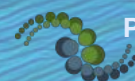


Freight in Wrangell

December 2021

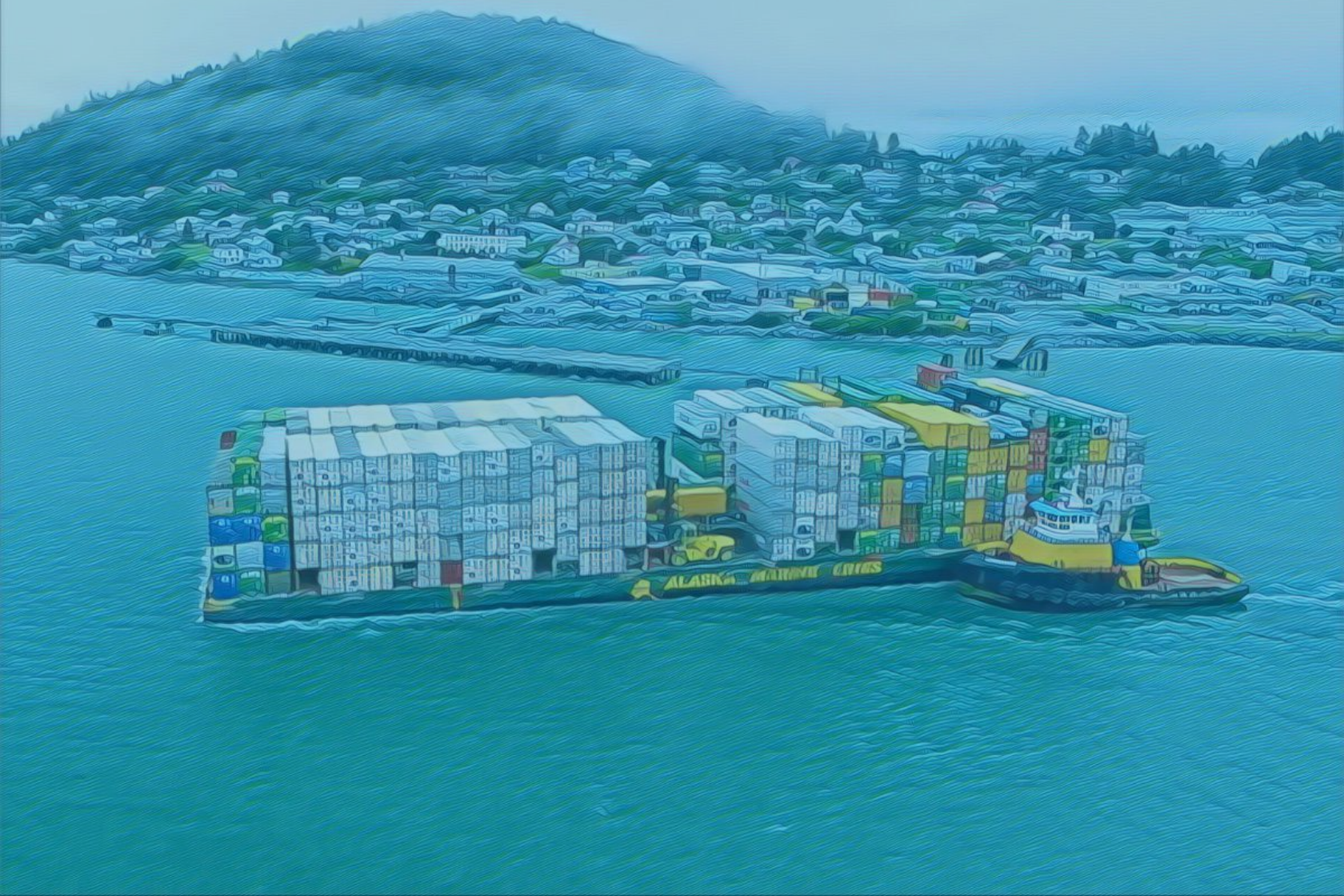


Prepared by
Rain Coast Data

Table of Contents

Wrangell Freight Overview	Page 1
Analysis Summary.....	Page 2
Wrangell Freight Situation.....	Page 3
Wrangell Freight Importance.....	Page 4
Wrangell Freight Costs	Page 5
Barge Freight Cost Increases.....	Page 6
Index Cost Increases Compared	Page 7
Barge Freight Fuel Surcharges	Page 8
Fuel Surcharge Cost Increases.....	Page 9
Freight Costs by Community	Page 10
Barge Freight Fee Changes.....	Page 11
Increasing Industry Costs.....	Page 12
Wrangell Freight Business Perspective	Page 13
Business Perspective Survey	Page 14
Wrangell Arriving Freight by Mode	Page 18
Incoming Freight by Mode	Page 19
Barge Freight by TEUs.....	Page 20
Barge Freight by Tonnage.....	Page 21
Barge Freight by Product Type.....	Page 22
Grocery Freight by Tonnage.....	Page 23
Air Freight by Pounds.....	Page 24
Ferry Freight.....	Page 25
Declining Ferry Service.....	Page 26
Appendix	Page 27

Wrangell Freight Overview

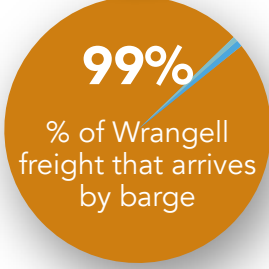


Analysis Summary

The City and Borough of Wrangell contracted with Rain Coast Data to assess the annual increased cost of freight between Wrangell and Seattle, conduct a business perspective survey for large-volume shippers between Wrangell and Seattle, and review changes to the total volume of freight over time. The business survey was conducted in mid-November 2021 and was by invitation only. Key research findings are summarized below:

Wrangell Freight Data

- The majority of freight shipped into Wrangell is sent to business customers with long-standing contracts. While the details of these contracts are not public, they are said to generally increase at the same rate as the published tariff rates.
- The average annual increase cost of freight from Seattle to Southeast Alaska from 2006 to 2021 was 4.5% annually, based on published rate tariffs.
- While the Consumer Price Index is lower, increasing at 2.3% annually, the global cost of shipping marine freight has increased at an average rate of 5.7% annually (excluding 2021, as the global price of freight has nearly tripled so far this year).
- On average, top Wrangell businesses say that freight accounts for 18% of their total annual business costs. A third of businesses surveyed say that this percentage is stable, as they plan for increased freight costs over time and raise their own prices accordingly; while two-thirds say that the percentage of their overall business costs has increased significantly over the years as freight costs have gone up.
- Marine freight accounts for 99% of all freight arriving in Wrangell from Washington State. In 2019, the U.S. Army Corps of Engineers estimated 34.7 million pounds of marine freight arrived in Wrangell. That same year 135,646 pounds of freight arrived via air, and an estimated 180,000 pounds via ferry.
- By weight, the top goods shipped into Wrangell include fuel, heavy machinery (often barged into the community for construction projects) and groceries. Top exports by weight include fish and garbage.
- 100% of Wrangell businesses surveyed call the barging of freight “essential” to the community. Maintaining current barging services, frequency, and quality of cargo handling are the top freight priorities of the business community.



Wrangell Freight Situation

Wrangell is currently served by three barge shipping companies. Two of these, Samson Tug and Barge and Lynden's Alaska Marine Lines (AML), offer containerized freight shipments to Wrangell - but functionally Wrangell's marine barge services represents a collaboration between multiple maritime logistics entities. Samson "ride shares" with AML (AML carries Samson's containers) to Ketchikan from Seattle, at which point the freight is reloaded onto a new barge. Samson then becomes the main shipper and AML ride shares with Samson to Wrangell, Metlakatla, and Prince of Wales. However, rather than use their own vessels for services to Wrangell, Samson has a contract with Boyer Towing to ship Samson and AML barge containers. Once the freight arrives in Wrangell, Samson and Boyer staff unload the barge, while AML contracts with Arrowhead Transfer to do all of its shore work. The City and Borough of Wrangell owns the freight yard and has contracts with the freight companies to rent portions of it. Arrowhead owns an acre of land nearby.

A third barge company, Olympic Tug and Barge, brings in fuel via barge monthly on behalf of Petro Marine Services. Petro Marine operates the bulk petroleum fuel facility located at Wrangell Harbor that stores and sells heating oil, aviation fuel, and gasoline to local commercial and residential customers and provides marine fueling services. Freight service costs for fuel deliveries are more stable as they are developed under five-year contracts, rather than the single-year contracts for container freight. Pricing changes for the fuel barge was not assessed as part of this analysis. The majority of this document is focused on non-fuel barged goods.

