APPENDIX K

Socioeconomics, Environmental Justice, and Children's Health

NEPA

Children's Health and Safety Risks (from NEPA Final EA)

The Northwest Seaport Alliance, Port of Tacoma, and Port of Seattle Economic Impact Analysis

SEPA

SEPA Environmental Justice Memorandum

Appendix K
Children's Health and Safety Risks from NEPA EA

Children's Environmental Health and Safety Risks, Affected Environment

Children's environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

Regulatory Setting

TABLE 3-32: EXECUTIVE ORDER RELATED TO CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Statute	U.S. Code Implementing Regulation	Oversight Agency	Summary
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	62 Federal Register 19885, (April 23, 1997)	No Applicable	Directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children. Included in these categories are risks to health or safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, water, recreational waters, soil, or products they might use or be exposed to.

Existing Condition

The total percentage of the population within the GSA block groups that is under the age of 18 is 23.3 percent, as shown on **Table 3-33**. The percentage of children per block group is shown on **Exhibit 3-14**. As discussed above, the census block groups extend beyond the GSA and therefore include children residing outside the GSA.

TABLE 3-33: PERCENTAGE OF POPULATION UNDER THE AGE OF 18

Age of Child	GSA	King County	State of Washington
Under 5 years old	7.2%	5.3%	5.6%
5 to 9 years old	6.1%	5.4%	6.0%
10 to 14 years old	6.6%	5.9%	6.4%
15 to 17 years old	3.4%	3.3%	3.7%
Total	**23.3%**	**19.8%**	**21.7%**

Source: United States Census Bureau, 2021 American Community Survey 1 and 5-Year Estimates, Table B01001 (2021).

This analysis focuses on locations where children spend time, outside of their residences, and can be exposed to environmental health risks. This includes schools and child-care centers, public parks, recreation facilities, and medical facilities. Within the GSA there are two schools (Puget Sound Skills Center and Choice Academy, which were shown previously on **Exhibit 3-12**). No licensed child-care facilities are located within the GSA. There are no medical facilities within the GSA. Public parks and recreation facilities within the GSA are shown in **Table 3-11**.

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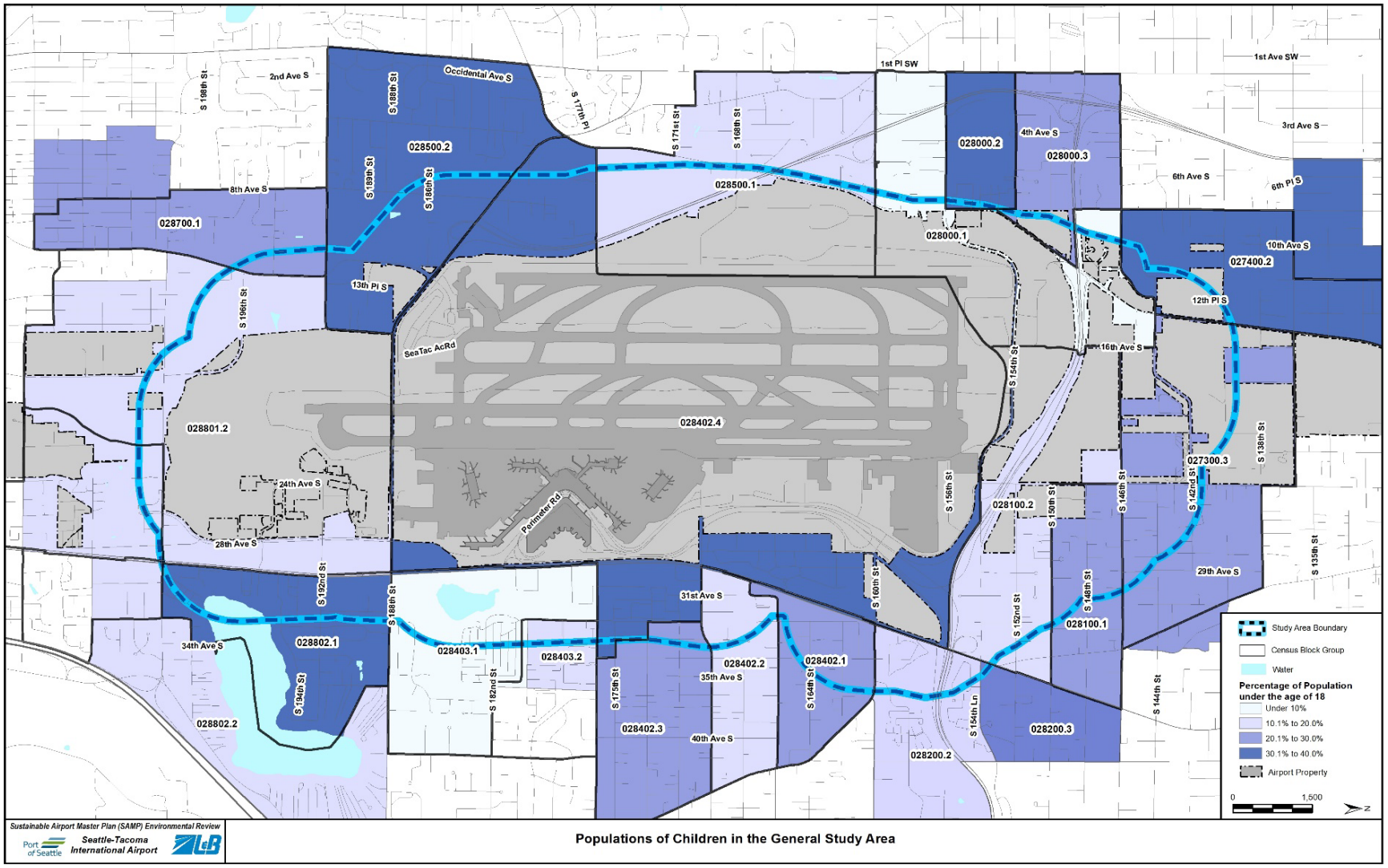
EXHIBIT 3-14: POPULATIONS OF CHILDREN WITHIN THE GSA



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Children's Environmental Health and Safety Risks, Impacts and Mitigation

Significant Impact Threshold

The FAA has not established a significance threshold for children's environmental health and safety risks. However, the FAA has identified a factor to consider when evaluating potential impacts: whether the action has the potential to lead to a disproportionate health or safety risk to children. The existence of this factor does not necessarily establish a significant impact; rather, the FAA must evaluate this factor in light of context and intensity to determine if there are significant impacts.

Alternative 1: No Action

The No Action Alternative is not anticipated to result in impacts related to children's environmental health and safety.

Alternative 2: Proposed Action and Alternative 3: Hybrid Terminal Option

The Action Alternatives would not result in significant changes to health and safety risks including air, food, drinking water, recreational waters, soil, or products children may use or to which they would be exposed. The Action Alternatives could result in non-permanent noise impacts during construction of the proposed cargo development (C02 and C03). No schools are located in areas where impacts are identified; however, children living in these residential areas may experience temporary increases in noise during construction. No significant noise impacts were identified, and there are no separate noise impact standards for children. The Action Alternatives would not increase health and safety risks attributable to products or substances that a child is likely to encounter or ingest, such as air, food, water, recreational waters, soil, or products they may be exposed to; consequently, the Action Alternatives would not result in health and safety risks to children when compared to the No Action Alternative.

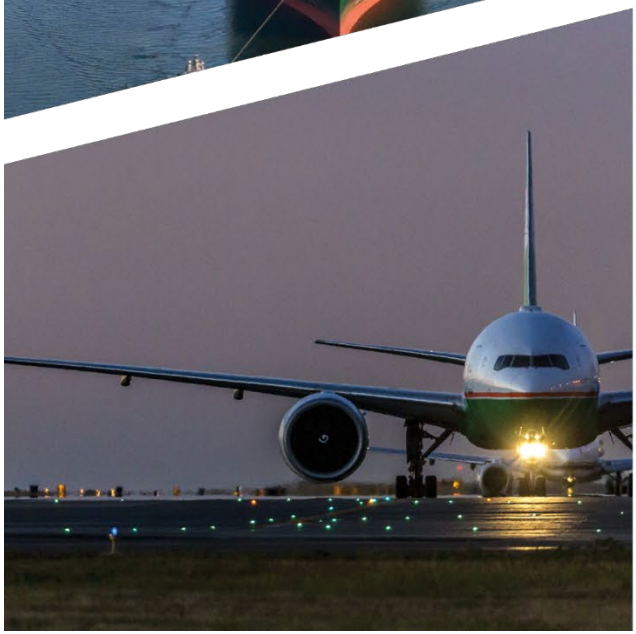
Mitigation and Minimization Measures

Mitigation

Because no significant impacts to children's environmental health and safety were identified, no mitigation is necessary.

Minimization Measures

Minimization measures (fencing project areas, removal / disposal of contaminated materials / soils in accordance with federal, state, and local requirements) and BMPs would be used to minimize impacts during construction.



July 2nd 2025

The Northwest Seaport Alliance, Port of Tacoma, and Port of Seattle

Economic Impact Analysis

Port of Seattle

THE NORTHWEST SEAPORT ALLIANCE

Port of Tacoma

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

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EXECUTIVE SUMMARY

The Northwest Seaport Alliance

The Northwest Seaport Alliance (NWSA) is one of the largest marine cargo operators in the United States. The NWSA annually handles millions of twenty-foot equivalent units (TEUs) of containerized cargo, reaching nearly three million TEUs in 2023. Nearly 80% of TEUs at the NWSA represent international imports or exports, with the remaining 20% representing containers shipped domestically to Alaska and Hawaii. In addition to containerized cargo, the NWSA handles automobiles, bulk, breakbulk, and other non-containerized cargo. In 2023, the NWSA operations supported an estimated 52,100 jobs, $4.4 billion in total compensation, and nearly $14 billion in total business output throughout the state of Washington (**Exhibit 1**).

Exhibit 1. NWSA Total Economic Impacts by Activity, Washington, 2023

	Direct	Indirect	Induced	Total
Containerized Cargo				
Jobs	16,100	10,030	20,160	46,290
Total Compensation (mils 2023 $)	$1,845.3	$743.8	$1,240.2	$3,829.2
Business Output (mils 2023 $)	$6,373.7	$2,416.6	$3,748.8	$12,539.1
Autos				
Jobs	1,195	710	1,830	3,735
Total Compensation (mils 2023 $)	$182.3	$52.6	$112.5	$347.4
Business Output (mils 2023 $)	$409.8	$158.4	$340.1	$908.3
Bulk, Breakbulk, and Other				
Jobs	720	440	920	2,080
Total Compensation (mils 2023 $)	$85.2	$32.3	$56.3	$173.8
Business Output (mils 2023 $)	$267.2	$106.8	$170.1	$544.2
Total				
Jobs	18,015	11,180	22,910	52,105
Total Compensation (mils 2023 $)	$2,112.7	$828.7	$1,409.0	$4,350.4
Business Output (mils 2023 $)	$7,050.7	$2,681.8	$4,259.0	$13,991.6

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Total state fiscal impacts supported by the NWSA operations totaled more than $130 million in 2023 (**Exhibit 2**).

Exhibit 2. NWSA Total State Fiscal Impacts by Activity, Washington, 2023, Millions

	Direct	Secondary	Total
Containerized Cargo	$21.0	$98.6	$119.6
Autos	$1.7	$8.1	$9.9
Bulk, Breakbulk, and Other	$0.8	$3.8	$4.6
Total	**$23.5**	**$110.5**	**$134.1**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Port of Tacoma

The Port of Tacoma's operations include automobile imports, non-containerized cargo handling, and real estate holdings that support a wide range of businesses supporting maritime operations. In 2023, the Port of Tacoma's total economic impact on the Washington economy totaled more than 8,000 jobs, $675 million in total compensation, and nearly $2 billion in business output (**Exhibit 3**).

Exhibit 3. Port of Tacoma Total Economic Impacts by Activity, Washington, 2023

	Direct	Indirect	Induced	Total
Tenants and Bulk Operations				
Jobs	1,850	890	2,060	4,800
Total Compensation (mils 2023 $)	$200.5	$63.9	$126.7	$391.1
Business Output (mils 2023 $)	$579.2	$215.2	$382.9	$1,177.3
Autos				
Jobs	1,190	650	1,500	3,340
Total Compensation (mils 2023 $)	$143.8	$48.2	$92.0	$283.9
Business Output (mils 2023 $)	$375.6	$145.0	$277.9	$798.6
Total				
Jobs	3,040	1,540	3,560	8,140
Total Compensation (mils 2023 $)	$344.3	$112.1	$218.6	$675.0
Business Output (mils 2023 $)	$954.8	$360.2	$660.9	$1,975.9

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Exhibit 4 presents the Port of Tacoma's total fiscal impacts generated in 2023 for the state of Washington. In total, the Port of Tacoma's operations helped generate an estimated $20 million in state tax revenues.

Exhibit 4. Port of Tacoma Total State Fiscal Impacts by Activity, Washington, 2023, Millions

	Direct	Secondary	Total
Tenants and Bulk Operations	$1.9	$9.4	$11.3
Autos	$1.6	$6.9	$8.5
Total	**$3.5**	**$16.3**	**$19.8**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Port of Seattle

The Port of Seattle's operations include the SEA Airport, cruise, commercial fishing, recreational marinas, non-containerized cargo handling, and real estate holdings that support a diverse set of aviation, maritime, and other businesses. The Port of Seattle's 2023 economic impacts total more than 204,500 jobs, $12.6 billion in total compensation, and nearly $39 billion in business output (**Exhibit 5**).

Exhibit 5. Port of Seattle Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
SEA Airport				
Jobs	94,510	25,140	55,300	174,950
Total Compensation (mils 2023 $)	$5,400.3	$1,700.1	$3,401.3	$10,501.7
Business Output (mils 2023 $)	$17,380.5	$5,709.6	$10,281.1	$33,371.3
Cruise				
Jobs	2,230	950	1,610	4,790
Total Compensation (mils 2023 $)	$134.5	$71.6	$98.7	$304.9
Business Output (mils 2023 $)	$613.9	$230.4	$298.5	$1,142.7
Commercial Fishing				
Jobs	5,770	470	2,550	8,790
Total Compensation (mils 2023 $)	$293.0	$34.5	$156.9	$484.4
Business Output (mils 2023 $)	$418.2	$145.9	$474.2	$1,038.3
Recreational Marinas				
Jobs	515	110	390	1,015
Total Compensation (mils 2023 $)	$42.3	$7.4	$23.8	$73.5
Business Output (mils 2023 $)	$58.5	$23.3	$71.9	$153.8
Tenants and Other Businesses				
Jobs	6,550	2,110	6,360	15,020
Total Compensation (mils 2023 $)	$662.7	$154.4	$391.4	$1,208.5
Business Output (mils 2023 $)	$1,458.5	$502.6	$1,183.1	$3,144.3
Total				
Jobs	109,575	28,780	66,210	204,565
Total Compensation (mils 2023 $)	$6,532.9	$1,968.0	$4,072.1	$12,573.0
Business Output (mils 2023 $)	$19,929.6	$6,611.9	$12,308.8	$38,850.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Total state fiscal impacts generated by the Port of Seattle in 2023 totaled $396 million (**Exhibit 6**).

Exhibit 6. Port of Seattle Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
SEA Airport	$79.1	$262.3	$341.5
Cruise	$2.3	$8.1	$10.3
Commercial Fishing	$0.9	$9.8	$10.7
Recreational Marinas	$0.2	$1.6	$1.9
Tenants and Other Businesses	$4.8	$27.0	$31.8
Total	**$87.3**	**$308.9**	**$396.2**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

With the recent start of the cruise season, the Port of Seattle's cruise operations are anticipating another busy year. The 2025 cruise season is projected to support 5,120 jobs, $327 million in total compensation, and $1.2 billion in business revenues in 2025 (**Exhibit 7**). Port of Seattle's cruise operations are projected to generate $11.1 million in state tax revenues in 2025.

Exhibit 7. Port of Seattle Cruise Operations Projected Total Economic Impacts, Washington, 2025

	Direct	Indirect	Induced	Total
Jobs	2,380	1,020	1,720	5,120
Total Compensation (mils 2023 $)	$143.9	$76.9	$105.8	$326.6
Business Output (mils 2023 $)	$657.8	$247.1	$319.8	$1,224.7

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

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INTRODUCTION

Background and Purpose

The ports of Seattle and Tacoma combined represent a core economic development asset for businesses and communities in Washington state and throughout the United States. Together, the ports formed The Northwest Seaport Alliance (NWSA) to facilitate joint investments and operations of certain marine cargo facilities. The NWSA is one of the largest marine cargo gateways in the U.S. In 2023, 23.8 million metric tons of cargo were handled at cargo facilities managed by the NWSA. The majority of the 3 million TEUs of container cargo shipped through the NWSA were international.

SEA Airport, a part of the Port of Seattle, is a critical economic development asset for the Greater Seattle region, facilitating movement of people and cargo to, from, and through the region. Both the Port of Seattle and Port of Tacoma are also host to industrial activities that spur job growth and economic wealth creation in the Central Puget Sound and Washington state. Port of Seattle facilities are key assets for the growing cruise industry as well as the North Pacific Fisheries Fleet. The ports also provide significant community impacts through economic development, workforce development and environmental investments.

This report provides a comprehensive evaluation of the economic impacts of these varied activities directly linked to port operations broken out by the following:

- **The Northwest Seaport Alliance.** Representing container cargo, autos, breakbulk, and bulk cargo shipments across the ports of Seattle and Tacoma.
- **Port of Tacoma.** Including autos, grain and gypsum, warehousing, light manufacturing, trucking, and other tenants at the Port of Tacoma, and environmental programs.
- **Port of Seattle.** Including SEA Airport, cruise ships, commercial fishing, recreational marinas, grain, other tenants at the Port of Seattle, and economic development, community, and environmental programs.

Analysis includes estimated direct activities—measured in jobs, income, and business output—directly supported by the above activities and associated nearby services directly tied to port operations (such as warehousing and off-site transloading) and the broader economic and fiscal impacts of these activities to the state economy.

Methods

Data used in this report is drawn from several sources, including state and federal employment and wage data 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 Northwest Seaport Alliance; and other relevant information maintained and provided by the Ports of Tacoma and Seattle 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). Economic impact modeling leverages the Washington State Input-Output Model, with customizations to model localized economic conditions. Fiscal impacts include state tax revenues derived from direct port-related activities and through multiplier effects among other industries and regions of the state.

Organization of the Report

The remainder of this report is organized as follows:

- **The Northwest Seaport Alliance.** Review of key indicators, facilities, and direct and total impacts for containerized cargo, autos, breakbulk, and other cargo managed by the NWSA.
- **Port of Tacoma.** Discussion of facilities and direct and total impacts for the tenants, auto import, bulk cargo operations managed by the Port of Tacoma.
- **Port of Seattle.** Summary of SEA Airport, projected cruise operations, commercial fishing, recreational marinas, tenants, a grain terminal, and other commercial business operations managed by the Port of Seattle.
- **Economic and Fiscal Impacts.** Provides the combined direct and total economic impacts across The Northwest Seaport Alliance, Port of Tacoma, and Port of Seattle.
- **Community and Equity Impacts and Reach.** Analyzes impacts of community, workforce, economic development, and environmental programs managed by the Port of Tacoma and Port of Seattle, as well as the equity impacts of The Northwest Seaport Alliance, Port of Tacoma, and Port of Seattle.
- **Summary and Conclusions.** Summary of key findings.

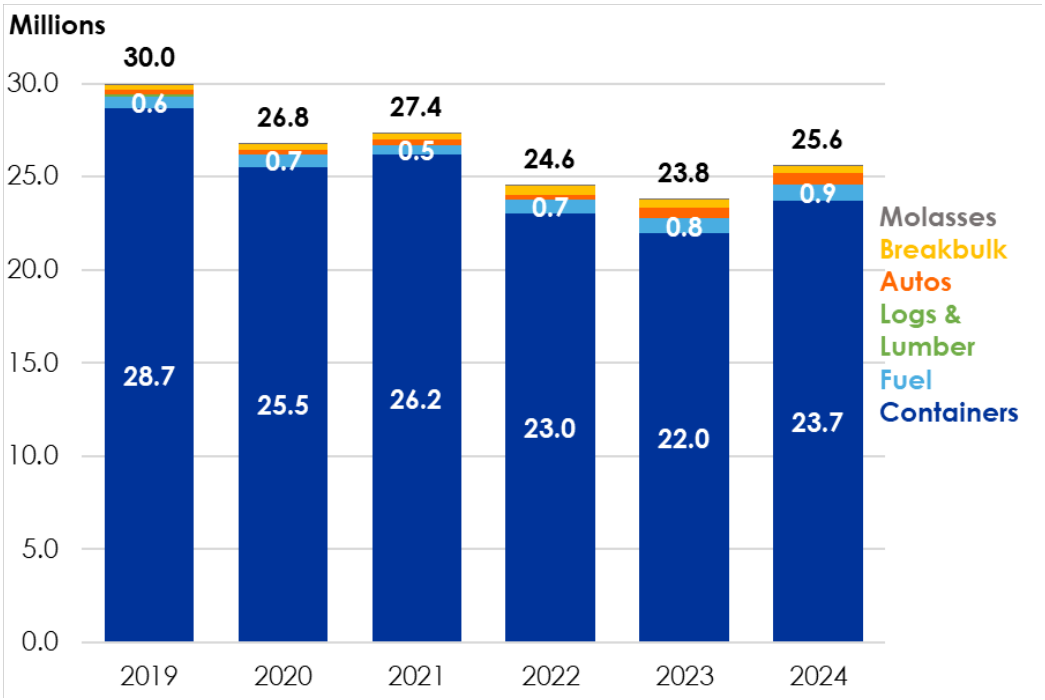
THE NORTHWEST SEAPORT ALLIANCE

In 2023, approximately 23.8 million metric tons of cargo were handled at the NWSA, including 22 million metric tons of containerized cargo (**Exhibit 8**).

In the same year, the NWSA handled almost 1,700 vessel calls. Between 2019 and 2023, more than 132 million metric tons of marine cargo were handled through the NWSA. Over this period, total marine cargo tonnage decreased from approximately 30 million metric tons in 2019 to 23.8 million in 2023. Containerized marine cargo represented the majority of cargo handled at the NWSA between 2019 and 2023, accounting for more than 92% of metric tonnage each year over this period. Approximately 3.4% of all marine cargo handled in 2023 was fuel. The NWSA also handled automobiles, breakbulk, fuel, and molasses over this period.

The Northwest Seaport Alliance also manages real estate, providing industrial, warehouse, and office space supporting the marine cargo handling activities of the NWSA. In 2023 The Northwest Seaport Alliance managed over 1-million square feet of industrial space, 934,000 square feet of warehousing space, and more than 153,000 square feet of office space.

Exhibit 8. Marine Cargo by Type, Metric Tons, The Northwest Seaport Alliance, 2019-2024



Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Containerized Cargo

Activities under containerized cargo include all operations, services, and facilities related to the handling of 20-, 40-, and 45-foot ocean cargo containers as well as domestic 24-, 48-, and 53-foot boxes, both outbound and inbound. The activities span container terminal facilities in the ports of Seattle and Tacoma, under management of The Northwest Seaport Alliance.

In 2023, the NWSA handled approximately 2.97 million twenty-foot equivalent units (TEUs)[1] (**Exhibit 9**). Of all TEUs processed in 2023, nearly 72% were full, including nearly 470,000 domestic TEUs, while the remaining 28.2% of TEUs were empty. More than 75% of all TEUs in 2023 were handled as either international import or export shipments by the NWSA. Total domestic inbound and outbound TEUs accounted for the remaining 25% of all TEUs handled at The NWSA in 2023.

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. Full and empty containers both are considered in the estimation of economic and fiscal impacts generated by containerized cargo handled through the NWSA.

Exhibit 9. Containerized Cargo Volumes, Full and Empty TEUs, International and Domestic Imports and Export, The Northwest Seaport Alliance, 2023

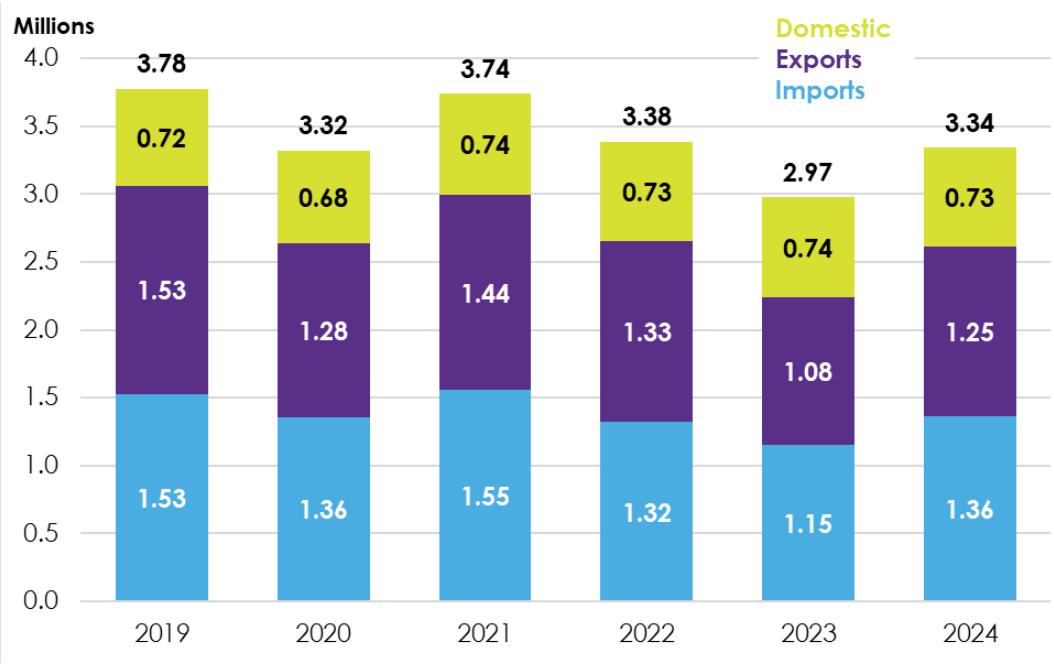
	Full	Empty	Total
Imports	1,078,005	76,958	1,154,963
Exports	588,744	493,060	1,081,804
Domestic Imports	102,979	248,817	351,796
Domestic Exports	364,909	20,944	385,853
Total	**2,134,637**	**839,779**	**2,974,416**

Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Exhibit 10 presents the total volume of containerized imports and exports handled at The Northwest Seaport Alliance between 2019 and 2023. Total TEUs have decreased between 2019 and 2023 from a high of 3.8 million in 2019 to 3.0 million in 2023. This can be attributed to a mix of global trade disruptions, shifting shipping patterns, cooling retail spending growth, regional competition, and global trade policies such as tariffs.[2,3]

[1] The Northwest Seaport Alliance measures international and domestic containerized cargo in twenty-foot equivalent units (TEUs).
[2] https://apnews.com/article/china-us-tariffs-timeline-trump-xi-1eeed2865dc7b14e23d7eb8069ba41ea
[3] https://mykn.kuehne-nagel.com/news/article/a-tale-of-three-coasts-how-the-pandemic-shift-25-Jul-2023

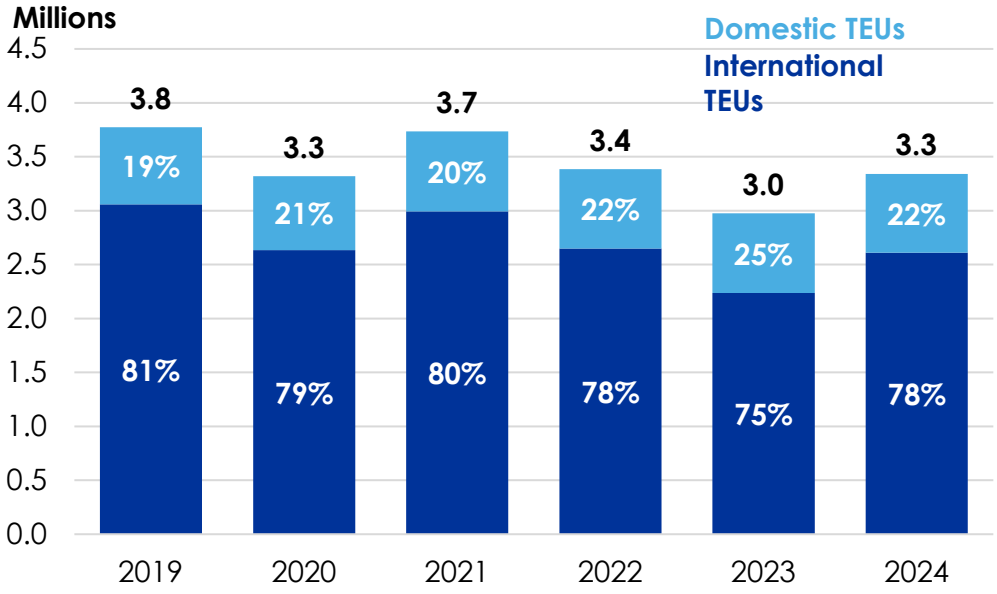
Exhibit 10. Imports, Exports, and Domestic TEUs, The Northwest Seaport Alliance, 2019 – 2024



Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Domestic TEUs accounted for an increasing portion of total TEU volume since 2019, growing from 19% of all TEUs in 2019 to nearly 25% in 2023 (**Exhibit 11**).

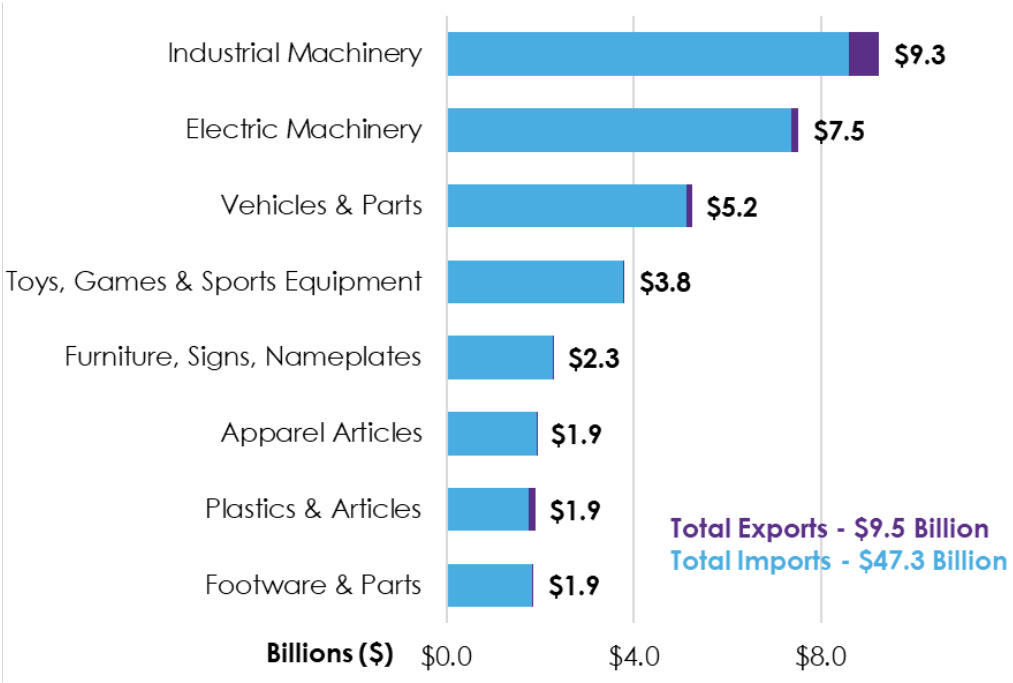
Exhibit 11. Containerized Cargo Volumes, TEUs, The Northwest Seaport Alliance, 2017-2024



Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

In 2023, total containerized imports and exports handled by the NWSA totaled approximately $56.8 billion in value, of which more than $47 billion was from imports (**Exhibit 12**). The combined value of imported and exported industrial machinery commodities represented the greatest value of all commodities handled in 2023, accounting for $9.3 billion in total import/export value, or slightly more than 16% of containerized vessel value. Other notable commodities handled at the NWSA include electric machinery ($7.5 billion); vehicles and parts ($5.2 billion); toys, games, and sports equipment ($3.8 billion).

