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# Freight Modes

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## Freight Transportation Overview

Washington relies on an efficient multimodal freight transportation network, where shipped goods move into, out of, and around Washington by truck, rail, air, barge, and water. WSDOT undertook an extensive analysis of the state's freight system as part of its [2022 Freight System Plan](#). Here are some of the major findings:

- The state's multimodal freight system handles almost 600 million tons of cargo annually, valued at \$677 billion.
- Washington state's total imports and exports transported by any mode in 2021 were valued at \$115.5 billion, a 28.1% increase from \$90.2 billion in 2020.
- Estimates for 2022 indicates that in Washington, 58% of freight by tonnage is moved by truck, 15% by rail, 17% by pipeline, 6% by multiple modes and mail, 4% by water, 0.1% by air.
- By freight value, 56% is moved by trucks, 28% by multiple modes and mail, 8% by air, 4% by rail, 3% by pipeline, 1% by water.
- In Washington state there are 22,207 miles of truck corridors, 3,200 miles of active railroad, 22 deepwater marine ports, 22 airports providing cargo service, and 46,000 pipeline miles.

### Freight's importance to Washington's economy

#### Washington Freight-Dependent Industries' Share of the State's Economy, 2019

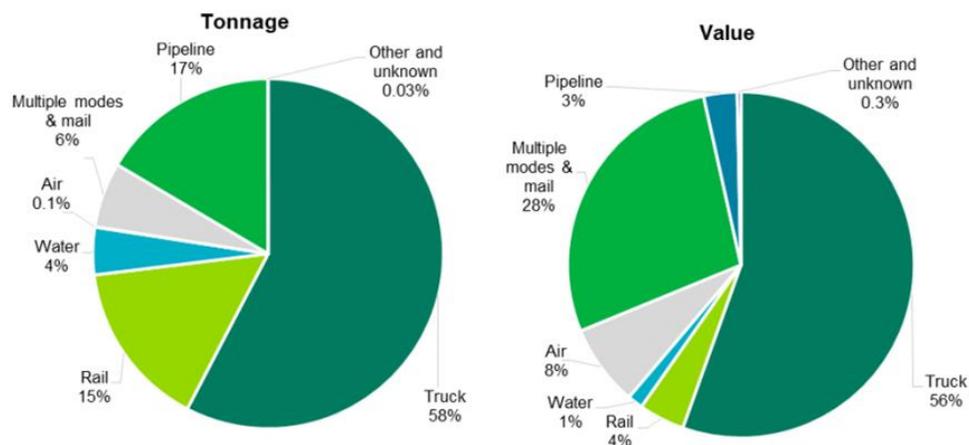


Source: CPCS analysis of US Bureau of Economic Analysis and US Bureau of Labor Statistics data, 2021.

### How much freight is moved by mode?

WSDOT's draft 2022 Freight System Plan indicates that the majority of freight is moved by truck, whether measured by tonnage or value.

#### Total Freight Tonnage and Value Carried by Mode, 2022 estimate



Data source: CPCS analysis of FAF5.3 data, 2022

Note: Does not include commodities without a defined mode, which makes up 0.3% by tonnage and 0.1% by value. Note: Mode refers to the domestic movement of goods within the US, for both domestic and international goods.

**Which parts of our transportation system carry the most freight?**

In 2021, WSDOT updated the state's Freight and Goods Transportation System (FGTS). The FGTS classifies roadways, railways and waterways according to the tonnage carried. More information and maps may be found on WSDOT's [FGTS webpage](#).

