

# **Maritime, Manufacturing and Transportation & Warehousing Strategic Analysis 2024 Update**

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Prepared by:



Prepared for:





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

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## EXECUTIVE SUMMARY

The Maritime, Manufacturing, and Transportation and Warehousing industries have played and continue to play a significant role in the economic development and identity of Seattle, Washington. A critical component of the success of the Maritime and Manufacturing industries is the Transportation and Warehousing industry.

Today, the Maritime industry in Seattle continues to be characterized by shipbuilding, fishing, recreation, tourism, passenger transportation, domestic and international maritime logistics, and shipping. Manufacturing is characterized by food and beverage, textiles and apparel, wood product and paper, chemical and plastics, aerospace, machinery, and metal product, and other manufacturing. Transportation and Warehousing includes air transportation, truck transportation, transit, ground, scenic, and sightseeing transportation, pipeline transportation, postal service and couriers, support activities for transportation, and warehousing and storage.

In 2023 in Seattle, the Maritime, Manufacturing, and Transportation and Warehousing industries combined directly supported 48,900 jobs, \$6 billion in wages and \$21 billion in estimated direct business revenues. In King County in 2023 these industries combined directly supported 193,600 jobs, \$24 billion in employee wages, and \$89.3 billion in estimated business revenues. (**Exhibit 1**)

### Exhibit 1. Direct Economic Impacts, Seattle and King County, 2023

Direct Impacts	Seattle (2023)	King County (2023)
<b>Transportation &amp; Warehousing</b>		
Jobs	15,300	83,200
Total Compensation (mils 2023 \$)	\$2,000	\$10,000
Business Revenue (mils 2023 \$)	\$5,800	\$34,300
<b>Maritime</b>		
Jobs	11,800	18,800
Total Compensation (mils 2023 \$)	\$1,500	\$2,400
Business Revenue (mils 2023 \$)	\$3,600	\$5,600
<b>Manufacturing</b>		
Jobs	21,600	91,600
Total Compensation (mils 2023 \$)	\$2,500	\$11,600
Business Revenue (mils 2023 \$)	\$11,600	\$49,400

*Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.*

## Economic and Fiscal Impacts

Combined economic and fiscal impacts include jobs, wages, and revenues both directly and indirectly supported by industry operations, as well as induced effects that are generated because of spending of direct and indirect wages supported by the Maritime, Manufacturing, and Transportation and Warehousing industries. In total these industries support 115,800 jobs, \$10.4 billion in employee compensation, and \$34 billion in business revenues in Seattle. Throughout King County, the Maritime, Manufacturing, and Transportation and Warehousing industries support 483,800 jobs, \$43.1 billion in labor income, and \$145.9 billion in business revenues. **(Exhibit 2)**

### Exhibit 2. Total Economic Impacts, Seattle and King County, 2023

	Direct	Indirect	Induced	Total
<b>Seattle</b>				
Jobs	48,700	16,500	50,600	115,800
Total Compensation (mils 2023 \$)	\$6,010	\$1,230	\$3,130	\$10,370
Business Revenue (mils 2023 \$)	\$21,040	\$3,580	\$9,370	\$33,990
<b>King County</b>				
Jobs	193,600	74,100	216,100	483,800
Total Compensation (mils 2023 \$)	\$23,960	\$5,670	\$13,470	\$43,100
Business Revenue (mils 2023 \$)	\$89,400	\$16,200	\$40,280	\$145,880

*Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.*

The Maritime, Manufacturing, and Transportation and Warehousing industries also generate fiscal impacts in both Seattle and King County. Both direct and secondary (indirect and induced) impacts support the generation of tax revenues statewide. In 2023, the total state fiscal impacts generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle reached \$273.4 million. In King County, those industries generated nearly \$1.2 billion in statewide fiscal impacts. **(Exhibit 3)**

### Exhibit 3. Total State Fiscal Impacts, Seattle and King County, 2023

Fiscal Impacts	Direct (mils 2023\$)	Secondary (mils 2023\$)	Total (mils 2023\$)
<b>Seattle</b>			
B&O	\$31.4	\$58.1	\$89.4
Sales & Use Taxes	\$34.0	\$129.2	\$163.2
Other	\$5.9	\$14.9	\$20.8
<b>Subtotal</b>	<b>\$71.3</b>	<b>\$202.1</b>	<b>\$273.4</b>
<b>King County</b>			
B&O	\$133.4	\$255.3	\$388.7
Sales & Use Taxes	\$122.5	\$570.9	\$693.4
Other	\$32.3	\$62.5	\$94.8
<b>Subtotal</b>	<b>\$288.2</b>	<b>\$888.7</b>	<b>\$1,176.9</b>

Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.

## Industry Workforce

Common occupations in the Maritime, Manufacturing, or Transportation and Warehousing industries do not typically require an advanced degree for entry. Of the 35 occupations that are both highly concentrated within each industry and have high employment in King County, just 11 require an Associate's degree or higher.

Median wages among common occupations in the Maritime, Manufacturing, and Transportation and Warehousing industries range from \$37,840 (Meat, Poultry, and Fish Cutters and Trimmers) to \$149,050 (Aerospace Engineers). In general, common occupations within the Maritime and Manufacturing industries have higher median wages and are more highly concentrated or reliant on their respective industries compared to Transportation and Warehousing occupations.

In general, average annual wages within the Maritime, Manufacturing, and Transportation and Warehousing industries have not kept pace with the increasing wages across the King County economy as a whole. King County Area Median Income has increased from \$86,700 to \$146,500, adjusted for inflation between 2013 and 2023. Across all subsectors within each of these industries, the Transit, Ground, Scenic and Sightseeing Transportation subsector was the only subsector to see an increase in average annual wages relative to the King County AMI.

## Industry Trends

The global Maritime, Manufacturing, and Transportation and Warehousing industries sit in a delicate balance between a rising supply of containers and demand sufficient to fill that capacity. While global TEU capacity is expected to increase by 10% by the end of 2024, global demand has risen to meet that increase. As of July 2024, demand for shipping units had increased by 7.4%. Part of the increased demand for containers is due to ships taking longer routes. Recent violence and instability in the Red Sea and Suez Canal, ramping up in late 2023, have contributed to a 66% decrease in cargo traffic through both regions. In response, cargo ships have been going around the Cape of Good Hope, adding time to each journey, and limiting the number of available containers at any one time.

Looking forward to 2025, any change in the status quo has the potential to disrupt the current ecosystem. If the violence in and around the Red Sea is resolved, it will shorten shipping routes, allowing for a surplus of available shipping capacity. At the same time, the union representing dockworkers at many US ports may still strike over automation when their contract expires on January 15<sup>th</sup>, delaying commerce. Lastly, President-Elect Donald Trump's proposal to levy tariffs on all US imports would have wide-ranging and long-term impacts on the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle, King County, and around the globe.

## CONTENTS

Introduction .....	1
Measures and Impacts.....	2
Economic and Fiscal Impacts .....	35
Industry Trends .....	40
Conclusion.....	45
Appendix: .....	46

# INTRODUCTION

## Background and Purpose

This report assesses the local and county impacts of the Maritime, Manufacturing, and Transportation and Warehousing industries in King County and Seattle. These industries rely on Seattle’s industrial lands, two manufacturing industrial centers, and a rich historic ecosystem of industry and supporting businesses. The City of Seattle’s Office of Economic Development desires an update to the Maritime, Manufacturing, and Transportation and Warehousing Strategic Analysis published in November 2023.

Data and analysis in this report include updates to estimates of employment, wages, business revenues, as well as occupational and economic impact analysis. Additionally, this report summarizes important national and regional trends that present challenges and opportunities for these industries. A tangible understanding of each industry’s ongoing performance in the region is critical to support the local economy and workforce.

## Data and Methods

Updates to the economic analysis incorporate a combination of qualitative and quantitative inputs. Analytics include estimated direct activities—measured in jobs, income, and business output—directly supported by each industry’s activities and the broader economic and fiscal impacts of these activities to the state economy.

This report presents updates to analysis presented in the November 2023 Maritime, Manufacturing, and Transportation and Warehousing Strategic Analysis. Updated economic analysis includes the latest data available to estimate the impact of the Maritime, Manufacturing, and Transportation and Warehousing industries on the Seattle and King County economies. Analysis therefore includes updates to historical estimates that reflect updates and corrections within the publicly available data sources used in the analysis.

Data used in this report draws from several sources, including state and federal employment and wage files maintained by the Washington State Employment Security Department, Puget Sound Regional Council, and U.S. Bureau of Labor Statistics; gross business income published by the Washington State Department of Revenue; cargo and trade statistics published by the U.S. Census Bureau and The Northwest Seaport Alliance, and Pacific Maritime Association; and other relevant information maintained and provided by public and private sources. Direct activities are further modeled to account for missing information when necessary.



The report contains estimated additional jobs, income, and business revenues supported through upstream business-to-business transactions (indirect impacts) and worker earned income consumption expenditures (induced impacts). The study presents state tax revenues supported through direct, indirect, and induced impacts from each industry as well.

## Organization of Report

The remainder of this report is organized as follows:

- **Measures and Impacts.** Discusses key measures of the Maritime, Manufacturing, and Transportation and Warehousing industries, including, jobs, wages, business revenues, and occupations.
- **Economic and Fiscal Impacts.** Summarizes direct, indirect, and induced impacts supported by Seattle’s Maritime, Manufacturing, and Transportation and Warehousing industries, as well as the fiscal impacts generated by their activities.
- **Industry Trends.** Outlines key trends both local and national impacting the Maritime, Manufacturing, and Transportation and Warehousing industries.
- **Conclusion.** Summary of key findings.

## MEASURES AND IMPACTS

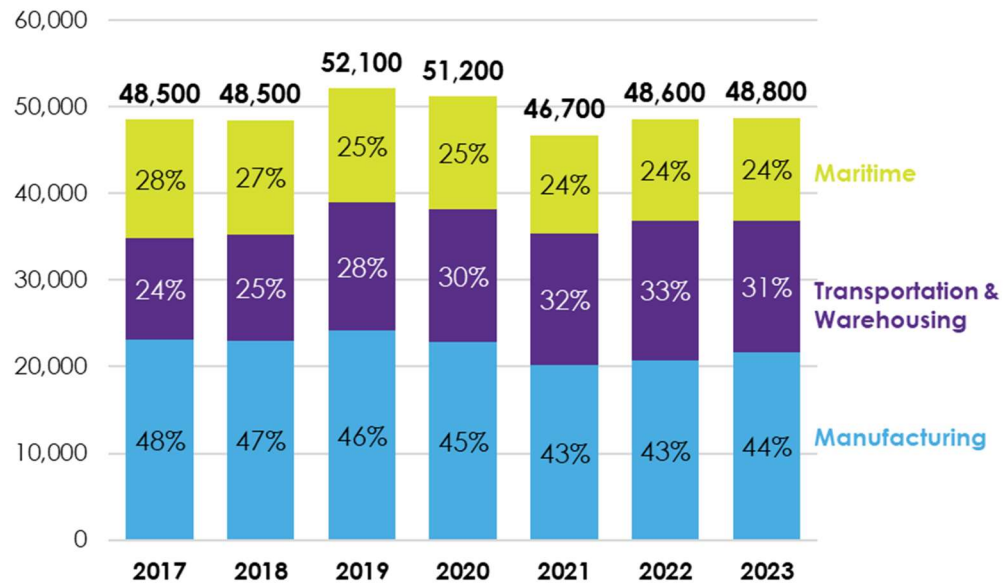
Seattle’s Maritime, Manufacturing, and Transportation and Warehousing industries can be described in 17 subsectors. These industries represent a wide range of subsectors and occupations, including the maritime logistics and shipping businesses that rely on the facilities managed by the Port of Seattle and Northwest Seaport Alliance (NWSA) in addition to warehouses and manufacturing businesses. These subsectors are defined in the 2023 Maritime, Manufacturing and Transportation & Warehousing Strategic Analysis, attached in the **Appendix**.

## Employment, Wages, and Business Revenue

### Employment

The Maritime, Manufacturing, and Transportation and Warehousing industries employed 48,800 in Seattle in 2023. Overall employment grew by 200 jobs between 2022 and 2023. The Maritime and Manufacturing industries reported modest growth while Transportation and Warehousing decreased compared to the previous year. Total employment in Seattle remains 3,300 jobs below 2019 pre-COVID levels. The share of industry jobs from Manufacturing grew in 2023 to 44% from 43% in 2022 while Transportation and Warehousing shrunk from 33% to 31%. The percentage of jobs in the Maritime industry was unchanged at 24%. (**Exhibit 4**)

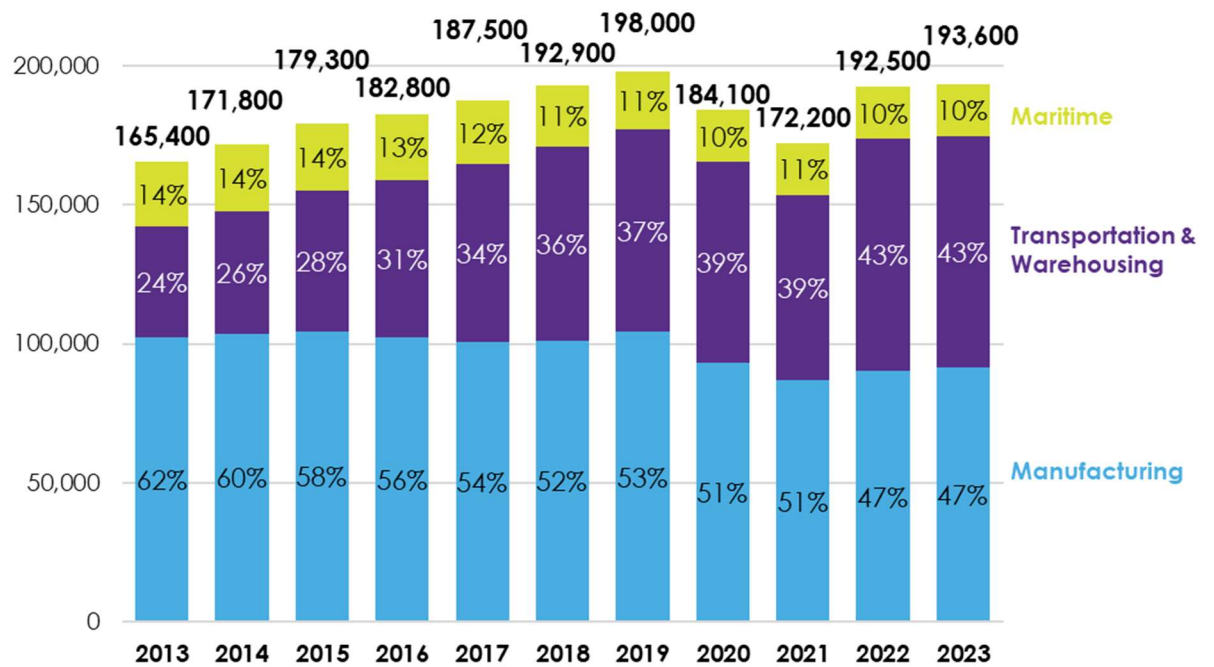
**Exhibit 4. Total Employment by Industry, Seattle, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; Community Attributes Inc., 2024.

King County also reported modest employment growth from 2022 to 2023. In 2023 the King County Maritime, Manufacturing, and Transportation and Warehousing industries employed 193,600 people, up 1,100, or 0.6%, from 2022 (**Exhibit 5**). Employment growth was primarily driven by the Manufacturing industry which grew by 1,100 jobs year-over-year. While employment shares shifted towards Transportation and Warehousing in 2022, those ratios remained even in 2023 with 47% of industry jobs associated with Manufacturing, 43% were Transportation and Warehousing, and 10% attributed to the Maritime industry.

**Exhibit 5. Total Employment by Industry, King County, 2013-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Community Attributes Inc., 2024.

Each of the three industries is made up of several subsectors. The following analysis details includes employment and wage data broken down by each industry and subsector. The Maritime industry is comprised of five such groupings:

- Maritime Logistics and Shipping,
- Commercial Fishing and Seafood Products,
- Passenger Water Transportation,
- Shipbuilding, Repair, and Maintenance, and
- Recreational Boating.

Manufacturing includes six subsectors:

- Aerospace, Machinery, and Metal Product Manufacturing,
- Chemical and Plastics Manufacturing,
- Wood and Paper Products Manufacturing,
- Textile and Apparel Manufacturing,
- Food and Beverage (excluding Seafood Product Manufacturing), and
- Other Manufacturing.

Lastly, the Transportation and Warehousing industry includes seven subsectors:

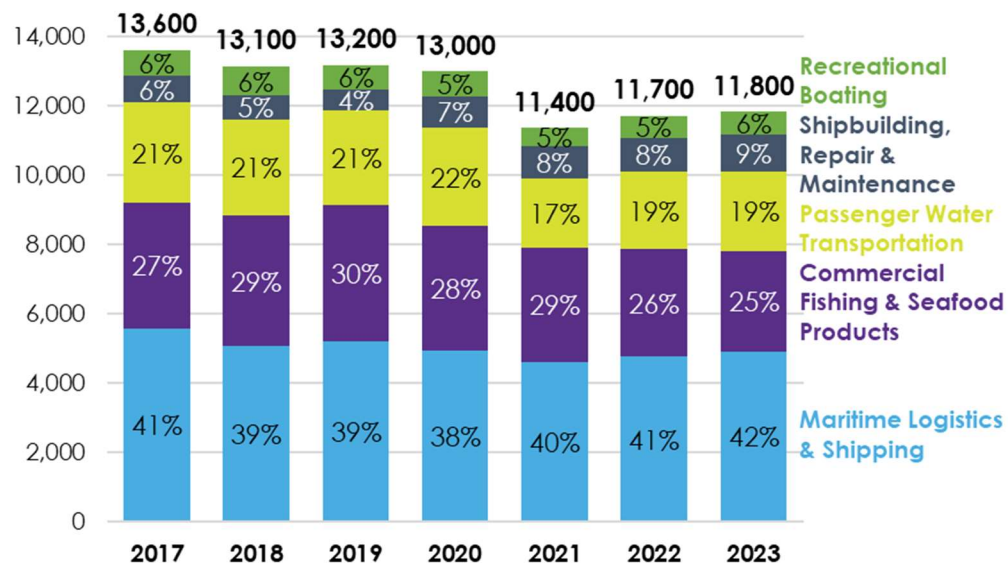
- Air Transportation,

- Transit, Ground, Scenic, and Sightseeing Transportation,
- Pipeline Transportation, Postal Service and Couriers and Messengers,
- Truck Transportation,
- Warehousing and Storage,
- and Support Activities for Transportation.

## Maritime Subsectors

Employment in the Maritime industry in Seattle was mostly unchanged between 2022 and 2023. The industry reported employment growth of 100 jobs, or 0.9% from 2022 levels. The Maritime Logistics and Shipping, Passenger Water Transportation, Recreational Boating, and Shipbuilding, Repair, and Maintenance subsectors all reported employment growth in 2023. Commercial Fishing and Seafood Products reported the only decrease year-over-year. From 2017 to 2023, the Shipbuilding, Repair, and Maintenance subsector reported the largest increase in the share of subsector jobs. The subsector accounted for 9% of industry jobs in 2023, up from 6% in 2017. Over that period, Maritime Logistics and Shipping increased its share of industry employment by 1% to 42% overall. Commercial Fishing and Seafood Products and Passenger Water Transportation both reported employment share decreases of 2% over that time. Recreational Boating reported the same share of industry employment in 2023, 6%, as it did in 2017. **(Exhibit 6)**

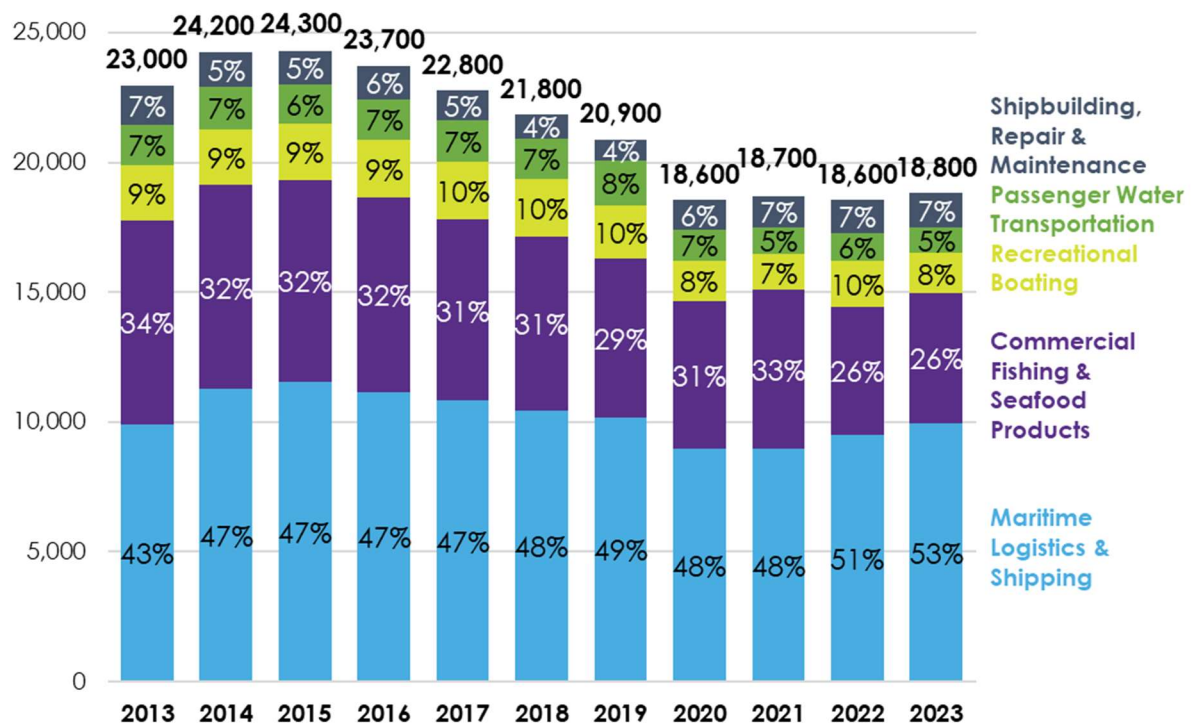
**Exhibit 6. Total Employment by Maritime Subsector, Seattle, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; Community Attributes Inc., 2024.

Total employment in the Maritime industry in King County grew to 18,800 jobs in 2023. Nearly 80% of employment is concentrated in the Maritime, Logistics and Shipping or Commercial Fishing and Seafood Products subsectors. Three subsectors showed growth in 2023 led by Maritime Logistics and Shipping and followed by Commercial Fishing and Seafood Products and Shipbuilding, Repair, and Maintenance. Employment associated with Recreational Boating and Passenger Water Transportation decreased from 2022 levels, declining by 216 and 109 jobs respectively. **(Exhibit 7)**

**Exhibit 7. Total Employment by Maritime Subsector, King County, 2013-2023**



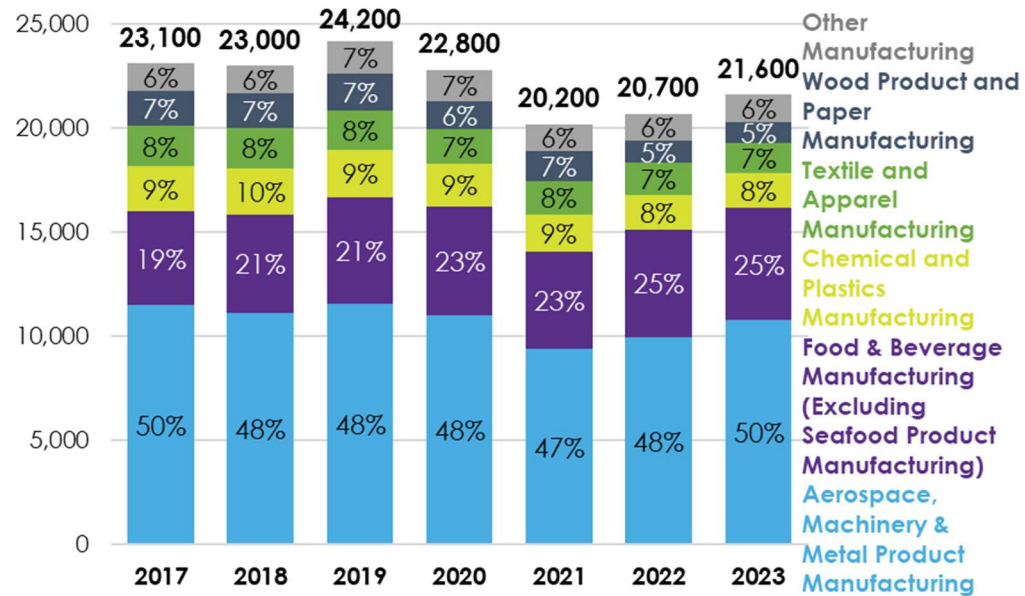
Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Community Attributes Inc., 2024.

## Manufacturing Subsectors

The Manufacturing industry in Seattle showed growth of 4.3%, or 900 jobs, in 2023. That increase was driven by the Aerospace, Machinery, and Metal Product subsector which grew by 8.7% year-over-year. Job gains were partly offset by the Textile and Apparel, and Other Manufacturing subsectors which recorded decreases of 6.3% and 3.3% respectively. The Aerospace, Machinery, and Metal Product, and Food and Beverage subsectors made up 75% of total jobs in the Manufacturing industry in 2023, an increase of 2% over 2022.

**(Exhibit 8)**

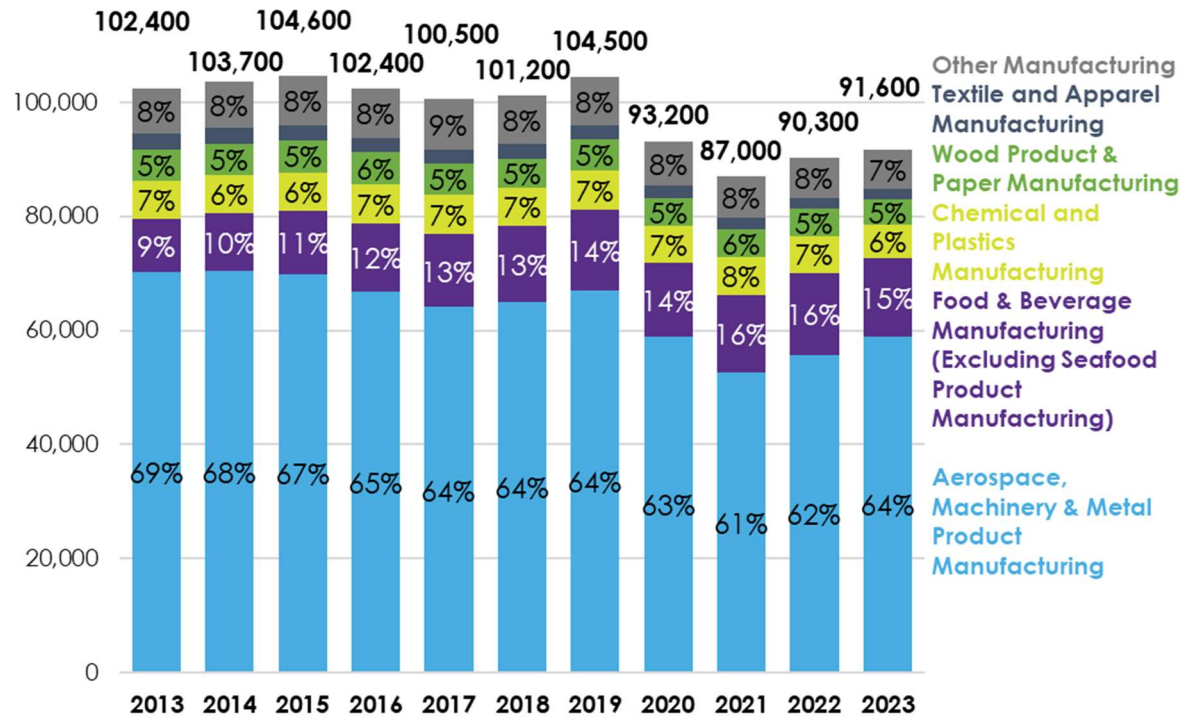
**Exhibit 8. Total Employment by Manufacturing Subsector, Seattle, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; Community Attributes Inc., 2024.

Similarly, employment in the Manufacturing industry throughout King County increased by 1,300 between 2022 and 2023. However, five of the six subsectors decreased in 2023. Chemical and Plastics Manufacturing reported the largest drop in employment of 9.2% over that period, followed by Textile and Apparel Manufacturing (-5.5%), Food and Beverage Manufacturing (-5.0%), Wood Product and Paper Manufacturing (-4.2%), and Other Manufacturing (-3.3%). Aerospace, Machinery, and Metal Product Manufacturing reported the only subsector growth in 2023 of 5.8%. From 2022 to 2023 the subsector added more than 3,200 jobs. (**Exhibit 9**)

### Exhibit 9. Total Employment by Manufacturing Subsector, King County, 2013-2023



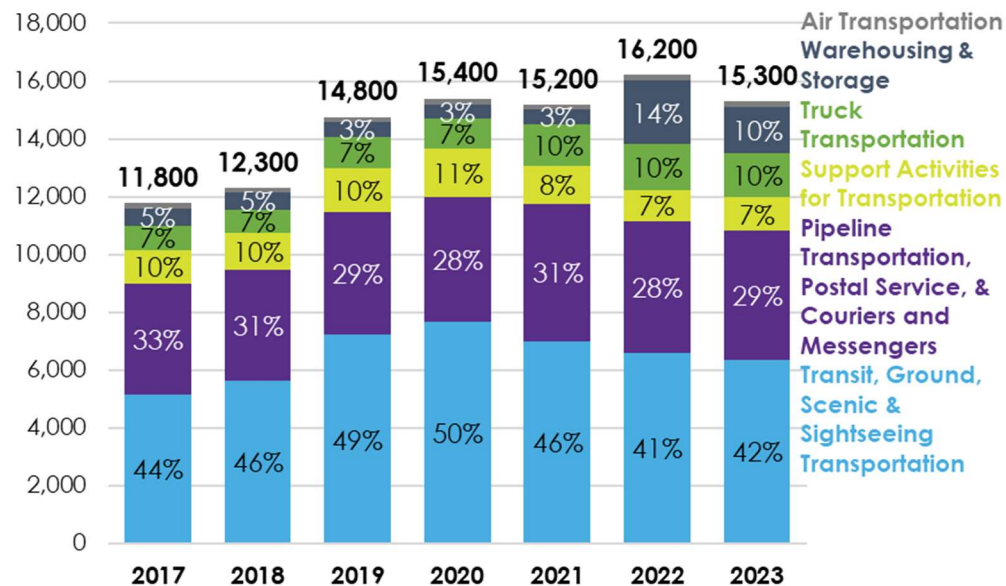
Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Community Attributes Inc., 2024.

### Transportation & Warehousing Subsectors

The Transportation and Warehousing industry in Seattle employed 15,300 people in 2023, 900 fewer people than worked in the industry in 2022. The Warehousing and Storage subsector reported the largest decline of 630 employees year-over-year. The Transit, Ground, Scenic and Sightseeing Transportation, Pipeline Transportation, Postal Service and Couriers and Messengers, and Truck Transportation subsectors also employed fewer workers in 2023 compared to 2022. The Air Transportation and Support Activities for Transportation subsectors grew in 2023, but did not increase employment enough to offset other subsector job declines. (**Exhibit 10**)



**Exhibit 10. Total Employment by Transportation & Warehousing Subsector, Seattle, 2017-2023**

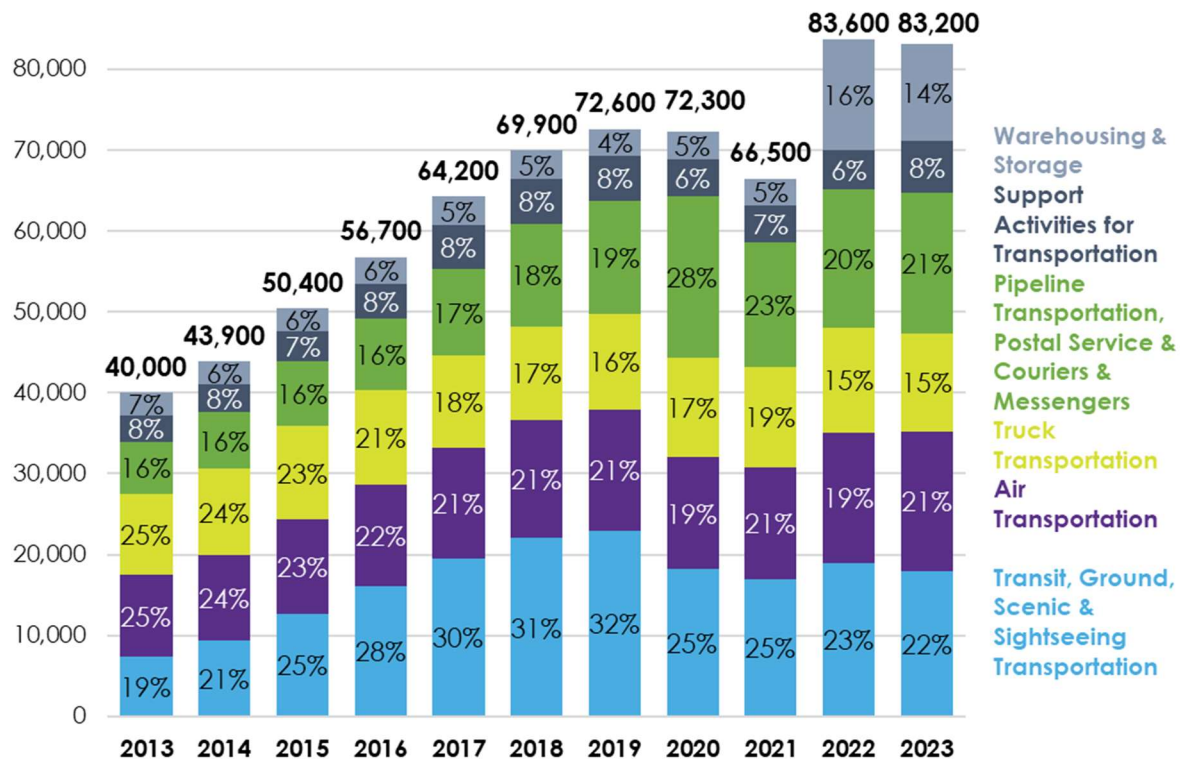


Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; Community Attributes Inc., 2024.

The Transportation and Warehousing industry in King County reported an increase in employment levels in 2022 followed by a small decline in 2023. In total the industry employed 83,200 people in 2023, down from 83,600 in 2022 but greater than 2019 levels. In the five-year period from 2017-2021 the industry employed an average of 69,100 people. Most of the recent increase is attributed to the Warehousing and Storage subsector, which employed 12,000 people in 2023, down from 13,600 in 2022. Between 2017 and 2021, Warehousing and Storage employed 3,400 people on average. Transit, Ground, Scenic and Sightseeing Transportation and Truck Transportation also experienced decreases in employment in 2023. Half of the six subsectors reported larger employee counts in 2023 compared to 2022 including Air Transportation, Pipeline Transportation, Postal Service and Couriers and Messengers, and Support Activities for Transportation. The Warehousing and Storage subsector was 10% of industry employment in 2023, down from 14% in 2022. (**Exhibit 11**)



**Exhibit 11. Total Employment by Transportation & Warehousing Subsector, King County, 2013-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Community Attributes Inc., 2024.

### Pandemic Impacts

While total employment across Maritime, Manufacturing, and Transportation and Warehousing in both Seattle and King County increased between 2022 and 2023, these totals remain below pre-pandemic employment levels. In 2023, employment in Seattle was 48,800, or more than 3,000 below the 2019 employment level of 52,100 workers. In King County, employment increased by approximately 1,100 workers between 2022 and 2023 but was well below that of the 2019 peak of 198,000 workers.

Employment in the Maritime industry in Seattle grew by approximately 100 jobs between 2022 and 2023 but continues to be below pre-pandemic employment levels. Similarly, Maritime industry employment in King County remains below levels seen before the pandemic, however employment in this industry saw decreases between 2015 and 2019.

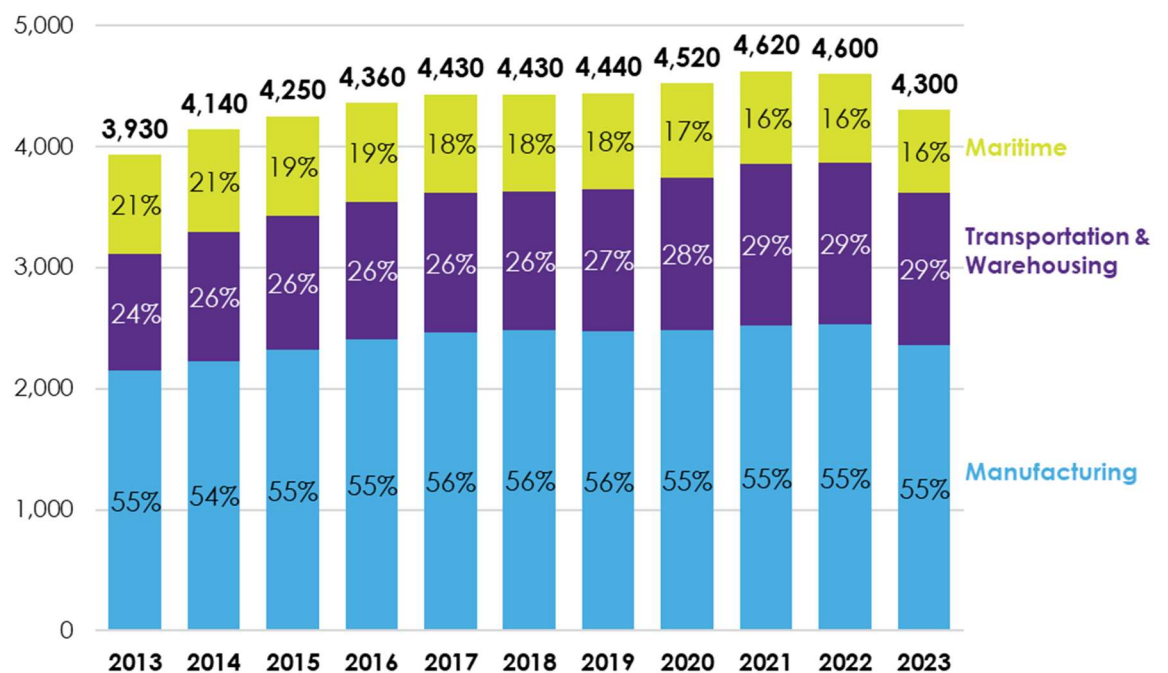
Manufacturing industry employment in both Seattle and King County continues to recover from pre-pandemic employment highs but has not yet reached 2019 employment. Employment has increased annually in both geographies between 2021 and 2023.