Exhibit 12. Billions of Containerized Cargo Commodity Value, Commodities Each Representing More Than 3% of Total Vessel Value, The Northwest Seaport Alliance, 2023

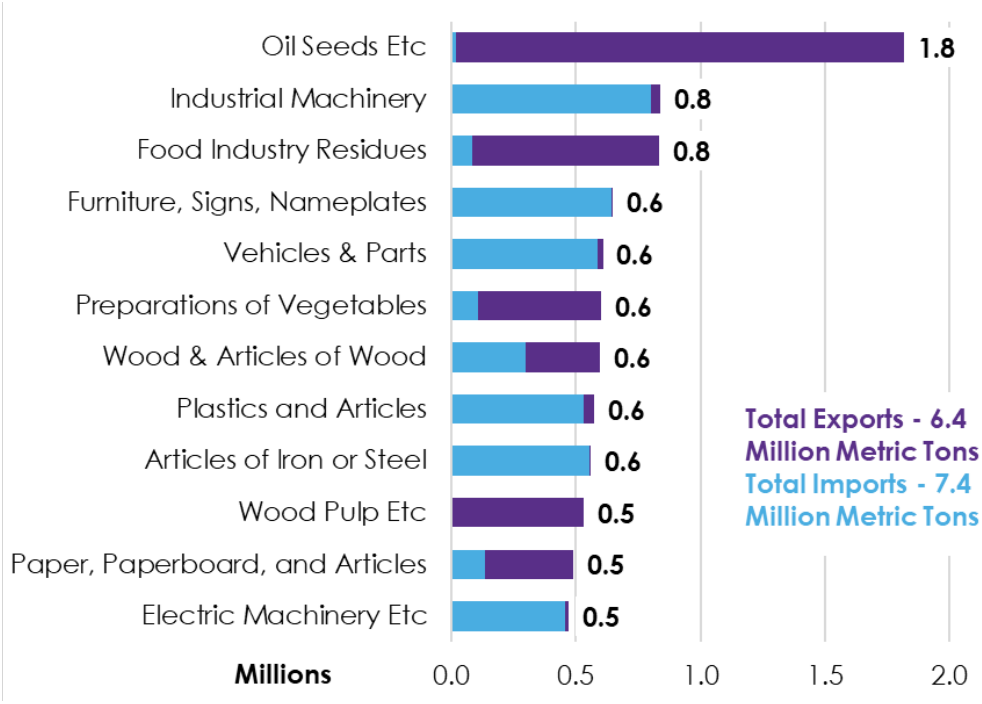


Sources: WISERTrade Import & Export Data by two-digit Harmonized System (HS) Commodity Code, wisertrade.org; 2024; The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Exhibit 13 shows the largest import and export commodities by weight in metric tons, handled at the NWSA in 2023, which represent at least 3% or more of total containerized vessel weight. Oil seeds, predominately from exported volume, accounted for the largest single-commodity proportion of total vessel weight in 2023, at just greater than 13%. Industrial machinery and food industry residues each accounted for 0.8 million metric tons of total vessel weight handled by the NWSA. Other notable commodities with significant import/export vessel weight include furniture, signs, nameplates; vehicles and parts; preparations of vegetables; wood and articles of wood;

plastics and articles; and articles of iron or steel, all which totaled approximately 0.6 million metric tons in total vessel weight in 2023.

Exhibit 13. Millions of Metric Tons of Containerized Cargo Commodities Each Representing More Than 3% of Total Vessel Weight, Metric Tons, The Northwest Seaport Alliance, 2023



Sources: WISERTrade Import & Export Data by two-digit HS Commodity Code, wisertrade.org; 2024; The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

The total containerized vessel weight in metric tons by commodity handled at The Northwest Seaport Alliance is shown on **Exhibit 14**. Combined import and export vessel weight for oil seeds is the greatest single-commodity trade volume in 2023. In total, the 13 largest commodities by trade volume represent nearly 65% of all traded commodities to be processed by the NWSA in 2023, and the five largest commodities by trade volume account for more than 34% of all trade volume in 2023.

Exhibit 14. Containerized Cargo by Commodity, Metric Tons, The Northwest Seaport Alliance, 2023

Commodity	Vessel Weight		Total
	Imports	Exports	
Oil Seeds Etc	20,920	1,797,410	1,818,330
Industrial Machinery	803,280	37,870	841,150
Food Industry Residues	83,040	753,140	836,180
Furniture, Signs & Nameplates	643,960	2,400	646,360
Vehicles & Parts	588,340	20,390	608,730
Preparation of Vegetables	109,320	491,220	600,540
Wood & Articles of Wood	297,890	299,220	597,110
Plastics and Articles	532,440	40,850	573,290
Articles of Iron or Steel	555,120	6,560	561,680
Pulp of Wood	680	532,890	533,570
Paper & Paperboard	137,440	350,950	488,390
Electric Machinery	456,180	14,640	470,820
Edible Vegetables	20,730	349,210	369,940
Other	3,138,850	1,712,240	4,851,090
Total	**7,388,190**	**6,408,990**	**13,797,180**

Sources: WISERTrade Import & Export Data by two-digit HS Commodity Code, wisertrade.org; 2024; The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

In 2023, China was the NWSA's largest trading partner, as measured in total TEU volume, accounting for nearly 40% of all TEUs traded in 2023. Of the total import and export volume handled through the NWSA with China, nearly 84% of goods are imports. Other prominent trade partners for the NWSA include Japan (approximately 215,000 TEUs), Vietnam (nearly 160,000 TEUs), South Korea (Approximately 143,000 TEUs), and Taiwan (More than 106,000 TEUs) (**Exhibit 15**).

Exhibit 15. Containerized Cargo by Country, TEUs, The Northwest Seaport Alliance, 2023

Country	Import TEUs	Export TEUs	Total TEUs
China	542,280	104,070	646,350
Japan	83,640	131,180	214,820
Vietnam	135,810	23,670	159,480
South Korea	52,670	90,210	142,880
Taiwan	52,730	53,670	106,400
Thailand	38,460	18,620	57,080
Indonesia	22,330	18,550	40,880
Malaysia	12,140	25,520	37,660
India	15,240	7,650	22,900
Philippines	7,480	12,940	20,420
Hong Kong	2,990	10,100	13,090
Singapore	4,680	7,000	11,680
Other	80,420	67,100	147,510
Total	**1,050,870**	**570,280**	**1,621,150**

Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Exhibit 16 presents total TEUs by country handled by the NWSA from 2017 through 2023. China has remained the country that ships the most TEUs through the NWSA since 2017. Japan and Vietnam were the second and third most consistent trade partner from 2017 through 2023.

Exhibit 16. Containerized Cargo by Country, TEUs, The Northwest Seaport Alliance, 2017-2023

Country	2017	2018	2019	2020	2021	2022	2023
China	832,890	924,210	770,670	674,040	820,940	785,000	646,350
Japan	110,310	98,750	106,820	76,900	82,990	214,510	214,820
Vietnam	56,290	64,760	90,730	127,730	147,310	185,590	159,480
South Korea	61,880	65,150	56,910	50,420	67,780	160,780	142,880
Taiwan	63,980	62,990	67,170	64,200	73,390	95,710	106,400
Thailand	27,980	27,590	37,860	39,950	45,540	66,750	57,080
Indonesia	22,470	27,680	26,940	25,500	29,430	49,180	40,880
Malaysia	19,080	22,300	21,120	18,140	18,290	39,690	37,660
India	16,260	16,420	20,660	18,020	15,280	19,970	22,900
Philippines	8,610	7,210	10,260	7,970	9,200	25,290	20,420
Hong Kong	23,460	21,630	14,620	9,610	10,110	13,170	13,090
Singapore	4,530	4,730	7,520	6,700	5,570	15,240	11,680
Other	126,260	144,950	157,250	148,410	123,660	120,740	147,510
Total	**1,374,000**	**1,488,370**	**1,388,530**	**1,267,590**	**1,449,490**	**1,791,620**	**1,621,150**

Sources: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Direct activities associated with the movement of ocean cargo containers, both full and empty, include on-site stevedoring operations, drayage, rail operations, tug assists for vessels, off-site transloading facilities, warehousing and distribution centers, non-drayage trucking, local and

federal government personnel supporting or regulating containerized cargo, and various support services.

Containerized cargo activities directly supported 16,100 jobs in 2023. This roughly totals one direct job supported by every 1,000 TEUs shipped through the NWSA. The largest source of employment supported was transportation including rail, trucking, logistics and warehousing (12,880). Terminal operations include administrative staff, on-site stevedoring personnel, and longshoremen, with containerized cargo activities supporting 2,420 jobs across both harbors. Additional services supporting the movement of containerized cargo through the NWSA include maritime support services and navigational services including tug assists and pilots. (**Exhibit 17**)

Exhibit 17. NWSA Containerized Cargo Direct Impact Estimates by Economic Activity, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Rail, Truck Transportation, Logistics & Warehousing	12,880	$5,012.8	$1,336.0
Terminal Operations, Stevedoring & Longshoremen	2,420	$984.3	$409.1
Maritime Support Services	340	$75.8	$35.6
Government	280	$221.7	$39.0
Navigational Services	180	$79.0	$25.5
Total	**16,100**	**$6,373.7**	**$1,845.3**

Sources: The Northwest Seaport Alliance, 2025; Port of Seattle, 2025; Port of Tacoma, 2025; Puget Sound Regional Council; 2025; BNSF, 2025; Union Pacific, 2025; Freight Analysis Framework 5.0, 2025; Puget Sound Pilots, 2025; U.S. Coast Guard, 2025; U.S. Customs and Border Protection, 2025; American Railroad Association, 2025; U.S. Railroad Retirement Board, 2025; U.S. Census Bureau, 2025; U.S. Bureau of Labor Statistics, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Community Attributes, 2025.

Containerized cargo activities in total supported 46,300 jobs in Washington, including direct, indirect, and induced impacts. Total economic impacts of containerized cargo activities supported more than $3.8 billion in wages and total compensation accounted for $12.5 billion in business revenue in 2023. Over half the business revenue is generated directly from the movement of containerized cargo through the NWSA (**Exhibit 18**). In total, it is estimated that for every 35 TEUs that are handled by the NWSA, one job is supported throughout the state.

Exhibit 18. NWSA Containerized Cargo Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	16,100	10,030	20,160	46,290
Total Compensation (mils 2023 $)	$1,845.3	$743.8	$1,240.2	$3,829.2
Business Output (mils 2023 $)	$6,373.7	$2,416.6	$3,748.8	$12,539.1

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The NWSA containerized cargo operations supported an estimated $120 million in statewide fiscal impacts in 2023 (**Exhibit 19**).

Exhibit 19. NWSA Containerized Cargo Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$20.9	$32.1	$53.0
Sales & Use Taxes	$0.1	$58.3	$58.5
Other	$0.0	$8.1	$8.1
Total	**$21.0**	**$98.6**	**$119.6**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Containerized cargo operations at the NWSA also support economic and fiscal impacts in cities throughout the region. **Exhibit 20** presents total economic impacts including jobs, business output, and total compensation by city. Total economic impacts include direct impacts, as well as indirect impacts, or jobs, output, and compensation supported by business-to-business transactions, as well as induced impacts (jobs, output and compensation supported through the spending of worker compensation). **Exhibit 20** also presents the total state sales, business and occupation, and other taxes supported by total economic activity within each city. Local taxes represent the local sales and business and occupation taxes supported by total economic activity within each city.

Exhibit 20. NWSA Containerized Cargo Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	10,880	$2,964.1	$939.0	$27.61	$8.25	$35.86
Seattle	8,190	$2,290.3	$745.3	$20.06	$5.86	$25.92
Sumner	1,940	$587.2	$185.8	$2.82	$0.33	$3.14
Puyallup	1,660	$361.5	$121.2	$4.23	$1.36	$5.59
Kent	1,220	$386.2	$117.6	$3.11	$0.83	$3.93
DuPont	1,120	$345.1	$109.3	$1.38	$0.10	$1.48
Federal Way	1,080	$199.9	$69.3	$3.22	$1.15	$4.37
Fife	850	$266.2	$84.1	$1.28	$0.18	$1.46
Bellevue	770	$155.2	$56.5	$2.22	$0.77	$2.99
Gig Harbor	770	$134.6	$47.1	$2.38	$0.61	$3.00

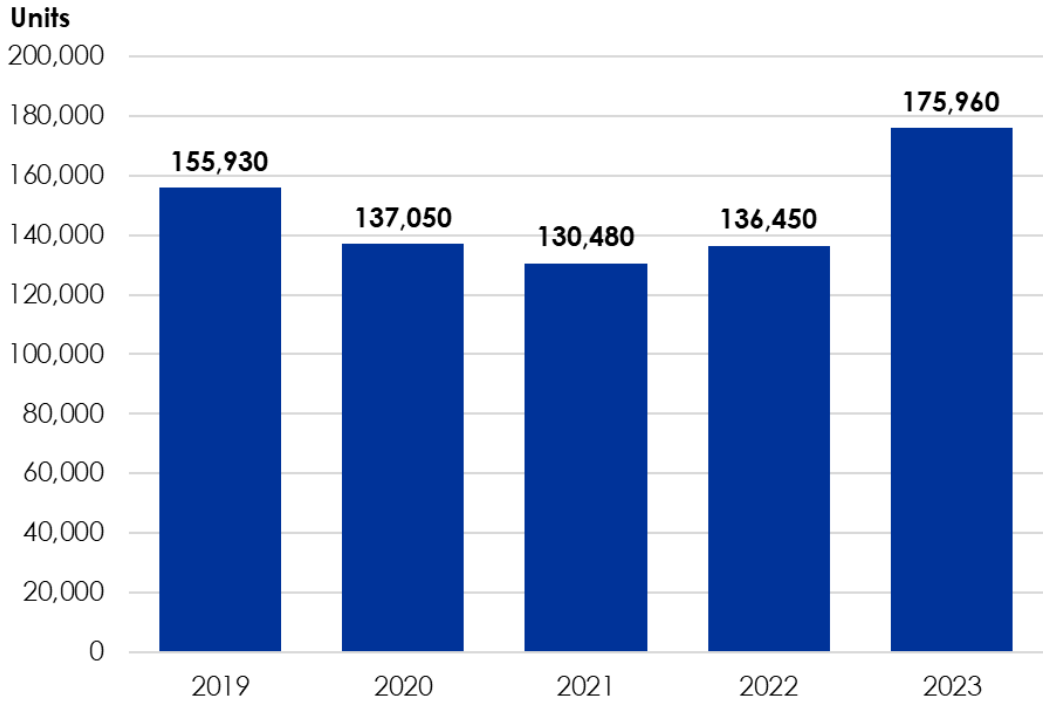
Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Automobile Imports

Exhibit 21 shows the total number of whole automobile units which were handled at the NWSA between 2019 and 2023.[4] The number of automobiles moving through the NWSA reached a five-year high of approximately 176,000 units in 2023, equivalent to a 29% year-over-year increase from 2022. In total, the number of automobile units annually handled at the NWSA increased by 12.8% from 2019 to 2023.

[4] Automobile parts are separately imported through containerized cargo.

Exhibit 21. Automobiles Units, The Northwest Seaport Alliance, 2019-2023



Source: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

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

Automobile import activities directly supported 1,195 jobs in 2023, equaling roughly 1 job for every 150 automobiles imported by the NWSA. Rail, truck transportation, and logistics supported 780 jobs. Terminal operations include the activities of auto warehousing, providing logistics and accessory installation services, as well as on-site stevedoring personnel and longshoreman totaling 300 jobs supported by the movement of automobiles through the NWSA in 2023 (**Exhibit 22**).

Exhibit 22. NWSA Automobile Direct Impact Estimates by Economic Activity, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Rail, Truck Transportation, Logistics & Warehousing	780	$244.0	$101.8
Terminal Operations, Stevedoring & Longshoremen	300	$122.9	$66.7
Maritime Support Services	80	$18.7	$8.8
Navigational Services	30	$13.0	$4.5
Government	5	$11.3	$0.5
Total	**1,195**	**$409.8**	**$182.3**

Sources: The Northwest Seaport Alliance, 2025; Port of Seattle, 2025; Port of Tacoma, 2025; Puget Sound Regional Council; 2025; BNSF, 2025; Union Pacific, 2025; Freight Analysis Framework 5.0, 2025; Puget Sound Pilots, 2025; U.S. Coast Guard, 2025; U.S. Customs and Border Protection, 2025; American Railroad Association, 2025; U.S. Railroad Retirement Board, 2025; U.S. Census Bureau, 2025; U.S. Bureau of Labor Statistics, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Community Attributes, 2025.

Exhibit 23 presents total economic impacts associated with the NWSA automobile operations. The Washington economy benefited from the NWSA automobile import operations through the support of 3,735 jobs in 2023. Those employees were paid $347 million in compensation, including benefits, and accounted for more than $908 million in business revenue. Each direct job in this sector was associated with an additional 2.1 jobs throughout Washington. For every 50 automobiles imported through the NWSA one job is supported throughout the statewide economy.

Exhibit 23. NWSA Automobile Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	1,195	710	1,830	3,735
Total Compensation (mils 2023 $)	$182.3	$52.6	$112.5	$347.4
Business Output (mils 2023 $)	$409.8	$158.4	$340.1	$908.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Automobile imports at the NWSA are estimated to have generated nearly $10 million in statewide fiscal impacts in 2023 (**Exhibit 24**).

Exhibit 24. NWSA Automobile Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$1.7	$2.6	$4.4
Sales & Use Taxes	$0.0	$4.9	$4.9
Other	$0.0	$0.6	$0.6
Total	**$1.7**	**$8.1**	**$9.9**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Automobile import operations at the NWSA also support economic and fiscal impacts in cities throughout the region (**Exhibit 25**). Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 25. NWSA Automobile Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

	Economic Impacts			Fiscal Impacts		
City	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	1,190	$318.7	$124.2	$2.90	$1.38	$4.28
Seattle	420	$82.0	$29.9	$1.30	$0.70	$2.00
Sumner	230	$69.1	$28.8	$0.36	$0.03	$0.39
Puyallup	170	$37.4	$14.4	$0.42	$0.13	$0.55
DuPont	130	$41.3	$17.4	$0.19	$0.05	$0.24
Fife	100	$31.1	$13.0	$0.16	$0.01	$0.17
Federal Way	90	$16.0	$5.6	$0.29	$0.11	$0.39
Uninc. Pierce	80	$23.8	$9.9	$0.14	$0.02	$0.15
Gig Harbor	70	$12.3	$4.3	$0.22	$0.06	$0.28
Lakewood	60	$14.8	$6.0	$0.12	$0.03	$0.15

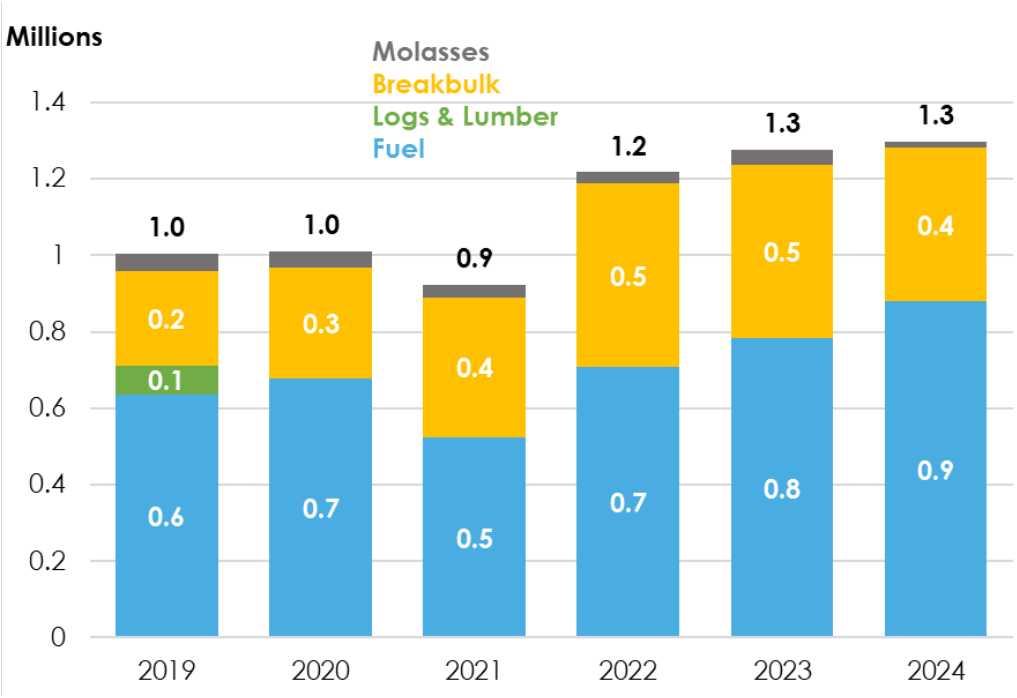
Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: As of 2024, the NWSA started handling automobile units at North Harbor (Port of Tacoma) facilities as well as South Harbor (Port of Seattle) facilities. These impacts only reflect impacts as of 2023, therefore only reflect South Harbor activities. Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Breakbulk, Bulk and Other Non-Containerized Cargo

The Northwest Seaport Alliance manages the flow of a wide variety of marine cargo beyond containerized cargo and automobiles. Other marine cargo includes fuel, breakbulk, and molasses. The majority of breakbulk cargo transport is transported via roll-on/roll-off vessels.

Exhibit 26 presents the total non-containerized marine cargo volume in metric tons to pass through the NWSA between 2019 and 2024. Over this time, total non-containerized volume increased from approximately 1.0 million metric tons in 2019 to around 1.3 million metric tons in 2023, with annual increases between 2021 and 2024 in total non-containerized volume. Breakbulk, including agriculture and mining equipment, military vehicles for example, processed by the NWSA reached a six-year peak of nearly 480,000 metric tons in 2022. As of 2023, the total volume of Breakbulk processed by the NWSA was 500,000 metric tons. Bulk marine cargo, including fuel, logs, and molasses, increased from approximately 759,000 metric tons in 2019 to more than 900,000 metric tons in 2023. Fuel cargo represented the majority of all non-containerized bulk marine cargo over this period, including more than 800,000 metric tons in 2023, or slightly more than 98%. Of the fuel cargo imported through the NWSA, 57% is unrefined crude oil, while the remaining 43% of imported fuel cargo are refined petroleum products. Fuel exports out of the NWSA are dominated by refined petroleum products, 77% of which are petroleum oils and 21% are petroleum gases.

Exhibit 26. Marine Cargo by Type (excluding container), Metric Tons, The Northwest Seaport Alliance, 2019-2024



Source: The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

Breakbulk, fuel, and other non-containerized marine cargo handled through the NWSA directly supports a wide range of jobs. In total, these activities directly supported 720 jobs in 2023. Maritime support services and rail and truck transportation represent the largest portion of direct jobs, with a combined total of 550 jobs. (**Exhibit 27**)

Exhibit 27. NWSA Breakbulk, Bulk, and Other Imports Direct Impact Estimates by Economic Activity, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Maritime Support Services	350	$78.4	$36.8
Rail, Truck Transportation, Logistics & Warehousing	200	$97.0	$22.3
Terminal Operations, Stevedoring & Longshoremen	70	$30.0	$12.9
Navigational Services	90	$39.9	$12.2
Government	10	$22.1	$1.0
Total	**720**	**$267.2**	**$85.2**

Sources: The Northwest Seaport Alliance, 2025; Port of Seattle, 2025; Port of Tacoma, 2025; Puget Sound Regional Council; 2025; BNSF, 2025; Union Pacific, 2025; Freight Analysis Framework 5.0, 2025; Puget Sound Pilots, 2025; U.S. Coast Guard, 2025; U.S. Customs and Border Protection, 2025; American Railroad Association, 2025; U.S. Railroad Retirement Board, 2025; U.S. Census Bureau, 2025; U.S. Bureau of Labor Statistics, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Community Attributes, 2025.

The NWSA breakbulk, bulk, and other non-containerized cargo shipping activities supported a total of 2,080 jobs in Washington in 2023 (**Exhibit 28**). While employees were paid nearly $174 million in wages and benefits, the industry supported more than $544 million in output. For every 1,000 tons of non-containerized cargo processed by the NWSA, just over 1 job is supported in the state of Washington.

Exhibit 28. NWSA Breakbulk, Bulk, and Other Imports Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	720	440	920	2,080
Total Compensation (mils 2023 $)	$85.2	$32.3	$56.3	$173.8
Business Output (mils 2023 $)	$267.2	$106.8	$170.1	$544.2

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Exhibit 29 presents the total statewide fiscal impacts generated by the NWSA's breakbulk, bulk, and other marine cargo activities. In total, it is estimated that $4.6 million in statewide tax revenues were generated by the NWSA's breakbulk, bulk, and other marine cargo operations.

Exhibit 29. NWSA Breakbulk, Bulk, and Other Imports Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$0.8	$1.3	$2.1
Sales & Use Taxes	$0.0	$2.3	$2.3
Other	$0.0	$0.2	$0.2
Total	**$0.8**	**$3.8**	**$4.6**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Breakbulk, bulk, and other marine cargo activities at the NWSA also support economic and fiscal impacts in cities throughout the region (**Exhibit 30**). Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 30. NWSA Breakbulk, Bulk, and Other Marine Cargo Imports Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	690	$193.8	$68.7	$1.15	$0.79	$1.94
Tacoma	420	$113.2	$34.6	$1.15	$0.58	$1.74
Puyallup	60	$11.8	$4.0	$0.17	$0.06	$0.23
Federal Way	50	$8.2	$2.9	$0.14	$0.05	$0.19
Sumner	40	$10.6	$3.3	$0.07	$0.01	$0.08
Gig Harbor	30	$6.1	$2.1	$0.11	$0.03	$0.13
Bellevue	30	$5.6	$2.1	$0.10	$0.04	$0.14
Kent	20	$6.5	$1.8	$0.10	$0.04	$0.14
DuPont	20	$5.7	$1.8	$0.03	$0.01	$0.04
Redmond	20	$3.6	$1.3	$0.06	$0.02	$0.08

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Economic and Fiscal Impacts

The Northwest Seaport Alliance supported more than 52,100 jobs in the Washington economy in 2023 through their marine cargo services. In total, supported workers earned more than $4.3 billion in total compensation, including benefits, and supported nearly $14 billion in business output throughout the year. The largest contributor to the Washington economy was the containerized cargo segment which accounted for 46,300 jobs, $3.8 billion in total compensation, and $12.5 billion in business output (**Exhibit 31**).

Exhibit 31. NWSA Total Economic Impacts by Activity, Washington, 2023

	Direct	Indirect	Induced	Total
Containerized Cargo				
Jobs	16,100	10,030	20,160	46,290
Total Compensation (mils 2023 $)	$1,845.3	$743.8	$1,240.2	$3,829.2
Business Output (mils 2023 $)	$6,373.7	$2,416.6	$3,748.8	$12,539.1
Autos				
Jobs	1,195	710	1,830	3,735
Total Compensation (mils 2023 $)	$182.3	$52.6	$112.5	$347.4
Business Output (mils 2023 $)	$409.8	$158.4	$340.1	$908.3
Bulk, Breakbulk, and Other				
Jobs	720	440	920	2,080
Total Compensation (mils 2023 $)	$85.2	$32.3	$56.3	$173.8
Business Output (mils 2023 $)	$267.2	$106.8	$170.1	$544.2
Total				
Jobs	18,015	11,180	22,910	52,105
Total Compensation (mils 2023 $)	$2,112.7	$828.7	$1,409.0	$4,350.4
Business Output (mils 2023 $)	$7,050.7	$2,681.8	$4,259.0	$13,991.6

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Similarly, the containerized cargo services run by the NWSA generated the majority of fiscal impacts generated by the NWSA for the state of Washington. The activities contributed $21 million directly to the state of Washington, including the downstream impacts the NWSA activities generated a total of $134 million in state tax revenues (**Exhibit 32**).

Exhibit 32. NWSA Total Fiscal Impacts by Activity, Washington, 2023, Millions

	Direct	Secondary	Total
Containerized Cargo	$21.0	$98.6	$119.6
Autos	$1.7	$8.1	$9.9
Bulk, Breakbulk, and Other	$0.8	$3.8	$4.6
Total	**$23.5**	**$110.5**	**$134.1**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Tacoma and Seattle saw the largest impact supported by the NWSA's operations compared to other cities in the region (**Exhibit 33**). Together, the NWSA's operations were estimated to support nearly 21,800 jobs, nearly $6 billion in business output, and $1.9 billion in total compensation in Tacoma and Seattle. Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and

local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 33. NWSA Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	12,490	$3,396.0	$1,097.7	$31.67	$10.21	$41.88
Seattle	9,300	$2,566.1	$843.9	$22.50	$7.35	$29.86
Sumner	2,210	$666.9	$217.9	$3.25	$0.37	$3.61
Puyallup	1,890	$410.7	$139.7	$4.82	$1.55	$6.37
DuPont	1,270	$392.0	$128.4	$1.60	$0.15	$1.76
Kent	1,240	$392.8	$119.4	$3.21	$0.87	$4.08
Federal Way	1,220	$224.0	$77.7	$3.65	$1.31	$4.96
Fife	950	$297.3	$97.1	$1.44	$0.19	$1.63
Gig Harbor	870	$153.1	$53.5	$2.71	$0.70	$3.41
Bellevue	800	$160.8	$58.5	$2.32	$0.81	$3.13

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

PORT OF TACOMA

The Port of Tacoma, beyond supporting the marine cargo operations of the NWSA, is an important real estate and economic development asset to the region. The Port of Tacoma manages more than 2,700 acres of real estate property, including 2,300 acres of industrially zoned property. As a part of their operations, the Port of Tacoma manages roughly 610,000 square feet in warehousing space and 757,000 square feet of other industrial space. The Port of Tacoma also operates roughly 345,000 square feet of office space. Many of the tenants on those properties directly support the marine cargo operations of The Northwest Seaport Alliance. However, the Port of Tacoma provides land and building space serving both industrial and non-industrial tenants and activities as well. The Fabulich Center provides commercial office space for tenants who provide a wide range of services throughout the region.

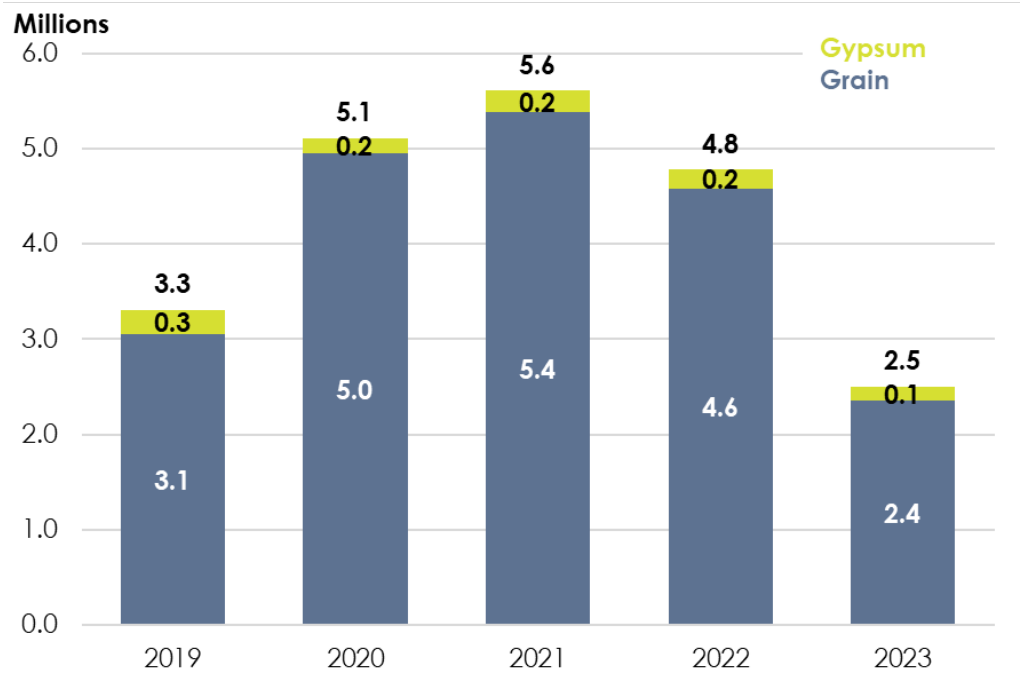
Outside of the NWSA marine cargo operations, the Port of Tacoma also provides bulk cargo operations at the TEMCO Grain Terminal, as well as bulk gypsum operations at Georgia Pacific Gypsum. Additionally, in 2018, the Port of Tacoma began providing auto import operations beyond those

already handled at the NWSA. Auto import operations at the Port of Tacoma reached nearly 163,000 auto units in 2023.

Tenants and Bulk Operations

Exhibit 34 presents marine cargo managed by the Port of Tacoma between 2019 and 2023. Over this period an annual average of more than 4.2 million metric tons of grain and gypsum was handled by the Port of Tacoma. More than 92% of this marine cargo annually was grain. In 2023, gypsum represented 5.8% of all other marine cargo at the Port of Tacoma. In total, approximately 2.5 million metric tons of grain and gypsum in 2023 passed through the Port of Tacoma, a more than 55% decrease from the five-year peak of 5.6 million metric tons in 2021.

Exhibit 34. Other Marine Cargo by Type, Metric Tons, Port of Tacoma, 2019-2023



Sources: Port of Tacoma, 2024; The Northwest Seaport Alliance; Community Attributes Inc., 2025.

In 2023, the Port of Tacoma's other tenants (excluding those supporting marine cargo activities at the NWSA), bulk operations, and Port of Tacoma employment supported 1,850 jobs (**Exhibit 35**) which supported nearly $605 million in business revenue, and nearly $201 million in labor income.

Exhibit 35. Port of Tacoma Tenants and Other Business Direct Impact Estimates by Economic Activity, Washington, 2023

Activity	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023 $)
Services and Non-Industrial Tenants	700	$106.1	$66.9
Bulk Operations	530	$263.4	$70.9
Construction and Resource Operations	300	$78.3	$28.2
Manufacturing	220	$126.6	$17.5
Port of Tacoma Staff	100	$30.5	$17.1
Total	**1,850**	**$604.8**	**$200.5**

Sources: The Northwest Seaport Alliance, 2025; Port of Tacoma, 2025; Puget Sound Regional Council; 2025; BNSF, 2025; Union Pacific, 2025; Freight Analysis Framework 5.0, 2025; Puget Sound Pilots, 2025; U.S. Coast Guard, 2025; U.S. Customs and Border Protection, 2025; American Railroad Association, 2025; U.S. Railroad Retirement Board, 2025; U.S. Census Bureau, 2025; U.S. Bureau of Labor Statistics, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Community Attributes, 2025.

The Port of Tacoma's tenants, excluding those supporting marine cargo activities at the NWSA, and other businesses, which include bulk operations, supported 4,800 jobs throughout the Washington economy in 2023. Total compensation generated by the Port of Tacoma's tenants and other businesses totaled $391 million and business output totaled nearly $1.2 billion in 2023 (**Exhibit 36**).