Sources:

[2022 Washington State Freight System Plan](#)

[2021 Freight and Goods Transportation System \(FGTS\) update](#)

[Gray Notebook, 86<sup>th</sup> edition. Freight Semi-Annual Report, June 2022](#)

[U.S. Census Foreign Trade Division, State Trade Data](#)

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# Trucking

## BACKGROUND

- In Washington State, a total of 297 million tons of freight was moved by truck in 2020, accounting for 57% of total freight shipment by weight in WA. (FHWA, [Freight Analysis Framework](#))
- In 2020, trucks traveled more than 3.2 billion miles on state highways. Trucks typically move goods across shorter distances, with 87% of truck movements under 500 miles (including 57% of total truck movements below 100 miles).
- Trucks move an estimated \$42 million worth of freight on roadways in Washington state every hour.
- The highest truck volumes on Washington roadways are in the South Puget Sound area on I-5, near Tacoma and on I-90, in North Bend.
- Some 638,500 freight trucks entered Washington from Canada in 2021. The bulk of the traffic (a combined average of 83.7%) was at the Blaine and Sumas border crossings.
- Trucking relies on highway and roads for long-distance transport, as well as for urban goods “last mile” delivery (i.e. transport from warehouses or intermodal freight terminals to final destinations). There has been a significant increase in short truck trips in urban areas due to online shopping for various goods, this has resulted in increased trips to and from distribution centers as well as point-to-point shipments.

## GOVERNANCE

- The Washington State Patrol enforces safety requirements and overweight limits on trucks (Chapters [46.32](#), [46.37](#), and [46.61](#) RCW).
- The Department of Licensing administers the Prorate/International Registration Plan (Chapters [46.85](#) and [46.87](#) RCW), an interstate compact that allows payment of license fees based on fleet miles operated in various jurisdictions. The license plate issued through this plan allows users to operate through other member jurisdictions and pay fees through their base jurisdiction.
- WSDOT provides overweight and overheight vehicle permits ([RCW 46.44.090](#)) and weigh station bypass capability via the Commercial Vehicle Information Systems and Networks (CVISN) program.

## FUNDING

- In addition to providing funds for the regulatory programs identified above, the state transportation budget includes substantial state investments in road maintenance, preservation, and improvement projects. The most recent transportation project lists can be found at: [Leap.leg.wa.gov](#).
- Several user fees are imposed on commercial vehicles to pay for regulatory programs and roadway investments, including, but not limited to:
  - License fees by weight (formerly combined licensing fees) (RCW [46.17.355](#), [46.68.035](#))
  - Combination Trailer License Plate ([RCW 46.17.250](#))
  - International Fuel Tax Agreement Decal ([RCW 82.38.110\(8\)](#))
  - Proportional Registration Plates ([Chapter 46.87 RCW](#))
  - Commercial vehicle safety enforcement ([RCW 46.17.315](#))
  - Commercial Driver Licensing ([RCW 46.20.049](#))
  - Monthly Declared Gross Weight Fee (formerly monthly combined licensing fee) ([RCW 46.17.360](#))

- Special Permit for Oversize/Overweight Movements ([RCW 46.44.0941](#))
- Temporary Additional Tonnage ([RCW 46.44.095](#))
- Trip Permits ([RCW 46.17.400](#))

Resources:

[Gray Notebook, 86<sup>th</sup> edition, Freight Semi-Annual Report, June 2022](#)

[Gray Notebook, 82<sup>nd</sup> edition, Freight Semi-Annual Report, June 2021](#)

[WSDOT Commercial Vehicles webpage, WSP's Commercial Vehicle & Driver webpage](#)

[DOL Commercial Vehicle Information](#)