Total employment in the Transportation and Warehousing industry in Seattle decreased between 2022 and 2023 but remains greater than pre-pandemic levels. While employment in the industry has decreased by approximately 100 workers between 2020 and 2023, employment has been stable since the onset of the Covid-19 pandemic. In King County, employment in the Transportation and Warehousing industry remains greater than pre-pandemic employment levels, despite a decrease of approximately 400 workers between 2022 and 2023.

## Establishments

The number of establishments in the Maritime, Manufacturing, and Transportation and Warehousing industries throughout King County decreased in 2023. Each industry experienced reductions in establishments of at least 6%. The Maritime industry exhibited the sharpest decrease with establishments falling by 6.8% year-over-year. In total, there were approximately 4,300 business establishments across all three industries in 2023, down from 4,600 in 2022. Of the 17 subsectors within the analysis, 15 reported fewer establishments in 2023 than the year prior. Warehousing and Storage was the only industry to increase the number of businesses operating in King County during the period. (**Exhibit 12**)

**Exhibit 12. Total Establishments by Industry, King County, 2013-2023**

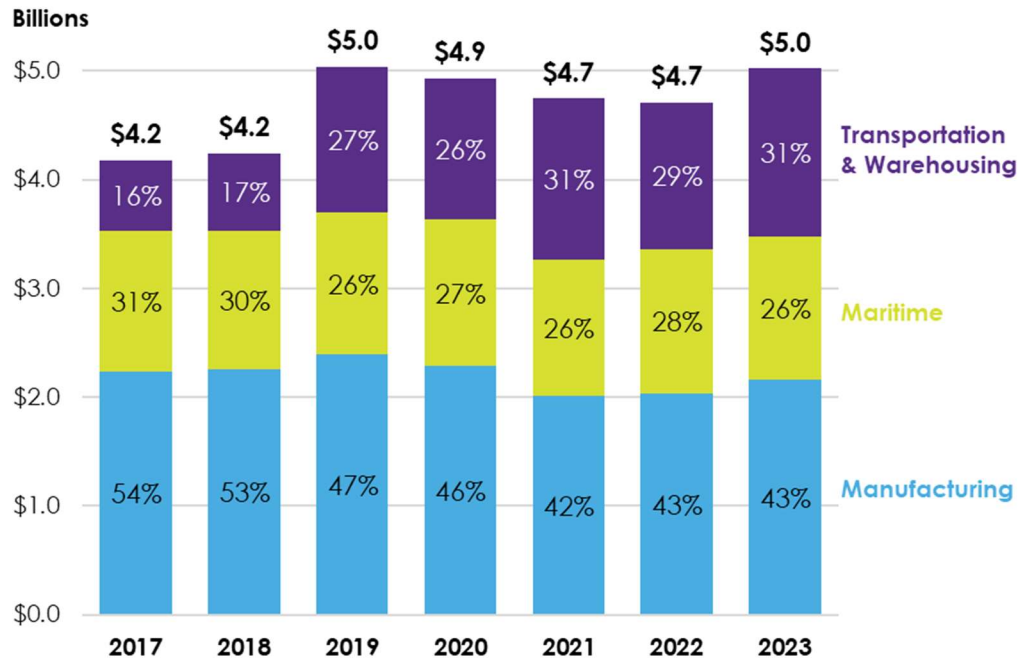


Sources: Bureau of Labor Statistics, 2024; Community Attributes Inc., 2024.

## Wages

Workers in the Maritime, Transportation and Warehousing, and Manufacturing industries in Seattle earned more than \$5 billion in wages in 2023, an increase from \$4.7 billion in 2022. Wages in the Transportation and Warehousing industry grew in 2023, even though businesses employed 900 fewer people throughout the period. The Maritime industry reported the only decrease in total wages, a \$29 million decrease. (**Exhibit 13**)

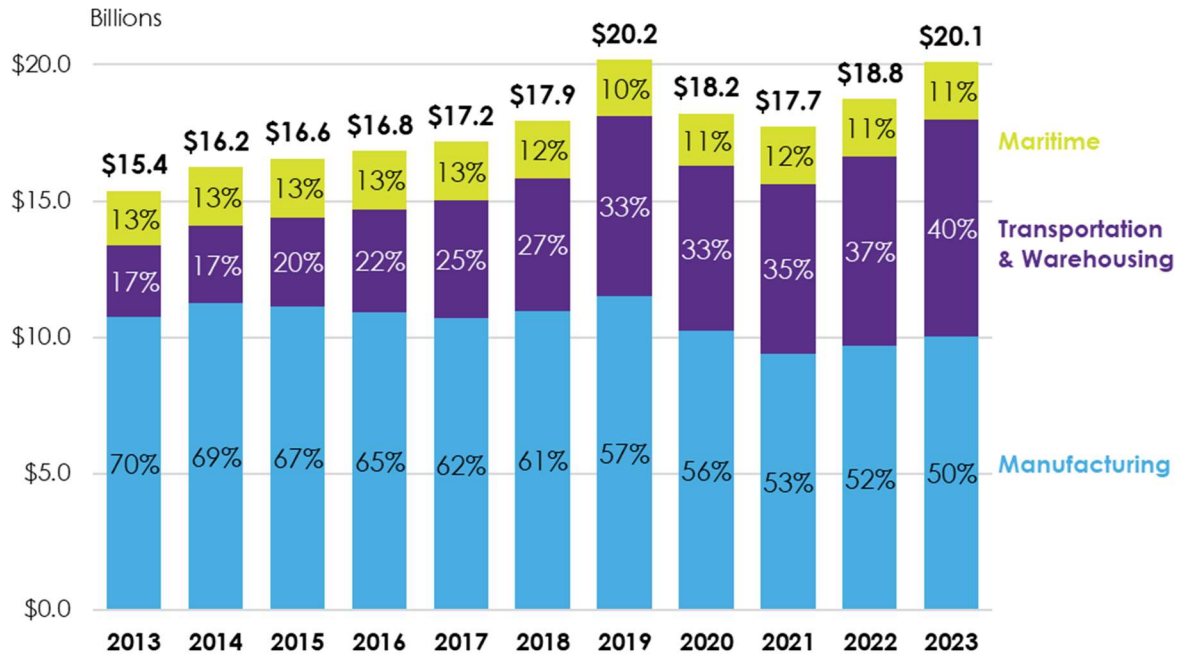
**Exhibit 13. Total Wages by Industry, Seattle, Billions of 2023 Dollars, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

In total the Maritime, Transportation and Warehousing, and Manufacturing industries in King County paid more than \$20.1 billion in wages in 2023, an increase of 7.2% from 2022. That marks the second time that total wages have exceeded \$20 billion between 2017 and 2023. The last time wages reached that level was in 2019, when the industries employed a combined 4,400 more employees. (**Exhibit 14**)

**Exhibit 14. Total Wages by Industry, King County, Billions of 2023 Dollars, 2013-2023**

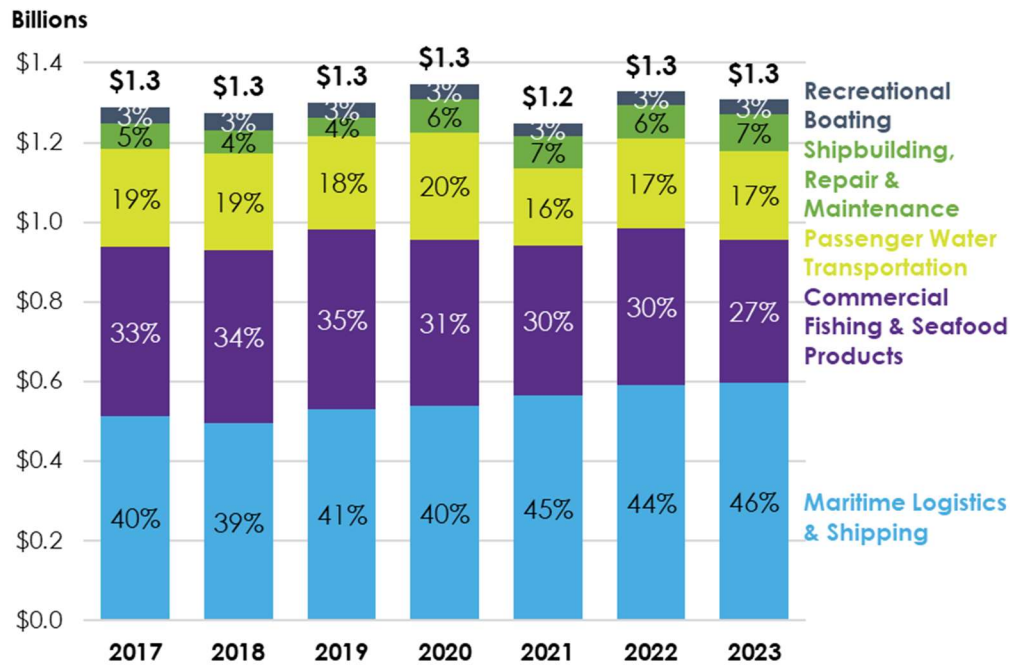


Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

### Maritime Subsectors

Employees in the Maritime industry in Seattle earned \$1.3 billion in income in 2023. Maritime Logistics and Shipping captured the largest share of wages at 46%, followed by Commercial Fishing and Seafood Products (27%), Passenger Water Transportation (17%), Shipbuilding, Repair, and Maintenance (7%), and Recreational Boating (3%). Commercial Fishing and Seafood Products reported the only drop in their share of wages, falling to 27% from 30% in 2022. This industry has reported decreasing wages as a share of total industry wages in three of the past four years. Maritime Logistics and Shipping and Shipbuilding, Repair, and Maintenance increased their shares by two and one percentage points respectively. **(Exhibit 15)**

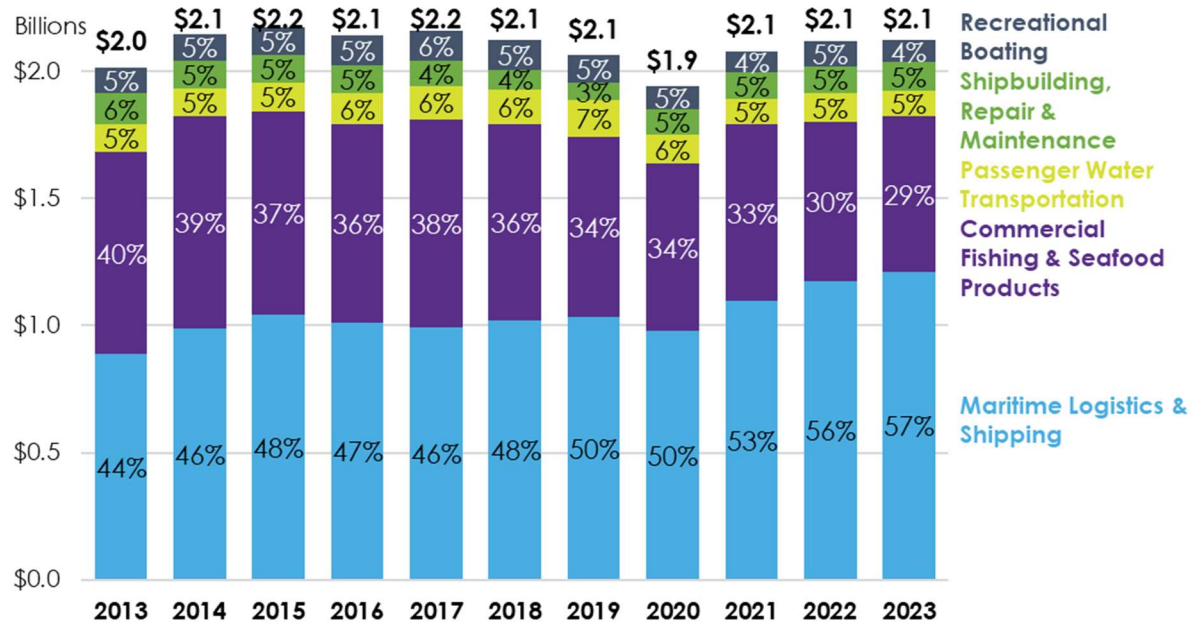
**Exhibit 15. Total Wages by Maritime Subsector, Seattle, Billions of 2023 Dollars, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

Employees in the Maritime industry across King County earned \$2.1 billion in wages in 2023, up \$5 million from 2022. The Maritime Logistics and Shipping subsector accounted for the majority (57%) of wages paid as it has for every year since 2020. Wages decreased from 2022 levels in the Commercial Fishing and Seafood Products, Recreational Boating, and Passenger Water Transportation subsectors. Passenger Water Transportation reported the largest decrease of 12.0% from 2022 levels. The Shipbuilding, Repair, and Maintenance subsector experienced the largest wage increase of 4.5% in 2023. (**Exhibit 16**)

**Exhibit 16. Total Wages by Maritime Subsector, King County, Billions of 2023 Dollars, 2013-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

The Maritime industry paid an average of \$112,900 per worker in 2023. Since 2013 wages in the Maritime industry have grown at a compounded annual growth rate of 2.5%. Including the years surrounding the Covid-19 pandemic, from 2018-2023 the growth rate increased to 3.0%. Within the Maritime industry in King County, the Commercial Fishing and Seafood Products subsector reported the highest annual wage of \$123,700. Since 2018 wages have grown the fastest in the Maritime Logistics and Shipping subsector, where they've increased by an average of 4.4% per year. (Exhibit 17)

**Exhibit 17. Average Annual Wage per Worker by Maritime Subsector, King County, 2023 Dollars, 2013 – 2023**

Subsector	Average Wage/Worker			CAGR	
	2013	2018	2023	2013-2023	2018-2023
Maritime Logistics & Shipping	\$89,400	\$97,900	\$121,400	3.1%	4.4%
Commercial Fishing & Seafood Products	\$101,900	\$114,900	\$123,700	2.0%	1.5%
Passenger Water Transportation	\$69,200	\$87,700	\$98,100	3.6%	2.3%
Shipbuilding, Repair & Maintenance	\$80,600	\$85,000	\$86,200	0.7%	0.3%
Recreational Boating	\$47,800	\$52,100	\$55,600	1.5%	1.3%
<b>Maritime Average</b>	<b>\$87,800</b>	<b>\$97,200</b>	<b>\$112,800</b>	<b>2.5%</b>	<b>3.0%</b>

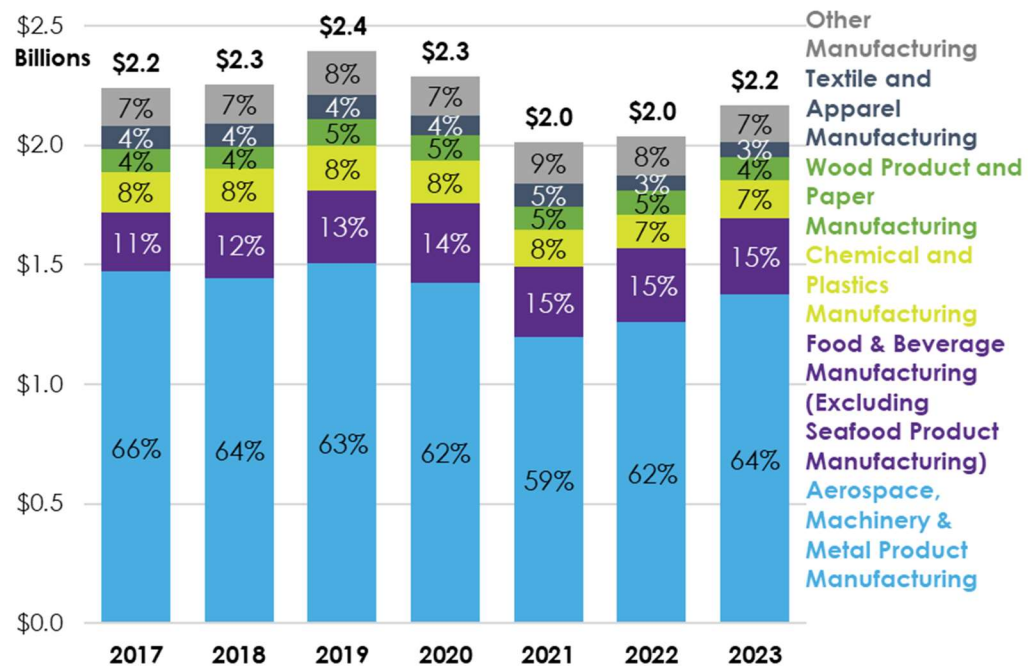
Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.



## Manufacturing Subsectors

In Seattle the Manufacturing industry paid nearly \$2.2 billion in wages in 2023, up 6.4% from 2022. Aerospace, Machinery and Metal Product Manufacturing paid the largest share of wages in 2023, 64% an increase in the industry's share of total wages by two percentage points. Two subsectors including Chemicals and Plastics Manufacturing combined with Aerospace, Machinery and Metal Products Manufacturing accounted for 79% of wages in 2023. **(Exhibit 18)**

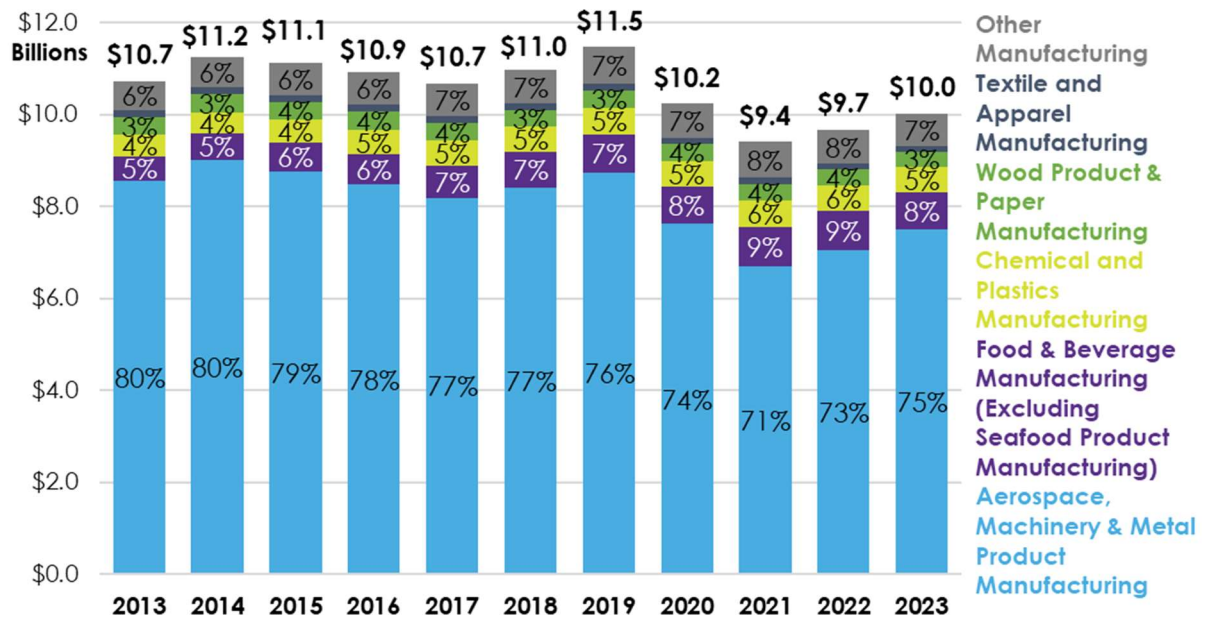
**Exhibit 18. Total Wages by Manufacturing Subsector, Seattle, Billions of 2023 Dollars, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

The Manufacturing industry across King County paid more than \$10 billion in wages in 2023, up 3.7% from 2022. Similar to Seattle, the majority (75%) of the wages are paid to workers in the Aerospace, Machinery and Metal Product Manufacturing subsector. From 2022 to 2023 total wages in that subsector grew by 6.4%. Every other Manufacturing subsector reported decreases in wages, consistent with the decreased employment reported in each subsector. Wood Product and Paper Manufacturing reported the largest decrease in wages of 5.6% from 2022 to 2023. **(Exhibit 19)**

**Exhibit 19. Total Wages by Manufacturing Subsector, King County, Billions of 2023 Dollars, 2013-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

The Manufacturing subsector paid an average of \$109,400 to workers in King County in 2023. Aerospace, Machinery and Metal Product Manufacturing subsector is the only subsector that has a higher average wage than the overall industry average. Average wages in this industry have been stable, growing by just 0.4% on average since 2013, a rate which has decreased to 0.2% since 2018. Since both 2013 and 2018 the Other Manufacturing subsector has reported the highest rates of growth, increasing by a compound annual average growth rate of 4.4%. (**Exhibit 20**)



**Exhibit 20. Average Annual Wage per Worker by Manufacturing Subsector,  
King County, 2023 Dollars, 2013 – 2023**

Subsector	Average Wage/Worker			CAGR	
	2013	2018	2023	2013-2023	2018-2023
Aerospace, Machinery and Metal Product Manufacturing	\$121,900	\$129,500	\$127,300	0.4%	-0.3%
Chemical and Plastics Manufacturing	\$70,900	\$81,100	\$93,400	2.8%	2.9%
Wood Product and Paper Manufacturing	\$68,100	\$71,100	\$73,600	0.8%	0.7%
Textile and Apparel Manufacturing	\$54,800	\$56,600	\$62,000	1.2%	1.8%
Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)	\$57,200	\$58,300	\$59,700	0.4%	0.5%
Other Manufacturing	\$81,000	\$85,700	\$106,300	2.8%	4.4%
<b>Manufacturing Average</b>	<b>\$104,800</b>	<b>\$108,500</b>	<b>\$109,400</b>	<b>0.4%</b>	<b>0.2%</b>

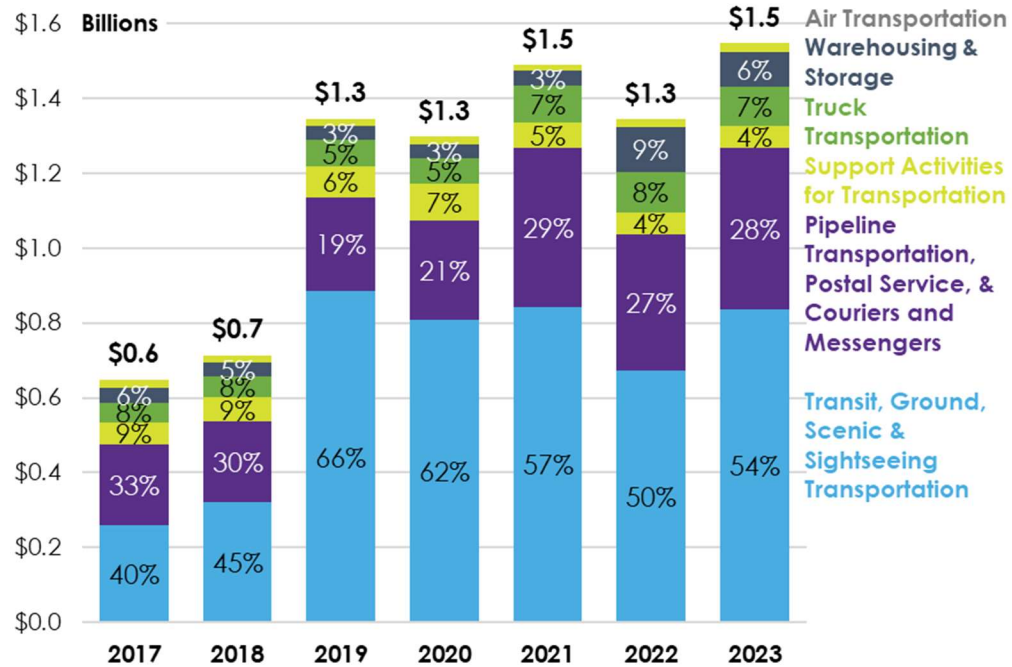
*Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.*

**Transportation & Warehousing Subsectors**

The Transportation and Warehousing industry in Seattle paid more than \$1.5 billion in wages in 2023, up 15.1% from 2022. Transit, Ground, Scenic and Sightseeing Transportation reported the largest wage growth by subsector of 24.3%, followed by Pipeline Transportation, Postal Service and Couriers and Messengers (18.3%), and Air Transportation (18.0%).

Warehousing and Storage wages decreased by 23.1% in 2023, accompanied by a decrease of 28.6% year-over-year in employment. The share of wages in Warehousing and Storage decreased to 6% from 9% while Transit, Ground, Scenic and Sightseeing Transportation increased from 50% of total wages in 2022 to 54% in 2023. **(Exhibit 21)**

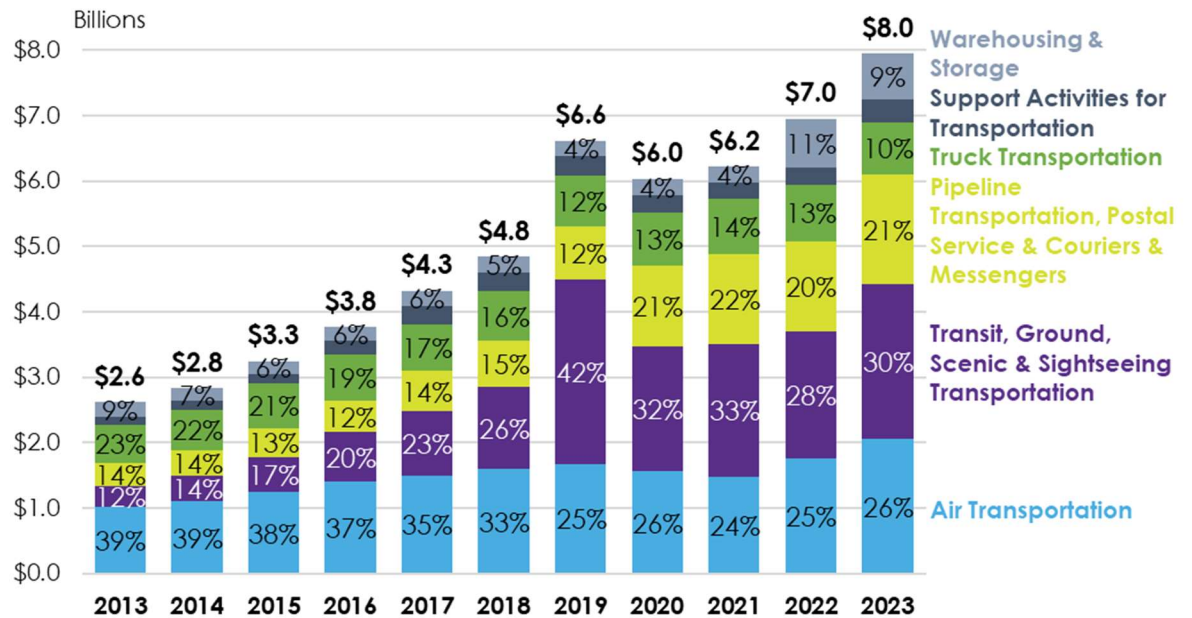
**Exhibit 21. Total Wages by Transportation & Warehousing Subsector, Seattle, Billions of 2023 Dollars, 2017-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council (PSRC), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

Employers in the Transportation and Warehousing industry in King County paid nearly \$8 billion in wages in 2023, an increase of 14.3% from 2022. Three subsectors across King County each accounted for more than 20% of total wages. Transit, Ground, Scenic and Sightseeing Transportation was still the largest at 30%, followed by Air Transportation (26%), and Pipeline Transportation, Postal Service and Couriers and Messengers (21%). From 2022 to 2023 the fastest growing subsector within Transportation and Warehousing was the Support Activities for Transportation subsector in which wages grew by 31.6% during the period. Transit, Ground, Scenic and Sightseeing Transportation wages grew by 22.4% and Pipeline Transportation, Postal Service and Couriers and Messengers grew by 21.7%. Truck Transportation experienced the largest decrease in total wages of 7.8%. Total wages also decreased in the Warehousing and Storage subsector in 2023 compared to 2022, decreasing by 5.2%. (**Exhibit 22**)

**Exhibit 22. Total Wages by Transportation & Warehousing Subsector, King County, Billions of 2023 Dollars, 2013-2023**



Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

The Transportation and Warehousing industry in King County paid workers an annual average of \$95,600 in 2023. Since 2013 average wages per worker have increased at a compounded annual growth rate of 3.9%. The industry growth rate has been faster since 2018, increasing at an average annual rate of 6.6% between 2018 and 2023. Transit, Ground, Scenic and Sightseeing Transportation grew the fastest since 2013 at a compounded annual rate of 12.4%. After adjusting for inflation, average wages in the Transit, Ground, Scenic and Sightseeing Transportation subsector have more than tripled since 2013. Warehousing and Storage is the only subsector to report a negative compound annual growth rate since 2013, with wages decreasing at an average of 3.0% per year. Since 2018 average annual wages have decreased at 2.8% per year. (**Exhibit 23**)

**Exhibit 23. Average Annual Wage per Worker by Transportation & Warehousing Subsector, King County, 2023 Dollars, 2013 – 2023**

Subsector	Average Wage/Worker			CAGR	
	2013	2018	2023	2013-2023	2018-2023
Air Transportation	\$102,200	\$109,400	\$119,300	1.6%	1.7%
Transit, Ground, Scenic & Sightseeing Transportation	\$41,000	\$56,800	\$131,500	12.4%	18.3%
Pipeline Transportation, Postal Service & Couriers & Messengers	\$55,800	\$56,400	\$96,600	5.6%	11.4%
Truck Transportation	\$58,700	\$65,200	\$66,700	1.3%	0.5%
Warehousing & Storage	\$79,900	\$67,900	\$58,900	-3.0%	-2.8%
Support Activities for Transportation	\$36,200	\$52,100	\$52,800	3.8%	0.3%
<b>Transportation &amp; Warehousing Average</b>	<b>\$65,500</b>	<b>\$69,300</b>	<b>\$95,600</b>	<b>3.9%</b>	<b>6.6%</b>

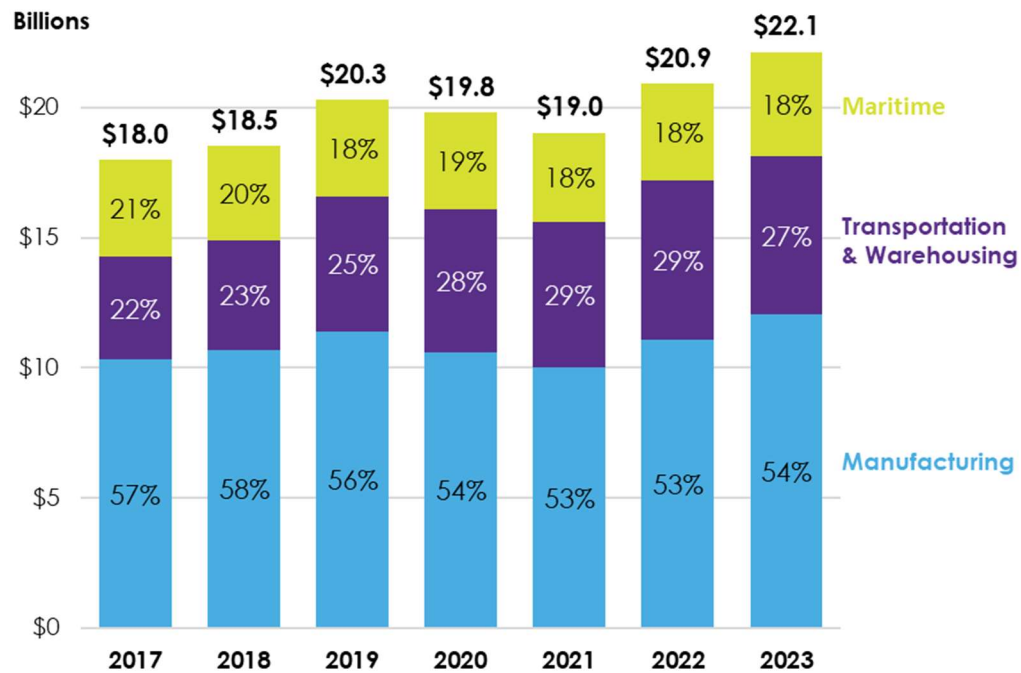
*Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.*

## Business Revenue

Business revenues reflect estimated gross business income generated by private industry operations, both among employers and sole proprietorships. Estimates do not include the economic value of federal and state activities, such as the Coast Guard. However, these are an important input into subsequent economic impact modeling and are an important measure of economic activity in the industry.

Total business revenues from the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle totaled \$22.1 billion in 2023, an increase from \$20.9 billion in 2022 and \$19.0 billion in 2021. Manufacturing revenues totaled more than \$12 billion, while Transportation and Warehousing totaled more than \$6 billion, and Maritime companies earned more than \$4 billion in 2023. Manufacturing and Maritime revenues grew by 9% and 7% respectively in 2023, while Transportation and Warehousing revenues decreased by 1% during the period. Since 2020, manufacturing industry business revenues totaled between 53% and 54% of total industry revenues. **(Exhibit 24)**

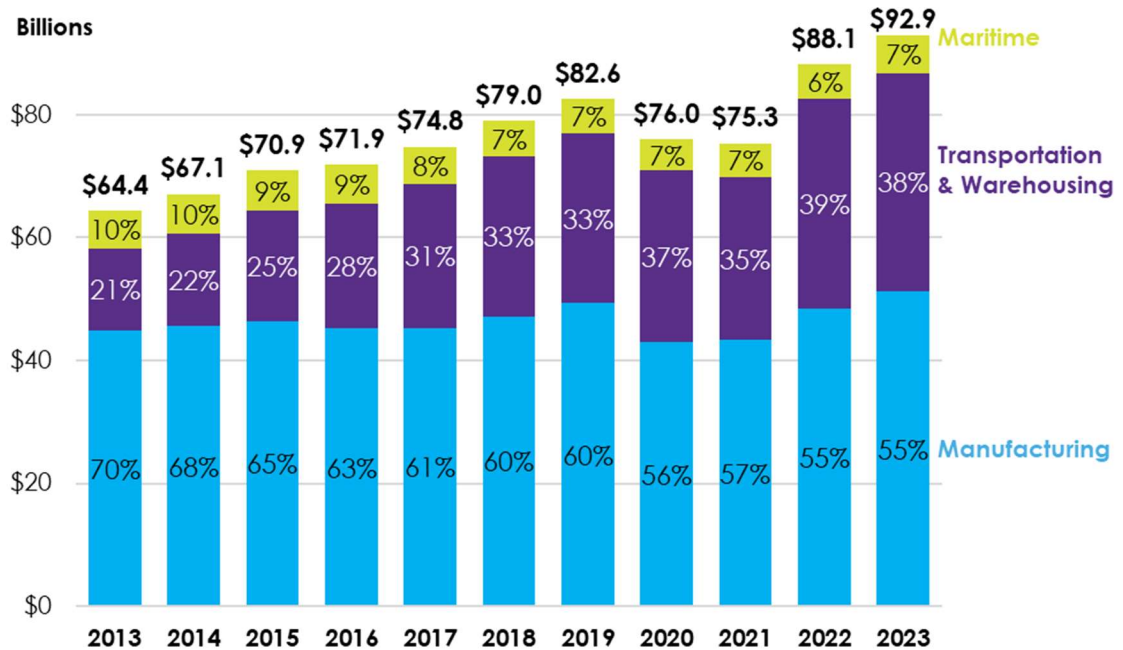
**Exhibit 24. Total Business Revenue by Industry, Seattle, Billions of 2023 Dollars, 2017-2023**



Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; Puget Sound Regional Council (PSRC), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

Throughout King County, business revenues in the Maritime, Manufacturing and Transportation and Warehousing industries totaled \$92.9 billion in 2023. Much like Seattle, manufacturing activity accounted for more than half of revenues in 2023 (55%), followed by Transportation and Warehousing (38%), and Maritime (7%). As shown below in **Exhibit 25**, Transportation and Warehousing revenues have grown consistently since 2013, increasing at a compound annual rate of 10.1% during that time. Throughout that period, manufacturing revenues have been relatively stable by comparison, growing by 1.2% per year. Maritime industry revenues decreased in 2020 to \$5.1 billion but have since rebounded beyond pre-pandemic levels to \$6.1 billion in 2023 and grew by 9.0% between 2022 and 2023.

**Exhibit 25. Total Business Revenue by Industry, King County, Billions of 2023 Dollars, 2013-2023**



Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.

Between 2013 and 2023, King County Maritime industry gross business revenues peaked at an estimated \$6.5 billion in 2014. Estimated industry gross business revenues decreased to \$5.1 billion in 2020 but have nearly recovered to pre-pandemic levels as of 2023. Three of the five Maritime subsectors experienced an increase in business revenues between 2022 and 2023, including Commercial Fishing and Seafood Products (13.2%), Maritime Logistics and Shipping (9.2%), and Shipbuilding, Repair and Maintenance (7.4%). The Shipbuilding, Repair and Maintenance subsector experienced the fastest rate of business revenue growth between 2018 and 2023.

All Transportation and Warehousing subsectors have increased in terms of estimated gross business revenues between 2013 and 2023. Over this period, all subsectors experienced average annual growth rates of 4.5% or greater, with four subsectors experiencing average yearly increases greater than 10%. In 2023, half of all subsectors reported increased business revenues. One subsector, Transit, Ground, Scenic and Sightseeing Transportation, recovered beyond pre-pandemic business revenue levels. From 2022 to 2023, Support Activities for Transportation experienced the largest year-over-year increase of all Transportation and Warehousing subsectors at 37.7%, while Air Transportation experienced the second-largest annual increase of 10.5%. Of the three industries that reported less business revenues in 2023, Warehousing and Storage reported the greatest decrease of 8.6%. Of the six

subsectors in the Transportation and Warehousing industry, only the Transit, Ground, Scenic and Sightseeing Transportation subsector has not surpassed pre-pandemic levels.