Exhibit 36. Port of Tacoma Tenants and Other Business Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	1,850	890	2,060	4,800
Total Compensation (mils 2023 $)	$200.5	$63.9	$126.7	$391.1
Business Output (mils 2023 $)	$579.2	$215.2	$382.9	$1,177.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Exhibit 37 presents the Port of Tacoma's tenants and other businesses' total state fiscal impacts generated in 2023. The Port of Tacoma's tenants and other businesses supported $11.3 million in state tax revenues in 2023.

Exhibit 37. Port of Tacoma Tenants and Other Business Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$1.9	$3.2	$5.0
Sales & Use Taxes	$0.0	$5.5	$5.5
Other	$0.0	$0.8	$0.8
Total	**$1.9**	**$9.4**	**$11.3**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Activities at the Port of Tacoma, including tenants and bulk cargo operations support economic and fiscal impacts in cities throughout the region (**Exhibit 38**). Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 38. Port of Tacoma Tenants and Other Business Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

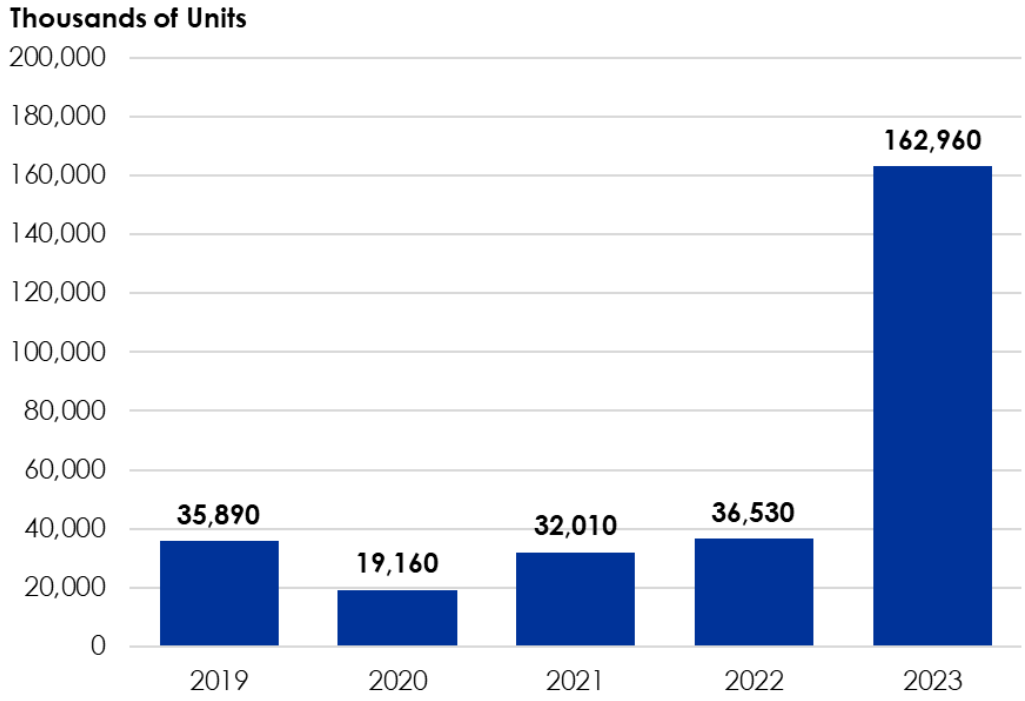
	Economic Impacts			Fiscal Impacts		
City	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	2,120	$568.6	$197.1	$2.92	$1.61	$4.54
Seattle	270	$51.9	$19.1	$0.90	$0.48	$1.38
Puyallup	220	$39.1	$13.6	$0.67	$0.24	$0.92
Bonney Lake	70	$12.2	$4.3	$0.21	$0.06	$0.27
Gig Harbor	60	$10.4	$3.6	$0.18	$0.05	$0.23
Bellevue	50	$10.4	$4.0	$0.18	$0.08	$0.26
Auburn	50	$11.6	$3.6	$0.20	$0.09	$0.29
Renton	40	$11.0	$3.0	$0.19	$0.08	$0.27
Lakewood	40	$7.2	$2.5	$0.12	$0.04	$0.17
Kent	30	$11.4	$2.9	$0.20	$0.09	$0.29

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Automobile Imports

Exhibit 39 shows the total number of automobile units processed by the Port of Tacoma between 2019 and 2023. The Taylor Way Auto Facility opened in 2018 and allows the Port of Tacoma to support auto imports, which are mostly transported to the Midwest by rail.[5] In 2023, the Port of Tacoma handled the import of nearly 163,000 automobile units, representing 48% of all automobile units across the combined total of the NWSA and Port of Tacoma.

Exhibit 39. Automobile Units, Port of Tacoma, 2019 – 2023



Sources: The Northwest Seaport Alliance, 2024; Port of Tacoma, 2024; Community Attributes Inc., 2025.

Automobile import activities at the Port of Tacoma directly supported 1,190 jobs in 2023, in addition to the jobs supported by auto import activities at the NWSA. Rail, truck transportation, and logistics supported 720 jobs. Terminal operations including logistics and accessory installation services, as well as on-site stevedoring personnel and longshoreman totaling 280 jobs supported by the movement of automobiles through the Port of Tacoma in 2023 (**Exhibit 40**). Roughly one job is supported by every 136 automobiles imported through the Port of Tacoma.

[5] https://www.portoftacoma.com/news/auto-processing-facility-emblematic-commitment-clean-waterways

Exhibit 40. Port of Tacoma Automobile Direct Impact Estimates by Economic Activity, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Rail, Truck Transportation, Logistics & Warehousing	720	$226.0	$70.8
Terminal Operations, Stevedoring & Longshoremen	280	$113.8	$46.3
Maritime Support Services	80	$17.3	$8.1
Government	80	$6.6	$14.5
Navigational Services	30	$12.0	$4.1
Total	**1,190**	**$375.6**	**$143.8**

Sources: The Northwest Seaport Alliance, 2025; Port of Tacoma, 2025; Puget Sound Regional Council; 2025; BNSF, 2025; Union Pacific, 2025; Freight Analysis Framework 5.0, 2025; Puget Sound Pilots, 2025; U.S. Coast Guard, 2025; U.S. Customs and Border Protection, 2025; American Railroad Association, 2025; U.S. Railroad Retirement Board, 2025; U.S. Census Bureau, 2025; U.S. Bureau of Labor Statistics, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Community Attributes, 2025.

Throughout the Washington economy the Port of Tacoma's automobile import activity supported more than 3,300 jobs in 2023. More than 1,800 jobs were directly supported or supported through supply chain transactions. In total, workers associated with Port of Tacoma automobile importing activities earned an estimated $284 million in total compensation, while the Port of Tacoma automobile operations supported nearly $799 million in business output in 2023 (**Exhibit 41**).

Exhibit 41. Port of Tacoma Automobile Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	1,190	650	1,500	3,340
Total Compensation (mils 2023 $)	$143.8	$48.2	$92.0	$283.9
Business Output (mils 2023 $)	$375.6	$145.0	$277.9	$798.6

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Total state fiscal impacts generated by the Port of Tacoma's automobile operations totaled an estimated $8.5 million 2023 (**Exhibit 42**).

Exhibit 42. Port of Tacoma Automobile Total State Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$1.6	$2.2	$3.8
Sales & Use Taxes	$0.0	$4.1	$4.1
Other	$0.0	$0.5	$0.5
Total	**$1.6**	**$6.9**	**$8.5**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Activities supporting automobile imports at the Port of Tacoma support economic and fiscal impacts in cities throughout the region (**Exhibit 43**). Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 43. Port of Tacoma Automobile Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

	Economic Impacts			Fiscal Impacts		
City	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	1,130	$290.8	$118.8	$2.49	$1.18	$3.68
Seattle	330	$59.1	$21.8	$1.06	$0.57	$1.63
Sumner	210	$63.7	$20.2	$0.33	$0.02	$0.35
Puyallup	140	$32.6	$10.9	$0.35	$0.10	$0.45
DuPont	120	$38.2	$12.1	$0.18	$0.04	$0.22
Fife	90	$28.8	$9.1	$0.15	$0.01	$0.16
Federal Way	70	$13.1	$4.6	$0.24	$0.09	$0.32
Uninc. Pierce	70	$22.0	$7.1	$0.13	$0.01	$0.14
Gig Harbor	60	$10.0	$3.5	$0.18	$0.05	$0.23
Lakewood	50	$13.3	$4.4	$0.11	$0.02	$0.13

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Economic and Fiscal Impacts

In 2023, the Port of Tacoma's auto imports, bulk operations, and tenant businesses, excluding those supporting marine cargo operations at the NWSA, supported more than 8,100 jobs throughout Washington. Additionally, the Port of Tacoma's operations supported nearly $680 million in total compensation, and nearly $2 billion in business output throughout the state (**Exhibit 44**).

Exhibit 44. Port of Tacoma Total Economic Impacts by Activity, Washington, 2023

	Direct	Indirect	Induced	Total
Tenants and Bulk Operations				
Jobs	1,850	890	2,060	4,800
Total Compensation (mils 2023 $)	$200.5	$63.9	$126.7	$391.1
Business Output (mils 2023 $)	$579.2	$215.2	$382.9	$1,177.3
Autos				
Jobs	1,190	650	1,500	3,340
Total Compensation (mils 2023 $)	$143.8	$48.2	$92.0	$283.9
Business Output (mils 2023 $)	$375.6	$145.0	$277.9	$798.6
Total				
Jobs	3,040	1,540	3,560	8,140
Total Compensation (mils 2023 $)	$344.3	$112.1	$218.6	$675.0
Business Output (mils 2023 $)	$954.8	$360.2	$660.9	$1,975.9

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

In total, these operations at the Port of Tacoma supported nearly $20 million in state taxes (**Exhibit** 45).

Exhibit 45. Port of Tacoma Total Fiscal Impacts by Activity, Washington, 2023, Millions

	Direct	Secondary	Total
Tenants and Bulk Operations	$1.9	$9.4	$11.3
Autos	$1.6	$6.9	$8.5
Total	**$3.5**	**$16.3**	**$19.8**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The Port of Tacoma's economic impacts are concentrated within the City of Tacoma. In 2023, the Port of Tacoma's operations were estimated to support more than 3,200 jobs, $860 million in business output, and $316 million in total compensation within the City of Tacoma (**Exhibit 46**). Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state

and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 46. Port of Tacoma Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Tacoma	3,250	$859.4	$315.9	$5.42	$2.79	$8.21
Seattle	600	$111.0	$40.9	$1.96	$1.05	$3.01
Puyallup	360	$71.7	$24.5	$1.03	$0.35	$1.37
Sumner	210	$63.7	$20.2	$0.33	$0.02	$0.35
DuPont	120	$38.2	$12.1	$0.18	$0.04	$0.22
Gig Harbor	120	$20.4	$7.2	$0.36	$0.09	$0.45
Fife	90	$28.8	$9.1	$0.15	$0.01	$0.16
Lakewood	90	$20.5	$6.9	$0.23	$0.07	$0.30
Federal Way	70	$13.1	$4.6	$0.24	$0.09	$0.32
Bonney Lake	70	$12.2	$4.3	$0.21	$0.06	$0.27

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

PORT OF SEATTLE

The Port of Seattle supports a diverse range of activities throughout King County and Washington. SEA Airport serves as a key asset to Washington, supporting businesses and passengers throughout Washington. The Port of Seattle also supports Washington's growing cruise industry. Additionally, Port of Seattle facilities are critical for commercial fishing, providing facilities for fish processors, moorage for commercial fishing vessels, as well as a wide range of infrastructure that supports the commercial fishing industry. The Port of Seattle also operates recreational marinas, vessel moorage, a grain terminal, and industrial and non-industrial real estate for a diverse array of businesses.

SEA Airport

Key Asset to Washington Business

Firms of all sizes throughout Washington count on the connections that SEA Airport provides, allowing them to conduct business with their customers, vendors, and partners. In addition, the airport links businesses to the top

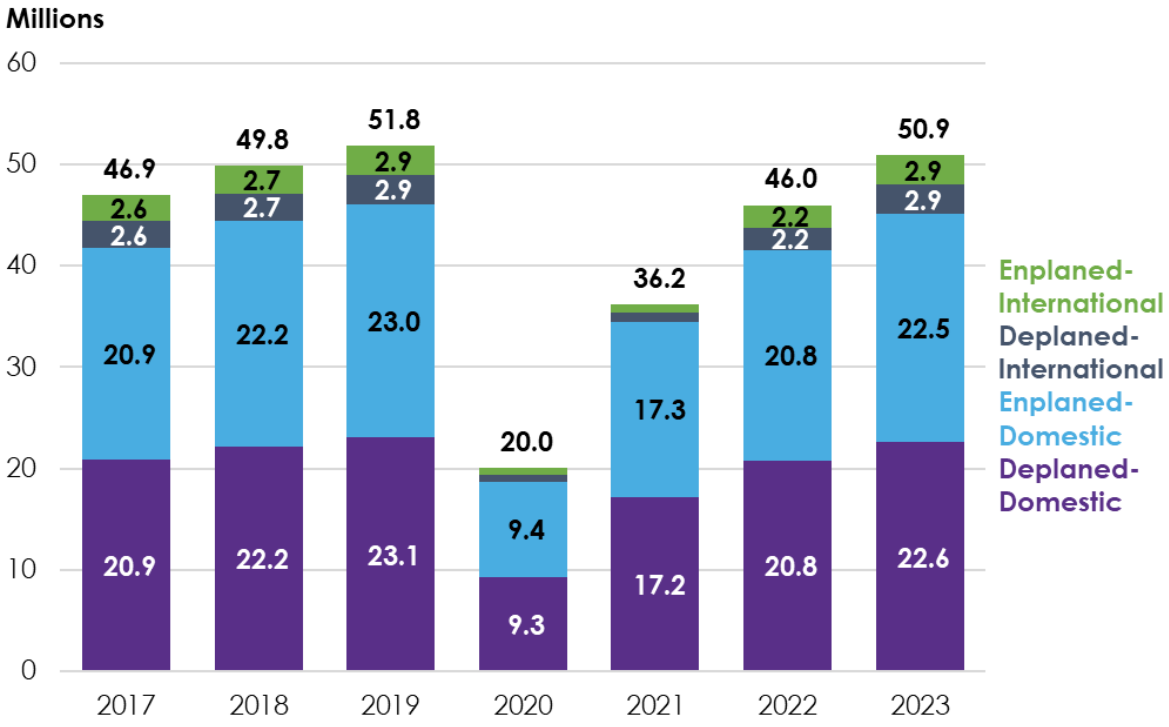
talent they recruit from around the globe. Washington's export industries rely upon access to global markets, facilitated by the airport. The cherry industry remains a prime example of a Washington industry that depends on the airport to transport their goods to global markets.

In 2023, Washington produced roughly 208,000 tons of cherries, of which nearly 19,000 tons were exported through SEA. These exports support jobs, wages, and economic activity in some of Washington's more rural communities in the Yakima Valley and Wenatchee areas.

Passenger Airlines and Services

The airport is served by 10 U.S.-flagged passenger airlines and 26 foreign-flagged passenger airlines as of March 2025. Passenger volume (including enplaning and deplaning) increased from 46 million in 2022 to 50.9 million 2023, an increase of 10.7%, making SEA the 11th busiest airport in the United States by passenger volume (**Exhibit 47**). Approximately 9.5% of nearly 23.0 million departing passengers in 2023 were on international non-stop flights and 90.5% were on domestic flights.

Exhibit 47. SEA Airline Traffic, Passengers Enplaned and Deplaned, 2017–2023



Sources: Port of Seattle, 2024; Community Attributes Inc., 2025

Exhibit 48 shows the distribution of passenger volumes by airline in 2023. Alaska Airlines and Delta Air Lines carried an estimated 39 million

passengers to and from SEA, accounting for nearly 77% of the total passenger volume.

The status of SEA as a major hub for Alaska Airlines and Delta Air Lines is important not only for the national and global route connections that it enables, but for the volume of supporting economic activity that occurs at a hub airport facility. An airline "hub" refers to a strategically located airport where a carrier's major facilities and operations are housed, and where most of its scheduled flights originate from or terminate at. Hub airports are the most efficient way of connecting many destinations and create economies of scale by pooling demand.

Exhibit 48. Passengers by Airline, SEA Airport, 2022 – 2023

Airline Name	Passengers		% Change from 2022
	2022	2023	
Alaska Airlines*	24,962,000	26,770,000	7.2%
Delta Air Lines*	11,190,000	12,372,000	10.6%
United Airlines*	2,240,000	2,548,000	13.7%
American Airlines*	1,912,000	2,224,000	16.3%
Southwest Airlines	2,180,000	2,133,000	-2.2%
Hawaiian Airlines	370,000	356,000	-3.9%
Frontier Airlines	165,000	349,000	111.4%
Air Canada*	251,000	347,000	38.5%
JetBlue Airways	240,000	320,000	33.6%
Spirit Airlines	258,000	315,000	22.0%
EVA Air	80,000	245,000	208.6%
British Airways	184,000	242,000	31.4%
Qatar Airways	201,000	235,000	17.2%
Emirates	184,000	201,000	9.1%
Korean Air	74,000	174,000	135.6%
Turkish Airlines	64,000	173,000	170.3%
Icelandair	157,000	172,000	9.5%
Asiana Airlines	77,000	153,000	98.9%
Lufthansa Airlines	130,000	138,000	5.9%
Volaris	114,000	135,000	18.2%
WestJet	72,000	134,000	86.3%
Aer Lingus	56,000	127,000	126.6%
Virgin Atlantic Airways	81,000	122,000	50.2%
Sun Country Airlines	99,000	121,000	21.7%
Other	622,000	778,000	25.1%
Total	**45,964,000**	**50,885,000**	**10.7%**

Sources: Port of Seattle, 2024; Community Attributes Inc., 2025.
**Note: These passenger numbers are rollups and include subsidiaries and regional partners' passenger volume data.*

Passenger and freight operations require a large number of supporting services at the airport. This work within the passenger services category includes passenger check-in and ticketing, passenger boarding, airline lounge staffing, and baggage assistance. One example is Swissport International. The company operates three lines of business at SEA: fueling, ground handling, and cargo handling. Their ground handling division employs an estimated 800 people, 580 of whom are passenger service agents.

Concessionaires such as restaurants, bars, specialty shops, newspaper stands, and foreign exchange and travel insurance counters occupy leased space in SEA's terminal buildings. These in-terminal retail businesses

capture spending from both visitors to the region and connecting passengers and accordingly support local employment.

Passenger Airlines and Services businesses employed an estimated 7,000 workers at SEA in 2023. These businesses paid $531 million in labor income to their employees and generated $2.6 billion in business revenues.

Airport Services and Business-to-Business Vendors

The Airport Services and Business-to-Business Vendors category includes both government operations and private sector businesses. This category represents activities that do not involve direct customer engagement. Examples include the Port of Seattle Airport Division Staff, the U.S. Transportation Security Administration (TSA), baggage handling and other "back-end" ground handling activities, and airline catering services. **Exhibit 49** reports major employers under this category by airport employment.

Exhibit 49. Major Airport Services and Business-to-Business Vendors at SEA, 2023

Employer	Description of Services	Jobs
Alaska Airlines	Ground handling/cargo	2,300
Federal Agencies	Airport Services	1,700
Delta Air Lines	Ground handling/cargo	1,600
Port of Seattle	Administration	1,200
McGee Air Services	Ground handling/cargo	1,200
Worldwide Flight Services	Ground handling/cargo	900
Swissport	Passenger/ground handling/cargo	800
Unifi Aviation	Passenger/ground handling/cargo	700

Sources: Port of Seattle, 2024; Community Attributes Inc., 2025.
Note: Jobs numbers reflect total jobs for each business at SEA Airport. Only a portion of these jobs are related to ground handling and cargo, some of the total jobs are related to passenger service operations as well.

SEA Airport is owned and operated by the Port of Seattle under their Aviation Division. Airport operations are self-sustaining and do not rely on any local tax dollars. Funds are generated through various fees, such as landing fees and aviation fees, parking revenues, retail revenues, land lease and rental income, passenger facility charges, and federal grants. The Port of Seattle employs more than 1,200 people within the Aviation Division.

There are a number of federal agencies operating at SEA Airport to ensure the safety and security of the facility and its passengers. These include federal agencies such as the U.S. Transportation Security Administration (TSA), U.S. Customs and Border Protection (CBP), the Federal Aviation Administration (FAA), and the Federal Bureau of Investigation (FBI). Their activity is supplemented by state and local government agencies such as the Washington State Patrol. These government agencies perform essential

functions such as screening passengers, directing air traffic, and addressing any border-related issues for international travel.

Business-to-business vendors provide critical airline services between the point at which an aircraft arrives at a terminal gate and its next departure. This includes cabin service, catering, ramp service, fueling, and baggage handling. Alaska Airlines outsources its ground handling at SEA Airport to McGee Air Services.

Together, airport services and business-to-business vendors directly supported 8,000 jobs, $666 million in labor income, and generated more than $2.1 billion in business revenues in 2023.

Ground Transportation

Ground transportation includes car rentals, buses and shuttles, taxi services, rideshare services such as Uber and Lyft, and public transit. In 2023, gross revenues at rental car companies located at the airports rental car facility totaled an estimated $390 million, with the highest sales achieved by EAN Holdings, LLC which includes brands such Alamo, Enterprise, and National.

Exhibit 50. Reported Car Rental Gross Revenues, SEA Airport, 2023

Company	Revenues (millions)
EAN Holdings	$127.7
Budget Rent A Car	$63.4
Hertz Corporation	$61.7
CMC Investments	$55.7
Thrifty Car Rental	$30.7
Sixt Rent A Car	$24.9
Fox Rent-a-Car	$21.2
Payless Car Rental	$4.6
Total	**$389.8**

Sources: Port of Seattle, 2024; Community Attributes Inc., 2025.

Contract Construction and Consulting Services

Capital investments by and related to SEA Airport provide an important stimulus to the local construction industry on an annual basis. The Port of Seattle's aviation division reported in the 2023 budget that $4.6 billion in capital spending is planned for 2023 through 2027. Seven projects represent nearly half, $2.1 billion, of the spending. These projects include:

- North Satellite Renovation & North Satellite Transit Station Lobbies
- Baggage Recapitalization and Optimization
- Main Terminal Improvements
- International Arrivals Facility

- C Concourse Expansion
- S Concourse Evolution
- SEA Gateway.

As of the 2025 budget, the Aviation Division estimates $4.9 billion in capital plan spending from 2025 through 2029, which includes the baggage recapitalization and optimization, main terminal improvements, C concourse expansion, S concourse evolution, and SEA gateway projects listed previously.

There are a total of nine capital improvement projects underway. **Exhibit 51** below describes the largest four by estimated cost. Improvements focus on handling an increased passenger volume throughout all SEA Airport systems. In addition to the projects listed below, the airport is modernizing the underground subway loop, adding another security checkpoint, expanding the roadway up to the airport, and adding restrooms and other amenities to Concourses throughout the facility.

Exhibit 51. Large Capital Improvement Projects Underway at the SEA Airport

Project	Description	Cost (Estimated)	Timeline (Estimated)
S Concourse Evolution	The South Satellite Concourse, now renamed the S Concourse, is the hub for international passengers. To meet growing demand for international travel from the SEA Airport, the project will modernize building systems, improve earthquake resiliency, and add amenities, art, and design elements for passenger wellbeing and comfort.	$1.9-2.2 Billion	2024-2038
Baggage Handling Syste Optimization	In colaboration with the Transportation Security Administration (TSA), the Port of Seattle is optomizing the outbound baggage handling system at the SEA Airport. The system will replace the current conveyor system that is aging, and will allos the airport to meet current and future demand.	$955 Million	2017-2027
SEA Gateway Project	The SEA Gateway Project will reconfigure the terminal north end ticketing area, expand the security checkpoint, and create an updated, light-filled, open space to help passengers move quickly through the terminal.	$546 Million	2022-2026
C Concourse Expansion	The project adds dining, retail, and needed amenities in addition to a new Alaska Airlines Lounge. In total, construction will add 145,000 square feet and turn the Concourse into a state-of-the-art facility.	$399 Million	2023-2026

Source: Port of Seattle, 2025; Community Attributes, 2025.

In 2023, capital investments associated with SEA Airport directly supported an estimated 3,040 jobs, more than $780 million in business revenue and $250 million in wages.

Air Cargo

Air cargo or air freight represents three major stages of service: freight forwarding, ground handling, and air cargo service. Freight forwarding entails air cargo arrangements, logistics, and reserving of space on a freighter or belly of a passenger aircraft for cargo delivery. Ground handling includes on-site warehousing, movement, and loading and unloading of air cargo from aircraft. Air cargo service can be done by belly freight that is loaded onto a passenger aircraft, airline freighters, and express/integrated

freight operations which are vertically integrated and include freight forwarding, ground handling, and air cargo delivery services, such as FedEx.

Exhibit 52 presents the largest carriers of air freight transporting goods through SEA Airport by domestic and international freight. Domestic freight represented nearly 75% of all freight passing through SEA Airport in 2023. In the same year, FedEx and Air Transport International, two major international cargo shipping airlines, carried the largest volume of air freight, primarily carrying domestic freight. Together, they transported more than 225,000 metric tons of air freight, accounting for more than 54% of all air freight processed through SEA Airport in 2023.

Exhibit 52. Air Freight Carriers, SEA Airport, 2023

Airline	Air Freight Volume (metric tons)		
	Domestic	International	Total
Fedex	107,470	12,850	120,320
Air Transport Int'l	105,210	0	105,210
Alaska Airlines (rollup)	37,820	0	37,820
Delta Air Lines (rollup)	12,110	15,320	27,430
ABX Air	24,650	0	24,650
Korean Air	0	11,300	11,300
China Airlines	0	9,870	9,870
Cargolux	0	9,760	9,760
EVA Air	0	9,220	9,220
Asiana Airlines	0	5,630	5,630
British Airways	0	5,600	5,600
All Nippon Airways	0	5,120	5,120
Japan Airlines	0	4,880	4,880
Hawaiian Airlines	4,670	0	4,670
Southwest Airlines (rollup)	3,930	0	3,930
Other	*9,210*	*22,430*	*31,650*
Total Air Freight	**305,070**	**111,980**	**417,060**

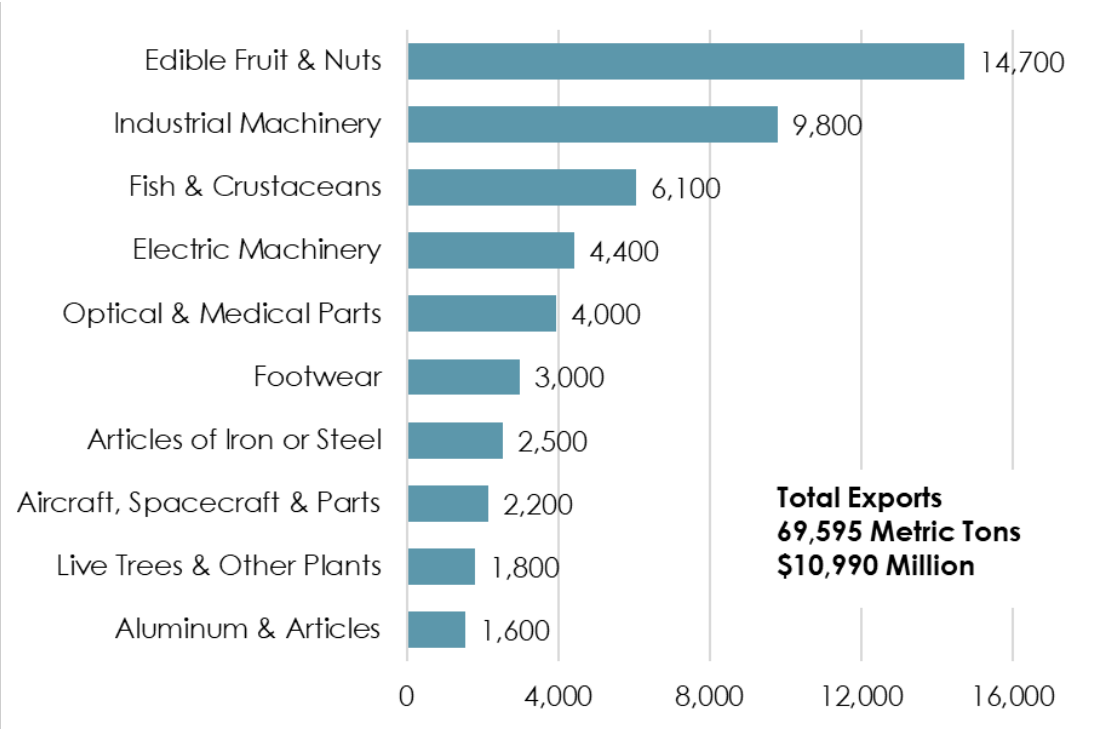
Sources: Port of Seattle, 2024; Community Attributes Inc., 2025.

The most exported air cargo commodities to pass through SEA Airport in 2023 included:

- Edible fruit & nuts - 14,700 metric tons
- Industrial machinery - 9,800 metric tons
- Fish & crustaceans - 6,100 metric tons
- Electric machinery - 4,400 metric tons.

In total, nearly 70,000 metric tons of exports were processed at SEA Airport, or more than $17.8 billion of total export value.

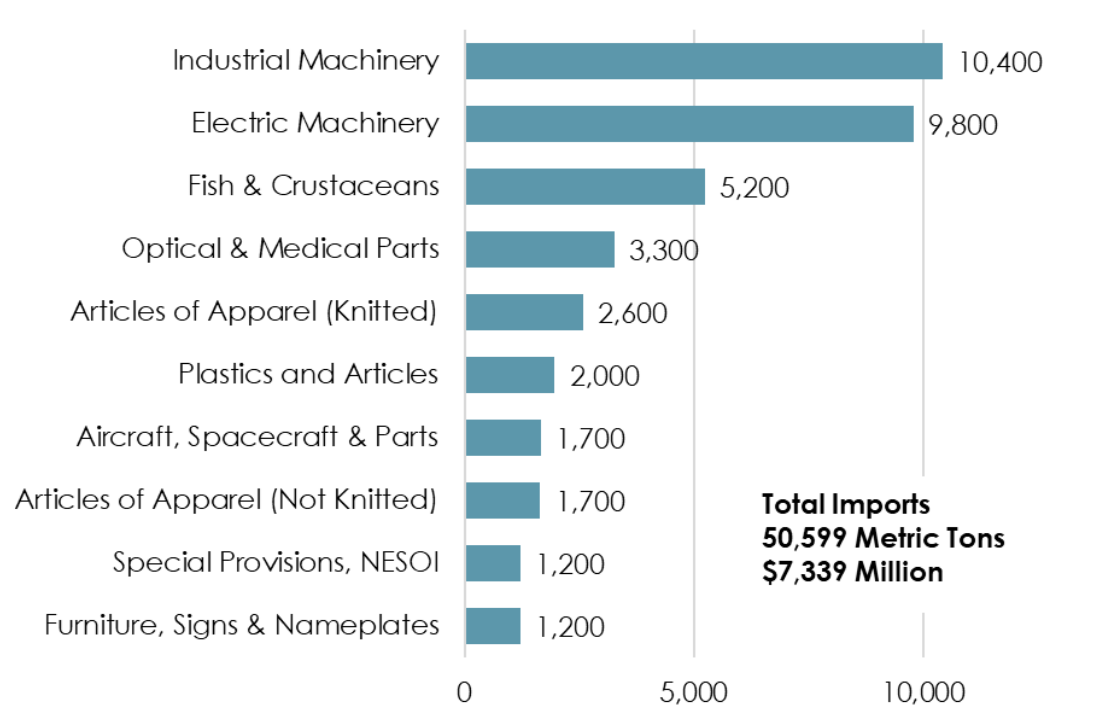
Exhibit 53. Air Cargo Exports by Commodity, Metric Tons, SEA Airport, 2023



Sources: USA Trade Data Online, U.S. Census Bureau; Community Attributes Inc., 2025.

Nearly 50,600 metric tons of imports were processed by SEA Airport in 2023 (**Exhibit 54**). Industrial machinery and electric machinery accounted for 40% of all imported commodities by weight, and nearly 58% of total import value. In total, more than $7.3 billion commodity value in imports was handled through SEA Airport in 2023.

Exhibit 54. Air Cargo Imports by Commodity, Metric Tons, SEA Airport, 2023



Sources: Sources: USA Trade Data Online, U.S. Census Bureau; Community Attributes Inc., 2025.

Visitor Spending

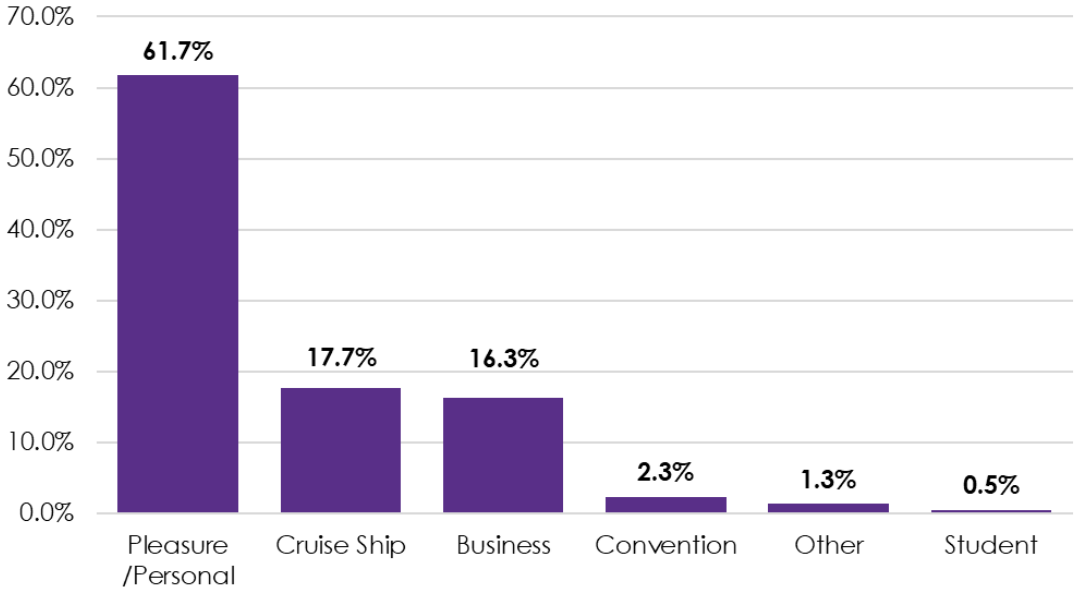
SEA Airport is the primary gateway to the Puget Sound region. Millions of visitors arrive at and depart from the airport annually. These visitors are non-residents whose final destinations are in Washington state. In this study, visitors do not include local residents who are returning home from a trip to another destination or passengers that are only passing through SEA making a connection to another flight.