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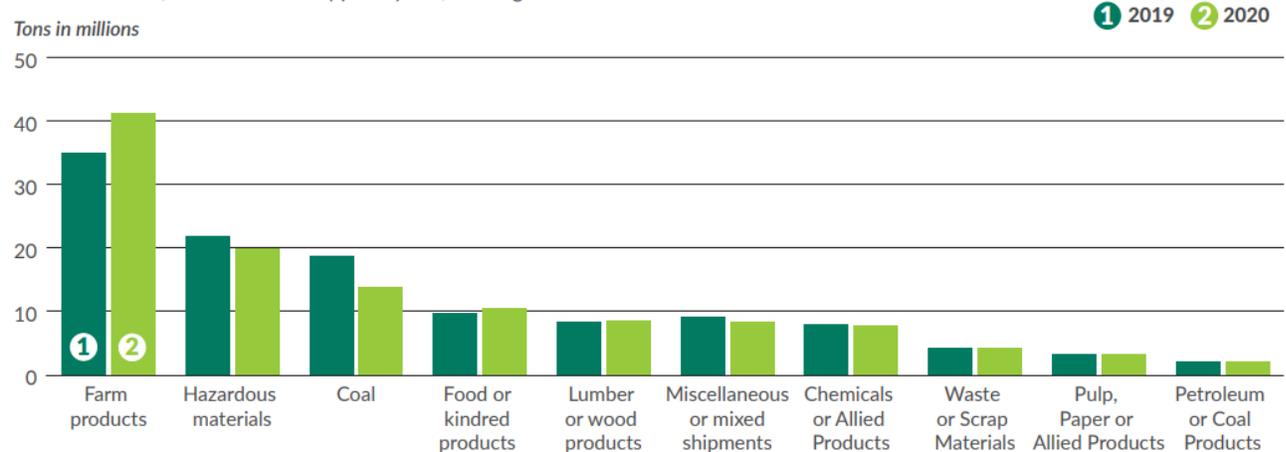
## Freight Rail

### BACKGROUND

Railroads in Washington state transported 127 million tons of freight in 2020. Most freight shipped within Washington by rail comes from outside the state. More than half (54%) of freight moved by rail was shipped into the state and terminated here and accounted for 68.2 million tons of freight. Freight rail shipments passing through Washington (with both origin and destination outside the state) accounted for 29.2% (37.2 million tons) of total rail freight tonnage. Approximately 15.6 million tons of outbound rail freight (which had an in-state origin and an out-of-state destination) was transported in Washington state in 2020, making up 12.2% of total freight rail tonnage. The remaining 4.9% (6.3 million tons) of rail freight was intrastate, with both origin and destination inside Washington.

#### Farm products continue to make up largest share of freight shipped by rail in Washington state in 2020

2019 and 2020; Commodities shipped by rail; Tonnage in millions



The major rail corridors in Washington are:

- The north-south corridor that parallels I-5 from the Columbia River to Vancouver, BC
- The Columbia River Gorge route from Vancouver, WA to Pasco, Spokane and eastward
- Stevens Pass running from Everett to Spokane and east
- Stampede Pass from Auburn, Pasco, Spokane and east

Several modes operate on these corridors, including freight rail, inter-city passenger rail, and commuter rail services. The Surface Transportation Board classifies railroad carriers based on operating revenue and function. Each class of railroad is subject to a different degree of federal safety and labor regulation.

- **Class I Railroads.** Class I railroads are the largest rail carriers. There are two Class I railroads operating in Washington State: the BNSF Railway and the Union Pacific Railroad.
- **Class II Railroads.** There is one Class II railroad (Montana Rail Link) that operates in Washington State, but it does not own any railroad track in this state. It operates on the BNSF corridor between Spokane and Seattle.
- **Class III Railroads (Short-lines).** There are 23 short-line railroads and switching railroads operating within the state. These railroads serve the first and last mile segments connecting local shippers and

communities to the large Class I railroads. In 2015, WSDOT completed a [Short-line Rail Inventory & Needs Assessment](#).

The following rail companies operate short-line railroads in Washington:

- *Eastern Washington* – Great Northwest, Palouse River and Coulee City, Kettle Falls International, Pend Oreille Valley, Eastern Washington Gateway, Port of Columbia, Eastside Community Rail, Kettle Falls International, and Washington & Idaho;
- *Central Washington* – Cascade and Columbia River, Columbia Basin, Yakima Central Railway, Royal Slope, and Central Washington;
- *Western Washington* – Columbia and Cowlitz, Chehalis Central, Puget Sound and Pacific, Clark County,
- *Switching and terminal railroads* – Ballard Terminal, Longview Switching Co., Meeker Southern, Mount Vernon, Tacoma Rail, Kennewick Terminal, and Tri-Cities and Olympia.

