Direct Jobs*
 by Place of Residence

PLACE OF RESIDENCE	PERCENT	DIRECT JOBS
WASHINGTON CITIES:		
LONGVIEW	32.01%	276
KELSO	8.77%	76
VANCOUVER	5.15%	44
CASTLE ROCK	5.15%	44
KALAMA	<u>3.77%</u>	<u>33</u>
SUBTOTAL	54.85%	474
WASHINGTON COUNTIES:		
OTHER CLARK	2.94%	25
OTHER LEWIS	2.43%	21
OTHER COWLITZ	<u>2.25%</u>	<u>19</u>
SUBTOTAL	7.62%	66
OREGON CITIES:		
PORTLAND	27.20%	235
RAINIER	<u>1.28%</u>	<u>11</u>
SUBTOTAL	28.48%	246
OREGON COUNTIES:		
OTHER COLUMBIA	1.41%	12
OTHER WA	2.06%	18
OTHER OR	4.98%	43
OTHER US	0.61%	5
TOAL	100%	864

* This excludes rail crew jobs and railroad headquarters jobs

4. *INDUCED JOBS*

The regional purchases by the 1,261 direct job holders with the direct income earned from port activity creates additional jobs throughout the Longview area. In calendar year 2018, \$94.3 million was received by those 1,261 directly employed by activity at the Port of Longview marine terminals. As the result of the re-spending of a portion of this income for purchases in the Longview region, an additional 1,989 induced jobs were generated throughout the region. If maritime activity at the Port of Longview were to cease, these induced jobs would also be lost.

These induced jobs are estimated based on the current expenditure profile of residents in the Longview 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 regional residents. The consumption categories are:

- Housing;
- Food at Restaurants;
- Food at Home;
- Entertainment;
- Health Care;
- Home Furnishings; and
- Transportation Equipment and Services.

The estimated consumption expenditures generated as a result of the re-spending impact is distributed across these consumption categories. Associated with each consumption category is the relevant retail and wholesale industry. Jobs to sales ratios in each industry are then computed for the Longview 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 region. Further levels of induced jobs are not estimated since it is not possible to defensibly identify geographically where the subsequent rounds of purchasing occur.

"The Consumer Expenditure Survey" does not include information to estimate the job impact with supporting business services, legal, social services and educational services. To estimate this induced impact, a ratio of state of Washington/Oregon employment in these key service industries 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, educational and other social services.

5. *INDIRECT JOBS*

The firms directly dependent upon the vessel and cargo activity at the Port of Longview made \$88.5 million of purchases from local suppliers of parts and equipment, business services, maintenance and repair services, communications, utilities, rent, office equipment, and fuel. These local purchases supported 1,495 local indirect jobs. If maritime activity at the Port of Longview were to cease, these indirect jobs would also be lost. To estimate these indirect jobs, actual local expenditures by port-dependent firms were estimated from the telephone surveys. To estimate the indirect jobs, the local expenditures were used as inputs into a regional input-output model developed for the Longview/Vancouver/Portland region for Martin Associates by the U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System (RIMS II).

6. *RELATED JOBS*

Related jobs are jobs with users of the Port of Longview. These users include local manufacturers exporting and importing cargo; local construction firms importing steel products, and Pacific Northwest (PNW) logging companies and grain farmers exporting logs and grain through the Port. It is to be emphasized that these users are related to the Port of Longview marine terminals, in that if these facilities were not available the users could ship and receive cargo via other ports. In fact, the majority of these users currently use multiple ports for export and import.

To estimate the related user impact, the average value per ton of each commodity type was then estimated using U.S. Census Bureau, Foreign Trade Statistics. Employment to value of output coefficients for the export producing and import consuming industries related to the specific export and import cargoes were then computed from Bureau of Economic Analysis, Regional Input-Output Model for the Oregon/Washington region. The job coefficients corresponding to the commodities produced or consumed in the region were next multiplied by the local share of the cargo to estimate the related jobs with the cargo moving via the Port of Longview.

Using this methodology, it is estimated that 14,458 jobs with area exporters and importers are related to the cargo moving via the Port of Longview marine terminals. The majority of these jobs are related to the imported steel products and exported grain and logs.¹

¹ The influenced jobs include the jobs throughout the state in the export producing or import consuming industry and also include the jobs with local industries needed to produce the export cargo and use the import cargo moved via the Port. The direct, induced and indirect jobs involved in transporting the cargo to and from the port as well as serving the cargo while in port are excluded from the influenced jobs to avoid double counting.