The Manufacturing industry surpassed the 2019 peak (\$49.3 billion) by nearly \$2 billion, reaching an estimated \$51.2 billion in gross business revenues in 2023. From 2022 to 2023, revenues grew by 5.8%. Aerospace, Machinery, and Metal Products reported both the greatest level of revenues, more than \$33.4 billion, and the greatest growth rate in 2023, 10.8%. Wood Product and Paper manufacturing reported a 12.5% decrease in business revenues in 2023 compared to 2022. As of 2023, three subsectors saw less estimated business revenue than in 2019. Wood Product and Paper Manufacturing, Textile and Apparel Manufacturing, and Other Manufacturing all saw less estimated gross business revenues than in 2019.

## Occupations

Analysis of occupations within each industry provides additional context on the type of jobs, wages, and minimum educational requirements for entry. Occupational analysis uses data from the Washington State Employment Security Department (ESD) capturing employment and median wages by occupation, as well as staffing patterns linking employment by industry and employment by occupation. Minimum education requirements are published by the Bureau of Labor Statistics at the national level and do not represent the requirements for any individual business or occupation. Occupational employment and wage data are available for the Seattle-Tacoma-Bellevue Metropolitan Statistical Area (MSA).

King County Area Median Income (AMI) provides an understanding of the mid-point in household income within the region, 50% of households have income levels above the AMI, and 50% have income levels below the AMI. The following AMI figures are provided by the U.S. Department of Housing and Urban Development (HUD), which show AMI earnings based on a typical household size of four persons. Average annual wage by occupation or industry reflects the wages per job, not by household. A comparison of wage to AMI provides an understanding of how close wages for each industry, subsector, or occupation are to the median household income for King County. AMI has increased from \$86,700 in 2013 to \$146,500 in 2023, not adjusted for inflation.

### Maritime Industry Occupations

**Exhibit 26** includes occupations with more than 500 jobs and a minimum of 50% of total occupational employment within the Maritime industry. Many of these occupations represent jobs that are also greatly reliant on the Maritime industry. Together, these occupations represent 30% of total Maritime

industry employment. The occupation with the greatest employment includes Cargo and Freight Agents, with approximately 1,420 estimated jobs in King County's Maritime industry. Among these occupations, Fishing and Hunting Workers and Cargo and Freight Agents are most heavily reliant on the industry. In general, occupations concentrated in the Maritime industry require on-the-job training for entry.

Median wages for Maritime occupations within the Seattle-Tacoma-Bellevue MSA range between nearly \$37,800 (Meat, Poultry, and Fish Cutters and Trimmers) and \$102,800 (Captains, Mates, and Pilots of Water Vessels). For context, Area Median Income in 2023 for King County was \$146,500 annually. Among the largest and most highly concentrated occupations within the Maritime industry, median wages range between 26% to 70% of AMI. **(Exhibit 26)**

**Exhibit 26. Maritime Occupational Employment, Median Wage and Minimum Educational Requirements for Entry, King County, 2023**

Occupation	2023 Emp	% in Sector	Median Wage	% AMI (\$146,500)	Min Ed Req
Cargo and Freight Agents	1,420	85%	\$54,300	37%	OJT
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	980	58%	\$41,450	28%	OJT
Captains, Mates, and Pilots of Water Vessels	780	76%	\$102,780	70%	AA
Sailors and Marine Oilers	770	47%	\$59,260	40%	OJT
Fishing and Hunting Workers	640	100%	\$44,400	30%	OJT
Meat, Poultry, and Fish Cutters and Trimmers	620	52%	\$37,840	26%	OJT
Ship Engineers	530	72%	\$88,900	61%	AA

*Sources: Washington State Employment Security Department (ESD), 2024; Bureau of Labor Statistics, 2024; Community Attributes Inc., 2024.*

*Notes: Occupations include those with more than 500 jobs and a minimum of 50% of total occupational employment in King County's Maritime industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an associate degree or Postsecondary Award.*

**Exhibit 27** documents the ratio of average annual wages relative to the AMI levels of King County for 2013, 2018, and 2023 by Maritime subsector. Across all subsectors, average annual wages increased at a slower rate relative to AMI levels. Between 2013 and 2023, wages in every subsector declined relative to the King County AMI. However, during this same period average annual wages across the industry increased from \$87,800 to \$112,900. AMI increased from \$86,700 to \$146,500, adjusted for inflation during this period. The largest year over year decreases of wages relative to AMI across all subsectors occurred between 2021 and 2022, when AMI increased from



\$115,700 to \$134,600 adjusted for inflation. Between 2022 and 2023 area median income increased by another \$9,900.

**Exhibit 27. Maritime Subsector Average Annual Wages as a Percent of Area Median Income, King County, 2013 – 2023**

Subsector	Average Wage As % of AMI		
	2013	2018	2023
Maritime Logistics & Shipping	103%	95%	83%
Commercial Fishing & Seafood Products	117%	111%	84%
Passenger Water Transportation	80%	85%	67%
Shipbuilding, Repair & Maintenance	93%	82%	59%
Recreational Boating	55%	50%	38%
<b>Area Median Income (AMI)</b>	<b>\$86,700</b>	<b>\$103,400</b>	<b>\$146,500</b>

*Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; U.S. Department of Housing and Urban Development (HUD), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.*

## Manufacturing Occupations

The 18 occupations in **Exhibit 28** represent 55% of Manufacturing employment in King County. These occupations each have 1,000 or more jobs in the Manufacturing industry and out of total occupational employment at least 30% is concentrated within the Manufacturing industry. Among these occupations, Aircraft Structure, Surfaces, Rigging, and Systems Assemblers as well as Electrical, Electronics, and Electromechanical Assemblers are the most heavily reliant on the Manufacturing industry. Of the 18 occupations, 14 are more than 50% concentrated within the Manufacturing industry. Five of these occupations require at least a bachelor's degree for entry, including Industrial Engineers, Logisticians, Electrical Engineers, Aerospace Engineers, and Mechanical Engineers. Avionics Technician is the only occupation that requires an associate degree at minimum for entry. The remaining 12 occupations require on the job training.

The median wage for these most common and highly concentrated occupations in the Manufacturing industry ranged from \$40,180 (Food Batchmakers) to \$149,050 (Aerospace Engineers). Wages in these occupations relative to the 2023 King County AMI range from 27% to 102%. Overall, nine occupations have 2023 wages that are less than 50% of the King County AMI. (**Exhibit 28**)

**Exhibit 28. Manufacturing Occupational Employment, Median Wage and Minimum Educational Requirements for Entry, King County, 2023**

<b>Occupation</b>	<b>2023 Emp</b>	<b>% in Sector</b>	<b>Median Wage</b>	<b>% AMI (\$146,500)</b>	<b>Min Ed Req</b>
Miscellaneous Assemblers and Fabricators	4,310	59%	\$46,280	32%	OJT
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	3,180	98%	\$89,970	61%	OJT
First-Line Supervisors of Production and Operating Workers	3,080	72%	\$77,150	53%	OJT
Inspectors, Testers, Sorters, Samplers, and Weighers	3,040	74%	\$62,300	43%	OJT
Shipping, Receiving, and Inventory Clerks	2,790	39%	\$49,230	34%	OJT
Industrial Engineers	2,670	78%	\$119,980	82%	BA
Electrical, Electronics, and Electromechanical Assemblers	2,420	91%	\$49,920	34%	OJT
Machinists	1,970	86%	\$66,220	45%	OJT
Food Batchmakers	1,890	87%	\$40,180	27%	OJT
Avionics Technicians	1,680	73%	\$101,730	69%	AA
Logisticians	1,530	60%	\$102,460	70%	BA
Packaging and Filling Machine Operators and Tenders	1,430	85%	\$40,250	27%	OJT
Aerospace Engineers	1,430	57%	\$149,050	102%	BA
Electrical Engineers	1,390	44%	\$130,200	89%	BA
Mechanical Engineers	1,340	44%	\$108,730	74%	BA
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,270	76%	\$58,120	40%	OJT
Industrial Machinery Mechanics	1,100	54%	\$74,520	51%	OJT
Bakers	1,040	41%	\$44,170	30%	OJT

*Sources: Washington State Employment Security Department (ESD), 2024; Bureau of Labor Statistics, 2024; Community Attributes Inc., 2024.*

*Notes: Occupations include those with more than 1,000 jobs and more than 30% concentration within King County's Manufacturing industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an associate degree or Postsecondary Award. BA is a minimum educational requirement for a bachelor's degree.*

Like the Maritime industry, average annual wages across all Manufacturing subsectors decreased relative to King County AMI between 2013 and 2023. The largest decrease among Manufacturing subsectors was seen in the Aerospace, Machinery, and Metal Product Manufacturing subsector which decreased from 141% of AMI in 2013 to 87% of AMI in 2023. Average annual wages between 2013 and 2023 industry-wide range between \$103,000 and \$103,500. Manufacturing wages relative to AMI, like Maritime subsectors, saw declines between 2018 and 2023. Each subsector reported a drop in wages as a percentage of AMI of at least 10%. Just Aerospace, Machinery, and Metal Product Manufacturing and Other Manufacturing have had

average annual wages greater than 75% of AMI consistently between 2013 and 2023. Other Manufacturing dropped below 75% of AMI in 2023. **(Exhibit 29)**

**Exhibit 29. Manufacturing Subsector Average Annual Wages as a Percent of Area Median Income, King County, 2013 – 2023**

Subsector	Average Wage As % of AMI		
	2013	2018	2023
Aerospace, Machinery and Metal Product Manufacturing	141%	125%	87%
Other Manufacturing	93%	83%	73%
Chemical and Plastics Manufacturing	82%	78%	64%
Wood Product and Paper Manufacturing	79%	69%	50%
Textile and Apparel Manufacturing	63%	55%	42%
Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)	66%	56%	41%
<b>Area Median Income (AMI)</b>	<b>\$86,700</b>	<b>\$103,400</b>	<b>\$146,500</b>

*Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; U.S. Department of Housing and Urban Development (HUD), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.*

## Transportation & Warehousing Occupations

Within the Transportation and Warehousing industry, ten occupations make up 65% of total industry employment. While employment within each of these occupations trends larger than either Maritime or Manufacturing occupations, these occupations also tend to be less concentrated in the Transportation and Warehousing industry in King County. Flight Attendants and Airline Pilots, Copilots, and Flight Engineers are each entirely concentrated in the Transportation and Warehousing industry. Among these common occupations, seven of the ten occupations require on the job training for entry while the remainder require an associate or bachelor's degree. Median wages among Transportation and Warehousing industry occupations range between \$45,150 (Laborers and Freight, Stock, and Material Movers, Hand) and \$98,710 (Flight Attendants). Among these ten occupations eight have wages that are less than 50% of King County AMI. **(Exhibit 30)**

**Exhibit 30. Transportation & Warehousing Occupational Employment,  
Median Wage and Minimum Educational Requirements for Entry, King  
County, 2023**

Occupation	2023 Emp	% in Sector	Median Wage	% AMI (\$146,500)	Min Ed Req
Laborers and Freight, Stock, and Material Movers, Hand	14,220	36%	\$45,150	31%	OJT
Light Truck Drivers	7,800	60%	\$47,910	33%	OJT
Heavy and Tractor-Trailer Truck Drivers	7,040	45%	\$63,460	43%	AA
Flight Attendants	6,990	100%	\$98,710	67%	OJT
Industrial Truck and Tractor Operators	4,950	60%	\$49,840	34%	OJT
Airline Pilots, Copilots, and Flight Engineers	4,530	100%	\$49,170	34%	BA
Reservation and Transportation Ticket Agents and Travel Clerks	3,430	88%	\$46,080	31%	OJT
Aircraft Mechanics and Service Technicians	2,130	59%	\$82,850	57%	AA
Dispatchers, Except Police, Fire, and Ambulance	1,330	37%	\$58,070	40%	OJT
Passenger Attendants	1,230	93%	\$38,880	27%	OJT

*Sources: Washington State Employment Security Department (ESD), 2024; Bureau of Labor Statistics, 2024; Community Attributes Inc., 2024.*

*Notes: Occupations include those with more than 1,000 jobs and more than 25% concentration within King County's Transportation and Warehousing industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an associate degree or Postsecondary Award. BA is a minimum educational requirement for a bachelor's degree.*

Average wages in the Transportation and Warehousing industry, compared to the area median income in King County, increased in four of six subsectors between 2013 and 2023. During this period average annual wages industry-wide range between \$65,500 and \$95,600. The largest decreases in wages as a percentage of AMI year over year, like Maritime and Manufacturing subsector, occurred between 2021 and 2022. In 2023, two of the six subsectors saw wages as a percentage of AMI increase, two reported decreases, and two indicated no change. The Transit, Ground, Scenic, and Sightseeing Transportation subsector was the only subsector to pay at least 90% of the AMI in wages. Between 2013 and 2023, wages relative to AMI in the Air Transportation subsector decreased, as wages in this subsector increased by a compound annual growth rate of 1.6%, while AMI increased by a compound annual growth rate of 5.4% over this period. Since 2013 the proportion of AMI represented by subsector wages has grown from 47% to 90% in ten years. **(Exhibit 31)**

**Exhibit 31. Transportation & Warehousing Subsector Average Annual Wages as a Percent of Area Median Income, King County, 2013 – 2023**

Subsector	Average Wage As % of AMI		
	2013	2018	2023
Air Transportation	118%	106%	81%
Transit, Ground, Scenic & Sightseeing Transportation	47%	55%	90%
Pipeline Transportation, Postal Service & Couriers & Messengers	64%	55%	66%
Truck Transportation	68%	63%	46%
Warehousing & Storage	92%	66%	40%
Support Activities for Transportation	42%	50%	36%
<b>Area Median Income (AMI)</b>	<b>\$86,700</b>	<b>\$103,400</b>	<b>\$146,500</b>

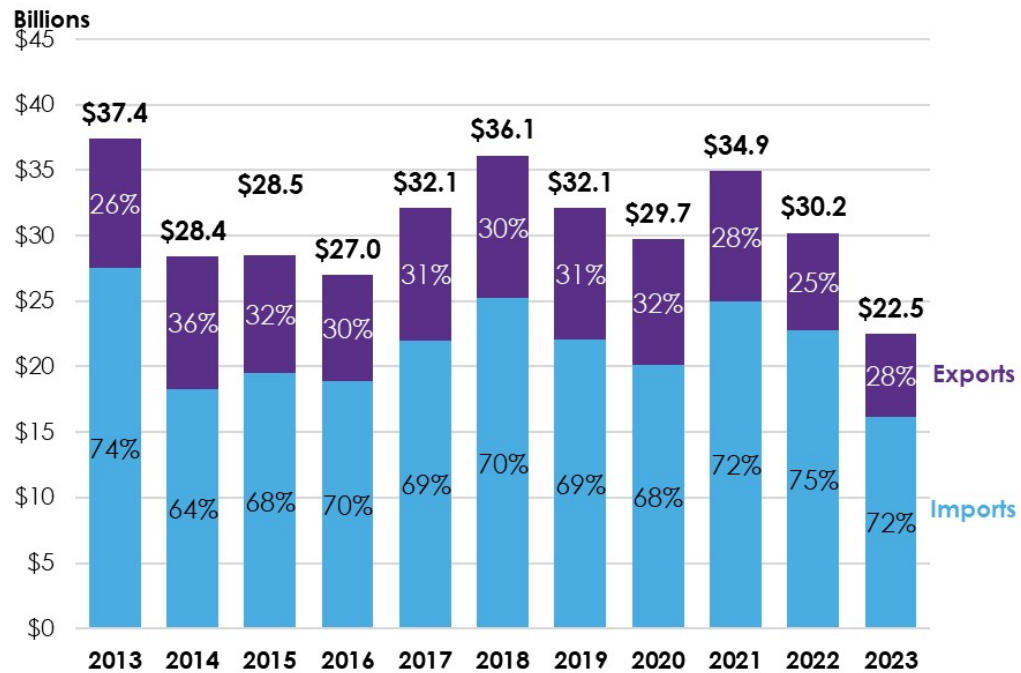
*Sources: Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; U.S. Department of Housing and Urban Development (HUD), 2024; St. Louis FRED, 2024; Community Attributes Inc., 2024.*

## Industry Activity

### Imports and Exports

The combined value of total imports and exports to pass through the Port of Seattle exceeded \$37 billion in 2013, adjusted for inflation and declined in aggregate to \$22.5 billion in 2023. **(Exhibit 32)** Combined import and export value decreased by 9% annually, on average, between 2018 and 2023, highlighting a slowed rate of overall trade between 2018 and 2023 compared to the previous five years. Imports comprised 72% of trade activity in 2023. The ratio of imports to exports has fluctuated year to year but has remained between 64% and 74% from 2013 to 2023.

**Exhibit 32. Total Import and Export Volume, Port of Seattle, Billions of 2023 Dollars, 2013-2023**



Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2024; Community Attributes Inc., 2024.

One way the U.S. Census Bureau presents imports and exports is through commodity codes, which captures the goods being imported and exported.

**Exhibit 33** presents the proportion of import value in 2013, 2018, and 2023, the total import value for those years, and the compound annual growth rates for the periods between 2013 and 2023, and 2018 and 2023 by major commodity category. Total import value decreased by more than \$11.2 billion between 2013 and 2023, equivalent to a compound annual growth rate of negative 5.1% over the period. Total import value also decreased from 2018 and 2023, decreasing by an annual average rate of 8.4%. The compound annual growth rate (CAGR) for seven commodity subcategories decreased by at least 10.0% from 2018 through 2023, including Wood and Wood Products where the annual average growth rate was negative 16.6% between 2018 and 2023.

**Exhibit 33. Total Import Volume by Commodity as a Percent of Overall Import Volume, Billions of 2023 Dollars, Port of Seattle, 2013-2023**

Commodity Code	Import Volume (Billions)			CAGR	
	2013	2018	2023	2013-2023	2018-2023
Machinery / Electrical	30.2%	26.0%	28.4%	-5.7%	-6.8%
Miscellaneous	15.6%	14.7%	12.4%	-7.3%	-11.4%
Textiles	13.1%	9.9%	11.8%	-6.1%	-5.2%
Footwear / Headgear	4.7%	6.1%	8.2%	0.4%	-2.7%
Metals	7.8%	9.0%	6.2%	-7.3%	-15.0%
Transportation	6.5%	6.7%	8.2%	-2.9%	-4.6%
Plastics / Rubbers	5.0%	5.5%	4.2%	-6.7%	-13.2%
Chemicals & Allied Industries	3.8%	3.7%	3.8%	-5.1%	-7.9%
Vegetable Products	1.7%	3.6%	3.7%	2.8%	-7.9%
Wood & Wood Products	2.4%	3.7%	2.3%	-5.6%	-16.6%
Animal & Animal Products	2.1%	3.0%	2.3%	-4.4%	-13.4%
Stone / Glass	2.2%	2.5%	1.9%	-6.8%	-13.5%
Foodstuffs	2.2%	3.3%	3.2%	-1.4%	-9.3%
Mineral Products	0.9%	1.5%	2.5%	4.5%	1.9%
Raw Hides, Skins, Leather, & Furs	1.8%	1.0%	0.9%	-11.8%	-10.1%
<b>Total</b>	<b>\$2,746</b>	<b>\$2,521</b>	<b>\$1,622</b>	<b>-5.1%</b>	<b>-8.4%</b>

*Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2024; Community Attributes Inc., 2024.*

**Exhibit 34** highlights the total export value breakdown by commodity proportionate to the overall value of exports, and the CAGR between 2013 and 2023, and 2018 and 2023. Total export value decreased at an annual rate of 4.5% between 2013 and 2023. The rate of decrease was greater between 2018 and 2023, at negative 10.5%. All but one category saw negative annual growth rates, except Miscellaneous, which grew by 7.5% annually between 2018 and 2023.

**Exhibit 34. Total Export Volume by Commodity Code Subcategory as a Percent of Overall Export Volume, Billions of 2023 Dollars, Port of Seattle, 2013-2023**

Commodity Code	Export Volume (Billions)			CAGR	
	2013	2018	2023	2013-2023	2018-2023
Vegetable Products	23.4%	24.9%	32.5%	-1.3%	-5.5%
Animal & Animal Products	17.0%	12.2%	16.2%	-5.0%	-5.2%
Machinery / Electrical	10.7%	10.9%	9.8%	-5.4%	-12.4%
Foodstuffs	9.9%	8.9%	7.1%	-7.6%	-14.3%
Metals	7.5%	4.7%	6.4%	-6.1%	-4.7%
Wood & Wood Products	11.1%	7.0%	4.2%	-13.3%	-19.1%
Mineral Products	5.1%	5.5%	4.8%	-5.1%	-13.1%
Chemicals & Allied Industries	5.1%	4.3%	3.2%	-8.7%	-15.6%
Miscellaneous	2.5%	3.1%	7.6%	6.5%	7.5%
Transportation	2.7%	13.5%	3.5%	-1.8%	-31.6%
Stone / Glass	1.6%	2.7%	1.4%	-5.7%	-21.6%
Plastics / Rubbers	1.3%	1.1%	1.7%	-2.2%	-3.3%
Textiles	0.6%	0.6%	0.7%	-3.1%	-8.0%
Raw Hides, Skins, Leather, & Furs	1.2%	0.5%	0.7%	-9.2%	-2.4%
Footwear / Headgear	0.3%	0.2%	0.2%	-10.2%	-8.1%
<b>Total</b>	<b>\$993</b>	<b>\$1,088</b>	<b>\$626</b>	<b>-4.5%</b>	<b>-10.5%</b>

*Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2024; Community Attributes Inc., 2024.*

### Containerized and Non-Containerized Cargo

The Northwest Seaport Alliance (NWSA), one of the focal trade and container gateways in the United States, handled nearly 3.0 million Twenty Foot Equivalent Units (TEUs) in 2023, including both international and domestic cargo. The NWSA tracks cargo volume that passes through both the Ports of Seattle and Tacoma but does not track separate statistics for each port. Data for the Port of Seattle is sourced from Pacific Maritime Association (PMA) annual reports.

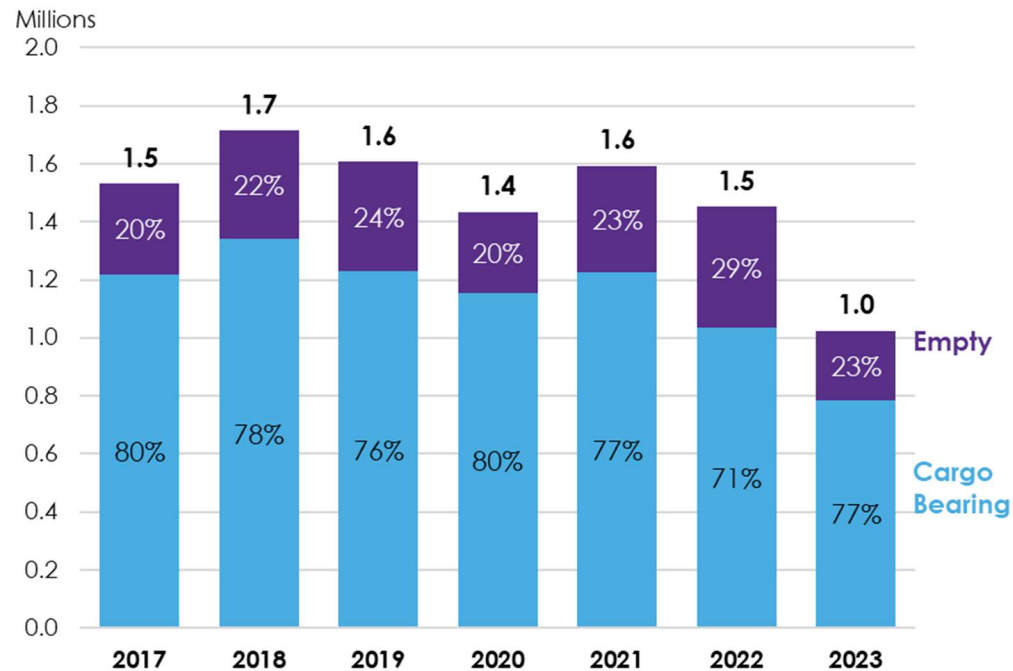
**Exhibit 35** shows the total volume of TEUs estimated to pass through the Port of Seattle between 2017 and 2023, and the breakdown of full and empty units.<sup>1</sup> Total TEUs to pass through the Northwest Seaport Alliance (NWSA) exceeded 3.7 million in 2017, peaking at nearly 3.8 million TEUs in 2018. Total TEUs was more than 3.7 million in 2021, nearly 3.4 million TEUs in

<sup>1</sup> Port of Seattle TEUs are estimated using data on Cargo Bearing and Empty TEUs published by the Northwest Seaport Alliance combined with data on Cargo Bearing and Empty TEUs published for the Port of Seattle and the Port of Tacoma in the Pacific Maritime Association Annual Report.



2022, and almost 3.0 million TEUs in 2023. According to the PMA, Port of Seattle represented 40% of cargo bearing TEUs to pass through the NWSA and 48% of empty TEUs in 2017. This proportion and total TEUs fluctuated by year. By 2023, the Port of Seattle represented 33% of cargo bearing TEUs and 42% of empty TEUs.

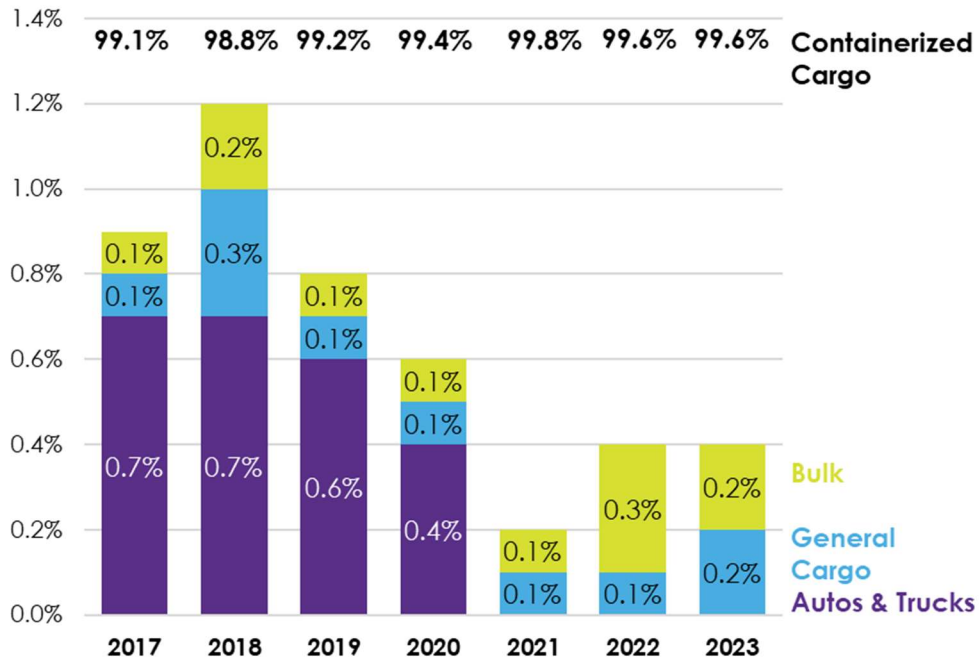
**Exhibit 35. Total TEUs, Cargo Bearing and Empty, Port of Seattle, 2017-2023**



*Sources: Northwest Seaport Alliance, 2024; Pacific Maritime Association, 2023; Community Attributes Inc., 2024.*

According to the PMA Annual Report, as of 2023, 99.6% of total tonnage to pass through the Port of Seattle was containerized cargo. This has increased from 99.1% of tonnage in 2017. **Exhibit 36** documents the breakdown of all non-Containerized cargo to pass through the Port of Seattle between 2017 and 2023, according to the Pacific Maritime Association. Until 2021, autos and trucks represented nearly 1% of total tonnage. This has been decreasing as auto and truck cargo travels to the Port of Tacoma. General cargo and bulk each represent about 0.2% of total tonnage.

**Exhibit 36. Non-Containerized Cargo, Seattle, 2017-2023**



Sources: Pacific Maritime Association, 2023; Community Attributes Inc., 2024.

## ECONOMIC AND FISCAL IMPACTS

### Economic Impacts

Total combined economic impacts generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle and King County include direct, indirect, and induced impacts. The direct impacts discussed in previous sections include the jobs, labor income, and business income supported directly by industry businesses. Indirect impacts include additional jobs, labor income, and business revenues supported via business-to-business transactions. Indirect impacts include the jobs, labor income, and business revenue generated through the spending of worker wages.

Overall, total economic impacts of the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle were more than \$33.9 billion in business revenues. Together these industries supported a total of 115,800 jobs, as well as nearly \$10.4 billion in labor income.<sup>2</sup> The Maritime industry supported 28,000 jobs, nearly \$2.5 billion in labor income, and nearly \$6.7 billion in business revenue. The Transportation and Warehousing industry supported 36,900 jobs, more than \$3.4 billion in labor income, and nearly \$10.0 billion in business revenues. Manufacturing supported 50,900

<sup>2</sup> Labor income is estimated based on wages and includes an adjustment to also include the value of benefits provided to workers.

jobs, nearly \$4.5 billion in labor income and more than \$17.3 billion in business revenues. **(Exhibit 37)**

**Exhibit 37. Economic Impacts by Industry, Seattle, 2023**

	Direct	Indirect	Induced	Total
<b>Maritime</b>				
Jobs	11,800	4,000	12,200	28,000
Total Compensation (mils 2023 \$)	\$1,450	\$290	\$750	\$2,490
Business Revenue (mils 2023 \$)	\$3,560	\$850	\$2,260	\$6,670
<b>Transportation &amp; Warehousing</b>				
Jobs	15,300	5,000	16,600	36,900
Total Compensation (mils 2023 \$)	\$2,020	\$360	\$1,030	\$3,410
Business Revenue (mils 2023 \$)	\$5,840	\$1,050	\$3,080	\$9,970
<b>Manufacturing</b>				
Jobs	21,600	7,500	21,800	50,900
Total Compensation (mils 2023 \$)	\$2,540	\$580	\$1,350	\$4,470
Business Revenue (mils 2023 \$)	\$11,640	\$1,680	\$4,030	\$17,350
<b>Total</b>				
Jobs	48,700	16,500	50,600	115,800
Total Compensation (mils 2023 \$)	\$6,010	\$1,230	\$3,130	\$10,370
Business Revenue (mils 2023 \$)	\$21,040	\$3,580	\$9,370	\$33,990

*Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.*

*Notes: Labor income includes wages and benefits. Labor income and business revenues are adjusted for inflation and presented in 2023 dollars.*

Across King County, the three industries had a total economic impact of \$145.9 billion in business revenues, \$43.1 billion in labor income, and supported 483,800 jobs. The Maritime industry in King County supported 47,000 jobs, more than \$4.2 billion in labor income, and nearly \$11.1 billion in business revenues, including direct, indirect, and induced impacts. The Transportation and Warehousing industry supported a total of 206,500 jobs, almost \$18.0 billion in labor income, and nearly \$58.0 billion in business revenues. The Manufacturing industry supports 230,300 jobs, nearly \$20.9 billion in labor income, and \$76.8 billion in business revenues. **(Exhibit 38)**

### Exhibit 38. Economic Impacts by Industry, King County, 2023

	Direct	Indirect	Induced	Total
<b>Maritime</b>				
Jobs	18,800	7,100	21,100	47,000
Total Compensation (mils 2023 \$)	\$2,360	\$540	\$1,320	\$4,220
Business Revenue (mils 2023 \$)	\$5,610	\$1,560	\$3,940	\$11,110
<b>Transportation &amp; Warehousing</b>				
Jobs	83,200	33,100	90,200	206,500
Total Compensation (mils 2023 \$)	\$10,000	\$2,370	\$5,620	\$17,990
Business Revenue (mils 2023 \$)	\$34,350	\$6,810	\$16,810	\$57,970
<b>Manufacturing</b>				
Jobs	91,600	33,900	104,800	230,300
Total Compensation (mils 2023 \$)	\$11,600	\$2,760	\$6,530	\$20,890
Business Revenue (mils 2023 \$)	\$49,440	\$7,830	\$19,530	\$76,800
<b>Total</b>				
Jobs	193,600	74,100	216,100	483,800
Total Compensation (mils 2023 \$)	\$23,960	\$5,670	\$13,470	\$43,100
Business Revenue (mils 2023 \$)	\$89,400	\$16,200	\$40,280	\$145,880

Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.

Notes: Labor income includes wages and benefits. Labor income and business revenues are adjusted for inflation and presented in 2023 dollars.

Economic impact multipliers, which quantify the additional value of all impacts generated elsewhere throughout Seattle and King County by the Transportation and Warehousing, Maritime, and Manufacturing industries, were relatively similar for both regions.

The Maritime industry generated the largest multiplier in terms of dollars of total output per dollar of direct output. Every dollar of output produced by the Maritime industry generated an additional \$0.87 in output throughout the Seattle economy or an additional \$0.98 in output throughout the King County economy. **(Exhibit 39)**

Total employment multipliers ranged from 2.48 in the King County Transportation and Warehousing industry to 2.51 in the King County Manufacturing industry. For every job directly supported by these industries an additional 1.48 to 1.51 jobs are supported throughout the economy. **(Exhibit 39)**

Total compensation multipliers are also similar across all three industries and in Seattle compared to King County. These multipliers range from 1.68 in Seattle's Transportation and Warehousing industry to 1.80 in King County's Transportation and Warehousing and Manufacturing industries.

For every dollar in direct compensation an additional \$0.68 to \$0.80 is supported throughout either the Seattle or King County economy. **(Exhibit 39)**

The Maritime industry, both in Seattle and King County as a whole has the largest total output multiplier. For every million dollars in direct output 7.88 and 8.39 jobs are supported throughout the Seattle and King County economy respectively. Within Transportation and Warehousing these multipliers range from 6.01 (King County) to 6.32 (Seattle). Within Manufacturing the total jobs multiplier ranges from 4.38 in Seattle to 4.66 in King County. **(Exhibit 39)**

### Exhibit 39. Economic Impact Multipliers by Industry, Seattle and King County

Economic Impact Multipliers	Seattle (2023)	King County (2023)
<b>Transportation &amp; Warehousing</b>		
Total output per \$ final demand	1.71	1.69
Total jobs per direct job	2.41	2.48
Total compensation per \$ direct income	1.68	1.80
Total jobs per \$ mil final demand	6.32	6.01
<b>Maritime</b>		
Total output per \$ final demand	1.87	1.98
Total jobs per direct job	2.37	2.50
Total compensation per \$ direct income	1.72	1.79
Total jobs per \$ mil final demand	7.88	8.39
<b>Manufacturing</b>		
Total output per \$ final demand	1.49	1.55
Total jobs per direct job	2.36	2.51
Total compensation per \$ direct income	1.76	1.80
Total jobs per \$ mil final demand	4.38	4.66

*Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.*

## Fiscal Impacts

Washington State tax revenues generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle total \$273.4 million. Accounting for these industries across all of King County, total fiscal impacts total nearly \$1.2 billion. Both direct and secondary activities generate tax revenues. Secondary activities include indirect and induced impacts. State taxes include business and operations, sales and use tax, and other sources of state tax revenues. Sales and use taxes represent the largest

proportion of total fiscal impacts for each industry. (**Exhibit 40** and **Exhibit 41**)

**Exhibit 40. Fiscal Impacts by Industry, Seattle, 2023**

<b>Fiscal Impacts</b>	<b>Direct (mils 2023\$)</b>	<b>Secondary (mils 2023\$)</b>	<b>Total (mils 2023\$)</b>
<b>Maritime</b>			
B&O	\$5.0	\$13.7	\$18.7
Sales & Use Taxes	\$9.4	\$31.0	\$40.4
Other	\$1.0	\$3.6	\$4.6
<b>Subtotal</b>	<b>\$15.4</b>	<b>\$48.3</b>	<b>\$63.7</b>
<b>Transportation &amp; Warehousing</b>			
B&O	\$3.4	\$19.0	\$22.4
Sales & Use Taxes	\$5.7	\$42.1	\$47.7
Other	\$4.2	\$4.9	\$9.1
<b>Subtotal</b>	<b>\$13.2</b>	<b>\$66.0</b>	<b>\$79.2</b>
<b>Manufacturing</b>			
B&O	\$23.0	\$25.4	\$48.4
Sales & Use Taxes	\$19.0	\$56.1	\$75.1
Other	\$0.7	\$6.4	\$7.1
<b>Subtotal</b>	<b>\$42.7</b>	<b>\$87.9</b>	<b>\$130.6</b>
<b>Total Fiscal Impacts</b>	<b>\$71.3</b>	<b>\$202.1</b>	<b>\$273.4</b>

*Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.*

#### Exhibit 41. Fiscal Impacts by Industry, King County, 2023

Fiscal Impacts	Direct (mils 2023\$)	Secondary (mils 2023\$)	Total (mils 2023\$)
<b>Maritime</b>			
B&O	\$8.0	\$24.4	\$32.4
Sales & Use Taxes	\$13.3	\$55.1	\$68.4
Other	\$1.6	\$6.2	\$7.8
<b>Subtotal</b>	<b>\$23.0</b>	<b>\$85.6</b>	<b>\$108.6</b>
<b>Transportation &amp; Warehousing</b>			
B&O	\$20.0	\$108.1	\$128.0
Sales & Use Taxes	\$39.3	\$243.8	\$283.0
Other	\$24.0	\$26.5	\$50.6
<b>Subtotal</b>	<b>\$83.3</b>	<b>\$378.4</b>	<b>\$461.6</b>
<b>Manufacturing</b>			
B&O	\$105.4	\$122.9	\$228.3
Sales & Use Taxes	\$69.9	\$272.1	\$342.0
Other	\$6.7	\$29.8	\$36.5
<b>Subtotal</b>	<b>\$182.0</b>	<b>\$424.8</b>	<b>\$606.8</b>
<b>Total Fiscal Impacts</b>	<b>\$288.2</b>	<b>\$888.7</b>	<b>\$1,176.9</b>

Sources: Washington State Department of Revenue, 2024; Bureau of Labor Statistics, 2024; U.S. Census Bureau, 2024; Puget Sound Regional Council, 2024; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2024.

