



Marine Cargo Economic Impact Analysis



January 2019



Produced By:





*Community Attributes Inc. tells data-rich stories about communities
that are important to decision makers.*

President and CEO:
Chris Mefford

Project Manager:
Michaela Jellicoe

Analysts:
Madalina Calen
Spencer Cohen, PhD
Diana Haring
Maureen McLennon
Carrie Schaden
Zack Tarhouni

Community Attributes Inc.
500 Union Street, Suite 200
Seattle, Washington 98101

www.communityattributes.com

EXECUTIVE SUMMARY

The Northwest Seaport Alliance (NWSA) represents one of the largest marine cargo gateways in the U.S. In 2017, more than 3.7 million twenty-foot equivalent units (TEUs) carrying 26.1 million metric tons of containerized cargo were handled at The Northwest Seaport Alliance across facilities at the Ports of Seattle and Tacoma. The majority of this cargo was international, though 700,000 TEUs were shipped to and from Alaska, Hawaii and other domestic locations.

In addition to containerized shipping, The Northwest Seaport Alliance also handles non-containerized cargo, including breakbulk, liquid bulk, automobiles and logs. In total, nearly 27.6 million metric tons of cargo was handled at The Northwest Seaport Alliance in 2017.

Economic Impacts

Combined across all marine cargo activities, the NWSA directly supported 20,100 jobs and \$1.9 billion in labor income in 2017. The average annual wage among direct jobs supported by marine cargo through the NWSA, including benefits, was nearly \$95,000. In total, the NWSA marine cargo directly supported \$5.9 billion in business output in 2017.

Factoring in upstream business-to-business transactions (indirect) and worker earned income household consumption expenditures (induced), the NWSA activities supported 58,400 jobs across the state economy, or the equivalent of a job multiplier of 2.9. In other words, for every direct job, marine cargo activities through the NWSA support an additional 1.9 jobs throughout the Washington state economy. (**Exhibit E-1**).

Exhibit E-1. Economic Impacts of The Northwest Seaport Alliance Marine Cargo Activities, Washington, 2017

	Direct	Indirect	Induced	Total
Jobs	20,100	14,700	23,600	58,400
Total Compensation (mils 2017 \$)	\$1,902.7	\$872.1	\$1,243.7	\$4,018.5
Business Output (mils 2017 \$)	\$5,858.7	\$2,856.6	\$3,670.2	\$12,385.4

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

Containerized Cargo

The NWSA containerized cargo facilities include six properties in the South Harbor and five in the North Harbor. In 2017, the NWSA handled more than 26.1 million metric tons of containerized cargo, directly supporting an estimated 14,890 jobs, \$1.5 billion in labor income (including wages and monetized benefits) and \$4.5 billion in business output.

Factoring in indirect and induced economic impacts, containerized cargo operations supported a total of 45,500 jobs, \$3.2 billion in labor income and \$9.7 billion in business output in 2017.

Automobile Imports

The Northwest Seaport Alliance also handles automobile imports. In 2017, more than 224,900 metric tons of autos were handled at the Port of Tacoma, this represented nearly 146,900 automobile units. Automobile import activities directly supported 1,330 jobs in 2017, as well as more than \$108.4 million in labor income and nearly \$309 million in business output.

The total economic impact of automobiles handled through the NWSA to Washington is more than \$643 million in business output in 2017, composed of direct (\$308.8 million), indirect (\$136.8 million) and induced (\$197.8 million) impacts. Automobile shipping supported 3,300 total jobs in the state and nearly \$217 million in labor income including wages and benefits.

Breakbulk, Logs and Other Marine Cargo

Breakbulk cargo transported through the NWSA include agriculture and mining equipment as well as other cargo that can be transported in a roll-on/roll-off (RoRo) vessel and military cargoes. Breakbulk cargo totaled nearly 211,000 metric tons in 2017. The NWSA also handled nearly 53 million board feet of logs (278,100 metric tons), 715,500 metric tons of fuel and nearly 36,000 metric tons of molasses in 2017.

Breakbulk and other marine cargo handling directly supported 3,880 jobs in 2017, nearly \$292 million in labor income and more than \$1 billion in business output.

The total economic impact of breakbulk, logs and other marine cargo handled through the NWSA summed to more than \$2 billion in business output in 2017, 9,600 jobs and nearly \$608 million in total compensation.

Fiscal Impacts

The economic impacts of marine cargo at The Northwest Seaport Alliance support various state and local tax bases, which in turn yield tax revenues. The direct and secondary economic activities related to marine cargo at the NWSA generated nearly \$136 million in sales and use taxes, business and occupation taxes, and other taxes for Washington state.

This includes nearly \$107 million generated through containerized cargo related activities, \$8 million generated by automobile cargoes and \$21 million from breakbulk, logs and other cargo.

CONTENTS

Introduction	1
The Northwest Seaport Alliance Facilities and Activities	2
Containerized Cargo Activities	4
Automobile Imports	10
Breakbulk, Logs and Other Marine Cargo	12
Fiscal Impacts from The NWSA Marine Cargo Activities	15
Summary and Conclusions	16

This page was intentionally left blank

INTRODUCTION

Background and Purpose

The Northwest Seaport Alliance represents one of the largest cargo loading centers in the U.S. In 2017, more than 3.7 million twenty-foot equivalent units (TEUs) carrying 26.1 million metric tons of containerized cargo were handled at The Northwest Seaport Alliance across facilities at the Ports of Seattle and Tacoma. The majority of this cargo was international, though 700,000 TEUs were shipped to and from Alaska, Hawaii and other domestic locations.

In addition to containerized shipping, The Northwest Seaport Alliance also handles a wide variety of other forms of marine cargo, including breakbulk, automobiles and more. In total, nearly 27.6 million metric tons of cargo was handled at The Northwest Seaport Alliance in 2017.

This report provides a detailed analysis of the varied impacts of The Northwest Seaport Alliance cargo handling activities. Analytics include estimated activities—measured in jobs, income and business output—directly associated with marine cargo activities and nearby services directly tied to port operations (such as off-site transloading) as well as the broader economic and fiscal impacts of these activities across Washington state.