In 2023, an estimated 11.2 million visitors arrived in Washington state through SEA Airport. Almost 90% of those visitors were domestic travelers while the rest were international travelers.

The Port of Seattle commissioned an in-terminal survey of departing passengers in SEA Airport to estimate the average visitor spending and the total economic impact of domestic and international spending in the region. This in-terminal passenger survey was conducted in September and October 2024 and yielded 1,062 responses.

The survey found that most visitors to the area are non-cruise leisure travelers (61.7%), followed by travelers who came to the region for a cruise (**Exhibit 55**).

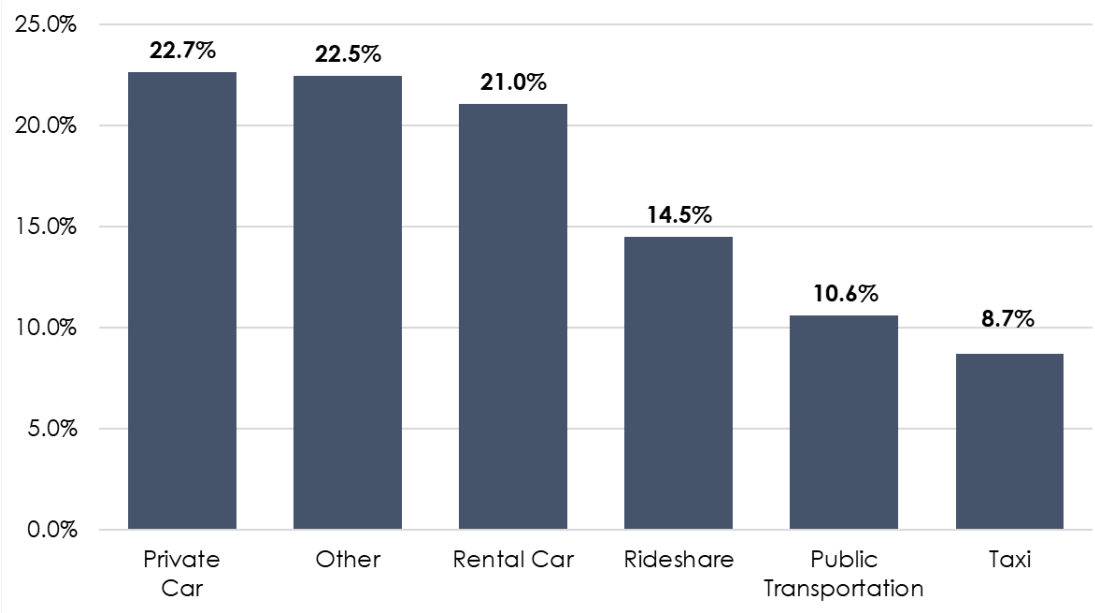
Exhibit 55. Purpose of Stay, 2024



Source: Port of Seattle, 2025; Community Attributes Inc., 2025

The survey also asked visitors how they traveled to SEA Airport. Cars remained the dominant mode of transportation, with nearly 22.7% of visitors traveling by private car, and another 22.5% traveling by an alternative method, usually a hotel or airport shuttle. In addition, 21.0% of visitors rented a car, 14.5% used rideshare apps such as Uber or Lyft, 10.6% used public transit to get to the airport, and 8.7% used a taxi service (**Exhibit 56**).

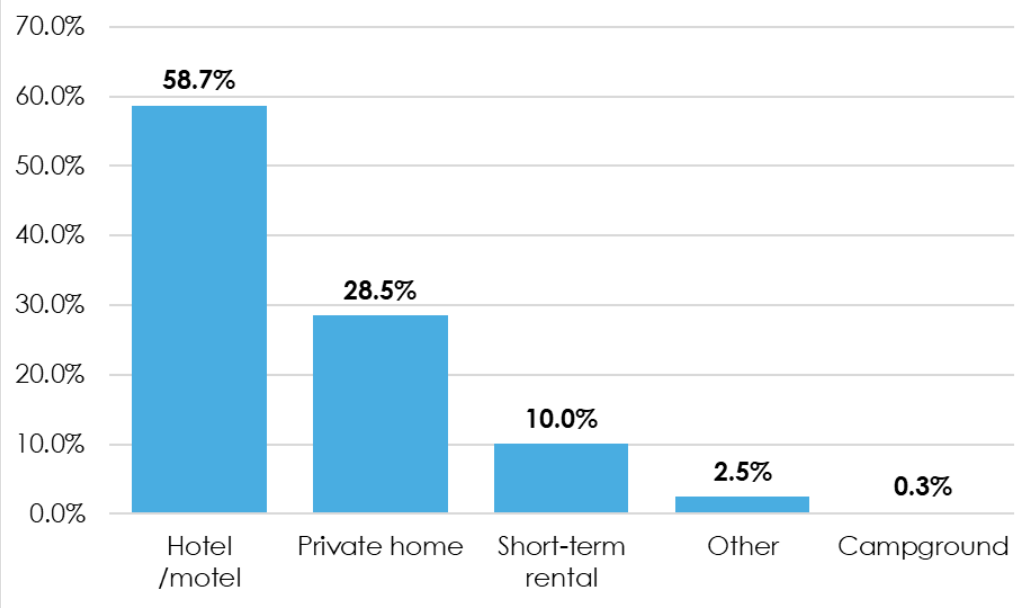
Exhibit 56. Visitor Transportation Mode to SEA Airport, 2024



Source: Port of Seattle, 2025; Community Attributes Inc., 2025

Based on survey results, 59% of respondents stayed at a hotel or motel, while 29% stayed at a private home, either including second residences or the home of family or friends (**Exhibit 57**). An additional 10% stayed at short-term rentals, such as Airbnb.

Exhibit 57. Visitor Lodging Type, 2024



Source: Port of Seattle, 2025; Community Attributes Inc., 2025

International visitors tended to spend more than domestic visitors across all categories. On average, an international visitor spent $1,685 per trip, while a domestic visitor spent $869 per trip. Lodging and food and beverage were the categories with the highest spending, accounting for over half of total trip spending for both domestic and international visitors (**Exhibit 58**).

Exhibit 58. Average Spending per Person Off-Airport by Visitor Type and Expense Category, 2023

Category of Spending	Domestic Visitors	International Visitors	All Visitors
Lodging	$361	$467	$376
Food/Beverage	$243	$582	$289
Rental Car	$71	$159	$83
Entertainment	$70	$138	$79
Retail Purchases	$92	$248	$113
In-Town Cabs or Rideshare	$32	$91	$40
Total	**$869**	**$1,685**	**$979**

Source: Port of Seattle Passenger Survey, 2024; Community Attributes Inc., 2025
Note: Spending is expressed per visitor and per trip.

Direct Impacts

On-Site Airport Activity

Employee counts provided by the Port of Seattle are one method of estimating direct jobs at the airport. The Port of Seattle maintains records of employees who work at the airport, both inside and outside security. This data does not capture ground transportation activities or passenger airline staff and crew who are not based in Seattle.

Port of Seattle employment data show that major employers at SEA Airport include Alaska Airlines and Delta Air Lines—SEA Airport serves as a hub for both airlines—as well as government employers such as the Port of Seattle Aviation Division and federal agencies, and ground handling services such as McGee Air Services, Worldwide Flight Services, and Swissport (**Exhibit 49**).

The organizations located at SEA Airport employed an estimated 21,190 people in 2023 (**Exhibit 59**). Approximately 80% of the jobs directly generated by on-site airport activity are concentrated in the airport services, airlines, and air cargo categories. The direct economic impact of on-site employment on the Washington state economy was $6.5 billion in business revenue and nearly $1.7 billion in labor income in 2023.

Exhibit 59. SEA Airport Direct Impact Estimates, 2023

Segment	Jobs	Business Revenue (mils 2023 $)	Labor Income (mils 2023 $)
On-site Airport Activity	21,190	$6,539.0	$1,694.4
Airport Services and Vendors	7,970	$2,144.8	$665.7
Passenger Airlines and Services	6,980	$2,610.9	$531.5
Contract Const. and Consulting	3,040	$782.7	$250.2
Air Cargo	2,500	$930.0	$228.0
Ground Transportation	700	$70.6	$19.0
Visitor Impacts	73,320	$10,841.6	$3,706.0
Total	**94,510**	**$17,380.5**	**$5,400.3**

Sources: Washington State Employment Security Department, 2025; Washington State Office of Financial Management, 2025; U.S. Bureau of Labor Statistics, 2025; Port of Seattle, 2025; Community Attributes Inc., 2025.

Visitor Impacts

Visitor impacts represent the jobs, total compensation, and business revenues supported through visitor spending on hotel accommodations and retail purchases. The economic impact of visitor spending depends on the amount and category of spending as well as the length of stay. On average visitors to Washington traveling through SEA Airport spent $979 per trip. The 11.1 million visitors spent more than $10.8 billion off-airport in 2023, excluding the spending by visitors traveling for a cruise, which are captured in the visitor spending supported by Seattle's cruise industry. Visitor

spending directly supported 73,320 jobs and approximately $3.7 billion in labor income across the lodging, food/beverage, recreational and entertainment, transportation, and retail sectors.

Economic and Fiscal Impacts

Operations at SEA Airport and visitor spending supported a total of 174,950 jobs throughout the state of Washington in 2023 (**Exhibit 60**). Total compensation supported totaled nearly $10.5 billion, and the SEA Airport supported nearly $33.4 billion in business output throughout the State.

Exhibit 60. SEA Airport Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
On-site Airport Activity				
Jobs	21,190	8,150	17,580	46,920
Total Compensation (mils 2023 $)	$1,694.4	$562.7	$1,081.1	$3,338.2
Business Output (mils 2023 $)	$6,539.0	$2,156.0	$3,268.0	$11,963.0
Visitor Impacts				
Jobs	73,320	16,990	37,720	128,030
Total Compensation (mils 2023 $)	$3,706.0	$1,137.4	$2,320.1	$7,163.5
Business Output (mils 2023 $)	$10,841.6	$3,553.6	$7,013.1	$21,408.3
Total Impacts				
Jobs	94,510	25,140	55,300	174,950
Total Compensation (mils 2023 $)	$5,400.3	$1,700.1	$3,401.3	$10,501.7
Business Output (mils 2023 $)	$17,380.5	$5,709.6	$10,281.1	$33,371.3

Note: Visitor impacts of SEA Airport exclude the spending of visitors traveling for a cruise, which are captured in the visitor impacts of cruise.
Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Activity at the airport and visitor spending throughout Washington supported nearly $342 million in estimated tax revenue to the state, approximately $243 million of which came from visitor spending. Business and occupation taxes totaled $161 million, sales and use taxes revenues were valued at $158 million, while other taxes totaled $22 million in 2023.

Exhibit 61. SEA Airport Total Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
On-site Airport Activity			
B&O	$14.8	$27.3	$42.1
Sales & Use Taxes	$0.3	$48.4	$48.7
Other	$0.0	$7.7	$7.7
Total	**$15.1**	**$83.4**	**$98.5**
Visitor Impacts			
B&O	$61.6	$57.7	$119.3
Sales & Use Taxes	$2.5	$107.3	$109.8
Other	$0.0	$13.9	$13.9
Total	**$64.0**	**$178.9**	**$243.0**
Total			
B&O	$76.4	$85.0	$161.3
Sales & Use Taxes	$2.8	$155.7	$158.4
Other	$0.0	$21.7	$21.7
Total	**$79.1**	**$262.3**	**$341.5**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

SEA Airport supports local economic and fiscal impacts through its onsite operations and visitor spending throughout the region. Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

The City of SeaTac also has a parking tax, which is a special local-option transportation tax for parking in commercial parking areas within the city. This tax is adjusted annually and charged per transaction. Based on information in the City of SeaTac's 2025-2026 Adopted Budget, parking taxes for fiscal year 2023 were more than $11 million.

Exhibit 62 and **Exhibit 63** highlights city-level economic and fiscal impacts supported by on-site airport activities and SEA Airport visitor spending, respectively. SeaTac saw the highest level of supported jobs, business output, and total compensation generated by on-site airport activities in 2023.

Exhibit 62. SEA Airport On-Site Airport Activity Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
SeaTac	21,470	$6,625.5	$1,721.6	$16.57	$0.71	$17.28
Seattle	4,040	$771.8	$261.1	$13.25	$7.07	$20.32
Tacoma	1,350	$253.8	$85.5	$4.36	$2.09	$6.45
Kent	1,170	$275.3	$80.3	$4.73	$2.13	$6.86
Federal Way	1,020	$181.4	$63.1	$3.11	$1.12	$4.23
Tukwila	900	$182.8	$57.8	$3.14	$1.27	$4.41
Auburn	850	$181.0	$56.0	$3.12	$1.35	$4.46
Renton	770	$184.3	$50.9	$3.16	$1.37	$4.53
Bellevue	670	$125.5	$43.8	$2.15	$0.98	$3.13
Puyallup	630	$115.5	$39.7	$1.98	$0.71	$2.70

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Seattle and Tacoma are estimated to have the highest level of supported jobs, business output, and total compensation generated by airport related visitor spending in 2023 (**Exhibit 63**).

Exhibit 63. SEA Airport Visitor Spending Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	22,040	$3,459.3	$1,188.3	$34.48	$17.80	$52.28
Tacoma	13,550	$2,082.3	$705.0	$16.24	$6.47	$22.72
Bellevue	5,540	$821.8	$326.1	$8.05	$3.14	$11.19
SeaTac	4,750	$724.0	$222.5	$5.28	$0.65	$5.93
Tukwila	2,570	$402.0	$120.7	$3.21	$0.81	$4.02
Bothell	2,530	$363.6	$145.3	$2.83	$0.42	$3.25
Redmond	2,200	$344.0	$134.6	$3.91	$1.08	$4.99
Kent	1,880	$342.0	$104.1	$4.32	$1.81	$6.13
Sammamish	1,870	$273.3	$108.4	$2.43	$0.48	$2.90
Woodinville	1,580	$228.5	$91.2	$1.67	$0.20	$1.87

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Exhibit 64 presents the total economic and fiscal impact among the six cities closest to SEA Airport. Economic and fiscal impacts represent the combined impacts of on-site airport activity and visitor spending.

Exhibit 64. SEA Airport Total Economic and Fiscal Impacts, Cities Near Airport, 2023

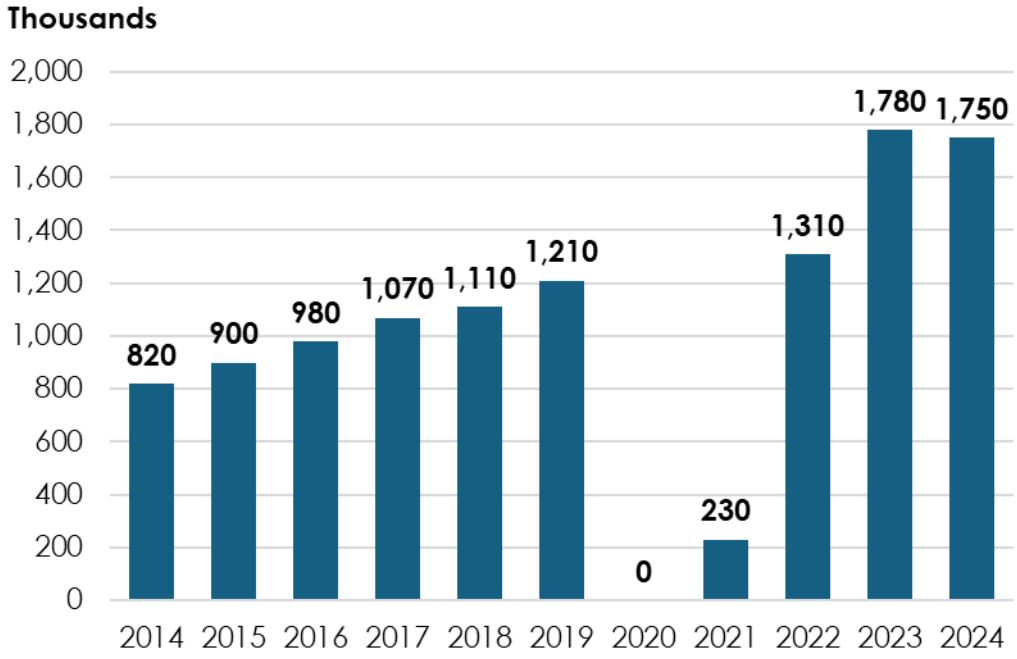
City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
SeaTac	26,220	$7,349.5	$1,944.0	$21.85	$1.36	$23.20
Tukwila	3,470	$584.8	$178.5	$6.35	$2.08	$8.43
Federal Way	2,120	$358.9	$121.5	$6.23	$2.24	$8.47
Des Moines	1,550	$251.8	$82.3	$3.54	$1.69	$5.23
Burien	710	$115.0	$37.9	$0.49	$0.23	$0.72
Normandy Park	245	$39.0	$12.8	$0.56	$0.20	$0.77

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Cruise

In 2024, the Port of Seattle hosted 275 cruise line calls, and is projected to host 300 calls in the 2025 cruise season. **Exhibit 65** outlines the total number of embarked, disembarked, and in transit cruise passengers from 2014 through 2024. No cruises took place in 2020 due to the COVID-19 pandemic and 2021 saw only a partial cruise season. However, by 2022, the number of cruise passengers traveling through the Port of Seattle surpassed pre-2020 levels. This increase was largely driven by an increase in annual vessel calls. From 2014 through 2019, the Port of Seattle averaged 203 cruise ship calls per year, whereas from 2022 to 2024, the average increased to 284 calls. Between 2014 and 2024 total cruise passenger traffic at the Port of Seattle grew by 8% annually, on average.

Exhibit 65. Port of Seattle Cruise Passengers, 2014 - 2024



Sources: Port of Seattle, 2024; Community Attributes Inc., 2025.

Analysis presented in this section draws on data collection on 2023 cruise activities. This data was then used to develop a cruise industry impact model capturing the various types of impacts of cruise operations to the region, such as cruise ship local procurement, onshore services, and cruise passenger onshore spending before and after a cruise. This model was then applied to the 2024 cruise schedule and the projected 2025 cruise schedule using the expected number of vessel calls and passengers. Cruise industry impacts are disaggregated by 1) cruise passenger spending on local goods and services; 2) crew expenditures in the local economy; and 3) cruise operations including payroll, procurement from local vendors, and onshore services. The impact to Washington of crew onboard cruise ships is limited to their expenditures in the local economy and only a small portion of total crew disembark to visit the region during any vessel call.

In 2023, the McKinley Research Group conducted a survey of Alaska cruise passengers about their experiences in Seattle before and after their cruise. More than half of the surveyed passengers spent at least one night in Seattle, primarily before their scheduled departure. On average, each party spent a total of $569 (**Exhibit 66**), with the majority of spending both pre- and post-cruise allocated to lodging and food and beverage.

Exhibit 66. Average Passenger Spending per Party, Cruise Passengers, 2023

Category	Pre-Cruise	Post-Cruise
Lodging	$215	$61
Food and Beverage	$86	$45
Rental Car, Gas, Taxi, Shuttles, Rideshare	$51	$31
Gifts, Souvenirs, Clothing	$24	$11
Tours, Activities, Entertainment	$25	$14
Other	$4	$2
Total Average Spending	**$405**	**$164**

Sources: Port of Seattle Alaska Cruise Passenger Survey, 2023; Community Attributes Inc., 2025.

Passengers were also asked about their lodging plans before and after their cruise (**Exhibit 67**). Most non-residents chose to stay either downtown or near the airport, with some noting they would stay in different locations before and after their cruise.

Exhibit 67. Passenger Lodging Location, Cruise Passengers, 2023

Location	Share
Downtown	62%
Near airport	33%
Bellevue/Redmond	2%
Northgate/Lynnwood	2%
University District	1%
Everett	1%
Marysville	1%
Tacoma	1%
Other	2%
Don't know/refused	9%

Sources: Port of Seattle Alaska Cruise Passenger Survey, 2023; Community Attributes Inc., 2025. NOTE: Total share is greater than 100% due to passengers staying in multiple locations

Exhibit 68 presents the projected direct impacts for the 2025 cruise season based on the most recently published cruise schedule. Projected spending by cruise line visitors in 2025 is estimated to directly generate nearly $166 million in business output and will support an estimated 1,580 jobs, and nearly $71 million in labor income (**Exhibit 68**).

Cruise staff also generate impacts in the local economy through their local spending. Between vessel debarkations and embarkations at homeport and port of call visits, a small proportion of cruise crew spend their earned income on food and beverage, souvenirs, and entertainment. Crew spending

in 2025 is estimated to generate $8.3 million in output, support 110 jobs, and $4.9 million in compensation in Washington (**Exhibit 68**).

In 2025, cruise operation expenditures, including fuel, food and beverage procurement, various onboard accommodation purchases, and maintenance are estimated to sum to $354 million. Various onshore operations provide services for cruises, such as onshore cruise line staff handling boarding and baggage, longshoremen, and Port of Seattle personnel. Additionally, tugboat companies provide inner harbor tug assists along with various maritime support services. In total, the onshore operations supported by the cruise industry in 2025 are estimated to generate business output of nearly $82 million.

Exhibit 68. Port of Seattle Cruise Operations Projected Direct Impact Estimates by Economic Activity, Washington, 2025

Activity	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Passenger Spending	1,580	$165.9	$70.8
On Shore Staff	330	$81.5	$29.4
Maritime Services	160	$47.7	$17.9
Maintenance	120	$47.0	$14.5
Crew Spending	110	$8.3	$4.9
Provisioning	60	$113.3	$4.7
Fuel	20	$194.2	$1.6
Total	**2,380**	**$657.8**	**$143.9**

Sources: Port of Seattle, 2025; Norwegian Cruise Lines, 2025; Caribbean Cruise Lines, 2025; McKinley Group, 2025; Washington State Department of Revenue, 2025; Washington State Employment Security Department, 2025; Washington State Office of Financial Management, 2025; Puget Sound Regional Council, 2025; Community Attributes Inc., 2025.

The Port of Seattle's cruise operations are projected to support 5,120 jobs in 2025. In 2025 the cruise industry is projected to support $1.2 billion in business output. Total compensation is projected to total $327 million in 2025 (**Exhibit 69**).

Exhibit 69. Port of Seattle Cruise Operations Projected Total Economic Impacts, Washington, 2025

	Direct	Indirect	Induced	Total
Jobs	2,380	1,020	1,720	5,120
Total Compensation (mils 2023 $)	$143.9	$76.9	$105.8	$326.6
Business Output (mils 2023 $)	$657.8	$247.1	$319.8	$1,224.7

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

In 2025, it is projected that the Port of Seattle's cruise operations will support more than $11 million in state tax revenues (**Exhibit 70**).

Exhibit 70. Port of Seattle Cruise Operations Projected Total Fiscal Impacts, Washington, 2025, Millions

	Direct	Secondary	Total
B&O	$2.4	$2.9	$5.3
Sales & Use Taxes	$0.0	$5.1	$5.2
Other	$0.0	$0.7	$0.7
Total	**$2.4**	**$8.7**	**$11.1**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Cruise activities supported by the Port of Seattle support economic and fiscal impacts throughout the region through cruise operations and the spending of cruise visitors. **Exhibit 71** shows total economic impacts including direct, indirect, and induced impacts represented by jobs, business output, and total compensation at the city level. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city. The City of SeaTac also has a parking tax, not included in this chart, which is charged per transaction and generated more than $11 million in revenue for the City in 2023.

Exhibit 71. Port of Seattle Cruise Operations Projected Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2025

	Economic Impacts			Fiscal Impacts		
City	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	2,220	$415.0	$165.5	$3.03	$1.84	$4.86
SeaTac	270	$31.0	$23.9	$0.24	$0.06	$0.30
Federal Way	160	$25.8	$8.9	$0.28	$0.08	$0.36
Tacoma	140	$32.2	$9.2	$0.40	$0.19	$0.59
Tukwila	130	$27.9	$7.8	$0.18	$0.05	$0.23
Kent	130	$49.3	$10.0	$0.48	$0.21	$0.70
Bellevue	120	$24.6	$7.8	$0.30	$0.13	$0.44
Renton	100	$42.1	$7.5	$0.38	$0.15	$0.53
Auburn	70	$25.0	$5.4	$0.31	$0.12	$0.44
Uninc. Pierce	70	$19.8	$4.7	$0.21	$0.05	$0.26

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025. Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Commercial Fishing

The Port of Seattle owns and operates three facilities that serve as core assets for the regional fishing industry with Fishermen's Terminal and Terminal 91 serving as the primary long-term moorage facilities and the Maritime Industrial Center serving as an additional short-term and daily moorage facility. These facilities support a range of commercial fishing vessels fishing in Washington and Alaskan fisheries. Fishing vessels of all types utilize Port of Seattle facilities, including seiners, crabbers, trollers, trawlers, longliners, and gillnetters in addition to other fishing vessel types.

To support the ongoing operations of these vessels, various businesses are located within the Port of Seattle's Fishermen's Terminal, Terminal 91, and Maritime Industrial Center. The ecosystem of businesses supporting the commercial fishing and maritime industry overall are located beyond Port of Seattle facilities throughout the Puget Sound Region, with concentrations in the Ballard and SODO neighborhoods of Seattle. These support businesses include equipment wholesalers, maritime associations and service providers, on-dock mechanics and maintenance, and other businesses critical to serving the commercial fishing industry.

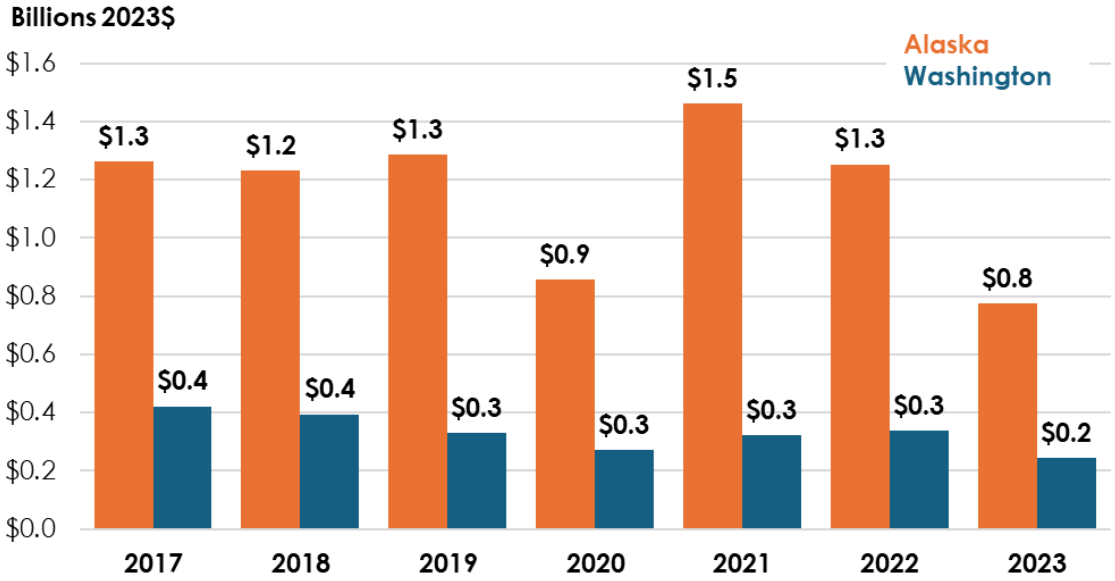
The commercial fishing industry also relies on seafood processing and cold storage operations taking place within the Port of Seattle, in addition to the NWSA's trade operations. In addition to using at-sea processors and Alaskan based processing plants, seafood harvested in Alaskan fisheries will come to Seattle for processing and temporary storage. Additionally, processed seafood will travel through the NWSA in preparation for distribution domestically and internationally. In 2023, the Alaskan Seafood Marketing Institute reported that an estimated half a billion pounds of Alaskan seafood products are shipped by sea to Seattle and Tacoma each year to allow for more competitive rates on northbound freight.[6]

The Port of Seattle supports the commercial fishing industry by providing moorage and support services located within Port owned and operated properties. Since 2017, total revenue from these fisheries has declined, which is reflected in revenues generated by commercial fishing vessels utilizing Port of Seattle facilities. The Alaskan commercial fishing industry was particularly impacted, seeing total earnings decreasing by $700 million from 2021 to 2023 despite total lands in pounds remaining similar (**Exhibit 72**). The large decline in earnings is largely attributed to decreased prices, while the industries' decrease in overall profitability is attributed to increasing

[6] "Alaska Seafood: Overview of Global Supply Chain", Alaska Seafood Marketing Institute and McKinley Research, March 2023.

wages within the industry, higher energy prices, higher interest rates, increased international competition, and shifting consumer behavior.[7]

Exhibit 72. Total Earnings by Fishery, Alaska and Washington, 2017 – 2023



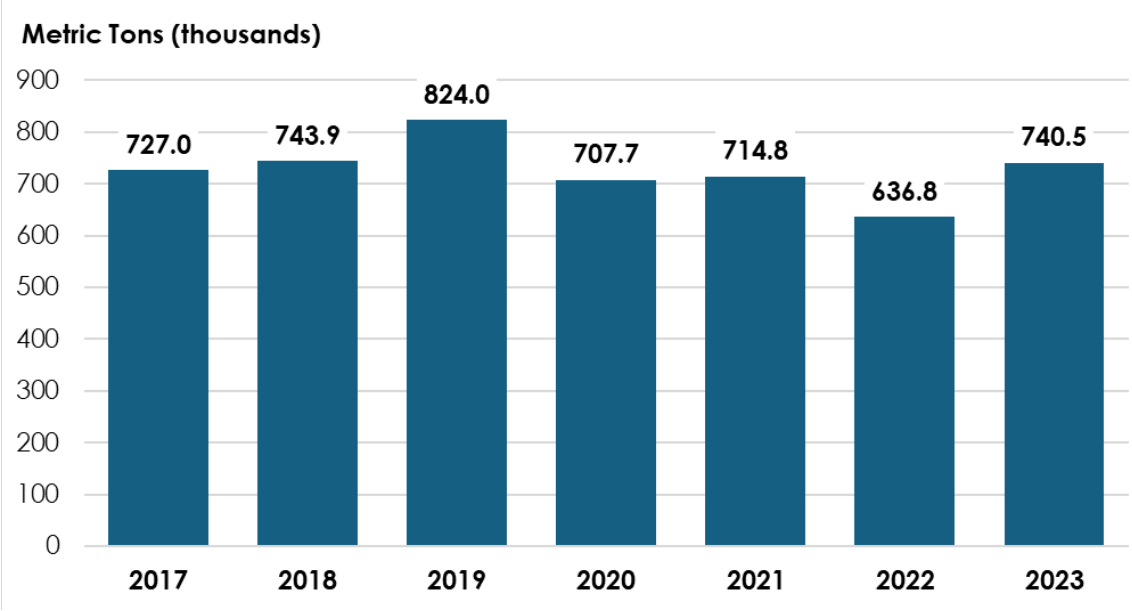
Sources: Commercial Fishing Entry Commission, 2025; NOAA, 2025; Community Attributes Inc., 2025.

In 2023, 275 commercial fishing vessels used Port of Seattle facilities. Roughly 75%, or 209, of these fishing vessels were identified as actively participating in Alaskan fisheries, though many also likely operate in Washington and Oregon during the Alaskan off-season. For example, vessels fishing in the Alaskan pollock fisheries typically participate in Season A, which runs from January through roughly April, then shift to Pacific whiting fisheries in Washington and Oregon before returning for pollock Season B, which begins in May or June. Roughly 60 additional commercial fishing vessels operating elsewhere were identified to have used Port of Seattle facilities in 2023. The analysis assumes the remaining 60 vessels primarily fished in Washington fisheries.

Exhibit 73 presents the total metric tons landed in Alaskan Fisheries from 2017 through 2023 by customers of the Port of Seattle in 2023. In 2023, Port of Seattle customers landed 740,000 metric tons of fish in Alaskan Fisheries.

[7] "Economic Snapshot Shows Alaska Seafood Industry Suffered $1.8 Billion Loss 2022-2023", NOAA, October 9, 2024.

Exhibit 73. Metric Tons Landed by Vessels Using Port of Seattle Facilities in 2023, Alaskan Fisheries, 2017 - 2023



Sources: Alaska Commercial Fishing Entries Commission, 2025; Community Attributes Inc., 2025.

In total, commercial fishing at the Port of Seattle directly supported nearly 5,800 jobs, $418 million in business revenues, and $293 million in labor income in 2023. The majority of these impacts stem from commercial fishing vessels, which accounted for more than 4,400 jobs, $294 million in revenues, and $160 million in labor income (**Exhibit 74**).