## INDUSTRY TRENDS

### Macroeconomic Industry Trends

Recent developments in the global maritime industry show a delicate balance within a marketplace that is responding to meet elevated demand, increasing shipping capacity, a potential dockworkers strike, and navigating conflict around the globe. Global shipping capacity is increasing, an estimated 470 cargo ships will have been added by the end of 2024, adding 3.2 million TEUs, and bringing the global container ship capacity to 31.4 million TEU<sup>3</sup>. Should estimates bear out, that is an annual capacity increase of 10%.

While capacity has been increasing, there has been no corresponding decrease in rental rates. Part of this is due to high levels of demand, which has increased by 7.4% year to date through July<sup>4</sup>, and longer shipping routes. Those routes have been lengthened due to continued violence in the Red Sea. The United Kingdom's Office for National Statistics reported that traffic

3 <https://www.seatrade-maritime.com/containers/container-shipping-in-2025-the-postponed-apocalypse->

4 <https://www.dhl.com/content/dam/dhl/global/dhl-global-forwarding/documents/pdf/glo-dgf-ocean-market-update.pdf>

through the Suez Canal and the Bab-Al-Mandab Strait were down by 66% since late 2023 when Houthi rebels began attacking and, in some instances, seizing commercial cargo ships<sup>5</sup>. In response, more liners are going around the Cape of Good Hope. There is evidence that the longer journeys around the Cape have allowed for new capacity to come online without increasing idleness rates or decreasing shipping costs. In fact, evidence suggests that new container ships have been absorbed into the market to prevent a shortage of capacity in the market. Between January and October an average of 0.7% of the global container fleet sat idle, even as total capacity has grown by 30% since 2020<sup>6</sup>.

One more possible confounding variable is the US East Coast dockworkers' union. The International Longshoremen's Association (ILA) reached a tentative agreement with the US Maritime Alliance (USMA) over wages after a brief strike<sup>7</sup>. That deal extended the negotiating period for all other outstanding subjects to January 15, 2025, including automation. Their strike in early October lasted just 3 days, but a longer strike would have important impacts on maritime trade, as ILA ports handled more than 90% of total US imports in 2023<sup>8</sup>

The maritime shipping industry has faced multiple challenges coming out of the Covid-19 pandemic including increased inflation rates, international conflict, and an increase in shipping capacity, but has found a tentative equilibrium in 2024. Looking ahead to 2025, that balance is threatened by protectionary trade policies and the potential long-term impacts of such a substantial increase in TEU capacity worldwide.

## Tariffs

President-Elect Donald Trump has pledged to implement tariffs on all imported goods when he takes office in January of 2025. These will have the most impact on goods from the U.S. largest trading partners specifically, China, Mexico, and Canada. The reported proposals vary, but recent announcements indicated a plan for 60-100% tariffs on goods coming in from China and 10-20% tariffs on goods from all other U.S. trading partners<sup>9</sup>. According to the United States International Trade Commission, the average import duty rate on consumable imports in 2023 was 7.4% by value and was

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<sup>5</sup><https://www.ons.gov.uk/releases/shiptraffichroughglobalcriticalmaritimepassagesjanuary2023toapril2024>

<sup>6</sup> <https://www.seatrade-maritime.com/containers/record-low-idle-box-ships-but-trump-tariffs-could-scupper-growth>

<sup>7</sup> <https://ilaunion.org/joint-statement-regarding-master-contract/>

<sup>8</sup> <https://www.mitre.org/sites/default/files/2024-10/PR-24-2477-Potential-Impact-International-Longshoreman-Strike-10.pdf>

<sup>9</sup> <https://abcnews.go.com/Business/trumps-proposed-tariffs-raise-prices-products-experts/story?id=115893557>



applied to 31.8% of the goods imported<sup>10</sup>. Current proposals would increase both the average rate of import tariffs and the proportion of goods to which tariff applies up to 100%.

Evidence from the President-Elect's tariffs from his first term indicates that his previous policies increased the prices of both intermediate and final goods<sup>11</sup>. Furthermore, the IMF released a study in 2022 describing how tariffs, regardless of where they are applied in the supply chain, dampen economic activity associated with the good subject to the tariff, while the protected industry does not reap protective benefits<sup>12</sup>.

The proposed tariffs are important for another reason. A common workaround for the current tariffs on China is to first ship goods to Mexico before moving them into the United States, circumventing the tariff<sup>13</sup>. The current workaround has artificially reduced the economic bite of previous tariffs, many of which were left in place by the Biden administration. The blanket tariff proposal would not fully eliminate the value of sending goods to Mexico or Canada before reaching their destination in the United States. But it will reduce the effectiveness of this workaround, will increase prices,<sup>14</sup> and will decrease the private sector's ability to adapt around the proposed trade barriers.

Ahead of those policies being implemented, companies are frontloading, or preordering, inventories to avoid having to pay increased import prices, increasing demand for containers in the short run, but setting the industry up for a sharp adjustment after implementation. A decrease in the demand for containers in the short run could break the current equilibrium in the market that is reliant on longer shipping runs to drive up demand for containers. With lower demand, the recent capacity increase could in turn decrease shipping rates and lead to an increase in idleness rates.

If the tariffs are enacted, their impact will go beyond just the short-run demand for shipping units as companies adjust to increased import prices. The costs of the proposed tariffs will be passed on to consumers, limiting future consumption and demand for imported goods. This, combined with the

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10 [https://www.usitc.gov/documents/dataweb/ave\\_table\\_1891\\_2023.pdf](https://www.usitc.gov/documents/dataweb/ave_table_1891_2023.pdf)

11 Amity, Mary, Stephen J. Redding, and David E. Weinstein. 2019. "The Impact of the 2018 Tariffs on Prices and Welfare." *Journal of Economic Perspectives*, 33 (4): 187–210.

12 Eugster, Johannes, Florence Jaumotte, Margaux MacDonald, and Roberto Piazza. "The Effect of Tariffs in Global Value Chains", IMF Working Papers 2022, 040 (2022), A001, accessed Dec 6, 2024, <https://doi.org/10.5089/9798400201158.001.A001>

13 <https://smspecialties.com/why-evading-china-tariffs-through-mexico-wont-work-for-long/>

14 Nicita, Alessandro. 2009. "The price effect of tariff liberalization: Measuring the impact on Household Welfare." *Journal of Development Economics*, 89 (1): 19-27

substantial increase in total shipping capacity since 2020 would likely push rental rates low, and increase the idleness rate of shipping units around the globe. New tariffs and trade barriers would disrupt the delicate balance in the industry between increased capacity and strong demand. If consumer demand for imports drops throughout the United States and the Red Sea and Suez Canal shipping channel becomes safer to use a significant imbalance will emerge between the availability of shipping units and the real-time demand for their services.

## **Commercial Affordability**

As of Q3 2024, vacancy for industrial properties in the Seattle Metro region had reached a recent high of 7.5%, up 2.3% from the same quarter in 2023<sup>15</sup>. Overall, vacancies have been climbing quickly since mid-2023, and up from a low of 3.6% in Q4 2022<sup>16</sup>, and that trend shows no signs of abating. Construction completions have outpaced demand, with negative 2.5 million square feet of net absorption through the first 3 quarters of 2024<sup>17</sup>. In total, the Seattle industrial market has added 5.4 million square feet of space through the first three quarters, with another 1.5 million set to be delivered in Q4. After that, however, deliveries are expected to slow as fewer and fewer projects are entering the pipeline.<sup>18</sup> As fewer projects come online in 2025, vacancies may stabilize as net absorption approaches a net-zero or slightly positive level.

In response to high vacancies and new supply coming on the market, the expectation would be decreased rents, but this is not the case. Triple Net asking rent per square foot has remained mostly unchanged from the previous year, up 1.0% to \$0.99 per square foot. Broadly, industrial asking rents per square foot have increased by approximately 25% from 2019 levels when landlords were asking for just under \$.80 per square feet of rentable space<sup>19</sup>. More specifically, for regions in the Puget Sound such as SeaTac (\$1.25), Federal Way (\$1.20), and Tukwila (\$1.21), vacancies and average rental rates are higher than the Metro average<sup>20</sup>.

## **Opportunities for Green Economy Businesses**

The Maritime industry in Seattle is a national leader in innovating and creates opportunities to develop more sustainable industry practices. For

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15 Cushman Wakefield Seattle Industrial MarketBeat Report Q3 2024. [https://cw-gbl-gws-prod.azureedge.net/-/media/cw/marketbeat-pdfs/2024/q3/us-reports/industrial/seattle\\_americas\\_marketbeat\\_industrial\\_q32024.pdf?rev=8374bb95b224445589d57543b1f23ffb](https://cw-gbl-gws-prod.azureedge.net/-/media/cw/marketbeat-pdfs/2024/q3/us-reports/industrial/seattle_americas_marketbeat_industrial_q32024.pdf?rev=8374bb95b224445589d57543b1f23ffb)

16 <https://kidder.com/market-reports/seattle-industrial-market-report/>

17 Cushman Wakefield Seattle Industrial MarketBeat Report Q3 2024.

18 Cushman Wakefield Seattle Industrial MarketBeat Report Q3 2024.

19 Cushman Wakefield Seattle Industrial MarketBeat Report Q3 2024.

20 Cushman Wakefield Seattle Industrial MarketBeat Report Q3 2024.

example, Kitsap County is leveraging a grant from the Federal Transit Administration<sup>21</sup> to design and develop an all-electric ferry designed to carry 150 passengers at a time while minimizing the impact on air and water quality and marine life compared to the current diesel-powered ferries<sup>22</sup>. The Port of Seattle has also been a member of the Green Marine initiative, the largest voluntary environmental program for the Maritime industry in North America, since 2013 and are now Green Marine Certified<sup>23</sup>. The Port is also working to address the feasibility of alternative fuels for maritime use through their newly announced Sustainable Maritime Fuel Collaborative.

In addition, the ports of Seattle and Tacoma have led aggressive shore power initiatives that reduce carbon emissions. According to the Port of Seattle, the use of shore power by large cruise liners cut diesel emissions and CO2 emissions by an average of 80% and 66% respectively. The Port of Seattle reports that 35% of cruise vessels that docked in their Cruise Terminal used shore power in 2023, but that is expected to increase to 66% in 2024. Since the summer of 2024 all cruise ship berths have shore power connection capabilities, and the Port is writing use of shore power into their use agreements<sup>24</sup>. In addition to cruise ship services, the Port of Seattle offers shore power for cargo ships in Terminal 5 and the Port of Tacoma has two permanent shore power stations run by TOTE Maritime. Both ports in the Northwest Seaport Alliance are building additional shore power stations, future plans include Terminals 18 and 46 in the Port of Seattle<sup>25</sup> and Washington United and Pierce County terminals in Tacoma. The Port of Seattle plans to phase out seaport-related emissions by 2050.

Beyond infrastructure and equipment improvements, the Maritime industry is growing due to partnerships like Washington Maritime Blue. The organization works on a number of projects throughout the region, including entrepreneurship programs for startup companies including accelerators and incubators to grow a steady stream of green innovations and advancements<sup>26</sup>. The One Ocean Accelerator is a 12-week program for mid-stage startups that focuses on developing the next generation of sustainable fishing practices, healthy ecosystem maintenance, renewable ocean energy, maritime decarbonization, and digital upgrading<sup>27</sup>. Washington Maritime Blue is also working to build offshore wind generating capacity in the upper Northwest

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21 <https://www.kitsapdailynews.com/news/kitsap-transit-receives-grant-for-electric-ferry-demonstration-vessel/>

22 <https://mynorthwest.com/3936436/early-design-look-new-electric-kitsap-fast-ferry/>

23 <https://www.portseattle.org/maritime/maritime-environmental>

24 <https://www.portseattle.org/page/cruise-ship-shore-power-facts>

25 <https://www.nwseaportalliance.com/environment/clean-air/investing-cleaner-air>

26 <https://maritimeblue.org/seattle-incubator/>

27 <https://maritimeblue.org/one-ocean-accelerator/>

but are early in the process of designing floating offshore wind power generators<sup>28</sup>.

## CONCLUSION

The Maritime, Manufacturing, and Transportation and Warehousing industries have overcome challenging macroeconomic trends and a marketplace that is still working through the impacts of a global pandemic. In 2023 these industries were stable, both in Seattle and throughout King County. The Maritime, Manufacturing, and Transportation and Warehousing industries employed more people in 2023, than in 2022 and increased total wages. Total business revenues reached nearly \$93 billion in King County, surpassing the \$90 billion mark for the first time between 2018 and 2023.

In 2023, the Maritime, Manufacturing, and Transportation and Warehousing industries directly and indirectly supported 115,800 jobs in Seattle and 483,800 jobs in King County. From 2022 to 2023 the industries in King County increased by 19,000 jobs. The industries in Seattle supported an estimated 400 fewer jobs in 2023 than in 2022. In addition, the industries generated \$10.4 billion in total compensation in Seattle and \$43.1 billion in compensation in King County. Estimated business revenues generated in Seattle, directly or indirectly, in 2023 increased by \$300 million to \$33.9 billion from 2022 levels, while King County business revenue totaled \$145.9 billion. From 2022 to 2023, King County estimated business revenues grew by more than \$5 billion. After a turbulent three years from 2020 to 2022, the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle and King County have showed a return to stability and modest growth in 2023.

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<sup>28</sup> <https://www.theurbanist.org/2023/12/14/washington-state-explores-offshore-wind-while-neighbors-charge-ahead/>

## APPENDIX:

# Maritime, Manufacturing and Transportation & Warehousing Strategic Analysis

November 2023

Prepared by:



Prepared for:





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

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## EXECUTIVE SUMMARY

For more than a century, the Maritime, Manufacturing, and Transportation and Warehousing industries have played a significant role in the economic development and identity of Seattle, Washington. These industries have shaped the city's history, culture, and economy.

Seattle's strategic location on the Pacific Coast, with access to deep-water ports and connection to Alaskan maritime activity, has made it a hub for trade and transportation. The city's maritime heritage is deeply ingrained in its culture with a rich history of shipbuilding, fishing, and maritime trade.

The city's Manufacturing industry also has deep roots that can be traced back to the 19<sup>th</sup> century: starting with shipbuilding and steel manufacturing, the association became even stronger with the growth of Boeing, one of the world's largest aerospace manufacturers.

A critical component of the success of the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle, King County, and Washington State is the Transportation and Warehousing industry, or the logistical cornerstone of a diverse range of operations involving the movement of goods and services. These services primarily entail the movement of goods via truck transportation, activities that directly support and facilitate this means of transportation, the storage and warehousing of these goods, as well as air transportation. In 2022, King County's Transportation and Warehousing industry employed nearly 81,000 workers, including almost 29,000 of whom were self-employed.

The Transportation and Warehousing industry has remained resilient, even through the COVID-19 pandemic, experiencing one year-over-year decrease in employment between 2010 and 2022. As of 2022, total employment in the Transportation and Warehousing industry has exceeded 2019 levels and has reached the highest level of employment between 2010 and 2022.

Unfolding over several decades, the city's global identity as a Maritime and Manufacturing hub has shifted to a global tech innovator hosting two of the world's largest tech companies. Yet the Maritime and Manufacturing industries continue to play a vital role in its economy and remain an integral part of its identity.

Today, the Maritime industry in Seattle continues to be characterized by shipbuilding, fishing, recreation, tourism, passenger transportation, domestic and international maritime logistics, and shipping. Manufacturing is characterized by food and beverage, textiles and apparel, wood product and paper, chemical and plastics, aerospace, machinery, and metal product, and other manufacturing. Transportation and Warehousing includes air



transportation, truck transportation, transit, ground, scenic, and sightseeing transportation, pipeline transportation, postal service and couriers, support activities for transportation, and warehousing and storage.

In 2021 in Seattle, the Maritime, Manufacturing, and Transportation and Warehousing industries combined directly supported 46,800 jobs, \$6.2 billion in wages and \$20 billion in estimated direct business revenues. In King County in 2022, these three industries combined directly supported 189,500 jobs, \$21.9 billion in employee wages and \$86.9 billion in estimated business revenues. **(Exhibit 1)**

#### Exhibit 42. Direct Economic Impacts, Seattle and King County, 2021 and 2022

Direct Impacts	Seattle (2021)	King County (2022)
<b>Transportation &amp; Warehousing</b>		
Jobs	15,200	80,700
Total Compensation (mils 2022 \$)	\$2,100	\$8,300
Business Revenue (mils 2022 \$)	\$6,000	\$33,300
<b>Maritime</b>		
Jobs	11,400	18,500
Total Compensation (mils 2022 \$)	\$1,500	\$2,300
Business Revenue (mils 2022 \$)	\$3,400	\$5,500
<b>Manufacturing</b>		
Jobs	20,200	90,300
Total Compensation (mils 2022 \$)	\$2,600	\$11,300
Business Revenue (mils 2022 \$)	\$10,600	\$48,100

*Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.*

## Economic and Fiscal Impacts

Combined economic and fiscal impacts include jobs, wages, and revenues both directly and indirectly supported by industry operations, as well as induced effects that are generated because of spending received by workers employed in the Maritime, Manufacturing, and Transportation and Warehousing industries. In total these three industries support a total of 116,200 jobs, \$10.7 billion in labor income, and \$33.6 billion in business revenue in Seattle. Throughout King County, the Maritime, Manufacturing, and Transportation and Warehousing industries support 464,700 jobs, \$40.1 billion in labor income and \$140.6 billion in business revenues. **(Exhibit 2)**

### Exhibit 43. Total Economic Impacts, Seattle and King County, 2021 and 2022

	Direct	Indirect	Induced	Total
<b>Seattle</b>				
Jobs	46,800	16,800	52,600	116,200
Total Compensation (mils 2022 \$)	\$6,180	\$1,280	\$3,260	\$10,720
Business Revenue (mils 2022 \$)	\$20,010	\$3,770	\$9,770	\$33,550
<b>King County</b>				
Jobs	189,500	73,700	201,500	464,700
Total Compensation (mils 2022 \$)	\$21,930	\$5,650	\$12,530	\$40,110
Business Revenue (mils 2022 \$)	\$86,880	\$16,200	\$37,520	\$140,600

Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.

The Maritime, Manufacturing, and Transportation and Warehousing industries also generate fiscal impacts in both Seattle and King County. Both direct and secondary (indirect and induced) impacts support the generation of tax revenues statewide. In 2021, total state fiscal impacts generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle exceeded \$266.1 million. The industries throughout King County generated nearly \$1.1 billion in statewide fiscal impacts. **(Exhibit 3)**

### Exhibit 44. Total State Fiscal Impacts, Seattle and King County, 2021 and 2022

Fiscal Impacts	Direct (mils 2022\$)	Secondary (mils 2022\$)	Total (mils 2022\$)
<b>Seattle</b>			
B&O	\$27.4	\$58.1	\$85.4
Sales & Use Taxes	\$30.8	\$129.3	\$160.1
Other	\$5.5	\$15.0	\$20.6
<b>Subtotal</b>	<b>\$63.7</b>	<b>\$202.4</b>	<b>\$266.1</b>
<b>King County</b>			
B&O	\$124.8	\$233.1	\$358.0
Sales & Use Taxes	\$118.1	\$520.1	\$638.2
Other	\$32.0	\$57.0	\$89.0
<b>Subtotal</b>	<b>\$275.0</b>	<b>\$810.2</b>	<b>\$1,085.2</b>

Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.

## Industry Workforce

While traditional Maritime, Manufacturing, and Transportation and Warehousing industries have diminished in cultural prominence, new

opportunities and challenges have emerged, impacting the skills, education, income, and diversity of the blue-collar workforce in the city.

Common occupations among the Maritime, Manufacturing, and Transportation and Warehousing industries typically do not require higher education for entry. Out of the 34 occupations that are both highly concentrated within each industry and have high employment in King County, just 11 require an Associate degree or higher.

Median wages among common occupations within the Maritime, Manufacturing, and Transportation and Warehousing industries range between \$37,200 (Meat, Poultry, and Fish Cutters and Trimmers) and \$134,900 (Aerospace Engineers). In general, common occupations within the Maritime and Manufacturing industries have higher median wages and are more highly concentrated or reliant on their respective industries compared to Transportation and Warehousing occupations.

In general, average annual wages within the Maritime, Manufacturing, and Transportation and Warehousing industries have not kept pace with the increasing wages across the King County economy as a whole. King County Area Median Income has increased from \$88,000 to \$134,600, adjusted for inflation between 2012 and 2022. Across all subsectors within each of these industries, the Transit, Ground, Scenic and Sightseeing Transportation subsector was the only subsector to see an increase in average annual wages relative to the King County AMI.

## Issues Assessment

Organizations and businesses operating in the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle and King County face numerous challenges from a variety of economic, political, and social factors and constraints. Some of these entities provided insights via interviews and survey responses, emphasizing several key issues:

- Engagement with the City of Seattle is and has been minimal for several years and needs to be improved. Specifically, many business owners feel as if their voices and feedback are largely being ignored by City officials, particularly when it comes to making critical long-term decisions on matters of infrastructure, transportation, freight flow, and road user safety.
- Many stakeholders, both public and private, identified infrastructural issues as being a primary concern, especially those operating in the Maritime and Manufacturing industries. Issues that continue to impact their business operations include shrinking rail and freight truck access, transportation safety planning, and residential encroachment.

- Some business owners also expressed concern about the loss of freight rail, as well as safety and road-sharing concerns due to the increasing prevalence of pedestrian- and bicyclist-friendly paths and trails that are being developed in areas that have historically been used for freight transportation and other industrial operations.
- Workforce development and issues pertinent to both attracting and retaining employees highlight an increasing strain that is being seen and experienced across each of these industries by nearly all business owners. Many operators in the Maritime, Manufacturing, and Transportation and Warehousing industries specifically called out workforce shortages, rising home costs, the lack of affordable housing options for their employees and difficulty finding housing near their place of employment as factors contributing to increasing workforce development constraints.
- Other issues affecting business entities operating in the Maritime, Manufacturing, and Transportation and Warehousing industries as reported via direct interviews include issues with utility rate increases, inconsistent reliability utilities, and challenges to developing these sectors into environmentally sustainable industries. Additionally, the Port of Seattle is facing increasing competition, as some other west coast ports are seeing increased cargo volumes relative to Seattle.

## Recommendations

The following recommendations are provided by stakeholders within Seattle's Maritime, Manufacturing, and Transportation and Warehousing industries, including government, labor, business, and non-profit representatives. These recommendations are aimed at providing a clear roadmap for addressing the multifaceted challenges faced by these industries, ensuring their sustainability and continued growth:

- **Stakeholder Collaboration:** Cultivate enhanced collaboration between the City of Seattle and both public and private stakeholders in the Maritime, Manufacturing, and Transportation and Warehousing industries. This collaboration is pivotal in rebuilding trust and strengthening relationships within these industries.
- **Transportation Planning:** Actively engage with businesses and industrial stakeholders and incorporate their input in transportation planning, particularly with respect to freight access and road safety.
- **Freight Access:** Pave the way for solutions that tackle the growing challenges related to diminishing freight access via road and rail and prioritize efficient and flexible last-mile delivery solutions to meet the rising demand for e-commerce and urban living.
- **Residential Encroachment:** Achieve a balance between residential development in or near industrial areas and noise-reduction measures

to minimize the impact on residents' quality of life and industrial operations.

- **Public Safety:** Bolster the capacity of public safety professionals to promptly respond to incidents, encompassing theft, damage, and trespassing.
- **Workforce Development:** Raise awareness of existing workforce development programs among employers and students while fostering better coordination between training programs and employers. Additionally, forge partnerships with industry to underscore the value of industrial jobs to individuals, families, and the broader community.
- **Utility Reliability:** Collaborate closely with businesses and industry stakeholders to gain a deeper understanding of their challenges regarding utility reliability.
- **Sustainable Industry:** Facilitate the growth of clean, sustainable industry by mitigating risks and providing incentives for start-ups, especially in projects like electrification. Also, address permitting challenges for novel technologies like hydrogen systems and fuel, aligning these efforts with the city's environmental goals.
- **Industry Competition:** Recognize the natural deep-water port as a competitive advantage to bolster middle-wage jobs and adopt a proactive approach to attract additional industrial and cargo work to the city.

## CONTENTS

Introduction .....	<b>Error! Bookmark not defined.</b>
Industry Overview.....	<b>Error! Bookmark not defined.</b>
Measures and Impacts.....	<b>Error! Bookmark not defined.</b>
Economic and Fiscal Impacts .....	<b>Error! Bookmark not defined.</b>
Industry Opportunities and Challenges .....	<b>Error! Bookmark not defined.</b>
Conclusion.....	<b>Error! Bookmark not defined.</b>
Appendix .....	<b>Error! Bookmark not defined.</b>

# INTRODUCTION

## Background and Purpose

Seattle is home to historic Maritime and Manufacturing industries, which date back to the City's inception in the 19<sup>th</sup> century and have thrived and preserved through eras of technological and community change in Seattle. Together with the Transportation and Warehousing industries, the Maritime and Manufacturing industries rely on Seattle's industrial lands, two manufacturing industrial centers, and a rich historic ecosystem of industry and supporting businesses. In late 2023, these industries face a broad range of opportunities and challenges. A tangible understanding of Seattle's comparative advantages across industry and markets is critical to support the local economy and workforce.

The approach in this report includes a regionally focused update and expansion of previous cluster studies. This updated economic analysis includes the latest data available, a refined definition of the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle and King County incorporating the latest changes and stakeholder feedback, as well as a strategic analysis to support these industries into the future.

## Data and Methods

Updates to the economic analysis incorporate a combination of qualitative and quantitative inputs. Analytics include estimated direct activities—measured in jobs, income, and business output—directly supported by each industry's activities and the broader economic and fiscal impacts of these activities to the state economy.

### Analytical Data Sources

Data used in this report draws from several sources, including state and federal employment and wage files maintained by the Washington State Employment Security Department, Puget Sound Regional Council, and U.S. Bureau of Labor Statistics; gross business income published by the Washington State Department of Revenue; cargo and trade statistics published by the U.S. Census Bureau and The Northwest Seaport Alliance, and Pacific Maritime Association; and other relevant information maintained and provided by other public and private sources. Direct activities are further modeled to account for missing information when necessary. Where possible, data related to Black, Indigenous and People of Color (BIPOC) and women participation is provided alongside anecdotal information from interviews.

The report contains estimated additional jobs, income, and business revenues supported through upstream business-to-business transactions (indirect impacts) and worker earned income consumption expenditures (induced

impacts). The study presents state tax revenues supported through direct, indirect, and induced impacts from each industry as well.

## Stakeholder Interviews

Individual interviews, as well as a business survey were used to collect primary data, inform data analytics, and probed industry issues. Information gathered from interviews and survey responses includes insights into industry trends, identified issues in the industry to be addressed, ideas on how to address issues, and qualitative information on BIPOC individuals and women in the workforce. Insights from industry stakeholders provides invaluable perspectives on industry outlook and near-term concerns. This input helped inform estimates of industry activities and provided important context on the direction of the industry and important challenges and opportunities.

The survey instrument and protocol is designed for redeployment on an annual basis, allowing the City of Seattle Office of Economic Development (OED) to continually solicit this information from Maritime, Manufacturing, and Transportation and Warehousing stakeholders across the state.

## Organization of Report

The remainder of this report is organized as follows:

- **Industry Overview.** Provides an overview of Seattle’s Maritime, Manufacturing, and Transportation and Warehousing industries, including details on key subsectors.
- **Measures and Impacts.** Discusses key measures of the Maritime, Manufacturing, and Transportation and Warehousing industries, including, jobs, wages, business revenues, occupations, as well as workforce equity.
- **Economic and Fiscal Impacts.** Summarizes direct, indirect, and induced impacts supported by Seattle’s Maritime, Manufacturing, and Transportation and Warehousing industries, as well as the fiscal impacts generated by their activities.
- **Industry Opportunities and Challenges.** Outlines key opportunities and challenges facing the Maritime, Manufacturing and Transportation and Warehousing industries and provides a gap analysis for key issues identified through stakeholder interviews and surveys.
- **Conclusion.** Summary of key findings.

## INDUSTRY OVERVIEW

Seattle’s Maritime, Manufacturing, and Transportation and Warehousing industries can be described in 17 subsectors. These industries represent a



wide range of subsectors and occupations, including the maritime logistics and shipping businesses that rely on the facilities managed by the Port of Seattle and Northwest Seaport Alliance (NWSA) in addition to warehouses and manufacturing businesses. These 17 subsectors include the following:

### **Maritime Subsectors**

- **Maritime logistics and shipping.** This subsector includes all activity related to the shipping of goods by water, including container and bulk goods. Trans-ocean, shoreline, and river freighting are included in this category, as is direct transportation by land to the state's ports for exports via water.
- **Shipbuilding, repair, and maintenance.** This category covers all commercial and federal boat and ship building, repair, and maintenance activities. This category also covers government shipbuilding, repair, and maintenance.
- **Commercial fishing and seafood products.** This category includes all activity related to the catching and processing of fish, including both finfish and shellfish. This category includes fishing and seafood processing that occurs on Washington vessels operating in Alaskan waters.
- **Recreational boating.** This subsector includes charter fishing activities around Seattle and King County, recreational marinas, retail boat dealers, and other related activities.
- **Passenger water transportation.** This subsector includes all Passenger Water Transportation, including recreational transportation as well as economic activities related to cruise ships.

### **Manufacturing Subsectors**

- **Food and beverage manufacturing (excluding seafood product manufacturing),** includes animal, grain, dairy, fruit and vegetable, and other food product manufacturing, as well as beverage manufacturing. This excludes seafood product manufacturing, which is captured within the commercial fishing and seafood products subsector.
- **Textile and apparel manufacturing** captures textile mills, apparel, and leather product manufacturing.
- **Wood product and paper manufacturing** includes wood product, paper, as well as printing and related support activities manufacturing.
- **Chemical and plastics manufacturing** captures chemical, plastics, rubber, nonmetallic mineral manufacturing as well as petroleum and coal product manufacturing.
- **Aerospace, machinery, and metal product manufacturing** includes primary and fabricated metal product manufacturing, machinery, motor vehicle, and appliance manufacturing. This

subsector also captures computer and electrical product and aerospace manufacturing. Excluded is ship and boat building.

- **Other manufacturing** captures all other manufacturing, including furniture and related products, as well as medical equipment and supplies and all other manufacturing.

### **Transportation & Warehousing**

- **Air Transportation** features air transportation of passengers and/or cargo using aircraft, such as airplanes or helicopters.
- **Truck Transportation** includes over-the-road transportation of cargo using motor vehicles, such as trucks and trailers. This subsector is divided into general freight trucking and specialized freight trucking.
- **Transit, Ground, Scenic and Sightseeing Transportation** captures a variety of passenger transportation activities, such as urban transit systems, chartered bus, school bus and interurban bus transportation, and taxis. Also included are transportation equipment utilized for recreation and entertainment purposes.
- **Pipeline Transportation, Postal Service and Couriers and Messengers** includes transmission pipelines for transporting crude oil, natural gas, and refined petroleum products, as well as United States Postal Service and its operating subcontractors and delivery couriers and messengers who do not operate under a universal service obligation.
- **Support Activities for Transportation** include services which support transportation to both the general public and transportation carrier establishments.
- **Warehousing and Storage** captures warehousing and storage operations where general merchandise, refrigerated goods and other warehouse products are stored.

## **MEASURES AND IMPACTS**

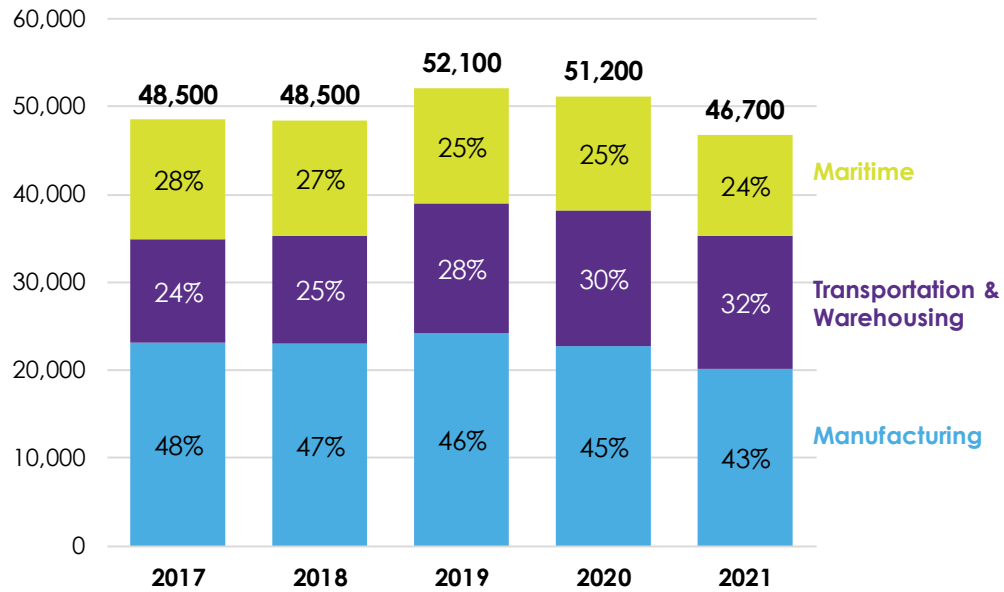
### **Employment, Wages, and Business Revenue**

#### **Employment**

Total Employment in Seattle within the Maritime, Manufacturing, and Transportation and Warehousing industries declined by nearly 1,800 jobs over the period between 2017 and 2021. Both Maritime and Manufacturing in Seattle saw negative annual growth rates between 2017 and 2021, 4.4% and 3.3% respectively. Meanwhile, Transportation and Warehousing employment increased by 6.5% annually between 2017 and 2021, or nearly 3,400 jobs.

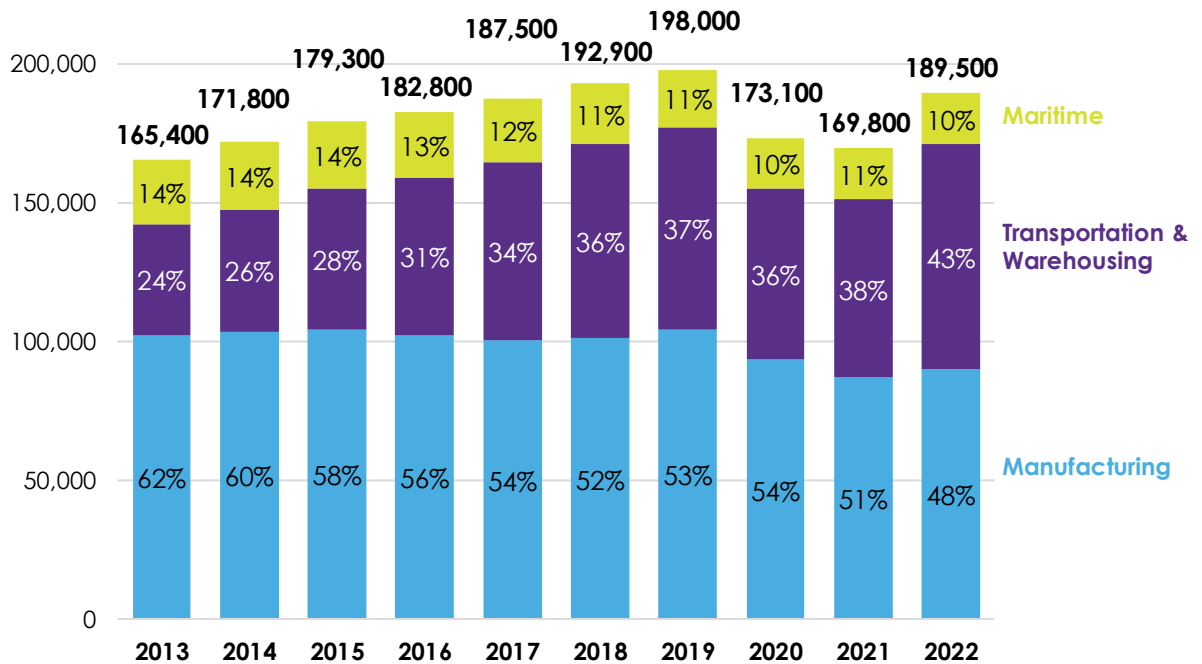
Employment growth in the Transportation and Warehousing industry combined with declines in Maritime and Manufacturing have resulted in the industry's increase as a share of total employment, from 24% in 2017 to 32% in 2021. (**Exhibit 4**)

**Exhibit 45. Total Employment by Industry, Seattle, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; Community Attributes Inc., 2023.

**Exhibit 46. Total Employment by Industry, King County, 2013-2022**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Community Attributes Inc., 2023.

These three industries have seen similar trends across King County as a whole. From 2013 through 2022, King County's Maritime, Manufacturing,

and Transportation and Warehousing industries grew by 24,100 jobs. **(King County** also reported modest employment growth from 2022 to 2023. In 2023 the King County Maritime, Manufacturing, and Transportation and Warehousing industries employed 193,600 people, up 1,100, or 0.6%, from 2022 **(Exhibit 5)**. Employment growth was primarily driven by the Manufacturing industry which grew by 1,100 jobs year-over-year. While employment shares shifted towards Transportation and Warehousing in 2022, those ratios remained even in 2023 with 47% of industry jobs associated with Manufacturing, 43% were Transportation and Warehousing, and 10% attributed to the Maritime industry.