Data and Methods

Data used in this report is drawn from several sources, including state and federal employment and wage files maintained by the Washington State Employment Security Department, Puget Sound Regional Council, and U.S. Bureau of Labor Statistics, gross business income published by the Washington State Department of Revenue, cargo and trade statistics published by the U.S. Census Bureau and provided by the Port of Seattle, Port of Tacoma and The Northwest Seaport Alliance. Direct activities were further modeled to account for missing information, when necessary.

Economic impacts include additional jobs, income and business output supported through upstream business-to-business transactions (indirect impacts) and household consumption expenditures (induced impacts). Fiscal impacts include local and state tax revenues derived from direct port-related activities and through multiplier effects among other industries and regions of the state.

Organization of Report

The remainder of this report is organized as follows:

- **Containerized Cargo Activities.** Review of key indicators, facilities and direct and total economic impacts for containerized cargo across the Ports of Seattle and Tacoma, managed by The Northwest Seaport Alliance. Includes various allied and supporting services and activities, such as stevedoring, bunkering, tugboat services, drayage, warehousing and chandlery.
- **Automobile Imports.** Analysis of the impacts associated with automobile imports through The Northwest Seaport Alliance.
- **Breakbulk, Logs and Other Marine Cargo.** Summary of the other types of marine cargo handled at The Northwest Seaport Alliance, including breakbulk, logs and more.
- **Fiscal Impacts from The NWSA Marine Cargo Activities.** State tax revenues generated or supported by The Northwest Seaport Alliance activities, either through direct impacts or additional business output via multiplier effects.
- **Summary and conclusions.** Review of key findings.

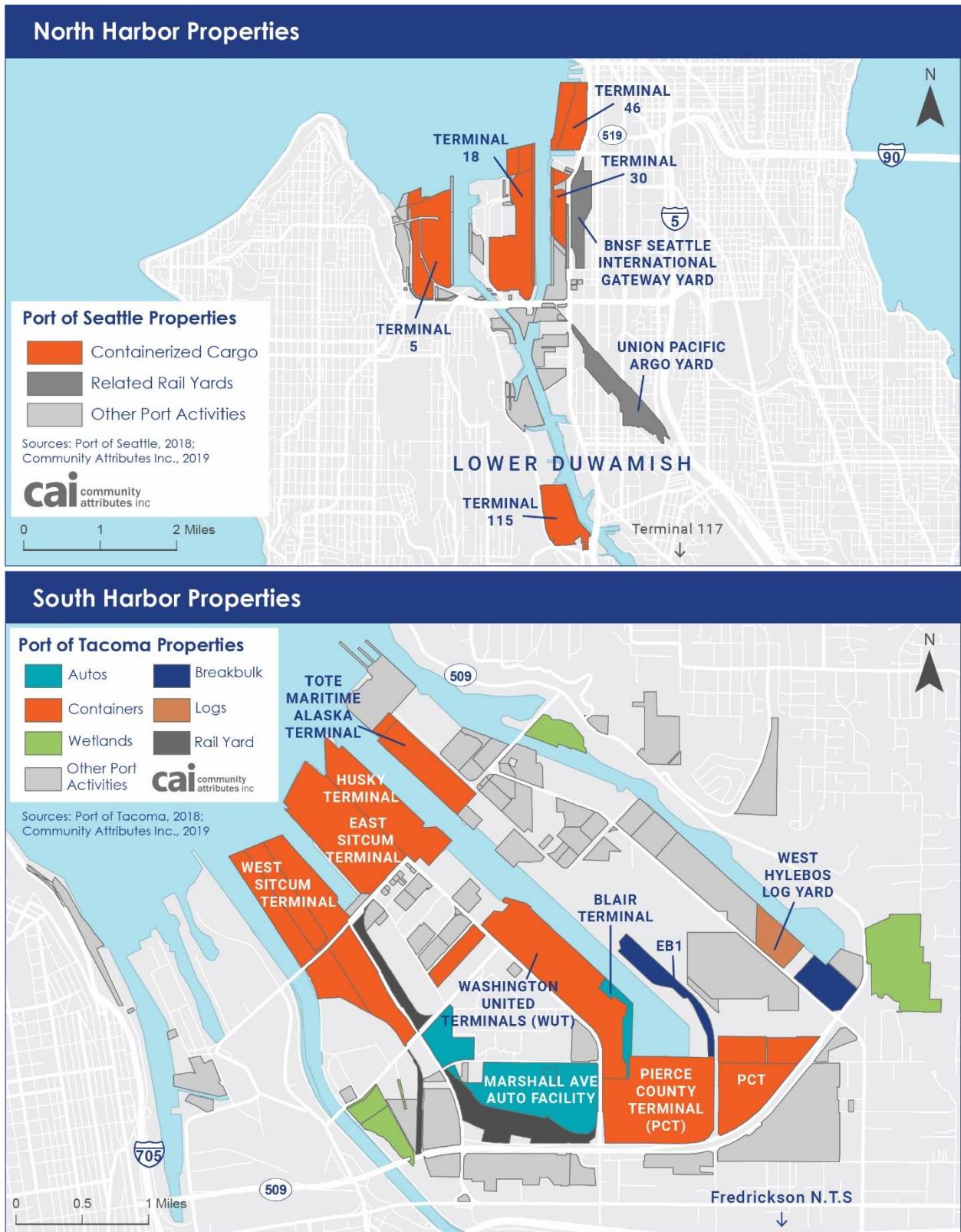
THE NORTHWEST SEAPORT ALLIANCE FACILITIES AND ACTIVITIES

The Northwest Seaport Alliance is a marine cargo operating partnership between the Ports of Seattle and Tacoma. The Alliance, as a combined entity, represents the fourth-largest container gateway in North America. The Alliance manages the majority of marine cargo facilities across both ports, including all containerized cargo operations, breakbulk, automobiles, project/heavy-lift cargoes and some bulk operations.