Exhibit 74. Port of Seattle Commercial Fishing Direct Impact Estimates, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Commercial Fishing Vessels	4,420	$293.7	$159.9
Alaskan Fisheries	*3,840*	*$255.5*	*$136.6*
Non-Alaskan Fisheries	*580*	*$38.2*	*$23.3*
Port Tenants	1,210	$112.8	$123.0
Port of Seattle	140	$11.6	$10.1
Total	**5,770**	**$418.2**	**$293.0**

Sources: Port of Seattle, 2025; Puget Sound Regional Council, 2025; NOAA, 2025; Alaska Department of Fish and Game, 2025; Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

Throughout the Washington economy, the commercial fishing industry operating at Port of Seattle facilities supported nearly 8,800 jobs, more than $480 million in total compensation, and more than $1.0 billion in business output in 2023 (**Exhibit 75**).

Exhibit 75. Port of Seattle Commercial Fishing Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	5,770	470	2,550	8,790
Total Compensation (mils 2023 $)	$293.0	$34.5	$156.9	$484.4
Business Output (mils 2023 $)	$418.2	$145.9	$474.2	$1,038.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The Port of Seattle's commercial fishing operations are estimated to have supported nearly $11 million in state tax revenues in 2023 (**Exhibit 76**).

Exhibit 76. Port of Seattle Commercial Fishing Total Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$0.9	$3.3	$4.2
Sales & Use Taxes	$0.0	$5.7	$5.7
Other	$0.0	$0.8	$0.8
Total	**$0.9**	**$9.8**	**$10.7**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Commercial fishing activities supported by the Port of Seattle support economic and fiscal impacts throughout the region. **Exhibit 77** shows total economic impacts including direct, indirect, and induced impacts represented by jobs, business output, and total compensation by city. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city.

Exhibit 77. Port of Seattle Commercial Fishing Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	1,970	$240.7	$173.6	$2.32	$1.43	$3.75
Tacoma	160	$28.9	$9.9	$0.51	$0.24	$0.75
Kent	140	$28.0	$8.8	$0.49	$0.22	$0.72
Federal Way	120	$20.5	$7.2	$0.36	$0.13	$0.49
Renton	100	$21.7	$6.7	$0.38	$0.17	$0.55
Puyallup	100	$18.3	$6.4	$0.32	$0.12	$0.44
Auburn	90	$16.9	$5.5	$0.30	$0.13	$0.43
Bonney Lake	50	$9.2	$3.2	$0.16	$0.05	$0.21
Bellevue	50	$9.7	$3.5	$0.17	$0.08	$0.25
Gig Harbor	30	$4.5	$1.6	$0.08	$0.02	$0.10

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Recreational Marinas and Vessel Moorage

The Port of Seattle owns and operates four recreational marinas: Bell Harbor, Harbor Island, Salmon Bay, and Shilshole Bay, as well as offering some recreational moorage access at Fishermen's Terminal.

In addition to providing moorage for recreational vessels, the Port of Seattle's marinas support a broader ecosystem of businesses and tourist attractions, including restaurants, retail, and educational institutions. Shilshole Bay Marina, the Port's largest by capacity, is located near popular destinations such as the Ballard Locks and the National Nordic Museum. Bell Harbor Marina sits in the heart of Seattle's waterfront, offering convenient access to the area's many dining, shopping, and visitor attractions.

Recreational and other vessels generate indirect impacts through spending at the broad ecosystem of maritime businesses at the Port of Seattle and throughout the region. These businesses include boat yards, engine mechanics, boat dealers, boating supply stores, and more.

In 2023, moorage for recreational vessels and related activities supported nearly 515 jobs, $59 million in business revenues, and $42 million in labor income across Port tenants involved in recreational boating, as well as Port of Seattle operations linked to its recreational marinas (**Exhibit 78**).

Exhibit 78. Port of Seattle Recreational Marinas Direct Impact Estimates, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Recreational Marinas	105	$15.9	$9.8
Port of Seattle Staff	410	$42.6	$32.5
Total	**515**	**$58.5**	**$42.3**

Sources: Port of Seattle, 2025; Puget Sound Regional Council, 2025; Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

The Port of Seattle's recreational marinas supported more than 1,000 jobs in the Washington economy in 2023. Total labor compensation supported by the Port's recreational marinas totaled nearly $74 million and supported business output totaled nearly $154 million (**Exhibit 79**).

Exhibit 79. Port of Seattle Recreational Marinas Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	515	110	390	1,015
Total Compensation (mils 2023 $)	$42.3	$7.4	$23.8	$73.5
Business Output (mils 2023 $)	$58.5	$23.3	$71.9	$153.8

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Total fiscal impacts supported by the Port of Seattle's recreational marinas totaled nearly $2.0 million in 2023 for the State of Washington (**Exhibit 80**).

Exhibit 80. Port of Seattle Recreational Marinas Total Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$0.2	$0.6	$0.8
Sales & Use Taxes	$0.0	$1.0	$1.0
Other	$0.0	$0.1	$0.1
Total	**$0.2**	**$1.6**	**$1.9**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The Port of Seattle's recreational marinas and vessel moorage support economic and fiscal impacts throughout the region through recreational marina activities, as well as the downstream impacts of the workers on their local economies. **Exhibit 81** presents the total economic and fiscal impacts associated with recreational marinas by city. Total economic impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic

activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city

Exhibit 81. Port of Seattle Recreational Marinas Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	620	$78.0	$49.4	$0.61	$0.35	$0.97
Tacoma	30	$4.6	$1.6	$0.09	$0.04	$0.13
Kent	20	$3.9	$1.3	$0.07	$0.03	$0.10
Federal Way	20	$3.2	$1.1	$0.06	$0.02	$0.08
Renton	20	$3.0	$1.0	$0.06	$0.02	$0.08
Puyallup	20	$2.8	$1.0	$0.05	$0.02	$0.07
Auburn	10	$2.4	$0.8	$0.05	$0.02	$0.07
Bellevue	10	$2.1	$0.8	$0.04	$0.02	$0.06
Bonney Lake	10	$1.4	$0.5	$0.03	$0.01	$0.03
Redmond	10	$1.1	$0.4	$0.02	$0.01	$0.03

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Tenants and other Businesses

Beyond the operations of the airport, cruise operations, commercial fishing, recreational marinas, the Port of Seattle is also home to an extensive portfolio of real estate assets and tenants. These activities range from the grain facility at Terminal 86, non-maritime industrial and non-industrial tenants, and vessel moorage for barge and tug tenants.

Port of Seattle properties support hundreds of tenants and customers engaged in both maritime and non-maritime activities. These include retailers, restaurants, service providers, research vessels, barge and tug companies, and bulk freight operators, among others.

Barge and tug operators at the Port provide both inter-harbor and long-distance transportation of non-containerized cargo, such as building materials for marine construction, shipments to Alaska, and industrial equipment.

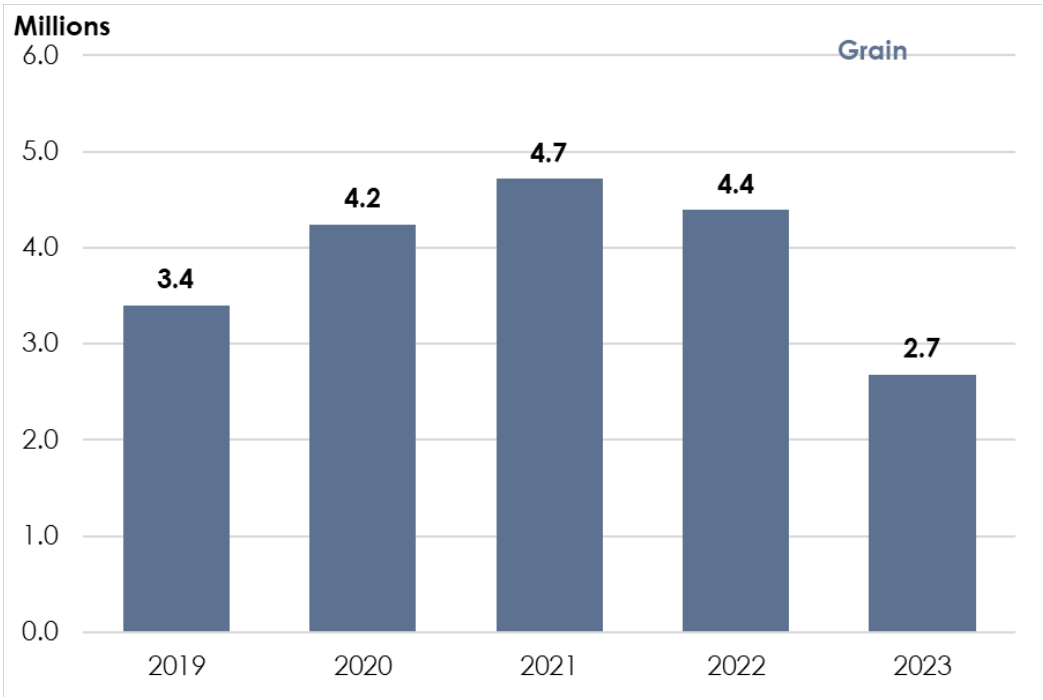
Research vessels also rely on the Port's facilities for seasonal moorage and essential maintenance between missions. In 2023, these included five National Oceanic and Atmospheric Administration (NOAA) vessels, two

University of Washington vessels, and one vessel operated by the University of Alaska Fairbanks. These ships conduct research ranging from ocean mapping to fisheries support.

In addition to maritime support activities, the Port of Seattle owns and leases industrial lands to non-maritime tenants. These tenants include local manufacturers, retail businesses, restaurants, and warehousing operations for non-containerized cargo.

The only marine cargo to be managed by the Port of Seattle between 2019 and 2023 was grain, with 2.7 million metric tons processed in 2023. (**Exhibit 82**).

Exhibit 82. Other Marine Cargo by Type, Metric Tons, Port of Seattle, 2019-2023



Sources: Port of Seattle, 2024; The Northwest Seaport Alliance, 2024; Community Attributes Inc., 2025.

In 2023, Port of Seattle tenants and businesses not captured in direct impacts of other Port of Seattle and marine cargo businesses directly supported approximately 6,550 jobs, nearly $1.5 billion in business revenue, and $663 million in labor income, representing the remainder of the direct economic impacts generated by the Port of Seattle and its tenants (**Exhibit 83**).

Exhibit 83. Port of Seattle Tenants and Other Business Direct Impact Estimates, Washington, 2023

Segment	Jobs	Business Output (mils 2023$)	Labor Income (mils 2023$)
Port of Seattle Tenants	4,780	$991.2	$446.7
Port of Seattle Staff	480	$65.9	$32.3
Vessel Moorage and Barge and Tug Tenants	730	$119.8	$107.9
Bulk Cargo Operations	560	$281.6	$75.8
Total	**6,550**	**$1,458.5**	**$662.7**

Sources: Port of Seattle, 2025; Puget Sound Regional Council, 2025; PMA, 2025; Washington State Employment Security Department, 2025; Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

The Port of Seattle's other operations, encompassing real estate, bulk operations, and other vessel moorage and barge and tug tenants supported roughly $3.1 billion in business revenues, $1.2 billion in total compensation, and more than 15,000 jobs in 2023 throughout Washington State (**Exhibit 84**).

Exhibit 84. Port of Seattle Tenants and Other Business Total Economic Impacts, Washington, 2023

	Direct	Indirect	Induced	Total
Jobs	6,550	2,110	6,360	15,020
Total Compensation (mils 2023 $)	$662.7	$154.4	$391.4	$1,208.5
Business Output (mils 2023 $)	$1,458.5	$502.6	$1,183.1	$3,144.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The Port of Seattle's other operations statewide fiscal impacts include generating roughly $32 million in total tax revenues, primarily representing B&O and sales and use taxes (**Exhibit 85**).

Exhibit 85. Port of Seattle Tenants and Other Business Total Fiscal Impacts, Washington, 2023, Millions

	Direct	Secondary	Total
B&O	$4.7	$9.2	$13.9
Sales & Use Taxes	$0.1	$15.7	$15.8
Other	$0.0	$2.1	$2.1
Total	**$4.8**	**$27.0**	**$31.8**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

Exhibit 86 presents economic and fiscal impacts throughout the region supported by other Port of Seattle tenants and businesses. Total economic

impacts include direct, indirect, and induced impacts represented by jobs, business output, and total compensation. Total fiscal impacts include state and local taxes, which primarily represent state sales and B&O taxes supported by economic activity within each city and local taxes represent the local sales and B&O taxes supported by total economic activity within each city

Exhibit 86. Port of Seattle Tenants and Other Business Total Economic and Fiscal Impacts, Top Ten Cities by Jobs Impact, 2023

City	Economic Impacts			Fiscal Impacts		
	Jobs	Business Output (mils 2023$)	Total Compensation (mils 2023$)	State Taxes (mils 2023$)	Local Taxes (mils 2023$)	Total (mils 2023$)
Seattle	8,270	$1,681.1	$764.6	$10.40	$6.86	$17.26
Tacoma	440	$80.5	$28.5	$1.41	$0.67	$2.08
Kent	360	$77.1	$25.0	$1.34	$0.60	$1.94
Federal Way	300	$53.1	$18.6	$0.93	$0.33	$1.26
Renton	280	$58.5	$19.0	$1.02	$0.44	$1.46
Puyallup	260	$47.4	$16.6	$0.83	$0.30	$1.13
Auburn	230	$46.0	$15.2	$0.80	$0.35	$1.15
Bellevue	210	$39.3	$15.0	$0.69	$0.31	$1.00
Bonney Lake	130	$22.9	$8.0	$0.40	$0.12	$0.52
Redmond	110	$22.3	$8.6	$0.39	$0.14	$0.53

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.
Note: Economic impacts represent total economic impacts including direct, indirect, and induced impacts by city, as well as the state and local taxes generated by direct, indirect, and induced impacts by city.

Economic and Fiscal Impacts

In 2023, the Port of Seattle's total operations supported an estimated 205,000 jobs throughout Washington. Nearly $12.6 billion in total compensation was distributed to the supported jobs, and the Port of Seattle's operations supported nearly $39 billion in business output throughout the state (**Exhibit 87**).

Exhibit 87. Port of Seattle Total Economic Impacts by Activity, Washington, 2023

	Direct	Indirect	Induced	Total
SEA Airport				
Jobs	94,510	25,140	55,300	174,950
Total Compensation (mils 2023 $)	$5,400.3	$1,700.1	$3,401.3	$10,501.7
Business Output (mils 2023 $)	$17,380.5	$5,709.6	$10,281.1	$33,371.3
Cruise				
Jobs	2,230	950	1,610	4,790
Total Compensation (mils 2023 $)	$134.5	$71.6	$98.7	$304.9
Business Output (mils 2023 $)	$613.9	$230.4	$298.5	$1,142.7
Commercial Fishing				
Jobs	5,770	470	2,550	8,790
Total Compensation (mils 2023 $)	$293.0	$34.5	$156.9	$484.4
Business Output (mils 2023 $)	$418.2	$145.9	$474.2	$1,038.3
Recreational Marinas				
Jobs	515	110	390	1,015
Total Compensation (mils 2023 $)	$42.3	$7.4	$23.8	$73.5
Business Output (mils 2023 $)	$58.5	$23.3	$71.9	$153.8
Tenants and Other Businesses				
Jobs	6,550	2,110	6,360	15,020
Total Compensation (mils 2023 $)	$662.7	$154.4	$391.4	$1,208.5
Business Output (mils 2023 $)	$1,458.5	$502.6	$1,183.1	$3,144.3
Total				
Jobs	109,575	28,780	66,210	204,565
Total Compensation (mils 2023 $)	$6,532.9	$1,968.0	$4,072.1	$12,573.0
Business Output (mils 2023 $)	$19,929.6	$6,611.9	$12,308.8	$38,850.3

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

In total, the state of Washington collected nearly $400 million in state taxes as a result of the Port of Seattle's operations (**Exhibit 88**). That includes over $340 million in fiscal impact generated by SEA Airport.

Exhibit 88. Port of Seattle Total Fiscal Impacts by Activity, Washington, 2023, Millions

	Direct	Secondary	Total
SEA Airport	$79.1	$262.3	$341.5
Cruise	$2.3	$8.1	$10.3
Commercial Fishing	$0.9	$9.8	$10.7
Recreational Marinas	$0.2	$1.6	$1.9
Tenants and Other Businesses	$4.8	$27.0	$31.8
Total	**$87.3**	**$308.9**	**$396.2**

Sources: Washington State Office of Financial Management; 2025; Community Attributes Inc., 2025.

The Northwest Seaport Alliance, Port of Tacoma, and Port of Seattle supported nearly 265,000 jobs in the economy in 2023. Together, the organizations supported $17.6 billion in total compensation and generated nearly $55 billion in business output (**Exhibit 89**).

Exhibit 89. Total Economic Impacts of the NWSA, Port of Tacoma, and Port of Seattle, Washington, 2023

	Jobs	Total Compensation (mils 2023 $)	Business Output (mils 2023 $)
The Northwest Seaport Alliance	**52,105**	**$4,350.4**	**$13,991.6**
Containerized Cargo	46,290	$3,829.2	$12,539.1
Autos	3,735	$347.4	$908.3
Bulk, Breakbulk, and Other	2,080	$173.8	$544.2
Port of Tacoma	**8,140**	**$675.0**	**$1,975.9**
Tenants and Bulk Operations	4,800	$391.1	$1,177.3
Autos	3,340	$283.9	$798.6
Port of Seattle	**204,565**	**$12,573.0**	**$38,850.3**
SEA Airport	174,950	$10,501.7	$33,371.3
Cruise	4,790	$304.9	$1,142.7
Commercial Fishing	8,790	$484.4	$1,038.3
Recreational Marinas	1,015	$73.5	$153.8
Tenants and Other Businesses	15,020	$1,208.5	$3,144.3

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

Together, the NWSA, Port of Tacoma, and Port of Seattle helped generate $550 million in state tax revenues in 2023 (**Exhibit 90**).

Exhibit 90. Total Fiscal Impacts of the NWSA, Port of Tacoma, and Port of Seattle, Washington, 2023, Millions

	Direct	Total
The Northwest Seaport Alliance	**$23.5**	**$134.1**
Containerized Cargo	$21.0	$119.6
Autos	$1.7	$9.9
Bulk, Breakbulk, and Other	$0.8	$4.6
Port of Tacoma	**$3.5**	**$19.8**
Tenants and Bulk Operations	$1.6	$8.5
Autos	$1.9	$11.3
Port of Seattle	**$87.3**	**$396.2**
SEA Airport	$79.1	$341.5
Cruise	$2.3	$10.3
Commercial Fishing	$0.9	$10.7
Recreational Marinas	$0.2	$1.9
Tenants and Other Businesses	$4.8	$31.8

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

Domestic and International Trade

Measured by both value and weight, trucks are the most commonly used mode of transportation for imports and exports handled by The Northwest Seaport Alliance (**Exhibit 91**). Trucks carried 68% of imports by both value and weight, and accounted for 64% or more of exports, whether measured by value or weight. Rail represents the second-largest share of imports by weight and value. Multimodal transportation and mail represent the second-largest share for exports by value and weight. Multiple modes and mail refers broadly to intermodal shipments and is not limited to just containerized cargo. The multiple modes and mail category includes goods transported using a combination of modes, such as truck-rail or air-truck, and includes shipments handled by parcel and courier services. The remaining mode categories presented in **Exhibit 91** are mutually exclusive and do not include the goods captured under the multiple modes and mail category. Per the U.S. Bureau of Transportation, multiple modes and mail can include "anything from containerized cargo to coal moving from mine to railhead by truck and rail to harbor. The 'Mail' component recognizes that shippers who use parcel delivery services typically do not know what modes were involved after the shipment was picked up".

Exhibit 91. Mode Distributions for Imports and Exports Entering or Leaving The Northwest Seaport Alliance, 2023

	By Value		By Weight	
	Imports	Exports	Imports	Exports
Truck	68%	69%	68%	64%
Rail	17%	10%	16%	11%
Multiple Modes & Mail	14%	16%	14%	17%
Water	1%	5%	2%	7%
Pipeline	0%	0%	0%	0%
All Modes	100%	100%	100%	100%

Sources: U.S. Bureau of Transportation Statistics FAF5, 2023; Community Attributes Inc., 2025.

Exhibit 92 presents U.S. two-way trade data for imports and exports by major destinations in 2023. Imports moving through the NWSA, measured in kilotons, are most likely to remain in the region or have a final destination within Washington State. In 2023, roughly 53% of all trade flowing through the region remained within the region. Among out-of-state destinations, the most common are the Portland Oregon region, Chicago Illinois Region, and Minneapolis region.

Exhibit 92. United States Two-way Trade for Imports and Exports by Largest Destinations, Containerized Kilotons, Seattle and Tacoma, 2023

Rank	Destination	Kilotons
1	Seattle/Tacoma WA	21,609.1
2	Rest of WA	5,533.5
3	Portland OR-WA (WA Part)	1,682.7
4	Portland OR-WA (OR Part)	1,455.7
5	Chicago IL-IN-WI (IL Part)	1,016.1
6	Minneapolis-St. Paul MN-WI (MN Part)	710.8
7	Rest of OR	608.4
8	Idaho	509.2
9	Alaska	446.8
10	Iowa	437.7
11	Rest of IL	324.6
12	Detroit MI	318.9
13	Rest of MN	265.5
14	Los Angeles CA	260.7
15	Arkansas	248.6
16	Rest of WI	247.7
17	Dallas-Fort Worth TX-OK (TX Part)	230.7
18	Houston TX	206.6
19	North Dakota	204.3
20	Rest of MI	184.9
21	Rest of TX	183.7
22	Atlanta GA	181.9
23	Montana	160.8
24	Las Vegas NV-AZ (NV Part)	152.5
25	Washington DC-VA-MD-WV (DC Part)	148.3

Sources: U.S. Bureau of Transportation Statistics FAF5, 2023; Community Attributes Inc., 2025.

The Seattle/Tacoma region accounted for nearly $20.3 billion in containerized imports and exports in 2023, with an additional $7.3 billion flowing to or from the rest of Washington State—together totaling nearly $28 billion. The Portland metropolitan area was the next largest destination, accounting for $3.8 billion in imports and exports, split between $2.2 billion for the Washington side and $1.6 billion for the Oregon side of the region (**Exhibit 93**).

Exhibit 93. United States Two-way Trade for Imports and Exports by Largest Destinations, Containerized Value, Seattle and Tacoma, 2023

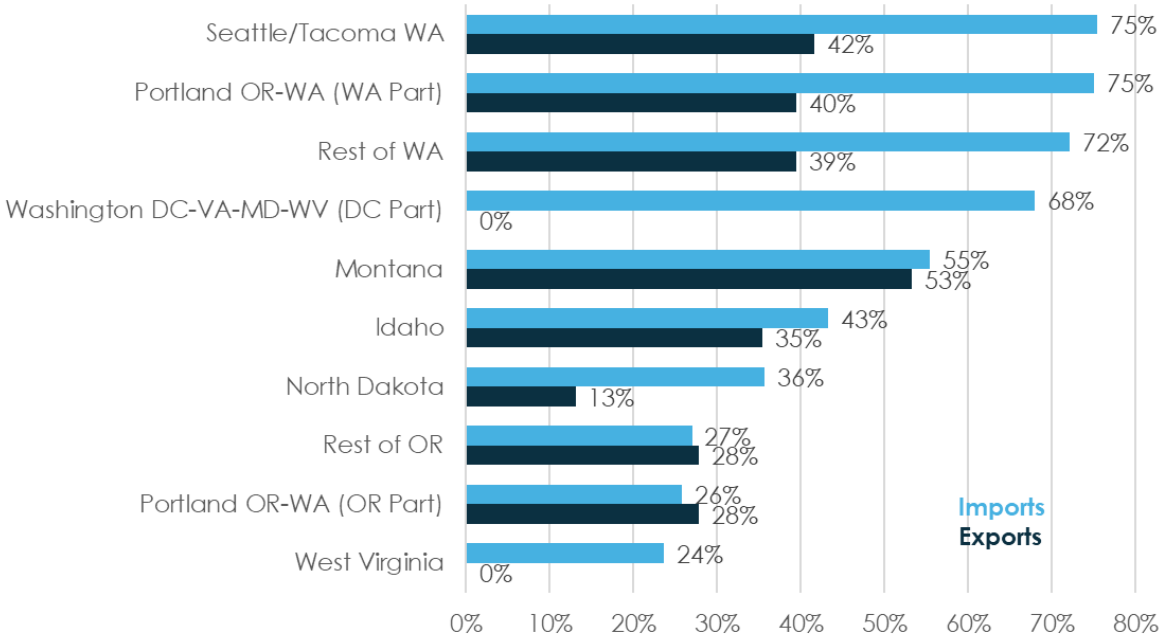
Rank	Destination	Value (millions 2023$)
1	Seattle/Tacoma WA	$20,285.9
2	Rest of WA	$7,295.7
3	Portland OR-WA (WA Part)	$2,151.7
4	Portland OR-WA (OR Part)	$1,609.2
5	Chicago IL-IN-WI (IL Part)	$1,096.6
6	Minneapolis-St. Paul MN-WI (MN Part)	$1,083.0
7	Detroit MI	$934.2
8	Rest of OR	$773.7
9	Rest of MI	$549.6
10	Rest of WI	$517.3
11	Idaho	$488.4
12	Iowa	$459.6
13	Rest of MN	$451.5
14	Los Angeles CA	$411.4
15	Rest of TN	$398.7
16	West Virginia	$374.4
17	Rest of IL	$367.2
18	Alaska	$361.4
19	Cleveland OH	$358.3
20	Rest of MO	$331.9
21	Nashville TN	$319.9
22	Rest of OH	$296.5
23	St. Louis MO-IL (MO Part)	$292.3
24	Atlanta GA	$289.0
25	Milwaukee WI	$287.8

Sources: U.S. Bureau of Transportation Statistics FAF5, 2023; Community Attributes Inc., 2025.

Exhibit 94 presents NWSA market-share value by region. The NWSA handles more than 72% of both the Seattle/Tacoma region's imports as well as the rest of Washington state in terms of value. In addition, the NWSA supports 75% of the Washington portion of the Portland region's imports. The NWSA also moves over half, 55%, of Montana's imports and 53% of Montana's exports.

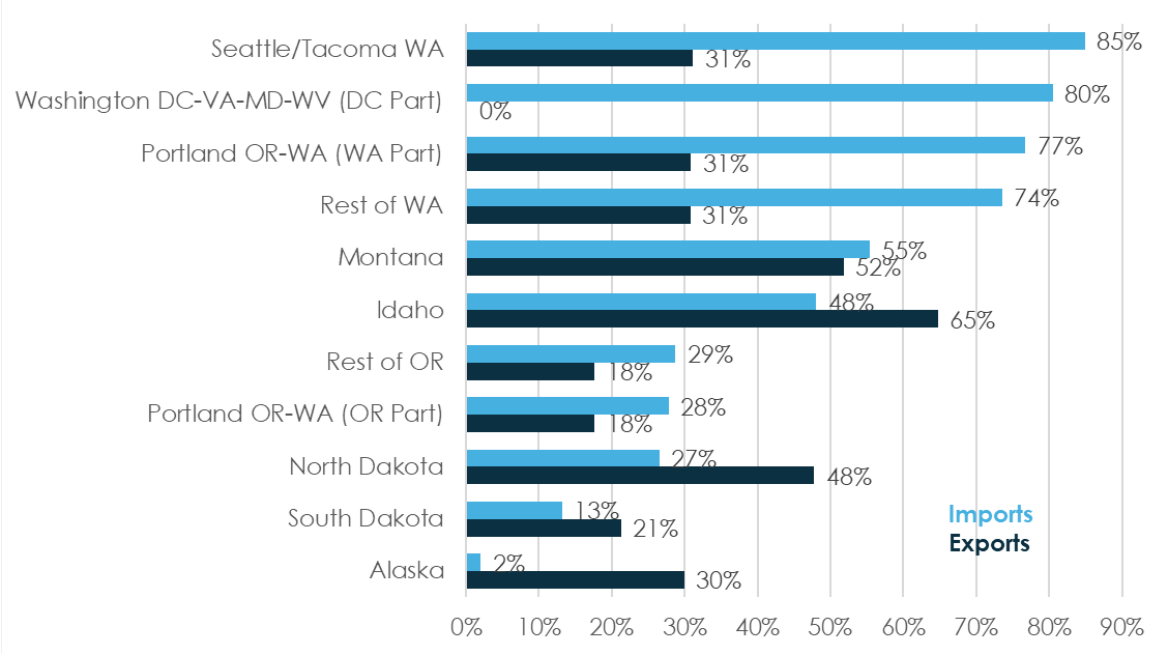
The NWSA handled a greater share of imports by weight for the Seattle/Tacoma Region, Washington DC region, and Washington portion of the Portland region compared to shares of value. The NWSA handles 65% of Idaho's exports by weight, 48% of North Dakota's exports by weight and 30% of Alaska's exports by weight (**Exhibit 95**).

Exhibit 94. Leading United States Regions by NWSA Market-Share Value, Imports and Exports by Percent, 2023



Sources: U.S. Bureau of Transportation Statistics FAF5, 2023; Community Attributes Inc., 2025.

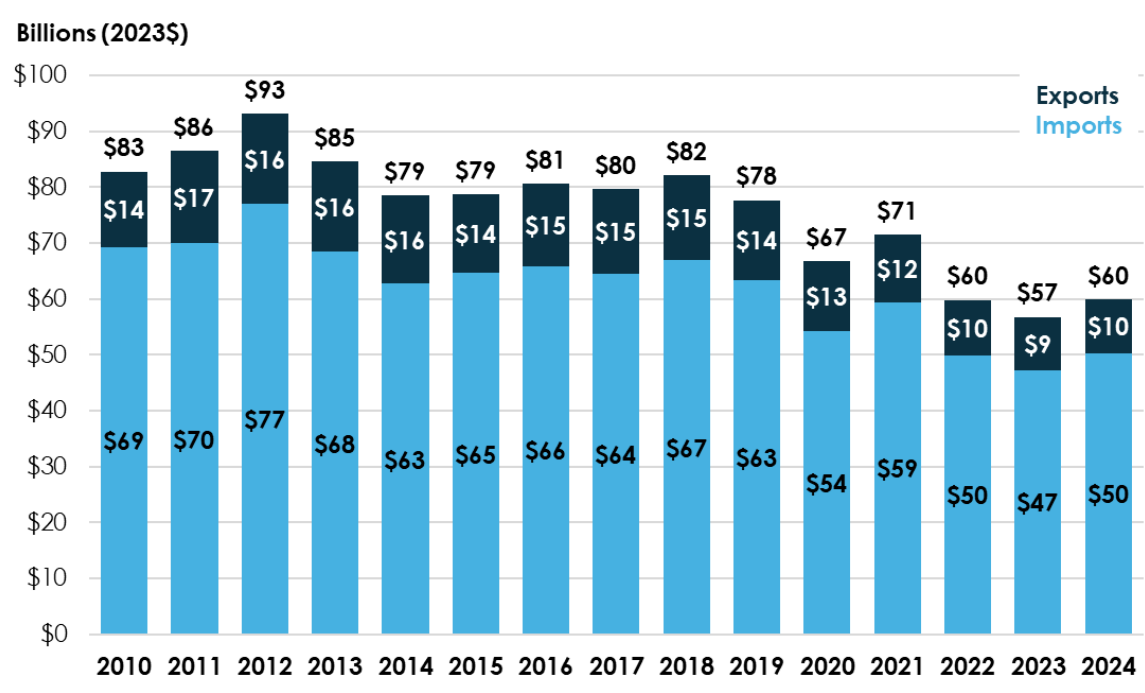
Exhibit 95. Leading United States Regions by NWSA Market-Share Weight, Imports and Exports by Percent, 2023



Sources: U.S. Bureau of Transportation Statistics FAF5, 2023; Community Attributes Inc., 2025.

Containerized cargo values handled by the NWSA rose from 2023 to 2024, growing from $57 billion in combined container value in 2023, to $60 billion in 2024 (**Exhibit 96**). Both import and export volume increased in 2024 from 2023 levels. Containerized imports were valued at $50 billion in 2024 while containerized exports were valued at $10 billion.

Exhibit 96. Value of Imports and Exports, Two-Way Trade, Containerized, Northwest Seaport Alliance, 2009-2024



Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

In 2023, containerized cargo going in or out of the NWSA represented 4% of the total value of U.S. containerized cargo imports and exports. Within Washington state, 77% of the total value of containerized cargo flowing through the state is processed by the NWSA. **Exhibit 97** shows the reliance of midwestern states on the NWSA. Illinois, Indiana, Minnesota, Ohio, Michigan, and Wisconsin each saw more than $1.5 billion of total containerized imports and exports flowing through the NWSA, representing anywhere from 6% to 29% percent of total containerized value entering or leaving the state.

