

THE 2013 ECONOMIC IMPACT OF THE PORT OF SEATTLE



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I. OVERVIEW OF THE ANALYSIS

The Port of Seattle retained the services of Martin Associates to evaluate the economic impacts generated by waterborne activity at the Seattle seaport, airport activity at the Seattle-Tacoma (Sea-Tac) International Airport and the economic impacts generated by the Port's non-maritime and non-aviation tenants.

The measurement of the economic impacts of the Seattle seaport consists of the measurement of the impacts of five distinct types of waterborne activity that occurs in the Seattle seaport. These five types of waterborne activities are:

- *Marine cargo activity*, which includes waterborne cargo moving via the Port of Seattle facilities (i.e., facilities owned and operated by the Port of Seattle and facilities leased to private operators).
- *Fishing activity at the Port of Seattle's marine terminals*, which includes the impacts generated by purchases of supplies, shipyard services, equipment and fishing gear, insurance and legal services by fishing vessels using the Port of Seattle's Fishermen's Terminal, by catcher processors homeporting at Port facilities, most notably Terminal 91, as well as commercial fishing activity at the Maritime Industrial Center.
- *Waterborne passenger activity*, which consists of the Port's cruise business activity and harbor cruises. The impacts of the passenger services are limited to the actual waterborne operations and shore-side operations of the passenger vessel operators. Also included are the impacts of cruise passengers on the local visitors industry.
- *Marina activity*, which includes recreational boats that are moored at Port-owned marinas such as the Shilshole Bay Marina, Bell Harbor, Harbor Island and Fishermen's Terminal, as well as transient recreational boating activity.
- *Non-marine cargo and non-aviation Port of Seattle real estate tenants*, which includes offices, restaurants, retail stores, industrial and tourism related operations located on Port of Seattle owned-property.

Airport activity at Sea-Tac International Airport consists of activity generated on-site at the airport due to passengers and aircraft operations, as well as activity generated by visitors to the Seattle area who arrived via Sea-Tac.

A major emphasis of the study is its defensibility and realistic assessment of the impacts generated by activity at the Seattle seaport and at Sea-Tac. The study is based on interviews with

1,067 firms providing services to the Seattle seaport operations, real estate tenants, and Sea-Tac International Airport. A greater than 98 percent coverage of the firms in the Seattle seaport and airport community has been achieved, underscoring the defensibility of the study. The impacts can be traced back to the company level of detail. The data collected from the interviews were then used to develop operational models of the Seattle seaport, fishing terminals, Sea-Tac International Airport, passenger cruise activity, recreational boating, and Port real estate tenant's impacts. In addition to the data collected from the interviews, an in-terminal passenger survey of 1,400 passengers using Sea-Tac was conducted to assess impacts of visitors arriving in the Seattle area via Sea-Tac. Also, a survey of 600 cruise passengers and ship crew was conducted as part of this study to estimate the expenditure patterns of passengers boarding cruise ships at the Port of Seattle.

The results of the analysis include a snapshot of the economic impact of the Seattle seaport, Sea-Tac and real estate tenants in 2013, as well as the development of impact models for each business unit operated by the Port of Seattle. These models provide the Port of Seattle with tools to update the economic impacts on an annual basis, as well as to evaluate the sensitivity of the resulting local and regional impacts to changes in underlying factors and to assess the economic impacts of specific Port of Seattle capital development projects.

With respect to the seaport, the impacts of changes in such factors as tonnage levels (by commodity and trade route), vessel call levels, labor productivity, inland modal distribution (rail vs. truck), and inland markets for waterborne cargo can be evaluated. The marina model can be used to assess the impacts of changes in the composition of the boats moored at each marina, the expenditures of moored boats, the number of moored and transient boats and the characteristics of spending patterns associated with the passengers of transient boats. For fishing activity at the Port's terminals, the impact model can test the sensitivity of the impacts to changes in the number of fishing boats using the terminals and changes in expenditure profiles by type of boat. The cruise model can be used to estimate the impact of new cruise service, changes in passenger expenditures, size of ship, type of cruise and annual updates.

For the airport, the airport sensitivity model provides a tool to measure the impacts of changes in such factors as passenger levels, mix of international vs. domestic passengers, flight levels, aircraft mix at peak vs. off-peak hours, labor productivity and work rules and aircraft load factors. Both the seaport and airport models are designed to estimate the impacts of new facilities development or expansion, as well as alternative land uses.

The real estate model can be used to assess the potential impacts of new tenants on the local and regional economy.

For the most part, the same methodology has been used to estimate the 2013 economic direct impacts as was used by Martin Associates to estimate the 1987, 1993, 1999, 2003 and 2007 direct economic impacts of the Port of Seattle's seaport cargo and airport activity. Real estate impacts are not compared since the level of real estate activity is dependent upon lease renewals, as

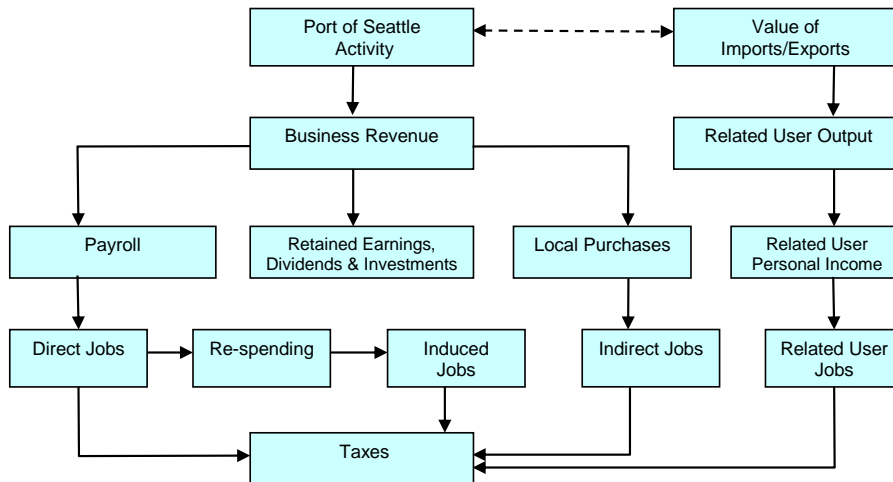
well as new retail, office, commercial and industrial space offered by the Port of Seattle. This activity is, for the most part, not dependent on business level activity “created” by the Port of Seattle, but instead the business climate in Seattle. As a result, comparisons between 2013 and 2007 real estate activity are not made.

The remainder of this chapter presents an overview of the impact analysis and a summary of the results.

1. FLOW OF IMPACTS

Passenger and air cargo activity at an airport, waterborne activity at a seaport and real estate activity contribute to the local and regional economy by generating business revenue to local and national firms providing services to these sectors. These firms, in turn, provide employment and income to individuals and pay taxes to state and local governments. Exhibit I-1, below, shows how air traffic activity at Sea-Tac International Airport, the waterborne activity in the Seattle seaport and real estate activity of Port of Seattle tenants generate impacts throughout the local, state and national economies. As this exhibit indicates, the impact of an airport, seaport and real estate tenants, on a local, state or national economy cannot be reduced to a single number, but instead, they create several impacts. These are the revenue impact, employment impact, personal income impact and tax impact. **These impacts are non-additive.** For example, the income impact is a part of the revenue impact, and adding these impacts together would result in double counting. Exhibit I-1 shows graphically how activity at Sea-Tac and the Seattle seaport generate the four impacts.

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



1.1 Business Revenue Impact

At the outset, activity at the airport and seaport generates business revenue for firms that provide services. This business revenue impact is dispersed throughout the economy in several ways. It is used to hire people to provide the services, to purchase goods and other services, to pay for the use of airports and seaports and to make federal, state and local tax payments. The remainder is used to pay stockholders, retire debt, make investments or is held as retained earnings. It is to be emphasized that the only portions of the revenue impact that can be definitely identified as remaining in the state of Washington are those portions paid out in salaries to Washington employees, for local purchases by individuals and businesses directly dependent on the seaport and airport, and in contributions to state and local taxes, as well as federal taxes. Landing fees and terminal rentals paid by airlines provide for some of the costs of operation of the airport and capital costs of new construction, while terminal leases paid to the Port of Seattle by terminal operators; wharfage and dockage fees paid by the steamship lines and cruise lines; and revenue from real estate leases, generate revenue to the Port of Seattle's marine division.

1.2 Employment Impact

The employment impact of airport and seaport activity consists of five levels of job impacts.

- Direct employment impact - jobs directly generated by airport and seaport activity. Direct jobs generated by marine cargo include jobs with railroads and trucking companies moving cargo between inland origins and destinations and the marine terminals, longshoremen, steamship agents, freight forwarders, stevedores, etc. Direct jobs generated by the airport include jobs with airlines, catering companies, retail concessions located in the terminals, etc. Direct jobs generated by the fishing fleet using Port of Seattle facilities include crew, shipyard employees, local fishing gear suppliers, insurance brokers and marine attorneys, etc. Direct jobs supported by the passenger cruise service include jobs with firms providing services to the vessel as well as local hotels, restaurants, transportation firms and retail stores providing services to the passengers. Direct jobs supported by the marina activity include jobs directly involved with operating the Port of Seattle marinas, as well as jobs supported by the direct purchases by the boat owners including boat repair, equipment, nautical supplies, etc. For transient boats calling the Port's marinas, direct jobs are measured for the local restaurants and retail outlets. Finally, for the real estate tenants, the direct jobs include those individuals directly employed by the real estate tenants of the Port.

It is to be emphasized that these are classified as directly generated in the sense that these jobs would experience near term dislocation if the Port of Seattle seaport facilities were to be closed to maritime, fishing, cruise and marina activity; air operations at Sea-Tac were discontinued; and Port of Seattle real estate tenants were not able to relocate to non-port property, and as a result leave the area. These jobs are, for the most part, local jobs and are held by residents of King County.

- Induced employment impact - jobs created throughout the local economy because individuals directly employed due to airport and seaport activity spend their wages locally on goods and services such as food, housing and clothing. These jobs are held by residents located throughout the region and state, since they are estimated based on local and regional statewide purchases.
- Air visitor industry employment impact - service jobs in the community (hotel, restaurant, retail employees) resulting from the purchases by 9.0 million visitors to the Seattle area arriving via Sea-Tac International Airport in 2013. Without air service, many of these visitors would not reach the area, making the resultant jobs directly associated with, but not entirely dependent, upon air service.
- Indirect Jobs - jobs created in the state of Washington due to purchases of goods and services by firms, not individuals. These jobs are estimated directly from local purchases data supplied to Martin Associates by the 1,067 companies interviewed as part of this study, and include jobs with local office supply firms, maintenance and repair firms, parts and equipment suppliers, etc. It is to be emphasized that special care was taken to avoid double counting, since the current study counts certain jobs as direct, which are often classified as indirect by other approaches.
- Related user employment impact - jobs with firms using the seaport or airport to ship and receive cargo and with firms whose employees are regular users of the seaport and airport. These jobs are not entirely dependent upon the seaport or airport, but reflect the importance of the Seattle seaport and Sea-Tac to local firms. While the facilities and services provided in the seaport and airport are a crucial part of the infrastructure allowing these jobs to exist, they would not necessarily be immediately displaced if marine and air activity were to cease. These include shippers of agricultural products located in eastern Washington, as well as importers of consumer goods, and local manufacturers located within the state.

1.3 Personal Earnings Impact

The personal earnings impact is the measure of employee wages and salaries (excluding benefits) received by individuals directly employed due to airport or seaport activity. Re-spending of these earnings throughout the state of Washington for purchases of goods and services is also estimated. This, in turn, generates additional jobs -- the induced employment impact. This re-spending throughout the state is estimated using a state personal earnings multiplier, which reflects the percentage of purchases by individuals that are made within a state. The re-spending effect varies by state: a larger re-spending effect occurs in states that produce a relatively large proportion of the goods and services consumed by residents, while lower re-spending effects are associated with states that import a relatively large share of consumer goods and services (since personal earnings

"leak out" of the state for these out-of-state purchases). The direct earnings are a measure of the local impact since those directly employed by airport or seaport activity receive the wages and salaries. The re-spending effect is regional.

1.4 Tax Impact

Federal, state and local tax impacts are tax payments to the state and local governments by firms and by individuals whose jobs are directly dependent upon and supported (induced and indirect jobs) by activity at Sea-Tac International Airport, the Seattle seaport and Port real estate tenants. The tax impacts include state and local taxes collected from all sources, both personal and business taxes, as well as airport specific taxes such as the air cargo waybill tax, the international departure tax, the domestic passenger tax as well as various security tax levies imposed after 9/11. State and local taxes are based on income indices developed by the Tax Foundation and these indices are applied to the direct, induced and indirect personal income impacts.¹

2. SUMMARY OF METHODOLOGY

The purpose of this section is to provide a summary of the methodological approach used to estimate the economic impacts of the Port of Seattle. The methodological approach to this study is designed to provide highly defensible, as well as accurate results. In addition to the Port of Seattle, this same methodology has been used by Martin Associates in the last 28 years to assess the economic impacts of activity at more than 500 seaports including:

¹ The Tax Foundation publishes similar tax indices for state and local tax burdens for each state in the United States.

<i>Los Angeles</i>	<i>Houston</i>	<i>Wilmington/Morehead City, NC</i>
<i>Long Beach</i>	<i>Corpus Christi</i>	<i>Virginia Port Authority</i>
<i>San Diego</i>	<i>Freeport, TX</i>	<i>Baltimore</i>
<i>Port of Hueneme</i>	<i>Texas City</i>	<i>Philadelphia</i>
<i>Oakland</i>	<i>Victoria, TX</i>	<i>Wilmington, DE Brunswick, GA</i>
<i>Portland</i>	<i>Baton Rouge</i>	<i>Richmond, VA</i>
<i>Longview</i>	<i>New Orleans</i>	<i>Providence, RI</i>
<i>Vancouver</i>	<i>Miami</i>	<i>Boston</i>
<i>Grays Harbor</i>	<i>Port Everglades</i>	<i>Montreal</i>
<i>Everett</i>	<i>Palm Beach</i>	<i>Quebec City</i>
<i>Tacoma</i>	<i>Port Canaveral</i>	<i>Prince Rupert, BC</i>
<i>Bellingham</i>	<i>Jacksonville</i>	<i>Halifax</i>
<i>Sacramento</i>	<i>Tampa</i>	<i>Saint John, NB</i>
<i>San Francisco</i>	<i>Port Manatee</i>	<i>36 U.S. and Canadian Great Lakes Ports</i>
<i>Vancouver, BC</i>		

Similarly, the airport impact methodology has been used in the last 28 years by Martin Associates to estimate the economic impacts of airport activity for a majority of the major airports in North America, including:

<i>Hartsfield Atlanta Int'l Airport</i>	<i>Milwaukee's General Mitchell Int'l Airport</i>
<i>Miami Int'l Airport</i>	<i>Nashville International Airport</i>
<i>Stapleton Int'l and Denver Int'l Airports</i>	<i>Baltimore-Washington Int'l Airport</i>
<i>San Francisco Int'l Airport</i>	<i>Reagan National and Dulles Int'l Airports</i>
<i>San Jose Int'l Airport</i>	<i>Portland (OR) Int'l Airport</i>
<i>Sacramento Int'l Airport</i>	<i>Oakland Int'l Airport</i>
<i>Minneapolis/St. Paul Int'l Airport</i>	<i>Harrisburg Int'l Airport</i>

2.1 Data Collection

The cornerstone of the Martin Associates approach is the collection of detailed baseline impact data from firms providing services at the airport and seaport. To ensure accuracy and defensibility, the baseline impact data was collected from personal and telephone interviews with 1,067 firms in the Seattle port, airport and port tenant community. These firms represent the universe of firms providing services at the Seattle seaport (including Fishermen's Terminal) and Sea-Tac International Airport and non-marine and non-aviation tenants, as identified by the following sources:

- Pacific Northwest Ports Handbook, 2014;
- "The Journal of Commerce", [Transportation Telephone Tickler](#);
- The Port of Seattle Tenant and Concessionaire Report;
- Sea-Tac International Airport Directory;
- Internal Port of Seattle tenant lists and customer files; and
- 2007 Martin Associates Database.

These 1,067 firms represent greater than 98 percent coverage of all firms identified in the seaport, airport and real estate community. For the most part, multiple interviews were conducted with several persons in each firm.

In addition to the interviews, an in-terminal survey of 1,400 passengers using Sea-Tac was also conducted to develop passenger characteristics. These interviews were conducted in the airport terminal during the weeks of April 28th, 2014 and July 14th, 2014. A cruise passenger survey of 600 cruise passengers and crew members was conducted at the Port of Seattle's Cruise Terminal from July 18th-20th, 2014.

2.2 Direct Jobs, Income and Revenue Impacts

The results of these interviews were then used to develop the baseline direct job, revenue and income impacts for the seaport, airport and real estate activity, and for the economic sectors and job categories associated with the airport, seaport and real estate tenants.

This baseline survey data was also used to develop operational models that can be used to update the impacts of the Seattle marine cargo, marina activity, cruise activity, activity at the Port's commercial fishing terminals, real estate tenants, and the Sea-Tac International Airport on an annual basis and to evaluate the impacts of changes in:

- Marine cargo tonnage, by commodity;
- Seaport and airport labor productivity, and work rules;

- Modal distribution of seaport cargo (what percent of the inland transportation of a commodity is truck versus rail), as well as the geographical distribution of each commodity;
- Vessel calls;
- Air passenger volume;
- International versus domestic visitors using Sea-Tac;
- Number of flights;
- Mix of aircraft (wide body aircraft versus narrow body versus commuter aircraft);
- Number of recreational boats, by type of boat, moored at Port of Seattle facilities, as well as transient calls at the Port's marinas;
- Local purchases made by recreational boats moored at the Port of Seattle-owned marinas, as well as transient recreational boating activity at these facilities;
- Number of fishing boats, by type of fishing fleet, using the Port of Seattle's Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center;
- Local purchases made by fishing boat operators based at Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center;
- Cruise service at the Port's cruise terminals; and
- New real estate tenants of the Port, by type of business activity (office versus restaurant versus manufacturing).

Also, the operational models can be used to evaluate alternative facilities expansion projects and new construction, such as a new or expanded marine cargo or cruise terminal and terminal and runway expansion projects at Sea-Tac.