The North Harbor, or the Port of Seattle, has five container terminals, of which four are in use. Terminal 5 is currently vacant. There are a variety of properties that provide supporting activities to the containerized cargo terminals. The BNSF Seattle International Gateway Yard and the Union Pacific Argo Yard provide essential rail services for containerized cargo activities. Terminal 106, south of Harbor Island and on the east side of the Duwamish River, is used as a container support yard. Terminals 107 (west side of the Duwamish) and 108 (east side of the Duwamish), just north of Terminal 115, offer moorage for barges. (**Exhibit 1**)

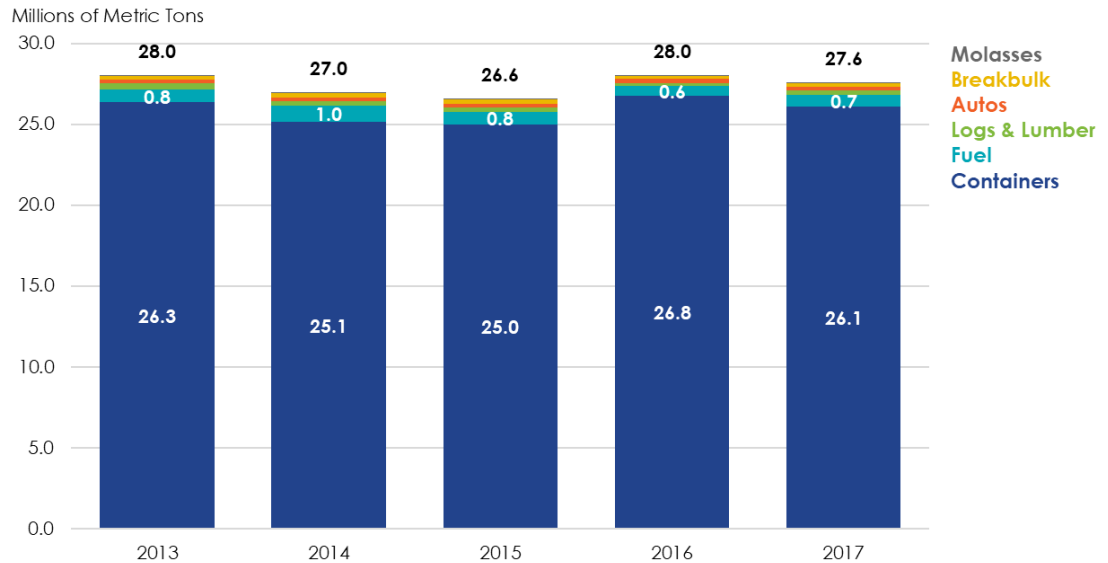
The South Harbor, or the Port of Tacoma, has six container terminals, as well as Blair Terminal where automobiles are offloaded. East Blair 1 (EB1) provides services for roll-on/roll-off (RoRo) vessels and the West Hylebos Log Yard provides services for log exports. Terminal 7, on the south end of East Sicum Terminal also provides automobile and RoRo services. (**Exhibit 1**)

Exhibit 1. The Northwest Seaport Alliance Marine Cargo Facilities



In total, The Northwest Seaport Alliance had nearly 1,950 vessel calls in 2017. The NWSA handled nearly 27.6 million metric tons of cargo, of which nearly 95% was containerized cargo. In 2017, the NWSA handled more than 3.7 million TEUs. Other marine cargo handled at the North and South Harbors include breakbulk, automobiles, fuel and molasses. (**Exhibit 2**)

Exhibit 2. The Northwest Seaport Alliance Marine Cargo by Type, Millions of Metric Tons, 2013-2017



Sources: *The Northwest Seaport Alliance, 2018; Community Attributes, Inc., 2018.*

CONTAINERIZED CARGO ACTIVITIES

In this report, activities included under “containerized cargo activities” include all operations, services and facilities related to the handling of 20, 40 and 45-foot ocean cargo containers, either outbound or inbound. The activities span container terminal facilities in both the ports of Seattle and Tacoma, under the auspices of The Northwest Seaport Alliance.

Across The Northwest Seaport Alliance, there are eleven containerized cargo facilities, of which ten are in use (Terminal 5 in the North Harbor is currently not being used for container operations). Six out of the eleven facilities are based at the South Harbor. (**Exhibit 3**)

Exhibit 3. Containerized Cargo Terminals, The Northwest Seaport Alliance

Terminal	Harbor	Operator
East Sitcum Terminal	South	Ports America
Husky Terminal	South	Husky Terminal and Stevedoring, Inc.
Pierce County Terminal	South	Everport Terminal Services Inc.
TOTE Maritime Alaska Terminal	South	TOTE Maritime
Washington United Terminals (WUT)	South	Washington United Terminals
West Sitcum Terminal (Formerly APM Terminals)	South	SSA Marine
Terminal 115	North	Alaska Marine Lines
Terminal 18	North	SSA Marine
Terminal 30	North	SSA Marine
Terminal 46	North	Total Terminals International
Terminal 5	North	Currently vacant

Sources: *The Northwest Seaport Alliance, 2018; Community Attributes, Inc., 2018.*

Containerized Cargo Trends

In 2014, the Ports of Seattle and Tacoma entered into a marine cargo operating partnership. Today, The Northwest Seaport Alliance manages most of the marine cargo activities at both the Ports of Seattle and Tacoma and provides a strategic partnership to work together to strengthen the gateway and attract more marine cargo business.¹ Together, as The Northwest Seaport Alliance, the Ports of Seattle and Tacoma represent the fourth-largest container gateway in North America.

Containerized cargo represents 95% of all cargo tonnage handled through The Northwest Seaport Alliance. In 2017, 3.7 million TEUs passed through the North and South Harbors (**Exhibit 4**). International imports represent nearly 41% of all TEUs, exports represent 40%. While full containers represent more than 75% of all TEUs handled, empty containers are also an important part of containerized cargo activities at the NWSA. Both full and empty containers are loaded and off-loaded from vessels, requiring the expertise of a wide-range of industries and occupations, including terminal operators, longshore workers, truckers and more. Total TEUs through the NWSA increased from 3.4 million in 2014 to 3.7 million in 2017 (**Exhibit 5**).