Exhibit 97. Imports and Exports Through the NWSA by State, 2023

State	Containerized Imports through Puget Sound (mils$)	Containerized Exports through Puget Sound (mils$)	Total (mils$)	Share of All Imports and Exports, All Ports
Washington	$18,812.4	$5,008.4	$23,820.8	77%
Illinois	$3,976.3	$428.6	$4,404.9	8%
Oregon	$2,410.5	$1,022.9	$3,433.5	49%
Indiana	$3,299.7	$63.5	$3,363.3	12%
Minnesota	$2,696.5	$551.9	$3,248.4	29%
Ohio	$2,855.0	$74.8	$2,929.8	8%
Michigan	$1,798.7	$83.7	$1,882.5	6%
Wisconsin	$1,438.0	$183.7	$1,621.7	9%
Kentucky	$1,431.4	$28.6	$1,459.9	6%
Tennessee	$1,198.7	$6.4	$1,205.1	3%
California	$1,088.6	$84.9	$1,173.5	1%
Missouri	$659.6	$19.4	$679.0	5%
Iowa	$426.1	$249.4	$675.5	8%
Georgia	$565.7	$11.5	$577.3	1%
West Virginia	$560.9	$1.8	$562.7	18%
Idaho	$319.0	$208.0	$527.0	40%
Alaska	$62.3	$420.1	$482.4	32%
Nebraska	$375.1	$80.8	$456.0	9%
Nevada	$410.8	$1.5	$412.3	4%
Texas	$345.1	$34.0	$379.0	0%
Other States	*$2,594.7*	*$936.6*	*$3,531.3*	1%
Total	**$47,325.1**	**$9,500.7**	**$56,825.8**	**4%**

Sources: WISER, 2025; Community Attributes Inc., 2025.

In 2023, the NWSA processed more than $70.7 billion in marine cargo. The North Harbor accounted for $21.9 billion, primarily in containerized cargo. The South Harbor handled $48.8 billion in total marine cargo, including $36.7 billion in containerized goods and $11.9 billion in bulk, breakbulk, and other cargo types (**Exhibit 98**).

Exhibit 98. Direct Value of Marine Cargo, North and South Harbor, 2023

	Vessel Value (Mils 2023$)
North Harbor	
Containerized Cargo	$19,951
Bulk, Breakbulk, and Other	$1,977
Total	**$21,927.5**
South Harbor	
Autos	$166.2
Containerized Cargo	$36,716
Bulk, Breakbulk, and Other	$11,956
Total	**$48,837.5**
North and South Harbor Total	**$70,765.0**

Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

Economic Impacts

The NWSA is one of the largest economic drivers in the state of Washington, although it is not nearly as large as the information technology and aerospace industries. According to recent industry studies, the technology sector continues to be a major driver of Washington's economy, supporting over 1.5 million workers. In 2024, the aerospace industry directly supported 77,400 jobs, generating $57.2 billion in business output and $19.4 billion in total compensation. Washington state refineries supported an estimated 26,5000 jobs and more than $33 billion in total business output. In comparison, the NWSA supported an estimated 52,000 jobs and $14 billion in business output in 2023 (**Exhibit 99**). Each of these industries, aerospace, refineries, and technology, have completed an economic impact study between 2023 and 2025, allowing for a more appropriate comparison of total economic impacts to the NWSA than less recent studies would allow.

Exhibit 99. Comparison of Direct and Total Economic Impacts Between the NWSA and Other Industry Clusters, Washington State

	Aerospace	State Refineries	Technology	The NWSA
Study Year	2024	2025	2023	2025
Total Jobs	194,000	26,500	1,522,000	52,100
Direct Jobs	77,400	2,155	380,300	18,000
Direct Business Output (mils $)	$57,200	$25,300	$168,400	$7,100
Total Business Output (mils $)	$81,200	$33,400	$384,700	$14,000
Direct Labor Income (mils $)	$11,300	$600	$99,800	$2,100
Total Labor Income (mils $)	$19,400	$2,800	$175,400	$4,400

Sources: Washington State Department of Commerce, "Washington State Refinery Economic Impact Study", February 2025; Seattle Metropolitan Chamber of Commerce, "Aerospace Regional and Local Economic Impacts", July 2024; Washington Technology Industry

Association, "Technology Sector Economic Outlook in Washington State and the Greater Seattle Region", May 2023; Community Attributes Inc., 2015.

The technology industry also generates the largest fiscal impact in Washington, both in direct ($512 million) and total impacts ($4.3 billion). The aerospace industry generated the next highest fiscal impact, directly creating $208.6 in tax revenue, and nearly $487 million in total revenue. State refineries supported nearly $370 million in tax revenues, while the NWSA supported more than $130 million (**Exhibit 100**).

Exhibit 100. Comparison of Direct and Total Fiscal Impacts Between the NWSA and Other Industry Clusters, Washington State

	Study Year	Direct	Total
Aerospace	2024	$208.6	$586.7
State Refineries	2025	$77.4	$367.6
Technology	2023	$512.2	$4,300.0
The NWSA	2025	$23.5	$134.1

Sources: Washington State Department of Commerce, "Washington State Refinery Economic Impact Study", February 2025; Seattle Metropolitan Chamber of Commerce, "Aerospace Regional and Local Economic Impacts", July 2024; Washington Technology Industry Association, "Technology Sector Economic Outlook in Washington State and the Greater Seattle Region", May 2023; Community Attributes Inc., 2015.

Between the North and South Harbors, the NWSA supported more than 52,100 jobs in 2023. The NWSA's North Harbor operations represent roughly 36% of total impacts, while the NWSA's South Harbor operations represent the remaining 64% (**Exhibit 101**).

Exhibit 101. Total Economic Impacts by North and South Harbor, The NWSA, Washington, 2023

	Direct	Indirect	Induced	Total
North Harbor				
Jobs	6,655	4,145	8,350	19,150
Total Compensation (mils 2023 $)	$765.1	$307.0	$513.5	$1,585.5
Business Output (mils 2023 $)	$2,623.9	$998.7	$1,552.2	$5,174.8
South Harbor				
Jobs	11,360	7,035	14,560	32,955
Total Compensation (mils 2023 $)	$1,347.7	$521.7	$895.5	$2,764.8
Business Output (mils 2023 $)	$4,426.8	$1,683.2	$2,706.8	$8,816.8
Total Impacts				
Jobs	18,015	11,180	22,910	52,105
Total Compensation (mils 2023 $)	$2,112.7	$828.7	$1,409.0	$4,350.4
Business Output (mils 2023 $)	$7,050.7	$2,681.8	$4,259.0	$13,991.6

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

Between the North and South Harbors, the NWSA generated more than $134 million in state tax revenue in 2023. The NWSA's North Harbor operations represent roughly 37% of total impacts, while the NWSA's South Harbor operations represent the remaining 63% (**Exhibit 102**).

Exhibit 102. Total Fiscal impacts by North and South Harbor, The NWSA, Washington, 2023, Millions

	Direct	Secondary	Total
North Harbor			
Containerized Cargo	$8.0	$37.7	$45.8
Bulk, Breakbulk, and Other	$0.5	$2.6	$3.2
Total	**$8.6**	**$40.4**	**$49.0**
South Harbor			
Containerized Cargo	$13.0	$60.9	$73.8
Bulk, Breakbulk, and Other	$0.2	$1.2	$1.4
Autos-NWSA	$1.7	$8.1	$9.9
Total	**$15.0**	**$70.2**	**$85.1**
Total Combined Fiscal Impact	**$23.5**	**$110.5**	**$134.1**

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

APPENDIX B. PORT OF TACOMA

In 2023, activities at the Port of Tacoma and the NWSA's South Harbor supported more than 41,000 jobs. These workers earned a combined $3.4 billion in total compensation, and the businesses involved generated nearly $10.8 billion in revenue. Containerized cargo handled by the NWSA accounted for the largest share, supporting 28,575 of those jobs (**Exhibit 103**).

Exhibit 103. Total Economic Impacts for NWSA South Harbor and Port of Tacoma, Washington, 2023

	Direct	Indirect	Induced	Total
Port of Tacoma				
Tenants and Bulk Operations				
Jobs	1,850	890	2,060	4,800
Total Compensation (mils 2023 $)	$200.5	$63.9	$126.7	$391.1
Business Output (mils 2023 $)	$579.2	$215.2	$382.9	$1,177.3
Autos				
Jobs	1,190	650	1,500	3,340
Total Compensation (mils 2023 $)	$143.8	$48.2	$92.0	$283.9
Business Output (mils 2023 $)	$375.6	$145.0	$277.9	$798.6
NWSA South Harbor Impacts				
Containerized Cargo				
Jobs	9,940	6,190	12,445	28,575
Total Compensation (mils 2023 $)	$1,139.0	$459.1	$765.5	$2,363.7
Business Output (mils 2023 $)	$3,934.3	$1,491.7	$2,314.0	$7,740.0
Bulk, Breakbulk, and Other				
Jobs	225	135	285	645
Total Compensation (mils 2023 $)	$26.4	$10.0	$17.4	$53.8
Business Output (mils 2023 $)	$82.7	$33.1	$52.7	$168.5
Autos				
Jobs	1,195	710	1,830	3,735
Total Compensation (mils 2023 $)	$182.3	$52.6	$112.5	$347.4
Business Output (mils 2023 $)	$409.8	$158.4	$340.1	$908.3
Port of Tacoma and NWSA South Harbor				
Total Impact				
Jobs	14,400	8,575	18,120	41,095
Total Compensation (mils 2023 $)	$1,692.0	$633.8	$1,114.1	$3,439.9
Business Output (mils 2023 $)	$5,381.6	$2,043.4	$3,367.6	$10,792.7

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

In 2023, activities at the Port of Tacoma and the NWSA's South Harbor generated more than $104.9 million in total state fiscal impacts in 2023. The Port of Tacoma generated $19.8 million in fiscal impact, while NWSA South Harbor activities accounted for $85.1 million in taxes generated (**Exhibit 104)**.

Exhibit 104. Total Fiscal Impacts for NWSA South Harbor and Port of Tacoma, Washington, 2023, Millions

	Direct	Secondary	Total
Port of Tacoma			
Tenants and Bulk Operations	$1.6	$6.9	$8.5
Autos	$1.9	$9.4	$11.3
Total	**$3.5**	**$16.3**	**$19.8**
NWSA South Harbor			
Containerized Cargo	$13.0	$60.9	$73.8
Bulk, Breakbulk, and Other	$0.2	$1.2	$1.4
Autos	$1.7	$8.1	$9.9
Total	**$15.0**	**$70.2**	**$85.1**
Total Combined Fiscal Impacts	**$18.4**	**$86.4**	**$104.9**

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

APPENDIX C. PORT OF SEATTLE

Economic Impacts

Exhibit 105 presents the total economic impacts of capital improvement projects at the Port of Seattle in 2023 by division. In total, capital improvement spending supported more than 8,000 jobs, $570 million in total compensation, and nearly $1.8 billion in business output. Airport division capital improvement projects represent the majority of these impacts, followed by maritime division capital improvement projects and economic development division projects.

Exhibit 105. Total Economic Impacts of Capital Improvement Projects by Division, Port of Seattle, 2023

	Direct	Indirect	Induced	Total
Maritime				
Jobs	160	90	180	430
Total Compensation (mils 2023 $)	$17.8	$5.6	$11.2	$34.6
Business Output (mils 2023 $)	$40.7	$18.2	$33.9	$92.7
Economic Development				
Jobs	20	10	20	50
Total Compensation (mils 2023 $)	$1.9	$0.6	$1.2	$3.7
Business Output (mils 2023 $)	$4.4	$2.0	$3.7	$10.0
Airport				
Jobs	3,040	1,700	2,810	7,550
Total Compensation (mils 2023 $)	$250.5	$109.8	$172.6	$533.0
Business Output (mils 2023 $)	$783.9	$361.3	$521.8	$1,667.0
Total Capital Investment Impacts				
Jobs	3,220	1,800	3,010	8,030
Total Compensation (mils 2023 $)	$270.3	$116.0	$185.0	$571.3
Business Output (mils 2023 $)	$828.9	$381.4	$559.3	$1,769.7

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

In total, the Port of Seattle's business lines plus the NWSA's North Harbor activities created a total economic impact of 224,000 jobs in the Washington economy. Those jobs paid $14.2 billion in compensation and supported an estimated $44.1 billion in business output. The Port of Seattle supported a total of nearly 205,000 jobs in 2023, for which the employees earned $12.6 billion in compensation while they generated $39 billion in business output. The NWSA's North Harbor operations supported more than 19,000 jobs, $1.6 billion total compensation, and nearly $5.2 billion business output in 2023 (**Exhibit 106**).

Exhibit 106. Total Economic Impacts of the NWSA North Harbor Operations Plus all Port of Seattle Business Lines, Washington, 2023

	Jobs	Total Compensation (mils 2023 $)	Business Output (mils 2023 $)
Port of Seattle	**204,565**	**$12,573.0**	**$38,850.3**
SEA Airport	174,950	$10,501.7	$33,371.3
Cruise	4,790	$304.9	$1,142.7
Commercial Fishing	8,790	$484.4	$1,038.3
Recreational Marinas	1,015	$73.5	$153.8
Tenants and Other Businesses	15,020	$1,208.5	$3,144.3
The NWSA North Harbor	**19,150**	**$1,585.5**	**$5,174.8**
Containerized Cargo	17,715	$1,465.6	$4,799.1
Bulk, Breakbulk, and Other	1,435	$120.0	$375.7
Port of Seattle and the NWSA North Harbor	**223,715**	**$14,158.5**	**$44,025.1**

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

In total, the Port of Seattle's business lines plus the NWSA's North Harbor activities created a total fiscal impact of $445.2 million in Washington state. Port of Seattle operations accounted for over $396 million in state fiscal impacts, while NWSA North Harbor operations made up the other $49.0 million in fiscal impact (**Exhibit 107**).

Exhibit 107. Total Fiscal Impacts of the NWSA North Harbor Operations Plus all Port of Seattle Business Lines, Washington, 2023, Millions

	Direct	Secondary	Total
Port of Seattle			
SEA Airport	$79.1	$262.3	$341.5
Commercial Fishing	$0.9	$9.8	$10.7
Recreational Marinas	$0.2	$1.6	$1.9
Cruise (2023)	$2.3	$8.1	$10.3
Tenants and Other Businesses	$4.8	$27.0	$31.8
Total	**$87.3**	**$308.9**	**$396.2**
NWSA North Harbor			
Containerized Cargo	$8.0	$37.7	$45.8
Bulk, Breakbulk, and Other	$0.5	$2.6	$3.2
Total	**$8.6**	**$40.4**	**$49.0**
Total Combined Fiscal Impacts	**$95.9**	**$349.2**	**$445.2**

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

SEA Airport

Passenger and Cargo Destinations

West Coast destinations were the most popular for domestic passenger flights in 2023, with Portland (4.7%), Los Angeles (4.2%), and Anchorage (4.1%) ranking as the top three. In total, more than 182,000 domestic flights departed from SEA Airport that year (**Exhibit 108**).

Exhibit 108. Domestic Passenger Destinations, SEA Airport, 2023

Destination	Number of Departures	Share
Portland Int'l, OR	8,596	4.7%
Los Angeles, CA - Int'l	7,688	4.2%
Anchorage, AK	7,524	4.1%
Spokane, WA	7,135	3.9%
Phoenix, AZ - Sky Harbor Int'l	6,941	3.8%
Las Vegas, NV	6,903	3.8%
San Francisco - Int'l Airport, SA	6,713	3.7%
Denver International Airport, CO	6,656	3.7%
Boise, ID	5,590	3.1%
Chicago O'Hare Int'l Airport, IL	4,954	2.7%
San Jose, CA	4,930	2.7%
San Diego - Lindberg Field Int'l, CA	4,681	2.6%
Sacramento, CA	4,663	2.6%
Orange County (Santa Ana), CA	4,179	2.3%
Dallas/Ft. Worth, TX	4,133	2.3%
Salt Lake City, UT	3,684	2.0%
Atlanta, Hartsfield Atlanta Int'l Airport	3,522	1.9%
New York - John F. Kennedy, NY	3,135	1.7%
Minneapolis - St. Paul Int'l Airport, MN	2,998	1.7%
Oakland, CA	2,870	1.6%
Pasco, WA	2,739	1.5%
Honolulu, HI	2,728	1.5%
Redmond, OR	2,688	1.5%
Boston - Logan, MA	2,625	1.4%
Eugene, OR	2,437	1.3%
Other	*61,388*	*33.7%*
Total	**182,100**	**100.0%**

Sources: Port of Seattle, 2025; Community Attributes Inc., 2025.

Vancouver, Canada, was the most popular international destination from SEA Airport in 2023, accounting for nearly 28% of total international departures. Combined flights destined for Portland and Vancouver totaled nearly 14,000 departures in 2023, representing nearly 7% of all flights leaving SEA Airport. It was the only destination to represent more than 10%. London, Tokyo, and Seoul followed as the next most common international

destinations. In total, there were 18,700 international departures from SEA Airport in 2023 (**Exhibit 109**).

Exhibit 109. International Passenger Destinations, SEA Airport, 2023

Destination	Number of Departures	Share
Vancouver, Canada	5,210	27.9%
London, United Kingdom	1,568	8.4%
Tokyo, Japan	1,095	5.9%
Seoul, South Korea	1,025	5.5%
Calgary, Canada	790	4.2%
Cancun, Mexico	766	4.1%
San Jose del Cabo, Mexico	721	3.9%
Paris, France	601	3.2%
Amsterdam, Netherlands	582	3.1%
Puerto Vallarta, Mexico	524	2.8%
Toronto, Canada	513	2.7%
Victoria, Canada	510	2.7%
Frankfurt, Germany	494	2.6%
Reykjavik, Iceland	481	2.6%
Mexico City, Mexico	443	2.4%
Guadalajara, Mexico	427	2.3%
Taipei, Taiwan	389	2.1%
Doha, Qatar	365	2.0%
Dubai, United Arab Emirates	356	1.9%
Edmonton, Canada	334	1.8%
Istanbul, Turkey	329	1.8%
Dublin, Ireland	284	1.5%
Montreal, Canada	207	1.1%
Changi, Singapore	156	0.8%
Shanghai, China	133	0.7%
Other	*397*	*2.0%*
Total	**18,700**	**100.0%**

Sources: Port of Seattle, 2025; Community Attributes Inc., 2025.

China was the top destination for international air cargo exports from SEA Airport in 2023, with nearly $1.8 billion in exports. The United Kingdom followed, accounting for over $1.6 billion (15%), while Ireland represented nearly $970 million in air cargo exports. In total, $11 billion in air cargo exports departed from the airport in 2023 (**Exhibit 110**). These rankings shifted in 2024, with China falling behind Malaysia, Vietnam, and the United Kingdom as the leading cargo destinations served by SEA Airport.

Exhibit 110. International Cargo Destinations by Value, SEA Airport, 2023

Destination	Value (millions 2023$)	Share
China	$1,798.2	16.4%
United Kingdom	$1,653.3	15.0%
Ireland	$969.5	8.8%
Malaysia	$686.8	6.2%
Singapore	$592.2	5.4%
Canada	$535.1	4.9%
Netherlands	$503.0	4.6%
Japan	$500.2	4.6%
Taiwan	$485.3	4.4%
Germany	$401.8	3.7%
Korea, South	$346.2	3.2%
Vietnam	$273.5	2.5%
France	$258.3	2.4%
India	$215.3	2.0%
United Arab Emirates	$159.5	1.5%
Switzerland	$158.4	1.4%
Hong Kong	$128.3	1.2%
Australia	$119.0	1.1%
Thailand	$116.9	1.1%
Israel	$110.8	1.0%
Italy	$106.1	1.0%
Spain	$101.2	0.9%
Turkey	$67.8	0.6%
Saudi Arabia	$64.8	0.6%
Poland	$63.5	0.6%
Other	*$574.1*	*5.2%*
Total	**$10,989.3**	**100.0%**

Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

SEA Airport shipped nearly 70,000 metric tons of international air cargo in 2023. China was the leading destination by volume, accounting for almost 10,000 tons. Other notable destinations included the United Kingdom (9.4%), South Korea (7.9%), Vietnam (7.8%), Canada (7.1%), and the Netherlands (6.8%) (**Exhibit 111**).

Exhibit 111. International Cargo Destinations by Metric Tons, SEA Airport, 2023

Destination	Metric Tons	Share
China	9,980.3	14.3%
United Kingdom	6,530.6	9.4%
Korea, South	5,466.3	7.9%
Vietnam	5,452.7	7.8%
Canada	4,960.4	7.1%
Netherlands	4,712.6	6.8%
Taiwan	4,222.3	6.1%
Hong Kong	3,687.4	5.3%
Japan	3,251.5	4.7%
Singapore	2,467.9	3.5%
Germany	2,420.6	3.5%
Malaysia	2,095.4	3.0%
France	1,427.7	2.1%
Australia	1,246.1	1.8%
United Arab Emirates	1,056.0	1.5%
India	971.6	1.4%
Ireland	908.8	1.3%
Thailand	838.5	1.2%
Italy	704.7	1.0%
Indonesia	678.1	1.0%
Turkey	538.2	0.8%
Spain	519.4	0.7%
Poland	465.5	0.7%
Philippines	433.1	0.6%
Saudi Arabia	349.4	0.5%
Other	*4,210.3*	*6.0%*
Total	**69,595.2**	**100.0%**

Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

SEA Airport received more than $7.3 billion in imports in 2023. In terms of value, Japan imported the most air cargo through SEA Airport, representing 13.5% of total air cargo imports handled by SEA Airport (**Exhibit 112**).

Exhibit 112. International Cargo Origins by Value, SEA Airport, 2023

Destination	Value (millions 2023$)	Share
Japan	$1,484.5	13.5%
Taiwan	$981.9	8.9%
Germany	$526.8	4.8%
Ireland	$488.6	4.4%
China	$465.2	4.2%
Netherlands	$454.7	4.1%
United Kingdom	$402.0	3.7%
France	$305.5	2.8%
Korea, South	$214.8	2.0%
Italy	$181.2	1.6%
Vietnam	$176.8	1.6%
Malaysia	$169.1	1.5%
Switzerland	$145.3	1.3%
Singapore	$144.8	1.3%
Thailand	$143.7	1.3%
Philippines	$129.9	1.2%
Austria	$126.9	1.2%
Israel	$83.9	0.8%
India	$65.2	0.6%
Norway	$64.5	0.6%
Spain	$61.9	0.6%
Sweden	$48.5	0.4%
Indonesia	$44.4	0.4%
Poland	$40.2	0.4%
Czech Republic	$39.9	0.4%
Other	*$348.9*	*36.4%*
Total	**$7,339.0**	**100.0%**

Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

By weight, SEA Airport imported the most air cargo from China, representing 12.5% of all air cargo imports handled by SEA Airport. Japan, Taiwan, Norway, and Germany also imported a large amount of imports in terms of metric tons, each representing nearly 7% or more of total SEA Airport imports (**Exhibit 113**).

Exhibit 113. International Cargo Origins by Metric Ton, SEA Airport, 2023

Destination	Metric Tons	Share
China	6,328.6	12.5%
Japan	5,105.6	10.1%
Taiwan	4,965.3	9.8%
Norway	3,764.7	7.4%
Germany	3,500.0	6.9%
Vietnam	2,732.6	5.4%
Italy	2,478.7	4.9%
Netherlands	2,334.7	4.6%
Korea, South	2,089.9	4.1%
United Kingdom	1,792.2	3.5%
India	1,647.0	3.3%
France	1,207.9	2.4%
Philippines	1,071.4	2.1%
Ireland	1,070.1	2.1%
Thailand	800.4	1.6%
Malaysia	739.5	1.5%
Indonesia	683.5	1.4%
Iceland	591.1	1.2%
Spain	569.6	1.1%
Austria	561.2	1.1%
Singapore	517.6	1.0%
Cambodia	470.7	0.9%
Pakistan	425.8	0.8%
Turkey	425.7	0.8%
Sri Lanka	409.1	0.8%
Other	*4,316.1*	*8.5%*
Total	**50,598.9**	**100.0%**

Sources: U.S. Census Bureau, 2025; Community Attributes Inc., 2025.

SEA Airport Regional Economic Impacts

In 2023, the airport's largest impact was on the City of SeaTac, where it generated over $7.3 billion in business output, or 82% of the city's total GDP (**Exhibit 114**). In terms of percentage of a city's GDP, SEA Airport's largest economic impact outside of SeaTac was to the City of Tacoma, where it represented an estimated 9.8%, 1.1% due to on-site activities and 8.7% from visitor impacts, to the city's total GDP, amounting to nearly $2.4 billion.

Exhibit 114. SEA Airport Economic Activity as a Share of City GDP, 2023

City	Business Output (mils 2023$)	Share of GDP
On-site Airport Activity		
SeaTac	$6,625.5	73.7%
Seattle	$771.8	0.5%
Tacoma	$253.8	1.1%
Kent	$275.3	1.7%
Federal Way	$181.4	3.0%
Auburn	$182.8	1.8%
Tukwila	$182.8	2.1%
Burien	$14.2	0.6%
Des Moines	$103.2	6.7%
Normandy Park	$16.4	9.4%
Visitor Impacts		
Seattle	$3,459.3	2.2%
Tacoma	$2,082.3	8.7%
Bellevue	$821.8	1.9%
SeaTac	$724.0	8.0%
Tukwila	$402.0	4.5%
Bothell	$363.6	4.7%
Federal Way	$177.5	3.0%
Des Moines	$148.6	9.7%
Burien	$100.8	4.2%
Normandy Park	$22.6	12.9%

Sources: Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

Seattle is the most common home city for SEA Airport workers, followed by Tacoma, Kent, and Auburn, each of which houses over 1,500 airport employees. Seattle-based airport workers earned an estimated $336 million in total compensation in 2023, while Tacoma, Kent, and Federal Way-based workers earned $166 million, $144 million, and $115 million in total compensation, respectively (**Exhibit 115**).

Exhibit 115. Airport Employees Home City and Compensation by City, 2023

City	Jobs	Total Compensation (mils 2023$)
Seattle	4,389	$335.8
Tacoma	2,163	$165.5
Kent	1,886	$144.3
Auburn	1,500	$114.8
Renton	1,216	$93.0
Puyallup	1,177	$90.0

Sources: Port of Seattle, 2025; Community Attributes Inc., 2025.

SeaTac and Tukwila represent the largest cities in terms of total employment among cities near the airport, with 43,200 and 43,000 jobs, respectively. Of the six closest cities, SeaTac's transportation and warehousing sector was the largest, with 22,765 employees. Additionally, Tukwila's retail trade sector and SeaTac's accommodation and food services industry each employed more than 5,000 people (**Exhibit 116**).

Exhibit 116. Employment by Industry for Cities Closest to the SEA Airport, 2023

Industry	SeaTac	Federal Way	Tukwila	Burien	Des Moines	Normandy Park
Agriculture, Forestry, Fishing and Hunting	0	40	0	5	10	0
Mining, Quarrying, and Oil and Gas Extraction	0	40	0	0	0	0
Utilities	0	0	0	0	0	0
Construction	1,910	1,790	2,835	900	485	50
Manufacturing	520	380	6,490	130	30	5
Wholesale Trade	320	990	3,235	420	335	20
Retail Trade	620	4,810	6,545	2,300	665	155
Transportation and Warehousing	22,765	620	2,295	215	195	0
Information	205	160	665	170	35	10
Finance and Insurance	65	1,565	1,745	165	140	20
Real Estate and Rental and Leasing	930	880	1,355	150	140	40
Professional, Scientific, and Technical Services	405	1,345	2,030	400	350	115
Management of Companies and Enterprises	270	70	420	60	15	0
Administrative and Support and Waste Management and Remediation Services	2,200	795	1,390	465	205	40
Educational Services	155	310	390	190	45	15
Health Care and Social Assistance	1,230	7,515	3,690	2,710	1,340	170
Arts, Entertainment, and Recreation	135	310	1,280	175	90	15
Accommodation and Food Services	5,190	3,685	4,405	2,030	1,395	95
Other Services (except Public Administration)	920	1,020	820	650	295	75
Public Administration	5,355	3,965	3,395	1,585	1,945	105
Total	**43,195**	**30,290**	**42,985**	**12,720**	**7,715**	**930**

Sources: Puget Sound Regional Council; 2025; Community Attributes Inc., 2025.

Airport Dependent Business Spending

SEA Airport operates under a compensatory model, meaning companies pay for the specific facilities and services they use. For example, airlines are charged landing fees based on aircraft weight, and rental car companies lease space for service counters. Beyond their direct spending at the airport, these companies also invest in the broader region to support their operations at SEA Airport. In 2024, Alaska Airlines invested in the region by purchasing a

19-acre property in Renton for nearly $90 million, with plans to invest an additional $100 million to renovate the existing office space on the site.[8]

APPENDIX D. THE NWSA, PORT OF TACOMA, AND PORT OF SEATTLE

Exhibit 117 presents a comparison of average annual compensation for the NWSA, Port of Tacoma, and Port of Seattle by line of business. Regional and statewide average annual compensation estimates were based on BLS Quarterly Census of Employment and Wages (QCEW) data, combined with the national average benefits-to-wages ratio published by the Bureau of Labor Statistics. The average annual compensation paid by the NWSA was $117,300 in 2023, coming in at 91.4% of the average compensation across Washington, and 76.3% of the Puget Sound Region average. Port of Tacoma's average annual compensation was similar to the NWSA average annual compensation. The jobs associated with the Port of Seattle paid an average of $59,600 per year including benefits. This is likely driven by the large number of jobs supported by visitor spending at SEA Airport and the Port's cruise industry. Jobs supported by visitor spending are primarily industries jobs which are paid lower than average regional wages.

[8] https://news.alaskaair.com/company/alaska-airlines-invests-in-new-world-class-training-facility-to-support-flight-attendants-pilots-and-more/#:~:text=Alaska%20Airlines%20has%20purchased%20the,feels%20like%20a%20perfect%20match.

Exhibit 117. Total Compensation by Line of Business with Regional and State Comparisons, 2023

	Average Annual Compensation	% of Puget Sound Region Compensation	% of Statewide Compensation
Average Annual Compensation		**$153,800**	**$128,300**
The Northwest Seaport Alliance	**$117,300**	**76.3%**	**91.4%**
Containerized Cargo	$114,600	74.5%	89.3%
Autos	$152,500	99.1%	118.8%
Bulk, Breakbulk, and Other	$118,300	76.9%	92.2%
Port of Tacoma	**$113,300**	**73.7%**	**88.3%**
Tenants and Bulk Operations	$108,400	70.5%	84.5%
Autos	$120,800	78.5%	94.1%
Port of Seattle	**$59,600**	**38.7%**	**46.4%**
SEA Airport	$57,100	37.1%	44.5%
On-site Airport Activity	$80,000	52.0%	62.3%
Visitor Impacts	$50,600	32.9%	39.4%
Commercial Fishing	$50,800	33.0%	39.6%
Recreational Marinas	$82,100	53.4%	64.0%
Tenants and Other Businesses	$101,200	65.8%	78.8%
Cruise (2025 Projected)	$60,500	39.3%	47.1%

Sources: Bureau of Labor Statistics, 2025; Washington State Office of Financial Management, 2025; Community Attributes Inc., 2025.

SEPA Environmental Justice Memorandum

Prepared for
Landrum and Brown

April 2026

Parametrix

SEPA Environmental Justice Memorandum

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Acronyms and Abbreviations

EA	Environmental Assessment
EHD	Environmental Health Disparities
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
FAA	Federal Aviation Administration
GSA	General Study Area
NEPA	National Environmental Policy Act
RMP	Risk Management Plan
SAMP NTP	Sustainable Airport Master Plan Near-Term Projects
SEA	Seattle-Tacoma International Airport
SEPA	Washington State Environmental Policy Act
WADOH	Washington Department of Health

1. Introduction

This document identifies the potential impacts to SEPA environmental justice populations in the Seattle-Tacoma International Airport (SEA) Sustainable Airport Master Plan Near-Term Projects (SAMP NTP) Environmental Impact Statement (EIS), prepared under the Washington State Environmental Policy Act (SEPA). The SEPA analysis complements the analysis completed for the Federal Aviation Administration's Draft Environmental Assessment (EA) on the SAMP NTPs, prepared under the National Environmental Policy Act (NEPA), with the goal of evaluating a wider range of potentially affected populations and a larger set of indices than those used for the NEPA analysis. The SEPA analysis, like the NEPA analysis, will focus on the proposed NTPs and will compare effects to the No Action Alternative, rather than on SEA's pre-existing operations.

The Federal Aviation Administration's (FAA's) environmental justice analysis determined that neither of the Action Alternatives evaluated in the Draft EA would result in disproportionate and adverse effects nor significant impacts to minority and/or low-income populations.

All SEPA elements of the environment were evaluated for potential impacts to EJ communities. Most impacts would occur on Port-owned property, and therefore the detailed analysis focused on resource categories where impacts could occur in minority and low-income communities—air quality, climate, noise, socioeconomic, and surface transportation—to determine if the impacts identified would be significant. The SEPA EJ analysis determined that neither Action Alternative would result in significant impacts to minority and/or low-income populations.

2. Regulations and Guidance

Between 1994 and 2024, many actions taken or authorized by federal agencies required the evaluation of impacts to environmental justice populations—defined as minority and low-income populations—as part of NEPA compliance. In the 30 years during which environmental justice analysis was required under NEPA, federal agencies developed a substantial body of guidance for these analyses. Washington's SEPA, although it requires evaluation of some social and public health effects, does not mandate environmental justice analysis and provides no specific standards or guidance in this regard.[1]

In January 2025, the two major federal executive orders pertaining to environmental justice were revoked; thereafter, federal agency regulations and guidance implementing those orders were subsequently canceled. As a result, FAA removed the environmental justice analysis from the SAMP NTP Final EA. However, the Port elected to evaluate impacts from the NTPs to environmental justice populations as part of its SEPA EIS. Although the Port is using a broader definition of environmental justice populations in its SEPA EIS than the FAA used under NEPA in the draft NEPA Environmental Assessment (see Section 3.4 below), the analytical framework developed for federal environmental justice analyses over the previous 30 years provides a useful framework for the SEPA evaluation.