## GOVERNANCE

Railroads have traditionally been privately owned. Public ownership of short-line infrastructure has grown over the last several decades. The Palouse River and Coulee City, Eastern Washington Gateway, Washington & Idaho, Tri-City and Olympia, Central Washington, Pend Oreille Valley, and Tacoma Rail operate on rail infrastructure owned by the state, a county, a city, or a Port Authority.

The USDOT Surface Transportation Board, the successor agency to the Interstate Commerce Commission, has broad economic regulatory oversight over railroads, including rates, service, the construction, acquisition and abandonment of rail lines, carrier mergers and interchange of traffic among carriers.

The federal agency with primary responsibility for oversight of safety and security of railroads is the Federal Railroad Administration (FRA, also part of USDOT). Oversight of hazardous materials is jointly performed by FRA and the Pipeline and Hazardous Materials Safety Administration (PHMSA). Some rail safety regulation is delegated to the [Washington Utilities and Transportation Commission](#).

WSDOT's Rail, Freight, and Ports Division is responsible for developing and implementing the Washington State Rail Plan and managing freight rail grant and loan programs.

## FUNDING

State funding was appropriated for the Freight Rail Capital Program in the 2021-23 biennium at the following levels:

- \$118.32 million Multimodal Transportation Account — State (\$8.405 million for PCC)
- \$6.567 million Multimodal Transportation Account – Federal (\$0.677 million for PCC)
- \$1.108 million Essential Rail Assistance Account — State (\$1.008 million for PCC)
- \$6.218 million Transportation Infrastructure Account -- State
- \$1.81 million Motor Vehicle Account - State
- \$8.5 million Move Ahead Washington - State (\$8.5 million for PCC)

## WSDOT FREIGHT RAIL PROGRAMS

**Freight Rail Assistance Program.** This is a grant program available to both public and private sector rail applicants. Projects must pass certain evaluation criteria and be shown to maintain or improve the freight rail system in the state and benefit the state's interests.

**Freight Rail Investment Bank Program.** This is a loan program available to the public sector only (the state may not lend to the private sector). This program is intended for small projects (no more than \$250,000) or as a

small part of a larger project, where state funds would enable the project to be completed. A 20 percent local match is required, and the project must pass a cost/benefit analysis.

**Washington State Grain Train.** Operations of the Grain Train began in 1994 and the program has grown to a fleet of 100 grain cars. The state owns these grain cars and charges a fee for use which is deposited into the Grain Train Revolving Fund. Funds are used to manage, operate and sustain the program, including periodic replacement of the fleet. The program is financially self-sustaining and operates without taxpayer subsidy.

**PCC Rail System.** The Palouse River and Coulee City Rail System (PCC) is owned by the state. WSDOT contracts for operations and maintenance of the system with independent, private rail operators. This 297-mile rail line is made up of three separate branch lines spanning four eastern Washington counties. The PCC Rail System provides service to grain cooperatives and other shippers as well as manufacturers and farmers. Wheat, barley, peas, lentils, fertilizer, and lumber are among the products transported on the PCC.

WSDOT developed a 2015-2025 PCC Strategic Plan to aid in prioritizing capital improvements to the system, that are needed to operate current industry standard rail cars (286,000-pound) and increase speeds to more than 10 mph.