III. ECONOMIC VALUE, REVENUE, INCOME AND TAX IMPACTS

The movement of cargo via the Port of Longview marine terminals generates revenue for firms in each of the economic sectors. For example, revenue is received by 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 Port of Longview receives revenue from leases at the terminals it owns, wharfage and dockage. In addition, revenue is received by shippers/consignees from the sales of cargo shipped or received via Longview marine cargo facilities and from the sales of products made with raw materials received through the Port. Steamship lines' revenue from the ocean linehaul portion of the cargo movements is excluded from the revenue impact, since very few vessels calling the Port are American flag vessels, and it is not likely that a large portion of the revenue from ocean transportation remains in the local or even national economy.

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. The personal income component of revenue can be traced to geographic locations based on the residence of those receiving the income. The local purchases by firms dependent upon maritime activity at marine terminals at the Port of Longview are identified through the interviews and used to estimate the indirect job impacts. Finally, state and local taxes paid by individuals and businesses can be traced to a geographic location based on the residency of the individuals directly employed and the location of the firms dependent on maritime activity. The balance of the revenue is distributed in the form of non-local payments to firms providing goods and services to the five sectors, for the distribution of company profits to shareholders and to payment of federal taxes. Many of these firms and owners are located outside of the Washington/Oregon region, and, thus, it is difficult to trace the ultimate location of the distributed revenue (other than personal income, taxes and local purchases).

The value of output created by users of the Port is attributed to the region consisting of the states of Washington and Oregon, and 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. REVENUE IMPACT—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 Longview. In 2018, marine cargo activity at the Port generated a total of \$2.8 billion of total economic activity in the region. Of the \$2.8 billion, \$491.2 million is the direct business revenue received by the firms directly dependent upon the Seaport, firms providing maritime services and inland transportation services to the cargo handled at the Seaport and the vessels calling the terminals. In addition, \$187.4 million of re-spending/local consumption expenditures were generated by the Seaport activity. The remaining \$2.2 billion represents the value of the output to the State that is created due to the cargo moving via the Seaport. This includes the value added at each

stage of the supply chain associated with containerized cargo that flows via the Seaport and is consumed within the region.

The balance of the discussion focuses on the \$491.2 million of direct business revenue generated from the provision of services to the cargo and vessels handled at the Port of Longview. Table 5 presents the \$491.2 million revenue impact generated by impact category.

Table 5
Direct Revenue by Category

IMPACT CATEGORY	DIRECT REVENUE (\$1,000)
SURFACE TRANSPORTATION	
RAIL	\$352,768
TRUCK	\$9,147
SUBTOTAL	\$361,916
MARITIME SERVICES	
TERMINALS	\$55,729
TOWING	\$4,624
PILOTS	\$6,052
AGENTS	\$612
SURVEYORS/CHANDLERS/MARITIME SERVICES	\$11,210
FORWARDERS	\$1,756
GOVERNMENT	n/a
MARITIME EQUIPMENT/CONSTRUCTION	\$4,044
BARGE	\$3,564
TENANTS	n/a
SUBTOTAL	\$87,591
PORT AUTHORITY	\$41,706
TOTAL	\$491,213

Note: Totals may not add due to rounding

Firms in the surface transportation sector received \$361.9 million of revenue. Of this revenue, the railroads received \$352.8 million, primarily as the result of the movement of grain and bulk minerals and chemicals. The revenue generated by the surface transportation sector is based on the relevant modal (rail or truck) rate for a commodity multiplied by the tonnage of that commodity moved to and from the Port by the specified mode. The share of each commodity transported by rail

and truck was estimated from interviews with the terminal operators handling the respective commodities, as well as from steamship lines.

The relative modal shares were then applied to the port tonnage (or units) of the specific cargo. Average rail rates were obtained from the Burlington Northern/Santa Fe and the Union Pacific railroads, as well as from steamship lines. These rates were multiplied by the tonnage of each commodity carried by rail to estimate revenue accruing to railroads. The trucking revenue was based on interviews with terminal operators, steamship lines, and trucking firms.

Terminal operators received \$55.7 million of revenue from the handling of the cargo, including stevedoring charges as well as terminal charges. Roughly \$11 million was received by firms providing maritime services, including surveyors and ship chandlers.

Table 6 shows the revenue impact by commodity for cargo handled at the Port of Longview marine terminals. In terms of total revenue, bulk agriculture products generate the largest total revenue impact, followed by bulk chemicals and bulk minerals.

Table 6
Revenue Impacts by Commodity

COMMODITIES	REVENUE (\$1,000)
BULK AGRI-PRODUCTS	\$357,984
BULK CHEMICALS	\$30,024
BULK MINERALS	\$25,310
LOGS	\$6,525
STEEL / SCRAP	\$11,693
WIND ENERGY / GENERAL	\$2,716
NOT ALLOCATED	\$56,960
TOTAL	\$491,213

Note: Totals may not add due to rounding

2. 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 the components of revenue that can be traced to the Longview region. 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 job impact resulted in \$94.3 million in personal income.