The State Environmental Policy Act (Chapter 43.21C Revised Code of Washington) and the SEPA Rules (Chapter 197-11 Washington Administrative Code [WAC]) do not specifically identify socioeconomics and environmental justice (e.g., the analysis of impacts to people in specific demographic categories, such as low-income and minority populations). However, SEPA requires the analysis of elements of the environment related to human and environmental health. These include air quality, public water supplies, noise, and releases or potential releases to the environment affecting public health (WAC 197-11-444). Additionally, WAC 197-11-440(8) gives agencies the option to include additional analysis. The Washington State Department of Ecology's SEPA Handbook (https://apps.ecology.wa.gov/publications/documents/2506009.pdf) includes the following guidance related to environmental justice:

> While there is no specific requirement to conduct an environmental justice analysis, Ecology recommends consideration be given to communities that may already be experiencing higher environmental burdens (proximity to pollution sources, cleanup sites, industrial facilities, poor air quality, etc.). These communities often bear a disproportionate environmental burden and may have fewer resources to offset effects, which can lead to health disparities and lower quality of life.
>
> Consider how the proposal might impact overburdened and more vulnerable communities and steps that could be taken to reduce or avoid additional environmental impacts, including mitigation and project design changes. Your agency may have specific policies on how to consider impacts and engage with overburdened communities and vulnerable populations. This helps to ensure the data are used to raise awareness and create more opportunities for impacted communities to influence decisions that may affect their lives.
>
> This analysis can be included in the environmental health section of the analysis, as a separate section or included in the cumulative impacts analysis. The environmental justice analysis should be a separate analysis from Tribal impacts although the two may need to be cross referenced. (SEPA Handbook, pp. 58-59)

[1] The Port of Seattle is not a covered agency pursuant to RCW 70A.02 and consequently is not required to comply with the Healthy Environment for All (HEAL) Act. RCW 70A.02.020. However, this memorandum utilizes some terminology from HEAL.

For its SEPA analysis, the Port used the Washington Department of Health (DOH) Environmental Disparities (EHD) map and the Port of Seattle's Equity Index to inform the environmental justice analysis. DOH developed the EHD map to identify statewide environmental health needs and to identify communities that are subject to threats or vulnerabilities (factors utilized in the mapping tool) that may affect their risk. The Port of Seattle's Equity Index is a tool developed and used by the Port to understand how different communities experience pollution burdens and social inequities. Across the Puget Sound region, there are significant variations in pollution exposure, access to economic opportunities, and overall standard of living. Port staff use the Equity Index to equitably guide funding decisions and broadly inform policy decisions across the Port.

3. Project Overview

Based on the analysis of the alternatives for the individual needs, the following alternatives were carried forward for detailed environmental impact analysis:

- **Alternative 1: No Action**: The No Action Alternative provides a baseline for comparison to the other action alternatives even though it would not meet the Purpose and Need.
- **Alternative 2: Proposed Action**: The Proposed Action represents a composite of the following elements:
  - → Alternative 1-A: Construct a new Second Terminal and gates (T01, T02) to the north of the existing terminal to provide the necessary facilities to serve 56 MAP at an optimal LOS[3].
  - → Alternative 2-A: Construct new cargo facilities in the North Cargo area (A08, C01, S08, S09) and on the Port's L-shaped parcel of land (C02, C03) to meet the projected cargo demand, and construct the Westside Maintenance Facility (S07) west of the airfield.
  - → Alternative 3-A1: Extend/expand the blast pads for Runway 16R/34L from 200 feet by 200 feet to 220 feet by 400 feet to meet FAA standards (A02).
  - → Alternative 3-B: Reconfigure non-standard taxiway geometry to meet FAA standards (A03, A10).
  - → Alternative 3-C1: Reconfigure Taxiway B in the areas where other project elements are being constructed to provide 500-foot separation to partially meet FAA standards (A04).
  - → Alternative 4-A: Extend Taxiway A/B at south end of Runway 16L/34R, creating a new parallel taxiway system to improve efficiency in the south airfield (A01).
  - → Alternative 4-B: Construct a new high-speed taxiway exit from Runway 16R/34L (A06), and a new crossing of Runway 16C/34C (A07) to provide a more efficient connection to the terminal area and create additional holding areas for taxiing aircraft.
  - → Alternative 5-A: Expand existing fuel farm to meet projected demand, including additional storage tanks, a blending tank, a SAF receipt tank, and associated support areas, utilizing the existing fuel distribution system connection (S01).
- **Alternative 3: Hybrid Terminal Option**: The Hybrid Terminal Option includes the same elements as Alternative 2: Proposed Action except for terminal and gate location. For consistency, the complete description is as follows:
  - → Alternative 1-E: Construct a new concourse and gates (T01a) to the north of the Main Terminal connected to Concourse D and a new Second Terminal across the NAE (T02) to provide facilities necessary to accommodate 56 MAP at an optimal LOS[4].
  - → Alternative 2-A: Construct new cargo facilities in the North Cargo area (A08, C01, S08, S09) and on the Port's L-shaped parcel of land (C02, C03) to meet the projected cargo demand, and construct the Westside Maintenance Facility (S07) west of the airfield.
  - → Alternative 3-A1: Extend/expand the blast pads for Runway 16R/34L from 200 feet by 200 feet to 220 feet by 400 feet to meet FAA standards.

- → Alternative 3-B: Reconfigure non-standard taxiway geometry to meet FAA standards (A03, A10).
- → Alternative 3-C1: Reconfigure Taxiway B in the areas where other project elements are being constructed to provide 500-foot separation to partially meet FAA standards (A04).
- → Alternative 4-A: Extend Taxiway A/B at south end of Runway 16L/34R, creating a new parallel taxiway system to improve efficiency in the south airfield (A01).
- → Alternative 4-B: Construct a new high-speed taxiway exit from Runway 16R/34L (A06), and a new crossing of Runway 16C/34C (A07) to provide a more efficient connection to the terminal area and create additional holding areas for taxiing aircraft.
- → Alternative 5-A: Expand existing fuel farm to meet projected demand, including additional storage tanks, a blending tank, a SAF receipt tank, and associated support areas, utilizing the existing fuel distribution system connection (S01).

Figure 3-1 illustrates the Proposed Action.

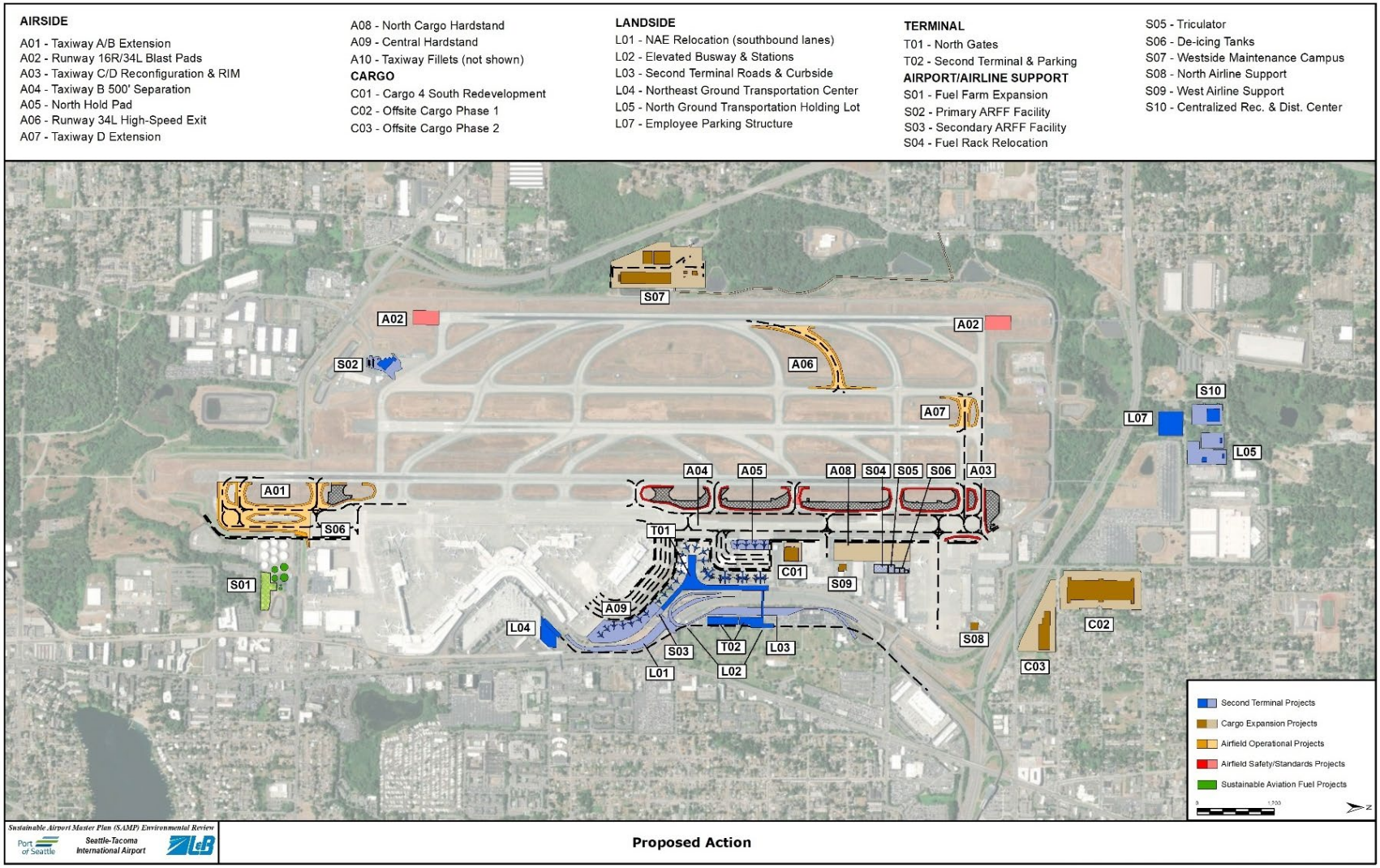

Figure 3-1. Proposed Action

4. Methods

This section presents the methods used in the analysis, including establishing the study area, identifying SEPA environmental justice populations, determining impacts and significance, and relating those impacts to the SEPA environmental justice populations. The steps in the analysis included:

1) Identify the study areas to be considered.
2) Identify the environmental justice populations within the study areas, using both the federal definition of environmental justice populations (low-income and minority) and the Washington State HEAL act definition of vulnerable populations.
3) Using the WADOH EHD map and the Port's Equity Index and Map, determine which portions of the study areas included SEPA environmental justice populations and their degree of vulnerability using the WADOH EHD and Port's Equity Index rankings.
4) Review the factors and indicators used in the WADOH EHD map and the Port's Equity Index and Map to determine which factors or indicators could be affected by the impacts identified in the EIS from the Action Alternatives.
5) Based on that analysis, determine which resource areas warrant evaluation for potential impacts to environmental justice populations.
6) Consider the impacts of the Action Alternatives on each potentially affected factor and indicator to determine whether the Action Alternatives would appreciably increase or decrease the vulnerability of an environmental justice population to that factor or indicator, and reach a conclusion regarding the degree (significance) of that impact, if any.

The sections below provide more detail regarding these steps. Section 4.1 identifies the study areas. Section 4.2 describes the process used to identify the environmental justice populations, particularly the additional populations identified for this SEPA analysis. Section 4.3 reviews the impacts identified in the EIS and assesses if they would influence any of the factors or indicators used in the WADOH EHD or Port Equity Index and Map. Section 6.1 determines which resource areas warrant additional evaluation for potential impacts to environmental justice populations, and Sections 6.2 and 6.3 present that analysis for the WADOH EPD and Port Equity Index and Map, respectively.

4.1 Study Area

The SEPA environmental justice analysis uses the study area specific to the resource categories being evaluated. Four different study areas are presented in this analysis:

1. General Study Area (GSA): The study area used for most elements of the environment in the EIS analysis; applies to the majority of resource categories (e.g., socioeconomics, hazardous materials, public services and utilities).
2. Noise Study Area; The area within the 65 dB contour for the Proposed Action in 2037.
3. Transportation Study Area: This area includes the existing and future intersections modeled for the traffic analysis performed for the SAMP NTPs. The transportation study area extends beyond the GSA.
4. Air Dispersion Analysis Receptor Locations: This area encompasses all the receptors used to determine the peak ambient air pollutant impacts associated with the No Build Alternative and the Action Alternatives. The Seattle-Tacoma International Airport (SEA) property line receptors and community receptors around SEA were included in the analysis.

Figure 4-1 shows the four study areas used in this analysis.

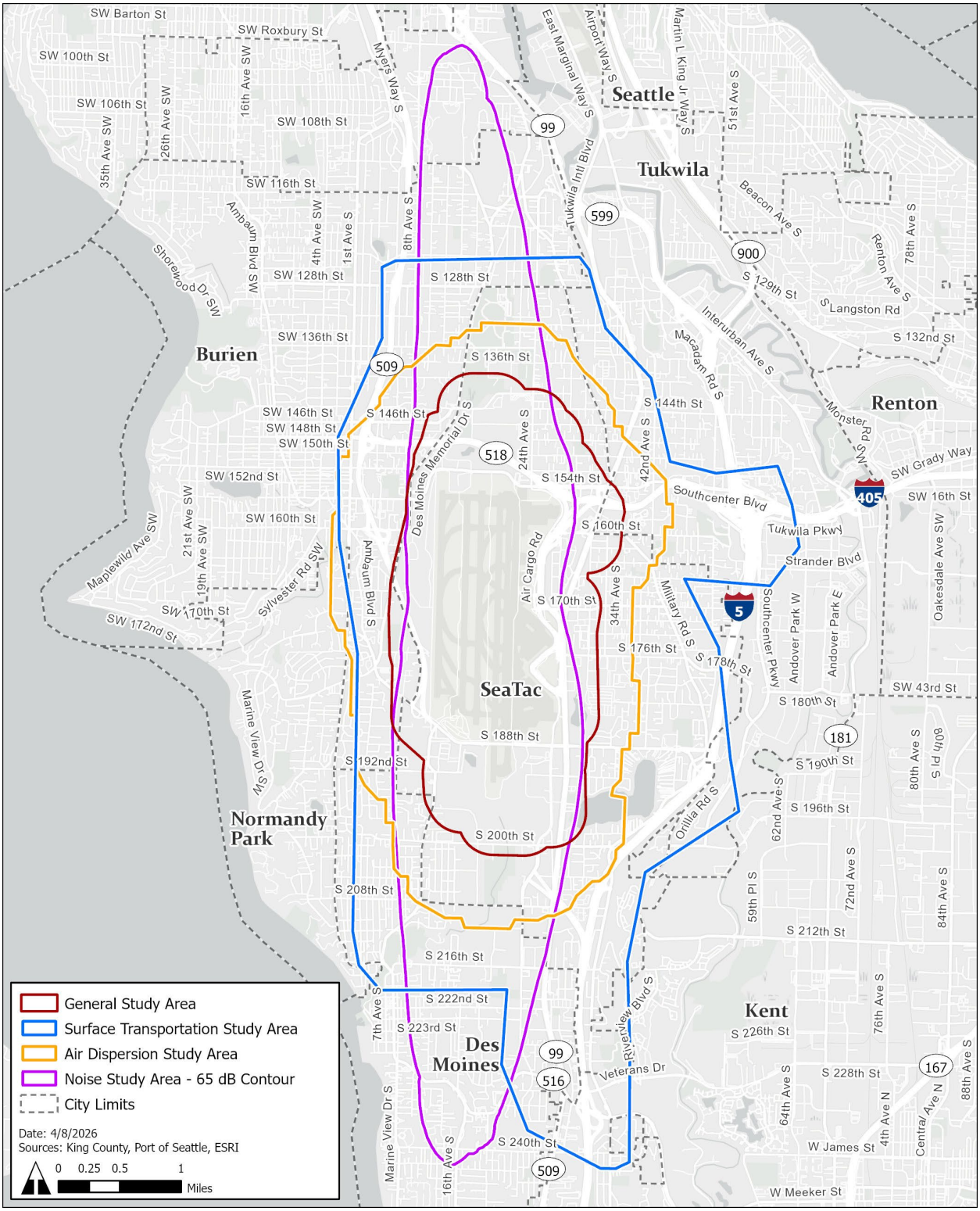

Figure 4-1. Study Areas for the SEPA Environmental Justice Evaluation

4.2 Identifying SEPA Environmental Justice Populations

The NEPA Draft EA identified low-income and minority populations within the study areas shown in Chapter 3 of the SEPA EIS. Relevant and available socioeconomic and population data for the study areas and reference area were collected. The data was used to determine the percentages of environmental justice populations (defined as minority or low-income populations) within each area. The data was also compiled and analyzed to identify potential concentrations of minority or low-income communities, or any other environmental justice resources, such as community centers, churches, or areas of cultural significance. King County was used as the reference area because the Airport is located in King County.

The NEPA analysis found that the demographics of the communities in the study area are diverse. The majority of the census block groups for each of the study areas evaluated were identified as having minority populations, and a substantial portion also met the low-income criteria. Thus, the majority of the study areas were identified as environmental justice populations. See the Socioeconomics, Environmental Justice, and Children's Environmental Health Report (Appendix K of the SEPA EIS) for more information on the sources and process used in the NEPA Draft EA to identify environmental justice populations.

This SEPA analysis confirms the finding of the NEPA analysis that the study areas contain minority and low-income populations and builds on the NEPA analysis by considering additional factors beyond race and income. Although the Port of Seattle is not an agency subject to Washington's HEAL Act (RCW 70A.020), the Port utilized the definition of "vulnerable populations" from HEAL (RCW 70A.02.010) to define "environmental justice populations." For the purposes of this SEPA analysis, environmental justice populations include racial or ethnic minorities; low-income populations; populations disproportionately impacted by environmental harms; and populations of workers experiencing environmental harms (RCW 70A.02.101(14)(b)).

The Port used the demographic, socioeconomic, and environmental data from the Washington Department of Health (WADOH) Environmental Health Disparities Map (EHD map) and the Port of Seattle's Equity Index to identify SEPA environmental justice populations and risk factors for this analysis.

4.2.1 Washington Department of Health Environmental Health Disparities Map

WADOH defines environmental health disparities as the increasing combination of factors (social, medical, climate, and environmental) that create inequities in health, which cause more sickness, disease, pollution, and other problems to Washington communities with more economic need. The WADOH created the EHD map based on a formula of Risk = Threat x Vulnerability. *Threat* is made up of both environmental effects and exposures. *Vulnerability* is made up of socioeconomic factors and sensitive populations. Figure 4-2 shows the factors that are used to consider environmental health disparities. Increased environmental health disparities are correlated with lower life expectancy.

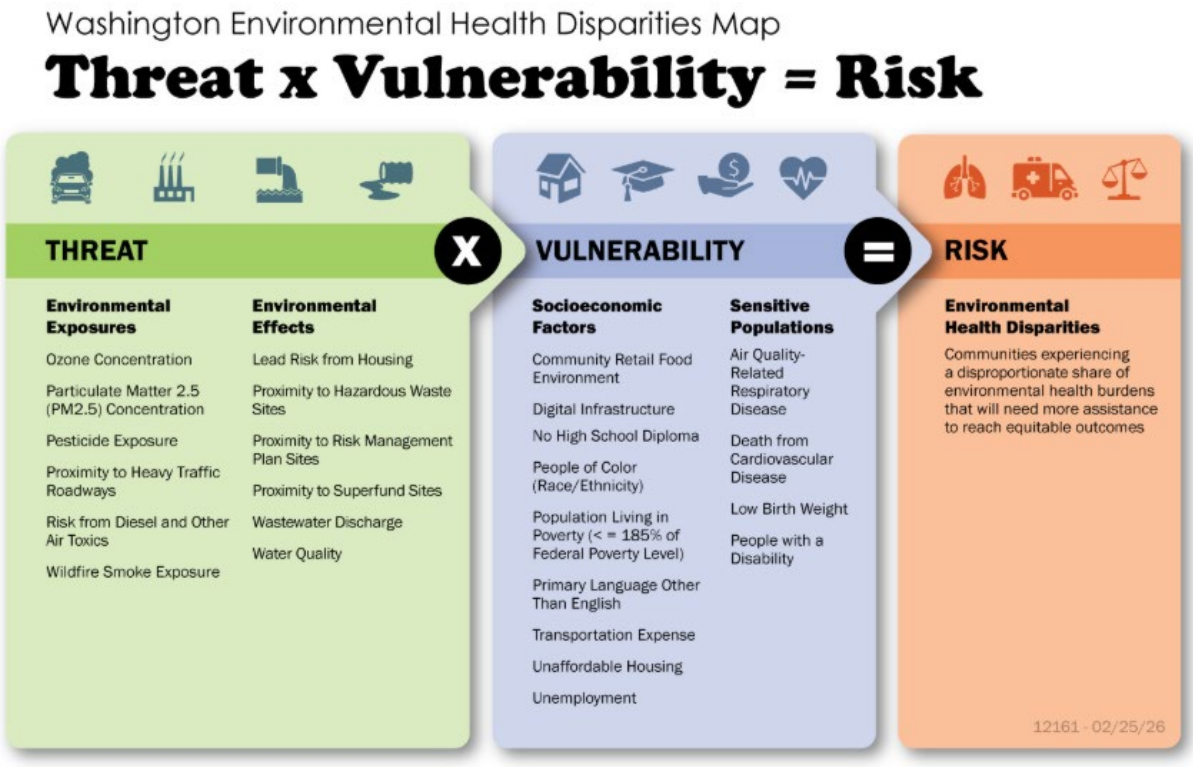

Figure 4-2. EHD Map: Threats and Vulnerabilities Create Risk and Environmental Health Disparities

The EHD map compares communities using census tracts to identify disparities within Washington state. It considers external threats to health (environmental exposures, environmental effects) and vulnerability (socioeconomic factors and sensitive populations) to determine risk, and then compares the risk within each census tract to identify relative environmental health disparities.

The Port used the EHD map to identify communities within the study areas that are considered at risk of disparate environmental harms. As shown in Figure 4-2, the environmental health disparities ranking is developed using multiple factors: Environmental Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors. The EHD map designates census tracts with an overall rank of 9 or 10 in as "highly impacted," and the State Environmental Justice Council recommends using scores of 7+ to identify geographies for outreach. This analysis considers any census tract with a rank of 7 or higher in any category to be an environmental justice population.

4.2.2 Port of Seattle Equity Index

In addition to the EHD map, the Port used its Equity Index to identify additional vulnerability indicators (Demographics, Economy, Livability, Accessibility, and Environment) and its Equity Index Map to rank areas around the airport based on their degree of vulnerability to each indicator. The demographic data include income characteristics (Poverty Rate, Unemployment Rate, Median Household Income, and 200% Poverty Rate) in the "Economy" category and race and ethnicity in the "Demographics" category.

The Port of Seattle's Equity Index and Map identify the individual and combined environmental health and social indicators for each census block and provide a composite score. The Index ranks these indicators from very low to very high (very low, low, moderate, high, very high). Communities

with the least access to opportunities and resources are ranked very low (lighter colors), while communities with the most access to opportunities and resources are ranked very high (darker colors). For example, communities with high unemployment are considered "very low" on the scale.

4.3 Determining Impacts to SEPA Environmental Justice Populations

This analysis identified impacts to human health or the environment (e.g., impacts on noise, air quality, traffic/congestion, land use, etc.) that potentially affect SEPA environmental justice populations in the four study areas shown in Figure 4-1. The Port considered context and intensity in determining whether an impact is adverse and the degree of impact.

This SEPA EJ analysis incorporates the FAA's EJ analysis in the NEPA EA by reference. The NEPA analysis concluded the Action Alternatives would not result in disproportionate and adverse effects or significant environmental impacts to environmental justice populations. The methods for the NEPA analysis were based on FAA Orders and guidance and also incorporated guidance from EPA's Promising Practices Report. This SEPA analysis supplements that work and incorporates new studies, including an air dispersion evaluation and a human health risk analysis. Through the use of the WADOH's EHD map and the Port's Equity Index, the Port also considered the specific environmental vulnerabilities of the populations in the vicinity of the Airport to determine if the environmental effects of the Action Alternatives would affect vulnerable populations by adding additional environmental or social harms.

After summarizing the impact analysis for each SEPA element of the environment, this evaluation identifies whether and how the SAMP NTPs may affect the factors and indicators[1] identified in the WADOH EHD map and the Port Equity Index. Specifically, the analysis considered whether any of the impacts from the SAMP NTPs would positively or negatively affect any of the factors or indicators. Table 4-1 presents the indicators used in the WADOH map, provides an initial assessment of whether the SAMP NTPs may affect each indicator, and identifies the resource category in the EIS that relates to the potential effect.

[1] The WADOH EHD mapping is based on a set of 19 factors within four categories (environmental exposures, environmental effects, sensitive populations, and socioeconomic factors), which are used to evaluate environmental disparities within communities. The Port's Equity Index identifies 30 indicators within four categories (economy, livability, accessibility, and environment), which are used to assess different aspects of equity. The terms "factors" and "indicators" are used in that context within this memorandum.

Table 4-1. Washington Department of Health Environmental Health Disparities Map: Factors and Relationship to SAMP NTPs

Washington Environmental Health Disparities Factors		Potential for SAMP NTPs to Influence this Factor	SEPA Topic / Data Source
Environmental Exposures	Diesel exhaust PM 2.5 emissions	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Ozone concentration	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Particulate matter 2.5 (PM 2.5) concentration	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Proximity to heavy traffic roadways	Yes	Surface Transportation
	Toxic release from facilities (RSEI model)	No (SEA not in the RSEI model)	N/A
Environmental Effects	Lead risk from housing	No	N/A
	Proximity to hazardous waste facilities	No	N/A
	Proximity to National Priorities List sites (Superfund Sites)	No	N/A
	Proximity to Risk Management Plan (RMP) facilities	No	N/A
	Wastewater discharge	Yes	Water Resources
Sensitive Populations	Death from cardiovascular disease	Yes	Air Quality / Dispersion Modeling and Human Health Analysis Noise / Health Effects Review
	Low birth weight	No	N/A
Socioeconomic Factors	No high school diploma	No	N/A
	Poverty	Yes	Socioeconomics
	Race - people of color	No	N/A
	Primary language other than English	No	N/A
	Transportation expense	No	N/A
	Unaffordable housing	No	N/A
	Unemployment	Yes	Socioeconomics

Table 4-2 presents the indicators in the Port of Seattle's Equity Priority Index, provides an initial assessment of whether the SAMP NTPs may affect each indicator, and identifies the resource category in the EIS that relates to the potential effect.

Table 4-2. Port of Seattle Equity Priority Index: Indicators and Relationship to SAMP NTPs

	Port of Seattle Equity Priority Index Indicator	Potential for SAMP NTPs to Influence this Indicator *	SEPA Topic / Data Source
Economy	Poverty Rate	Yes	Socioeconomics
	Unemployment Rate	Yes	Socioeconomics
	Median Household Income	No	N/A
	200% Poverty Rate	No	N/A
	Educational Attainment	No	N/A
	Estimated jobs total	Yes	Socioeconomics
Livability	High school graduation rate	No	N/A
	Transit access	No	N/A
	Transit commuters as % workforce	No	N/A
	Fair or poor health	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis Noise / Health Effects Review
	Asthma rates	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Home ownership rate	No	N/A
	Housing cost burden	No	N/A
	Crime Risk	No	N/A
Accessibility	Pedestrian and bike facilities	Yes	Surface Transportation
	Households with internet	No	N/A
	Four year average voter participation	No	N/A
	Healthy food availability	No	N/A
	Transit to jobs index	No	N/A
	Auto to jobs index	Yes	Surface Transportation
	Walkability index	No	N/A
	Proximity to Parks and Open Space	No	N/A
Environment	Diesel emissions	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Toxic releases from facilities (RSEI database)	No	N/A
	Particulate Matter 2.5 (PM 2.5)	Yes	Air Quality / Dispersion Modeling and Human Health Risk Analysis
	Proximity to heavy traffic roadways	No	N/A
	Urban Tree Canopy	Yes	Plants and Animals
	Noise pollution	Yes	Noise / Health Effects Review
	Flood risk	No	N/A
	Heat & Temperature	No	N/A

* A "No" in this column indicates that the analyses completed for the NEPA EA and the SEPA EIS did not identify any links between the Action Alternatives and this factor.

5. SEPA Environmental Justice Populations in the Identified SEPA Study Areas

Figure 5-1 shows the WADOH Index and the study areas described in Section 4.1. The majority of the census tracts in each of the different study areas have scores of 9 or 10 on the WADOH Index, indicating that the area is vulnerable to changes in environmental exposures and economic impacts. Two areas on the western and southern edge of the transportation and noise study areas are scored 7 on the WADOH index.

Table 5-1 provides more detail on the scores for each of the identified census block areas within the GSA, including the environmental and socioeconomic factors that contributed to the overall environmental disparities index for that area. The GSA represents the core study area for the SEPA evaluation and encompasses the air dispersion study area; community characteristics for the noise study area and transportation study area are discussed below as appropriate.

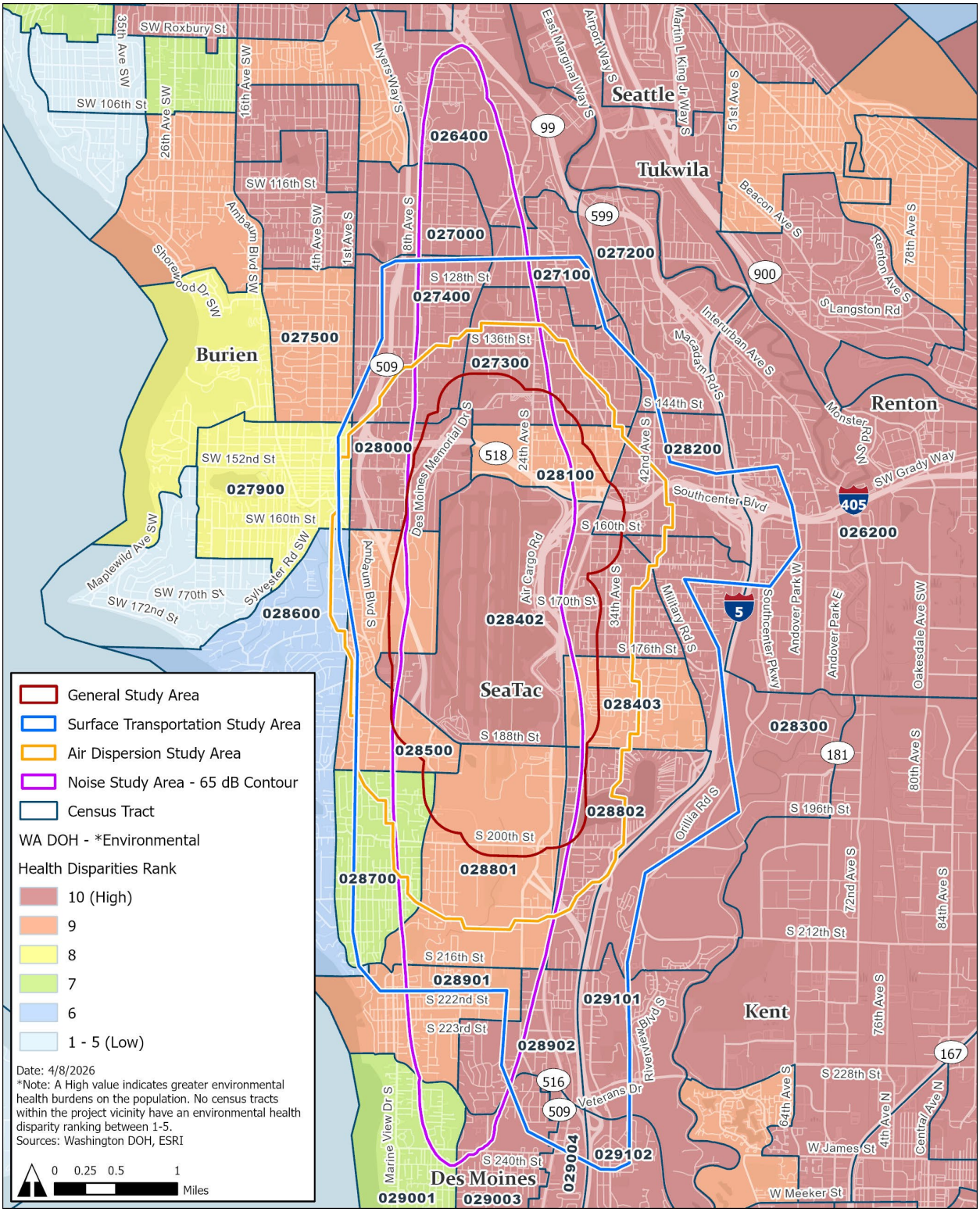

Figure 5-1. Washington Department of Health Disparities Index Scores and the Study Areas Considered in the SEPA Environmental Justice Analysis

Table 5-1. Washington Department of Health Disparities Index Rankings in General Study Area

Census Tract	Census Tract Population (ACS 2023)	Acres within GSA	Percent of Census Tract within GSA	Washington Department of Health Index Ranking				
				Environmental Health Disparities Overall Rank	Environmental Exposures Theme Rank	Environmental Effects Theme Rank	Socioeconomic Factors Theme Rank	Sensitive Populations Theme Rank
27300	6,902	183	21%	10	10	10	10	10
28802	7,438	78	13%	10	9	9	10	8
28801	3,516	534	42%	9	9	9	7	8
28700	5,257	16	2%	7	8	7	7	3
28500	4,522	361	42%	9	7	7	7	9
28403	5,519	119	23%	9	9	10	7	4
28402	6,101	1,783	85%	10	10	9	10	9
28200	4,990	43	6%	10	10	10	9	8
28100	3,072	324	82%	9	10	10	10	2
28000	3,853	201	42%	10	7	8	10	10
27400	5,043	33	4%	10	8	10	9	10

Scores drawn from WADOH index. For more information on the index or to see individual scores for the contributing factors, go to the interactive website: https://doh.wa.gov/data-and-statistical-reports/washington-tracking-network-wtn/washington-environmental-health-disparities-map

Figure 5-2 shows the same study areas with the Port of Seattle Equity Index data. Scores in the GSA, noise, and air dispersion study areas are identified as low or very low on the index, while some areas on the western and southern part of the transportation study area rank as moderate. The areas identified as environmental justice populations in the NEPA analysis are correlated with low or very low scores on the Port Equity Index. These are similar findings as in the WADOH EHD map.