Before 2013, Southeast Alaska goods (excluding fuel) were primarily moved by two competing barge companies: Northland Services and Alaska Marine Lines. In 2013, the global parent company of Alaska Marine Lines - Lynden Inc. - announced its intent to purchase Northland Services and combine it with Alaska Marine Lines. However, the State of Alaska Department of Law was concerned that consolidation of two of Alaska's largest barge operators could create a monopoly for marine barge services in Southeast Alaska and intervened. The result was a consent decree that required Northland to transfer assets used for service in Southeast Alaska to a viable competitor. An agreement was reached with Samson Tug and Barge to purchase Northland assets, such as freight containers. Samson has been providing marine transportation in Alaska since 1937 and is headquartered in Sitka. In November 2013, the company expanded its Southeast Alaska ports of call to include Ketchikan, Metlakatla, Thorne Bay, Craig, Petersburg, Juneau, and Wrangell.

The Consent Decree was originally set to expire in 2019, and while it was the Alaska Attorney General's opinion at that time that "AML has faithfully complied with all requirements of the Consent Decree" the AG also determined that "because of unforeseen challenges...it has taken longer than originally anticipated to fully achieve the goal of the Consent Decree" and extended the expiration date to September 30, 2021. The AG found no reason to extend the terms of the Consent Decree a second time. With the Consent Decree no longer in place the two freight companies returned to acting just like any other private sector organization in Alaska. However, because the movement of freight is so critical to the economic wellbeing of Southeast Alaska, the removal of the safeguards the decree provided leave some communities feeling vulnerable. For their part, both companies say that at this time they do not expect any changes in service levels moving forward.

Wrangell Freight Importance

It would be difficult to overstate the critical importance of barges to the Wrangell economy. Maritime shipping is the backbone of the Southeast Alaska economy. Globally, an estimated 80% of all goods are carried by sea. More than 90% of all goods arrive in Southeast Alaska by barge.

In Wrangell, 99% of all freight arrives via barge, with the remainder of goods arriving by air and ferry service. A disruption of any type to freight services would immediately reverberate throughout the Wrangell economy in every sector, from health care to tourism to retail, and also to every household. The community depends on the health of the barge and tug system for basic necessities, such as food security.

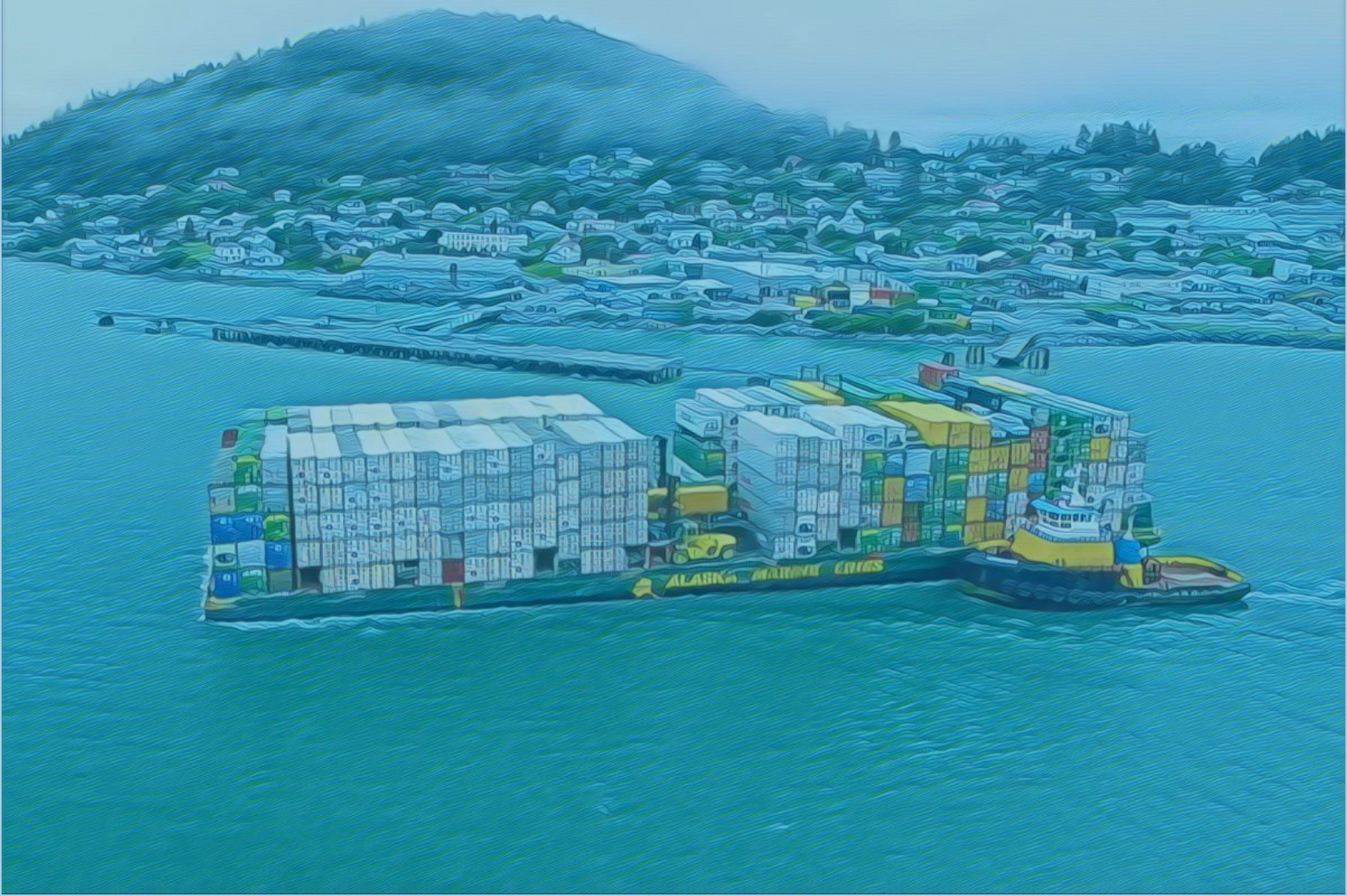
For this reason, there is significant pricing sensitivity in a community like Wrangell to any changes in freight shipping costs, as rate increases impact every household and business in the community. This extreme dependence on barging for access to commodities is not unique to Wrangell but is duplicated across all of Alaska's remote maritime communities. Maintaining Alaska's barge system is fundamental to the ongoing economic health and existence of these communities.

Many Alaska transportation providers have rates that are publicly subsidized, underscoring the critical nature of transportation in communities. Essential Air Service is a federal subsidy that provides funding for air service into remote and rural communities, such as Wrangell. The State of Alaska runs the Alaska Marine Highway System providing passenger, vehicle and freight services. Alaska's barge companies receive no public subsidies.

All Wrangell businesses surveyed in November 2021 call the barging of freight essential to the community. Over the years Wrangell businesses have been asked what their top barriers are regarding business operations. The number one response has always been transportation costs for freight and people, and the high cost of doing business in the community. In the last pre-pandemic survey of Wrangell businesses (February 2020), Wrangell respondents were asked about the greatest potential economic threat the regional economy. Nearly two-fifths of Wrangell business leaders, 39%, said that the greatest potential future threat to the economy would be a disruption of barge services.



Wrangell Freight Costs



Barge Freight Cost Increases

Large freight customers in Southeast Alaska operate under individual year-long contracts, which represents the majority of freight shipped. While these contracts cannot be individually assessed, according to the freight companies increases to these contracts generally track with overall increases to posted shipping rate tariffs. The annual rate increase for shipments coming to Southeast Alaska is generally identical for both Alaska Marine Lines and Samson Tug and Barge, the two entities that provide containerized barge services to Wrangell. The annual tariff increase to Southeast Alaska for freight shipments has averaged 4.5% over the past 16 years. The lowest increase of 2.9% occurred in 2010, while the highest was 6% in 2008.

Southeast Alaska shipping rates have been spared the extreme volatility of the global shipping market rates. The World Container Index, created in 2011 by Drewry Maritime Research, measures the average cost of shipping a 40-foot ocean container on 8 major routes to and from the US, Europe and Asia. It provides a useful rate increase comparison model. Through 2020 that index showed an average annual cost increase of 5.7%, with one-year increases being as high as 43% in 2012, and as low as -37% in 2015. In 2021, however, the Drewry index, as measured through mid-November 2021, shows an increase in marine shipping costs of 288% in 2021 alone.