Based on data developed by the U.S. Bureau of Economic Analysis, it is assumed that for every one dollar earned by Longview area residents as a result of jobs directly generated by port

activity, an additional \$1.99 of income would be created as a result of re-spending the income for purchases of Longview region-produced goods and services. This re-spending generated an additional \$187.4 million of local personal income and consumption expenditures with local business and service providers. This additional re-spending of the direct income generates the induced job impact, 1,989 jobs, described in the previous chapter.

The indirect jobholders received \$59.6 million of personal wages and salaries. Combining the direct, induced and indirect income impacts, maritime cargo activity at the Port's marine terminals created \$341.2 million of wages and salaries and local consumption expenditures.

The 14,458 jobs with the related users of the Port of Longview received \$345.4 million of wages and salaries.

3. LOCAL PURCHASES

The firms directly dependent upon the maritime activity at the Port of Longview terminals made \$88.5 million of local purchases. These local purchases were for maintenance and repair services, utilities, communications services, office products, parts and equipment, fuel, etc. The \$88.5 million of local purchases generated the 1,495 indirect jobs.

4. TAX IMPACTS

State and local tax impacts are based on state and local tax burdens for Washington and Oregon, which are developed from data provided by the Tax Foundation. The tax burdens are the total state and local taxes collected, divided by total state income.

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

- State and local personal and corporate income tax;
- Insurance tax;
- Gift tax;
- State fuel tax;
- Municipal school district taxes; and
- Tri-Metropolitan Tax.

Maritime activity at the marine terminals at the Port of Longview generated \$34.1 million of state and local taxes. The state of Washington and counties and municipalities within the state received \$20.7 million of tax revenue, while the state of Oregon and local and county governments received about \$13.4 million of state and local taxes from activity at the Port of Longview marine terminals.

IV. COMPARISONS WITH CALENDAR YEAR 2012 IMPACTS

The purpose of this chapter is to provide a comparison of the calendar year (CY) 2018 economic impacts generated by the Port of Longview with the impacts generated by activity in 2012. Martin Associates conducted The Port of Longview's first Economic Impact in 1991 using 1990 data. Since the 1991 study, the impacts were updated in 2012 and again in this current study. The methodology used by Martin Associates to measure the local and regional economic impacts generated by the Port in 2018 is, for the most part, identical to the methodology used to measure the direct and induced impacts generated by maritime activity at the Port of Longview in 1990 and 2012, with the exception that the indirect impacts and the value of output, income and taxes for related users were not estimated in the 1991 study.

1. *COMPARISON OF TOTAL IMPACTS*

Table 7 illustrates that between 2012 and 2018, the number of direct, induced and indirect jobs generated by activity at the Port of Longview increased by 1,725. This reflects the increase in tonnage moving via the Port, growing from 6.3 million metric tons in 2012 to 10.4 million metric tons in 2018. Bulk agriculture products increased the most over this time period, followed by bulk minerals, scrap, and bulk chemicals. Bulk agriculture exports nearly doubled growing from 4.7 million tons in 2012 to 8.1 million tons in 2018. Coke exports grew by roughly 200,000 tons. Soda ash tonnage grew from 78,000 tons 2012 to nearly 500 thousand tons in 2018. Iron oxide fines also grew by 33,000 tons over the same period. Scrap exports are a new commodity handled at the Port of Longview so were not included in the analysis in 2012. Total vessel calls at the Port of Longview increased from 228 to 291 over the same time period and direct jobs grew by 444 jobs. Direct personal income grew by \$41.8 million while business revenue grew by \$175.3 million. Indirect jobs increased by 533 jobs, reflecting the increase in local purchases between 2012 and 2018. State and local taxes increased by \$13.4 million.