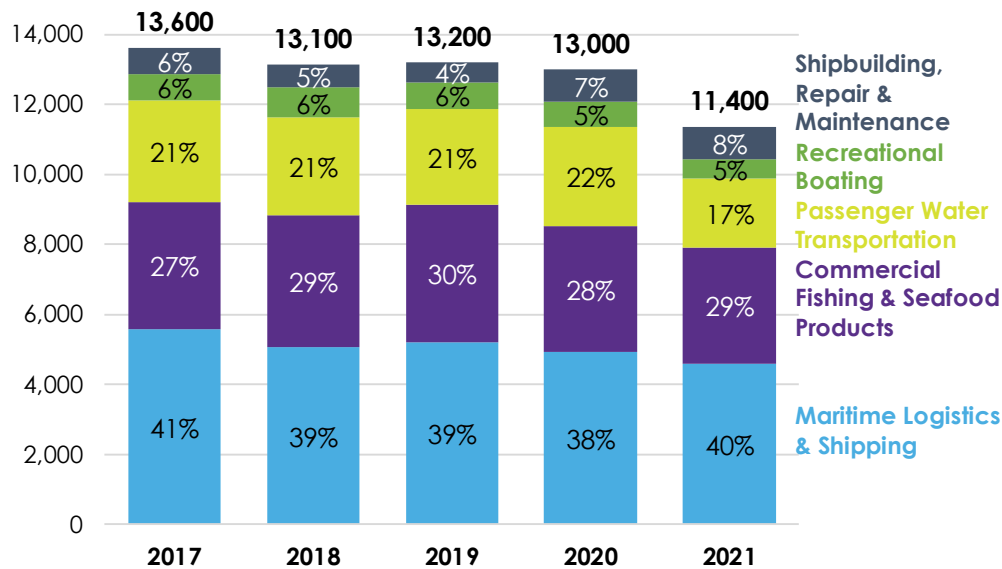
Exhibit 5) While total employment in the Transportation and Warehousing industry increased by just shy of 41,000 jobs over this period, both Maritime and Manufacturing industries experienced declines in overall employment, diminishing by 4,500 and 12,100 total jobs, respectively.

### **Maritime Subsectors**

Overall, total employment in the Maritime industry decreased between 2017 and 2021 in Seattle, diminishing nearly every year over the period. The most notable job losses occurred in the Passenger Water Transportation and Recreational Boating subsectors, which experienced compound annual employment decreases of 9.2% and 8.6%, respectively. Only one subsector, Shipbuilding, Repair, and Maintenance, experienced job growth over the time frame, increasing at an annual rate of 5.4%.

Nearly 70% of all employment in the Maritime industry in Seattle is concentrated in the Maritime Logistics and Shipping and Commercial Fishing and Seafood Products subsectors, which experienced annual employment declines of 4.7% and 2.1%, respectively, between 2017 and 2021. Out of total Maritime industry employment, Commercial Fishing and Seafood Products has increased from 27% in 2017 to 29% in 2021. Passenger Water Transportation has seen the largest declines as a share of total industry employment, from 21% in 2017 to 17% in 2021. **(Exhibit 6)**

**Exhibit 47. Total Employment by Maritime Subsector, Seattle, 2017-2021**

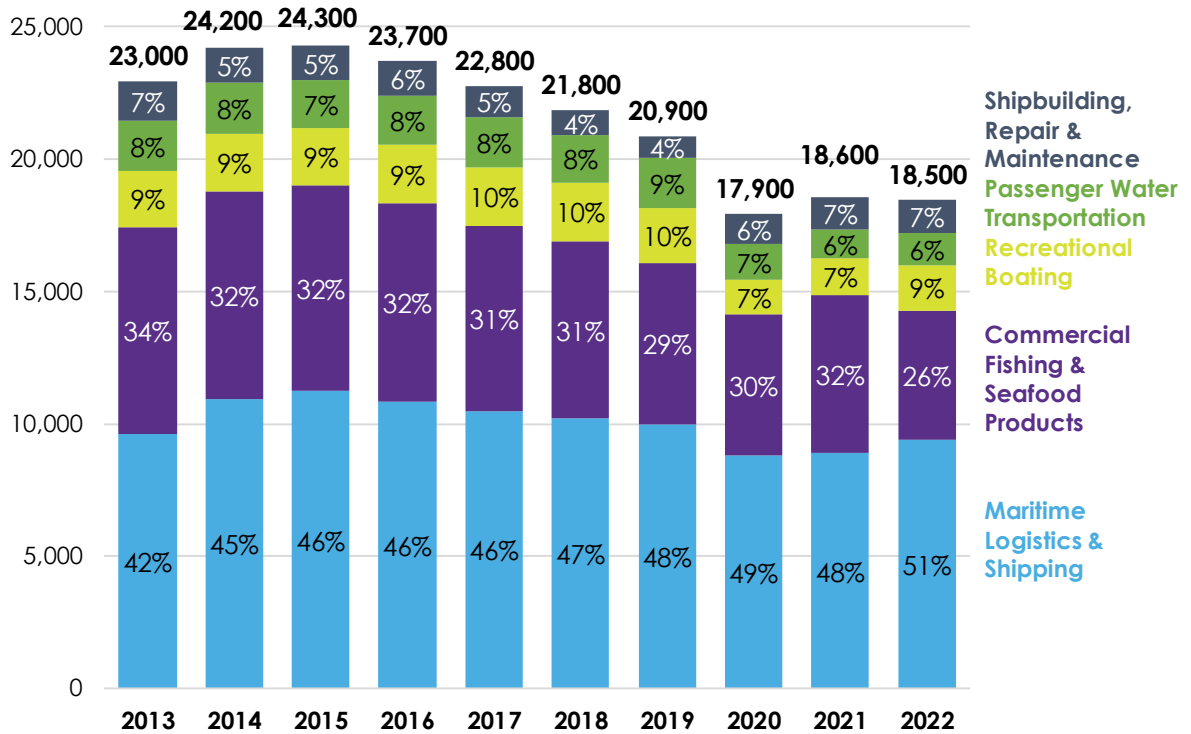


Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; Community Attributes Inc., 2023.

Maritime subsector employment in King County as a whole saw similar trends to subsector employment in Seattle. Every subsector saw declines in employment in the ten-year period between 2013 and 2022. Declines during this period range between 0.5% annually in the Maritime Logistics and Shipping subsector to 5.1% annually in the Commercial Fishing and Seafood Products subsector. King County's overall Shipbuilding, Repair, and Maintenance grew between 2017 and 2022, at a compound annual rate of 1.8%. Similar to Seattle, all other subsectors saw declines in employment between 2017 and 2022, with the largest annual declines in the Passenger Water Transportation and Commercial Fishing and Seafood Products subsectors, 6.9% and 6.8% annually.

King County employment in the Maritime industry is primarily concentrated in the Maritime Logistics and Shipping and Commercial Fishing and Seafood Products subsectors, like Seattle's subsectors. Together these subsectors comprised more than 75% of total industry employment for every year between 2013 and 2022. As a proportion of the industry, Maritime Logistics and Shipping has increased from 42% to nearly 51%, while Commercial Fishing and Seafood Products declined as a percentage of industry total from 34% to approximately 26%. (**Exhibit 7**)

**Exhibit 48. Total Employment by Maritime Subsector, King County, 2013-2022**

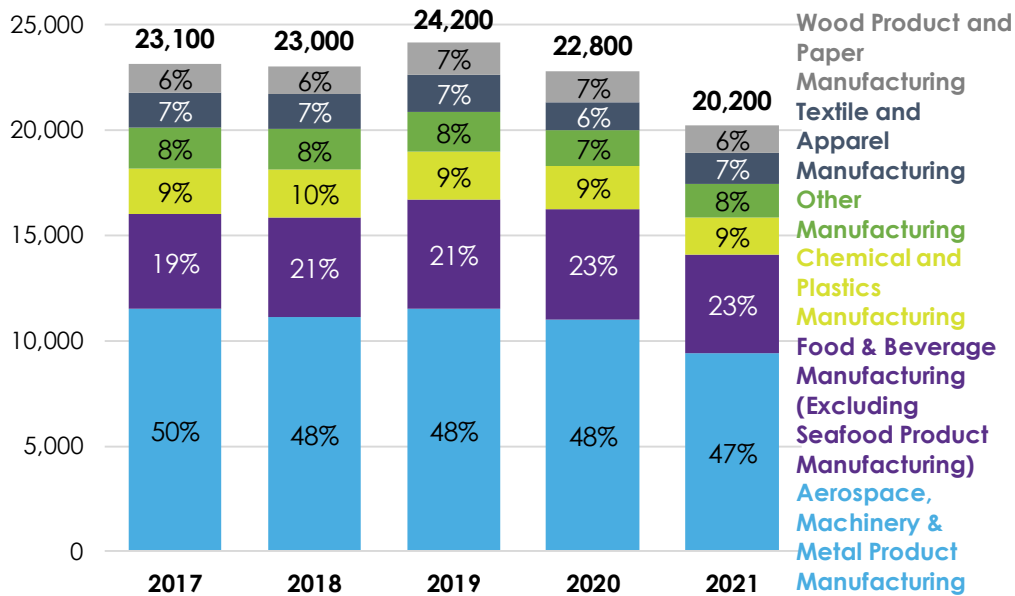


Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Community Attributes Inc., 2023.

### Manufacturing Subsectors

Total employment in the Manufacturing industry in Seattle decreased between 2017 and 2021, falling by nearly 3,000 jobs over the period, or an annual average decrease of 3.3%. All but one subsector, Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing), experienced annual employment declines over the period, ranging from 1.1% (Wood Product and Paper Manufacturing) to 5.1% (Chemical and Plastics Manufacturing) (**Exhibit 8**)

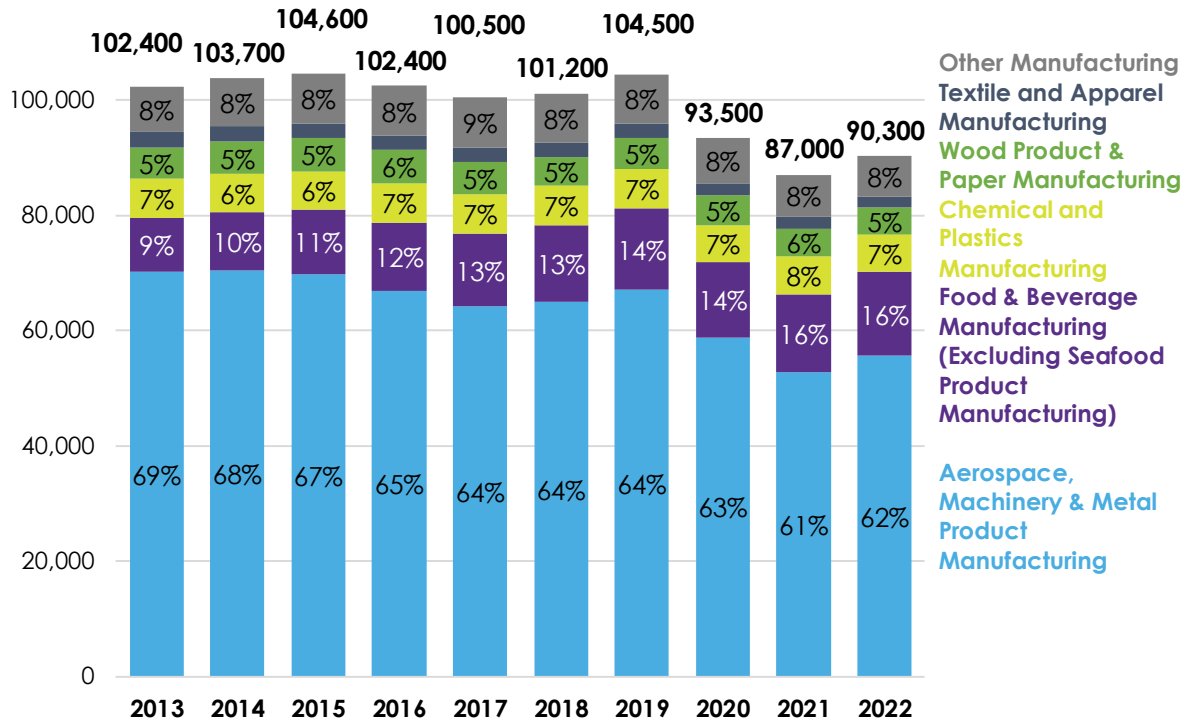
**Exhibit 49. Total Employment by Manufacturing Subsector, Seattle, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; Community Attributes Inc., 2023.

Similar to Seattle’s subsector trends, Food and Beverage Manufacturing (excluding Seafood Product Manufacturing) is the only Manufacturing subsector to see increases in employment between 2013 and 2022 (4.9% annually), as well as 2017 and 2022 (2.7% annually). Also, like Seattle’s Manufacturing industry, Aerospace, Machinery, and Metal Manufacturing represents the largest proportion of the overall Manufacturing industry in King County, at more than 60% of total industry employment every year since 2013. **(Exhibit 9)**

**Exhibit 50. Total Employment by Manufacturing Subsector, King County, 2013-2022**



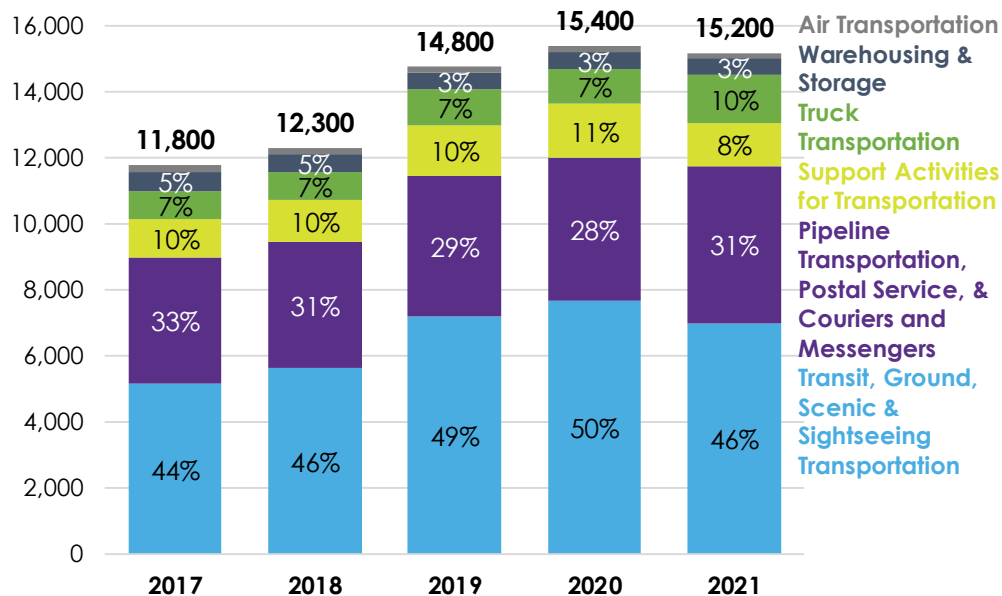
Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Community Attributes Inc., 2023.

### Transportation & Warehousing Subsectors

Employment in the Transportation and Warehousing industry in Seattle increased significantly from 2017 to 2021, growing by nearly 3,400 jobs, or a compound annual growth rate of 6.5%. Warehousing and Storage and Air Transportation subsectors experienced annual employment decreases of 3.1% and 7.4%, respectively, between 2017 and 2021. Employment in all other subsectors increased by at least 2.5%, the largest of which occurred in the Truck Transportation subsector (14.8%). Although employment declined in two Transportation and Warehousing subsectors in Seattle between 2017 and 2021, the combined employment increase in the four other Transportation and Warehousing subsectors (approximately 3,510 jobs) exceeded the total job declines (125 jobs). (**Exhibit 10**)



**Exhibit 51. Total Employment by Transportation & Warehousing Subsector, Seattle, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; Community Attributes Inc., 2023.

Transportation and Warehousing has also seen strong growth in overall King County employment between 2013 and 2022. During this period the strongest growth was seen in the Warehousing and Storage and Transit, Ground, Scenic, and Sightseeing Transportation subsectors, each of which saw employment growth of more than 10,000 jobs and at rates greater than 10% annually. Between 2017 and 2022, two subsectors saw declines in employment with Transit, Ground, Scenic, and Sightseeing Transportation and Support Activities for Transportation, primarily reflecting declines in employment between 2019 and 2020 due to the COVID-19 pandemic. **(Exhibit 11)**

Between 2012 and 2022, self-employment<sup>29</sup> totals in the Transportation and Warehousing industry saw an increase from 8,020 workers in 2012 to 28,466 in 2022, or an increase of nearly 20,500. Self-employment has increased at a faster rate than covered employment in all subsectors except Air Transportation and Support Activities for Transportation.

Recent data and trends demonstrate continued strong employment trends but a slight decrease in Transportation and Warehousing industry employment. According to data from the Bureau of Labor Statistics, national

<sup>29</sup> Self-employment is estimated using Nonemployer Statistics (NES) data from the U.S. Census Bureau which captures the number of businesses with no paid employees, such as sole proprietorships and partnerships.

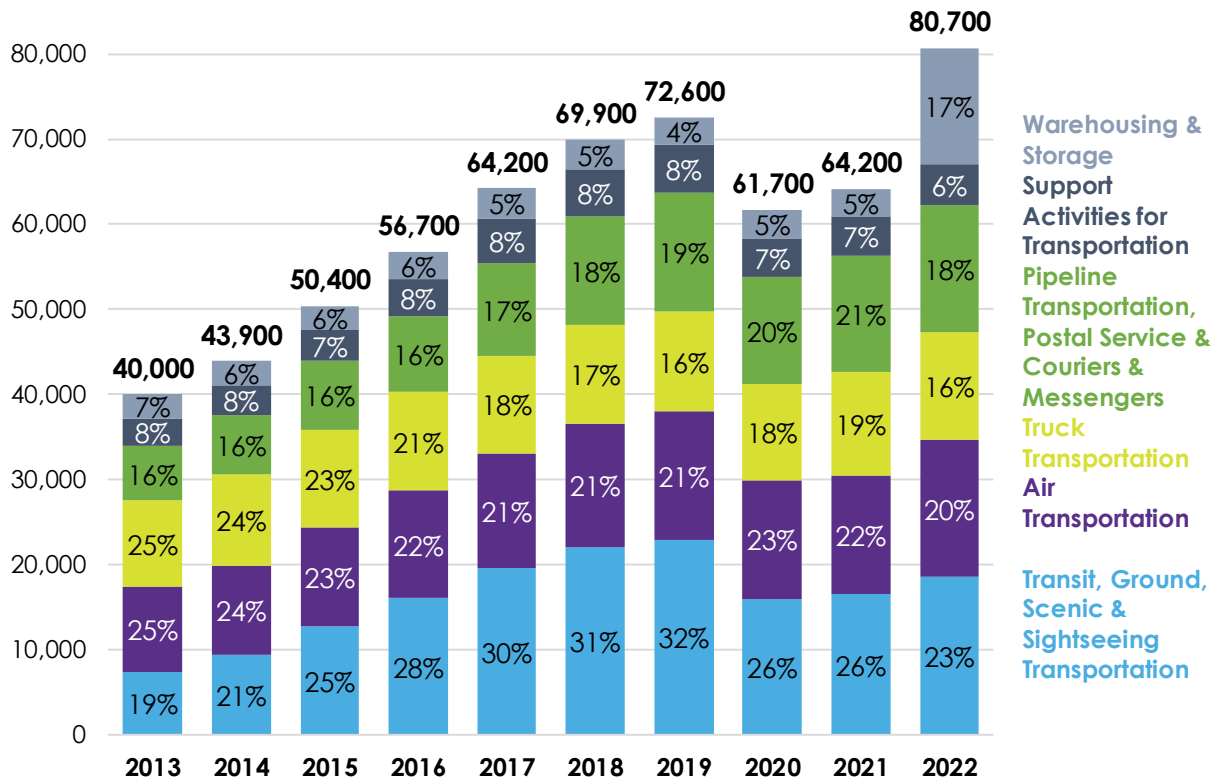
employment in the Transportation and Warehousing industry has remained strong, with more than 6.702 million employed in September 2023. This represents a decrease from the 10-year industry peak of 6.741 million in October 2022, but a slight increase from the August 2023 level of 6.693 million workers. In King County, according to the Bureau of Labor Statistics, as of the first quarter of 2023, Transportation and Warehousing industry employment was less than the 2022 average annual employment level, yet greater than average annual employment between 2010 and 2021.

Recent WARN (Worker Adjustment and Retraining Notification) notices<sup>30</sup>, indicate that some companies operating in the Transportation and Warehousing industry in Seattle are reducing their workforce. One Seattle-based logistics company recently laid off 120 employees, while another logistics firm announced an upcoming layoff of more than 130 employees.

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<sup>30</sup> WARN Notices are a requirement of national labor law requiring most employers to provide notification at least 60 days in advance of impending layoffs or closure of operations. WARN Notifications are published by the Employment Security Department.

**Exhibit 52. Total Employment by Transportation & Warehousing Subsector, King County, 2013-2022**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Community Attributes Inc., 2023.

### Pandemic Impacts

Generally, Maritime, Manufacturing, Transportation and Warehousing employment declined as a result of the COVID-19 pandemic. The trough of employment declines were seen in 2020, with most subsectors recovering in 2021 and 2022.

The Maritime industry currently lags behind pre-pandemic employment in both Seattle and King County, despite seeing employment growth in 2021 and 2022. Among Maritime subsectors, Commercial Fishing and Seafood Products is the only industry to not see employment growth during that period.

Manufacturing employment was similarly impacted by the pandemic. However, Manufacturing subsectors typically saw larger declines from 2020 to 2021 rather than 2019 to 2020. As a result, Seattle's Manufacturing industry employment has not returned to pre-pandemic levels as of 2021. King County Manufacturing employment began to see signs of recovery from 2021 to 2022, suggesting signs of improvement for Seattle as well. However,

food and beverage manufacturing is the only subsector in King County to recover to pre-pandemic levels as of 2022.

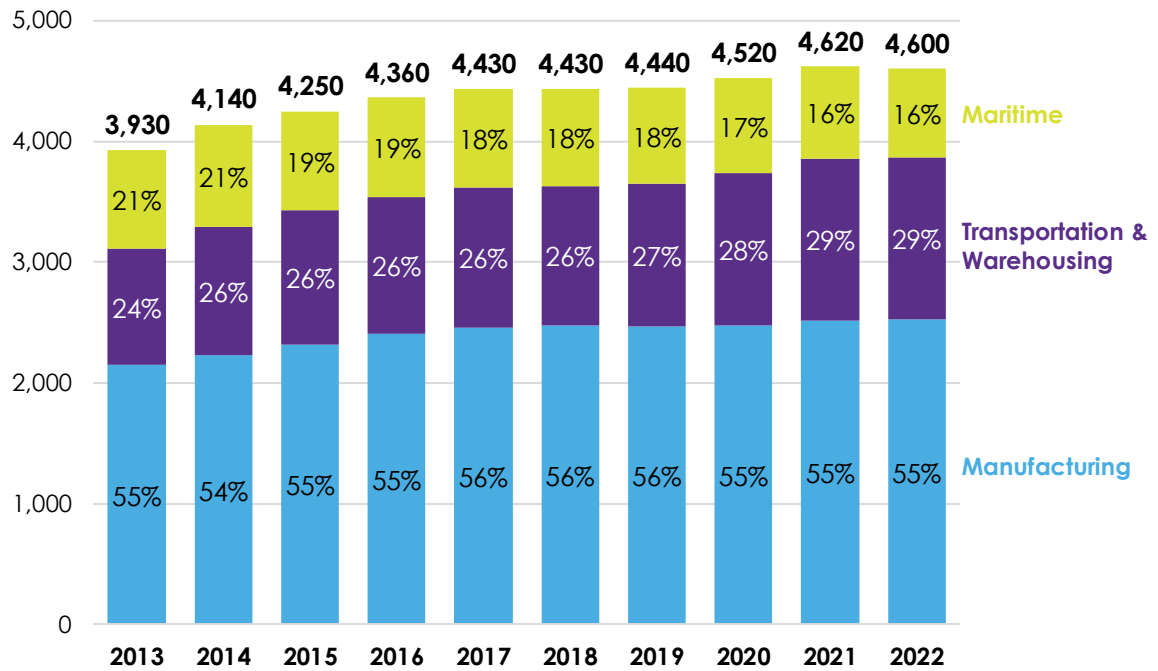
Initially, Seattle's Transportation and Warehousing industry saw employment increases during the pandemic, before ultimately seeing job losses from 2020 to 2021. King County Transportation and Warehousing employment saw declines in employment in 2020 but returned to pre-pandemic levels in 2022. The return was largely influenced by the Warehousing and Storage subsector. Self-employment saw larger decreases in employment during the pandemic, between 2019 and 2020, but has also seen stronger recovery in all but two subsectors (Support Activities for Transportation and Warehousing and Storage).

## Establishments

Establishment totals across King County in the Maritime, Manufacturing, and Transportation and Warehousing industries predominantly increased between 2013 and 2022. (**Exhibit 12**) These figures represent establishments reporting under the unemployment insurance program, or covered establishments. This excludes partnerships and sole proprietorships.

Establishments increased by approximately 670 over the 2013 to 2022 period, or 17.0%. Nearly 57% of this increase can be attributed to the Transportation and Warehousing industry, which grew by approximately 380 establishments between 2013 and 2022, equivalent to 38% of the overall growth. Total establishments in the Manufacturing industry increased by 393 over the period, while Maritime establishments declined by 79. Total establishments in the Maritime industry decreased every year between 2016 and 2022.

**Exhibit 53. Total Establishments by Industry, King County, 2013-2022**

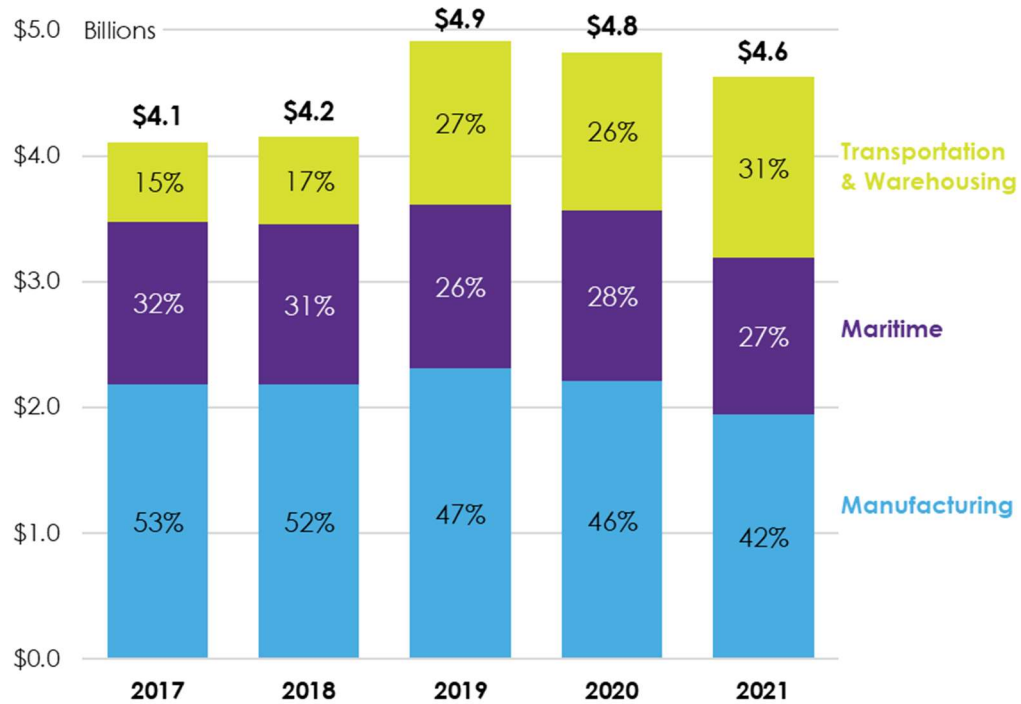


Sources: Bureau of Labor Statistics, 2023; Community Attributes Inc., 2023.

## Wages

**Exhibit 13** shows total estimated earnings by industry for Seattle between 2017 and 2021, adjusted for inflation to represent 2021 dollars. Total wages increased from approximately \$4.1 billion in 2017 to \$4.6 billion in 2021, or a compound annual growth rate of 3.0%. Total wages declined between 2020 and 2021, coinciding with slowed economic conditions during the pandemic, decreasing by nearly \$196 million. Estimated worker earnings declined in the Manufacturing and Maritime industries between 2020 and 2021, while wages increased by nearly \$183 million in the Transportation and Warehousing industry over the same period.

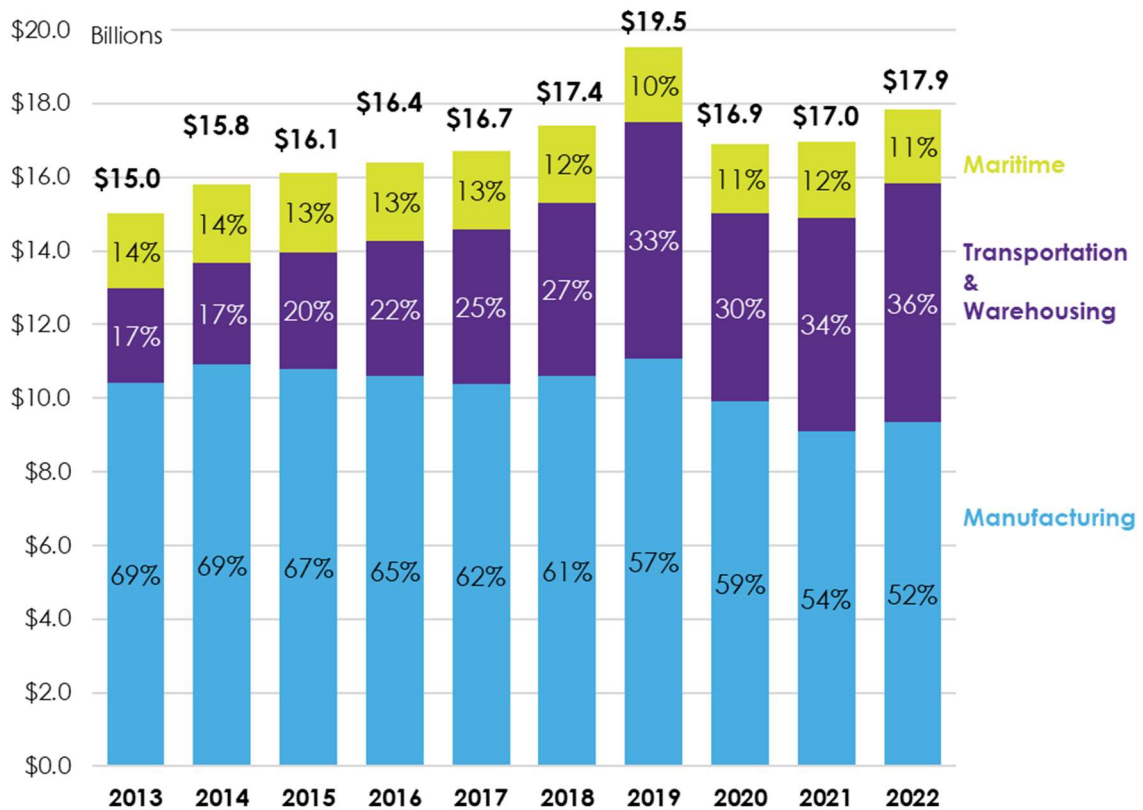
**Exhibit 54. Total Wages by Industry, Seattle, Billions of 2021 Dollars, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

**Exhibit 14** shows wages for the Maritime, Manufacturing, and Transportation and Warehousing industries in King County increasing from 2013 to 2019, by approximately \$4.5 billion (4.5% annually) prior to the onset of the pandemic. Total wages decreased by approximately \$2.6 billion between 2019 and 2020 and began to rebound in 2022. The largest total wage increases occurred in the Transportation and Warehousing industry, increasing by approximately \$3.9 billion between 2013 and 2022. Total wages in the Maritime industry decreased by \$16 million over the period, while Manufacturing wages decreased by slightly less than \$1.1 billion from 2013 to 2022.

**Exhibit 55. Total Wages by Industry, King County, Billions of 2022 Dollars, 2013-2022**



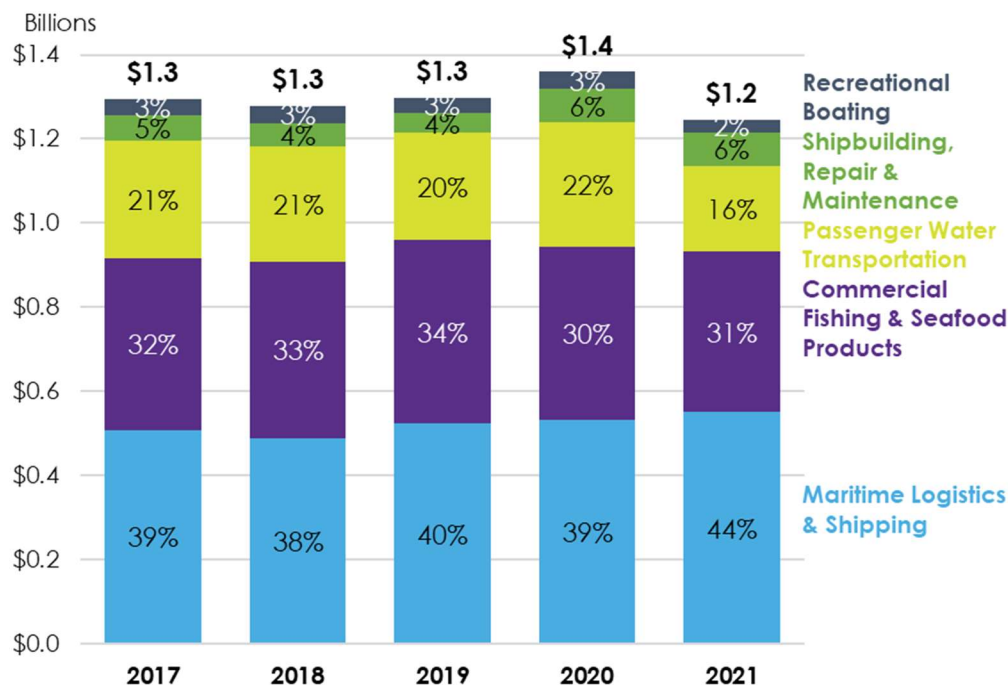
Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

### Maritime Subsectors

Total estimated wages in the Seattle Maritime industry fell by 1.0% annually between 2017 and 2021, losing more than \$49 million in total wages. Wages decreased in four of five subsectors, the most substantial of which occurred in the Passenger Water Transportation (7.4%) and Recreational Boating (6.0%) subsectors.

Maritime Logistics and Shipping is the largest Maritime subsector in terms of wages and grew at a compound annual growth rate of 2.0% between 2017 and 2021. As a share of the overall industry, Maritime Logistics and Shipping's wage proportion increased from nearly 40% in 2017 to nearly 44% in 2021. Total wages in the Passenger Water Transportation subsector as a proportion of total industry wages declined by 5.1% between 2017 and 2021. **(Exhibit 15)**

**Exhibit 56. Total Wages by Maritime Subsector, Seattle, Billions of 2021 Dollars, 2017-2021**

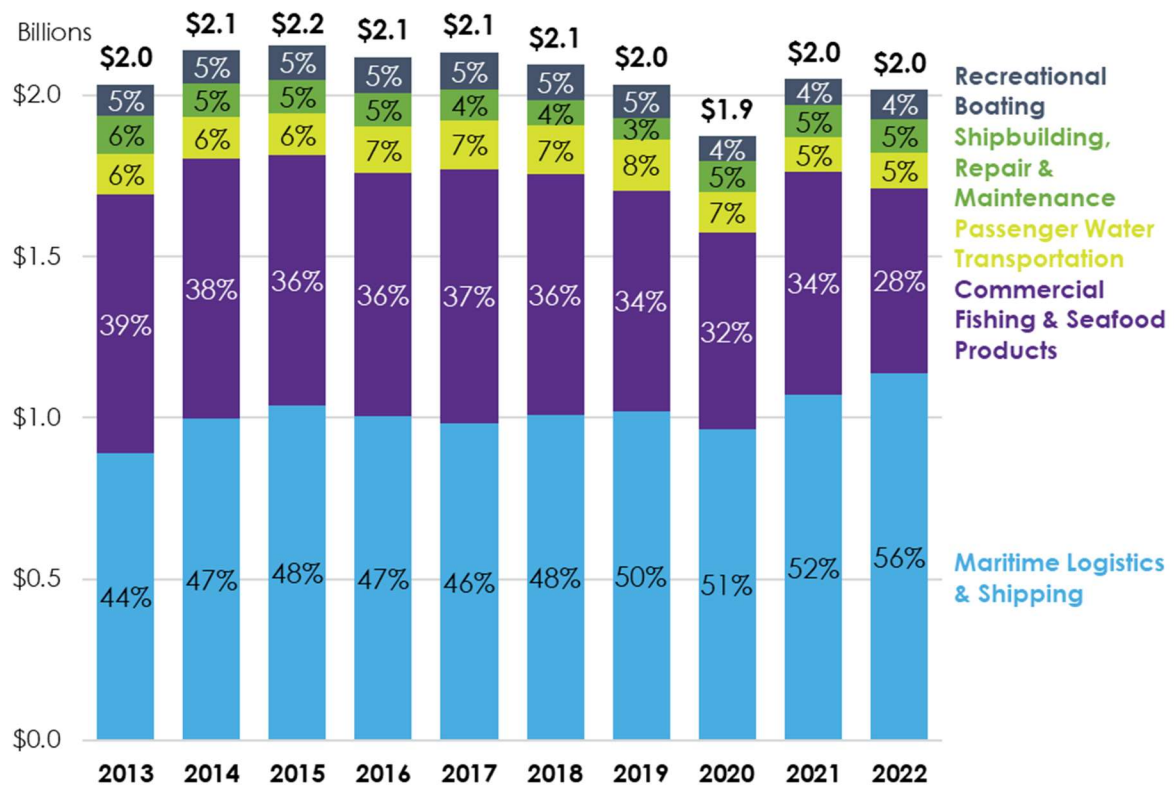


*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

Total wages in the King County Maritime industry decreased by \$16 million between 2013 and 2022, or a decline of 0.1% annually. During this period, all subsectors declined in total wages except Maritime Logistics and Shipping, which increased by nearly \$250 million or 2.8% annually. (**Exhibit 16**)



**Exhibit 57. Total Wages by Maritime Subsector, King County, Billions of 2022 Dollars, 2013-2022**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

Average annual wages<sup>31</sup> per employee by subsector in King County's Maritime industry in 2022 ranged from \$52,600 in the Recreational Boating subsector to \$120,100 in the Maritime Logistics and Shipping subsector. Overall, industry average annual wages, adjusted for inflation, have increased from \$93,800 to \$109,200, or a compound annual growth rate of 1.5%, between 2012 and 2022. Wages in the Maritime Logistics and Shipping and Passenger Water Transportation subsectors have grown the fastest with annual growth rates of 2.8% and 2.1%, respectively, between 2012 and 2022. Between 2017 and 2022 all subsectors have seen positive growth in average annual wage. The Maritime Logistics and Shipping subsector has seen the fastest rate of wage growth at 5.7% annually. (**Exhibit 17**)

<sup>31</sup> Wage data provided by BLS was only available at the county level. All wages for Seattle were calculated using average wage values from King County.