Annual Rate Increases for Freight		
Year	Annual Tariff Increase to Southeast Alaska	Global Shipping for a 40' Container - Annual Change
2006	4.6%	NA
2007	5.5%	NA
2008	6.0%	NA
2009	5.0%	NA
2010	2.9%	NA
2011	4.0%	First Year of Data
2012	4.0%	43%
2013	5.0%	-12%
2014	4.0%	11%
2015	4.5%	-37%
2016	4.5%	-10%
2017	4.5%	35%
2018	4.5%	-7%
2019	3.6%	2%
2020	3.75%	26%
2021	5.0%	288%
Annual Average Change 2006-2021	4.5%	NA
Average Annual Change 2011-2020	4.2%	5.7%
Average Annual Change 2012-2021	4.3%	32.9%

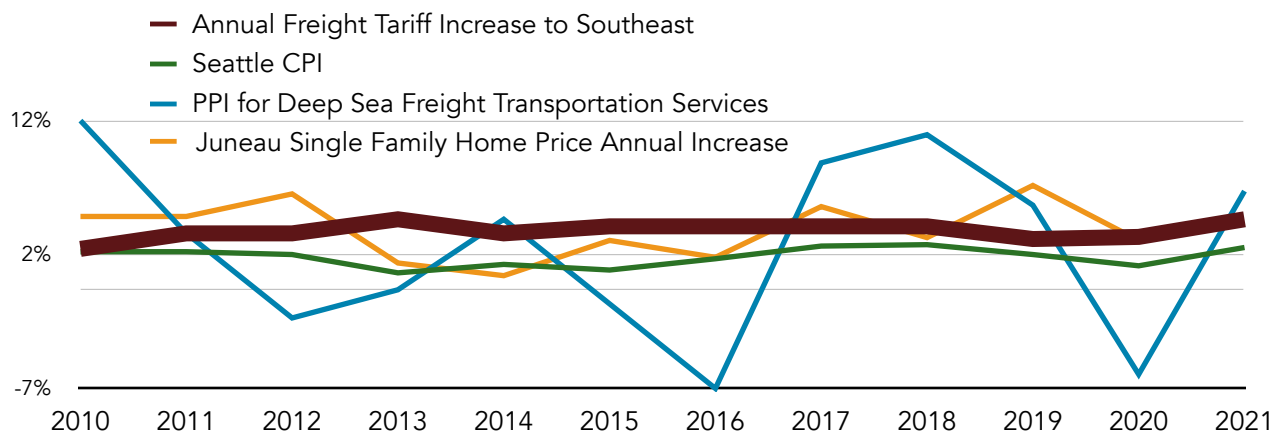
Source: Historical general rate increases for Southeast Alaska provided by AML and Samson Tug and Barge. World Container Index began in 2011 by Drewry Maritime Research.

Index Cost Increases Compared

Other useful indexes to compare cost increases for Southeast Alaska shipping rates include the Seattle Consumer Price Index (CPI), as it is the CPI with the strongest economic ties to the regional freight sector; the Producer Price Index (PPI) for Deep Sea Freight Transportation; and Juneau housing prices (as a proxy for Wrangell housing prices, which are unavailable). Among these dataset comparisons the annual increase of Southeast Alaska freight costs of 4.2% between 2010 and 2021 is higher than the other annual average increases for CPI and PPI, but lower than housing and the World Container Index.

Increased Costs Comparisons				
Year	Annual Freight Tariff Increase to Southeast	Seattle CPI	PPI for US Deep Sea Freight Transportation Services	Juneau Single Family Home Price Annual Increase
2010	2.9%	2.7%	12%	5.2%
2011	4.0%	2.7%	4%	5.2%
2012	4.0%	2.5%	-2%	6.8%
2013	5.0%	1.2%	0%	1.9%
2014	4.0%	1.8%	5%	1.0%
2015	4.5%	1.4%	-1%	3.5%
2016	4.5%	2.2%	-7%	2.3%
2017	4.5%	3.1%	9%	5.9%
2018	4.5%	3.2%	11%	3.7%
2019	3.6%	2.5%	6%	7.4%
2020	3.75%	1.7%	-6%	3.5%
2021	5.0%	3.0%	7%	NA
Average Annual Change	4.2%	2.3%	3.2%	4.3%

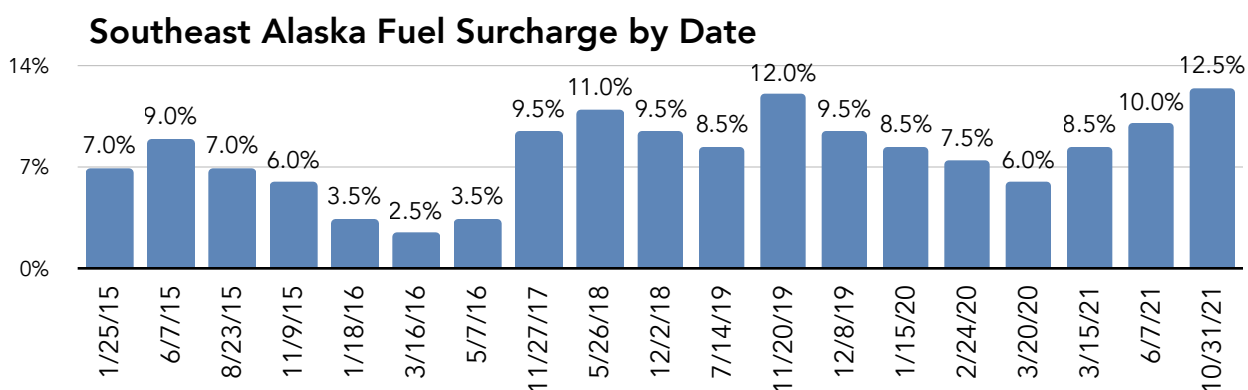
Sources: Historical general rate increases for Southeast Alaska provided by AML and Samson Tug and Barge. City of Seattle, Seattle Consumer Price Index Historical Data. Bureau of Labor Statistics for the PPI for Deep Sea Freight Transportation Services. The Producer Price Index (PPI) program measures the average change over time in the selling prices received by domestic producers for their output. Alaska Department of Labor for Juneau Single Family home.



Barge Freight Fuel Surcharge

Fuel surcharges represent a cost in addition to other charges for freight, and are applied to all customers, even those with annual contracts. Since 2015, the freight surcharge has been as low as 2.5% in March of 2016, to a high of 12.5% in October of 2021. The rules governing fuel surcharge calculation tables for Alaska Marine Lines documentation can be found at <http://www.lynden.com/aml/tools/tariff/100ATariff.pdf> pages 19-A through 19-C (see appendix) and are directly tied to the changing price of fuel. Fuel surcharge fees are determined using the Department of Energy Diesel Fuel Price Chart, West Coast. Samson Tug and Barge uses the same fuel surcharge rates as AML.

SE Fuel Surcharge History 2015 to Present	
Effective Date	Percentage
1/25/15	7.0%
6/7/15	9.0%
8/23/15	7.0%
11/9/15	6.0%
1/18/16	3.5%
3/16/16	2.5%
5/7/16	3.5%
11/27/17	9.5%
5/26/18	11.0%
12/2/18	9.5%
7/14/19	8.5%
11/20/19	12.0%
12/8/19	9.5%
1/15/20	8.5%
2/24/20	7.5%
3/20/20	6.0%
3/15/21	8.5%
6/7/21	10.0%
10/31/21	12.5%



Source: Data provided by Samson Tug and Barge and AML

+ Fuel Surcharge Cost Increases

A better way to understand annual cost of freight increases is to include the cost of fuel surcharge costs into the overall price increase model. Using this methodology, annualizing the fuel surcharge data, and combining it with annual tariff increase data, the annual cost increase of freight into places like Wrangell since 2015 is 4.5%. This is slightly higher than the 4.3% cost increases related to stand-alone annual tariff cost increases for these specific years.

Bringing in fuel surcharge data into the overall cost does increase the volatility of the annual cost changes significantly. When it is taken into account that these rates are constantly changing, the fuel surcharge costs can create much more volatility than the annual averages in the table below suggests.

Southeast Alaska Barge Costs				
Year	Annual Freight Tariff Increase	Annualized Fuel Surcharge Rate (with change from previous year)	What \$100 of freight in 2015 would cost to send with tariff increase and fuel charge	Annual % Total Cost Increase (considering freight + fuel surcharge costs)
2015	4.5%	7.3%	\$107.30	
2016	4.5%	3.3% (-4%)	\$107.98	0.6%
2017	4.5%	4.5% (+1.2%)	\$114.12	5.7%
2018	4.5%	10.4% (+5.9%)	\$125.96	10.4%
2019	3.6%	9.4% (-1%)	\$129.31	2.7%
2020	3.75%	6.3% (-3%)	\$130.43	0.9%
2021(first half)	5.0%	7.9% (+1.6%)	\$138.99	6.6%
Annual Average % Change	4.3%	0.1%	4.5%	4.5%

Note: Fuel surcharge and annual tariff increases provided by Alaska Marine Lines and Samson Tug and Barge. Fuel surcharge data was annualized based on monthly rates.