2.3 Induced Impacts

Induced impacts are those generated by the purchases of the individuals employed as a result of seaport, airport and real estate activity. For example, a portion of the personal earnings received by those directly employed due to activity at the seaport and airport is used for purchases of goods and services, both in state, as well as out-of-state. These purchases, in turn, create additional jobs in the state of Washington, which are classified as induced. To estimate these induced jobs, a personal earnings multiplier for the Seattle region was developed from data provided by the Bureau of Economic Analysis, Regional Input-Output Modeling System. This income multiplier is used to estimate the total personal earnings generated in the Seattle region, primarily defined as King County. A portion of this total personal earnings impact is next allocated to specific local purchases (as determined from consumption data for Seattle residents, as developed from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2011-2012). These purchases are next converted into retail and wholesale induced jobs in the regional economy.

Induced jobs are not estimated at lower levels of purchasing rounds (after the wholesale round) since it is not possible to trace with a sufficient degree of accuracy,

geographically, where purchases at the remaining levels occur. However, about 80 percent of the consumption will likely occur at the first two rounds of purchases, which are most likely local retail and wholesale purchases.

2.4 Indirect Jobs

Indirect jobs are generated in the local economy as the result of purchases by firms that are directly dependent upon activity at the Seattle seaport, cruise activity at the Port's cruise terminals, Port of Seattle marinas, fishing activity at the Port-owned facilities supporting commercial fishing, Sea-Tac International Airport, as well as by the non-maritime and non-aviation tenants of the Port of Seattle. These purchases are for goods such as office supplies and equipment, maintenance and repair services, raw materials, communications and utilities, transportation services and other professional services. To estimate the indirect economic impact, local purchases, by type of purchase, were collected from each of the 1,067 firms interviewed. These local purchases were then combined with employment to sales ratios in local supplying industries, developed from U.S. Bureau of Economic Analysis, Regional Input-Output Modeling System for the state of Washington and King County. These jobs to sales ratios capture the numerous spending rounds associated with the supply of goods and services. Special care has been exercised to avoid double counting the indirect impacts, and to specifically include only the expenditures by the directly dependent firms that are, in fact, local.

2.5 Related Impacts

Related impacts measure the jobs with shippers and consignees moving cargo through the Seattle seaport and via airlines serving Sea-Tac International Airport. These jobs are classified as related jobs, since the firms using the seaport and airport facilities for the movement of marine and air cargo can and do use other seaports and airports. For example, firms exporting containerized cargo typically select a steamship line rather than the seaport through which the cargo will move, and the port through which the export containerized cargo moves is ultimately determined by the steamship line's port call rotation. However, with more sophisticated logistics operations and the development and reliance on distribution centers in West Coast port cities, predominantly Los Angeles and Long Beach, importers have become more involved in the port choice, and the steamship lines have responded to these demands by adjusting port rotations accordingly. Similarly, air cargo shippers often select a freight forwarder or an express air courier to arrange and handle the air cargo shipment. The air courier or forwarder ultimately determines which airport will be used, based on the selection of the air carrier. Therefore, the air cargo shippers are essentially "airport blind". However, the estimate of the number of jobs related to cargo moving via the seaport and airport highlight the importance of the sea and air transportation infrastructure developed by the Port of Seattle as a catalyst to economic growth and development.

Related impacts for the seaport were estimated by multiplying the value of the Washington State cargo moving via the marine terminals with jobs to sales ratios specific to the exporters and

importers.² Values of air freight moving via Sea-Tac were based on a data from the U.S. Bureau of Census, Trade On-Line.

The ratio of jobs to value of air cargo shipments was also developed from the above noted source. The value of enplaned air cargo multiplied by the ratios of jobs to value of air cargo resulted in an estimate of related air cargo jobs.

2.6 Tax Impacts

The tax impacts include state and local taxes collected from all sources, both personal and business taxes, as well as airport specific taxes. The state and local per capita income tax burdens (developed by the Tax Foundation for the state of Washington) are applied to the total direct, induced and indirect income impacts to estimate total state and local taxes created by seaport and airport activity at the Port of Seattle. The aviation specific taxes, such as the air cargo waybill tax, the international departure tax, the domestic passenger tax as well as various security tax levies imposed after 9/11, are estimated based on the specific tax formulas and the relevant passenger or air cargo activity at Sea-Tac.

3. TOTAL IMPACT OF THE PORT OF SEATTLE

As Table I-1 indicates, the Port of Seattle seaport and airport facilities, as well as Port non-maritime and non-aviation related real estate tenants generate the following economic impacts for the local and regional economy:

- 129,744 direct jobs are generated by Port of Seattle-owned transportation facilities. As the result of local and regional purchases by those 129,744 individuals holding the direct jobs, an additional 53,148 induced jobs are supported in the region.
- 33,379 indirect jobs were supported by \$2.3 billion of local purchases by businesses supplying services at the Port-owned facilities.
- \$4.2 billion of direct wages and salaries were received by those 129,744 directly employed by the Port of Seattle's transportation infrastructure. As the result of re-spending this income, an additional \$4.3 billion of income and consumption expenditures are created in the Seattle region, primarily King County. The indirect jobs holders received \$1.1 billion of indirect wages and salaries.

² The value of cargo moving via the marine terminals was determined from U.S. Census, USA Trade On-Line, while the ratios of jobs to sales data for related Washington State exporters and importers were developed from data supplied to Martin Associates by the Bureau of Economic Analysis, Regional Input-Output Modeling System.

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- Businesses providing services at the Port-owned marine terminals and Sea-Tac International Airport, as well as real estate tenants, received \$19.8 billion of revenue, excluding the value of cargo shipped through the airport and marine facilities, and the landed value of the seafood caught by the fleet using Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center.
- \$894.4 million of state and local taxes were generated by activity at the Port of Seattle marine terminals, real estate tenants, and Sea-Tac International Airport. In addition, \$547.2 million of federal aviation-specific taxes were generated by activity at Sea-Tac International Airport.

Table I-1
Summary of the Economic Impacts Generated by the Port of Seattle Seaport, Real Estate and Airport Activity, 2013

	Port of Seattle Marine Cargo	Port of Seattle Real Estate	Port of Seattle Fishing	Port of Seattle Harbor Cruises	Port of Seattle Marinas	Port of Seattle Cruise	Sea-Tac	Total Port of Seattle
Jobs								
Direct	8,902	1,044	8,253	122	140	1,741	109,542	129,744
Induced	8,644	486	4,735	52	94	852	38,284	53,148
Indirect	<u>5,863</u>	<u>300</u>	<u>3,102</u>	<u>57</u>	<u>89</u>	<u>812</u>	<u>23,157</u>	<u>33,379</u>
Total Jobs	23,409	1,831	16,089	231	323	3,404	170,984	216,271
Personal Income (\$1,000)								
Direct	\$527,232	\$54,527	\$674,825	\$5,333	\$4,984	\$70,010	\$2,842,177	\$4,179,088
Re-spending/Local Consumption	\$1,158,857	\$41,316	\$483,040	\$4,040	\$10,738	\$83,893	\$2,536,972	\$4,318,856
Indirect	<u>\$289,158</u>	<u>\$22,448</u>	<u>\$156,163</u>	<u>\$3,089</u>	<u>\$3,563</u>	<u>\$22,299</u>	<u>\$629,197</u>	<u>\$1,125,916</u>
Total	\$1,975,247	\$118,291	\$1,314,028	\$12,462	\$19,286	\$176,202	\$6,008,345	\$9,623,860
Business Revenue (\$1,000)	\$1,832,303	\$434,905	\$915,370	\$18,293	\$21,574	\$407,790	\$16,182,672	\$19,812,907
Local Purchases (\$1,000)	\$581,098	\$48,000	\$244,750	\$6,762	\$7,530	\$40,714	\$1,339,040	\$2,267,896
State and Local Taxes (\$1,000)	\$183,698	\$11,001	\$119,577	\$1,159	\$1,794	\$16,123	\$561,064	\$894,415
Aviation Taxes (\$1,000)							\$547,189	\$547,191

Totals may not add due to rounding

*Impacts of Port of Seattle Cruise Operations include impacts created by cruise passengers using Sea-Tac Airport. In this Port-wide aggregation table of impacts by lines of business, the cruise passenger impacts created at Sea-Tac are included with the cruise impacts and the Sea-Tac impacts reported in this table are net of the cruise generated airport impacts. In Chapter IV, which details the economic impacts of Sea-Tac, these cruise passenger impacts are included in the airport impacts.

**The re-spending/local consumption impact cannot be divided by induced jobs to estimate induced income, since the re-spending impact also includes local purchases. This would overstate the induced income impact.

II. THE ECONOMIC IMPACTS OF THE SEATTLE SEAPORT

The impacts generated by the Seattle seaport consist of:

- Impacts generated by cargo and vessel activity at marine facilities owned and operated by the Port of Seattle, as well as facilities owned by the Port, but leased to private terminal operators.
- Impacts generated by the fishing fleet at the Port of Seattle-owned Fishermen's Terminal, as well as by fishing vessels homeported at Terminal 91 and the Maritime Industrial Center, including impacts generated by the purchases of supplies and services by the fishing fleet based at these Port of Seattle facilities. Also included are impacts with retail tenants and restaurants located at Fishermen's Terminal, as well as cold storage and fish processing operations at Terminal 91. ***It is to be emphasized that the Washington based fishing fleet uses other non-Port of Seattle terminals and moorings throughout the Seattle and Puget Sound areas. The impacts of these vessels are not included in this study.***
- Impacts generated due to cruise vessel operations in the Seattle seaport, including harbor tours and Alaskan cruises.
- Impacts of recreational boating at the Port of Seattle owned marinas, including boats moored and transient calls at Shilshole Bay Marina, Bell Harbor, Harbor Island and Fisherman's Terminal.
- Impacts of real estate tenants on Port of Seattle property, including offices, retail and light industrial tenants. These are real estate and industrial tenants of the Port that are not involved in waterborne or airport activity.

In the remainder of this chapter the impacts generated by the Seattle seaport are summarized. First, the impacts generated by all activity (marine cargo, the commercial fishing, cruise service and harbor tours and recreational boating). Secondly, the impacts generated by type of activity are summarized.

1. THE ECONOMIC IMPACTS OF THE SEATTLE SEAPORT

Table II-1 summarizes the economic impacts generated by seaport activity.

Table II-1
Economic Impacts of Port of Seattle Seaport Activity

	Port of Seattle Marine Cargo	Port of Seattle Fishing	Port of Seattle Harbor Cruises	Port of Seattle Marinas	Port of Seattle Cruise	Port of Seattle Total Seaport
Jobs						
Direct	8,902	8,253	122	140	1,741	19,158
Induced	8,644	4,735	52	94	852	14,377
Indirect	<u>5,863</u>	<u>3,102</u>	<u>57</u>	<u>89</u>	<u>812</u>	<u>9,922</u>
Total	23,409	16,089	231	323	3,404	43,457
Personal Income (\$1,000)						
Direct	\$527,232	\$674,825	\$5,333	\$4,984	\$70,010	\$1,282,384
Re-Spending/Local Consumption	\$1,158,857	\$483,040	\$4,040	\$10,738	\$83,893	\$1,740,568
Indirect	<u>\$289,158</u>	<u>\$156,163</u>	<u>\$3,089</u>	<u>\$3,563</u>	<u>\$22,299</u>	<u>\$474,271</u>
Total	\$1,975,247	\$1,314,028	\$12,462	\$19,286	\$176,202	\$3,497,224
Business Revenue (\$1,000)	\$1,832,303	\$915,370	\$18,293	\$21,574	\$407,790	\$3,195,329
Local Purchases (\$1,000)	\$581,098	\$244,750	\$6,762	\$7,530	\$40,714	\$880,855
State and Local Taxes (\$1,000)	\$183,698	\$119,577	\$1,159	\$1,794	\$16,123	\$322,350

Totals may not add due to rounding.

*Cruise impacts include impacts created by cruise passengers using Sea-Tac International Airport

In 2013, marine cargo activity at the private and public marine terminals located in the Seattle seaport, the fishing fleet at Fishermen's Terminal and the vessels homeported at other Port of Seattle marine terminals, waterborne passenger activity, recreational boating and real estate activity generated:

- 19,158 direct jobs. As the result of purchases in the local and regional economy with the income received by those holding the direct jobs, an additional 14,377 induced jobs were generated in the Puget Sound region. As the result of \$880.9 million of local purchases by the firms directly providing services at the Port of Seattle marine facilities, 9,922 indirect jobs with local supplying firms were also supported in the regional economy.
- \$1.3 billion of personal income was received directly by those employed directly by activities at the Seattle seaport. As the result of re-spending of this income for purchases of goods and services by those directly employed, an additional \$1.7 billion of income and consumption expenditures are generated in the region. A portion of this re-spending impact is used to pay those holding the 14,377 induced jobs, while another portion is received by

the firms providing the goods and services to the individuals directly employed due to seaport activity. In addition, those holding the 9,922 indirect jobs received \$474.3 million of indirect wages and salaries. In total, \$3.5 billion of wages and salaries were created by cargo, fishing, passenger, marina and real estate activity at Port of Seattle facilities in 2013.

- The firms directly dependent upon supplying the services to support the seaport activity (those firms employing the 19,158 direct jobs) received \$3.2 billion of business revenue.³ Of this revenue, these firms made \$881.0 million of local purchases for goods and services. It is these local purchases that supported 9,922 indirect jobs in the regional economy.
- A total of \$322.4 million state and local taxes were generated by Port of Seattle seaport activity.
- In addition to these direct, induced and indirect impacts, about 175,664 jobs in the state of Washington are related to the marine cargo moving via the marine terminals in the Seattle Harbor. The majority of these jobs are created by international and Alaskan containerized cargo handled at the Port of Seattle's marine terminals.

In the next section, the impacts generated by marine cargo at the Port of Seattle marine cargo terminals are described. Section 3 of this chapter describes the impacts of commercial fishing activity and section 4 details the impacts of waterborne passenger activity. The impacts of recreational boating at the Port of Seattle's marinas are described in section 5, while the impact of the Port of Seattle real estate tenants is discussed in section 6.

2. THE ECONOMIC IMPACTS OF MARINE CARGO ACTIVITY AT THE SEATTLE SEAPORT

In 2013, a total of 18.1 million short tons of cargo moved over marine facilities owned by the Port of Seattle. Of the 18.1 million tons of cargo, international containerized cargo accounted for 9.0 million tons. Containerized cargo moving to and from Alaska over the Port's marine terminals accounted for another 5.1 million tons and about 1.5 million tons of grain were exported via the Port of Seattle-owned grain elevator. About 870,000 tons of petroleum products moved via Port of Seattle facilities. Break bulk cargo and other liquid bulk cargo accounted for another 58,000 tons. In addition, 1.6 million tons of dry bulk cargoes, such as cement, were handled at marine terminals leased from the Port of Seattle.⁴

³ Business revenue is a measure of the value of the services provided by the firms. The value of the marine cargo shipped or received through the Port of Seattle seaport and the landed value of seafood caught by the fishing fleet based at Port of Seattle Terminals is not included in this business revenue impact measure.

⁴ The dry bulk cargo is not included in the Port of Seattle reported tonnage.

2.1 Overview of the Seaport Impact Structure

The movement of these 18.1 million tons of cargo through the Port of Seattle marine cargo terminals generates economic activity in various business sectors of the state and local economy. Specifically, four distinct economic sectors are involved in providing services to move the through the Port of Seattle marine terminals. These are the:

- Surface Transportation Sector
- Maritime Service Sector
- Port of Seattle
- Shippers/Consignees Using the Port of Seattle

Jobs, income, revenue and tax impacts are estimated for each sector, as well as for specific job categories within each sector.

2.1.1 *Economic Impact Sectors*

Within each sector, various participants are involved. Separate impacts are estimated for each of the participants. A discussion of each of the four 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 marine terminals and their inland origins and destinations. Two mainline railroads serve the Seattle seaport, the Burlington Northern/Santa Fe and the Union Pacific railroads. In general, the railroads play a key part in the Seattle seaport's role as a leading intermodal port. Furthermore, the railroads are integral in the movement of grain from Midwestern states to the Seattle seaport for export.

Many local and national trucking firms serve the seaport, as do numerous individual owner-operators. Trucking firms are involved in distributing local containerized cargo (both full container loads, as well as less-than-container load (LCL) cargo). Typically, trucks distribute the imported containers moving locally, as well as to Canada, and move export containers originating in the Seattle area to the marine terminals for export. Truck transportation is also the major mode used for moving Alaskan-bound cargo to the marine terminals; trucks are also a primary mode to distribute the dry bulk products. Finally, trucks play a major role in the drayage of containers between rail yards and the marine terminals.

(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; 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 overland and water transportation for export or import freight through the seaport. 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 Seattle seaport and inland destinations, as well as the ocean transportation. This function performed by freight forwarders is most prevalent for general cargo commodities. For bulk cargo, arrangements are often made by the shipper/receiver, and the cargo passes over privately owned docks.
- 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 Seattle seaport; 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:
 - Pilots - assist vessels navigating Puget Sound between Port Angeles and Seattle;
 - Chandlers - supply the vessels with ship supplies (food, clothing, nautical equipment, etc.);
 - Towing firms - provide tug assist service to vessels docking and undocking at a terminal;
 - Bunkering firms - provide fuel to the vessels;
 - Marine surveyors - inspect the vessels and the cargo; and

- Shipyards/marine construction firms - provide repairs, either emergency or scheduled, as well as marine pier construction and dredging.

- Cargo Handling - This category involves the physical handling of cargo at the Seattle seaport between 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, including stuffing and stripping containers;
 - 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;
 - Warehouse operators - store cargo after discharge or prior to loading and consolidate cargo units into shipment lots; and
 - Container leasing and repair firms - provide containers to steamship lines and shippers/consignees and repair damaged containers.

- Government Agencies - This maritime service sector category involves federal, state and local government agencies that perform services related to cargo handling and vessel operations at the Seattle seaport. U.S. Customs and Border Protection, 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, U.S. Navy and the U.S. Army Corps of Engineers dedicated to marine cargo moved via Port of Seattle marine terminals are included, as are members of the Military Sealift Command. The city police and fire departments are also included, as are federal grain inspectors.