- In 2018, WSDOT was awarded a \$5.6 million Better Utilizing Investments to Leverage Development (BUILD) grant from the U.S. Department of Transportation to cover 50% of the costs of the most critical improvements on the PCC system. Construction began in 2020 and was completed in 2021, replacing or rehabilitating 10 bridges; replacing 4.6 miles of rail; and rehabilitating 20.8 miles of track. These investments improved reliability, allowed for increased speeds, and improved safety on the sections of the line that were improved.
- WSDOT and its partners are now planning for the next phase of improvements and plan to leverage the \$150 million identified in the Move Ahead Washington package as match when applying for additional federal funding for these improvements over the next 16 years.
- In the 2021-2023 biennium, \$18.59 million has been appropriated for the PCC.
- [RCW 47.76.290](#) allows funds collected from leases or sales of property on the PCC line to be reinvested in the PCC line. In addition, [RCW 47.76.360](#) allows any funds collected through the Grain Train program, but deemed in excess of the needs of the grain train, to be invested in the PCC line.

**Individual Capital Projects.** Projects are added to the transportation budget as funds allow. The most recent project list may be found at: [Leap.leg.wa.gov](#). Rail projects may be found on the “ALL PROJECTS” list.

Sources:

[WSDOT's Freight Plans website](#)

The [2019 Washington State Rail Plan](#)

[USDOT Surface Transportation Board](#)

[PCC Rail System Strategic Plan webpage](#)

[Gray Notebook, 86<sup>th</sup> edition, Freight Semi-Annual Report, June 2022](#)

[Gray Notebook, 84<sup>th</sup> edition, Freight Semi-Annual Report, December 2021](#)

## Marine Freight

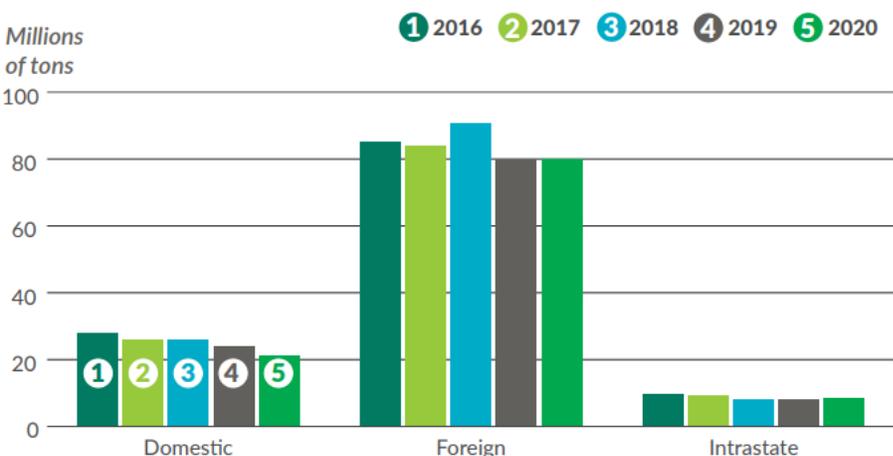
### BACKGROUND

There are 11 deep-draft public ports in Washington with commercial marine terminals capable of handling ocean going vessels. Seven of the deep-draft ports are located on the Puget Sound, one on the Pacific Coast and three deep-draft ports are on the Columbia River. Washington also has seven inland waterway barge ports located along the Columbia-Snake River System.

Total waterborne commerce moving within and through the state in 2020, was approximately 109.7 million tons.