Fuel conversion tables governing fuel surcharge calculations are included in the appendix.



Freight Costs by Community

The cost of freight to Wrangell is more than the cost of freight to some communities on direct barge routes, as freight coming to Wrangell from Seattle must be reloaded in Ketchikan and brought via a feeder line. Freight pricing is complex. There are hundreds of different shipping categories, such as frozen foods, trash, construction materials, plants, vehicles, fresh fish, fuel, household belonging, etc., each with different optimal packing strategies, rules, and costs. There are cost minimums, fuel surcharges, consolidation charges, freight container size differentials, and different contracted fees for large shipping customers versus occasional freight users, resulting in thousands of pricing levels. However, an “apples-to-apples” comparison of a 500-pound pallet of groceries transported from Seattle on Alaska Marine Lines currently costs \$147.21 to ship to Wrangell, versus \$171 to send to Juneau, and \$302.63 to ship to Thorne Bay.



AML Price Comparisons:

Moving a 500-Pound Pallet of groceries from Seattle via Alaska Marine Lines, in December 2021, including the current 12.5% fuel surcharge.

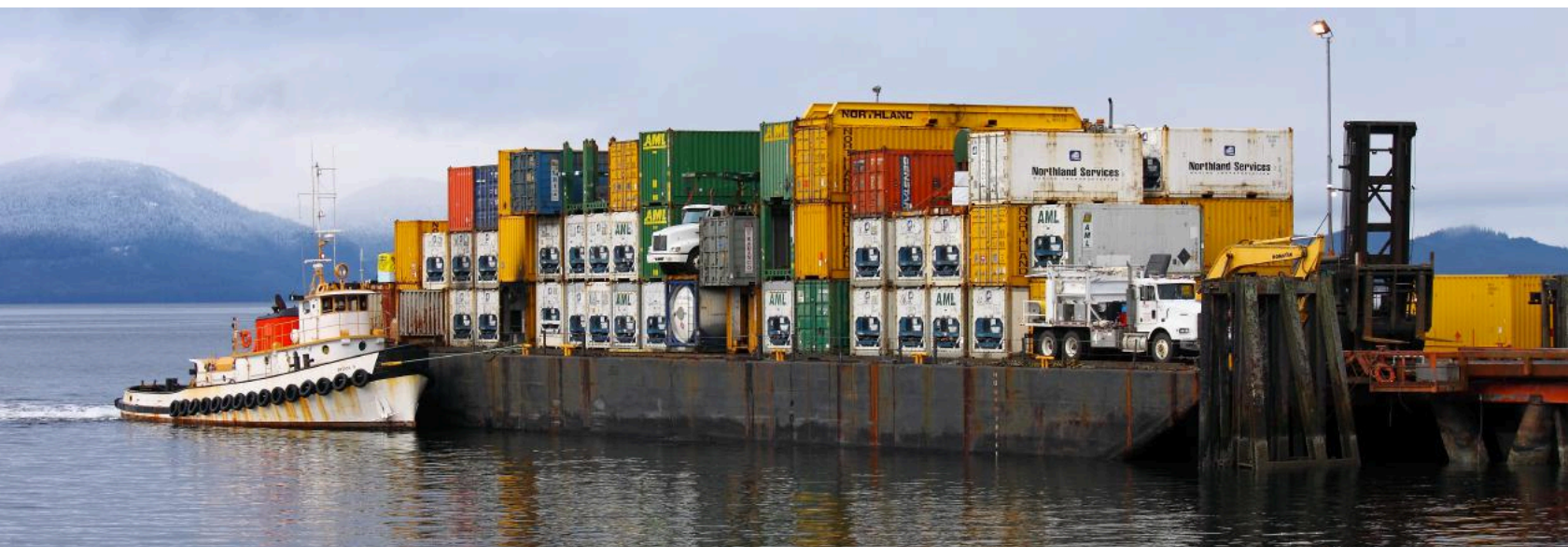


Source: Data provided by AML

Barge Freight Fee Changes

Over the last decade, several pricing changes have taken place that have increased the overall cost of shipping freight between Seattle and Wrangell. Most of these costs are more likely to impact occasional freight users without annual contracts. A summary of some of the most significant changes is provided below:

- **Quantity Rates:** Quantity rates are freight rates with the charge per unit the same regardless of the quantity offered for shipment. These rates existed through Northland Services prior to 2013, and then eliminated.
- **Minimum Barge Fee:** The minimum charge for any single shipment between Wrangell and Seattle on AML is \$103 for a regular shipment and \$125 for a shipment requiring temperature control. These minimum costs have increased over time.
- **Less than Container-load Rate:** A LCL (less-than-container-load) shipment is more expensive per foot than space in a full container. This is true globally as well as in Alaska, and thus the LCL rate is higher than container load (CL) rates.
- **Consolidation Fee:** Consolidation is the process of combining two or more LCL shipments into container loads for the purpose of obtaining CL rates. Consolidation charges are in addition to other charges. Consolidation fees are based on labor costs and have increased over time. A 20' container currently costs \$315 to consolidate using AML.
- **Paperwork Fee:** If additional documentation is required there is a \$5 fee per page with a minimum of \$29 per request with AML. These costs were implemented to cover growing requests for supplementary paperwork.



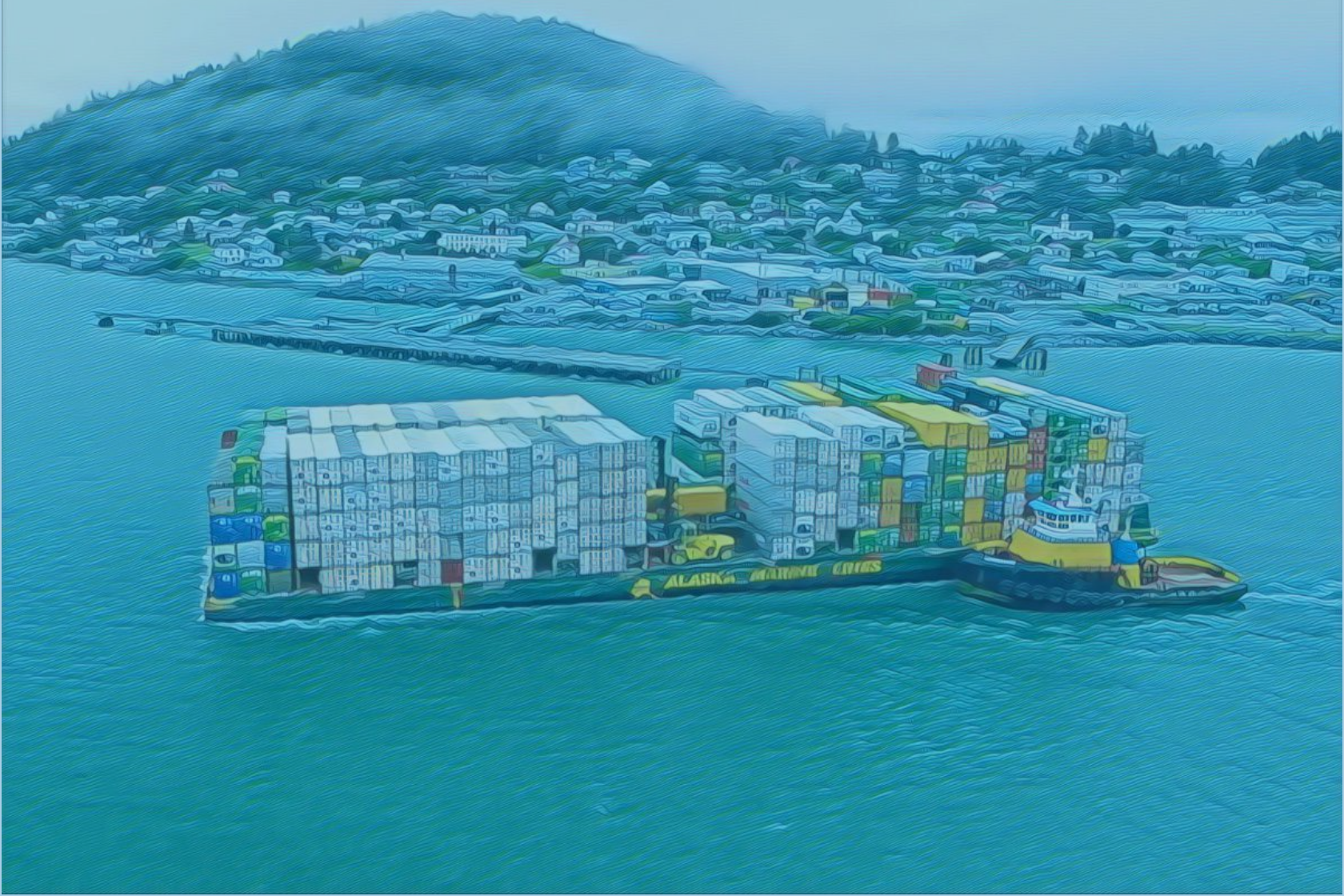
Increasing Industry Costs

The cost of shipping has gone up for the companies that bring goods to Southeast Alaska via barge. Some of these key cost drivers are summarized below:

- **Artificially Low 2013 Rates:** Freight costs across the region were considered to be artificially low at the time of the 2013 freight merger. Samson notes that they were told by a State of Alaska economist that the rates at the time the Consent Decree was signed were “at least 30% under market,” and were advised to increase rates dramatically to be financially soluble. Samson’s Marketing Director Jerry Morgan explained this to Wrangell’s public radio in 2018: “The rates were so out of market range it just didn’t make sense to even provide service to Wrangell at the rates they were offering before.” However, the companies decided to make up this dearth gradually over time instead of all at once, and thus a portion of the annual rate increase has been described as a continuing effort to make up this original discrepancy.
- **Reduced Timber Backhaul:** The primary reason for lower historic rates had been a steady cargo of timber from Southeast Alaska. Timber once provided a significant source of year-round backhaul, allowing for lower cost cargo rates for incoming freight to communities such as Wrangell. Since 1990, the total board feet of timber harvested and shipped from the region decreased by 96%. While seafood does provide backhaul, most of this occurs during a relatively short, intensive period in the summer, requiring shippers to pre-stage sufficient containers to meet the demand (which does not materialize in low-harvest years). No other export has been able to replace the loss of timber to balance freight levels. Moreover, by some measures the economy of scale has been further decreasing over time. According to the US Census, the population of Wrangell decreased by 10% between 2010 and 2020, while the overall regional population remained flat.
- **Shipping Infrastructure Replacement Costs:** Shipping equipment is expensive to purchase and maintain, and the costs of equipment replacement has increased considerably over time, as has the ability to procure infrastructure in an increasingly competitive shipping climate. For example, most of the region’s shipping containers were originally built in the early 1980s, when standard sizes were developed. These reached “end of life” around 2000 and had to be replaced, and now need to be replaced again at a time when the global demand for shipping containers is at an all-time high and difficult to obtain.
- **Seattle Costs:** Shipping rates in Southeast Alaska are highly impacted by microeconomic disruptions and changes in Seattle. For example, the West Seattle Bridge was closed in March of 2020 for repairs and remains closed, increasing truck travel time considerably between the Seattle warehouse and the terminal.
- **Regulatory Compliance Costs:** Shipping companies are regulated by a multitude of different federal and state agencies, including Federal Occupational Safety and Health Administration (OSHA), Alaska Occupational Safety and Health (AKOSH), US Coast Guard, Alaska Department of Natural Resources, U.S. Environmental Protection Agency, Alaska Department of Transportation, and the Federal Motor Carrier Safety Administration. Each comes with compliance costs, and lack of compliance carries the threat of sidelining vessels.
- **Additional Costs:** Other increasing costs include insurance rates, growing labor costs, facility costs, dry docking costs, and commodity costs such as steel, etc.

Source: Industry interview summaries.

Wrangell Freight Business Perspective



Business Perspective Survey

An invitation-only business perspective survey was developed for Wrangell companies that are particularly dependent on in-bound shipping to the community. Twelve businesses, representing some of Wrangell's largest freight customers, were asked about their use and reliance on freight. Respondents said that on average freight costs accounted for 18% of their total annual business expenses, while the median response was 13%. One-third of these businesses regularly increased their prices to maintain a stable percentage (generally 10% for these businesses) while two-thirds commented that this percentage has continued to grow annually. Respondents on average receive 44 barge shipments annually, said that 91% of their freight arrives by barge, with 89% indicating that their use of freight has grown over the past five years. The top five freight priorities of business owners, in order, include 1) continued freight service to the community, 2) maintaining barge frequency, 3) preserving high-quality cargo handling, and 4) increasing cost stability for freight services. Survey results can be found on the following pages.

What percentage of your total freight into Wrangell arrives by barge? = 91%

Of your total annual business expenses, what percentage is your barge freight bill?

= 18% average

= 12% median

How has this percentage changed over time? Most responses were similar to these:

One-third of respondents: *"We manage our rate increases to cover cost increases. So it has stayed the same."*

Two-thirds of respondents: *"Our freight cost percentage has continued to rise with increased shipping costs."*

89% of responding businesses say the total volume of freight shipments has increased over the past five years.

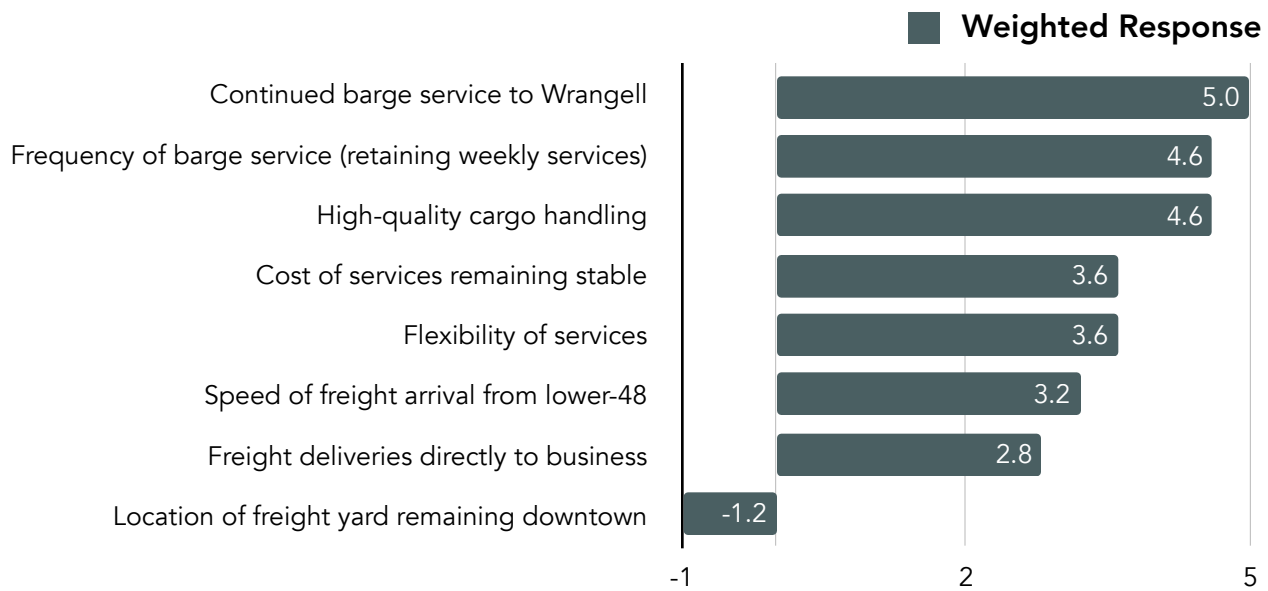
How many times per year does your business:



Business Perspective Survey

Wrangell's largest freight users in the community were asked to rate the importance of eight freight elements in their community. Every business leader said that continued freight service to Wrangell is essential. The next two top service priorities include maintaining the frequency of barge services and a high level of freight handling. Maintaining the current location of the freight yard in downtown Wrangell is not "not important" to two-thirds of respondents.

How important are the the following to your business operations?



Note: Weighted responses were developed by assigning a value to the priority level responses below in order to provide a simple graphic representation of Wrangell's business perspective.