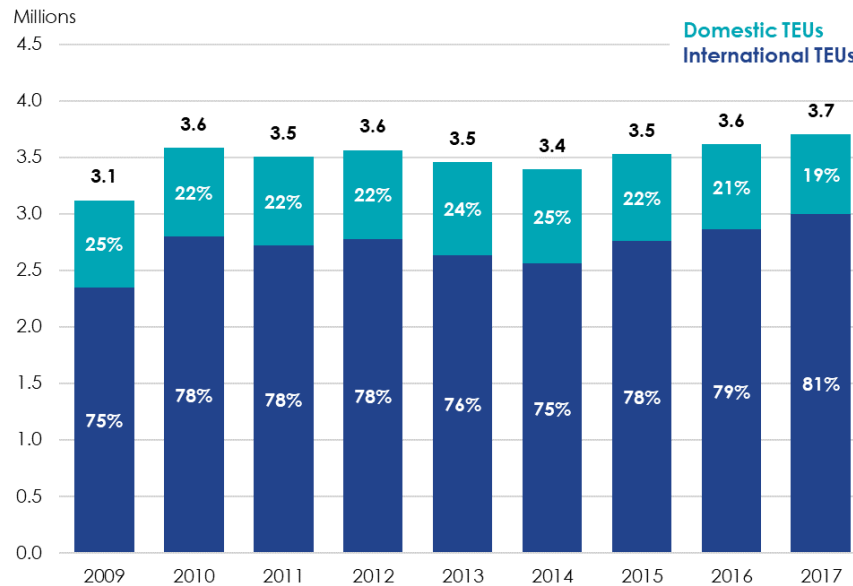
¹ The NWSA does not manage the grain terminals at either port.

Exhibit 4. Containerized Cargo Volumes, Full and Empty TEUs by Type, 2017

	Full	Empty	Total
Imports	1,380,785	132,222	1,513,007
Exports	964,067	518,237	1,482,305
Domestic	447,440	259,423	706,863
Total	2,792,292	909,882	3,702,174

Sources: *The Northwest Seaport Alliance, 2018; Community Attributes, Inc., 2018.*

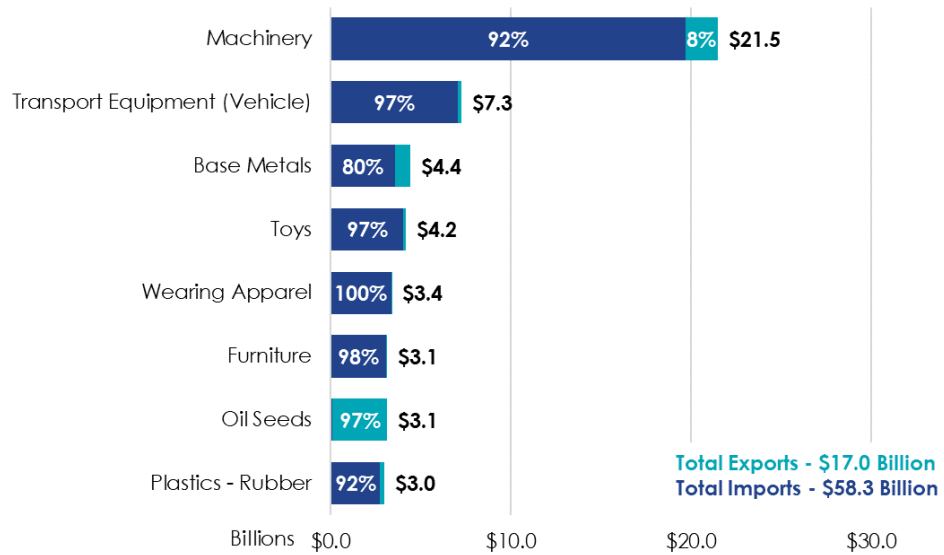
Exhibit 5. Containerized Cargo Volumes, Millions of TEUS, The NWSA, 2009-2017



Sources: *PIERS, 2018; Community Attributes, Inc., 2018.*

In 2017, machinery represented 29% of total vessel value among the NWSA containerized cargo. In total the vessel value of containerized cargo through the NWSA was nearly \$75.3 billion. Imports represented 77% of total vessel value, or \$58.3 billion and exports totaled nearly \$17.0 billion. Among the leading commodities in 2017 were machinery, transport equipment, base metals, toys and apparel, each representing more than 5% of total vessel value. (**Exhibit 6**)

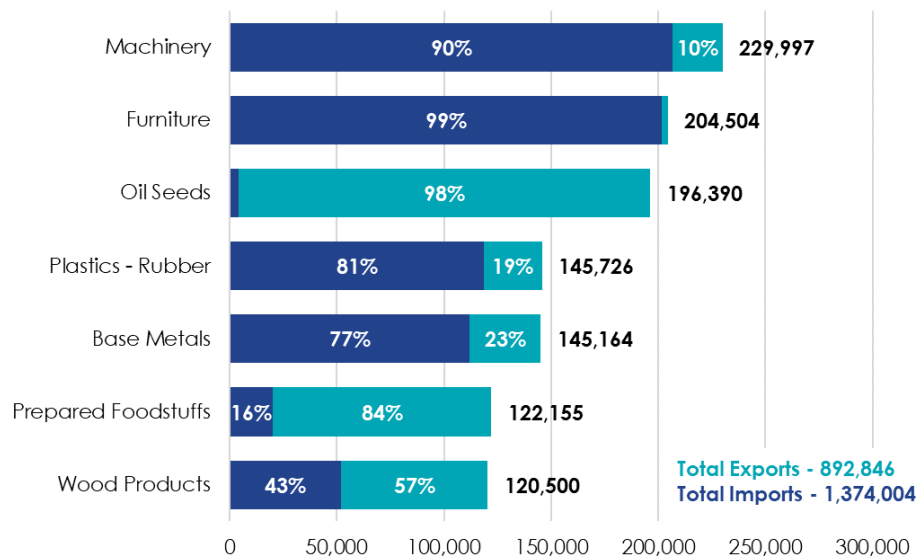
Exhibit 6. Containerized Cargo Commodities Representing More Than Four Percent of Total Vessel Value, Billions of US Dollars, The NWSA, 2017



Sources: WISER, 2018; Community Attributes, Inc., 2018.