### Majority of waterborne freight in Washington crosses international borders

2016 through 2020; Tonnage in millions; Domestic, foreign and waterborne freight

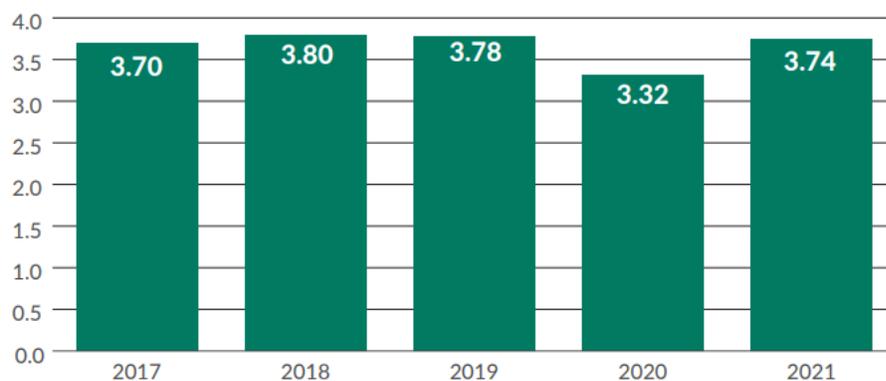


Data source: U.S. Army Corps of Engineers, Navigation Data Center.

In 2015, the ports of Seattle and Tacoma unified the management of marine cargo facilities under the [Northwest Seaport Alliance](#). The ports continue to be governed by separate port boards. In 2021, the Alliance handled more than 3.74 million 20-foot equivalent (TEU) containers, the seventh largest container gateway in North America.

### Northwest Seaport Alliance<sup>1</sup> sees increase in containerized waterborne cargo

Containerized volume of waterborne cargo in millions of TEUs<sup>2</sup>; 2017 through 2021



Data source: WSDOT Rail, Freight, and Ports Division.

There are three commercially navigable waterways serving Washington state: the Pacific Ocean, the Salish Sea<sup>1</sup>, and the Columbia-Snake River System. The Pacific Ocean is used to move freight to and from overseas markets on a variety of ships and barges from ports along the U.S. coast (including in Alaska) and Hawaii. The Salish Sea includes Puget Sound and provides access for major ports in western Washington to the Pacific Ocean. The Columbia-Snake River system provides access for inland Washington ports to the Pacific Ocean.

#### 2.4 Waterway Freight Economic Corridors

WSDOT classifies marine corridors based on the volume of freight carried by corridor. The Freight Economic Corridors system is used to identify and map supply chains, identify system condition and capacity issues, and to develop performance measures to improve freight mobility. A map of the Waterway Freight Economic Corridors is shown in Exhibit 2-5.

The Waterway Freight Economic Corridors are classified with the following structure:

- W1: more than 25 million tons per year
- W2: 10 million to 25 million tons per year
- W3: 5 million to 10 million tons per year
- W4: 2.5 million to 5 million tons per year
- W5: 0.9 million to 2.5 million tons per year

Exhibit 2-5: Marine Freight Economic Corridors



The top commodities shipped to, from, and within Washington state by water in 2021 include food and food products (such as grain, oilseeds, and other agricultural products). Petroleum products made up 11.5% and crude petroleum comprised 8.3% of shipments. Between 2019 and 2020, the quantities of both petroleum products and crude petroleum shipped decreased by 17.5% and 26.8%, respectively. Food/ kindred products increased by 10.2% over the same period.

The Columbia-Snake River System stretches 365 miles inland from the Pacific Ocean, and plays a critical role in transporting agricultural, potash, wind turbine components, and other products between Eastern Washington and the Lower Columbia Seaports, as well as between Eastern Washington and the Midwest. More than 35 different commodities move up and down the river system, with about three times as much headed for export as compared to import.

Columbia River seaports, especially the Ports of Vancouver, Kalama, and Longview, play major roles in the movement of exported agricultural products, including being the largest grain export gateway for wheat and second largest soybean export gateway.