(3) Port of Seattle

This sector includes those individuals employed by the Port of Seattle whose purpose is to oversee port activity. The Port of Seattle leases terminal space to steamship lines and terminal operators and also leases equipment such as container cranes to the terminal operators.

(4) Shippers/Consignees Using the Port of Seattle Marine Cargo Facilities

Shippers/Consignees included in this category are those shippers and consignees located throughout the state of Washington and particularly King County, whose businesses use the marine cargo facilities for the export and import of cargo. These users also ship and/or receive materials via other ports such as Tacoma, Los Angeles/Long Beach, Oakland and Vancouver, BC. It is to be emphasized that these shippers/consignees are not dependent upon the use of the Port of Seattle, since they are users of other ports as well. Since these users are not dependent upon the Port of Seattle, employment with these shippers/consignees is considered port-related and not port-generated.

2.1.2 Commodities Included in the Study

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, many break bulk cargoes require covered warehouse space, while containerized cargo requires significant investments in cranes and intermodal facilities.

An understanding of the commodity's relative economic value in terms of employment and earnings to the local community, the utilization and cost of providing the facilities, and the relative demand for the different commodities is essential in making future port development decisions. Because of this need for understanding relative commodity impacts and the impacts associated with marine terminal investments, economic impacts are estimated for the following commodities and commodity types handled via the Port of Seattle-owned and privately-owned marine terminals in the Seattle seaport:

- International containerized cargo;
- Domestic containerized cargo;
- Grain;
- Break bulk cargo;
- Petroleum;
- Other liquid bulk; and
- Other dry bulk.

It should be emphasized that commodity-specific impacts are not estimated for each of the five economic sectors described in the last section. Specific impacts cannot be allocated to individual commodities with any degree of accuracy for the banking and insurance sector, shipyards and marine construction and the government job categories.

The impacts, by commodity, are estimated on a per ton basis to determine the contribution of each commodity to the local economy on a throughput basis. The impacts per 1,000 ton ratio is a key input into port planning decisions regarding new facilities development and expansion.

The impacts generated by the Port of Seattle marine terminals are estimated:

- By sector of the local and regional economy (e.g., maritime service sector, surface transportation sector, banking and insurance sector, etc.);
- By commodity group, i.e., containerized cargo, break bulk cargo (including steel and lumber), grain, petroleum, dry bulk and other liquid bulk; and
- By the residency of individuals directly employed by the activity at the Port of Seattle marine terminals.

2.2 Summary of the Economic Impacts Generated by Cargo Activity at Port of Seattle Marine Terminals

The economic impacts generated by marine cargo handled at Port of Seattle marine terminals are summarized in Table II-2.

Table II-2
 Economic Impacts of Cargo
 Activity at Port of Seattle Marine Terminals

	Port of Seattle Marine Cargo
Jobs	
Direct	8,902
Induced	8,644
Indirect	<u>5,863</u>
Total Jobs	23,409
Personal Income (\$1,000)	
Direct	\$527,232
Re-spending/Local Consumption	\$1,158,857
Indirect	<u>\$289,158</u>
Total	\$1,975,247
Business Revenue (\$1,000)	\$1,832,303
Local Purchases (\$1,000)	\$581,098
State and Local Taxes (\$1,000)	\$183,698

As this table indicates, maritime activity (cargo and vessel activity) at the Port of Seattle facilities created the following economic impacts:

- 8,902 direct jobs;
- 8,644 induced jobs were supported by the purchases of the 8,902 directly employed individuals;
- 5,863 indirect jobs were generated as a result of \$581.1 million of local purchases by firms directly dependent upon seaport activity at Port of Seattle marine cargo facilities;
- The 8,902 direct employees earned \$527.2 million of wages and salaries, for an average salary of \$59,223 per year;
- Businesses providing services to the Seattle seaport received \$1.8 billion of business revenue;

- A total of \$183.7 million of state and local taxes were generated by seaport activity; and
- 175,664 jobs in the state of Washington were related to the cargo moving via the Port of Seattle marine terminals, the majority of which were related to international and domestic containerized cargo.

The next section details the employment impacts generated by the Seattle seaport marine cargo operations.

2.3 Employment Impacts of the Seattle Seaport

This section details the direct, induced, indirect and related job impacts generated by marine cargo and vessel activity in the Seattle seaport.

The direct employment impacts are first described.

2.3.1 Direct Employment Impacts

The distribution of the 8,902 direct job impacts by economic sector and job category is presented in Table II-3.

Table II-3
Direct Jobs by Detailed Category

Direct Jobs	Port of Seattle Total
Surface Transportation	
Rail	864
Truck	1,579
Maritime Services	
Terminal Employees	678
ILWU/Dockworkers	912
Towing	162
Pilots	18
Agents	90
Surveyors/Chandlers/Misc.Services	326
Forwarders	274
Warehouse	1,039
Government	1,219
Shipyards/Ship Repair/Marine Construction	1,301
Barge/Bunker	352
Port of Seattle	88
Totals	8,902

As this table indicates, the largest direct job impact occurs with truckers serving the Port’s marine terminals, followed by jobs with shipyards and marine construction activity. Cargo activity creates 1,219 jobs with federal, state and local government agencies, including security operations, civilian and military employment with the Coast Guard and other federal agencies, as well as employment with city agencies including police and firefighters. There are 864 direct jobs with the railroads, including employment at the Seattle rail yards dedicated to intermodal cargo, as well as crew dedicated to moving the cargo to and from the Seattle seaport activity. The cargo activity also generates 912 full-time jobs with the International Longshore and Warehouse Union, and 1,039 jobs with warehousing and container repair activity.

Employment Impacts by Commodity

Table II-4 presents the distribution of the direct job impacts by commodity/handling type. A total of 5,978 direct jobs are allocated to commodities moving over the Port of

Seattle marine cargo seaport terminals⁵. The importance of containerized cargo is underscored by the fact that 5,361 direct jobs are supported by international and domestic containerized cargo.

Table II-4
Direct Jobs by Commodity Group

Port of Seattle Commodity	Jobs	1,000 Short Tons	Jobs per 1,000 Tons
Containerized Cargo			
International	3,436	8,955	0.38
Domestic	1,925	5,151	0.37
Grain	88	1,490	0.06
Break Bulk	43	32	1.35
Petroleum	78	869	0.09
Other Dry Bulk	393	1,585	0.25
Other Liquid Bulk	14	53	0.27
<i>Not Allocated</i>	<u>2,924</u>		
Total	8,902	18,136	

Note: Totals may not add due to rounding

Table II-4 also shows the direct job impacts per 1,000 metric tons of cargo. This exhibit indicates that on a per 1,000 ton basis, break bulk cargo generates the greatest impact, primarily due to the labor intensive handling associated with cargo such as steel and forest products, as well as vehicles, yachts and equipment moving to and from Alaska. Domestic and international containerized cargo generate about 0.38 jobs per 1,000 tons. Because of the less labor intensive handling associated with bulk cargoes, the jobs per 1,000 tons generated by grain, petroleum and other liquid bulk cargoes are relatively small.

Employment Impact by Place of Residency

The importance of the Seattle seaport to the local and regional economy is underscored by the residency of those holding the 8,902 marine cargo-generated direct jobs. As Table II-5 indicates, about 48 percent of the 8,902 direct jobs generated by seaport activity are held by residents of King County, of which about 25 percent are held by residents of Seattle.

⁵ 2,924 jobs generated by cargo and vessel activity at seaport-wide marine terminals are not allocated to specific commodities. These direct jobs are with government agencies, shipyards and marine construction firms, banking and law firms and the Port of Seattle.

Table II-5
Distribution of Direct Jobs by Place of Residence

Port of Seattle Marine Cargo	Percentage	Total
Auburn	6.13%	546
Bellevue	1.18%	105
Bothell	2.99%	266
Burien	0.72%	64
Des Moines	2.11%	188
Enumclaw	0.44%	39
Federal Way	6.10%	543
Issaquah	1.43%	128
Kent	4.87%	434
Kirkland	5.23%	466
Mercer Island	0.06%	5
Redmond	0.13%	12
Renton	1.83%	163
Sea-Tac	1.42%	126
Seattle	12.05%	1,073
Tukwila	0.69%	62
Vashon	0.03%	2
Other King Co.	0.64%	57
Edmonds	4.11%	366
Everett	6.09%	542
Mt. Lake Terrace	6.29%	560
Other Snohomish Co.	0.29%	26
Tacoma	0.20%	18
Fife	0.37%	33
Sumner	10.19%	907
Puyallup	4.95%	440
Other Pierce Co.	6.39%	569
Kitsap Co.	1.33%	119
Thurston Co.	0.03%	3
Other WA	9.20%	819
Other US	2.50%	222
Total	100%	8,902

Note: Totals may not add due to rounding

2.3.2 Induced Job Impact

The induced jobs are generated as the result of purchases of goods and services by those 8,902 directly employed as a result of marine cargo and vessel activity at Port of Seattle marine cargo terminals. As the result of the local and regional purchases by these directly employed individuals, 8,644 induced jobs were supported in the state of Washington. The greatest number of induced jobs are supported in non-consumption driven sectors of the economy such as business services, state and local government agencies, social services and education services, followed by impacts with restaurants and grocery stores.

2.3.3 Indirect Job Impact

Indirect jobs are generated in the local economy as the result of local purchases by the firms directly dependent upon the Port of Seattle marine cargo activity. These purchases were identified from the surveys of directly dependent firms supplying services in support of the vessel and cargo activity at the Port of Seattle marine terminals. Based on the surveys, a total of \$581.1 million of local purchases were made in the local economy. Based on employment to purchase ratios in supplying firms, produced for the state of Washington by the U.S. Bureau of Economic Analysis, Regional Input-Output modeling system, these local purchases supported 5,863 indirect jobs in the state.

2.3.4 Related Job Impact

In addition to the direct and induced jobs, an estimate of jobs in the state of Washington related to cargo moving via the Seattle seaport was developed. It is estimated that 175,664 jobs with regional manufacturing and distribution firms, as well as with Washington State grain farmers, are related to cargo moving via the Port of Seattle marine cargo terminals. It is to be emphasized that these jobs are only related jobs, not jobs dependent upon the Port of Seattle. These jobs are with shippers/consignees and manufacturers located throughout the region who ship via the Port of Seattle terminals, as well as via other ports, including Tacoma, Los Angeles/Long Beach and Oakland. Therefore, jobs with these shippers and consignees cannot be classified as totally dependent upon the existence of the Seattle seaport.

More than 60% of the related jobs are with international containerized cargo shippers and consignees, while the balance is with shippers/consignees handling domestic containerized cargo, grain and dry bulk cargo.

2.4 Business Revenue Impact of the Seattle Harbor

The revenue impact is a measure of the *total economic activity* in the state that is associated at a given point in time with the cargo moving via the Port of Seattle. In 2013, \$47.4

billion of total economic activity in the state was associated with the marine cargo activity at the Port of Seattle. Of the \$47.4 billion, \$1.8 billion 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. The remaining \$45.6 billion represents the value of the output to the state of Washington that is related to the cargo moving via the Seattle 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 in the Seattle Harbor and are consumed by industries within the state.

The balance of the discussion focuses on the \$1.8 billion of direct business revenue generated from the provision of services to the cargo and vessels handled at the Port of Seattle marine terminals.

2.4.1 Revenue Impacts by Sector

Table II-6 shows the distribution of this revenue impact by category and economic sector. As this exhibit indicates, railroads receive the greatest revenue impact, followed by shipyards/ship repair, trucking, terminal operations and warehousing. It is to be emphasized that this revenue impact should not be viewed totally as a local or state impact, but instead as a national, even international impact. For example, the revenue received by firms providing services is used to hire labor, to pay state, local and federal taxes, to pay stockholder dividends, invest, retire debt and to purchase goods and services. These uses of revenue suggest that only the payment of wages and salaries to employees residing in the state, the purchase of local goods and services, and the payment of state and local taxes can be identified as remaining in the state of Washington. The other portions of the revenue impact cannot be isolated geographically with the same degree of defensibility.

Table II-6
Revenue Impact by Category and Economic Sector

Port of Seattle	Revenue \$1,000
Surface Transportation	
Rail	\$770,312
Truck	\$200,572
Maritime Services	
Terminals	\$161,582
Towing	\$8,288
Pilots	\$5,227
Agents	\$1,790
Surveyors/Chandlers/Misc. Services	\$54,842
Forwarders	\$68,605
Warehouse	\$153,202
Shipyards/Ship Repair/Marine Construction	\$248,559
Barge/Bunkers	\$59,696
Port of Seattle	\$99,628
Total	\$1,832,303

Note: Totals may not add due to rounding

2.4.2 Revenue Impacts by Commodity

About \$1.4 billion of the total \$1.8 billion revenue impact of the Port of Seattle marine cargo terminals can be allocated to commodities/commodity types. The remaining \$400 million of revenue cannot be allocated to specific commodities. Table II-7 shows the distribution of the direct revenue impact by commodity. Similar to the direct job impacts by commodity, the handling of international containerized cargo generates the greatest revenue, followed by domestic cargo, primarily Alaskan cargo.

Table II-7
 Distribution of the Direct Revenue Impact
 Generated by the Port of Seattle Marine Cargo Terminals Seaport

Port of Seattle Commodity	Revenue \$1,000	1,000 Short Tons	Revenue per Ton
Containerized Cargo			
International	\$822,470	8,955	\$91.84
Domestic	\$442,552	5,151	\$85.91
Grain	\$69,614	1,490	\$46.73
Break Bulk	\$1,588	32	\$49.45
Petroleum	\$40,737	869	\$46.87
Other Dry Bulk	\$52,355	1,585	\$33.03
Other Liquid Bulk	\$1,760	53	\$33.10
<i>Not Allocated</i>	<u>\$401,225</u>		
Total	\$1,832,303	18,136	

Note: Totals may not add due to rounding

On a per ton basis, international containerized cargo generates the greatest revenue impact per ton, followed by domestic containerized cargo. Liquid bulk and dry bulk generate the lowest revenue impacts per ton, reflecting lower labor intensity involved in handling these cargo types. The majority of the revenue generated by grain, dry bulk and liquid bulk cargoes is in the surface transportation sector. For break bulk and containers, a larger share of revenue is in the maritime services sector, primarily with stevedores and terminal operators, agents, chandlers and warehousing operations.

The following two sections summarize the personal earnings impact and the tax impact created by the Port of Seattle marine terminals.

2.5 Employee Earnings Impact of the Seattle Seaport

The 8,902 individuals directly employed as a result of activity at the Port of Seattle marine terminals received \$527.2 million in wages and salaries, for an average annual salary of \$59,223. These individuals, in turn, use the earnings to purchase goods and services (both from in-state as well as out-of-state sources), to pay taxes, and for savings. The purchase of goods and services from local sources creates a local re-spending effect known as the personal earnings multiplier effect. This re-spending, or multiplier effect, was estimated using a personal earnings multiplier of 3.198, which indicates that for every \$1 earned in the state, an additional \$2.198 is created due to re-spending of the initial \$1 throughout the state. Using the local personal earnings multiplier, an additional \$1.2 billion of income and local consumption are created in the local economy. In addition, the 5,863

indirectly employed workers receive indirect wages and salaries totaling \$289.2 million. Combining the direct, induced and indirect income impacts, the maritime activity at the Port of Seattle marine cargo terminals created nearly \$2.0 billion of wages and salaries.

The 175,664 related port users earned \$7.8 billion in wages and salaries.

2.6 State and Local Tax Impact

Total state and local tax impacts generated by activity at the Port of Seattle marine cargo terminals is estimated at \$183.7 million. Of the \$183.7 million of state and local taxes generated annually by seaport activity, \$112.1 million was generated at the state level and \$71.6 million at the county and local level.

In addition, \$721.7 million of state and local taxes were created in the related users sector.

3. THE ECONOMIC IMPACT OF COMMERCIAL FISHING ACTIVITY AT THE PORT OF SEATTLE'S FISHERMEN'S TERMINAL, TERMINAL 91 AND THE MARITIME INDUSTRIAL CENTER

A second key component of the Port of Seattle seaport operations is the local and distant water fishing fleet based at the Port of Seattle's Fishermen's Terminal and Maritime Industrial Center, and the catcher processor vessels homeported at the Port of Seattle's Terminal 91. ***It is to be emphasized that the Washington based fishing fleet uses other terminals and moorings throughout the Seattle and Puget Sound areas. The purpose of this impact analysis is to focus only on the impacts generated by the fleet using Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center. As a result, the impacts of the fishing fleet measured in this report are only a subset of the total economic impacts generated by the fishing industry in Seattle and the Puget Sound region.***

Fishermen's Terminal is owned and operated by the Port of Seattle, and combines a working fish terminal with public restaurants, offices, retail shops and boat yards. In 2013, 520 fishing boats were moored at Fishermen's Terminal. While tied up at Fishermen's Terminal, these vessels make numerous purchases of goods and services from local firms. Such purchases include expenditures for shipyard repair services, painting, electronic equipment, engine and propulsion services, fishing gear, packaging material, fuel, insurance, legal services, and ship stores (food and supplies for the crew). These purchases by the fishing fleet in turn support local jobs with shipyards, ship chandlers, electronics retailers, marine engine specialists, local retail and grocery stores, lawyers, ship brokers, insurance brokers and hardware stores. Similar purchases are made by the 69 fishing vessels homeported at Terminal 91, of which 35 are catcher processor vessels. There were 2 seiners moored at the Maritime Industrial Center.

In addition to the direct jobs supported by the purchases by the fishing fleet using the Port of Seattle's Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center, impacts are also generated by the public restaurants, retail stores and offices located at Fishermen's Terminal and the Maritime Industrial Center. Landside processing and cold storage facilities on Terminal 91 are also included in this impact.

To estimate the economic impacts generated by the commercial fishing activity at Fishermen's Terminal, Terminal 91, and the Maritime Industrial Center, the types of fishing vessels moored at each Terminal were profiled. It is necessary to estimate the economic impacts by type of vessels, since each type of fishing boat has a very different expenditure profile, which is a function of such factors as:

- The size of the boat;
- Designed purpose of the vessel -- a catcher boat which catches fish and delivers the catch to on-shore or off-shore processors, a tender -- which services the fishing fleet with supplies and ship stores, or a factory ship or processor -- which processes fish at sea;
- Type of fishing gear used, such as the use of longlines versus nets; and
- Where the fishing is done - in local or distant waters.