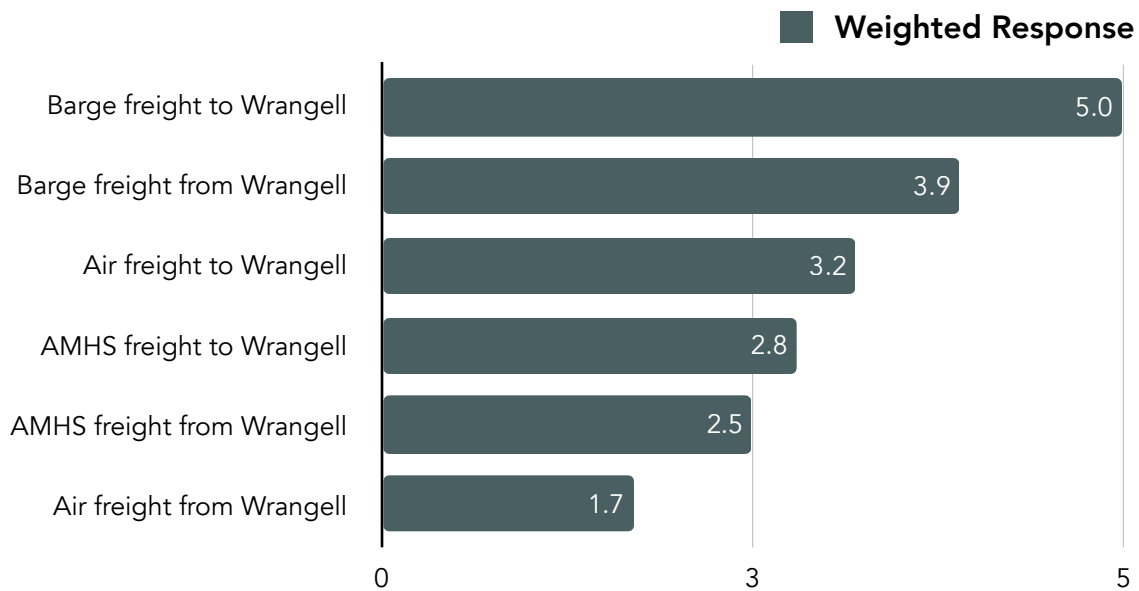
How important are the following to your business operations?

Options	Essential	Somewhat Important	Not Important
Continued barge service to Wrangell	100%	0%	0%
Frequency of barge service (retaining weekly services)	91%	9%	0%
High-quality cargo handling	91%	9%	0%
Cost of services remaining stable (low to no price increases)	73%	18%	9%
Flexibility of services (i.e. ability to ship a partial load or single item)	64%	36%	0%
Speed of freight arrival from lower-48	55%	45%	0%
Freight deliveries directly to business	55%	36%	9%
Location of freight yard remaining downtown	9%	27%	64%

Business Perspective Survey

Wrangell businesses were asked to gauge the importance of freight by mode, and whether it was incoming, or outgoing, to their businesses. 100% of business leaders said that incoming barge freight is essential to their Wrangell business. Barge freight leaving the community was rated as essential by 82% of respondents. While this important, departing air freight was ranked as being the least critical to business operations in Wrangell.

How important are the following to your business operations?



Note: Weighted responses were developed by assigning a value to the priority level responses below in order to provide a simple graphic representation of Wrangell's business perspective.

How important are the the following to your business operations?

Options	Essential	Somewhat Important	Not Important
Barge freight to Wrangell	100%	0%	0%
Barge freight from Wrangell	82%	9%	9%
Air freight to Wrangell	64%	27%	9%
AMHS freight to Wrangell	64%	18%	18%
AMHS freight from Wrangell	55%	27%	18%
Air freight from Wrangell	45%	28%	27%

Business Perspective Survey

Wrangell's top businesses had the option of providing responses to open-ended questions as part of the survey, although written responses were not required and only half provided any written responses. These responses are shared below:

Please describe any changes in barge services over the past five years that have impacted your business.

- *Costs make me combine orders in order to maximize freight/cost*
- *Fuel charges*
- *Increased shipping costs*
- *Minimum barge charge increased dramatically*
- *Additional charges*
- *Cut off times*
- *Freight jumped about 40% 3 years ago.*
- *Multiple charges for same day by same vendor*

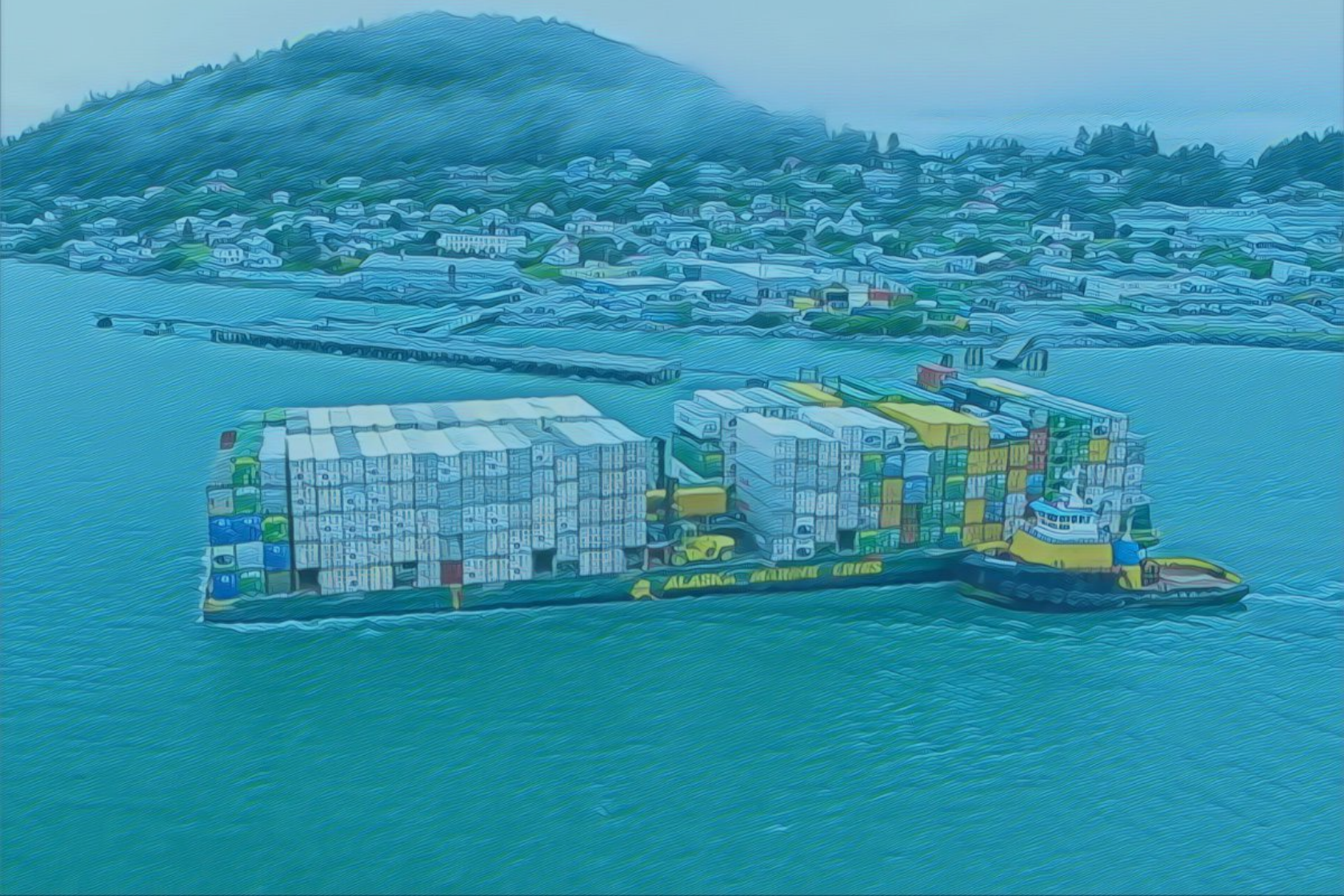
What are the top elements that you would most like to see for freight in Wrangell moving forward?

- *Federal changes that would lower fuel costs*
- *Fewer restrictions on freight*
- *Keep the same sailing schedule year round*
- *Keeping temperature control*
- *Paying for pallets*
- *Rate deduction for frequent use*
- *Freight consolidation in Seattle*
- *Lower prices in general*
- *Maintain air service*
- *The monopoly is greedy*
- *Lower minimum charges for the barge*

Any final thoughts regarding freight in Wrangell?