<sup>1</sup> The name Salish Sea was formally adopted by both Washington State and British Columbia in 2009 to describe the waterways that encompass the Puget Sound, the Strait of Juan de Fuca, and the Strait of Georgia

### Deep draft ports on the Columbia-Snake River System in Washington

Port	Primary Commodities
Vancouver	Grain, auto, steel, heavy lift
Kalama	Grain, steel
Longview	Grain, bulk, heavy lift, general cargo, petroleum coke, logs

Source: Washington State Department of Transportation

### Major Ports Serving Waterborne Trade

<p><b><u>Columbia Deep-Draft Ports</u></b>            Port of Kalama            Port of Longview            Port of Vancouver</p> <p><b><u>Columbia/Snake River Ports</u></b>            Port of Benton            Port of Clarkston            Port of Kennewick            Port of Klickitat            Port of Pasco            Port of Walla Walla            Port of Whitman County</p>	<p><b><u>Pacific Coast Ports</u></b>            Port of Grays Harbor</p> <p><b><u>Puget Sound/Salish Sea Ports</u></b>            Port of Anacortes            Port of Bellingham            Port of Everett            Port of Olympia            Port of Port Angeles            Port of Seattle            Port of Tacoma</p>
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### GOVERNANCE AND FUNDING

- Commercial shipping is primarily conducted by private interests.
- Washington State authorizes public ports dedicated to building and operating facilities to foster trade and economic development, including marine shipping. (For more information on ports, see the *Local/Regional Jurisdictions* section on page 389.)
- Ports are funded by user fees, property lease and rental fees, property tax levies, grants, and bond proceeds ([Chapter 53.36 RCW](#)).
- The United States Coast Guard regulates navigation and surface water transportation.
- The [United State Maritime Administration \(MARAD\)](#) oversees many port security issues, including licensing deep water ports for oil receiving ports and offshore liquid natural gas facilities. MARAD also administers the America’s Marine Highways program
- The Washington Board of Pilotage Commissioners is responsible for maintaining pilotage services on the Puget Sound and the coastal estuaries. The Oregon Board of Pilotage governs pilotage services on the Columbia River.

Sources:

[2017 Washington Marine Ports and Navigation Plan](#)  
[Northwest Seaport Alliance 2021 Annual Trade Report](#)  
[America’s Marine Highways program](#)

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## Air Cargo

### BACKGROUND

The aviation system in Washington is an important player in freight movement. High-value, time-sensitive, and perishable goods depend on transport through Washington's airports. Air cargo moves by truck between airports and warehouses, making an efficient road system integral to the timely integration of cargo and aircraft. Air Cargo includes both air freight and air mail. Air cargo may be hauled in planes dedicated to freight or in the belly of passenger planes. (For more information on Air Transportation, see *Passenger Modes* on page 446.)

The major air cargo centers in Washington and their 2021 landed weight are as follows:<sup>2</sup>

- SeaTac (2,920,048,979 lbs)
- Boeing Field/ King County International Airport (693,696,765 lbs)
- Spokane International Airport (544,413,398 lbs)
- Paine Field (42,804,000 lbs)

Air cargo supports 38,117 jobs and generates \$12.6 billion in business revenues.

### GOVERNANCE

Public-use airports are operated by port districts, cities, counties, and private interests. Public-owned facilities use several different funding mechanisms, including user fees (such as landing fees and passenger facility charges), voter-approved property tax levies, interest income, federal and state grants, and bond proceeds.

### FUNDING

The federal Airport Improvement Program (AIP) is a principal source of funding for capital improvements at airports. A portion of AIP funding is reserved for projects that enhance air cargo facilities at qualified airports. AIP expenditures are drawn from the Airport and Airway Trust Fund, which is supported by taxes on air freight, passenger ticket taxes, fuel taxes, and other fees.

### Resources:

[WSDOT Aviation](#)

[Washington Aviation System Plan \(WASP\)](#)

[WSDOT Gray Notebook #84](#)

Washington's [2020 WSDOT Aviation Economic Impact](#) Study

For more airport data, see FAA's [Airport Program Statistics](#) and [Airport Operations and Ranking Reports](#).

[Sea-Tac's Air Cargo webpage](#)

[JTC Air Cargo Study webpage](#)

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<sup>2</sup> [https://www.faa.gov/airports/planning\\_capacity/passenger\\_allcargo\\_stats/passenger/](https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/)