**Exhibit 58. Average Annual Wage per Worker by Maritime Subsector, King County, 2022 Dollars, 2012 – 2022**

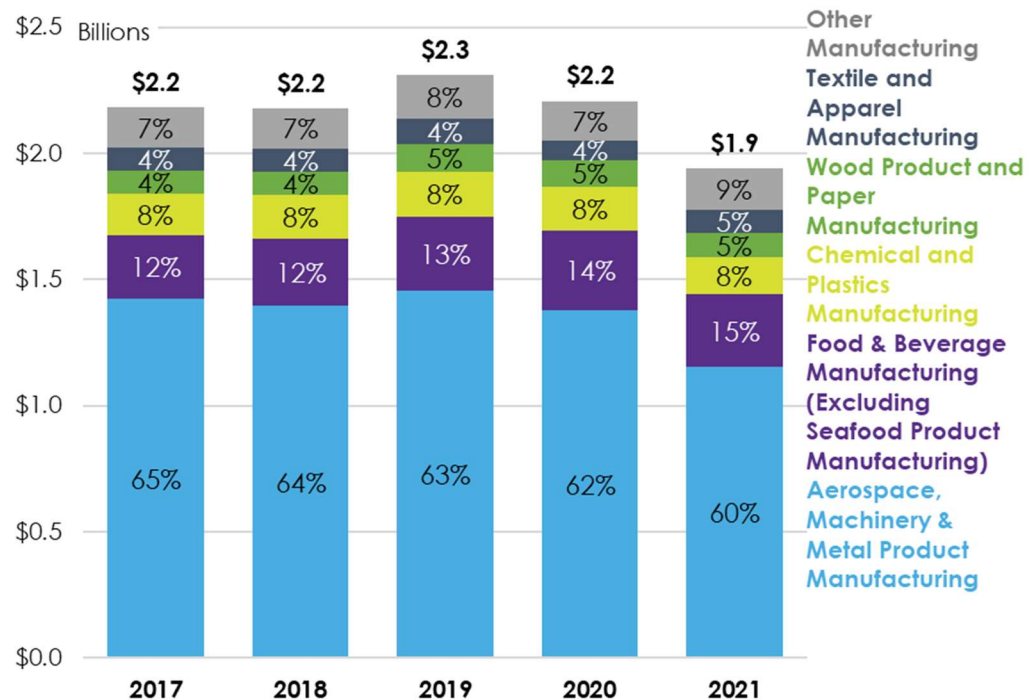
Subsector	Average Wage/Worker			CAGR	
	2012	2017	2022	2012-2022	2017-2022
Maritime Logistics & Shipping	\$91,200	\$91,000	\$120,100	2.8%	5.7%
Commercial Fishing & Seafood Products	\$118,200	\$112,900	\$116,900	-0.1%	0.7%
Passenger Water Transportation	\$80,400	\$96,000	\$99,400	2.1%	0.7%
Shipbuilding, Repair & Maintenance	\$75,400	\$80,000	\$82,600	0.9%	0.6%
Recreational Boating	\$45,700	\$52,400	\$52,600	1.4%	0.1%
<b>Maritime Average</b>	<b>\$93,800</b>	<b>\$93,700</b>	<b>\$109,200</b>	<b>1.5%</b>	<b>3.1%</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

**Manufacturing Subsectors**

Total estimated wages in the Seattle Manufacturing industry, adjusted to reflect 2021 dollars, declined by more than \$239 million between 2017 and 2021, or an average annual decline of 2.9%. Total wages in the Aerospace, Machinery, and Metal Product Manufacturing subsector, decreased by nearly \$268 million in total wages. This was greater than the total industry-wide wage decrease between 2017 and 2021. Total wages in the Aerospace, Machinery, and Metal Product Manufacturing subsector accounted for at least 58.9% of the overall subsector for every year over the period. Wages increased in three of six subsectors over the period, and effectively did not change in the Textile and Apparel Manufacturing subsector, decreasing by less than \$1.0 million, while employment declined by 3.0% annually in the subsector. **(Exhibit 18)**

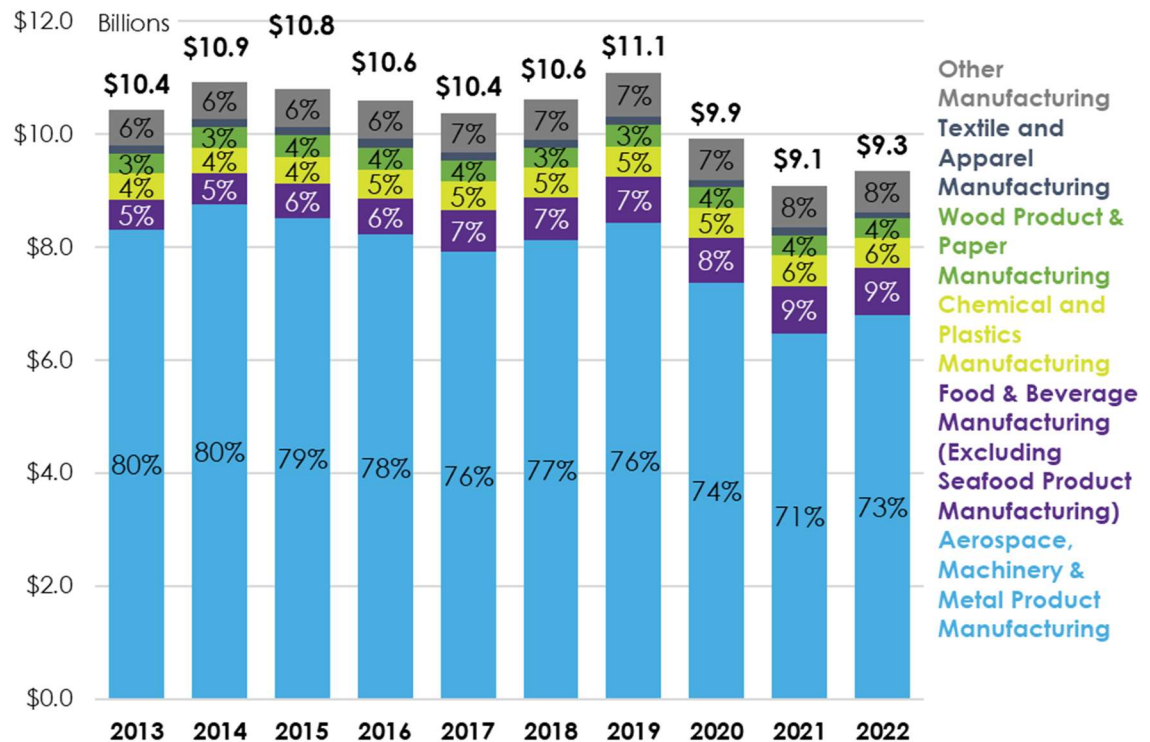
**Exhibit 59. Total Wages by Manufacturing Subsector, Seattle, Billions of 2021 Dollars, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

Total wages in the King County Manufacturing industry increased slightly between 2010 and 2022 but experienced an overall decline between 2016 and 2022. Three of six Manufacturing subsectors experienced wage decreases between 2010 and 2022, including Aerospace, Machinery, and Metal Product Manufacturing; Wood Product and Paper Manufacturing; and Textile and Apparel Manufacturing. The Aerospace, Machinery, and Metal Product Manufacturing subsector saw an increase in the rate of decline for total real wages between 2016 and 2022, at 3.1% annually. Conversely, Food and Beverage Product Manufacturing experienced an average annual increase in total wages of 4.5% between 2016 and 2022. (**Exhibit 19**)

**Exhibit 60. Total Wages by Manufacturing Subsector, King County, Billions of 2022 Dollars, 2013-2022**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

Average annual wages per employee by subsector in the Manufacturing industry in King County in 2022 ranged from \$57,400 (Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)) to \$122,200 (Aerospace, Machinery, and Metal Product Manufacturing). Overall Manufacturing industry average annual wages per worker, adjusted for inflation, have increased from \$100,300 to \$103,500, or a compound annual growth rate of 0.3% between 2012 and 2022. Average annual wages per worker in the Other Manufacturing subsector have grown the fastest with annual growth rates of 2.9% between 2012 and 2022, and 5.1% between 2017 and 2022. **(Exhibit 20)**

**Exhibit 61. Average Annual Wage per Worker by Manufacturing Subsector,  
King County, 2022 Dollars, 2012 – 2022**

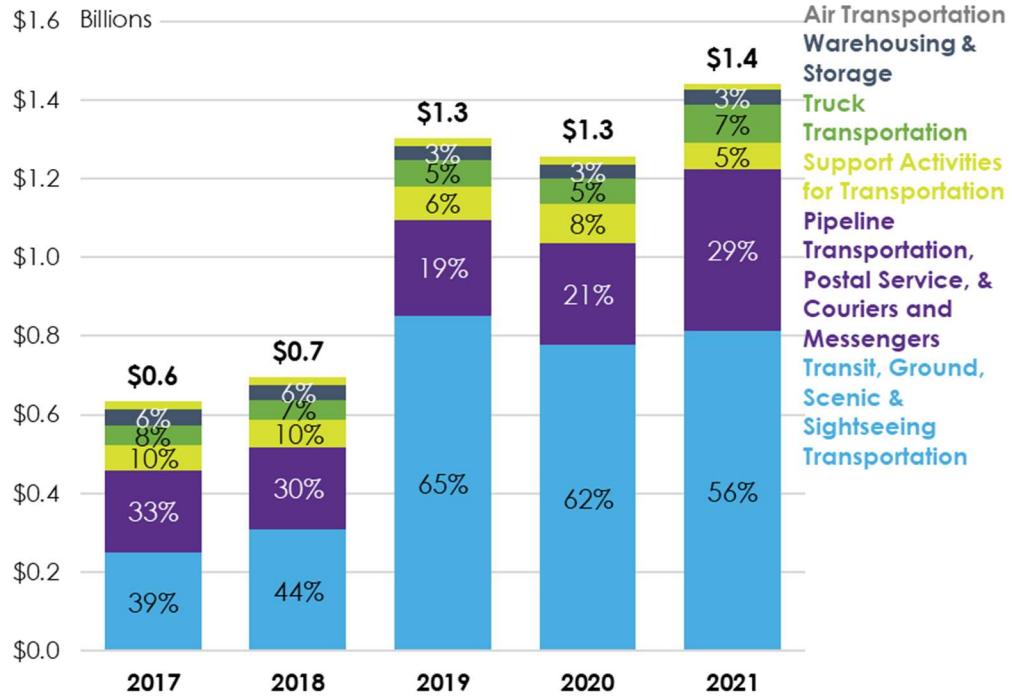
Subsector	Average Wage/Worker			CAGR	
	2012	2017	2022	2012-2022	2017-2022
Aerospace, Machinery and Metal Product Manufacturing	\$116,700	\$123,700	\$122,200	0.5%	-0.2%
Chemical and Plastics Manufacturing	\$68,400	\$75,700	\$82,300	1.9%	1.7%
Wood Product and Paper Manufacturing	\$65,800	\$66,500	\$72,100	0.9%	1.6%
Textile and Apparel Manufacturing	\$53,500	\$56,700	\$59,900	1.1%	1.1%
Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)	\$56,900	\$56,400	\$57,400	0.1%	0.4%
Other Manufacturing	\$77,200	\$80,000	\$102,700	2.9%	5.1%
<b>Manufacturing Average</b>	<b>\$100,300</b>	<b>\$103,200</b>	<b>\$103,500</b>	<b>0.3%</b>	<b>0.1%</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

**Transportation & Warehousing Subsectors**

Total wages in Seattle’s Transportation and Warehousing industry increased by more than \$805 million between 2017 and 2021. The increase in wages was largely driven by increases Transit, Ground, Scenic, and Sightseeing and Pipeline Transportation, Postal Service, and Couriers and Messengers subsectors, which experienced annual growth rates of 34.2% and 18.4% over the period. Wages in all subsectors except Warehousing and Storage and Air Transportation increased by 2017 and 2021. **(Exhibit 21)**

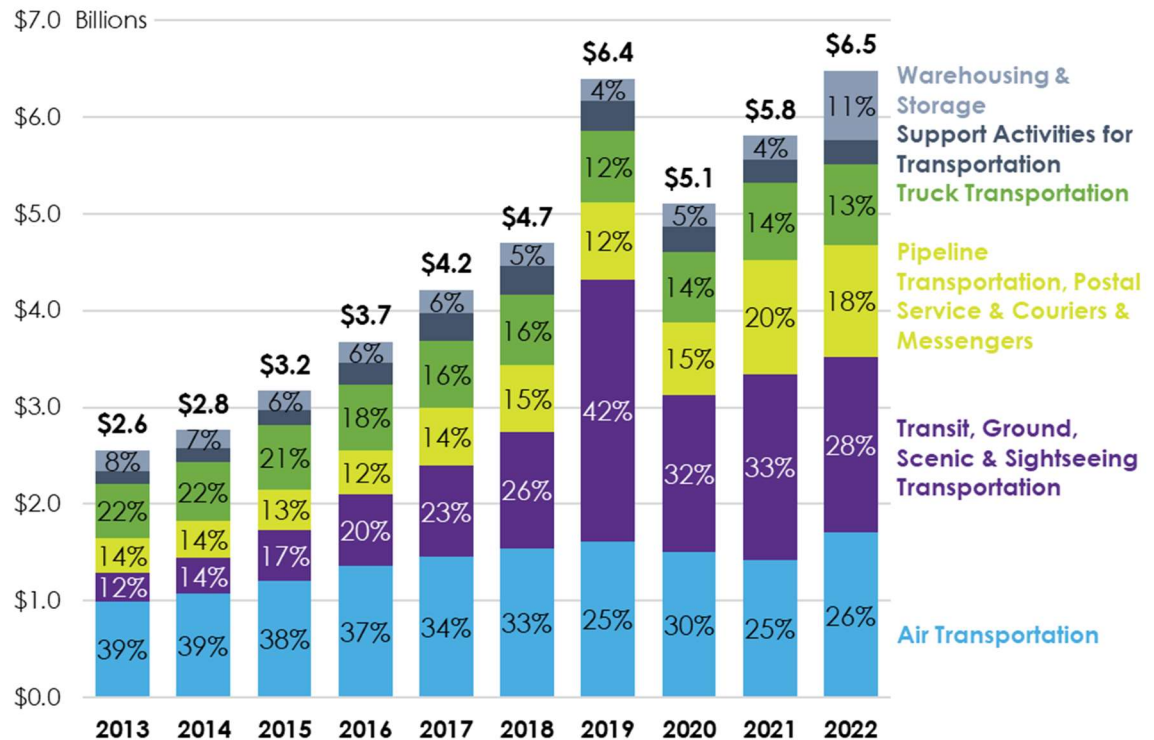
**Exhibit 62. Total Wages by Transportation & Warehousing Subsector, Seattle, Billions of 2021 Dollars, 2017-2021**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council (PSRC), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

All subsectors within the Transportation and Warehousing industry in King County saw increases in wages between 2013 and 2022. Of the six subsectors, just one has seen a decrease in wages between 2017 and 2022 across all of King County, Support Activities for Transportation, which decreased by 2.3% annually during this time period. Wage increases are in part driven by increases in self-employment, which has seen nearly equal growth to covered employment throughout King County. (**Exhibit 22**)

**Exhibit 63. Total Wages by Transportation & Warehousing Subsector, King County, Billions of 2022 Dollars, 2013-2022**



Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

Average annual wages per employee in the Transportation and Warehousing industry in King County grew by 2.4% annually between 2012 and 2022, and by 4.2% annually between 2017 and 2022. Average annual wages range between \$52,600 in the Support Activities for Transportation subsector to \$105,400 in the Air Transportation subsector in 2022. The Transit, Ground, Scenic, and Sightseeing subsector has seen the strongest rate of growth in average annual wages per worker, at 9.6% annually between 2012 and 2022 and even more strongly at 15.1% between 2017 and 2022. Three subsectors have seen declining average annual wages per worker between 2017 and 2022: Warehousing and Storage; Support Activities for Transportation; and Air Transportation. (**Exhibit 23**)

**Exhibit 64. Average Annual Wage per Worker by Transportation & Warehousing Subsector, King County, 2022 Dollars, 2012 – 2022**

Subsector	Average Wage/Worker			CAGR	
	2012	2017	2022	2012-2022	2017-2022
Air Transportation	\$95,100	\$106,800	\$105,400	1.0%	-0.3%
Transit, Ground, Scenic & Sightseeing Transportation	\$39,200	\$48,600	\$98,300	9.6%	15.1%
Pipeline Transportation, Postal Service & Couriers & Messengers	\$53,300	\$54,500	\$77,900	3.9%	7.4%
Truck Transportation	\$57,200	\$60,600	\$65,400	1.3%	1.5%
Warehousing & Storage	\$72,900	\$69,500	\$52,900	-3.2%	-5.3%
Support Activities for Transportation	\$41,500	\$53,700	\$52,600	2.4%	-0.4%
<b>Transportation &amp; Warehousing Average</b>	<b>\$63,500</b>	<b>\$65,600</b>	<b>\$80,400</b>	<b>2.4%</b>	<b>4.2%</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

### **Pandemic Impacts**

Following employment declines, total wages in the Maritime, Manufacturing, and Transportation and Warehousing industries declined during the COVID-19 pandemic. The return of total wages to pre-pandemic levels of wages for Maritime subsectors has been split, but these three industries as a whole saw wages return to near pre-pandemic levels in 2021 for Seattle and King County. Seattle's manufacturing wages have not recovered as well, with 2021 wages in Seattle falling well short (\$0.4 Billion) of 2019 wages. King County has experienced the same, with 2022 wages still falling well below (nearly \$2 billion) 2019 total industry wages. Seattle's Transportation and Warehousing saw wages remain relatively steady through the pandemic, while King County's industry saw an initial drop in 2020 in response to the pandemic, before returning to pre-pandemic levels in 2022.

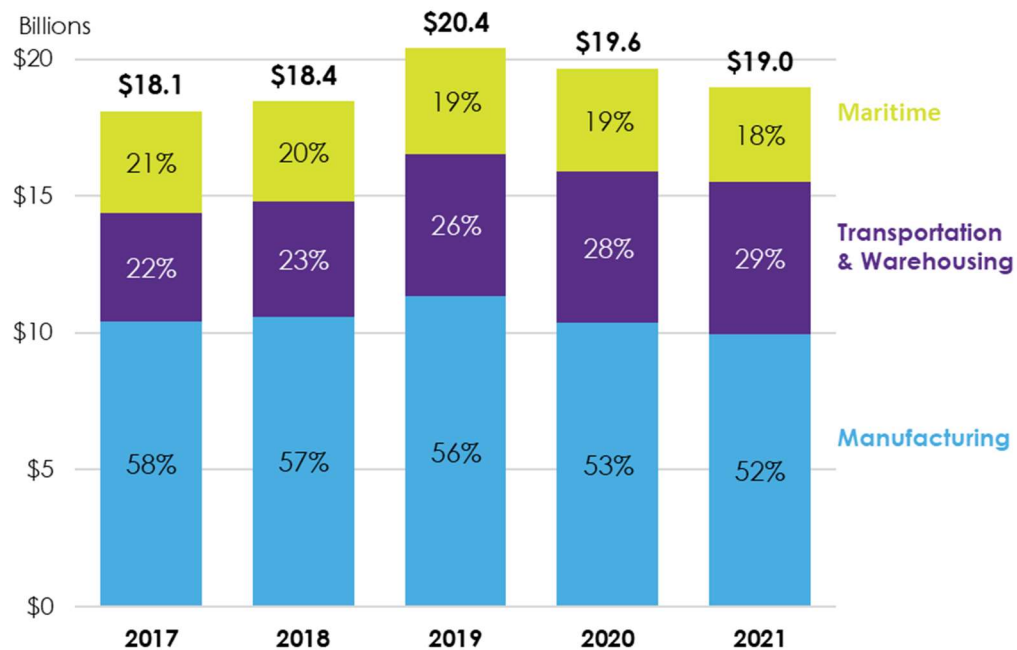
### **Business Revenue**

Businesses revenues reflect estimated gross business income generated by private industry operations, both among employers and sole proprietorships. Estimates do not include the economic value of federal and state activities, such as the Coast Guard. However, these are an important input into subsequent economic impact modeling and are an important measure of economic activity in the industry.

Estimated business revenues across the three industries in Seattle increased by more than \$866 million between 2017 and 2021. Gross business income in these years increased in the Transportation and Warehousing industry, growing by approximately \$1.64 billion, while gross revenues decreased by \$281 million in the Maritime industry, and nearly \$492 million in the Manufacturing industry. **(Exhibit 24)**



**Exhibit 65. Total Business Revenue by Industry, Seattle, Billions of 2021 Dollars, 2017-2021**



Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; Puget Sound Regional Council (PSRC), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

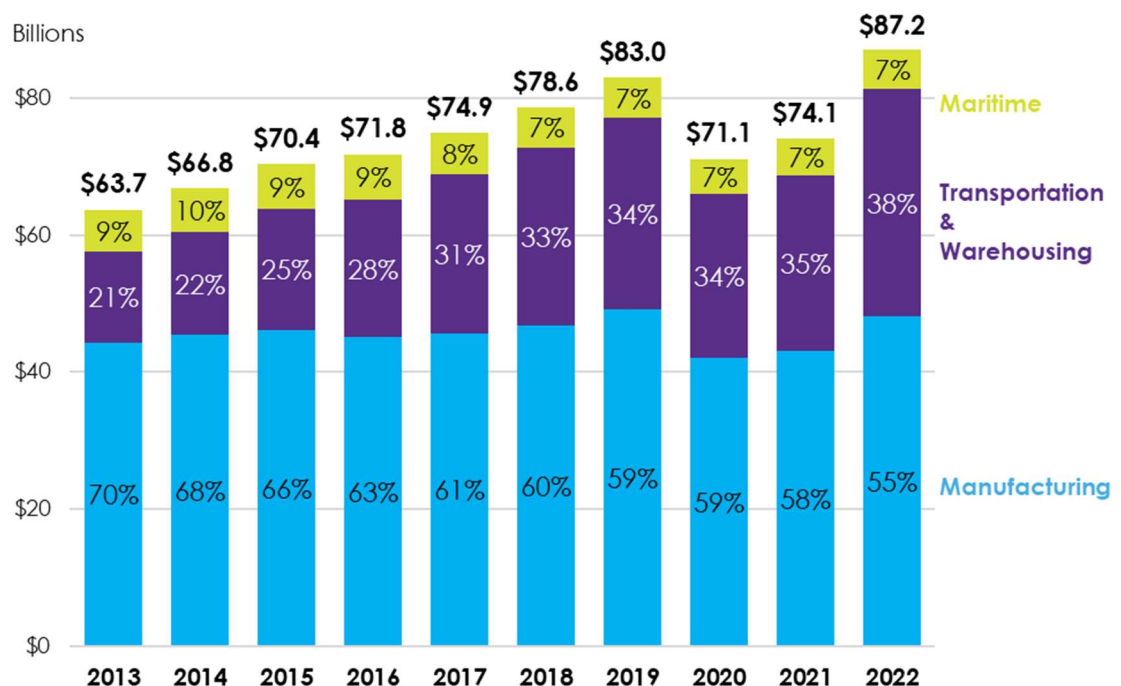
Total gross business revenues in the Maritime industry decreased from \$3.7 billion to \$3.4 billion between 2017 and 2022. Within the Maritime industry, Shipbuilding, Repair, and Maintenance is the only subsector that has increased between 2017 and 2022. This subsector saw increases in gross business revenues each year between 2019 and 2021. As of 2021, Commercial Fishing and Seafood Products and Maritime Logistics and Shipping are the two largest subsectors within the Maritime industry in terms of gross business revenues, combined more than 65% of total industry revenues.

The Transportation and Warehousing industry has increased from nearly \$4.0 billion in gross business revenues in 2017 to nearly \$5.6 billion in 2021. All subsectors except Air Transportation and Warehousing and Storage have increased in terms of gross business revenues during this period. Additionally, all subsectors but Air Transportation and Support Activities for Transportation have exceeded 2019 gross business revenues as of 2021. Gross business revenues increased by nearly \$960 million in the Transit, Ground, Scenic, and Sightseeing Transportation industry, which was the largest increase in business revenue for a single subsector between 2017 and 2021.

Manufacturing gross business revenues declined from \$10.4 billion to \$9.9 billion between 2017 and 2021. However, gross business income across the industry in Seattle increased every year between 2017 and 2019. Between 2017 and 2021 Food and Beverage Manufacturing and Wood and Paper Product Manufacturing are the only subsectors to increase in terms of gross business income, nearly \$235 million and \$43 million respectively. All Manufacturing subsectors remain below pre-pandemic (2019) levels of gross business revenues.

Between 2013 and 2022 combined gross business revenues amount the Maritime industry in King County increased every year until 2020 from \$63.7 billion to \$83 billion. Overall gross business revenues declined between 2019 and 2020 but estimated gross business revenues have exceeded pre-pandemic levels as of 2022, reaching \$87.2 billion. Transportation and Warehousing represents the majority of this growth, increasing from 21% of combined gross business revenues in 2013 to 38% in 2022. While declining as a share of combined gross business revenues, Manufacturing estimated gross business revenues have increased by more than \$3.7 billion between 2013 and 2022. (Exhibit 25)

**Exhibit 66. Total Business Revenue by Industry, King County, Billions of 2022 Dollars, 2013-2022**



Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.

Between 2013 and 2022, King County Maritime industry gross business revenues peaked at an estimated \$6.6 billion in 2016. Estimated industry gross business revenues declined to \$5.0 billion in 2020, but have nearly recovered to pre-pandemic levels as of 2022. The Shipbuilding, Repair, and Maintenance subsector was the only subsector to not see declines in gross business income across King County between 2019 and 2022. As of 2022, Maritime Logistics and Shipping in King County has also exceeded pre-pandemic estimated gross business revenues.

All Transportation and Warehousing subsectors have increased in terms of estimated gross business revenues between 2013 and 2022. Only Warehousing and Storage in King County did not decline in terms of estimated gross business revenues. As of 2022, four of the six subsectors have exceeded pre-pandemic gross revenues in King County. Those that have not recovered to pre-pandemic levels include Support Activities for Transportation and Transit, Ground, Scenic, and Sightseeing Transportation. All six subsectors have seen continuing growth in 2021 and 2022.

Manufacturing industry estimated gross business revenues peaked at nearly \$49.1 billion in 2019. As of 2022, gross business revenues in King County have nearly reached pre-pandemic levels at nearly \$48.1 billion, exceeding previous years except the peak in 2019. All but two subsectors have seen growth in estimated gross business revenues in King County between 2013 and 2022, Textile and Apparel Manufacturing and Aerospace, Machinery, and Metal Product Manufacturing. Between 2017 and 2022, only two subsectors have seen declines in estimated gross business revenues in King County, Textiles and Apparel Manufacturing and Other Manufacturing. Between 2019 and 2020 every subsector saw decreases in estimated gross business revenues in King County. As of 2022, Food and Beverage Manufacturing; Wood Product and Paper Manufacturing; and Chemical and Plastics Manufacturing have exceeded pre-pandemic levels.

## Occupations

Analysis of occupations within each industry provides additional context on the type of jobs, wages, and minimum educational requirements for entry. Occupational analysis uses data from the Washington State Employment Security Department (ESD) capturing employment and median wages by occupation, as well as staffing patterns linking employment by industry and employment by occupation. Minimum education requirements are published by the Bureau of Labor Statistics at the national level and do not represent the requirements for any individual business or occupation. Occupational employment and wage data are available for the Seattle-Tacoma-Bellevue Metropolitan Statistical Area (MSA).

King County Area Median Income (AMI) provides an understanding of the mid-point in household income within the region, 50% of households have income levels above the AMI, and 50% have income levels below the AMI. The following AMI figures are provided by the U.S. Department of Housing and Urban Development (HUD), which show AMI earnings based on a typical household size of four persons. Average annual wage by occupation or industry reflects the wages per job, not by household. A comparison of wage to AMI provides an understanding of how close wages for each industry, subsector, or occupation are to the median household income for King County. AMI has increased from \$85,600 in 2010 to \$134,600 in 2022, not adjusted for inflation.

### Maritime Industry Occupations

**Exhibit 26** includes occupations with 150 or more jobs and a minimum of 20% of total occupational employment concentrated within the Maritime industry. These occupations include those occupations that represent a large number of jobs and are also reliant on the Maritime industry. Together, these occupations represent 32% of total Maritime industry employment. The occupations with the greatest employment include Cargo and Freight Agents and Farmworkers and Laborers with more than 1,000 estimated jobs each in King County's Maritime industry. Among these occupations, Fishing and Hunting Workers and Cargo and Freight Agents are most heavily reliant on the industry. In general, occupations concentrated in the Maritime industry require on-the-job training for entry.

Median wages for Maritime occupations within the Seattle-Tacoma-Bellevue MSA range between nearly \$37,200 (Meat, Poultry, and Fish Cutters and Trimmers) and \$105,900 (Captains, Mates, and Pilots of Water Vessels). For context, Area Median Income in 2022 for King County was \$134,600 annually. Among the largest and most highly concentrated occupations within the Maritime industry, median wages range between 28% to 79% of AMI. **(Exhibit 26)**

**Exhibit 67. Maritime Occupational Employment, Median Wage and Minimum Educational Requirements for Entry, King County, 2022**

Occupation	2022 Emp	% in Sector	Median Wage	% AMI (\$134,600)	Min Ed Req
Cargo and Freight Agents	1,160	86%	\$51,260	38%	OJT
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,140	63%	\$38,410	29%	OJT
Fishing and Hunting Workers	840	100%	\$40,200	30%	OJT
Sailors and Marine Oilers	700	43%	\$58,530	43%	OJT
Meat, Poultry, and Fish Cutters and Trimmers	680	56%	\$37,190	28%	OJT
Captains, Mates, and Pilots of Water Vessels	670	72%	\$105,910	79%	AA
Ship Engineers	470	68%	\$104,800	78%	AA
Welders, Cutters, Solderers, and Brazers	300	20%	\$59,710	44%	OJT

*Sources: Washington State Employment Security Department (ESD), 2023; Bureau of Labor Statistics, 2023; Community Attributes Inc., 2023.*

*Notes: Occupations include those with more than 150 jobs and more than 20% concentration within King County's Maritime industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an Associate Degree or Postsecondary Award.*

**Exhibit 27** documents the ratio of average annual wages relative to the AMI levels of King County for 2012, 2017, and 2022 by Maritime subsector. Across all subsectors, average annual wages increased at a slower rate relative to AMI levels. Between 2012 and 2022, wages in every subsector declined relative to the King County AMI. However, during this same period average annual wages across the industry increased from \$93,800 to \$109,200. AMI increased from \$88,000 to \$134,600, adjusted for inflation during this period. The largest year over year declines of wages relative to AMI across all subsectors occurred between 2021 and 2022, when AMI increased from \$115,700 to \$134,600 adjusted for inflation.

**Exhibit 68. Maritime Subsector Average Annual Wages as a Percent of Area Median Income, King County, 2012 – 2022**

Subsector	Average Wage As % of AMI		
	2012	2017	2022
Maritime Logistics & Shipping	104%	95%	89%
Commercial Fishing & Seafood Products	134%	118%	87%
Passenger Water Transportation	91%	100%	74%
Shipbuilding, Repair & Maintenance	86%	83%	61%
Recreational Boating	52%	55%	39%
<b>Area Median Income (AMI)</b>	<b>\$88,000</b>	<b>\$96,000</b>	<b>\$134,600</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; U.S. Department of Housing and Urban Development (HUD), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

## Manufacturing Occupations

The 17 occupations in **Exhibit 28** represent 37% of Manufacturing employment in King County. These occupations each have 1,000 or more jobs in the Manufacturing industry and out of total occupational employment at least 30% is concentrated within the Manufacturing industry. Among these occupations Aircraft Structure, Surfaces, Rigging, and Systems Assemblers as well as Electrical, Electronics, and Electromechanical Assemblers are the most heavily reliant on the Manufacturing industry. Of the 17 occupations, 13 are more than 50% concentrated within the Manufacturing industry. Five of these occupations require at least a Bachelor's degree for entry, including Industrial Engineers, Logisticians, Electrical Engineers, Aerospace Engineers, and Mechanical Engineers. Avionics Technician is the only occupation that requires an Associate degree at minimum for entry. The remaining 11 occupations require on the job training.

The median wage for these most common and highly concentrated occupations in the Manufacturing industry ranged from \$38,310 (Packaging and Filling Machine Operators and Tenders) to \$134,850 (Aerospace Engineers). Wages in these occupations relative to the 2022 King County AMI range from 28% to 100%. Overall, 10 occupations have 2022 wages that are less than 50% of the King County AMI. (**Exhibit 28**)

**Exhibit 69. Manufacturing Occupational Employment, Median Wage and Minimum Educational Requirements for Entry, King County, 2022**

Occupation	2022 Emp	% in Sector	Median Wage	% AMI (\$134,600)	Min Ed Req
Miscellaneous Assemblers and Fabricators	4,150	57%	\$44,100	33%	OJT
First-Line Supervisors of Production and Operating Workers	3,150	74%	\$75,030	56%	OJT
Shipping, Receiving, and Inventory Clerks	2,890	37%	\$46,580	35%	OJT
Inspectors, Testers, Sorters, Samplers, and Weighers	2,770	75%	\$64,720	48%	OJT
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2,650	97%	\$49,920	37%	OJT
Electrical, Electronics, and Electromechanical Assemblers	2,350	94%	\$49,920	37%	OJT
Industrial Engineers	2,340	79%	\$105,190	78%	BA
Machinists	1,910	85%	\$62,520	46%	OJT
Food Batchmakers	1,760	87%	\$38,510	29%	OJT
Packaging and Filling Machine Operators and Tenders	1,410	85%	\$38,310	28%	OJT
Avionics Technicians	1,400	87%	\$62,890	47%	AA
Logisticians	1,290	36%	\$98,840	73%	BA
Electrical Engineers	1,210	45%	\$127,040	94%	BA
Aerospace Engineers	1,190	55%	\$134,850	100%	BA
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	1,180	76%	\$51,700	38%	OJT
Mechanical Engineers	1,160	46%	\$106,120	79%	BA
Industrial Machinery Mechanics	1,040	59%	\$72,780	54%	OJT

*Sources: Washington State Employment Security Department (ESD), 2023; Bureau of Labor Statistics, 2023; Community Attributes Inc., 2023.*

*Notes: Occupations include those with more than 1,000 jobs and more than 30% concentration within King County's Manufacturing industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an Associate Degree or Postsecondary Award. BA is a minimum educational requirement for a Bachelor's Degree.*

Like the Maritime industry, average annual wages across all Manufacturing subsectors decreased relative to King County AMI between 2012 and 2022. The largest decrease among Manufacturing subsectors was seen in the Aerospace, Machinery, and Metal Product Manufacturing subsector which decreased from 133% of AMI in 2012 to 91% of AMI in 2022. Average annual wages between 2012 and 2022 industry-wide range between \$103,000 and \$103,500. Manufacturing wages relative to AMI, like Maritime subsectors, saw the largest declines between 2021 and 2022. Just Aerospace, Machinery, and Metal Product Manufacturing and Other Manufacturing have had average annual wages greater than 75% of AMI consistently between 2012 and 2022. **(Exhibit 29)**

**Exhibit 70. Manufacturing Subsector Average Annual Wages as a Percent  
of Area Median Income, King County, 2012 – 2022**

Subsector	Average Wage As % of AMI		
	2012	2017	2022
Aerospace, Machinery and Metal Product Manufacturing	133%	129%	91%
Other Manufacturing	88%	83%	76%
Chemical and Plastics Manufacturing	78%	79%	61%
Wood Product and Paper Manufacturing	75%	69%	54%
Textile and Apparel Manufacturing	61%	59%	44%
Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)	65%	59%	43%
<b>Area Median Income (AMI)</b>	<b>\$88,000</b>	<b>\$96,000</b>	<b>\$134,600</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; U.S. Department of Housing and Urban Development (HUD), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

### Transportation & Warehousing Occupations

Within the Transportation and Warehousing industry, nine occupations make up more than 50% of total industry employment. While employment within each of these occupations trends larger than either Maritime or Manufacturing occupations, these occupations also tend to be less concentrated in the Transportation and Warehousing industry in King County. Flight Attendants and Airline Pilots, Copilots, and Flight Engineers are each entirely concentrated in the Transportation and Warehousing industry. Among these common occupations, six of the nine occupations require on the job training for entry while the remainder require an associate or bachelor's degree. **(Exhibit 30)**

Median wages among Transportation and Warehousing industry occupations range between \$40,800 (Laborers and Freight, Stock, and Material Movers, Hand) and \$85,300 (Aircraft Mechanics and Service Technicians). Among these nine occupations eight have wages that are less than 50% of King County AMI. **(Exhibit 30)**



**Exhibit 71. Transportation & Warehousing Occupational Employment,  
Median Wage and Minimum Educational Requirements for Entry, King  
County, 2022**

<b>Occupation</b>	<b>2022 Emp</b>	<b>% in Sector</b>	<b>Median Wage</b>	<b>% AMI (\$134,600)</b>	<b>Min Ed Req</b>
Laborers and Freight, Stock, and Material Movers, Hand	13,140	28%	\$40,800	30%	OJT
Heavy and Tractor-Trailer Truck Drivers	8,680	45%	\$61,080	45%	AA
Light Truck Drivers	8,530	57%	\$45,430	34%	OJT
Flight Attendants	7,440	100%	\$46,860	35%	OJT
Airline Pilots, Copilots, and Flight Engineers	4,820	100%	\$46,860	35%	BA
Reservation and Transportation Ticket Agents and Travel Clerks	3,740	89%	\$45,960	34%	OJT
Aircraft Mechanics and Service Technicians	2,030	55%	\$85,250	63%	AA
Industrial Truck and Tractor Operators	1,630	28%	\$47,820	36%	OJT
Dispatchers, Except Police, Fire, and Ambulance	1,460	39%	\$56,420	42%	OJT

*Sources: Washington State Employment Security Department (ESD), 2023; Bureau of Labor Statistics, 2023; Community Attributes Inc., 2023.*

*Notes: Occupations include those with more than 1,000 jobs and more than 25% concentration within King County's Transportation and Warehousing industry. OJT is a minimum educational requirement of On The Job Training. AA is a minimum educational requirement for an Associate Degree or Postsecondary Award. BA is a minimum educational requirement for a Bachelor's Degree.*

Average wages in the Transportation and Warehousing industry, compared to the area median income in King County, decreased across all but one subsector between 2012 and 2022, Transit, Ground, Scenic, and Sightseeing Transportation. During this period average annual wages industry-wide range between \$63,500 and \$80,400. The sharpest decreases year over year, like Maritime and Manufacturing subsector, occurred between 2021 and 2022. The Air Transportation and Transit, Ground, Scenic, and Sightseeing Transportation are the only two subsectors that have historically seen wages at 100% relative to AMI between 2017 and 2022. **(Exhibit 31)**

**Exhibit 72. Transportation & Warehousing Subsector Average Annual Wages as a Percent of Area Median Income, King County, 2012 – 2022**

Subsector	Average Wage As % of AMI		
	2012	2017	2022
Air Transportation	108%	111%	78%
Transit, Ground, Scenic & Sightseeing Transportation	45%	51%	73%
Pipeline Transportation, Postal Service & Couriers & Messengers	61%	57%	58%
Truck Transportation	65%	63%	49%
Warehousing & Storage	83%	72%	39%
Support Activities for Transportation	47%	56%	39%
<b>Area Median Income (AMI)</b>	<b>\$88,000</b>	<b>\$96,000</b>	<b>\$134,600</b>

*Sources: Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; U.S. Department of Housing and Urban Development (HUD), 2023; St. Louis FRED, 2023; Community Attributes Inc., 2023.*

## Workforce Demographics

Data on workforce demographics specific to industries or occupations is limited. To better understand representation of BIPOC and women within the Maritime, Manufacturing, and Transportation and Warehousing industries a survey was distributed to businesses, industry representatives and stakeholders. In addition to asking for workforce information, the survey also asked about workforce equity efforts ongoing in the industry aimed at boosting employment and representation by these historically underrepresented groups and if these stakeholders were directly involved in any of these efforts.