Table 7
Comparison of Port of Longview Impacts

ECONOMIC IMPACTS	CY 1990	CY 2012	CY 2018	CHANGE '12-'18
JOBS				
DIRECT	773	817	1,261	444
INDUCED	542	1,241	1,989	748
INDIRECT	<u>n/a</u>	<u>962</u>	<u>1,495</u>	<u>533</u>
TOTAL	1,315	3,019	4,745	1,725
PERSONAL INCOME/LOCAL CONSUMPTION (\$1,000)				
DIRECT	\$25,800	\$52,466	\$94,283	\$41,817
RE-SPENDING/LOCAL CONSUMPTION	\$53,600	\$127,970	\$187,368	\$59,399
INDIRECT	<u>n/a</u>	<u>\$38,322</u>	<u>\$59,581</u>	<u>\$21,259</u>
TOTAL	\$79,400	\$218,758	\$341,232	\$122,475
BUSINESS REVENUE (\$1,000)	\$97,400	\$315,941	\$491,213	\$175,271
STATE AND LOCAL TAXES (\$1,000)	\$4,400	\$20,736	\$34,114	\$13,379
LOCAL PURCHASES (\$1,000)	n/a	\$56,919	\$88,495	\$31,576
RELATED USER IMPACTS				
USER JOBS	5,209	9,100	14,458	5,358
TOTAL VALUE OF OUTPUT (\$1,000)		\$1,358,998	\$2,167,195	\$808,197
USER INCOME (\$1,000)		\$212,245	\$345,438	\$133,194
USER STATE/LOCAL TAXES (\$1,000)		\$19,739	\$32,126	\$12,387

Note: Totals may not due to rounding. Indirect jobs and local purchases were not estimated in 1990, nor were the total value of output, user income and user state and local taxes.

2. COMPARISON OF DIRECT JOB IMPACTS

Table 8 shows the direct job impacts generated by job category. Direct jobs increased in nearly every category, reflecting the growth of about 4.1 million metric tons and 63 vessel calls at the Port of Longview. The largest gain was with jobs associated with the railroads and International Longshore and Warehouse Union (ILWU). The growth in railroads reflects the growth in bulk commodity tonnages as bulk commodities move via rail. Further reflecting the growth in bulk agriculture tonnage, barge jobs similarly increased between 2012 and 2018. Increased ILWU jobs reflect the growth in handling the additional 4.1 million metric tons at the Port, which also resulted in increased ILWU hours and the number of registered and working members. Both tug assist and pilot jobs grew by 13 full time equivalent jobs reflecting the growth in vessel calls. The Columbia River Pilots have hired

several new apprentices preparing for future retirements. The Port of Longview added 23 additional jobs from 2012 to 2018.

Although overall direct jobs increased between 2012 and 2018, two job categories experienced a decline over this period, forwarding and maritime construction jobs. Forwarding jobs declined as a result of the loss in wind energy moving via the Port of Longview between 2012 and 2018. Maritime construction jobs slight reduction is directly related to the decrease in the capital expenditures by the Port of Longview from \$3.7 million in 2012 to \$2.9 million in 2018.

Table 8
Comparison of Direct Jobs by Job Category

DIRECT JOB IMPACT CATEGORY	CY 1990	CY 2012	CY 2018	CHANGE '12-'18
SURFACE TRANSPORTATION				
RAIL	27	243	397	154
TRUCK	<u>429</u>	<u>68</u>	<u>84</u>	<u>15</u>
SUBTOTAL	456	311	481	169
MARITIME SERVICES				
TERMINALS	17	162	205	43
ILWU	194	79	210	131
TOWING	21	34	47	13
PILOTS	1	9	22	13
AGENTS	7	12	16	4
SURVEYORS/CHANDLERS/MARITIME SERVICES/WAREHOUSE/LAW	19	46	67	20
FORWARDERS	8	14	7	-7
GOVERNMENT	4	60	74	14
MARITIME EQUIPMENT/CONSTRUCTION	n/a	20	18	-2
BARGE	n/a	15	25	11
TENANTS	<u>n/a</u>	<u>n/a</u>	<u>12</u>	<u>12</u>
SUBTOTAL	271	452	703	251
PORT AUTHORITY	46	54	77	23
TOTAL	773	817	1,261	444

Note: Totals may not add up exactly due to rounding

3. SUMMARY OF IMPACT COMPARISONS

Between 2012 and 2018, cargo tonnage at the Port of Longview increased by about 4.1 million metric tons and vessel calls increased by 63. As a result, the overall economic impact of the Port increased; direct jobs grew by 444 jobs; total supported jobs grew by 7,084 direct, induced, indirect and related jobs; and overall economic value of the Port grew from \$1.8 billion to \$2.8 billion.

The fact that the Port of Longview continues to increase its importance in the local economy as a major source of job creation, particularly of direct jobs with an average annual salary of \$74,763, underscores the importance of the Port of Longview as a major catalyst in the greater Portland/Vancouver metropolitan region, the states of Washington and Oregon, as well as the Pacific Northwest and national economies. In order to sustain this growth as an economic engine, it is critical that the Port of Longview continues to invest in terminal, rail and highway access infrastructure to meet future demand, and to continue to attract tenants to stimulate further economic development in the region. This economic study suggests that the continued growth and investment in the Port will result in further job, income and tax growth for the greater Portland/Vancouver metropolitan region, the states of Washington and Oregon, as well as the Pacific Northwest.