Table 5-2 presents the Equity Index scores for the census block groups in the GSA.

Table 5-2. Port of Seattle Equity Index Scores in the General Study Area

Census Block Group	Census Block Group Population (ACS 2023)	Acres within GSA	Percent of Census Tract within GSA	Port of Seattle Equity Index Score	Economy Index Score	Livability Index Score	Accessibility Index Score	Environment Index Score
530330273003	1,778	182.9	46%	Very Low	Low	Very Low	Moderate	Very Low
530330274002	1,357	32.7	11%	Very Low	Low	Low	Very Low	Very Low
530330280001	894	184.9	69%	Very Low	Low	Very Low	Low	Very Low
530330280002	1,272	2.4	3%	Very Low	Very Low	Low	Low	Very Low
530330280003	1,372	14.2	10%	Very Low	Low	Very Low	Low	Very Low
530330281001	1,598	69.6	57%	Very Low	Very Low	Very Low	Very Low	Low
530330281002	1,445	254.4	94%	Very Low	Very Low	Very Low	Very Low	Low
530330282002	2,318	42.3	17%	Very Low	Very Low	Very Low	Low	Moderate
530330282003	750	0.7	1%	Very Low	Very Low	Very Low	Low	Very Low
530330284021	844	53.0	49%	Very Low	Very Low	Very Low	Low	Low
530330284022	1,376	33.8	30%	Very Low	Low	Very Low	Low	Low
530330284023	1,728	10.3	6%	Very Low	Low	Very Low	Low	Low
530330284024	2,210	1,691.0	99%	Very Low	Low	Very Low	Very Low	Very Low
530330284031	1,188	101.0	48%	Very Low	Very Low	Very Low	Very Low	Low
530330284032	2,588	13.0	33%	Very Low	Very Low	Very Low	Very Low	Low
530330285001	1,452	237.7	58%	Low	Moderate	Low	Low	Very Low
530330285002	1,207	123.6	34%	Low	Low	Low	Moderate	Moderate
530330287001	1,764	16.0	7%	Low	Low	Moderate	Moderate	Very Low
530330288012	1,603	538.7	64%	Very Low	Very Low	Very Low	Very Low	Very Low
530330288021	1,548	72.4	42%	Very Low	Low	Very Low	Low	Very Low

Scores drawn from Port Equity Index. For more information on the index or to see individual scores for the contributing factors, go to the interactive website: Equity Index

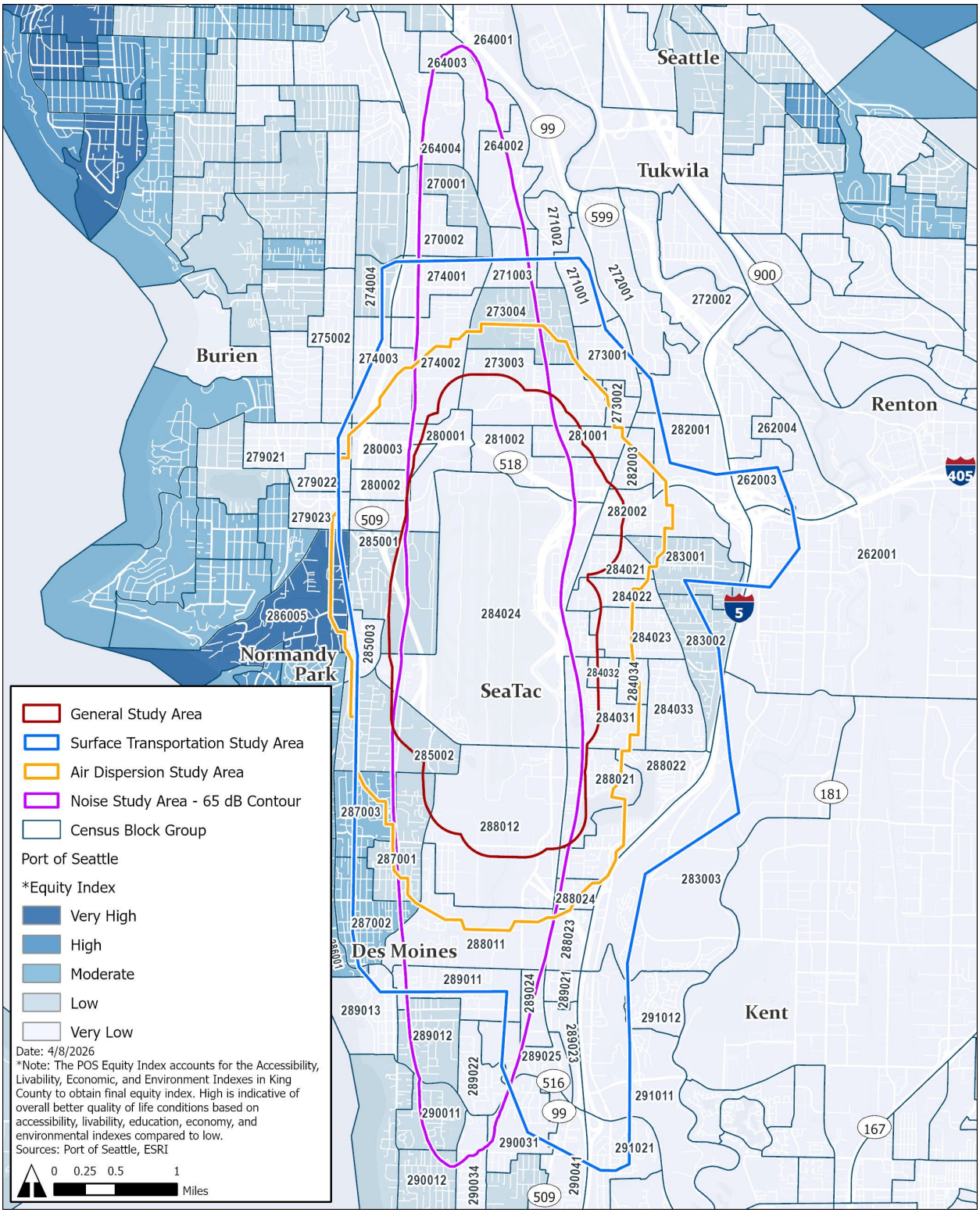

Figure 5-2. Port of Seattle Equity Index Scores and the Study Areas Considered in the SEPA Environmental Justice Analysis

6. Evaluation of Impacts

6.1 Summary of SEPA EIS Findings

All resource categories included in the SEPA analysis were evaluated for potential beneficial and adverse impacts for each element of the environment. The result from those evaluations were next reviewed to determine whether potential impacts relate to an environmental health risk factor identified by WADOH or in the Port's Equity Index. If so, the environmental effect identified in the resource section was evaluated to determine whether the contribution of the Action Alternatives to the identified factor/indicator could be significant to a SEPA EJ population within the study area. Table 6-1 shows the results of this evaluation. Those resource categories that overlap or encompass any of the factors or indicators identified by WADOH or in the Port's Equity Index are evaluated further in Sections 6.2 and 6.3. The determination of whether there was an adverse or beneficial impact considers mitigation measures and other Port programs.

The NEPA EA concluded that the Action Alternatives would affect EJ populations through increased air and noise emissions, socioeconomic impacts, and additional transportation impacts that caused roadways not to meet mobility standards. None of the impacts were found to be significant with mitigation, and none were considered disproportionate and adverse in the Environmental Justice analysis published in the Draft NEPA EA.

New information specific to the SEPA EIS analysis includes the results of a dispersion modeling analysis for criteria air pollutants and a human health risk assessment for toxic air pollutants. In addition, the Port evaluated recent studies on the health effects of ultrafine particles (UFPs) and noise. The results of these analyses are included in the findings below.

Table 6-1. SEPA Impact Summary and Relationship to WADOH Map Factors and Port Equity Indicators

Element of the Environment	Description of Evaluation	Does the Impact from the Action Alternatives cause an Adverse Effect?	Relationship to WADOH Map Factors	Relationship to Port Equity Index Indicator	Does the analysis show a significant impact to an EJ Population?
Air Quality	Operational and construction emissions were evaluated.	No violations of the National Ambient Air Quality Standards (NAAQS) were identified in either the emissions burden analysis or the dispersion modeling study. The results of the modeling completed for the NEPA analysis were affirmed by a dispersion modeling analysis and a human health risk assessment completed for the SEPA EIS. The dispersion modeling analysis found that ground-level pollutant concentrations in the study area under the Action Alternatives would not exceed the health-based NAAQS. Modeling of toxic air pollutant concentrations in the study area concluded that neither acute non-cancer health risks nor cumulative cancer risk would exceed applicable risk thresholds as a result of the Action Alternatives.	Environmental Exposures	Environment (Diesel 2.5 and PM2.5 emissions)	No; see Section 6.2.1
Plants and Animals	Evaluated effects to federal and state listed species, habitats, and other species of concern.	Removal of trees and vegetation would decrease habitat for animals and birds.	N/A	Environment (Urban Tree Canopy)	No; see Section 6.3.4

Table 6-1. SEPA Impact Summary and Relationship to WADOH Map Factors and Port Equity Indicators (continued)

Element of the Environment	Description of Evaluation	Does the Impact from the Action Alternatives cause an Adverse Effect?	Relationship to WADOH Map Factors	Relationship to Port Equity Index Indicator	Does the analysis show a significant impact to an EJ Population?
GHG and Climate	Evaluated GHG emissions and potential climate effects.	The Proposed Action would increase Scope 1, 2 and 3 GHG emissions by 152,703 (2.1%) MT CO_2e over the No Action Alternative in 2032 and by 539,569 (7.4%) MT CO_2e in 2037. The Hybrid Terminal Option would increase Scope 1, 2 and 3 GHG emissions by 156,611 (2.2%) MT over the No Action Alternative in 2032 and by 539,569 MT (7.4%) in 2037. The Port expects to continue to make progress towards its Century Agenda GHG emission reduction targets for Scope 1 and 2 emissions based on minimizations measures and regulatory compliance. The effect of those minimization measures and regulatory requirements are not incorporated in the calculations of emissions attributable to the Action Alternatives. Additionally, the Port will continue to minimize GHG emissions from Scope 3 sources of emissions through collaboration with partners, including airlines.[a]	N/A	N/A	No
Earth	Evaluated potential impacts to geology, soils, topography, and erosion/accretion.	Some NTPs would require grading and filling. Compliance with current design standards and BMPs would minimize seismic and other geologic hazards.	N/A	N/A	No
Recreation	Evaluated potential for direct (property acquisition) and indirect (noise, light and glare, etc.) to parks and recreation facilities.	No direct or indirect effects on recreation were identified.	N/A	No	No

Table 6-1. SEPA Impact Summary and Relationship to WADOH Map Factors and Port Equity Indicators (continued)

Element of the Environment	Description of Evaluation	Does the Impact from the Action Alternatives cause an Adverse Effect?	Relationship to WADOH Map Factors	Relationship to Port Equity Index Indicator	Does the analysis show a significant impact to an EJ Population?
Hazardous Materials (Releases or Potential Releases to the Environment)	Evaluated potential spills from construction equipment and potential to encounter hazardous materials during construction.	Construction equipment uses hazardous materials and excavations could expose contaminated soils; demolition of existing buildings could expose contaminated or hazardous materials. Contractors would establish a contaminated media management plan to reduce risk.	N/A Note: the index focuses on hazardous waste facilities and other established sites	N/A Note: the index considers toxic release from facilities using the EPA's Risk-Screening Environmental Indicators model	No
Historic and Cultural Resources	Evaluated whether the Action Alternatives would affect properties listed or eligible for the National Register of Historic Places.	No impacts identified; Port will monitor during construction and follow an inadvertent discovery plan.	N/A	N/A	No
Land and Shoreline Use	Reviewed applicable land use plans and policies; evaluated effects to the coastal zone.	No; airport plans are consistent with local plans and land uses. No effects to coastal zone.	N/A	N/A	No
Energy and Natural Resources	Evaluated potential increased demand for energy, water, and construction materials under the Action Alternatives.	No adverse effect; while the Action Alternatives would increase demand, energy and water supply is available and construction materials have no supply chain issues.	N/A	N/A	No
Noise	Evaluated noise contours and potential for increased noise affecting noise-sensitive land uses in the GSA under the Action Alternatives compared to No Action.	Increased aircraft noise under the Action Alternatives would expand the 65+ DNL contour; however, these increases would not be significant. Construction-related noise increases would be minimized through strict adherence to the Port's Construction General Requirements, by meeting the State of Washington and City of SeaTac noise requirements and utilizing BMPs.	N/A	Environment (Noise Pollution)	No; see Section 6.3.4

Table 6-1. SEPA Impact Summary and Relationship to WADOH Map Factors and Port Equity Indicators (continued)

Element of the Environment	Description of Evaluation	Does the Impact from the Action Alternatives cause an Adverse Effect?	Relationship to WADOH Map Factors	Relationship to Port Equity Index Indicator	Does the analysis show a significant impact to an EJ Population?
Socioeconomic	Evaluated the potential for job/employment growth and business displacement.	The Action Alternatives would directly create new jobs and support long-term economic growth in the region. One business located on Port property would be displaced. Community cohesion would not be affected.	Socioeconomic Factors	Economy (Unemployment Rate, Median Household Income, and Estimated Jobs)	No (positive effect, but not significant); see Section 6.2.4
Surface Transportation (Vehicular Traffic; Rail Traffic; Transit, Parking, and Non-Motorized Facilities; Traffic Hazards)	Evaluated intersection performance throughout the transportation study area.	Yes; multiple intersections would have delay above standards in 2032 and/or 2037. A smaller number would see improved or stable performance. All impacts identified as significant would be mitigated.	Environmental Exposures	Accessibility (Pedestrian and Bike Facilities, Auto to Jobs Index, and Walkability Index)	No; see Section 6.2.1
Aesthetics, Light and Glare	Evaluated plans and effects on glare and ambient light.	No significant changes in light intensity compared to No Action.	N/A	N/A	No
Public Services and Utilities	Evaluated potential impacts on emergency services, schools, and public utilities.	No significant impacts identified.	N/A	N/A	No
Water Resources	Evaluated potential effects on wetlands, surface waters, floodplains, wastewater, and groundwater.	Less than 1 acre of wetlands would be filled under the Action Alternatives; treatment of runoff would minimize effects to stormwater. Port will monitor contaminant levels in groundwater during and following completion of construction.	Environmental Effects (wastewater)	N/A	No
Cumulative Impacts	Evaluated NTPs in context of the past, present, and reasonably foreseeable future projects.	No.	Potential impacts discussed in topics above	Potential impacts discussed in topics above	No (mix of positive and negative but none significant)

[a] The majority (93%) of all emissions modeled in the future Action and No Action scenarios is from jet fuel dispensed and combusted throughout the full flights. The Port has no control or influence over these full-flight emissions.

Based on the preliminary assessment presented in Table 4-1, the EJ analysis includes more detailed discussions for those resource categories where one or more factors from the WADOH EHD map relate to the resource categories and where the NTPs could affect those factors, as identified in Table 6-1. These categories are air quality, plants and animals, surface transportation, socioeconomics, noise, hazardous materials, and water resources.

6.2 Relating SEPA Findings to WADOH Environmental Health Disparities Index

This section considers each of the factors identified in the WADOH EHD map and evaluates whether and how the impacts identified in the SEPA analysis could affect those factors in order to determine whether the Action Alternatives could potentially worsen an existing environmental health disparity. Based on this analysis, the Port concluded that the Action Alternatives would have both positive and negative impacts on the SEPA EJ populations, but none would be significant.

6.2.1 Environmental Exposures

Environmental exposure factors considered in the EHD map include:

- Diesel exhaust PM 2.5 emissions
- Ozone concentration
- Particulate matter 2.5 (PM 2.5) concentration
- Proximity to heavy traffic roadways
- Toxic release from facilities (RSEI model)

Of these factors, the Action Alternatives may affect the air quality factors and traffic volumes on heavy traffic roadways. The EIS resource categories air quality and surface transportation overlap with the index factors above. As shown in Table 5-1, each of the census tracts in the GSA scores seven or higher for environmental exposures. Increases in exposures from projects such as the SAMP NTPs could affect environmental justice populations, but these effects are not expected to be significant based on the SEPA analysis for these resource areas.

6.2.1.1 Air Quality

The Action Alternatives would result in a net increase in air emissions when compared to the No Action in both 2032 and 2037. However, based on the increased emissions of the Action Alternatives relative to the No Action Alternative, as well as ambient pollutant levels measured in the region as part of the regional network, the Puget Sound Clean Air Agency (PSCAA) does not anticipate exceedances of the National Ambient Air Quality Standards (NAAQS) as a result of the Action Alternatives during construction activities or operations. The NAAQS were established to provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. The Action Alternatives are not expected to cause an exceedance of these standards.

The air quality analysis in the NEPA EA, known as an emissions inventory, calculated the quantities of each of the NAAQS-regulated pollutants that would be emitted under the No Action Alternative and the Action Alternatives. The SEPA EIS built on this analysis by developing an air dispersion study, which evaluated how the pollutants emitted by activities at SEA would be distributed geographically. This allowed for a determination of whether the pollutants could affect nearby communities. The

study concluded that no localized exceedances of the NAAQS would be expected to occur in the study area either during construction or after implementing the Action Alternatives.

A Human Health Risk Assessment (HHRA) was also completed for the SEPA EIS. The HHRA focused on the dispersion of Toxic Air Pollutants (TAPs) from Airport operations to identify potential cancer and non-cancer health effects. Human health effects were evaluated based on the path of exposure and the dose, route and duration of exposure. The HHRA focused on TAPs that can potentially be emitted by aviation activities. No significant increases in cancer or non-cancer health risks impacts were identified for the Action Alternatives.

In conclusion, the impacts associated with the Action Alternatives are not expected to significantly affect air quality or air-quality related health risks for either EJ populations or the general population in the study area.

6.2.1.2 Surface Transportation

Construction Impacts

Construction activities may cause temporary disruptions to transit and non-motorized facilities. These disruptions would be limited to the immediate vicinity of the construction site. Signage, lighting, and other safety measures would minimize impacts.

Minimization measures and best management practices (BMPs) would be used to minimize surface transportation impacts during construction of the Action Alternatives. This includes designated truck routes or flaggers directing traffic.

Air quality impacts associated with the dispersion of diesel emissions from construction vehicles and equipment are addressed in Section 6.2.1.1.

Operational Impacts

Traffic performance at the intersections in the study area is generally poor under existing conditions, and many of these intersections would worsen slightly under both the No Action Alternative and the Action Alternatives. Traffic would increase under the No Action Alternative primarily as a result of population and employment growth in the GSA. The Action Alternatives would result in additional traffic on the local streets and highways near the Airport, which would adversely impact a total of 26 intersections. Of the 26 intersections, 18 would be mitigated according to each local jurisdiction's requirements and therefore would not result in adverse impacts to environmental justice communities. Mitigation was proposed according to each jurisdiction's requirements; meetings were held with the local jurisdictions to present the traffic analysis results and proposed mitigation.

The remaining eight ramps or intersections feed highways of statewide or regional significance, are therefore considered high-volume roadways as defined by the WADOH EHD map. WSDOT, which has jurisdiction over these intersections, is not requiring mitigation. However, compared to the overall traffic volume on the highways near the airport, the increase in trip generation expected from the Action Alternatives compared to No Action is minor.

Overall, after mitigation, the Action Alternatives would not substantially contribute to any of the environmental exposure factors; therefore, no significant adverse impacts to environmental justice communities based on this factor were identified.

6.2.2 Environmental Effects

Environmental effect factors considered in the EHD map include:

- Lead risk from housing
- Proximity to hazardous waste facilities
- Proximity to National Priorities List sites (Superfund sites)
- Proximity to Risk Management Plan (RMP) facilities
- Wastewater discharge

Of these factors, the Action Alternatives may affect wastewater discharge. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not affect housing or location of existing hazardous waste facilities).

The SAMP NTPs were evaluated for impacts to wastewater discharge. Wastewater runoff rates associated with the Action Alternatives were identified, and the future demand for Industrial Wastewater System (IWS) conveyance infrastructure, storage capacity, snow storage areas, and Industrial Wastewater Treatment Plant (IWTP) infrastructure was assessed. Potential improvements to address surface water impacts and comply with applicable regulatory requirements include construction of additional detention for deicing runoff and infrastructure upgrades in the IWTP to improve treatment at higher flow rates. With these efforts, impacts to wastewater discharge and related environmental effects would be minimized. Based on this analysis, the Action Alternatives would not substantially contribute to any of the environmental effects factors; therefore, no significant adverse impacts to environmental justice communities based on this factor were identified.

6.2.3 Sensitive Populations

Factors to identify sensitive populations in the EHD map include:

- Death from cardiovascular disease
- Low birth weight

Of these factors, the Action Alternatives may affect cardiovascular disease.

Exposure to particulate matter can aggravate existing respiratory conditions, increase respiratory symptoms and disease, decrease long-term lung function, and possibly cause premature death. Particulate matter less than 2.5 microns in diameter (PM 2.5) and diesel particulates are of particular concern for human health.

The dispersion analysis evaluated the potential for the Action Alternatives to result in off-Airport exposure to PM 2.5 at levels exceeding the NAAQS. The HHRA also evaluated potential health effects from diesel particulate matter The overall conclusions of these analyses are:

- Levels of PM 2.5 would not exceed the NAAQS at any off-Airport locations.
- Acute health hazards: Short-term exposures to TAPs of concern would not result in adverse health effects.
- Chronic health hazards: Long-term exposures to TAPs of concern would not result in adverse non-cancer health effects.
- Cancer risks: Incremental cancer risks for all receptors are below the 1E-05 cancer risk threshold, which indicates that lifetime exposures to TAPs of concern would not result in unacceptable cancer risks.

The hazard and risk values presented are estimates. Due to the combination of uncertainties in exposure and toxicity estimates and conservative modeling approaches, the calculated hazards/risks presented are likely to overestimate actual risks.

Further, the analysis of recent studies on the health effects of aviation noise concluded that there has been no demonstrated adverse association between aircraft noise and cardiovascular outcomes (see Appendix J of the Draft EIS).

Based on this analysis, the Action Alternatives would not substantially contribute to any of the sensitive population factors; therefore, no significant adverse impacts to environmental justice communities based on this factor were identified.

6.2.4 Socioeconomic Factors

Socioeconomic factors considered in the EHD map include:

- No high school diploma
- Poverty
- Race - people of color
- Primary language other than English
- Transportation expense
- Unaffordable housing
- Unemployment

Of these factors, the Action Alternatives may affect poverty and unemployment. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not affect demographic data, educational attainment, or affordable housing). The Socioeconomic section of the EIS concludes that the Action Alternatives would result in increases in jobs from construction and at the airport, which could positively affect poverty and unemployment rates.

Construction Impacts

Beneficial impacts include construction jobs and attendant temporary growth in economic activity for local businesses from the creation of construction jobs and supporting businesses.

Operational Impacts

The Doug Fox Lot, a parking business that leases Port-owned property, would be closed due to the proposed construction of the Second Terminal and parking garage. The approximately 25 Doug Fox Lot employees would likely find replacement employment with Port-offered employment assistance. While this would result in the loss of revenue for the operator of the Doug Fox Lot, it is not considered a significant economic impact and the loss of parking would largely be replaced by the new parking structure (T02).

The NTPs would have positive impacts on employment and job opportunities in the short term due to construction and over the long term in support of airport growth. The Action Alternatives would support long-term economic growth for the Puget Sound region and the area near SEA by providing facilities necessary to accommodate future passenger and cargo growth. The proposed Second Terminal would directly create new airline support jobs (such as ticket counter agents, gate attendants, etc.), new restaurant and retail jobs (for the new food and shopping establishments), and new jobs associated with operation and maintenance of the new facilities. Temporary growth in economic activity for local businesses would occur from the creation of construction jobs and

supporting businesses. Additional indirect growth in economic activity may occur from passengers using nearby hotels, restaurants, etc.

Based on this analysis, the Action Alternatives would positively contribute to the socioeconomic factors, however, these impacts are not expected to be significant to environmental justice communities.

6.3 Relating SEPA Findings to Port Equity Index Indicators

This section builds on Table 4-2, which relates the SEPA findings to the indicators in the Port Equity Index. In this section, indicators from the Port Equity Index that could be affected by the Action Alternatives are discussed. In cases where indicators in the Equity Index are similar to factors in the WADOH EHD map that were discussed in Section 6.2, the findings are briefly summarized.

6.3.1 Economy

Indicators included in the economy category of the Port Equity Index are:

- Poverty rate
- Unemployment rate
- Median household income
- 200% poverty rate
- Educational attainment
- Estimated jobs total

Of these indicators, the Action Alternatives have the potential to affect the poverty rate, unemployment rate and total estimated jobs. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not likely affect median household income, educational attainment, or affordable housing).

As discussed in Section 6.2.4.1, the Proposed Action would support long-term economic growth in the region. The effects to unemployment and jobs are expected to be positive overall, as the Action Alternatives would create construction jobs and increase airport-related jobs in the long term. Based on this analysis, the Action Alternatives would positively contribute to the socioeconomic indicators; however, these impacts are not expected to be significant to environmental justice communities.

6.3.2 Livability

Indicators included in the livability category of the Port Equity Index are:

- Home ownership rate
- Housing cost burden
- Fair or poor health
- High school graduation rate
- Transit access
- Transit commuters as % workforce
- Crime risk
- Asthma rates

Of these indicators, the Action Alternatives have the potential to affect the fair or poor health indicator and the asthma rates indicator, as poor air quality is related to those issues. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not likely affect transit access, or high school graduation rates).

Adverse impacts from projects such as the SAMP NTPs could worsen conditions for these indicators if they increased environmental exposures that increase risk of asthma or its effects, such as to PM 2.5 or diesel particulate. However, as described above, the Action Alternatives are not expected to significantly affect air quality, which could affect asthma rates, a livability factor identified by the Port. Based on this analysis, the Action Alternatives would not substantially contribute to any of the livability indicators; therefore, no significant adverse impacts to environmental justice communities based on this factor were identified.

6.3.3 Accessibility

Indicators included in the accessibility category of the Port Equity Index are:

- Pedestrian and bike facilities
- Households with internet
- Four-year average voter participation
- Healthy food availability
- Transit to jobs index[1]
- Auto to jobs index
- Walkability index
- Community park access
- Regional park access

Of these indicators, the Action Alternatives have the potential to affect pedestrian and bike facilities and the auto or transit to jobs indices. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not likely affect the availability of healthy food or voter participation rates).

Adverse impacts from projects such as the SAMP NTPs could worsen conditions for these indicators by worsening mobility or access. However, the Action Alternatives would increase jobs at the airport which could improve the transit and auto to jobs index scores. The benefits would be based on an increase in jobs at SEA, which is accessible by transit and by car.

Traffic performance at the intersections in the study area is generally poor under existing conditions, and many of these intersections would worsen slightly under both the No Action Alternative and the Action Alternatives. The Action Alternatives would adversely impact a total of 26 intersections. Of the 26 intersections, 18 would be mitigated according to each local jurisdiction's requirements and the remaining 8 are under the jurisdiction of WSDOT, which is not requiring mitigation. Transportation impacts associated with traffic mobility (congestion) are discussed in Section 6.2.1.2. Overall, after mitigation, no significant adverse impacts were identified. Based on this analysis, the Action Alternatives would not substantially contribute to any

[1] The transit and auto to jobs indexes measure a weighted number of jobs accessible within a 45-minute transit commute, or a 45-minute drive from the residence location, with closer jobs having a greater influence weight.

of the accessibility indicators; therefore, no significant adverse impacts to environmental justice communities based on this indicator were identified.

6.3.4 Environment

Indicators included in the environment category of the Port Equity Index are:

- Diesel emissions
- Toxic releases from facilities
- Particulate matter 2.5 microns or less in diameter (PM 2.5)
- Proximity to heavy traffic roadways
- Urban tree canopy
- Noise pollution
- Flood risk
- Heat and temperature

Of these indicators, the Action Alternatives have the potential to affect emissions (diesel and PM 2.5), the urban tree canopy, and noise pollution. Adverse impacts from the SAMP NTPs could worsen conditions for these indicators. None of the other indicators could reasonably be affected by the NTPs (e.g., the Action Alternatives would not likely affect heat and temperature). Although the Westside Maintenance Campus (S07) is located in a flood risk zone, it would be designed to accommodate potential flood flows.

6.3.4.1 Air Quality

Diesel and PM2.5 emissions are factors in the Port Equity Index. As discussed in Section 6.2.1.1, the Action Alternatives are not expected to cause an exceedance of USEPA's health-based National Ambient Air Quality Standards and are therefore not expected to cause significant adverse health effects to environmental justice populations. Minimization measures are in Appendix P.

6.3.4.2 Tree Canopy

The urban tree canopy is a factor in the environment category. The Port's Equity Index measures average tree canopy cover in each block group. The Action Alternatives would result in the removal of trees and vegetation; approximately 56.4 acres of land that is currently vegetated with trees, shrubs, and maintained grassy areas would be cleared for the construction of the offsite cargo (C02 and C03), north GT holding lot (L05), employee parking structure (L07), CRDC (S10), and Westside Maintenance Campus (S07) projects.

The Port would implement strategies outlined in its April 2024 Land Stewardship Plan (e.g., tree replacement). The Land Stewardship Plan includes formal requirements to replace trees that are cleared within the AAA for operational safety and development needs at SEA at a 4-to-1 functional ratio. In addition, Port-owned properties outside of the Airport Activity Area would comply with any appropriate city standards. These efforts will serve to mitigate the short-term impact on tree canopy.

6.3.4.3 Noise

Construction Impacts

Temporary increases in noise associated with construction of the offsite cargo projects (C02 and C03) would affect residential properties located east of 24th Avenue S., west of 30th Avenue S., and south of S. 148th Street. Construction for C02 would last approximately 18 months, and construction for C03 would last approximately 16 months). Major construction activities are anticipated to be limited to daylight hours, and through this SEPA EIS the Port has imposed construction equipment requirements that help to minimize noise levels near construction sites.

Noise from construction may occasionally exceed ambient noise levels and be noticeable to residential properties. For C02, 13 residential properties could experience a noticeable increase (over 3 dB) in construction noise intermittently during construction. The longest continuous duration would be approximately 18 weeks. For C03, eight residential properties would experience a noticeable increase in construction noise periodically during construction. The longest duration would be approximately 26 weeks.

Construction-related noise increases would be minimized through strict adherence to the Port's Construction General Requirements and by meeting State of Washington and City of SeaTac requirements. Contractors will also utilize BMPs to reduce noise impacts. In addition, most of the residential properties adjacent to the C02 and C03 sites that would experience a noticeable temporary noise increase have received sound insulation through the Port's Sound Insulation Program, which reduces the noise that enters the interior of the structure.

Operational Impacts

The Action Alternatives would result in an increase in the 65+ DNL noise contour in 2032 and 2037. The 2032 noise contour for the Action Alternatives would be larger than the 2032 No Action noise contour by 0.15 square mile, due primarily to the increase in aircraft operations. As a result of this increase, approximately 337 additional housing units and 824 additional people would be exposed to noise levels of 65 DNL or above compared to No Action. In 2037, the 65+ DNL noise contour for the Action Alternatives would be larger than the No Action contour by 0.66 square mile due to additional increases in aircraft operations. As a result of this increase, approximately 1,851 additional housing units and 4,439 additional people would be exposed to noise levels of 65 DNL or above compared to No Action.

While there would be increases in noise due to the Action Alternatives, noise-sensitive areas within the 65+ DNL contour would not experience noise level increases of 1.5 DNL or more under the 2032 or 2037 conditions. The range of increase was between 0.0 DNL and 0.6 DNL, which is lower than the FAA threshold of significance for noise impacts. Therefore, no significant noise impact would occur as a result of the Action Alternatives, and no adverse impacts to SEPA environmental justice populations are anticipated.

Analysis of recent studies on the health effects of aviation noise (included in Appendix J to the EIS) found that aircraft noise exposure at some levels can cause annoyance and disturb sleep. These studies suggest that aircraft noise exposure has potential marginal effects on hypertension, but does not affect the incidence of cardiovascular disease.

Based on this analysis, the Action Alternatives would not substantially contribute to any of the environment indicators; therefore, no significant adverse impacts to environmental justice communities based on this indicator were identified.

7. Mitigation Strategies and Outreach

The SEPA EIS identifies minimization and mitigation measures for adverse impacts. Measures applicable to EJ populations are identified in Sections 6.1 through 6.3 above and are expected to reduce the impacts of the Action Alternatives to below the level of significance. The SEPA EIS also includes descriptions of ongoing programs and policies at the Airport that are designed to minimize the overall effects of SEA operations on surrounding communities.

Potential environmental impacts will be communicated with the public, allowing time for public coordination and feedback. When impacts are experienced by an EJ population, it is beneficial to include the potentially affected EJ community in identifying possible mitigation measures, so that efforts reflect the specific needs of affected populations.

The Port of Seattle will conduct meaningful engagement of the affected EJ populations to provide information on the impact analysis and context-specific mitigation measures and actions, if necessary.