The fishing fleets based at the Port of Seattle's Fishermen's Terminal, Terminal 91, and the Maritime Industrial Center consist of the following types of vessels:



Purse seine vessels, which typically fish for salmon and herring using a purse seine net;



Gillnet boats, which use gillnets for salmon and herring fishing;



Trollers, which troll for salmon using lines;



Longline vessels, which fish for groundfish such as halibut and cod using a hook and line gear;



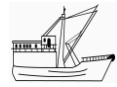
Crab boats, which include crab catchers using crab pots as well as crab processors which process the crab at sea;



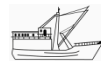
Catcher trawlers, which catch fish by dragging a net;



Factory trawlers, which catch and process frozen fish at sea;



Processors, which are large "mother" vessels that receive fish from catcher boats and process the fish at sea; and



Tenders, which essentially supply boats servicing the various fishing fleets and transporting fish.

To estimate the expenditures for each type of vessel, Martin Associates conducted interviews with the various trade associations representing the types of boats operating from the Port of Seattle terminals. Interviews were also conducted with individual boat operators identified by the trade associations, as well as interviews with fleet managers of processing companies. Furthermore, interviews were conducted with shipyards specializing in providing services to the Seattle based fishing fleet, as well as with chandlers, brokers, hardware and electronics retailers, lawyers and engine and propulsion shops.

Interviews with the operators of the catcher processor vessels homeported at Terminal 91 and the purse seiners at the Maritime Industrial Center were used to estimate the direct impacts of the homeporting activity as well as the shore-side activity that occurs to support these operations. For those directly employed as crew members on these vessels, efforts were made to identify what percent of the crew are full time residents of the region versus those who travel to the Seattle-area for a specific fishery's season.

Exhibit II-1 presents the expenditures in Seattle per vessel for the fleet based at Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center in 2013. These expenditures were then combined with jobs to value of sales ratios in corresponding supplying industries to estimate the number of local direct jobs supported by the vessels based at the Port's marine terminals. Added to these direct jobs are the number of crew employed by the fleet, attorneys, ship brokers and insurance brokers providing services to the fishermen at the terminals, and employees with the restaurants and retail stores located at Fishermen's Terminal.⁶

⁶ Some employees with the cold storage operators and fish processors are included as impacts of the Port of Seattle seaport, and cannot be double counted when combining the economic impacts of the Fishermen's Terminal and the Seattle seaport.

Exhibit II-1
Annual Expenditures in Seattle by Fishing Vessels at Fishermen's Terminal

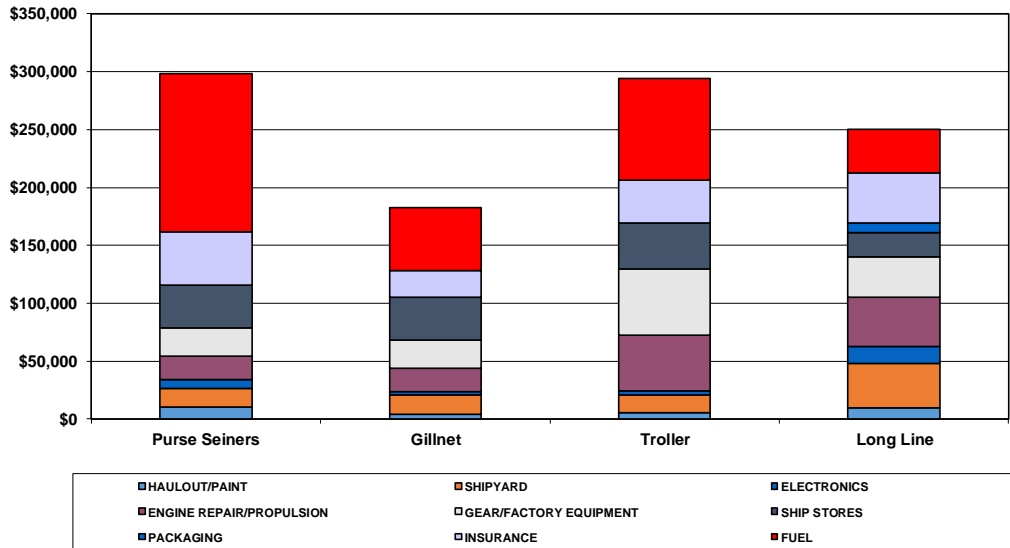


Exhibit II-1 (Continued)

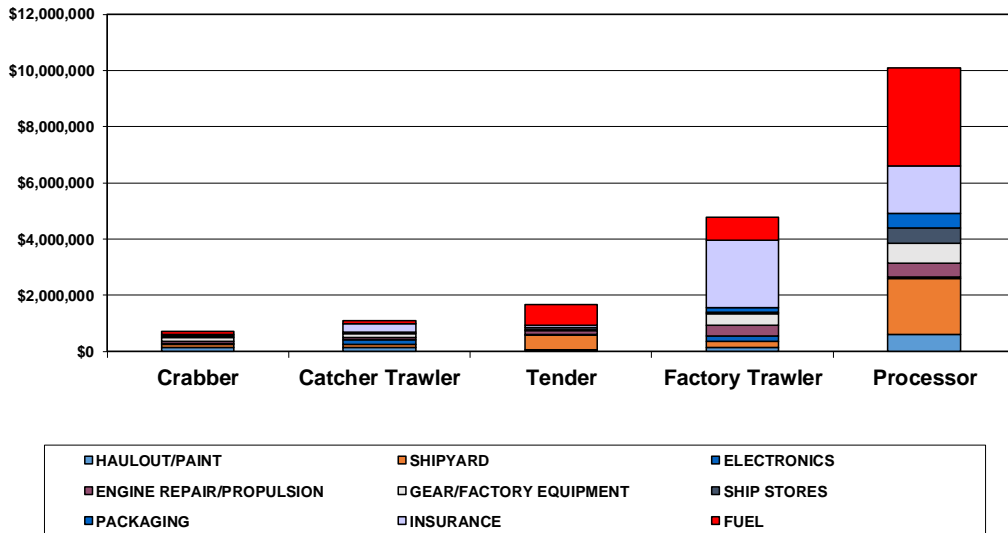


Table II-8 presents the economic impacts generated by the Port of Seattle's commercial fishing activity.

Table II-8
Economic Impacts of Port of Seattle Related Fishing

	TERMINAL 91	FISHERMEN'S TERMINAL	MARITIME INDUSTRIAL CENTER	TOTAL PORT OF SEATTLE BASED FISHING
Jobs				
Direct	4,895	3,309	49	8,253
Induced	3,060	1,653	22	4,735
Indirect	<u>1,632</u>	<u>1,457</u>	<u>13</u>	<u>3,102</u>
Total Jobs	9,586	6,419	84	16,089
Personal Income (\$1,000)				
Direct	\$463,560	\$208,846	\$2,420	\$674,825
Re-spending/Local Consumption	\$331,816	\$149,492	\$1,732	\$483,040
Indirect	<u>\$76,832</u>	<u>\$78,746</u>	<u>\$585</u>	<u>\$156,163</u>
Total	\$872,208	\$437,083	\$4,737	\$1,314,028
Business Revenue (\$1,000)	\$458,747	\$449,056	\$7,567	\$915,370
Local Purchases (\$1,000)	\$132,348	\$110,599	\$1,803	\$244,750
State and Local Taxes (\$1,000)	\$79,371	\$39,775	\$431	\$119,577

Note: Totals may not add due to rounding

*Revenue excludes value of the catch

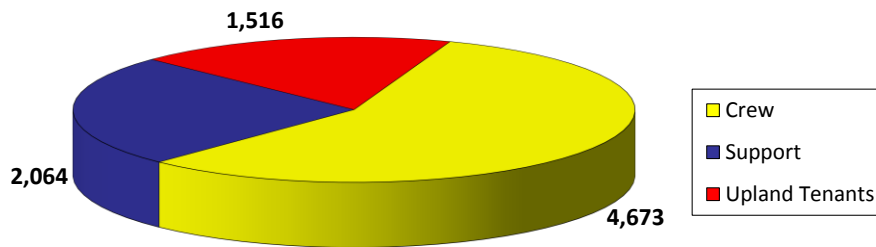
In 2013, fishing activity at Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center generated the following impacts:

- 8,253 direct jobs, including full-time equivalent jobs with the fishing crew based at the Port's terminals, jobs with local shipyards, chandlers, engine/propulsion repair shops, retail stores, suppliers of fishing gear, insurance brokers, public restaurants, retail stores, and offices located at Fishermen's Terminal.
- As the result of purchases by these 8,253 directly generated jobs, an additional 4,735 induced jobs are created in the local economy.
- As the result of \$244.8 million of local purchases by the firms located at Fishermen's Terminal, Terminal 91 and the Maritime Industrial Center, an additional 3,102 indirect jobs were created in the local economy.

- The 8,253 direct job holders earned \$674.8 million in direct wages and salaries. As the result of re-spending of this income, an additional \$483.0 million of personal income and consumption expenditures were generated. The 3,102 indirect jobs received \$156.2 million in indirect wages and salaries.
- Local businesses received \$915.4 million of revenue from the purchases by the fishing fleet at Fishermen's Terminal and homeported at Terminal 91 and the Maritime Industrial Center other Port terminals, as well as from retail sales. This does not include the landed value of the fish catch.
- State and local governments received \$119.6 million of tax revenue from the activity generated by the Port of Seattle's Fishermen's Terminal and by the commercial fishing vessels moored at Terminal 91 and the Maritime Industrial Center.

Because of the diversity of commercial fishing-associated activity at Fishermen's Terminal, Terminal 91 and Maritime Industrial Center, the distribution of the direct job impacts created by type of activity is shown in Exhibit II-2. As this exhibit demonstrates, the majority of the 8,253 direct jobs are held by crewmembers, followed by support services including local firms supplying support services to the fleet based at the Port of Seattle terminals, such as jobs with shipyards/engine propulsion companies, ship chandlers and equipment supply firms and insurance brokers and lawyers. The balance of the jobs are located in the upland areas of the terminals with the retail, restaurant, office and landside fish processing services at the relevant terminals.

Exhibit II-2
Distribution of the Direct Jobs Generated by Port of Seattle Related Fishing



4. THE ECONOMIC IMPACT OF PASSENGER TRANSPORTATION OPERATIONS AT THE PORT OF SEATTLE MARINE TERMINALS

The third component of the economic impacts generated by the Port of Seattle seaport is the economic impact of waterborne passenger transportation at the Port of Seattle marine facilities. This component includes the impacts generated by cruise service and harbor tours. It is to be emphasized that this impact assessment is for the current cruise season, 2014.

The economic impacts generated by the Seattle seaport passenger activity are estimated in terms of:

- Direct, induced and indirect jobs;
- Personal income, including the re-spending impact (personal income and consumption expenditures);
- Business revenue received by the businesses providing services to the cruise lines and harbor tours calling the Port of Seattle; and
- State and local taxes generated from passenger operations in the Seattle seaport.

To identify these impacts, interviews were held with cruise and tour boat operators to identify Seattle-based impacts, as well as the potential to initiate/expand cruise service in Seattle. A separate computer model has been developed by Martin Associates to measure the impacts of existing cruise and tour boat operations based at the Port of Seattle facilities.

4.1 Impacts of Cruise Service Activity

In 2014, the Port of Seattle will host 178 calls by cruise lines carrying more than 800,000 passengers. These 178 port calls included 169 homeport calls, 6 ports of call and 3 one-day sails to Vancouver, BC. For the vessels homeporting, passengers embark and disembark to begin and end their cruise, and the vessel often takes on supplies. For those vessels making port of calls, passengers embark and disembark for day visits in Seattle, but the vessels typically do not take on supplies. Each of these types of calls creates economic impacts in the local economy.

4.1.1 Economic Impact of Homeport Cruise Calls

Homeport cruise activity at the Port of Seattle affects two sectors of the local and regional economy. These sectors are the:

- Maritime Service Sector; and

- Visitor Industry Sector.

The maritime service sector includes those firms that provide services to the cruise vessels while in port, such as:

- Chandlers and other local retailers and wholesalers that provide ship stores and provisions to be used by passengers and crew.
- Towing services that assist vessels in docking and undocking (a majority of the new cruise vessels are equipped with bow and stern thrusters and the need for tug assistance is minimized);
- Pilots, assist the vessels navigating the channels from the open sea to the docks;
- Stevedoring services performed by members of the International Longshore and Warehouse Union (ILWU) and other dockworkers including handling baggage and ship supplies;
- Linehandling services that are required when a vessel enters port;
- Bunkering firms that provide fuel to the vessels;
- Landside tours and other charters;
- Parking services for the passengers driving from their place of residence to embark on the cruise; and
- Ground transfers from the airport and hotels to the ship prior to and after the cruise.

The visitor industry sector consists of firms providing services to the passengers and crew of the current cruises prior to and after the cruise. Included in this category are:

- Hotels and motels;
- Restaurants/bars;
- Retail goods; and
- Entertainment establishments such as ground tours, movies, amusements, etc.

To estimate these impacts, the cruise lines currently calling the Port of Seattle were interviewed. The purpose of these interviews was to determine the amount of purchases, by type of service, made by each vessel call and type of service. Types of purchases include vessel purchases for:

- Ship stores
- Bunkers
- Water
- Liquor
- Flowers
- Pilots
- Tugs
- Local advertising
- Local travel agents
- Linehandling
- Tendering services
- Stevedoring
- Retail items
- Maintenance and repair
- Trash disposal
- Laundry
- Crew allowance
- Wharfage and dockage

Cruise ship expenditure data was provided by Princess Cruises, Holland America Line and Norwegian Cruise Line. The results of these interviews were used to develop a typical ship disbursement account profile. Associated with each vessel expenditure category are jobs to sales ratios with the types of firms providing the goods and services to a homeported vessel. These jobs to sales ratios as well as personal income levels were developed from the U.S. Bureau of Census data sources for the Seattle Metropolitan Area. The total annual expenditures, by type of service, is multiplied by the corresponding jobs to sales ratios to estimate the total direct job impacts in the maritime service sector, by type of service.

As part of the earlier economic impact studies conducted by Martin Associates of the Seattle cruise business, surveys of local vendors were queried as to the origin of the goods (produce, liquor, flowers and retail items) that are loaded onto the vessels at port. In general, the cruise service at the Port of Seattle had minimum impact on employment levels with these firms, typically accounting for less than 5 percent of annual business with these

firms. In addition, the survey of these firms indicated that the majority of the food and goods originate from all parts of the United States. With respect to produce, about 20 percent of the produce loaded on cruise vessels is locally grown, while the majority is purchased from distributors sourcing nationwide. Dairy products are typically purchased from local suppliers, while flowers are supplied from Washington and British Columbia suppliers. Other suppliers of meat and cheese are located in Florida and California. A similar supply system exists currently.

The revenue impacts are estimated directly from the expenditure profiles provided by the carriers. Direct income is estimated from the average annual salaries developed by type of firm, from the interviews.

The jobs generated in the Visitor Industry/Tourism Sector (for example, hotels, restaurants, etc.) are estimated based on a survey of 600 passengers and crew conducted by Martin Associates. These surveys were conducted on July 18th through July 20th, 2014. Of particular interest is the total number of passengers per vessel call, the percent of those passengers arriving by air as well as the percent that stay in local hotels prior to or after the homeport cruise, as well as the purchases made by the passengers in the local economy. These purchases include expenditures on hotels for embarking and debarking passengers, as well as local purchases for retail items, food and local landside tours. The average expenditures on hotel lodging and nights stayed pre- and post-cruise, as well as food and in-town cabs are entered into the visitor industry model. The key findings indicate that on average, 82% of the passengers arrive via air, and about 55% spend about 1.7 nights in Seattle area hotels (both post and pre cruise). The typical cruise passenger that stays in area hotels spend about \$94 per night per person in local hotels. For those passengers making local purchases on specific items, on average each passenger spends \$13 in restaurants, \$9 on retail purchases, \$4 on local transportation and \$3 on entertainment and land-side tours. Also included in the visitor industry impacts are the impacts created by crew spending. On average, each crewmember spends an average of \$287 per call at Seattle, the majority of which is spent on restaurant and retail purchases.

Martin Associates has developed the Seattle-Tacoma economic impact model for the Port of Seattle, and this model is used to estimate the economic impact on the cruise passengers arriving for the cruise via Sea-Tac International Airport. Using these purchase patterns, and the appropriate jobs to sales ratios and personal income measures for the supplying firms, the visitor industry model calculates the direct jobs, induced and indirect impacts that are generated by the homeport cruise service at the Port of Seattle.

4.1.2 Port of Call Economic Impacts

Economic impacts created by a port of call, rather than a homeport call, generate impacts primarily on the landside consisting of tour packages and individual sightseeing

excursions. To estimate these impacts, only passenger purchases for local retail/restaurants and tour packages were included in the impact analysis. Interviews with local tour operators provided an estimate of the share of passengers that typically purchase land-side tours while on a port of call at Seattle. These local purchases were converted into direct, induced and indirect impacts using the visitor industry methodology described above. In addition to the passenger expenditures, the vessels also spend money for linehandling, pilots, tender services, and in some cases miscellaneous emergency purchases. These purchases are also included in the port of call impact analysis.

4.1.3 Cruise Service Impact Model

In order to assess the economic impacts of potential cruise business at the Port of Seattle, Martin Associates developed a spreadsheet framework, which can be used to assess the impacts of changes in such factors as:

- Number of cruise vessel calls;
- Number of passengers;
- Passenger characteristics:
 - Local expenditures;
 - Local residents versus tourists;
 - Length of time and where stayed after disembarking;
- Different types of cruise service, including:
 - Homeport;
 - Port of Call;
- Size of crew; and
- Size of vessel.

This model will estimate the impacts of current and potential cruise operations at the Port of Seattle.

4.1.4 Economic Impacts of the Cruise Services at the Port of Seattle

Cruise operations for the 2014 cruise season at the Port of Seattle created the economic impacts summarized in Table II-9.