Machinery represents 10% of total TEUs and 29% of total vessel value. Oil seeds, the leading export commodity handled through the NWSA represents 4% of total vessel value, but nearly 9% of total TEUs. (Exhibit 7)

Exhibit 7. Containerized Cargo Commodities Representing More Than Five Percent of Total TEUs, The NWSA, 2017



Sources: PIERS, 2018; Community Attributes, Inc., 2018.

Leading import commodities include machinery, furniture, rubber plastics, base metals and transport equipment. Leading export commodities include oil seeds, prepared foodstuffs, wood pulp and wood products. (**Exhibit 8**)

Exhibit 8. Containerized Cargo Imports and Exports by Commodity, TEUs, The NWSA, 2017

	Import TEUs	Export TEUs	Total TEUs
Machinery	206,837	23,160	229,997
Furniture	201,767	2,737	204,504
Oil Seeds	4,177	192,213	196,390
Plastics - Rubber	118,639	27,087	145,726
Base Metals	111,863	33,301	145,164
Prepared Foodstuffs	19,961	102,194	122,155
Wood Products	51,934	68,566	120,500
Transport Equipment (Vehicle)	104,580	6,616	111,196
Toys	90,755	7,004	97,759
Wood Pulp	4,071	84,068	88,139
Vegetables	2,915	55,193	58,108
Other	456,505	290,707	747,212
Total	1,374,004	892,846	2,266,850

Note: totals may not sum exactly due to rounding.

Sources: PIERS, 2018; Community Attributes, Inc., 2018.

In 2017, 166 countries had containerized cargo either imported or exported through The Northwest Seaport Alliance. The countries with the most containerized cargo moving through the NWSA include China, Japan, South Korea, Taiwan, Vietnam and Hong Kong, which together represent more than 80% of all TEUs traveling through the NWSA in 2017. Among countries with TEUs representing more than 2% of TEUs each, TEUs imported from and exported to Vietnam has increased at a compound annual growth rate of 6% between 2013 and 2017. (**Exhibit 9**)

Exhibit 9. Containerized Cargo Imports and Exports by Country, TEUs, The NWSA, 2017

	Import TEUs	Export TEUs	Total TEUs
China	832,890	219,106	1,051,996
Japan	110,306	178,877	289,183
Korea	61,884	145,660	207,544
Taiwan	63,976	77,233	141,209
Vietnam	56,288	13,881	70,169
Hong Kong	23,463	32,047	55,510
Thailand	27,975	15,051	43,026
Indonesia	22,474	19,188	41,662
India	16,258	20,030	36,288
Malaysia	19,083	13,806	32,889
Philippines	8,610	18,017	26,627
Australia	3,488	16,963	20,451
Other	127,309	122,987	250,296
Total	1,374,004	892,846	2,266,850

Sources: PIERS, 2018; Community Attributes, Inc., 2018.

Economic Impacts

Direct activities associated with the movement of ocean cargo containers, include on-site stevedoring operations; drayage; rail operations; tug assists for container cargo vessels; barges that convey containerized cargo to domestic ports in Alaska and Hawaii; off-site transloading facilities; warehousing and distribution centers; non-drayage trucking; local and federal government personnel supporting or regulating containerized cargo; and various supporting services.

Containerized cargo activities directly supported 14,900 jobs in 2017. The largest source of employment was trucking, logistics, and warehousing, representing drayage, short- and long-haul trucking, transloading, and warehousing and distribution operations (8,510). Many firms operate across each of these areas, such as large transloading and logistics companies that retain their own truck fleets, operate their own warehouses and distribution centers and provide logistics support for incoming and outgoing cargo. Terminal operations include administrative and back-office staff, on-site stevedoring personnel and longshoremen, and supported 3,550 jobs in containerized cargo in 2017 across both harbors. An estimated 1,290 workers in the rail industry were supported through containerized cargo shipments, including at rail switching yards, maintenance facilities, and back office planning across Washington. Additional services supporting the movement of containerized cargo through The Northwest Seaport Alliance include the transport of containerized cargo on barges; maritime support services such as

maritime insurance and law; and navigational services including tug assists and pilots. (**Exhibit 10**)

Exhibit 10. Estimated Direct Impacts of Containerized Cargo Activities by Economic Activity, Washington, 2017

Activity	Jobs	Business Output (mils 2017 \$)	Labor Income (mils 2017 \$)
Truck Transportation, Logistics & Warehousing	8,510	\$2,328.8	\$813.4
Terminal Operations, Stevedoring, and Longshoremen	3,550	\$1,163.1	\$409.6
Rail Transportation	1,290	\$660.9	\$105.1
Government	530	\$194.0	\$62.7
Barge and Tug Transport	400	\$61.3	\$45.3
Maritime Support Services	350	\$51.3	\$33.0
Navigational Services	260	\$78.2	\$33.4
Total	14,890	\$4,537.6	\$1,502.5

Sources: Port of Seattle, 2018; Puget Sound Regional Council, 2018; Pacific Maritime Association, 2017; BNSF, 2017; Union Pacific, 2017; Washington Maritime Federation, 2017; Washington State Department of Revenue, 2018; Washington State Employment Security Department, 2017; Community Attributes Inc., 2018.

Factoring in indirect and induced economic impacts, containerized cargo operations supported a total of 45,500 jobs, \$3.2 billion in labor income, and \$9.7 billion in business output in 2017. Containerized cargo shipping through the NWSA supports nearly more than 1.2 jobs per 100 TEUs and more than \$2,620 in total business output per TEU. (**Exhibit 11**)

Exhibit 11. Economic Impacts from Containerized Cargo Shipping through The Northwest Seaport Alliance, Washington, 2017

	Direct	Indirect	Induced	Total
Jobs	14,900	11,900	18,700	45,500
Total Compensation (mils 2017 \$)	\$1,502.5	\$703.1	\$988.6	\$3,194.1
Business Output (mils 2017 \$)	\$4,537.6	\$2,267.7	\$2,917.3	\$9,722.6