Of all survey respondents, 47% indicated that women comprise less than 25% of their workforce. An additional 28% indicated that more than 50% of their workforce are women. (**Exhibit 73**)

**Exhibit 73. Approximately What Proportion of Your Workforce Are Women?**

Responses	n	%
Less than 10%	19	26%
11 to 24%	15	21%
25 to 49%	18	25%
50 to 74%	11	15%
75 to 100%	9	13%
<b>Total</b>	<b>72</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Overall, 74% of respondents indicated that less than 25% of their workforce are people of color. An additional 15% indicated that people of color represent 50% or more of their workforce. **(Exhibit 74)**

**Exhibit 74. Approximately What Proportion of Your Workforce Are People of Color?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Less than 10%	30	42%
11 to 24%	23	32%
25 to 49%	8	11%
50 to 74%	8	11%
75 to 100%	3	4%
<b>Total</b>	<b>72</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

The majority of respondents (67%) indicated that their business or organization does not have any policies or programs focused on workforce diversity. Respondents who did provide information on workforce diversity efforts noted their willingness to embrace programs and initiatives that help address this issue. One respondent noted they are “involved in extensive efforts through Maritime industry workforce partners to increase awareness and access to maritime employment for under-represented populations in the maritime industry.” **(Exhibit 75)**

**Exhibit 75. Does Your Business or Organization Have Any Policies or Programs Focused on the Diversity of Your Workforce?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Yes	23	33%
No	47	67%
<b>Total</b>	<b>70</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Programs highlighted by respondents include:

- **Ready Mariner™** is a newly proposed nonprofit organization. The purpose of this organization is to help solve national workforce shortages of mariners, by providing a national and comprehensive strategy for data collection and recruitment that adds capacity and supports ongoing efforts within the industry.
- **Ship Operations Cooperative Program (SOCP)** is a nonprofit organization comprised of maritime industry leaders and organizations who collaborate to improve the industry through shared best practices, innovation, and thought leadership.

- **Northwest Maritime Center** is a Port Townsend-based nonprofit educational institution that offers maritime classes and workshops to both kids and adults. Rooted at the Center's core mission is its commitment to being an anti-racist and inclusive organization, to foster more diversity and equity in the maritime sector.
- **Maritime High School** in Des Moines, WA, is a collaboration of Highline Public Schools, Northwest Maritime Center, Port of Seattle, and the Duwamish River Community Coalition. The Maritime High School offers a comprehensive curriculum of standard classes and coursework, in addition to educational programs that prepare students for careers in the maritime industry.
- **Seattle Jobs Initiative (SJI)** launched in 1997, was created through a partnership with the Annie E. Casey Foundation and Seattle's Office of Economic Development, to assist low-income individuals in acquiring job training and helping them find employment. SJI became independent of OED in 2003 and has since operated as a standalone nonprofit, where they focus on equitable workforce systems to address and combat structural racism.
- **Seattle Maritime Academy** is a maritime-centric learning program that is offered by the Seattle Central College, preparing students for careers in passenger transportation, fishing and seafood processing, international trade, military operations, and other maritime activities.
- **Youth Maritime Collaborative** is an organization that fosters and encourages youth maritime education and learning programs, to create career opportunities and pathways for young people looking to pursue careers in the maritime industries. This group includes members from the Port of Seattle, Maritime Blue, regional maritime organizations, local government agencies, and other key industry leaders.
- **Northwest Center of Excellence for Marine Manufacturing and Maritime Technology**, located at Skagit Valley College in Anacortes, Washington, the Center focuses on job training and workforce development, as well as thought leadership and industry sustainability. Additionally, a primary focus of the Center is working to improve Washington's economic and educational systems. Also referred to as the Pacific Northwest Maritime Education Alliance (PAC) Maritime, the center was designated on May 19, 2021 as a Center of Excellence for Domestic Maritime Workforce Training and Education from the U.S. Department of Transportation Maritime Administration (MARAD)<sup>32</sup>.
- **Urban League of Metropolitan Seattle (ULMS)** is a social services-oriented nonprofit that focuses on advocacy and civic

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<sup>32</sup> <https://www.maritime.dot.gov/newsroom/maritime-administration-announces-first-centers-excellence-designations-domestic-maritime>

engagement, education, housing, public health, and workforce development.

- **Evergreen Goodwill** was founded in 1923 as a job training nonprofit. Today, they operate five job training centers, 24 retail stores, and 30 donation sites throughout King, Snohomish, Skagit, Whatcom, and Kitsap Counties, and employ more than 1,500 people in the region. The organization focuses on providing effective and quality employment training, as well as basic education to marginalized individuals who are experiencing impediments to economic opportunity.
- **Seattle Skills Center** offers career guidance and technical education for high school students currently enrolled in Seattle Public Schools' high schools, as well as at various community-based sites. Both one- and two-year programs are offered, and for each single-year program that a student completes they accumulate three full high school graduation credits.
- **CORE Plus Maritime**, established by the Manufacturing Industrial Council of Seattle, educates and brings awareness to high school students about career opportunities in the maritime industry, including training in marine technology. Core Plus Maritime is engaged at more than 20 high schools throughout the Puget Sound region and continues to expand as it collaborates with more companies including boatbuilders, shipbuilders, seafood processors, commercial fisherman, service providers, and other organizations.

In recent years, several programs and initiatives have been launched across the globe that aim to improve Diversity, Equity, and Inclusion (DEI) efforts, as well as underrepresentation by women and BIPOC workers in the maritime industry. Key industry players who are pioneering significant efforts include Maersk, a global logistics and shipping company, Global Maritime Forum, Diversity Study Group, and Swiss Re. Other multi-national organizations who have pledged resources and efforts towards improving inclusivity in the maritime industry include Thome Group, Rio Tinto, AngloAmerican, and Hafnia and Rightship, a maritime-focused group that incorporates Environmental, Social and Governance (ESG) metrics and practices into marine emissions and pollution, crew welfare and ship safety.

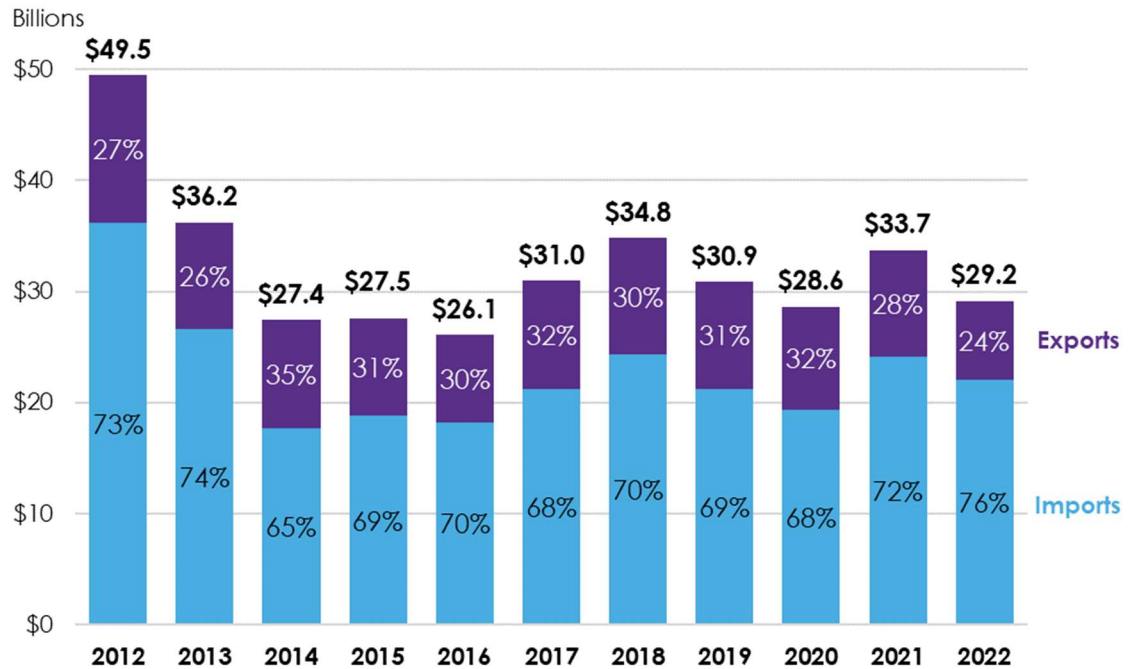
## Industry Activity

### Imports and Exports

The combined value of total imports and exports to pass through the Port of Seattle exceeded \$49 billion in 2012, adjusted for inflation and declined in aggregate to \$29.2 billion in 2022 (**Exhibit 32**). Combined import and export value decreased by 1.2% annually, on average, between 2017 and 2022, highlighting a slowed rate of overall trade decline between 2017 and 2022

compared to the previous five years. Imports comprised 76% of trade activity in 2022. The ratio of imports to exports fluctuates year to year but has remained between 65% and 75% from 2012 to 2022.

**Exhibit 76. Total Import and Export Volume, Port of Seattle, Billions of 2022 Dollars, 2012-2022**



Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2023; Community Attributes Inc., 2023.

One way the U.S. Census Bureau presents imports and exports is through commodity codes, which captures the goods being imported and exported.

**Exhibit 33** presents the proportion of import value in 2012, 2017, and 2022, the total import value for those years, and the compound annual growth rates for the periods between 2012 and 2022, and 2017 and 2022 by major commodity category. Total import value decreased by more than \$14.1 billion between 2012 and 2022, equivalent to a compound annual growth rate of negative 4.0% over the period. However, total import value increased slightly from 2017 and 2022, growing by an annual average rate of 0.7%. The compound annual growth rate (CAGR) for seven commodity subcategories increased by at least 6.0% from 2017 through 2022, including Textiles and Raw Hides, Skins, Leather, and Furs, where the upward shift in increased import volume was at least 10.0%.

**Exhibit 77. Total Import Volume by Commodity as a Percent of Overall Import Volume, Billions of 2022 Dollars, Port of Seattle, 2012-2022**

Commodity Code	Import Volume (Billions)			CAGR	
	2012	2017	2022	2012-2022	2017-2022
Machinery / Electrical	29.7%	26.2%	27.0%	-5.7%	1.2%
Miscellaneous	15.2%	14.6%	16.8%	-3.9%	3.0%
Textiles	13.8%	10.0%	12.2%	-5.9%	4.1%
Footwear / Headgear	4.2%	6.4%	7.8%	1.2%	3.8%
Metals	7.8%	8.3%	7.5%	-5.2%	-0.9%
Transportation	7.5%	6.7%	6.8%	-5.8%	1.1%
Plastics / Rubbers	5.9%	5.1%	5.0%	-6.3%	0.5%
Chemicals & Allied Industries	3.7%	3.0%	3.1%	-6.4%	1.2%
Vegetable Products	1.8%	4.1%	2.5%	-1.9%	-7.7%
Wood & Wood Products	2.3%	3.2%	2.5%	-4.0%	-3.9%
Animal & Animal Products	1.8%	3.4%	2.4%	-2.1%	-4.8%
Stone / Glass	2.1%	2.4%	1.9%	-5.7%	-3.7%
Foodstuffs	2.0%	3.3%	1.8%	-5.8%	-9.0%
Mineral Products	0.5%	2.1%	1.6%	6.5%	-3.8%
Raw Hides, Skins, Leather, & Furs	1.7%	1.0%	1.1%	-9.1%	1.1%
<b>Total</b>	<b>\$3,620</b>	<b>\$2,122</b>	<b>\$2,207</b>	<b>-4.0%</b>	<b>0.7%</b>

*Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2023; Community Attributes Inc., 2023.*

**Exhibit 34** highlights the total export value breakdown by commodity proportionate to the overall value of exports, and the CAGR between 2012 and 2022, and 2017 and 2022. Total export value declined at an annual rate of 6.1% between 2012 and 2022. The rate of decline was slightly less between 2017 and 2022, which saw decline at an average annual rate of 5.2%. All categories saw negative annual growth rates, except Footwear/Headgear, which grew by 2.4% annually between 2017 and 2022.

**Exhibit 78. Total Export Volume by Commodity Code Subcategory as a Percent of Overall Export Volume, Billions of 2022 Dollars, Port of Seattle, 2012-2022**

Commodity Code	Export Volume (Billions)			CAGR	
	2012	2017	2022	2012-2022	2017-2022
Vegetable Products	25.6%	31.6%	39.0%	-2.1%	-1.8%
Animal & Animal Products	13.1%	13.7%	17.0%	-3.6%	-1.8%
Machinery / Electrical	13.8%	10.7%	8.4%	-10.6%	-8.9%
Foodstuffs	8.6%	7.6%	6.8%	-8.3%	-7.0%
Metals	6.0%	4.6%	6.0%	-6.0%	-0.8%
Wood & Wood Products	9.9%	7.3%	5.1%	-12.2%	-10.8%
Mineral Products	4.8%	3.5%	4.7%	-6.3%	-0.5%
Chemicals & Allied Industries	6.8%	4.0%	4.0%	-11.0%	-5.5%
Miscellaneous	3.7%	2.7%	2.7%	-9.0%	-5.1%
Transportation	3.4%	10.4%	2.5%	-8.8%	-25.1%
Stone / Glass	1.5%	1.3%	1.3%	-7.2%	-4.5%
Plastics / Rubbers	1.3%	1.1%	1.3%	-6.2%	-2.8%
Textiles	0.6%	0.6%	0.6%	-6.0%	-6.1%
Raw Hides, Skins, Leather, & Furs	0.8%	0.7%	0.5%	-11.3%	-11.4%
Footwear / Headgear	0.2%	0.1%	0.2%	-7.5%	2.4%
<b>Total</b>	<b>\$1,331</b>	<b>\$976</b>	<b>\$709</b>	<b>-6.1%</b>	<b>-5.2%</b>

*Sources: USA Trade Online, Provided by the U.S. Census Bureau, 2023; Community Attributes Inc., 2023.*

## Containerized and Non-Containerized Cargo

The Northwest Seaport Alliance (NWSA), one of the focal trade and container gateways in the United States, handled more than 3.7 million Twenty Foot Equivalent Units (TEUs) in 2021, including both international and domestic cargo. The NWSA tracks cargo volume that passes through both the Ports of Seattle and Tacoma but does not track separate statistics for each port. Data for the Port of Seattle is sourced from Pacific Maritime Association (PMA) annual reports.

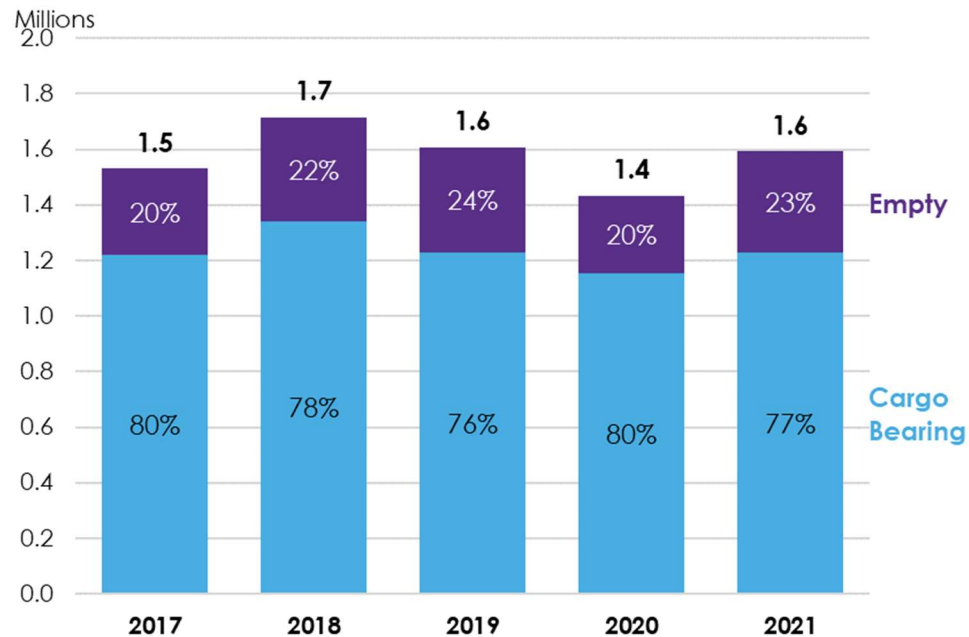
**Exhibit 35** shows the total volume of TEUs estimated to pass through the Port of Seattle between 2017 and 2021, and the breakdown of full and empty units.<sup>33</sup> Total TEUs to pass through the Northwest Seaport Alliance (NWSA) exceeded 3.7 million in 2017, peaking at nearly 3.8 million TEUs in 2018. Total TEUs was more than 3.3 million in 2020, 3.7 million in 2021 and nearly

<sup>33</sup> Port of Seattle TEUs are estimated using data on Cargo Bearing and Empty TEUs published by the Northwest Seaport Alliance combined with data on Cargo Bearing and Empty TEUs published for the Port of Seattle and the Port of Tacoma in the Pacific Maritime Association Annual Report.



3.4 million TEUs in 2022. According to the PMA, Port of Seattle represented 40% of cargo bearing TEUs to pass through the NWSA and 48% of empty TEUs in 2017. This proportion and total TEUs fluctuated by year. By 2021, the Port of Seattle represented 42% of cargo bearing TEUs and 44% of empty TEUs.

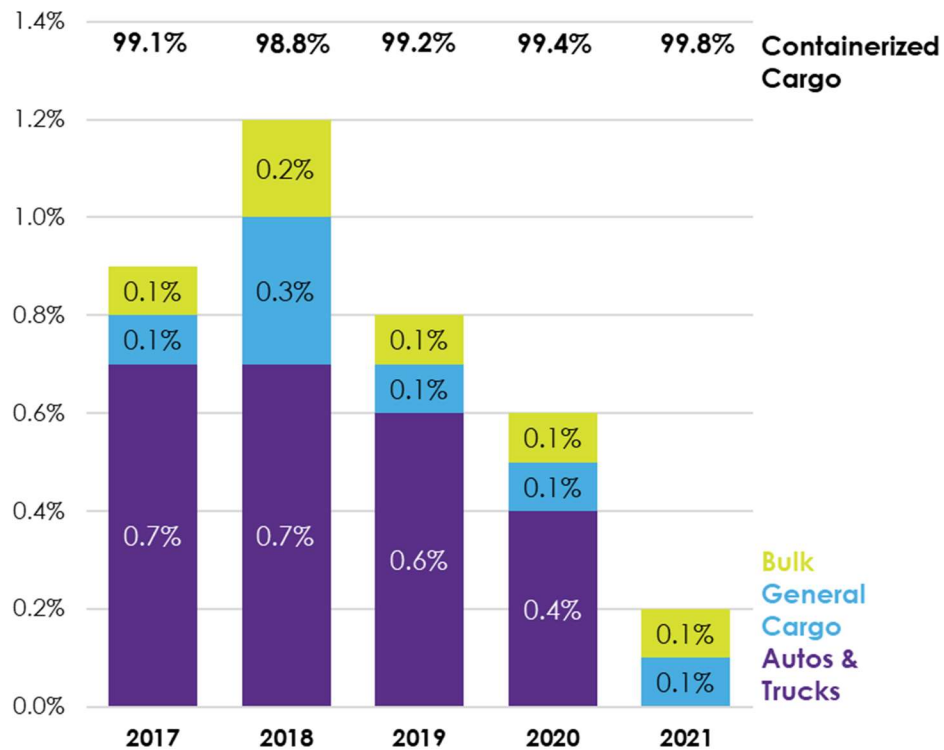
**Exhibit 79. Total TEUs, Cargo Bearing and Empty, Port of Seattle, 2017-2021**



Sources: Northwest Seaport Alliance, 2022; Pacific Maritime Association, 2021; Community Attributes Inc., 2023.

According to the PMA Annual Report, as of 2021, 99.8% of total tonnage to pass through the Port of Seattle was containerized cargo. This has increased from 99.1% of tonnage in 2017. **Exhibit 36** documents the breakdown of all non-Containerized cargo to pass through the Port of Seattle between 2017 and 2021, according to the Pacific Maritime Association. Until 2021, autos and trucks represented nearly 1% of total tonnage. This has been decreasing as auto and truck cargo travels to the Port of Tacoma. General cargo and bulk each represent about 0.1% of total tonnage.

**Exhibit 80. Non-Containerized Cargo, Seattle, 2017-2021**



Sources: Pacific Maritime Association, 2021; Community Attributes Inc., 2023.

Data on total TEUs and cargo for the Northwest Seaport Alliance in total is documented in the Appendix.

## ECONOMIC AND FISCAL IMPACTS

### Economic Impacts

Total combined economic impacts generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle and King County include direct, indirect, and induced impacts. Direct impacts discussed in previous sections include the jobs, labor income, and business income supported directly by industry businesses. Indirect impacts include additional jobs, labor income, and business revenues supported via business-to-business transactions. Indirect impacts include the jobs, labor income, and business revenue generated through the spending of worker wages.

Overall, total economic impacts of the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle are more than \$33.5 billion in business revenues. Together these industries support a total of

116,200 jobs, as well as more than \$10.7 billion in labor income.<sup>34</sup> The Maritime industry supports 28,300 jobs, \$2.6 billion in labor income, and nearly \$6.7 billion in business revenue. The Transportation and Warehousing industry supports 38,100 jobs, nearly \$3.6 billion in labor income, and more than \$10.4 billion in business revenues. Manufacturing supports 49,800 jobs, more than \$4.5 billion in labor income and more than \$16.5 billion in business revenues. **(Exhibit 37)**

#### Exhibit 81. Economic Impacts by Industry, Seattle, 2021

	Direct	Indirect	Induced	Total
<b>Maritime</b>				
Jobs	11,400	4,000	12,900	28,300
Total Compensation (mils 2022 \$)	\$1,530	\$300	\$800	\$2,630
Business Revenue (mils 2022 \$)	\$3,400	\$890	\$2,400	\$6,690
<b>Transportation &amp; Warehousing</b>				
Jobs	15,200	5,300	17,600	38,100
Total Compensation (mils 2022 \$)	\$2,100	\$390	\$1,090	\$3,580
Business Revenue (mils 2022 \$)	\$5,980	\$1,170	\$3,260	\$10,410
<b>Manufacturing</b>				
Jobs	20,200	7,500	22,100	49,800
Total Compensation (mils 2022 \$)	\$2,550	\$590	\$1,370	\$4,510
Business Revenue (mils 2022 \$)	\$10,630	\$1,710	\$4,110	\$16,450
<b>Total</b>				
Jobs	46,800	16,800	52,600	116,200
Total Compensation (mils 2022 \$)	\$6,180	\$1,280	\$3,260	\$10,720
Business Revenue (mils 2022 \$)	\$20,010	\$3,770	\$9,770	\$33,550

*Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.*

*Notes: Labor income includes wages and benefits. Labor income and business revenues are adjusted for inflation and presented in 2022 dollars.*

Across King County, the three industries have a total economic impact of \$140.6 billion in business revenues, \$40.1 billion in labor income, and 464,700 jobs. The Maritime industry in King County supports 46,300 jobs, more than \$4.1 billion in labor income, and nearly \$10.9 billion in business revenues, including direct, indirect, and induced impacts. The Transportation and Warehousing industry supports a total of 191,400 jobs, more than \$15.5 billion in labor income, and nearly \$54.6 billion in business revenues. The Manufacturing industry supports 227,100 jobs, more than \$20.4 billion in labor income, and \$75.1 billion in business revenues. **(Exhibit 38)**

<sup>34</sup> Labor income is estimated based on wages and includes an adjustment to also include benefits paid workers.

## Exhibit 82. Economic Impacts by Industry, King County, 2022

	Direct	Indirect	Induced	Total
<b>Maritime</b>				
Jobs	18,500	6,900	20,800	46,200
Total Compensation (mils 2022 \$)	\$2,320	\$530	\$1,290	\$4,140
Business Revenue (mils 2022 \$)	\$5,480	\$1,530	\$3,870	\$10,880
<b>Transportation &amp; Warehousing</b>				
Jobs	80,700	32,600	78,100	191,400
Total Compensation (mils 2022 \$)	\$8,350	\$2,340	\$4,860	\$15,550
Business Revenue (mils 2022 \$)	\$33,310	\$6,730	\$14,550	\$54,590
<b>Manufacturing</b>				
Jobs	90,300	34,200	102,600	227,100
Total Compensation (mils 2022 \$)	\$11,260	\$2,780	\$6,380	\$20,420
Business Revenue (mils 2022 \$)	\$48,090	\$7,940	\$19,100	\$75,130
<b>Total</b>				
Jobs	189,500	73,700	201,500	464,700
Total Compensation (mils 2022 \$)	\$21,930	\$5,650	\$12,530	\$40,110
Business Revenue (mils 2022 \$)	\$86,880	\$16,200	\$37,520	\$140,600

Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.

Economic impact multipliers, which quantify the additional value of all impacts generated elsewhere throughout Seattle and King County by the Transportation and Warehousing, Maritime, and Manufacturing industries, were relatively similar for both regions.

The Maritime industry generates the largest multiplier in terms of dollars of total output per dollar of direct output. Every dollar of output produced by the Maritime industry generates an additional \$0.97 in output throughout the Seattle economy or an additional \$0.99 in output throughout the King County economy. **(Exhibit 39)**

Total employment multipliers range from 2.37 in the King County Transportation and Warehousing industry to 2.52 in the King County Manufacturing industry. For every job directly supported an additional 1.37 to 1.52 jobs are supported throughout the economy. **(Exhibit 39)**

Total compensation multipliers are also similar across all three industries and in Seattle compared to King County. These multipliers range from 1.71 in Seattle's Transportation and Warehousing industry to 1.86 in King County's Transportation and Warehousing industry. For every dollar in direct compensation an additional \$0.71 to \$0.86 is supported throughout either the Seattle or King County economy. **(Exhibit 39)**

The Maritime industry, both in Seattle and King County as a whole has the largest total output multiplier. For every dollar in direct output 8.32 and 8.43 jobs are supported throughout the Seattle and King County economy respectively. Within Transportation and Warehousing these multipliers range from 5.75 (King County) to 6.35 (Seattle). Within Manufacturing the total jobs multiplier ranges from 4.69 in Seattle to 4.72 in King County. **(Exhibit 39)**

### Exhibit 83. Economic Impact Multipliers by Industry, Seattle and King County

Economic Impact Multipliers	Seattle (2021)	King County (2022)
<b>Transportation &amp; Warehousing</b>		
Total output per \$ final demand	1.74	1.64
Total jobs per direct job	2.51	2.37
Total compensation per \$ direct income	1.71	1.86
Total jobs per \$ mil final demand	6.35	5.75
<b>Maritime</b>		
Total output per \$ final demand	1.97	1.99
Total jobs per direct job	2.49	2.50
Total compensation per \$ direct income	1.72	1.79
Total jobs per \$ mil final demand	8.32	8.43
<b>Manufacturing</b>		
Total output per \$ final demand	1.55	1.56
Total jobs per direct job	2.47	2.52
Total compensation per \$ direct income	1.77	1.81
Total jobs per \$ mil final demand	4.69	4.72

*Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.*

## Fiscal Impacts

Washington State tax revenues generated by the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle total \$266.1 million. Accounting for these industries across all of King County, total fiscal impacts total nearly \$1.1 billion. Both direct and secondary activities generate tax revenues. Secondary activities include indirect and induced impacts. State taxes include business and operations, sales and use tax, and other sources of state tax revenues. Sales and use taxes represent the largest proportion of total fiscal impacts for each industry. **(Exhibit 40 and Exhibit 41)**

### Exhibit 84. Fiscal Impacts by Industry, Seattle, 2021

Fiscal Impacts	Direct (mils 2022\$)	Secondary (mils 2022\$)	Total (mils 2022\$)
<b>Maritime</b>			
B&O	\$4.5	\$13.8	\$18.3
Sales & Use Taxes	\$7.9	\$31.3	\$39.2
Other	\$0.9	\$3.7	\$4.6
<b>Subtotal</b>	<b>\$13.3</b>	<b>\$48.8</b>	<b>\$62.1</b>
<b>Transportation &amp; Warehousing</b>			
B&O	\$2.8	\$19.5	\$22.2
Sales & Use Taxes	\$4.9	\$42.9	\$47.8
Other	\$4.0	\$5.1	\$9.2
<b>Subtotal</b>	<b>\$11.7</b>	<b>\$67.5</b>	<b>\$79.2</b>
<b>Manufacturing</b>			
B&O	\$20.1	\$24.8	\$44.9
Sales & Use Taxes	\$18.1	\$55.0	\$73.0
Other	\$0.6	\$6.3	\$6.9
<b>Subtotal</b>	<b>\$38.7</b>	<b>\$86.0</b>	<b>\$124.8</b>
<b>Total Fiscal Impacts</b>	<b>\$63.7</b>	<b>\$202.4</b>	<b>\$266.1</b>

*Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.*

### Exhibit 85. Fiscal Impacts by Industry, King County, 2022

Fiscal Impacts	Direct (mils 2022\$)	Secondary (mils 2022\$)	Total (mils 2022\$)
<b>Maritime</b>			
B&O	\$7.7	\$23.0	\$30.7
Sales & Use Taxes	\$13.0	\$52.1	\$65.1
Other	\$1.5	\$5.8	\$7.4
<b>Subtotal</b>	<b>\$22.2</b>	<b>\$81.0</b>	<b>\$103.2</b>
<b>Transportation &amp; Warehousing</b>			
B&O	\$19.5	\$93.3	\$112.8
Sales & Use Taxes	\$37.2	\$209.4	\$246.6
Other	\$25.0	\$22.8	\$47.8
<b>Subtotal</b>	<b>\$81.7</b>	<b>\$325.5</b>	<b>\$407.2</b>
<b>Manufacturing</b>			
B&O	\$97.7	\$116.8	\$214.5
Sales & Use Taxes	\$67.9	\$258.6	\$326.5
Other	\$5.5	\$28.3	\$33.8
<b>Subtotal</b>	<b>\$171.0</b>	<b>\$403.7</b>	<b>\$574.7</b>
<b>Total Fiscal Impacts</b>	<b>\$275.0</b>	<b>\$810.2</b>	<b>\$1,085.2</b>

Sources: Washington State Department of Revenue, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; Puget Sound Regional Council, 2023; Washington State Office of Financial Management, 2022; Community Attributes Inc., 2023.

## INDUSTRY OPPORTUNITIES AND CHALLENGES

The Maritime, Manufacturing, and Transportation and Warehousing industries play a pivotal role in the production and movement of goods that touch every aspect of modern life. However, these industries in Seattle are faced with complex challenges that can affect the operational efficiency as well as long-term sustainability of these businesses and the jobs they support. Many of these are related to infrastructure, but others are related to stakeholder collaboration, public safety, workforce development, and stakeholder collaboration.

To better understand Maritime, Manufacturing, and Transportation and Warehousing stakeholder perspectives, interviews and a business survey probed topics of operational and infrastructural dependencies, challenges, and opportunities for the City of Seattle to best support these industries. Nearly all survey respondents (93%) are located in Seattle. Respondents are located in neighborhoods throughout the city, including 26% in the Greater Duwamish, 24% in Ballard and 12% in Downtown. Additionally, 71% have been at their location for more than 10 years. Of respondents, 57% rent the property they occupy. Among survey respondents, 77% identify as Maritime, Manufacturing, or Transportation and Warehousing, including 27% in

recreational boating, 16% in maritime logistics and shipping, and 7% in both textile and apparel manufacturing and other manufacturing. Additionally, 55% of respondents are very small, with less than 10 employees, and 36% estimate that 75-100% of their employees live in Seattle. Detailed information on respondent characteristics are included in **Exhibit 94** through **Exhibit 102** in the appendix.

Responding businesses and organizations, through interviews and surveys, most frequently highlighted transportation assets as key infrastructure for their business. These assets include transportation infrastructure (73%), commuting infrastructure (64%), nearby support services and suppliers (57%), truck access to industrial areas (51%), and access to Port terminals (49%). (**Exhibit 86**)

#### **Exhibit 86. What Assets in Seattle Does Your Business Rely On?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Transportation infrastructure, such as freight corridors and interstate highways	54	73%
Commuting infrastructure such as highways and light rail	47	64%
Nearby support services and suppliers such as shipyards, warehouses, chandlers, fuel bunkering, tug and barge services among others	42	57%
Truck access to industrial lands	38	51%
Access to Port terminals	36	49%
Proximity to Alaska	22	30%
Rail transportation infrastructure	18	24%
Other	8	11%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Infrastructure and public safety are among the most common challenges reported by interviewees. Among survey respondents, homelessness and/or camping within public and private rights-of-way (76%) and public safety (62%) are the two most commonly reported challenges. Other issues reported by more than 40% of survey respondents include rent and/or land availability and affordability, the loss of key suppliers and/or customers in Seattle and workforce shortages. (**Exhibit 87**)



**Exhibit 87. What Are the Challenges or Issues That Your Business is Currently Facing in Seattle?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Homelessness and/or camping within public and private rights-of-way	56	76%
Public safety	46	62%
Rent and/or land availability and affordability	36	49%
Loss of key Seattle suppliers and/or customers	32	43%
Workforce shortages	32	43%
Availability and capacity for parking	28	38%
Impacts of short and long-term construction to freight routes and/or transportation access	27	36%
Permitting (city, state or federal)	26	35%
Freight access and capacity of the freight routes	24	32%
Access to public transit and commute routes	14	19%
Residential encroachment	13	18%
Sound Transit Link Light Rail proposed alignment	13	18%
Lack of customers	13	18%
Natural gas ban	13	18%
Access to capital	10	14%
Business competitiveness	10	14%
Ongoing pandemic efforts	8	11%
Other	7	9%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Overall, 59% of survey respondents indicate they are concerned about their business surviving in Seattle. Concerns related to business survival include public safety and homelessness, business costs and rents, and infrastructure and traffic issues, each reported by more than 30% of respondents. **Exhibit 88** documents common concerns. Other issues mentioned by respondents include:

- costs related to infrastructure requirements to meet water quality standards and protect aquatic wildlife;
- challenges with parking both for customers and freight;
- cost and time required for permitting;
- residential encroachment limiting availability of industrial land and impacting ability to do business (noise restrictions);
- freight access, including reductions to freight routes, encroachment of bike lanes and speed limit reductions;

- housing and affordability for workers;
- workforce shortages;
- lack of support services in Seattle;
- ongoing impacts related to COVID-19 slowdowns;
- loss of customers and suppliers in Seattle.

**Exhibit 88. Please Describe Why You Are Concerned About the Survival of Your Business.**

<b>Responses</b>	<b>n</b>	<b>%</b>
Safety/Homeless	20	50%
Businesses Costs/Rent	13	33%
Infrastructure/Traffic	13	33%
Taxes/Other Fees	8	20%
Regulations	6	15%
Lack of Affordable Housing	6	15%
Other	19	48%
<b>Total</b>	<b>40</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Nearly 45% of survey respondents are either unsatisfied or very unsatisfied with their interactions with the City of Seattle (**Exhibit 89**). However, in general, interviewees expressed satisfaction with the City of Seattle Office of Economic Development (OED). Participants report positive interactions and appreciate the office's assistance helping businesses navigate challenges with other city departments. Most businesses' challenges with the city stem from interactions with other departments – some of the difficulties are described below. These departments may find it appropriate to work with OED to understand their model of business partnership or partner with OED more regularly to assist in resolving issues with businesses.