Table II-9
Economic Impact of Cruise Service at the Port of Seattle
(2014)

	Cruise	Airport	Total
Jobs			
Direct	1,359	382	1,741
Induced	679	173	852
Indirect	<u>554</u>	<u>257</u>	<u>812</u>
Total Jobs	2,592	812	3,404
Personal Income (\$1,000)			
Direct	\$49,413	\$20,597	\$70,010
Re-spending/Local Consumption	\$64,384	\$19,509	\$83,893
Indirect	<u>\$18,293</u>	<u>\$4,005</u>	<u>\$22,299</u>
Total	\$132,090	\$44,111	\$176,202
Business Revenue (\$1,000)	\$244,092	\$163,698	\$407,790
Local Purchases (\$1,000)	\$30,160	\$10,554	\$40,714
State and Local Taxes (\$1,000)	\$12,020	\$4,102	\$16,123

Note: Totals may not add due to rounding

The cruise vessel activity at the Port of Seattle in 2014 is projected to support the following economic impacts:

3,404 direct, induced and indirect jobs were created in the state of Washington due to the cruise activity at the Port of Seattle. Of the 3,404 jobs:

- 2,592 direct, induced and indirect jobs were generated by the cruise operations, of which 1,301 jobs were supported in the visitors industry;
- 812 direct, induced and indirect jobs were created by the passenger activity at Sea-Tac International Airport;
- Furthermore, of the 3,404 jobs:
 - 1,741 were direct jobs
 - 852 were induced jobs

- 812 were indirect jobs

\$176.2 million of local wages and salaries are projected by the cruise activity at the Port of Seattle in 2014:

- \$70.0 million of direct wages and salaries for the 1,741 directly generated jobs, for an average salary of \$40,213 per direct employee.
- As the result of re-spending, another \$83.8 million of re-spending and consumption purchases are projected, which will support the 852 induced jobs.
- The 812 indirect job holders are projected to receive \$22.3 million of wages and salaries.

The 2014 cruise activity at the Port of Seattle is projected to generate \$407.8 million of business revenue to local businesses supplying services to the cruise vessels, passengers and crew as well as to the airport-related businesses at Sea-Tac:

- Of the \$407.8 million of direct business revenue projected for the 2014 cruise season, the vessel expenditures are projected to generate:
 - \$244.1 million of revenue to local businesses, of which the visitors industry is projected to receive \$119.7 million.
 - \$163.7 million is projected to be generated at the airport by the cruise passengers using Sea-Tac International Airport.
- An additional \$40.7 million of local purchases were made by those firms dependent upon the cruise business at the Port of Seattle during the 2014 cruise season.

\$16.1 million of state and local taxes are projected to be generated by the cruise activity at the Port of Seattle in 2014.

4.2 Harbor Tours

Based on the results of interviews, the impacts of the tour boat operations and harbor cruises based at Port of Seattle facilities were estimated and are presented in Table II-10.

Table II-10
Economic Impacts of Harbor Cruises and Tour Boat Operations Based at the Port of Seattle

	Port of Seattle Harbor Cruises
Jobs	
Direct	122
Induced	52
Indirect	<u>57</u>
Total Jobs	231
Personal Income (\$1,000)	
Direct	\$5,333
Re-spending/Local Consumption	\$4,040
Indirect	<u>\$3,089</u>
Total	\$12,462
Business Revenue (\$1,000)	\$18,293
Local Purchases (\$1,000)	\$6,762
State and Local Taxes (\$1,000)	\$1,159

Note: Totals may not add due to rounding

As this table indicates, harbor cruises and tour boat activity generated the following impacts:

- 122 direct jobs;
- As a result of purchases by these 122 direct jobs, 52 induced jobs were generated in the local economy;
- As the result of \$6.8 million of local purchases by the firms dependent upon harbor cruises and tourboat operations at the Port of Seattle facilities, 57 indirect jobs were supported in the local economy;
- The 122 direct jobs received \$5.3 million of direct wages and salaries. As the result of the re-spending impact, an additional \$4.0 million of personal income and local consumption expenditures were generated. The indirect jobholders received \$3.1 million of indirect wages and salaries;

- The tour boat operators received \$18.3 million of business revenue from the operations at Port of Seattle facilities; and
- \$1.2 million of state and local taxes were generated by the harbor cruises and tour boat operations.

5. THE ECONOMIC IMPACT OF RECREATIONAL BOATING AT THE PORT OF SEATTLE MARINAS

The fourth component of the Port of Seattle Seaport impact analysis is the economic impact generated by recreational boating at the Port of Seattle owned marinas – Shilshole Bay Marina, Harbor Island, Fishermen’s Terminal and Bell Harbor. The impacts created by the recreational boating activity include the impacts generated by the vessels moored at each of these marinas, as well as the impacts of transient boats that temporarily use these marinas. To estimate the impacts, Martin Associates developed a profile and inventory of recreational boats, by size and type, at each Port of Seattle marina. For example, there were 1,350 recreational boats that were moored at the Port’s Shilshole Bay Marina, of which 999 were sail boats. Eleven boats were moored at Bell Harbor, 80 boats were moored at Harbor Island, and 336 recreational boats were moored at Fishermen’s Terminal. In addition to the recreational boats that are moored at each of these facilities, there are a large number of transient boats that tie up at these marinas and the passengers typically go ashore for eating, shopping and entertainment. For example, at Bell Harbor, 2,240 transient boats called this marina, while 2,579 transient boats were recorded at Shilshole Bay Marina in 2013.

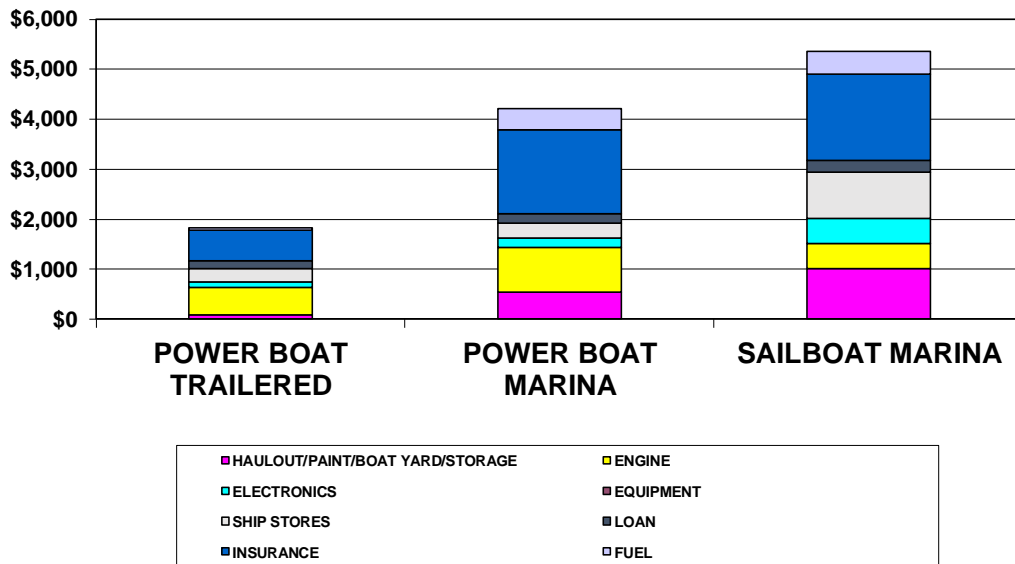
To develop the impact data, Martin Associates conducted interviews with tenants at each marina, including yacht clubs, sailing schools, restaurants and retail stores. The results of these surveys were used directly in estimating marina tenant impacts. Next, typical annual expenditures by type of moored boat and for transient boats were developed from published sources, including:

- Boating 2000: A Survey of Boater Spending In Maryland, University of Maryland Sea Grant Program;
- Interviews with Northwest Marine Trade Association;
- Marine Manufacturers Association;
- The Economic Impact of Michigan’s Recreational Boating Industry, Michigan State University, Ed Mahoney;
- Marine Operators Association of America; and
- Clean Vessel Act, Michigan Boating Survey, 1994-1995.

Based on interviews with the Northwest Marine Trade Association and the University of Maryland Sea Grant authors, it was concluded that the use of expenditure data per type of boat

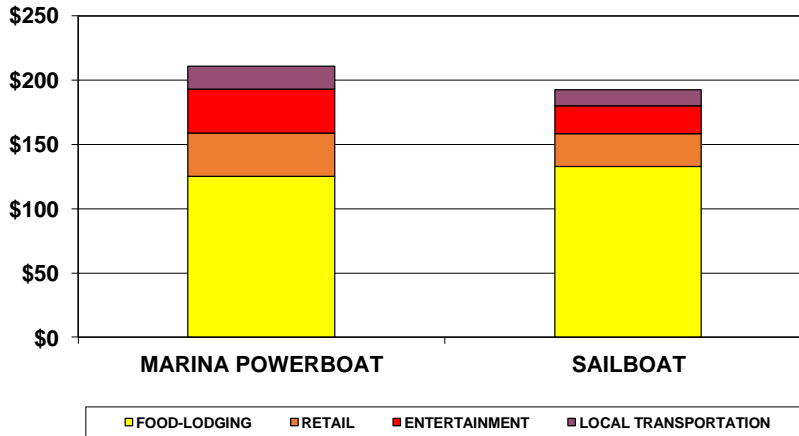
identified in Maryland would be representative of typical annual expenditures per boat in Puget Sound. Exhibit II-3 shows the breakdown of annual purchases by type of boat as developed from the “Boating 2000: A Survey of Boater Spending in Maryland”, Maryland Sea Grant Program, University of Maryland. Exhibit II-4 shows the breakdown for local spending by transient boat operations.

Exhibit II-3
Annual Operating Expenses by Type of Boat



Source: Boating 2000: A Survey of Boater Spending in Maryland, University of Maryland Sea Grant Program – adjusted for current dollars

Exhibit II-4
Local Spending per Trip for Transient Boats



Boating 2000: A Survey of Boater Spending in Maryland, University of Maryland Sea Grant Program – adjusted for current dollars.

These annual purchases per boat are adjusted for current dollars and then multiplied by the number of boats in each category at each of the Port of Seattle marinas. The annual purchases by type of boat at each marina are then converted into direct jobs using survey data from suppliers and marina support services firms interviewed by Martin Associates.

The local purchases per trip for transient calls at each marina are converted into jobs, income and revenue impacts using a visitors industry model developed for the cruise industry impact analysis, as well as for Sea-Tac International Airport.

Indirect impacts are developed from local purchases data supplied by support services providers (from interviews) and upland tenants (restaurants, retail, boat yard, sailing schools, etc.)

Table II-11
Economic Impact of Recreational Boating at the Port of Seattle Marinas

	Port of Seattle Marinas
Jobs	
Direct	140
Induced	94
Indirect	<u>89</u>
Total Jobs	323
Personal Income (\$1,000)	
Direct	\$4,984
Re-spending/Local Consumption	\$10,738
Indirect	<u>\$3,563</u>
Total	\$19,286
Business Revenue (\$1,000)	\$21,574
Local Purchases (\$1,000)	\$7,530
State and Local Taxes (\$1,000)	\$1,794

Note: Totals may not add due to rounding

In 2013, the recreational boating activity at the Port of Seattle generated the following economic impacts.

- 140 direct jobs were created by recreational boating activity at the Port of Seattle marinas;
- As a result of purchases by these 140 direct jobs, 94 induced jobs were generated in the local economy;
- As the result of \$7.5 million of local purchases by the firms dependent upon recreational boating activity at Port of Seattle marinas, 89 indirect jobs were supported in the local economy;
- The 140 direct jobs holders received nearly \$5.0 million of direct wages and salaries. As the result of the re-spending impact, an additional \$10.7 million of personal income and local

consumption expenditures were generated. The indirect jobholders received \$3.6 million of indirect wages and salaries;

- The recreational boating created \$21.6 million of business revenue; and
- \$1.8 million of state and local taxes were generated by the Port of Seattle marina activity.

III. ECONOMIC IMPACT OF THE PORT OF SEATTLE REAL ESTATE TENANTS

In addition to the marine cargo, commercial fishing, passenger and recreational boating operations of the Port of Seattle Seaport Division, the Port also leases land to non-maritime related tenants. This property is leased for office and conference space, retail space and restaurants. Essentially these are tenants of the Port of Seattle that are not included in cargo, fishing, recreational boating or cruise analysis.

With respect to the real estate analysis, the impacts created with the real estate tenants of the Port of Seattle are generated by the demand for the goods and services produced by the tenants, and not by activity specific to transportation services provided by the Port of Seattle. In contrast, the capital investments made by the Port in the marine terminals and airport facilities are essential for the existence of maritime operations and commercial aviation operations in Seattle. As a result, the impacts generated by tenants of the Port's real estate holdings are not as directly dependent upon the Port of Seattle and its investment as are the seaport and airport impacts. Some of these companies are located on Port-owned property as a direct result of efforts by the Port of Seattle to recruit them, and would likely not have located in Seattle otherwise. Other firms would likely have located in Seattle regardless of the Port's efforts and infrastructure investment.

The impact analysis of the real estate tenants are based on a survey of 106 tenants not included in other Seaport operations. Martin Associates developed a separate real estate impact model to estimate the impacts of these tenants on the Seattle economy. In addition, the impact model can be used to assess the impacts of potential uses of Port-owned property, including, office, restaurant, retail and industrial uses.

Table III-1 summarizes the economic impacts of the real estate tenants of the Port of Seattle.

Table III-1
Economic Impacts of the Port of Seattle’s Real Estate Tenants

	Port of Seattle Real Estate
Jobs	
Direct	1,044
Induced	486
Indirect	<u>300</u>
Total Jobs	1,831
Personal Income (\$1,000)	
Direct	\$54,527
Re-spending/Local Consumption	\$41,316
Indirect	<u>\$22,448</u>
Total	\$118,291
Business Revenue (\$1,000)	\$434,905
Local Purchases (\$1,000)	\$48,000
State and Local Taxes (\$1,000)	\$11,001

Note: Totals may not add due to rounding

As summarized in Table III-1, the Port of Seattle real estate tenants create the following economic impacts:

- 1,044 direct jobs are generated by these tenants, and as the result of local purchases by these direct employees, another 486 induced jobs are supported in the Seattle area’s economy. Due to \$48.0 million of local purchases, 300 indirect jobs are supported. This indirect impact reflects the dependency on the local economy supply infrastructure for port tenants such as business offices;
- The 1,044 directly employed workers received \$54.5 million of wages and salaries. As the result of the local purchases by these employees, another \$41.3 million of income and consumption expenditures were generated, resulting in the induced job impact. The 300 indirect jobholders received \$22.5 million of indirect wages and salaries for a total personal income impact of \$118.3 million;

- The Port tenants received \$434.9 million of revenue, of which \$48.0 million was used for local purchases, as identified from the surveys of these tenants. These local purchases supported the 300 local indirect jobs; and
- The Port of Seattle Seaport real estate tenants generated \$11.0 million of state and local taxes.

Exhibit III-1 shows the distribution of the 1,044 direct jobs by type of business. Office tenants generate the greatest number of jobs, followed by the Port of Seattle employees allocated to the real estate operations.

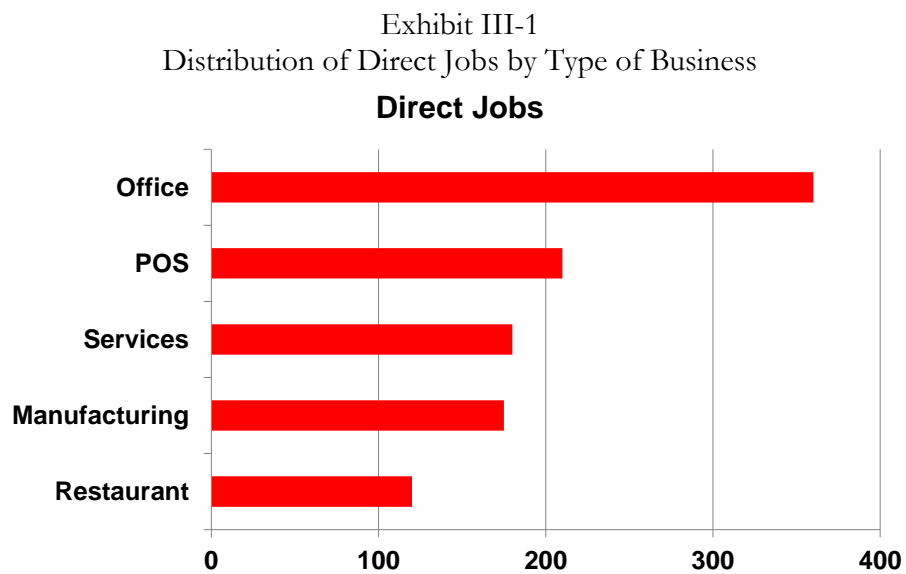


Table III-2 shows the distribution of the 1,044 direct jobs holders by place of residency. As shown in this table, nearly 45 percent of the direct jobs with the Port of Seattle non-maritime/non-aviation tenants reside in Seattle.

Table III-2
Distribution of Direct Jobs by Place of Residency

Port of Seattle Real Estate	Percentage	Total
Auburn	4.89%	51
Bellevue	1.13%	12
Bothell	1.64%	17
Burien	3.47%	36
Des Moines	1.14%	12
Enumclaw	0.24%	2
Federal Way	8.00%	84
Issaquah	0.18%	2
Kent	4.07%	43
Kirkland	1.24%	13
Mercer Island	0.71%	7
Redmond	0.49%	5
Renton	5.23%	55
Sea-Tac	5.22%	55
Seattle	44.84%	468
Tukwila	0.86%	9
Vashon	0.09%	1
Other King Co.	3.22%	34
Edmonds	1.26%	13
Everett	0.01%	0
Mt. Lake Terrace	1.51%	16
Other Snohomish Co.	0.00%	0
Tacoma	0.11%	1
Fife	0.72%	7
Sumner	3.32%	35
Puyallup	2.06%	22
Other Pierce Co.	3.05%	32
Kitsap Co.	0.58%	6
Thurston Co.	0.22%	2
Other WA	0.45%	5
Other US	0.03%	0
	100%	1,044

Note: Totals may not add due to rounding

IV. THE ECONOMIC IMPACTS OF SEA-TAC INTERNATIONAL AIRPORT

This chapter presents the results of the economic impact analysis of the air passenger and cargo activity at Sea-Tac International Airport for calendar year 2013. The first section provides an overview of the airport impact structure, Section 2 details the employment impacts, Section 3 provides an overview of the business revenue impacts, Section 4 summarizes the employee earnings impact, state and local taxes and federal aviation-specific taxes are summarized in Section 5 and visitors industry impacts are presented in Section 6.