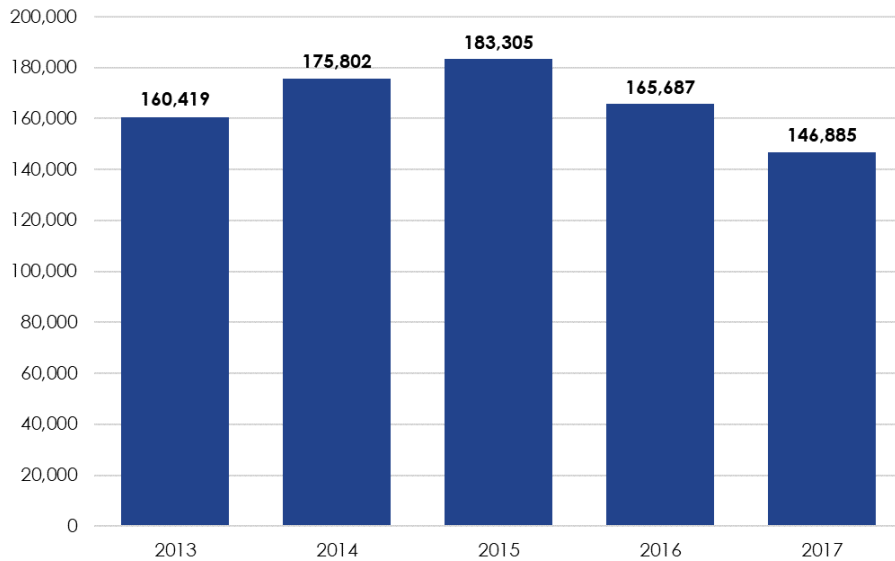
Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

AUTOMOBILE IMPORTS

The Northwest Seaport Alliance also handles automobile imports. In 2017, more than 224,800 metric tons of autos were handled at the Port of Tacoma, this represented nearly 146,900 automobile units (**Exhibit 12**). Automobile services are offered at the Blair Terminal, Terminal 7 and East Blair One at the Port of Tacoma. With its headquarters at the Marshall Avenue Auto Facility in Tacoma, Auto Warehousing (AWC) provides a variety of services, including logistics and accessory installation, to support auto imports at The Northwest Seaport Alliance. Customers served by AWC include Kia, Mazda, BMW, Mitsubishi, Isuzu and Fuso Trucks.

In early 2018, the Port of Tacoma announced a 30-year lease with Wallenius Wilhelmsen Logistics for the development of an auto processing facility. This new facility will not only expand auto import facilities at the Port of Tacoma and for The Northwest Seaport Alliance, but also expands the marine cargo business of WWL with The Northwest Seaport Alliance. Currently, WWL transports roll-on/roll-off cargo through the NWSA. The new operation is expected to create 100 new jobs and process up to 100,000 auto units per year.²

Exhibit 12. Automobile Units, The Northwest Seaport Alliance, 2013-2017



Sources: *The Northwest Seaport Alliance, 2018; Community Attributes, Inc., 2018.*

Direct activities supported by the movement of automobiles at the Port of Seattle include on-site stevedoring operations; trucking; auto accessory installation services; tug assists for car carriers; rail operations; local and federal government personnel supporting or regulating automobile imports; and various supporting services.

Automobile import activities directly supported 1,330 jobs in 2017. Trucking, logistics, and warehousing, including both short- and long-haul trucking, was the largest source of employment, with 480 direct jobs. Terminal operations includes the activities of Auto Warehousing, providing both logistics and accessory installation services, as well as on-site stevedoring personnel and longshoremen, totaling 380 jobs supported by automobile imports through the NWSA in 2017. Additional services supporting the movement of automobiles through the NWSA include rail transportation; maritime

² Port of Tacoma, 2018, <https://www.portoftacoma.com/news-releases/2018-02-14/port-tacoma-leases-former-kaiser-site-wwl-auto-processing-facility>.

support services such as maritime insurance and law; navigational services including tug assists and pilots; and government personnel overseeing the movement of automobiles through the NWSA. (**Exhibit 13**)

Exhibit 13. Estimated Direct Impacts of Automobile Imports by Economic Activity, Washington, 2017

Activity	Jobs	Business Output (mils 2017 \$)	Labor Income (mils 2017 \$)
Truck Transportation, Logistics & Warehousing	480	\$131.5	\$45.9
Terminal Operations, Stevedoring, and Longshoremen	380	\$43.5	\$17.5
Rail Transportation	150	\$76.2	\$12.1
Maritime Support Services	140	\$20.9	\$13.4
Navigational Services	110	\$32.5	\$13.9
Government	70	\$4.3	\$5.5
Total	1,330	\$308.8	\$108.4

Sources: Port of Seattle, 2018; Puget Sound Regional Council, 2018; Pacific Maritime Association, 2017; BNSF, 2017; Union Pacific, 2017; Washington Maritime Federation, 2017; Washington State Department of Revenue, 2018; Washington State Employment Security Department, 2017; Community Attributes Inc., 2018.

The total economic impact of automobiles handled through the NWSA in Washington is more than \$643 billion in business revenues in 2017, composed of direct (\$308.8 million), indirect (\$136.8 million) and induced (\$197.8 million) impacts. Automobiles shipping supported 3,300 total jobs in the state and nearly \$217 million in labor income including wages and benefits. (**Exhibit 14**)

Exhibit 14. Economic Impacts of Automobile Shipping through The Northwest Seaport Alliance, 2017

	Direct	Indirect	Induced	Total
Jobs	1,300	700	1,300	3,300
Total Compensation (mils 2017 \$)	\$108.4	\$41.2	\$67.0	\$216.6
Business Output (mils 2017 \$)	\$308.8	\$136.8	\$197.8	\$643.4