- *Wrangell businesses are very much accustomed to the cost and changing cost of doing business in Wrangell.*
- *All current Wrangell business knows the cost of freight, from retail to fisherman whose product in and out of Wrangell has freight cost. Sometimes directly and sometimes reflected in lower prices.*
- *I think the state should build a freight ferry.*
- *We are an island. Where would we be without barge freight?*
- *We use all freight services available to and from Wrangell.*
- *When Lynden owns both freight companies, they will have us over a barrel.*

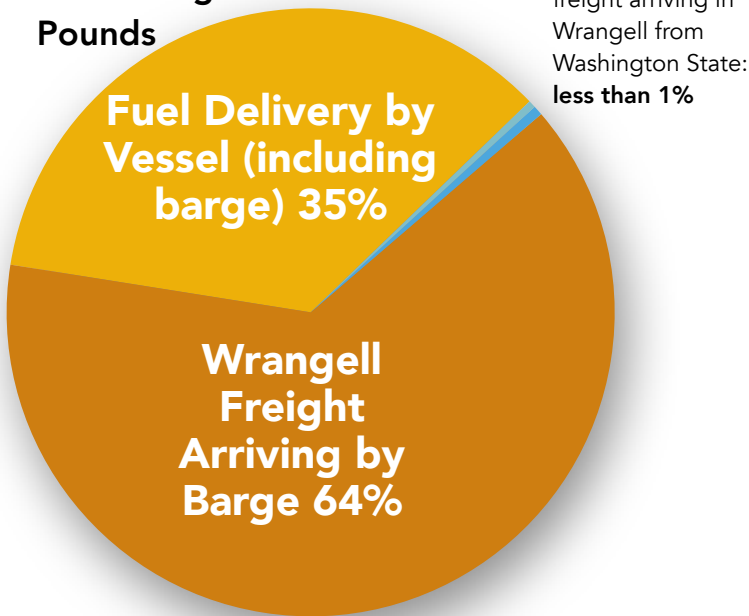
Wrangell Arriving Freight by Mode



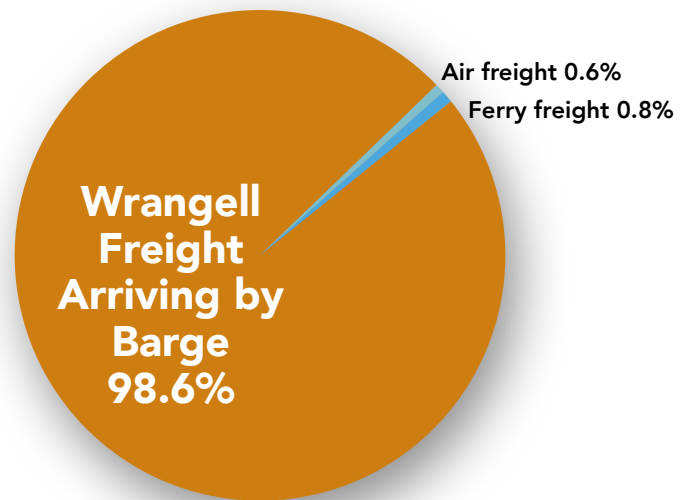
Incoming Freight by Mode

Few communities in the world are more dependent on barge freight arrivals than Wrangell. Between 2016 and 2020, 99.9% of all arriving freight came by barge. Air freight brings in the equivalent of two 20-foot barge containers worth of freight annually. The Alaska Marine Highway ferry system is much more likely to be used for shipping freight from Wrangell to Seattle rather than to Wrangell, shipping zero to three shipping containers worth of freight to the community over each of the past five years. Marine barges brought an average of 3,426 fully-loaded 20-foot equivalents units (TEUs). By excluding ocean going fuel deliveries, 98.6% of all incoming freight to Wrangell in 2019 arrived by barge. Additional pounds of goods come via airmail (as opposed to air freight) or on the ferry not containerized in shipping containers. However, these numbers would not significantly change the charts below.

2019 Freight Traffic Between Seattle and Wrangell in Pounds



2019 Freight Traffic Between Seattle and Wrangell in Pounds: Excluding Fuel



Freight Arriving in Wrangell by Mode from Seattle

Year	Air Freight Pounds	AMHS Freight Pounds (est.)	Marine Barge/Fuel Freight Pounds
2017	101,402	0	28,623,105
2018	200,218	180,000	34,649,370
2019	135,646	180,000	34,662,600
% of All Wrangell Freight from Seattle 2019	0.39%	0.51%	99.9%

Source: U.S. Army Corps of Engineers, AMHS data, Bureau of Transportation Statistics

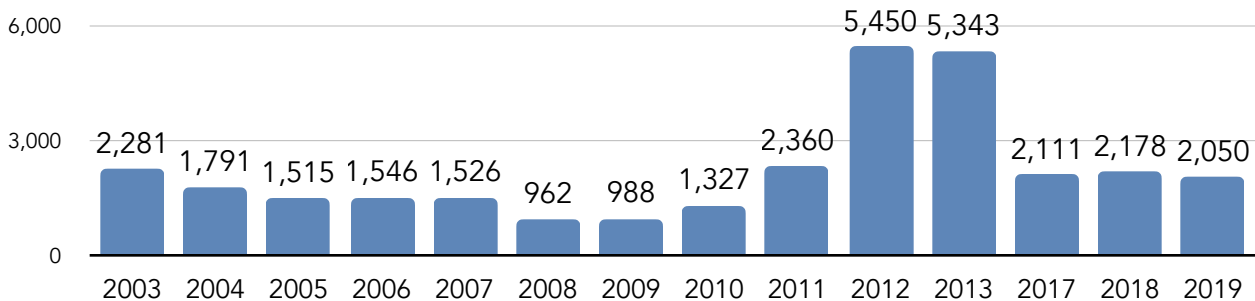
Wrangell Freight by TEUs

According to the U.S. Army Corps of Engineers (USACE) there were 2,050 loaded 20-foot equivalents units (TEUs) of freight that arrived via barge in 2019. This represents a 10% decrease over 2003, but is overall similar to the 2003 through 2019 average freight traffic data. Departing loaded TEUs are actually up in 2019 over 2003, but down 25% from 2017 to 2019. Good data is missing for Wrangell from 2014-16, when the freight data was combined with other locations. Note that TEU data includes fuel barges as well as containerized freight.

-10%
freight decrease
since 2003

Wrangell Barge Traffic			
Year	Arriving Loaded TEUs	Departing Loaded TEUs	Departing Empty TEUs
2003	2,281	1,831	1,415
2004	1,791	869	1,174
2005	1,515	1,025	1,164
2006	1,546	817	1,308
2007	1,526	1,017	1,294
2008	962	600	810
2009	988	482	1,092
2010	1,327	1,246	1,072
2011	2,360	1,901	1,354
2012	5,450	4,525	4,373
2013	5,343	7,383	6,706
2017	2,111	3,450	1,614
2018	2,178	2,599	1,666
2019	2,050	2,580	1,642
Change 2003-2019	-10%	41%	16%
Change 2017-2019	-3%	-25%	2%

**Annual Wrangell Arriving Barge Traffic,
Loaded Containers (20-foot Equivalent Units)**



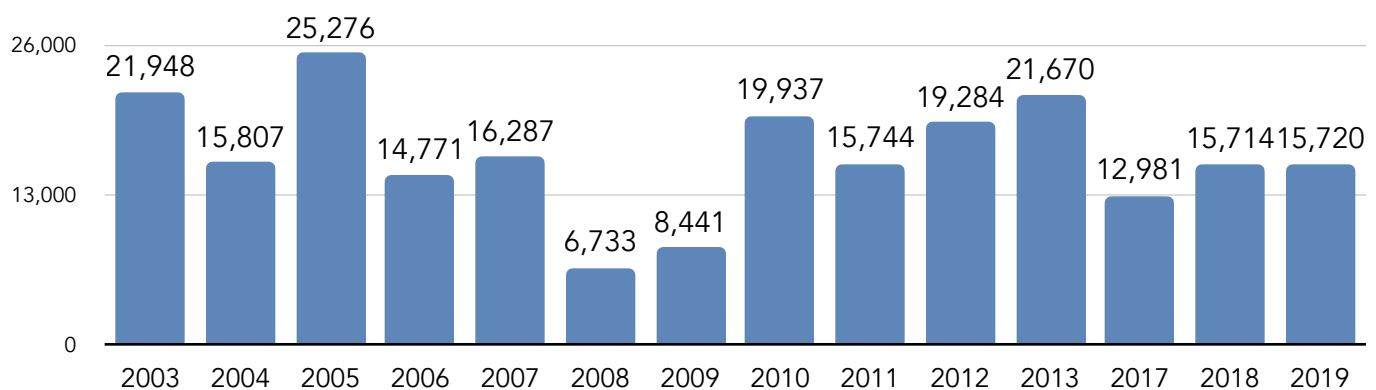
Source: U.S. Army Corps of Engineers

Barge Freight by Tonnage

Another way to analyze freight, according to the U.S. Army Corps of Engineers (USACE) is to review incoming and outgoing freight by tons and by type of product shipped. Since 2003, the peak amount of incoming freight and fuel by tonnage arrived in Wrangell in 2005, and total departing freight peaked in 2013. That was a historical salmon year in Wrangell and Southeast Alaska, meaning that a large quantity of fish was shipped out, and fuel shipped in to run the processors and vessels.