1. OVERVIEW OF THE AIRPORT IMPACT STRUCTURE

An airport, like a seaport, is a diverse economic system. Passenger and cargo activities also generate impacts through various sectors of the economy. These sectors are:

- Airline/airport service sector;
- Freight transportation sector;
- Passenger ground transportation sector;
- Contract construction/consulting services sector; and
- Visitors' industry sector.

Each of these sectors covers a variety of activities. A discussion of these five sectors is provided below, with a description of the major participants in each.

1.1 Airline/Airport Service Sector

The airline/airport service sector consists of airlines providing passenger services, and firms (and government) providing support services to the airlines, passengers, and to the airport. This group consists of the following participants:

- Passenger Airlines;
- Catering Firms (those providing food services to airlines);
- Janitorial Firms;
- Sky Caps;
- Aviation Service Firms (including fixed base operators that supply aircraft parts, fueling, and other ground services to airlines);

- Airport Retail Tenants (i.e., newsstands, retail shops, restaurants, etc.);
- State, city, and federal government agencies (i.e., Federal Aviation Administration, Department of Homeland Security, TSA, and U.S. Customs, etc.);
- Port of Seattle employees that are dedicated to overseeing the activity at Sea-Tac;
- Parking and miscellaneous ; and
- Banks and insurance firms that provide services to passengers using Sea-Tac for currency exchange and flight insurance. Also, with respect to air cargo, banks perform such services as writing letters of credit for international transactions and insurance firms provide air cargo insurance.

Jobs in this category are typically located on the airport property.

1.2 Freight Transportation Sector

Freight transportation includes freight airlines, freight forwarders, and trucking firms involved in transporting air cargo. The air cargo consists of air freight and mail transported on dedicated freight airlines and in the cargo section of passenger airlines. Included in this group are air couriers, freight forwarders, and common carrier trucking firms located throughout the Seattle area. Jobs in this category are located both on and off the airport.

1.3 Passenger Ground Transportation Sector

Passenger ground transportation consists of car rental firms and other ground transportation modes, such as buses, taxis and limousines. This group covers all transportation of individuals to and from Sea-Tac International Airport and includes both drivers and supporting dispatch and maintenance employees.

1.4 Contract Construction and Consulting Sector

Individuals employed in this group include those providing construction and remodeling work at Sea-Tac, as well as architects and engineers providing planning and design services. These services are provided to the airlines as well as to the Port of Seattle.

1.5 Visitor Industry Sector

Passengers arrive in the Seattle area via Sea-Tac for several purposes, including business, pleasure, and conventions. As a result of these out-of-town residents purchasing lodging, food, and entertainment, jobs are created in the service and retail industries in the area. Also included in this sector are jobs created with local travel agents. The impacts in this sector are based on a detailed passenger survey of 1,400 passengers conducted during the weeks of April 28, 2014 and July 14, 2014.

Freight related jobs consist of firms using the airport for the shipment of air freight. These users can and do use other airports and, hence, their impacts are considered related, not dependent, upon Sea-Tac. These related job impacts are estimated separately.

Consistent with measurement of the impacts generated by seaport activity, the four types of impacts estimated are:

- Jobs:
 - Direct jobs are those jobs that would be dislocated if the airport were to close;
 - Induced jobs are jobs generated in the state of Washington by purchases of goods and services by those directly employed; and
 - Indirect jobs are the result of local purchases by firms directly dependent upon the airport.
- Personal Earnings:
 - Direct personal earnings, which consist of wages and salaries received by those directly employed by airport activity;
 - Re-spending effect, which is earnings and consumption created in the local economy as the result of re-spending the direct employee earnings throughout the economy; and
 - Indirect wages and salaries are earned by those indirectly employed by the airport.
- Business revenue, which consists of revenue received by firms providing services to airlines, passengers and air cargo shippers/consignees.

- Tax impacts include state and county tax impacts, as well as taxes paid to airport-specific federal tax funds.

Table IV-1 summarizes the economic impacts generated by passenger and air cargo activity at Sea-Tac International Airport.

Table IV-1
Summary of Economic Impacts Generated by
Sea-Tac International Airport

	Sea-Tac (On-Site)	Sea-Tac (Visitors)	Total
Jobs			
Direct	18,353	91,571	109,924
Induced	8,349	30,109	38,457
Indirect	<u>6,090</u>	<u>17,325</u>	<u>23,415</u>
Total	32,791	139,004	171,796
Personal Income (\$1,000)			
Direct	\$1,002,911	\$1,859,863	\$2,862,774
Re-Spending	\$949,957	\$1,591,020	\$2,540,977
Indirect	<u>\$196,789</u>	<u>\$476,520</u>	<u>\$673,309</u>
Total	\$2,149,656	\$3,927,403	\$6,077,059
Business Revenue (\$1,000)	\$7,983,023	\$8,363,347	\$16,346,370
Local Purchases (\$1,000)	\$518,552	\$831,043	\$1,349,594
State/Local Taxes (\$1,000)	\$199,918	\$365,248	\$565,166
Aviation Taxes (\$1,000)	\$547,189	NA	\$547,189

Note: Totals may not add due to rounding

In total, 109,924 direct jobs were generated by activity at Sea-Tac and as a result of local purchases by visitors arriving in the Seattle area via Sea-Tac. As the result of local and regional purchases by these individuals, 38,457 induced jobs were supported in the local and state economies. As the result of the local purchases by firms dependent upon Sea-Tac, 23,415 indirect jobs are also generated in the local economy.

In 2013, 126,455 metric tons of air freight was loaded at Sea-Tac, representing \$12 billion of air freight. As a result of this enplaned air freight, 119,685 jobs are related to the air freight shipped through Sea-Tac. These jobs are classified as related to Sea-Tac, since it is the demand for the products shipped by air that generated the employment, not the fact that the air freight was shipped

by air carriers using Sea-Tac. These related jobs also include the local support jobs with supplying firms required to produce the air freight, and exclude the direct air freight jobs generated on-site at Sea-Tac.

About \$2.9 billion of direct earnings were received by the 109,924 direct employees, and when the re-spending impact and indirect wages and salaries are considered, the total of income and consumption expenditure impact of Sea-Tac is estimated at \$6.1 billion.

Businesses providing services at the airport, as well as those local visitor industry businesses providing services to the air visitors received \$16.3 billion of total, direct revenue. The state and local governments received \$565.2 million of tax revenue, and \$547.2 million of federal aviation-specific tax revenue was generated, a portion of which is received by the Aviation Trust Fund for future airport development nationwide.

The first section of this chapter details the employment impacts generated by activity at Sea-Tac. As with the seaport impacts, a more detailed discussion is provided for the employment impacts, since the direct job impacts drive the earnings and tax receipts.

2. EMPLOYMENT IMPACTS GENERATED BY PASSENGER AND AIR CARGO ACTIVITY AT SEA-TAC

In this section, the employment generated by activity at Sea-Tac International Airport is estimated. Employment impacts with the visitors industry is discussed in Section 6 of this chapter. The section is organized as follows:

- Jobs are estimated in terms of the economic impact sectors, for job categories within each sector, and by type of activity;
- Job impacts are allocated to local jurisdictions based on the residence of those that are dependent upon airport activity;
- Induced jobs are estimated by industry for those industries supplying goods and services to individuals directly dependent on Sea-Tac;
- Indirect jobs are estimated as the result of local purchases by the firms dependent upon the airport activity; and
- Finally, jobs related to airport activity are discussed in the fourth section.

2.1 Job Impacts by Sector

In 2013, 32,791 direct, induced and indirect jobs were created on-site by activity at Sea-Tac International Airport. Of these jobs:

- 18,353 direct jobs are dependent upon activity at Sea-Tac. These jobs would be discontinued immediately if airport activity ceased. Also, these jobs would be impacted as a result of changes in the number of flights and passenger levels;
- 8,349 induced jobs are created in the state due to the purchases of goods and services of those directly dependent upon activity at Sea-Tac; and
- 6,090 indirect jobs were supported in the local economy due to purchases by the businesses directly dependent upon the activity at Sea-Tac.

Table IV-2 shows the distribution of direct employment within each major sector. Jobs with passenger airlines account for 43.2 percent of job impacts in the airline/airport service sector. The 7,933 direct jobs with airlines include flight crew and pilots living in Washington, jobs with ticket agents, dispatchers, equipment mechanics and technicians, sky caps, custodial workers who are employees of the airlines (and not contractors to the airlines), and airline management and clerical jobs. Some of these jobs are dependent upon the number of flights at Sea-Tac International Airport; others are dependent upon the number of passengers at the airport, while still other jobs, such as those with a system maintenance facility (i.e., Alaska Airlines) or with airline management, are dependent upon airline corporate decisions and airline system activity.

As a result of this diversity in the types of jobs with airlines and their dependency upon the airport activity, changes in the level of airport activity will not have a proportional impact on the level of total direct airline jobs. For example, the airline flight attendants living in Washington are not necessarily dependent upon the level of flights in and out of Sea-Tac International Airport, but instead on the growth in the specific airline system of which they are employees. Similarly, the level of employment with an airline system maintenance facility is dependent on the overall size of the airline's fleet and the repair and maintenance schedule of those aircraft, rather than on the level of activity at Sea-Tac International Airport. In contrast, certain jobs are directly dependent on the number of flights at Sea-Tac International Airport, such as the equipment service technicians, dispatchers, gate personnel and caterers.

Table IV-2
Direct Job Impacts by Category

Job Category	Direct Jobs
Airline/Airport Services Sector	
Passenger Airlines	7,933
Catering	635
Skycaps	770
Government Agencies	1,305
Airport Administration	1,473
Retail Concessions	1,456
General Aviation/FBO's	1,305
Custodial	156
Parking	<u>175</u>
Subtotal	15,206
Freight Transportation Sector	
Freight Airlines/Couriers	702
Freight Forwarders	<u>145</u>
Subtotal	847
Passenger Ground Transportation Sector	
Rental Cars	727
Cabs/Buses/Limos/Vans	<u>927</u>
	1,654
Construction/Consulting	646
Total	18,353

Note: Totals may not add due to rounding

Based on an analysis of employee job classifications for the airlines serving Sea-Tac, it was estimated that 37 percent of the direct airline employment would fluctuate on a short term, month-to-month basis, with the actual number of flights and passengers at Sea-Tac. The remaining airline employees would include flight crews living in Washington (but dependent upon the airline's longer-term performance at Sea-Tac), maintenance facility employees and airline management stationed at Sea-Tac.

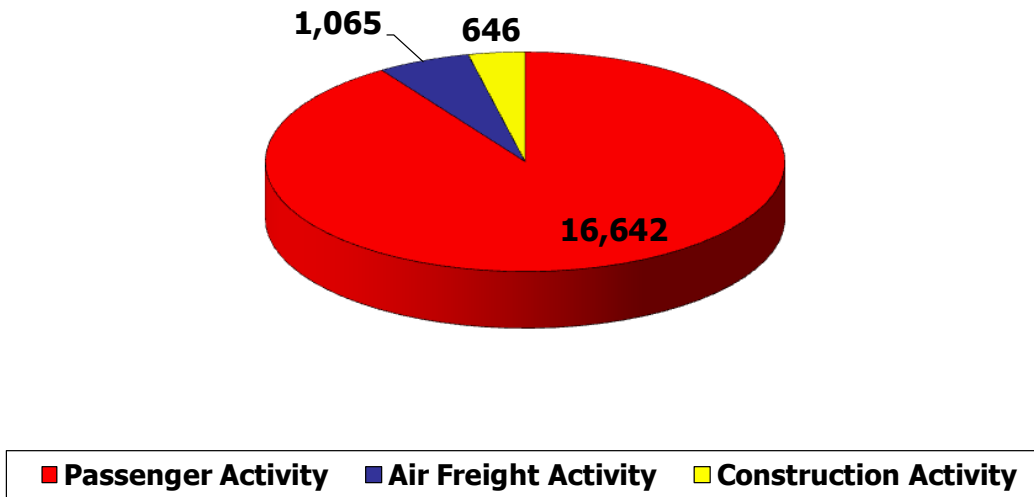
2.2 Jobs by Type of Activity

In this section, job impacts by type of activity, i.e., air cargo, air passenger and international air passenger flights are detailed.

In 2013, a total of 292,709 metric tons of air cargo (which consists of air freight and air mail moved via Sea-Tac, and 34.8 million passengers used the airport. The direct job impacts associated with passenger and air cargo activity is presented in Exhibit IV-1. Of the 18,353 jobs directly generated by airport activity, 16,642 direct jobs are generated by air passengers, while 1,065 jobs are directly generated as a result of air cargo activity and 646 are related to construction and consulting projects at the airport.

Of the 34.8 million passengers, 31.2 million were on domestic flights, while 3.6 million were traveling on international flights. As a result of the international flights, 1,833 jobs were generated, or about 10.3 percent of the 18,353 direct jobs associated with airport activity at Sea-Tac.

Exhibit VI-1
Distribution of Job Impacts by
Type of Activity



2.3 Job Impacts by Residency

In order to estimate the local economic impact created by airport activity, data on residency of employees was collected from the interviews with service firms, Port of Seattle employee records, airport security identification badge records, and interviews with the leading airlines serving Sea-Tac. The direct job impact of 18,353 jobs was then allocated based on city and county of residency.

Table IV-3 shows that 70.4 percent of the direct jobs are held by residents of King County. Nearly 20 percent of the 18,353 jobs are held by residents of Seattle, while 8.1 percent of the direct jobs are held by residents of Kent.

Table IV-3
Distribution of Direct Jobs by Residence

	PERCENT	DIRECT JOBS
Auburn	5.25%	963
Belleveue	1.69%	311
Bothell	0.65%	119
Burien	2.44%	447
Des Moines	2.13%	391
Enumclaw	0.62%	115
Federal Way	5.42%	995
Issaquah	1.16%	213
Kent	8.14%	1,493
Kirkland	0.73%	133
Mercer Island	0.56%	103
Normandy Park	0.92%	168
Redmond	0.72%	131
Renton	5.43%	997
Sea-Tac	5.58%	1,024
Seattle	19.81%	3,636
Tukwila	4.21%	773
Vashon	0.33%	61
Edmonds	0.69%	127
Everett	0.48%	87
Mount Lake Terrace	0.19%	35
Tacoma	6.56%	1,203
Fife	0.30%	55
Sumner	1.61%	295
Puyallup	3.20%	588
King County	4.58%	840
Kitsap County	1.18%	216
Pierce County	5.63%	1,033
Snohomish County	1.88%	345
Thurston County	0.77%	141
Other Washington	3.70%	680
Other U.S.	<u>3.45%</u>	<u>633</u>
Total	100.00%	18,353

Note: Totals may not add due to rounding

2.4 Induced Job Impacts

A portion of the personal earnings received by those 18,353 individuals directly employed due to airport activity is saved, another portion is used to pay federal, state and local taxes, while another portion is used to purchase goods and services from firms located in Washington, as well as out-of-state firms. The purchase of goods and services from firms located in Washington creates induced jobs for Washington residents in the firms supplying the goods and services. Furthermore, those individuals supplying the goods and services also receive personal earnings from their employers, and use a portion of it for additional purchases from firms located in Washington. This "trickle-down" effect of an initial expenditure results in a multiplier effect throughout the state economy known as the personal earnings multiplier. In 2013, \$1.0 billion of wages and salaries were received by the 18,353 directly employed due to airport activity. As a result of re-spending of this direct income, \$950 million of re-spending throughout the region occurred, creating 8,349 induced jobs for Washington residents.

The induced impacts are greatest in the state and local government, business and social services, and education sectors of the regional economy, followed by induced jobs generated with restaurants and grocery stores, and with jobs in the housing and home furnishings industry. Smaller induced jobs result in the entertainment, apparel, transportation, retail apparel industries and health care.

2.5 Indirect Jobs

In addition to these induced jobs created due to purchases by the 18,353 individuals directly employed due to activity at Sea-Tac, additional indirect jobs in the local economy are created as the result of local purchases by the firms directly dependent upon Sea-Tac. For example, airlines purchase such items as fuel, catering services, parts and office supplies from local firms, thereby creating jobs in these supplying industries. Similarly, the airport itself purchases such services as contract construction, utilities, and maintenance services from local suppliers, also creating jobs in the local economy. For the most part, the jobs resulting from such purchases are included in the direct job impacts (see Table III-2). For example, the 635 jobs with caterers, the 1,284 jobs with suppliers of aircraft services, (including fixed based operators, fuel handlers and parts suppliers), the 156 jobs with janitorial services and the 646 jobs with contract construction and consulting firms are all included as direct job impacts. However, additional purchases are made in the local economy by these directly dependent firms for additional goods and services. Based on the surveys of the firms dependent upon Sea-Tac, a total of \$518.6 million of additional local purchases were made. These purchases supported the 6,090 indirect jobs in the local economy.

It is to be emphasized that these indirect jobs are estimated from the survey data provided to Martin Associates by each airport dependent firm. These are only local purchases, and exclude purchases for the goods and services conducted as direct impacts.

2.6 Related Jobs

Related jobs are with freight users of Sea-Tac International Airport. These shippers use Sea-Tac as well as other airports for air freight (air cargo excluding mail) shipments. Therefore, these shippers are not directly dependent upon Sea-Tac in the same sense as are the firms that supply direct services to the airlines and/or passengers. However, the use of Sea-Tac by these shippers is important in stimulating economic activity in the region. To estimate the importance of Sea-Tac to the local and regional manufacturing and industrial community, the type and value of air freight moving via Sea-Tac were developed from USA Trade Online, U.S. Bureau of the Census. The specific types of air freight moving via Sea-Tac International Airport were then related to manufacturers of the specific type of air cargo commodity. The ratios of jobs to value of output for each manufacturing industry (associated with the air cargo) were then developed from data developed for Martin Associates by the Bureau of Economic Analysis for the state of Washington.