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

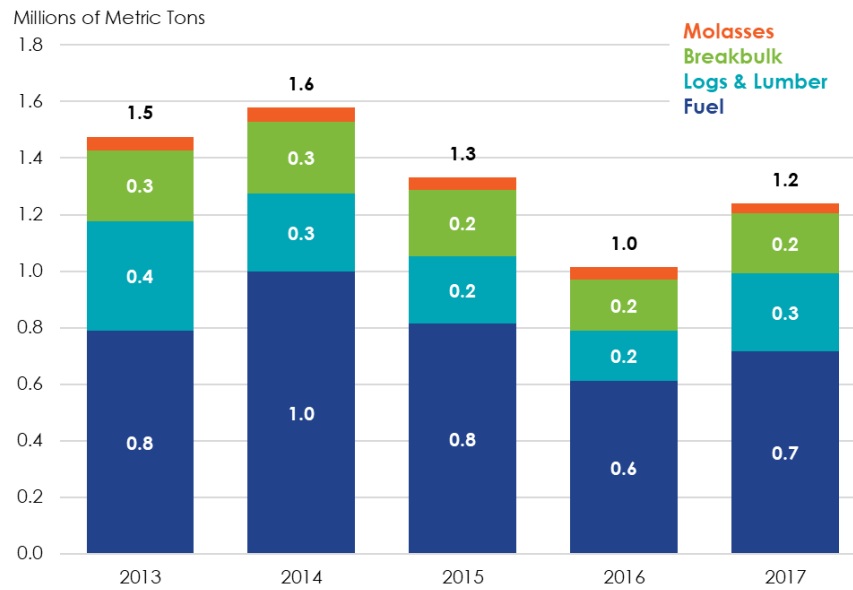
BREAKBULK, LOGS AND OTHER MARINE CARGO

The Northwest Seaport Alliance manages the flow of a wide variety of marine cargo beyond containerized cargo and automobiles. In total, containers represented nearly 95% of total metric tons of cargo handled by the NWSA. Other marine cargo includes breakbulk, logs, fuel and molasses. Breakbulk transported through the NWSA include agriculture and mining equipment as well as other cargo that can be transported in a roll-on/roll-off (RoRo) vessel, and military cargoes. Breakbulk cargo totaled nearly 211,000 metric tons in

2017, and as of November 2018 breakbulk cargoes have had year-over-year change of 20.5%³. Breakbulk cargoes are transported through East Blair One, Terminal 7 and Husky Terminal in the South Harbor, and T115 (and to a lesser extent among other container terminals) in the North Harbor.

Fuel and molasses are both transported as liquid bulk at the Port of Seattle. Combined fuel and molasses cargo handled through the NWSA totaled nearly 752,000 metric tons in 2017. The NWSA additionally handles logs and lumbers at the West Hylebos Log Facility. In 2017 more than 52.7 million board feet of logs and lumber was transported through the Port of Tacoma, representing more than 278,000 metric tons of cargo. **(Exhibit 15)**

Exhibit 15. Breakbulk, Logs and Other Marine Cargo, Metric Tons, The NWSA, 2013-2017



Source: *The Northwest Seaport Alliance, 2018; Community Attributes, Inc., 2018.*

Breakbulk, logs and other marine cargo handled through The Northwest Seaport Alliance directly support a wide variety of jobs. In total these activities directly supported 3,880 jobs in 2017. Rail and truck transportation and logistics represent the largest portion of direct jobs, with a combined total of 2,790 jobs. Additional services supporting the movement of breakbulk, logs and other cargo are maritime support services and navigational services including tug assist and pilots (780 jobs); government personnel (200 jobs); and terminal operations, on-site stevedoring and longshore workers (110 jobs). **(Exhibit 16)**

³ The Northwest Seaport Alliance 5-Year Cargo Volume History, November 2018.

Exhibit 16. Estimated Direct Impacts of Breakbulk, Logs and Other Marine Cargo by Economic Activity, Washington, 2017

Activity	Jobs	Business Output (mils 2017 \$)	Labor Income (mils 2017 \$)
Rail Transportation	1,690	\$470.4	\$74.8
Truck Transportation, Logistics & Warehousing	1,100	\$300.9	\$105.1
Maritime Support Services	440	\$65.3	\$42.0
Navigational Services	340	\$101.6	\$43.3
Government	200	\$12.6	\$16.2
Terminal Operations, Stevedoring, and Longshoremen	110	\$61.4	\$10.4
Total	3,880	\$1,012.2	\$291.9

Sources: Port of Seattle, 2018; Puget Sound Regional Council, 2018; Pacific Maritime Association, 2017; BNSF, 2017; Union Pacific, 2017; Washington Maritime Federation, 2017; Washington State Department of Revenue, 2018; Washington State Employment Security Department, 2017; Community Attributes Inc., 2018.

The direct economic activities supported by the transport of breakbulk, logs and other marine cargo through The Northwest Seaport Alliance lead to upstream impacts through supply chain activities and the spending of worker income. The companies supplying goods and services to businesses working with marine cargo at the NWSA make their own purchases, stimulating indirect activity. Workers directly supported by marine cargo at the NWSA and at business throughout the supply chain spend their earnings on various goods and services generating induced effects.

The total economic impact of breakbulk, logs and other marine cargo handled through the NWSA represents the sum of direct, indirect and induced effects. **Exhibit 17** summarizes impacts to Washington state. In total, economic impact totaled more than \$2 billion in business revenues in 2017, 3,900 jobs and nearly \$608 million in total compensation.

Exhibit 17. Economic Impacts of Breakbulk, Logs and Other Marine Cargo Shipping through The Northwest Seaport Alliance, Washington, 2017

	Direct	Indirect	Induced	Total
Jobs	3,900	2,100	3,600	9,600
Total Compensation (mils 2017 \$)	\$291.9	\$127.8	\$188.1	\$607.8
Business Output (mils 2017 \$)	\$1,012.2	\$452.0	\$555.1	\$2,019.4

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

FISCAL IMPACTS FROM THE NWSA MARINE CARGO ACTIVITIES

The economic impacts of marine cargo at The Northwest Seaport Alliance support various state and local tax bases, which in turn yield tax revenues. The businesses that directly interact with the marine cargo generate taxes directly. The indirect and induced activities generated by both public and private sector expenditures generate additional taxable revenue.

The direct and secondary economic activities related to marine cargo at the NWSA generate nearly \$136 million in Washington state sales and use taxes, Washington state business and occupation taxes and other statewide taxes (for example, public utility taxes and quantity taxes)⁴. This includes nearly \$107 million generated through containerized cargo related activities or more than \$28 per TEU, \$8 million generated by automobile cargoes and \$21 million from breakbulk, logs and other cargo. (**Exhibit 18** and **19**)

Exhibit 18. Statewide Fiscal Impacts by Segment of Activity at The Northwest Seaport Alliance, Washington, Mils 2017\$, 2017

	Direct	Secondary	Total
Containerized Cargo	\$25.1	\$81.7	\$106.8
Automobiles	\$2.7	\$5.3	\$8.0
Breakbulk, Logs and Other Cargo	\$5.5	\$15.6	\$21.1
Total	\$33.3	\$102.6	\$135.9

Sources: Washington State Department of Revenue, 2018; Washington State Employment Security Department, 2017; Community Attributes Inc., 2018.