**Exhibit 89. Please Rank Your Satisfaction with Your Recent Interactions with the City of Seattle, Related to Your Business.**

<b>Responses</b>	<b>n</b>	<b>%</b>
Very satisfied	2	3%
Satisfied	13	18%
Neither satisfied or unsatisfied	26	36%
Unsatisfied	18	25%
Very unsatisfied	14	19%
<b>Total</b>	<b>73</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Survey respondents would most value small business support from the City of Seattle (35%). Other valued types of support and assistance include simplification and support with permitting and planning as well as a policy focus on freight access and capacity. Respondents who provided supplemental information as to other issues they would like the City of Seattle to assist also noted concerns such as issues with safety and homelessness, small business support, the promotion of industrial lands (**Exhibit 90**)

**Exhibit 90. What Support or Assistance Would You Most Value from the City of Seattle?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Small business support	25	35%
Simplification and/or support with permitting and planning	13	18%
Policy focus on freight access and capacity	11	15%
Workforce development and training coordination	4	6%
Support for coordination with other governm	2	3%
Access to business resources	1	1%
Access to information on local, state and federal construction projects	0	0%
Other	15	21%
<b>Total</b>	<b>71</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

## Issues Assessments

### Stakeholder Collaboration

Public and private Maritime, Manufacturing, and Transportation and Warehousing stakeholders from across the region stated that collaboration with the City of Seattle on industry needs are low, limited, and often fraught. In interviews and survey responses, nearly all participants shared dissatisfaction with the way the city makes critical long-term decisions, particularly regarding transportation, that impacts freight flow, industrial infrastructure, and road user safety.

Many participants did say that they have engaged with and been engaged by the city's transportation staff and planners. But other times, they feel Maritime, Manufacturing, and Transportation and Warehousing stakeholders have been left out of critical planning discussions and decisions. Participants also shared that when they share transportation concerns, they believe little is done to find a workable solution for industrial road users.

When asked what their desired relationship with the city's transportation would look like, an interviewee stated, *"We would love for SDOT to come to the company and ask, 'The transportation plan has pieces that impact the major truck streets. How can we help improve the flow rate through the city as efficiently as possible?'"*

Several interviewees recognized the importance of the city's recent update to the industrial lands policy and celebrated it as great progress. However, a few were concerned about whether the policy would be maintained by the city. Another believed that legislation was originally drafted with great collaboration to find consensus, but later was changed to respond to specific stakeholder requests.

Many participants recommended improved collaboration between the city and public and private Maritime, Manufacturing, and Transportation and Warehousing stakeholders to rebuild deteriorated trust. Improved collaboration and trust-building could include more integrated planning with stakeholders. For example, the Port of Rotterdam and City of Rotterdam's innovative approach to urban development emphasizes collaboration between the city and port. This model aims to harmonize the growth and development of the city with the operations and expansion of one of Europe's largest and busiest ports.

A few interviewees also recommended improved collaboration across the region regarding workforce development. These interviewees described awareness of many programs and a regional workforce development council attacking the problem of workforce development for industry. However, these interviewees also believe that the workforce development ecosystem lacks coordination and awareness of industry needs. They believe that the coordination could be better improved with more industry stakeholders and employers leading and participating in the conversation. Infrastructure

Issues related to infrastructure are the primary concern of public and private stakeholders in the Maritime, Manufacturing, and Transportation and Warehousing industries in the city. These infrastructure issues include rail and truck freight access, transportation safety planning, and residential encroachment.

### **Transportation Planning**

In interviews with stakeholders, all participants described challenges and frustrations related to transportation planning and other functions carried out by the city's transportation department. For most, it was their top concern.

Specific issues related to transportation planning include concerns for freight access and road safety. But businesses more specifically described difficulties with the process of transportation planning and collaboration in the city.

Many described receiving many communications and being frequently offered opportunities for comment or input when the city's transportation department is proposing projects or plans. However, nearly all participants interviewed believe business input is rarely considered or incorporated.

One interviewee described that sometimes the methods of project approval also prevents the transportation department from incorporating new information and feedback. For example, the Route 40 Transit-Plus Multimodal corridor project was approved by voters pre-pandemic. But now the interviewee believes transit needs have changed post-pandemic and the impact to businesses along the route are detrimental, but the city is not able to make adjustments because the project was approved by voters.

Another interviewee described collaboration with the transportation department this way, *"It feels like on one hand the [Maritime and Manufacturing] jobs are really important in the region, but the transportation plan is a big miss. We need them to be advocates for these jobs as well."*

### **Freight Access**

Nearly all participants in interviews shared frustration and concern with shrinking access for freight, via road and rail.

According to participants, increased urban density and the expansion of road use types (pedestrian, bicyclists, public transit) encroaches on truck streets and freight mobility. Participants share that this encroachment makes it difficult for freight trucks to deliver goods to businesses and customers, creates additional traffic congestion, thereby increasing delivery times and increasing business costs, and puts road users at risk.

For example, a neighborhood representative described the challenges of a proposed bus-only lane in front of a local business, Ballard Consignment. The eliminated parking and loading zones for the bus-only zone would challenge the business's ability for suppliers and customers to load and unload furniture purchased at the store.

In another interview, a labor representative described the importance of efficient access by road for labor unions, *"These are good paying jobs. If the Port of Seattle is healthy then these jobs are healthy.[...] We really need to get freight from the port to the interstate safely and so that these trucks aren't sitting there idling."*

Another interviewee described the dilemma, *"The last mile of this city's delivery system has to happen on surface streets. There's no other way around"*

*it.*” Additionally, as the demand for e-commerce and urban living continues to grow, addressing last-mile freight access will become even more challenging.

Some participants are also concerned about the loss of freight rail. For example, they stated the city transportation plan mentions goals for passenger rail, but nothing meaningful for freight rail. They stated that rail is a critical path for freight and cargo movements from the Port and there are major concerns with competing for capacity on the rail network between freight and passenger.

It's recommended by stakeholders that the City of Seattle, particularly the Department of Transportation, identify quality methods for preserving and improving the efficient movement of freight, both for road user safety and economic activity support.

### **Residential Encroachment & Road User Safety**

All participants in interviews and surveys shared significant concerns regarding the encroachment of non-industrial life in industrial areas as the city continues to grow and is challenged by growing urban density and residential life. These challenges are characterized by limited space, competition for road space, increased accident risk, traffic congestion, delays, increased costs, and noise complaints.

The encroaching residential life and traffic also means that many types of road users share the same road space. This can decrease the efficiency of truck movements and increase the risk of accidents. Most participants shared they were highly concerned for the safety of increased bicycle users on streets where freight trucks were active. Participants also shared how difficult road crossings over complex multi-use roadways also decrease freight efficiency and increase costs to businesses. Solutions attempted in other locales to mitigate these industrial and residential challenges include:

- transportation planning that includes all road users – industrial and residential
- green buffer zones between urban and residential areas
- public education for non-industrial road users
- truck enhancements such as side guards
- blind spot warnings
- proximity sensors and cameras
- intersection redesign with bicycle-specific signal phases
- bicycle lanes physically separated from truck lanes
- recognizing bicycle-friendly trucking companies.

Finally, one interview participant described the challenge of placing residential spaces within or near industrial areas. Multi-unit developments often bring increased car traffic on major truck streets and additional

parking congestion that limits large truck movement. These residents are also often challenged by noise levels at nearby industrial sites, then noise ordinances are put in place on these industrial sites, limiting the work hours where heavy industrial work can occur. This pushes similar work to other businesses who must increase their services and work hours, eventually also receiving noise complaints as they expand their work hours. A solution to this challenge can include both industrial and residential noise-reduction and soundproofing measures, to minimize the impact of industrial noise on residents' quality of life.

## Public Safety

Most participants in interviews and surveys shared that public safety or crime is a top concern. These concerns include theft, damage, trespassing, challenges with encampments, and employees being “accosted” by people who trespass on the jobsite.

Participants described difficulties with theft that have become increasingly aggressive. In one instance, an interviewee described how a company largely did not have issues with theft for years, then had to eventually fence the property. After fencing the property, theft still occurred, so barbed wire was added. After barbed wire, thieves approached from the waterfront. Another interviewee also described local businesses being impacted by break-ins, thefts, and damage. They also added that the city is rarely able to respond to these incidents with any investigative work or police response, and the cases go unresolved.

Another large employer detailed incidents of employees being “accosted,” especially when second shift gets off work late at night.

However, one maritime business did describe that while individual public safety problems do occur, they would not describe it as a major concern. This business also has a location in Portland, where they describe the public safety challenge to be more significant.

Most interviewees described understanding the complexity of city’s public safety challenges. Several recommended increased capacity for public safety professionals to respond to these incidents, especially theft.

## Workforce Development

All interviewees and most survey participants are challenged by workforce shortages. Participants describe an inability to hire needed labor in the skilled trades, for various reasons. The factors participants believe contribute to these workforce challenges vary but are often repeated by multiple interviewees. These factors include workers’ inability to live near the available jobs due to a lack of affordable housing, traffic congestion, and bus

routes. Other factors include a belief that the general population does not perceive Maritime, Manufacturing, and Transportation and Warehousing trade-skilled jobs as desirable and that alternative career paths via four-year higher education is better.

When asked about whether their business or organization utilizes or is aware of any workforce development programs in the region, many participants mentioned the Maritime High School. Other programs mentioned are Ready Mariner (TM), SOCP Workforce Task Group, NW Maritime Center, Maritime High School in Des Moines, Seattle Jobs Initiative, Seattle Maritime Academy, Maritime Blue - Youth Maritime Collaborative, Center of Excellence for Marine Manufacturing and Maritime Technology, PAC Maritime, Urban League, Evergreen Goodwill, Highline School District, Seattle Skills Center, CORE Plus Maritime, and more. However, one interviewee who organizes relevant workforce development programs believes that awareness of available programs is lacking for employers and students and stated that employers need just as much support in fulfilling these program promises as students do. Another interviewee stated that many of these workforce programs struggle to collect data on workforce needs and output.

One large employer stated they prefer to hire more experienced skilled workers, rather than training individuals within the company. Another large employer recommended that government officials partner with industry to reframe the value of these industrial jobs to individuals, families, and the broader community. One participant also described that while these workforce training resources exist, there is a disconnect between the training program and the employers. Another participant described small and mid-sized maritime businesses needing both unskilled and highly skilled workers.

One community organizer in workforce development programming is challenged by connecting participants to job opportunities. For example, there is not significant transit to the jobs and internships available at these industry employers.

Other participants shared that while youth career development are highly valuable, workforce needs are more immediate than what youth development programs can provide.

In regard to diversifying the workforce, one interviewee stated that while facing an extreme worker shortage, the region has not done well to build trusted relationships with communities that have not previously had access to the industry. The interviewee believes the industry and workforce developers must do more to build relationships and connections to communities of color in order to build awareness and interest.



## Utility Reliability

Several stakeholders described concerns and challenges related to the rates and reliability of utilities.

One interviewee described how they are aware that in California there are rolling brown outs, and spots have been subject to no notice brownouts. The interviewee reflected concerns that the same could occur in the Puget Sound Region and has already had disputes with City Light about reliability and is concerned that it could worsen.

Another interviewee also had issues with substations failing. The participant stated that they are a transporter of frozen foods, and utility failure can affect refrigerated facilities. In addition, the interviewee described running up against power capacity. When power fails, the company must turn to diesel generators to keep food frozen.

One interview also described some backlogs with transformers, however they stated Seattle City Light *“has been a great partner with us. Very customer focused and deliver ahead of time.”* They stated they have heard there are some sewer issues in the industrial areas, but they have not experienced them because their manufacturing is not water and waste intensive.

Another interviewee was concerned about future energy supply, especially to serve expansion. Developers would like to bring new projects online but aren't sure whether enough energy will be available, and they do not believe the city has enough power to meet 2050 decarbonization targets.

It's recommended the City of Seattle work with businesses and industry stakeholders to better understand their challenges related to utilities.

## Sustainable Industry

In interviews stakeholders shared some of the challenges they are faced in developing the Maritime, Manufacturing, and Transportation and Warehousing industries for a clean, sustainable future.

In building a more sustainable Maritime industry, interviewees believe the region has a growing cluster that acts as a support system for start-ups. These have been successful and the region is become a center of excellence on the topic. However, these start-ups face challenges related to investment and access to employers for support. Many innovative projects, such as electrification, require significant capital investment and there is a need to de-risk and provide incentives for early demonstrations.

These clean industry start-ups are also challenged by permitting at various government levels. One interviewee describes being held up due to lack of

coordination in permitting, which can slow down electrification infrastructure and utilities where substantial coordination and upfront investment is required. This lack of coordination is also complicated by permitting agencies lacking the expertise to respond to permitting for novel technologies, such as hydrogen systems and fuel. There is a belief with some interviewees that there is a mismatch between the city's stated environmental goals and the capabilities and priorities of departments such as permitting, the Seattle Department of Construction and Inspections, and fire department.

These challenges are highlighted further with the federal government's funding award to create a Pacific Northwest Hydrogen Hub, according to one interviewee. One interviewee described the hub would involve transporting the hydrogen in and through the city as efficiently, most likely by truck. Given the previously described freight access challenges, hydrogen hub stakeholders will be challenged by these freight needs.

A couple interviewees also described challenges and opportunities regarding offshore wind development in the region. One interviewee described that unlike the East Coast offshore wind projects, this region's offshore waters are much deeper, which presents challenges in constructing the platforms that will likely implicate the amount of space needed dockside at the port as well as additional materials. Additionally, they described a desire to ensure that US workers and the local community are involved in the offshore wind industry. Interviewees describe that offshore wind offers great industrial and economic potential for the region and long term health of Maritime, Manufacturing, and Transportation and Warehousing jobs, but the city must remain involved in planning for these long term impacts on the region's freight, energy, permitting, and workforce needs.

## Industry Competition

Interviewed and surveyed stakeholders shared that the capacity and success of the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle are facing increasing competition from other West Coast locations that are less geographically constrained. For example, the oceanside of Seattle is less accessible due to travel through the Puget Sound, unlike other coastal ports. Then, once goods and materials arrive at the port, freight must be moved across a dense and constrained urban area before arriving at a mountain range. Industrial customers of the port and other industrial areas face an increased cost to customers and their own business. One interviewee mentioned a continuous drop in cargo volumes at the Port of Seattle over more than five years, while other West Coast port cargo volumes increase.

Several interviewees believe the Maritime, Manufacturing, and Transportation and Warehousing industries in Seattle are under significant threat and cannot sustain without additional support and collaboration to preserve industrial lands and access. Many interviewees believe that the jobs and industries are taken for granted and are not secure resources if they are not supported.

Several interviewees mentioned that the natural deep-water port is a great asset and competitive advantage that other locales do not have or must invest in to create. One interviewee stated, *“Other [land and transportation] planning topics, you can compromise. But you can’t move the port plus centuries of public investment for the deep water work available there. We need to protect an asset the city has.”*

One interviewee also recommended the city take a more proactive approach to going after additional industrial and cargo work. *“Part of the problem is that we have a lot of goods coming in from Canada. We are losing a lot of market share to Canada. [...] We have the infrastructure to provide the goods to our own people, and actually the goods are coming from Canada and California. [...] We keep looking out to Midwest and Asia but our geography makes it a bit harder.”*

## Recommendations

Considering the insights and concerns voiced by a diverse array of stakeholders representing the Maritime, Manufacturing, and Transportation and Warehousing industries within Seattle, this section presents a set of recommendations aimed at addressing the various challenges faced by these industries. These recommendations reflect the collective input gathered from stakeholder interviews.

- Foster improved collaboration between the City of Seattle and public and private Maritime, Manufacturing, and Transportation and Warehousing stakeholders to rebuild deteriorated trust.
- Enhance integration and planning with stakeholders, taking inspiration from models like the Port of Rotterdam and City of Rotterdam’s approach to urban development.
- Actively seek and incorporate input from businesses and industrial stakeholders in transportation planning, specifically addressing concerns related to freight access and road safety.
- Address issues related to project approval methods, such as voter-approved project plans, to allow for flexibility and adaptation when necessary.
- Develop solutions to mitigate the shrinking access for freight via road and rail.

- Prioritize efficient last-mile delivery solutions to address increased demand for e-commerce, urban living, and improve road safety.
- Implement strategies such as transportation planning that includes all road users, green buffer zones between urban and residential areas, public education for non-industrial road users, and truck enhancements to enhance road user safety.
- Balance residential development in or near industrial areas with noise-reduction and soundproofing measures to minimize the impact on residents' quality of life and operational constraints to industrials.
- Increase the capacity for public safety professionals to respond to incidents such as theft, damage, and trespassing.
- Address workforce shortages by improving access to skilled labor through increased affordable housing, better transit options, and alternative career paths.
- Raise awareness of existing workforce development programs among employers and students and improve coordination between training programs and employers.
- Partner with industry to highlight the value and opportunity of these industrial jobs to individuals, families, and the broader community.
- Work with businesses and industry stakeholders to better understand their challenges related to utility rates and reliability.
- Support clean, sustainable industry development by de-risking and identifying capital incentives for start-ups, especially in projects like electrification.
- Address permitting challenges for novel technologies such as hydrogen systems and fuel, and ensure departmental expertise and tools are aligned with the city's environmental goals.
- Plan for long-term impacts of offshore wind development on the region's freight, energy, permitting, and workforce needs.
- Take a proactive approach to attract additional industrial and cargo work to the city, particularly in competition with other West Coast locations.

## CONCLUSION

As the Maritime, Manufacturing, and Transportation and Warehousing industries faces increasing challenges and disruptions, these industries remain a critical component of the economy throughout Washington, King County and Seattle. Bolstered by strong growth in the Transportation and Warehousing industry, total employment and wages in King County have nearly recovered to pre-pandemic levels. King county's estimated direct business revenues of \$87.2 billion in 2022 were the highest since at least 2012, and were greater than the pre-pandemic peak of \$83 billion in 2019. Despite experiencing a slight decline in total employment between 2018 and 2022, total wages in the Maritime, Manufacturing, and Transportation and

Warehousing industries together increased by approximately \$500 million, and estimated direct business revenues appreciated by approximately \$8.6 billion.

In total, the Maritime, Manufacturing, and Transportation and Warehousing industries together directly and indirectly supported 116,200 jobs in Seattle, and 464,700 in King County. Additionally, the industries generated and supported \$10.8 billion in employee earnings in Seattle, and \$40.1 billion in King County, while estimated direct, indirect, and induced business revenues totaled \$33.6 billion in Seattle in 2021 and \$140.5 billion in King County in 2022.

Feedback from stakeholders in Seattle indicate that these industries face a variety of challenges. Challenges most commonly referenced include perceived lack of coordination between the City of Seattle and industry stakeholders; infrastructure including transportation planning, freight access, and residential encroachment; public safety; workforce development; utility reliability; and industry competition.

## APPENDIX

### **A. Maritime, Manufacturing and Transportation & Warehousing Definition**

This study uses the following groupings of NAICS code to define each industry and subsector. Data from the Bureau of Labor Statistics for King County was aggregated for these industries. The Puget Sound Regional Council provided a custom analysis of employment based on these NAICS groupings.

#### **Transportation & Warehousing**

- Air Transportation (481)
- Truck Transportation (484)
- Transit, Ground, Scenic & Sightseeing Transportation
  - Transit and Ground Passenger Transportation (485)
  - Scenic and Sightseeing Transportation, Land (487110)
  - Scenic and Sightseeing Transportation, Other (487990)
- Support Activities for Transportation
  - Air Traffic Control (488111)
  - Other Airport Operations (488119)
  - Other Support Activities for Transportation (488190)
  - Motor Vehicle Towing (488410)
  - Other Support Activities for Road Transportation (488490)
  - Packing and Crating (488991)
  - All Other Support Activities for Transportation (488999)
- Pipeline Transportation, Postal Service & Couriers & Messengers
  - Pipeline Transportation (486)
  - Postal Service (491)
  - Couriers and Messengers (492)
- Warehousing & Storage
  - General Warehousing and Storage (493110)
  - Farm Product Warehousing and Storage (493130)
  - Other Warehousing and Storage (493190)

#### **Maritime**

- Maritime Logistics & Shipping
  - Deep Sea Freight Transportation (483111)
  - Coastal and Great Lakes Freight Transport (483113)
  - Inland Water Freight Transportation (483211)
  - Support Activities for Rail Transportation (488210)
  - Port and Harbor Operations (488310)
  - Marine Cargo Handling (488320)

- Navigational Services to Shipping (488330)
  - Freight Transportation Arrangement (488510)
  - Refrigerated Warehousing and Storage (493120)
  - Rail (482)
  - National Security (928110)
- Shipbuilding, Repair & Maintenance
  - Ship Building and Repairing (336611)
  - Boat Building (336612)
- Commercial Fishing & Seafood Products
  - Finfish Farming and Fish Hatcheries (112511)
  - Shellfish Farming (112512)
  - Finfish Fishing (114111)
  - Shellfish Fishing (114112)
  - Seafood Product Preparation and Packaging (311710)
  - Fish and Seafood Merchant Wholesalers (424460)
  - Fish and Seafood Markets (445220)
- Recreational Boating
  - Boat Dealers (441222)
  - Scenic and Sightseeing Transportation, Water (487210)
  - Marinas (713930)
- Passenger Water Transportation
  - Deep Sea Passenger Transportation (483112)
  - Coastal and Great Lakes Passenger Transport (483114)
  - Inland Water Passenger Transportation (483212)
  - Other Support Activities for Water Transport (488390)

## Manufacturing

- Food and Beverage Manufacturing (Excluding Seafood Product Manufacturing)
  - Animal Food Manufacturing (3111)
  - Grain and Oilseed Milling (3112)
  - Sugar and Confectionery Product Manufacturing (3113)
  - Fruit and Vegetable Preserving and Specialty Food Manufacturing (3114)
  - Dairy Product Manufacturing (3115)
  - Animal Slaughtering and Processing (3116)
  - Bakeries and Tortilla Manufacturing (3118)
  - Other Food Manufacturing (3119)
  - Beverage and Tobacco Product Manufacturing (312)
- Textile and Apparel Manufacturing
  - Textile Mills (313)
  - Textile Product Mills (314)
  - Apparel Manufacturing (315)
  - Leather and Allied Product Manufacturing (316)

- Wood Product and Paper Manufacturing
  - Wood Product Manufacturing (321)
  - Paper Manufacturing (322)
  - Printing and Related Support Activities (323)
- Chemical and Plastics Manufacturing
  - Petroleum and Coal Products Manufacturing (324)
  - Chemical Manufacturing (325)
  - Plastics and Rubber Products Manufacturing (326)
  - Nonmetallic Mineral Product Manufacturing (327)
- Aerospace, Machinery and Metal Product Manufacturing
  - Primary Metal Manufacturing (331)
  - Fabricated Metal Product Manufacturing (332)
  - Machinery Manufacturing (333)
  - Computer and Electronic Product Manufacturing (334)
  - Electrical Equipment, Appliance, and Component Manufacturing (335)
  - Motor Vehicle Manufacturing (3361)
  - Motor Vehicle Body and Trailer Manufacturing (3362)
  - Motor Vehicle Parts Manufacturing (3363)
  - Aerospace Product and Parts Manufacturing (3364)
  - Railroad Rolling Stock Manufacturing (3365)
  - Other Transportation Equipment Manufacturing (3369)
- Other Manufacturing
  - Furniture and Related Product Manufacturing (337)
  - Miscellaneous Manufacturing (339)

## **B. Economic Impacts**

Economic impacts of Maritime, Manufacturing, and Transportation and Warehousing industries are calculated through use of the 2012 Washington State Input-Output Model (I-O model), published by the Washington State Office of Financial Management. The I-O model is an analytic tool for assessing the intra- and inter-industry linkages and sources of final demand within a defined economy, or a snapshot of the flow of commodities and services between producing sectors and consuming sectors in an economy at a point in time.

The input-output table shows the following:

- Intermediate demand capturing supply chain spending patterns or what each industry buys from every other industry in terms of intermediate inputs used in the production process.
- Final demand including consumer spending, government spending, and investment, and net exports to the rest of the world.



- Payments to basic factors of production such as labor, capital, and land, or the value added and imports from the rest of the United States and the world.

The input-output table measures gross output. Therefore, an adjustment is made to direct gross revenues to account for gross margins retail industries. Within the input-output table gross output in the retail and wholesale trade industries is revenue less the cost of goods sold.

## Types of Economic Impacts

Economic impact modeling considers three types of impacts, summarized below.

- **Direct impacts** are the revenues, wages, and jobs directly attributable to the industry or organization. This includes revenue sources like retail or wholesale sales, wages paid by businesses, and workers employed at each business.
- **Indirect impacts** refer to the additional economic activity, measured in jobs, wages, and revenues, supported by inter- and intra-industry transactions associated with the direct activities being modeled. When a shipping business uses the services of a shipyard, for example, that transaction has indirect impacts.
- **Induced impacts** are additional revenues, wages, and jobs associated by income expenditures among employees supported through direct and indirect impacts.

## County and City Adjustments

In order to provide detailed economic impacts in selected counties or cities, CAI employs location quotient adjusters. Location quotients describe and industry's concentration in an area compared to that same industry's concentration in a larger area. For example, the location quotient for deep sea freight transportation in King County would be calculated as follows:

$$\text{Location Quotient} = \frac{\left( \frac{\text{Total Industry Employment in King County}}{\text{Total Employment in King County}} \right)}{\left( \frac{\text{Total Industry Employment in Washington}}{\text{Total Employment in Washington}} \right)}$$

After developing location quotients for each industry in each selected county or city, CAI uses these coefficients to adjust inter-industry transactions for industries in which a county had less-than-average employment concentration as represented by a location quotient less than 1.

## C. Fiscal Impacts

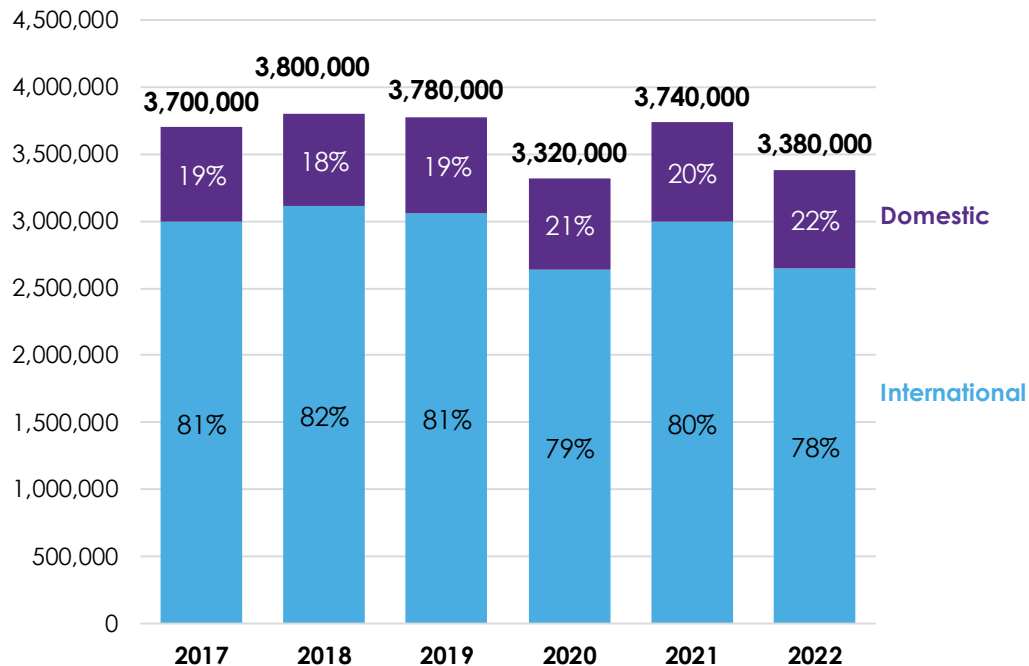
To arrive at estimated direct fiscal impacts for the Maritime, Manufacturing, and Transportation and Warehousing industries, CAI leverages data from

the Washington State Department of Revenue describing taxes paid by industry. Taxes by type are summed up into industries, then effective tax rates are estimated by dividing taxes paid by total industry revenue. These rates are applied to the relevant industry's revenue. These impacts only include taxes paid to the state and do not include local taxes.

## D. Northwest Seaport Alliance (NWSA)

The Northwest Seaport Alliance oversaw the handling of approximately 3.4 million twenty-foot equivalent units (TEUs) in 2022, a 9.4% year-over-year volume decline from 2021. The total volume of TEU's administered through the Northwest Seaport Alliance fluctuates annually. International TEU's comprised most cargo volume over the period, averaging around 80% of all TEU volume handled between 2017 and 2022. (**Exhibit 91**)

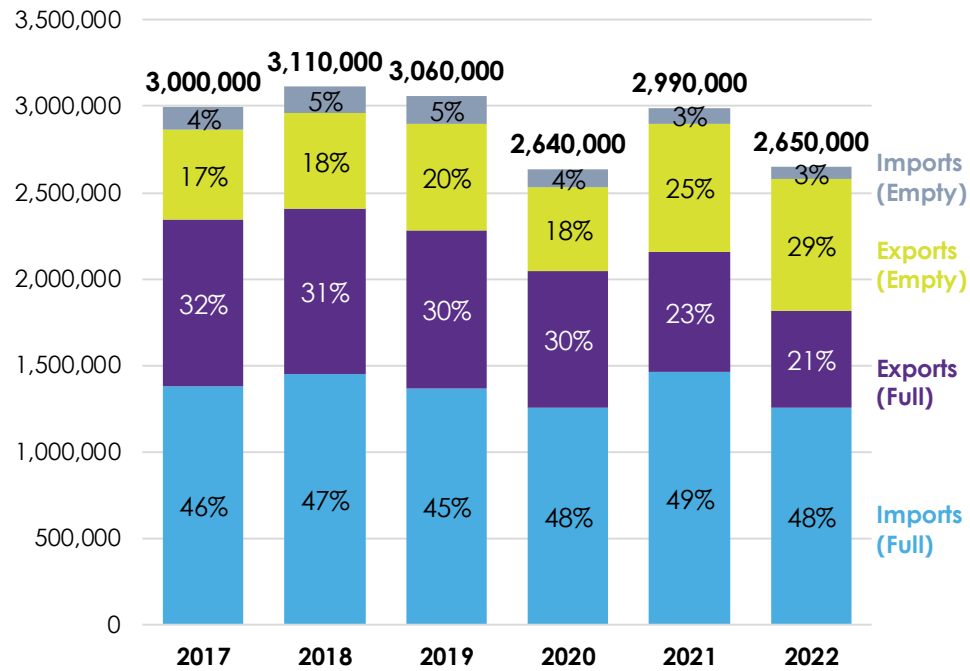
**Exhibit 91. Total International vs. Domestic TEU Containerized Volume, The Northwest Seaport Alliance, 2017-2022**



Sources: Northwest Seaport Alliance (NWSA) Annual Cargo Report, 2022; Community Attributes Inc., 2023.

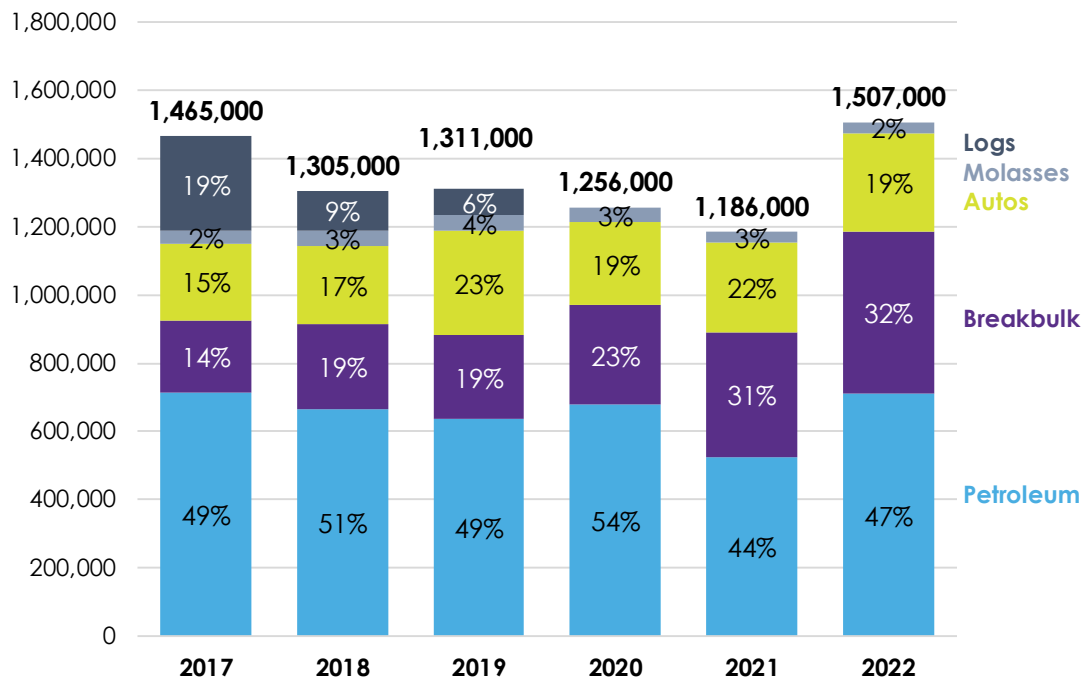
As depicted on **Exhibit 92**, total international TEU volume between 2017 and 2022 mirrored that of the aggregate cargo trend for both domestic and international cargo TEUs. The share of import and export volume over the period was nearly even in each year, with international imports accounting for slightly more total cargo volume than exports. While cargo volume for both Full import and export units declined by 23% overall between 2017 and 2022, the aggregate volume of Empty units increased by 28% over the same period.

**Exhibit 92. Total International TEU Containerized Volume, The Northwest Seaport Alliance, 2017-2022**



The total volume of non-containerized cargo units, which includes Petroleum, Breakbulk, Autos, Molasses and Logs, largely declined between 2017 and 2021, but increased to a six-year high of approximately 1.51 million metric tons in 2022. This increase represents a 2.9% jump from 2017 to 2022, and a 27.1% increase from the six-year low of approximately 1.2 million in 2021. **(Exhibit 93)**

**Exhibit 93. Total Non-Containerized Cargo Volume by Commodity, 2017-2023 YTD**



Sources: Northwest Seaport Alliance (NWSA) Annual Cargo Report, 2022; Community Attributes Inc., 2023.

## E. Survey Respondent Characteristics

In addition to questions on industry opportunities and challenges and workforce equity, survey respondents also provided information on the characteristics of their business. **Exhibit 94** through **Exhibit 102** present summary of remaining responses provided by survey participants.

**Exhibit 94. Are You Located in Seattle?**

Responses	n	%
Yes	69	93%
No	5	7%
<b>Total</b>	<b>74</b>	<b>100%</b>

Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.

**Exhibit 95. In Which District is Your Business Located?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Greater Duwamish	18	26%
Ballard	16	24%
Downtown	8	12%
West Seattle	5	7%
Queen Anne	4	6%
Magnolia	4	6%
Central Area	3	4%
Interbay	3	4%
Northeast	2	3%
Northgate	2	3%
North Central	1	1%
University District	1	1%
Lake City	1	1%
Cascade	0	0%
Beacon Hill	0	0%
Rainier Valley	0	0%
Delridge	0	0%
Seward Park	0	0%
Capitol Hill	0	0%
Northwest	0	0%
<b>Total</b>	<b>68</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

**Exhibit 96. How Long Have You Been at Your Location?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Less than 1 year	2	3%
1 to 5 years	7	10%
5 to 10 years	11	16%
10 to 25 years	17	25%
25 to 50 years	13	19%
More than 50 years	19	28%
<b>Total</b>	<b>69</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

### Exhibit 97. Do You Rent or Own the Property That You Occupy?

Responses	n	%
Rent	39	57%
Own	29	43%
<b>Total</b>	<b>68</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

Of the 11 respondents who selected Other as their organization's primary industry and provided a written response, responses included Food Distribution, Marketing and Promotion, Property Management, Retail, Real Estate, Equipment Rental, Ship Repair, Freight & Passenger Rail Transportation Labor Organization and Building Materials.

### Exhibit 98. Please Select Your Business or Organization's Primary Industry

Responses	n	%
Recreational boating	20	27%
Maritime logistics and shipping	12	16%
Textile and apparel manufacturing	5	7%
Other manufacturing	5	7%
Shipbuilding, repair and maintenance	4	5%
Commercial fishing and seafood products	2	3%
Food and beverage manufacturing (excluding seafood product manufacturing)	2	3%
Aerospace, machinery and metal product manufacturing	2	3%
Truck transportation	2	3%
Support activities for transportation	2	3%
Wood product and paper manufacturing	1	1%
Passenger water transportation	0	0%
Chemical and plastics manufacturing	0	0%
Air transportation	0	0%
Transit, ground, scenic and sightseeing transportation	0	0%
Pipeline transportation, postal service and couriers and messengers	0	0%
Warehousing and storage	0	0%
Other	17	23%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

**Exhibit 99. How Many People Does Your Business Employ?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Less than 10	41	55%
11 to 20	9	12%
21 to 50	8	11%
51 to 100	4	5%
101 to 250	5	7%
250 or more	7	9%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

**Exhibit 100. Approximately What Proportion of Your Employees Live in Seattle?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Less than 10%	16	22%
11 to 24%	13	18%
25 to 49%	10	14%
50 to 74%	8	11%
75 to 100%	26	36%
<b>Total</b>	<b>73</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

**Exhibit 101. Approximately What Proportion of Your Employees Live Elsewhere in King County?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Less than 10%	25	34%
11 to 24%	9	12%
25 to 49%	16	22%
50 to 74%	6	8%
75 to 100%	18	24%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*

**Exhibit 102. Are You Concerned About Your Business Surviving in Seattle?**

<b>Responses</b>	<b>n</b>	<b>%</b>
Yes	44	59%
No	30	41%
<b>Total</b>	<b>74</b>	<b>100%</b>

*Sources: Seattle OED, Maritime, Manufacturing, and Transportation and Warehousing Business Survey, 2023.*