The value of enplaned air freight by commodity type, multiplied by the ratios of jobs to output value of air freight resulted in an estimate of related jobs. Based on the average value per pound of air freight enplaned at Sea-Tac in 2013, \$48.78 per pound, the total value of air freight enplaned at Sea-Tac is estimated at \$12.0 billion. Using the jobs to enplaned air freight value, it is estimated that 119,685 jobs are related to the 260 million pounds of air freight shipments via Sea-Tac International Airport in 2013. ***It is to be emphasized that these jobs are related, not dependent upon Sea-Tac, and the majority of these jobs also include jobs with regional supplying firms that support the direct manufacturer/producer of the air freight.*** The level of employment with these users is determined by the demand for the firms' products, not the use of Sea-Tac for air freight shipments. However, the ability to use Sea-Tac for air freight shipments and receipts is a very important factor to be considered by industries and manufacturing firms evaluating a new plant location in the Pacific Northwest, the majority in the state of Washington.

The 119,685 related users of the airport earned \$5.5 billion of wages and salaries, and a total of \$520.7 million state and local taxes were supported by the related users of Sea-Tac. The total economic value in the state associated with the air freight loaded at Sea-Tac is estimated at \$22.7 billion.

3. BUSINESS REVENUE IMPACT

The movement of passengers and air cargo via Sea-Tac International Airport generates revenue for firms in each of the five sectors of the economy. For example, in the airline/airport service sector, revenue is received by the airlines providing services to enplaning passengers, catering firms providing services to the airlines, and by airport tenants who sell retail merchandise to passengers in the airport. In the freight transportation sector, airlines receive revenue from moving the air cargo to and from the airport and freight forwarders receive revenue from arranging air transportation for the cargo. Similarly, the rental car agencies and the firms providing ground transportation receive revenue from transporting passengers to and from the airport, while contract

construction and consulting firms receive revenue from the airport and airlines that have contracted these services. In the visitors industry sector, local service and retail firms receive revenue from passengers staying overnight in the Seattle area. (These visitor industry revenue impacts are estimated in Section 6 of this chapter.)

It is useful to estimate the revenue received by each economic sector, because the distribution is quite different from that of employment. However, only a portion of the revenue can be definitely traced to uses within Washington. The portions of revenue paid in salaries and re-spent within Washington, used for local purchases, and paid in taxes by individuals, and state and local taxes paid by firms, represent impacts that can be traced as remaining in the state. Other portions of the revenue are used to pay stockholders, retire debt, pay federal taxes, purchase out-of-state supplies, services and capital equipment and for other investments.

The revenue for firms in the airline/airport service sector is estimated from a combination of survey results and airport concession records. For airlines, the revenue is based on a per enplaning passenger revenue estimate, provided by each airline. For the other firms in this category, revenue estimates, by firm, were collected through the surveys and from Sea-Tac concession reports.

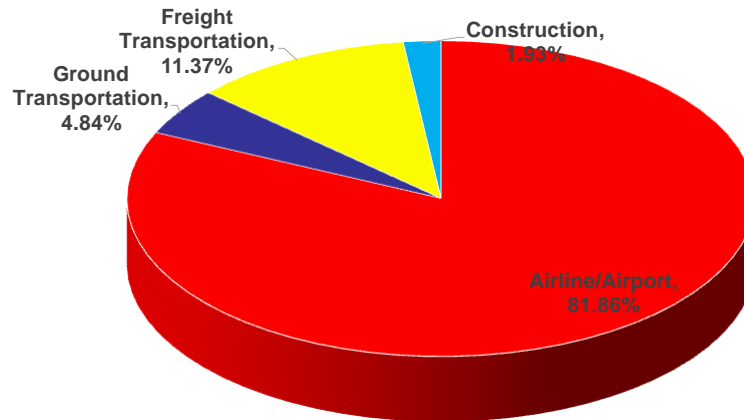
Freight sector revenue is based on average revenue per pound of enplaned air freight and air express (mail), as reported by major air carriers, and freight airlines. This revenue per pound includes pickup, delivery and air transportation charges, and excludes the value of the air cargo.

Revenue for the ground transportation sector is based on revenue per job estimates for rental cars as obtained from airport concession reports and survey results. Revenue for taxis/limos/buses is based on an average revenue per passenger multiplied by the corresponding number of passengers using that mode.

Revenue for the construction and consulting sector is based on construction/consulting expenditures by the Port of Seattle at Sea-Tac.

In 2013, 34.8 million passengers boarded airplanes at Sea-Tac, and 152,442 metric tons of air freight (both air cargo and mail) was loaded at Sea-Tac. This passenger and air cargo activity at Sea-Tac generated \$16.4 billion of business revenue to the firms supplying these services. Exhibit IV-2 indicates the distribution, by economic impact sector, of the \$8.0 billion of revenue generated by on-site airport activity.

Exhibit IV-2
Distribution of Business Revenue
by Sector of Airport Activity



As with the employment impact, the majority of revenue generated by airport activity (81.9 percent) is concentrated in the airline/airport service sector. About 11.4 percent of the revenue accrues to firms in the freight transportation sector. The relatively high revenue yield per employee resulting from the transportation of air cargo reflects the premium paid for air shipment of these high-value goods.

In addition to the \$8.0 billion of revenue generated in the four economic sectors described above, additional revenue is generated in the local visitors industry as the result of purchases by visitors to the area who used Sea-Tac. This visitor industry revenue is described in Section 6 of this chapter.

An additional \$22.7 billion of economic value in the state was related to the air freight loaded at Sea-Tac in 2013.

4. EMPLOYEE EARNINGS IMPACT

The portion of the \$8.0 billion revenue impact paid out in salaries and wages is described in this section. In total, activity at Sea-Tac created \$2.2 billion of direct, induced and indirect wages and salaries and local consumption expenditures. A breakdown of the income impact follows.

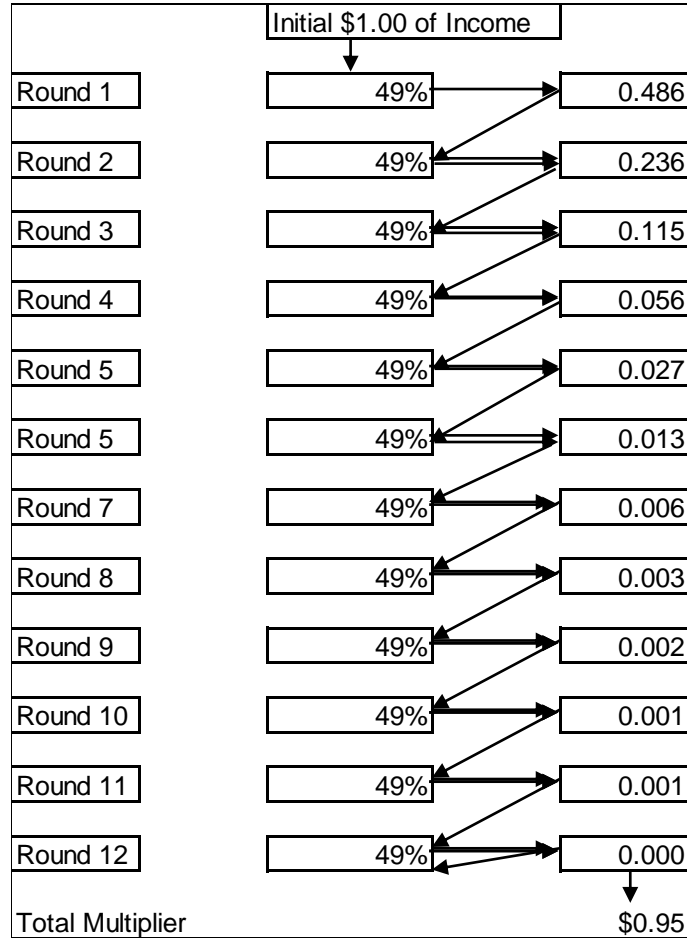
An estimated total of \$1.0 billion was paid in wages and salaries to the 18,353 direct employees, representing an average annual salary of \$54,645. This \$1.0 billion employee earnings impact is estimated based on the average wage and salaries for each job category, multiplied by the corresponding job impact in that category. The spending of these employee earnings within the

state creates the additional employment estimated as induced jobs, which results in an additional \$950 million of personal earnings and purchases.

Re-spending of income within a state is measured by a local income multiplier. The size of the multiplier varies by state depending on the proportion of goods and services purchased locally by individuals. The higher this percentage, the lower is the income leakage out of the region. Based on data provided from the Bureau of Economic Analysis, for every one dollar earned by individuals in the Seattle regional economy, about 48.6 percent is spent locally, resulting in a total of \$.95 additional spending for every dollar received in wages and salaries. This re-spending impact is known as the personal income multiplier. Hence, the personal income multiplier for the Seattle area is 1.9472, and was used to estimate the induced income and consumption impact of \$950 million as a result of airport activity. According to the Bureau of Economic Analysis, for every one dollar earned in the Seattle regional economy, about 48.6 percent is spent on goods and services within the region, while the remaining share is used to purchase items produced out-of-area, or to pay federal, state and local taxes or held as savings. The full income multiplier effect results from successive rounds of re-spending. For example, in the initial round, one dollar is earned. Of that \$1.00, nearly \$0.486 is used to purchase goods and services. Of that \$0.486, 48.6 percent, or \$0.236, will be used for the next round of purchases of goods and services. Of this \$0.236, again 48.6 percent, or about \$0.115 will be used for further regional purchases. These successive re-spending rounds will continue until an additional \$0.95 of spending in the Washington economy is generated for every dollar of income. At each stage of the re-spending, additional jobs are created. These are the induced jobs described in the employment section.⁷ Exhibit IV-3 graphically depicts this re-spending impact.

⁷ It is to be emphasized that the re-spending impact of \$950 million does not represent the earnings of the 8,349 induced job holders. The \$950 million re-spending impact does include the direct earnings received by the employees holding the induced jobs, but the re-spending impact also includes the revenue received by the firms providing the goods and services to the 18,353 directly employed.

Exhibit IV-3
Re-spending Impact



In addition to the re-spending impact, the 6,090 indirect jobholders earned \$196.8 million in indirect wages and salaries.

The related users of Sea-Tac received \$5.6 billion of personal income.

5. TAX IMPACTS

Airport activity generated federal, state and local tax revenues paid by the total direct, induced and indirect jobholders as well as by the firms providing the services. In 2013, activity at Sea-Tac generated about \$200 million of state and local tax revenue, of which \$122.0 was collected at the state level and \$78.0 was collected at the municipal and county level. In addition, \$547.2

million of federal aviation-specific taxes were collected from passenger and air freight activity at Sea-Tac.

In addition, \$520.7 million of state and local taxes were associated with the related enplaned air freight user activity at Sea-Tac in 2013.

6. VISITOR INDUSTRY IMPACTS

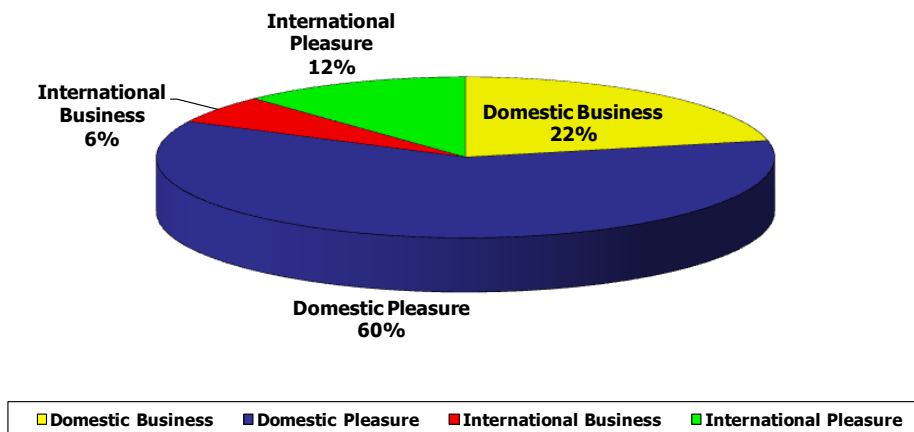
Sea-Tac International Airport plays an important role in the visitors industry in the U.S. Pacific Northwest, as well as in British Columbia. For Americans, Seattle is a gateway to destinations in the Pacific Rim countries, just as it is a gateway to the West for many Asians.

An in-terminal survey of 1,400 passengers at Sea-Tac was conducted by the Pacific Market Research as part of this study to determine visitor characteristics. The passenger surveys were conducted during the weeks of April 28, 2014 and July 14, 2014 to avoid and control for seasonality of the passengers.

Results of the survey indicated that of the 17.4 million passengers boarding flights at Sea-Tac, about 9.0 million are visitors to the area. The remaining passengers are making connections at Sea-Tac or are Seattle area residents.

The composition of these visitors is presented in Exhibit IV-4.

Exhibit IV-4
Distribution of 9.0 Million Visitors Using Sea-Tac

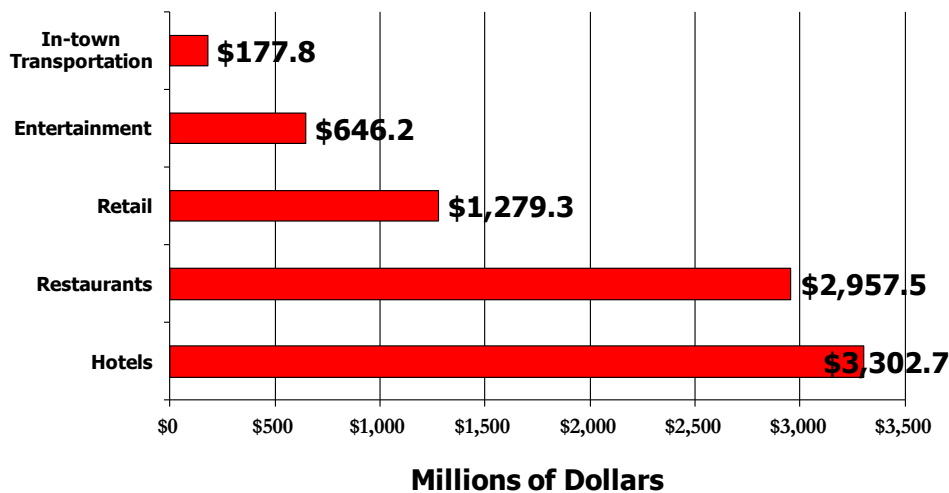


The majority, 60.7 percent, of the 9.0 million visitors consists of domestic pleasure travelers, while 21.7 percent of the visitors are domestic business travelers. International business travelers account for about 5.7 percent of the total visitors, and international pleasure travelers account for 12 percent of visitors. Visitor spending and length of stay patterns vary depending on the type of visitor. Domestic business travelers stay an average of 3.9 days and spend an average of \$237 daily. Domestic visitors on vacation, visiting friends and relatives, or attending conventions stay an average of 6.5 days and spend about \$133 per day after adjusting for the percentage of pleasure travelers that stay with friends or relatives. International visitors on vacation or visiting relatives stay an average of 7.1 days, and spend an estimated \$189 per day, while international business travelers stay an average of 7.9 days and spend about \$289 per day. Together, these guests from out-of-town brought \$8.4 billion to the Seattle area in 2013.

6.1 Visitor Industry Revenue Impact

The bulk of visitor dollars are spent on accommodations, restaurants, and retail shopping, in that order. Business travelers tend to spend more of their travel dollar on hotels than their pleasure-seeking counterparts, whose budgets are more heavily weighted toward retail, entertainment, and sightseeing. The Seattle area benefits significantly from this visitor traffic. The 9.0 million air visitors to the Seattle area spent \$8.4 billion on local goods and services. The distribution of these purchases to the various industry categories in the visitors' industry sector is presented in Exhibit IV-5.

Exhibit IV-5
Distribution of Air Visitors' Purchases in the
Local Visitor Industry Sector

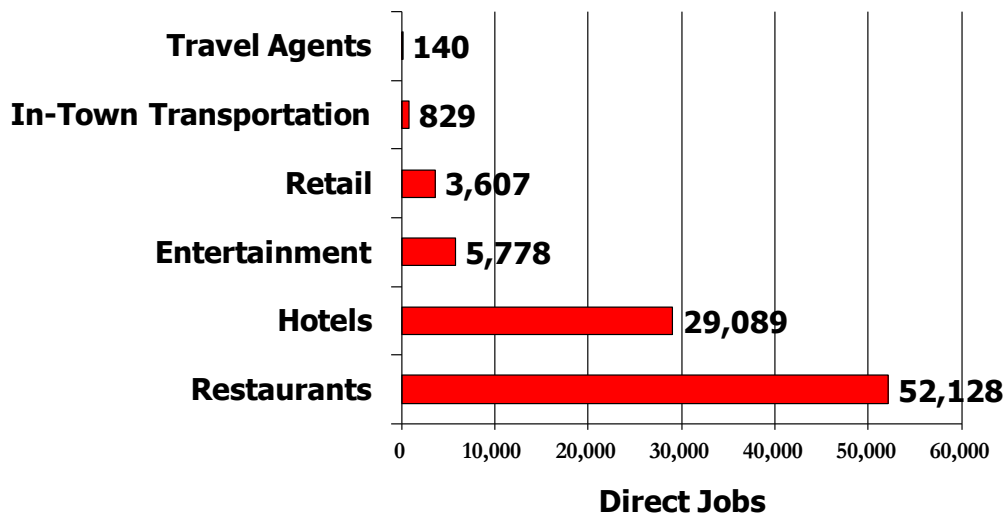


As the exhibit indicates, air visitors spend \$3.3 billion in hotels, about \$3.0 billion in restaurants and about \$1.3 billion on retail purchases. With respect to where the visitors spend their money, 45 percent stay in hotels in downtown Seattle, 6.87 percent in Bellevue and 5 percent in Tacoma.

6.2 Visitor Industry Direct Job Impacts

These direct purchases support direct jobs in these visitor industry sector categories. In total, the \$8.4 billion of visitor industry purchases generated 91,571 direct jobs. These jobs are generated in the various industry categories, as shown in Exhibit IV-6. This exhibit shows that the majority of the direct visitor industry jobs are generated with restaurant, followed by jobs with area hotels.

Exhibit IV-6
Distribution of Direct Visitor Industry Jobs



6.3 Visitor Industry Induced and Indirect Job Impacts

As the result of local purchases by those 91,571 directly employed individuals, 30,109 induced jobs are supported in the Seattle area economy.

No local purchase data was collected from hotels and other sectors of the visitors industry. Instead, the Bureau of Economic Analysis developed indirect job multipliers for the various sectors of the Seattle visitors industry. These multipliers were combined with the direct job impacts by visitor industry sector to estimate the indirect impacts. The indirect income is based on personal

income indirect coefficients for the respective visitors' industry sectors. Using the indirect job multipliers for the Seattle visitors industry, it is estimated that \$831.0 million of local purchases were made by the visitor industry firms. These purchases supported 17,325 indirect jobs.