Exhibit 19. Total Statewide Fiscal Impacts at The Northwest Seaport Alliance, Washington, Mils 2017\$, 2017

	Direct	Secondary	Total
B&O	\$12.5	\$26.8	\$39.3
Sales & Use Taxes	\$17.6	\$66.3	\$83.9
Other	\$3.2	\$9.4	\$12.6
Total	\$33.3	\$102.6	\$135.9

Sources: Washington State Department of Revenue, 2018; Washington State Employment Security Department, 2017; Community Attributes Inc., 2018.

⁴ Due to limited availability of tax data at the local level, only state tax payments were estimated for Washington state.

SUMMARY AND CONCLUSIONS

The Northwest Seaport Alliance cargo handling activities in 2017 had a total economic impact to the state economy of 58,400 jobs (**Exhibit 20**); this equates to a jobs multiplier, measured as total jobs to direct jobs, of 2.9. The largest component of this impact was containerized cargo, owing to the size, breadth, complexity and robustness of the network of services tied to moving containerized cargo, such tug assists and towing, stevedoring, drayage, warehousing and rail activities. Nearly \$12.4 billion in business output, or revenues, were supported either directly or through multiplier effects from the NWSA activities across the state (**Exhibit 21**), and more than \$4.0 billion in labor income (**Exhibit 22**). Total fiscal impacts summed to \$135.9 million in state taxes, including \$102.6 million through secondary multiplier effects.

Exhibit 20. Total Jobs Impacts by Segment, 2017

	Direct	Indirect	Induced	Total
Containerized Cargo	14,900	11,900	18,700	45,500
Automobiles	1,300	700	1,300	3,300
Breakbulk, Logs and Other Cargo	3,900	2,100	3,600	9,600
Total	20,100	14,700	23,600	58,400

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

Exhibit 21. Total Business Output Impacts by Segment, Mils 2017\$, 2017

	Direct	Indirect	Induced	Total
Containerized Cargo	\$4,537.6	\$2,267.7	\$2,917.3	\$9,722.6
Automobiles	\$308.8	\$136.8	\$197.8	\$643.4
Breakbulk, Logs and Other Cargo	\$1,012.2	\$452.0	\$555.1	\$2,019.4
Total	\$5,858.7	\$2,856.6	\$3,670.2	\$12,385.4

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

Exhibit 22. Total Labor Income Impacts by Segment, Mils 2017\$, 2017

	Direct	Indirect	Induced	Total
Containerized Cargo	\$1,502.5	\$703.1	\$988.6	\$3,194.1
Automobiles	\$108.4	\$41.2	\$67.0	\$216.6
Breakbulk, Logs and Other Cargo	\$291.9	\$127.8	\$188.1	\$607.8
Total	\$1,902.7	\$872.1	\$1,243.7	\$4,018.5

Sources: Washington State Office of Financial Management, 2017; Community Attributes Inc., 2019.

Impacts are difficult to evaluate without additional context, both in terms of the total absolute impact and a ratio of total impacts to direct activities. To build context for the NWSA impacts, several other major industries and

activities are presented for comparison. The aerospace industry, including The Boeing Company, Washington’s largest private sector employer, supported a total of 252,000 jobs in 2015, but with a jobs multiplier actually lower than for the NWSA (2.7 compared to 2.9). The aerospace industry had a total fiscal impact of \$352.2 million in 2015, adjusted to 2017 dollars. The agriculture & food processing sector, representing an extensive supply chain linking farmers, processors, wholesalers and various equipment and seed suppliers, supported 220,600 jobs and \$19.5 billion in business output across the state economy in 2013, including indirect and induced effects, a jobs multiplier of 1.7, and a total fiscal impact of \$342.1 million. The maritime sector, including several activities overlapping with those of the NWSA, had an estimated jobs multiplier of 2.7. **Exhibits 23** and **24** below summarize these comparisons between the NWSA and other illustrative industries and economic activities in Washington state.

Exhibit 23. Comparison of Total Economic Impacts between The NWSA and Other Industries and Industry Clusters in Washington State, Various Years

	Aerospace	Agriculture & Food Processing	Maritime Sector	NWSA
Study Year	2015	2013	2015	2017
Total Jobs	252,800	220,600	191,100	58,400
Direct Jobs	93,800	128,900	69,500	20,100
Direct Business Output (mils \$)	\$68,641	\$19,488	\$17,142	\$5,858
Jobs per Direct Job	2.70	1.71	2.75	2.91
Jobs/\$Mil Final Demand	3.68	11.32	11.15	9.97

Sources: Washington Aerospace Partnership, “Washington State Aerospace Economic Impacts 2016 Update,” October 2016; Washington Farm Bureau, “Washington State Agriculture & Food Processing Economic/Fiscal Impact Study,” January 2015; Washington Maritime Federation, “Washington State Maritime Sector Economic Impact Study,” April 2017; Community Attributes Inc., 2018. All studies were done by Community Attributes Inc. on behalf of each organization.

Exhibit 24. Comparison of Direct and Total State Fiscal Impacts between The NWSA and Other Industries and Industry Clusters in Washington State, Various Years (mils 2017\$)

	Study Year	Direct	Total
Aerospace	2015	\$30.4	\$352.2
Agriculture & Food Processing	2013	\$86.4	\$342.1
Maritime Sector	2015	\$115.7	\$361.0
NWSA	2017	\$33.3	\$135.9

Sources: Washington Aerospace Partnership, “Washington State Aerospace Economic Impacts 2016 Update,” October 2016; Washington Farm Bureau, “Washington State Agriculture & Food Processing Economic/Fiscal Impact Study,” January 2015; Washington Maritime Federation, “Washington State Maritime Sector Economic Impact Study,” April 2017; Community Attributes Inc., 2018. All studies were done by Community Attributes Inc. on behalf of each organization.