6.4 Visitor Industry Personal Income Impact and State and Local Tax Impact

These 91,571 directly employed individuals received wages and salaries totaling \$1.9 billion as a result of visitor spending. As a result of purchases for food, clothing, housing, entertainment, and other needs by these directly employed individuals, induced jobs and consumption expenditures are created locally. This re-spending fuels additional economic activity, creating further jobs and income.

Of the \$1.9 billion in direct income received by 91,571 direct visitor industry jobs, an additional \$1.6 billion is spent before the cycle is exhausted. This spending and re-spending supports 30,109 induced jobs in the basic industries of housing, food, clothing, transportation, health care and entertainment, as well as business services, social services and education. The indirect jobholders received \$476.5 million in wages and salaries.

About \$365.2 million of state and local taxes were generated by the visitors using Sea-Tac International Airport.

V. COMPARISON OF ECONOMIC IMPACTS GENERATED BY THE SEATTLE SEAPORT AND SEA-TAC INTERNATIONAL AIRPORT 2007-2013

The purpose of this chapter is to provide a comparison of the economic impacts generated by seaport and airport activity between 2007 and 2013. The methodology used by Martin Associates to estimate the economic impacts generated by seaport and airport activity is, for the most part, identical to the methodology used by Martin Associates to estimate the economic impacts of the seaport and airport in 2013.

In the next section of this chapter, the key methodological changes between the 2007 and 2013 studies are presented. Comparisons between seaport cargo impacts are presented in Section 2 of this chapter, while the comparisons of airport impacts are made in Section 3. Changes in the impacts of the real estate sector are not included due to the fact that there have been changes in the classification of some of the tenants included in real estate line of business between 2007 and 2013.

1. CHANGES IN IMPACT METHODOLOGY

The basic methodology used to measure the 2007 economic impacts is the same as that used by Martin Associates for this current study, with the following exceptions. In 2013, the personal income multipliers used to estimate the re-spending impacts by lines of business have been updated by the U.S. Bureau of Economic Analysis for the Seattle metropolitan area and the state of Washington. Due to the economic recession which reached its trough in 2009, the income multipliers have been adjusted to reflect the increased savings propensity of consumers since that time, thus reducing the overall income multiplier effects. For example, in 2007, the personal income multiplier for the water transportation sector in Washington State was 4.095 while in 2013, the income multiplier for the water transportation sector is 3.195. For the airport sector, the state of Washington income multiplier in 2007 was 2.45, compared to the current air transportation-specific income multiplier of 1.948. As a result, for a given dollar of income, the updated multiplier will generate a much smaller re-spending impact than prior to the recession, and hence a smaller induced job impact.

Secondly, the continued growth in productivity in the United States economy has resulted in a lower job impact per dollar value of expenditures for both the induced and indirect job impacts.

2. COMPARISONS OF MARINE CARGO THROUGHPUT AND SEAPORT OPERATIONAL CHARACTERISTICS

In this section, change in tonnage activity at the Seattle seaport and changes in the operational structure of the Seattle seaport are documented.

2.1 Comparison of Port of Seattle Marine Terminal Tonnage

Between 2007 and 2013, tonnage moving over the Port of Seattle marine terminals declined by 6.1 million short tons. Tonnage losses were greatest for international containerized cargo and export grain. Together these two cargoes accounted for more than 10 million ton loss over the six year period. The only sizable gain was the growth in domestic containerized cargo, handled by Matson and Northland. Dry bulk cargoes handled by the tenants of the Port of Seattle were not included in the 2007 study. These dry bulk cargoes, primarily cement, are handled by CalPortland, Ashgrove and Lafarge. Table V-1 shows the changes in tonnage.

Table V-1
Comparison of Tonnage Handled at Port of Seattle Marine Terminals
(1,000) Short Tons

COMMODITY	2013 1,000 TONS	2007 1,000 TONS	CHANGE 1,000 TONS
Containerized Cargo			
International	8,955	14,708	-5,752
Domestic	5,151	2,094	3,057
Grain	1,490	5,878	-4,388
Break Bulk	32	129	-96
Petroleum	869	1,368	-498
Other Dry Bulk	1,585	NA	NA
Other Liquid Bulk	53	51	2
TOTAL	18,136	24,227	-6,092

2.2 Comparison of the Economic Impacts Generated by Marine Cargo and Vessel Activity at the Seattle Seaport, 2007 – 2013

Reflecting the decline in tonnage, Table V-2 shows that direct jobs fell by 3,526 jobs over the six-year period, while the direct income earned fell by \$110.1 million. The average annual earnings of the 8,902 direct employees is \$59,223 in 2013 compared to a \$51,300 average salary earned in 2007. Business revenue fell by \$1.2 billion over the period, reflecting the loss of cargo.

Table V-2
Comparison of Seattle Seaport Impacts
2007-2013

Port of Seattle Marine Cargo	2013	2007	Change
Jobs			
Direct	8,902	12,428	-3,526
Induced	8,644	16,639	-7,995
Indirect	<u>5,863</u>	<u>4,224</u>	<u>1,639</u>
Total Jobs	23,409	33,291	-9,882
Personal Income (\$1,000)			
Direct	\$527,232	\$637,375	-\$110,143
Re-spending/Local Consumption	\$1,158,857	\$1,972,676	-\$813,819
Indirect	<u>\$289,158</u>	<u>\$186,731</u>	<u>\$102,427</u>
Total	\$1,975,247	\$2,796,782	-\$821,535
Business Revenue (\$1,000)	\$1,832,303	\$3,060,440	-\$1,228,137
Local Purchases (\$1,000)	\$581,098	\$438,823	\$142,275
State and Local Taxes (\$1,000)	\$183,698	\$254,507	-\$70,809

Note: Totals may not add due to rounding

Indirect jobs grew as the result of the \$142.3 million increase in local purchases, while tax revenue fell by \$70.8 million.

2.3 Comparison of Direct Job Impacts by Commodity

Table V-3 compares the direct job impacts by commodity between 2013 and 2007. The 5.8 million ton loss in international containerized cargo is reflected in the loss of 2,266 direct jobs in this cargo sector, which is about 64 percent of the total direct jobs loss over the period. The loss on jobs with break bulk cargo not only reflects the loss of break bulk cargo, but could also reflect an increase in the containerization of this cargo for shipment to and from Alaska. The increase in jobs associated with domestic containerized cargo reflects the growth in domestic container tonnage moving via the Port in 2013, which may also include the containerization of Alaskan cargo previously moving as break bulk. The loss in grain jobs reflects the loss on export grain tonnage. In 2007 employment with the dry bulk tenants were not included, since these terminal operators were

not using public facilities. However, since these terminals lease the property from the Port of Seattle, they are included in the 2013 impact study.

Table V-3
Comparison of Direct Jobs by Commodity

COMMODITY	2013 DIRECT JOBS	2007 DIRECT JOBS	CHANGE DIRECT JOBS
Containerized Cargo			
International	3,436	5,703	-2,266
Domestic	1,925	1,332	594
Grain	88	468	-381
Break Bulk	43	490	-447
Petroleum	78	269	-191
Other Dry Bulk	393	NA	NA
Other Liquid Bulk	14	26	-12
Not Allocated	<u>2,924</u>	<u>4,141</u>	<u>-1,217</u>
Total	8,902	12,428	-3,526

Note: Totals may not add due to rounding

2.4 Comparison of Direct Jobs by Job Category

Table V-4 summarizes the changes in the direct jobs, by job category, for the vessel and cargo activity at the Port of Seattle's marine terminals. The largest decline in jobs is with the railroads, reflecting the decline in both grain and international container tonnage, as well as the loss of the intermodal share of containers moving via the Port of Seattle. Terminal employment and towing jobs increased with the inclusion of the dry bulk operations in 2013.

Table V-4
Comparison of Direct Jobs by Job Category

Port of Seattle Direct Jobs	2013	2007	Change
Surface Transportation			
Rail	864	1,621	-757
Truck	1,579	1,931	-352
Maritime Services			
Terminal Employees	678	444	234
ILWU/Dockworkers	912	1,038	-126
Towing	162	95	67
Pilots	18	20	-3
Agents	90	166	-76
Surveyors/Chandlers/M.Services	326	676	-350
Forwarders	274	422	-148
Warehouse	1,039	1,036	3
Government	1,219	1,770	-551
Shipyards/Ship Repair/Marine Construction	1,301	1,865	-564
Barge/Bunker	352	1,062	-710
Port of Seattle	88	282	-194
Totals	8,902	12,428	-3,526

Note: Totals may not add due to rounding

The loss in jobs with the other categories reflects the loss of cargo and associated marine cargo activity moving via the Port. The major job loss in the government category reflects the re-allocation of Coast Guard employment between the Ports of Tacoma and Seattle.

3. COMPARISON OF CHANGES IN THE CRUISE IMPACTS

Between the cruise season in 2008 and 2014, the number of cruise vessel calls at the Port of Seattle are projected to fall from 211 calls (187 homeport calls) in 2008 to a projected level 178 cruises (169 homeport calls) for the 2014 cruise season. The number of passengers are projected to remain nearly the same as in 2008, about 800,000 passengers. As a result of the projected decline in vessel calls, the direct job impacts created by the Port of Seattle cruise activity are projected to decline slightly as shown in table V-5.

Table V-5
Comparison of Cruise Impacts

	Cruise Impacts 2014	Cruise Impacts 2008	Change
Jobs			
Direct	1,741	1,955	-214
Induced	852	1,125	-273
Indirect	<u>812</u>	<u>701</u>	<u>111</u>
Total	3,404	3,781	377
Personal Income (\$1,000)			
Direct	\$70,010	\$64,147	\$5,863
Re-Spending/Local Consumption	\$83,893	\$92,763	-\$8,870
Indirect	<u>\$22,299</u>	<u>\$20,052</u>	<u>\$2,247</u>
Total	\$176,202	\$176,962	-\$760
Business Revenue (\$1,000)	\$407,790	\$312,497	\$95,293
Local Purchases (\$1,000)	\$40,714	\$31,220	\$9,494
State and Local Taxes (\$1,000)	\$16,123	\$16,104	\$19

Note: Totals may not add due to rounding

4. COMPARISON OF IMPACTS GENERATED BY FISHING BASED AT PORT OF SEATTLE TERMINALS

Between 2007 and 2013 the direct jobs impacts by the Port of Seattle based fishing industry have increased, reflecting the growth of the number of vessels from 311 to 591, as well as an increase in the purchases of services to support the fleet, as reflected in the \$101.0 million increase in business revenue to the service providers supporting the fishing fleet based at the Port of Seattle facilities. Factory processors increased from 37 to 43, as well. Induced jobs and the re-spending /local consumption impacts fell, due to a decline in the income multiplier for the fishing sector in Washington State from 2.17 in 2007 to 1.72 in 2013. Indirect jobs increased due to a \$140.6 million increase in local purchases. In addition, a new packaging operation started since the 2007 study. The decline in the direct personal income impact reflects an allocation of personal income of the crew based on percent of time residing in the Seattle area.

Table V-6
Comparison of Port of Seattle Fishing Impacts

	Fishing Impacts 2013	Fishing Impacts 2007	Change
Jobs			
Direct	8,253	5,607	2,646
Induced	4,735	8,026	-3,291
Indirect	<u>3,102</u>	<u>1,337</u>	<u>1,765</u>
Total Jobs	16,089	14,970	1,119
Personal Income (\$1,000)			
Direct	\$674,825	\$823,477	-\$148,652
Re-spending/Local Consumption	\$483,040	\$966,679	-\$483,639
Indirect	<u>\$156,163</u>	<u>\$51,845</u>	<u>\$104,318</u>
Total	\$1,314,028	\$1,842,001	-\$527,973
Business Revenue (\$1,000)	\$915,370	\$814,364	\$101,006
Local Purchases (\$1,000)	\$244,750	\$104,163	\$140,587
State and Local Taxes (\$1,000)	\$119,577	\$167,622	-\$48,045

Note: Totals may not add due to rounding

5. COMPARISON OF IMPACTS GENERATED BY MARINA ACTIVITY

The number of vessels at the Port of Seattle marinas increased from 1,579 in 2007 to 1,777 boats in 2013. As a result, direct jobs increased slightly, as did direct personal income. The induced impacts declined due to the reduced level of income multipliers in 2007 compared to 2013. The indirect jobs fell slightly due to less local purchase and a lower job to sales ratio in supplying industries. These impact comparisons are shown in Table V-7

Table IV-7
Comparison of Port of Seattle Marina Impacts

	Marina Impacts 2013	Marina Impacts 2007	Change
Jobs			
Direct	140	123	17
Induced	94	129	-35
Indirect	<u>89</u>	<u>100</u>	<u>-11</u>
Total Jobs	323	352	-29
Personal Income (\$1,000)			
Direct	\$4,984	\$4,575	\$409
Re-spending/Local Consumption	\$10,738	\$14,161	-\$3,423
Indirect	<u>\$3,563</u>	<u>\$3,887</u>	<u>-\$324</u>
Total	\$19,286	\$22,623	-\$3,337
Business Revenue (\$1,000)	\$21,574	\$13,831	\$7,743
Local Purchases (\$1,000)	\$7,530	\$7,845	-\$315
State and Local Taxes (\$1,000)	\$1,794	\$2,059	-\$265

Note: Totals may not add due to rounding

6. COMPARISON OF IMPACTS GENERATED BY AIRPORT ACTIVITY AT SEA-TAC INTERNATIONAL AIRPORT

In this section, the 2007 and 2013 economic impacts generated by the passenger and air cargo activity at Sea-Tac International Airport are compared. The first section describes changes in airport operational characteristics that have occurred over the six-year period, while the comparisons of the impacts generated by the airport are presented in the second section.

Passenger activity at Sea-Tac International Airport increased between 2007 and 2013. Between 2007 and 2013, total passenger activity grew from 31.3 million in 2007 to 34.8 million passengers in 2013. Passengers on international flights at Sea-Tac grew from 2.2 million to 3.6 million. Between 2007 and 2013, total air cargo handled at Sea-Tac decreased from 319,013 metric tons in 2007 to about 292,709 metric tons in 2013.

Table V-8 presents the comparison of on-site economic impacts generated by Sea-Tac between 2007 and 2013.

Table V-8
Comparison of Economic Impacts Generated by Sea-Tac, On-Site Airport

	Sea-Tac On-Site 2013	Sea-Tac On-Site 2007	Change
Jobs			
Direct	18,353	18,773	-420
Induced	8,349	11,538	-3,189
Indirect	<u>6,090</u>	<u>4,723</u>	<u>1,367</u>
Total	32,791	35,034	-2,243
Personal Income (\$1,000)			
Direct	\$1,002,911	\$778,150	\$224,761
Re-Spending	\$949,957	\$1,124,504	-\$174,547
Indirect	<u>\$196,789</u>	<u>\$210,203</u>	<u>-\$13,415</u>
Total	\$2,149,656	\$2,112,858	\$36,799
Business Revenue (\$1,000)	\$7,983,023	\$7,596,875	\$386,149
State/Local Taxes (\$1,000)	\$518,552	\$439,320	\$79,232
State/Local Taxes (\$1,000)	\$199,918	\$192,270	\$7,648
Aviation Taxes (\$1,000)	\$547,189	\$439,372	\$107,817

Note: Totals may not add due to rounding

As this table indicates, despite the growth in passengers, on-site direct jobs declined by 420 jobs since 2007. This reflects the fact that construction employment declined due to lower capital expenditures in 2013, reflecting the completion of the capital improvement program at Sea-Tac that was part of the 2007 economic impact analysis. The decline in induced jobs and the re-spending and local consumption impact is due to the reduced level of income multipliers, as discussed previously.

The number of visitors arriving via Sea-Tac has grown from 7.6 million in 2007 to 9.0 million in 2013, and the resulting growth in economic impacts to the local visitors industry is shown in Table V-9.

Table V-9
 Comparison of Sea-Tac Visitor Industry Impacts
 2007-2013

	Visitors Industry 2013	Visitors Industry 2007	Change
Jobs			
Direct	91,571	71,129	20,442
Induced	30,109	24,046	6,062
Indirect	<u>17,325</u>	<u>8,161</u>	<u>9,164</u>
Total	139,004	103,336	35,668
Personal Income (\$1,000)			
Direct	\$1,859,863	\$1,380,523	\$479,340
Re-Spending	\$1,591,020	\$858,685	\$732,334
Indirect	<u>\$476,520</u>	<u>\$179,990</u>	<u>\$296,530</u>
Total	\$3,927,403	\$2,419,199	\$1,508,204
Business Revenue (\$1,000)	\$8,363,347	\$5,541,631	\$2,821,716
Local Purchases (\$1,000)	\$831,043	\$345,272	\$485,771
State/Local Taxes (\$1,000)	\$365,248	\$192,270	\$172,978

Note: Totals may not add due to rounding

Table V-10 compares the direct job impact by job category. The comparison of jobs by category underscores the growth in most job categories reflecting the growth in passengers. Airlines added 758 jobs since 2007. The largest loss in jobs is with the construction and consulting sector, which reflects the completion of the Sea-Tac capital program.

Table V-10
 Comparison of Direct Airport Generated Jobs by Category
 (2007-2013)

Job Category	Direct Jobs 2013	Direct Jobs 2007	Change
Airline/Airport Services Sector			
Passenger Airlines	7,933	7,175	758
Catering	635	608	27
Skycaps	770	564	206
Government Agencies	1,305	1,256	49
Airport Administration	1,473	1,137	336
Retail Concessions	1,456	1,525	-69
General Aviation/FBO's	1,305	1,403	-98
Custodial	156	179	-24
Parking	175	146	29
Subtotal	15,206	13,993	1,213
Freight Transportation Sector			
Freight Airlines/Couriers	702	912	-210
Freight Forwarders	145	247	-102
Subtotal	847	1,159	-312
Passenger Ground Transportation Sector			
Rental Cars	727	821	-94
Cabs/Buses/Limos/Vans	927	1,205	-278
Subtotal	1,654	2,026	-371
Construction/Consulting	646	1,595	-950
Total	18,353	18,773	-420

Note: Totals may not add due to rounding