Wrangell Freight & Fuel by Tonnage			
Year	Arriving Freight Tons	Departing Freight Tons	Total Tons of Freight
2003	21,948	10,988	32,936
2004	15,807	8,338	24,145
2005	25,276	8,419	33,695
2006	14,771	11,327	26,098
2007	16,287	6,710	22,997
2008	6,733	3,138	9,871
2009	8,441	3,418	11,859
2010	19,937	9,892	29,829
2011	15,744	11,825	27,569
2012	19,284	32,504	51,788
2013	21,670	58,354	80,024
2017	12,981	26,339	39,320
2018	15,714	13,408	29,122
2019	15,720	14,711	30,431
Change 2003-2019	-28%	34%	-8%
Change 2017-2019	21%	-44%	-23%

Annual Wrangell Arriving Barge Freight by Tonnage



Source: U.S. Army Corps of Engineers

Barge Freight by Product Type

Using the U.S. Army Corps of Engineers data, and taking average freight levels from 2017 through 2019 by type, the top element arriving by marine transport in the community is fuel.

This is followed by heavy machinery, often barged into the community for construction projects and barged out again once the need for the element is finished. Food products are the next most significant item by weight.

In terms of freight leaving Wrangell for Seattle, fish is the number one item by weight, followed by (now departing) machinery, and trash leaving the community for landfills down south.

Wrangell Freight & Fuel by Tonnage (avg 2017-2019)		
Type of Product	% of Total Pounds Arriving Freight	% of Total Departing Freight Pounds
Petroleum Products	37%	2%
Fish	0%	37%
Machinery	35%	35%
Food and Beverage Products	16%	9%
Garbage	0%	11%
Chemicals and Related Products	2%	1%
Petroleum Pitches, Coke, Asphalt, Naptha and Solvents	2%	0%
Iron and Steel Products	2%	0%
Forest Products	1%	0%
Gasoline, Jet Fuel, Kerosene	1%	1%
Other	5%	3%

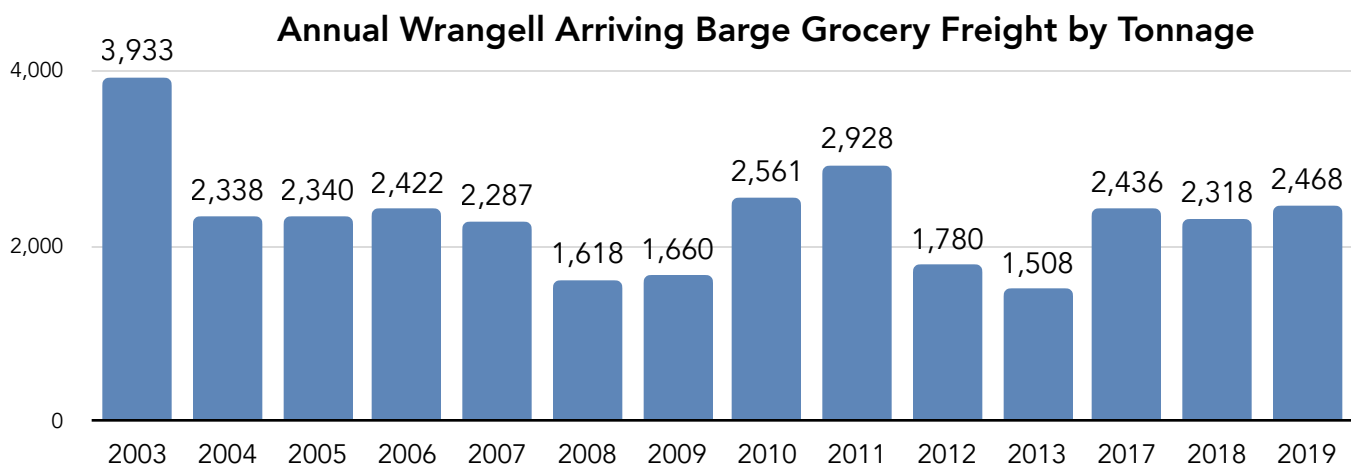


Petro Marine Services fuel barge Petro Mariner.

Grocery Barge Freight Tonnage

In order to reduce the “noise” of combined freight and fuel shipments, the analysis below only measures incoming groceries and food products barged into Wrangell by tons since 2003. Since 2003 was a high year, overall the amount of food, beverages, and other grocery items barged into the community has decreased by 37%, but the reality is that overall level of food items brought into the community by barge has remained relatively stable over time. The number of tons of groceries barged into Wrangell in 2019 is about the same as the average over the full time period.

Wrangell Grocery Barge Freight by Tonnage	
Year	Arriving Food Tonnage
2003	3,933
2004	2,338
2005	2,340
2006	2,422
2007	2,287
2008	1,618
2009	1,660
2010	2,561
2011	2,928
2012	1,780
2013	1,508
2017	2,436
2018	2,318
2019	2,468
Change 2003-2019	-37%
Change 2017-2019	1%



Source: U.S. Army Corps of Engineers

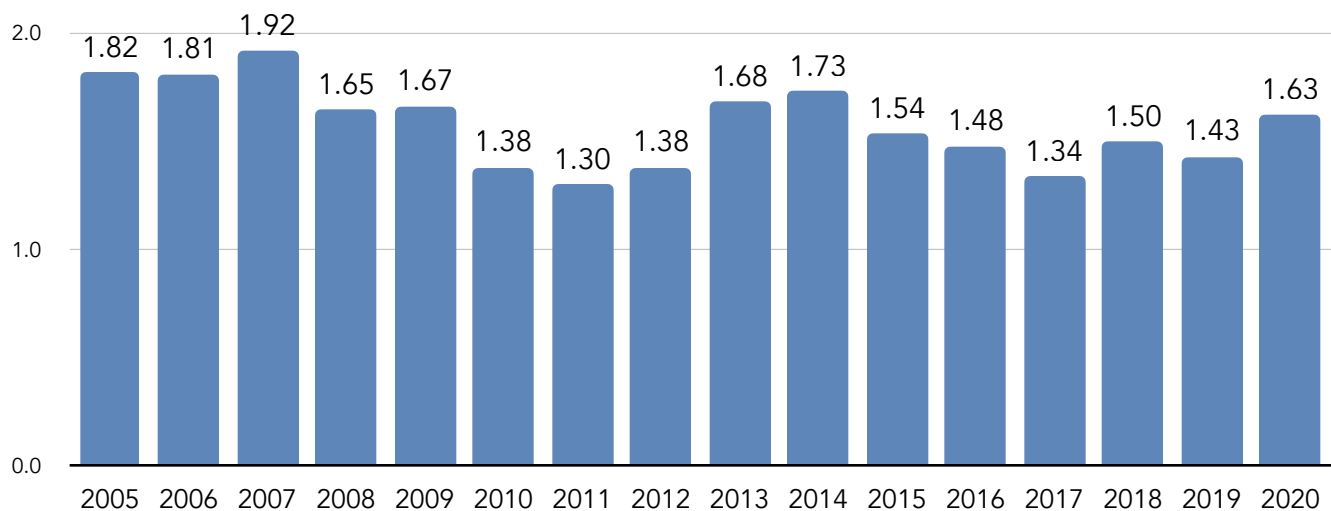
Air Freight Pounds

In 2020, 441,355 pounds of freight arrived via airplane into Wrangell. Of that the majority came through Anchorage, with Seattle the next most likely departure city with nearly 100,000 pounds of freight shipped to Wrangell via air. Air freight is also used for shipping seafood out of the community. Altogether, 1.6 million pounds of mail and air freight came into or out of Wrangell in 2020.

Air Freight Arriving in Wrangell, 2016 to 2020

Year	Arriving From						Total in Pounds
	Anchorage	Juneau	Ketchikan	Petersburg	Seattle	Sitka	
2016	162,270	18,418	40,460	1,195	88,252	766	312,292
2017	161,543	21,741	34,171	2,074	101,402	1,452	322,575
2018	133,770	37,343	50,112	2,765	200,218	1,304	425,525
2019	169,860	63,129	79,188	5,491	135,646	426	453,740
2020	215,206	40,412	70,606	12,491	97,077	5,563	441,355
Change 2016-2020	33%	119%	75%	945%	10%	626%	41%

**Annual Wrangell Total Air Freight and Mail
(arriving and departing, to/from all locations, in millions of pounds)**



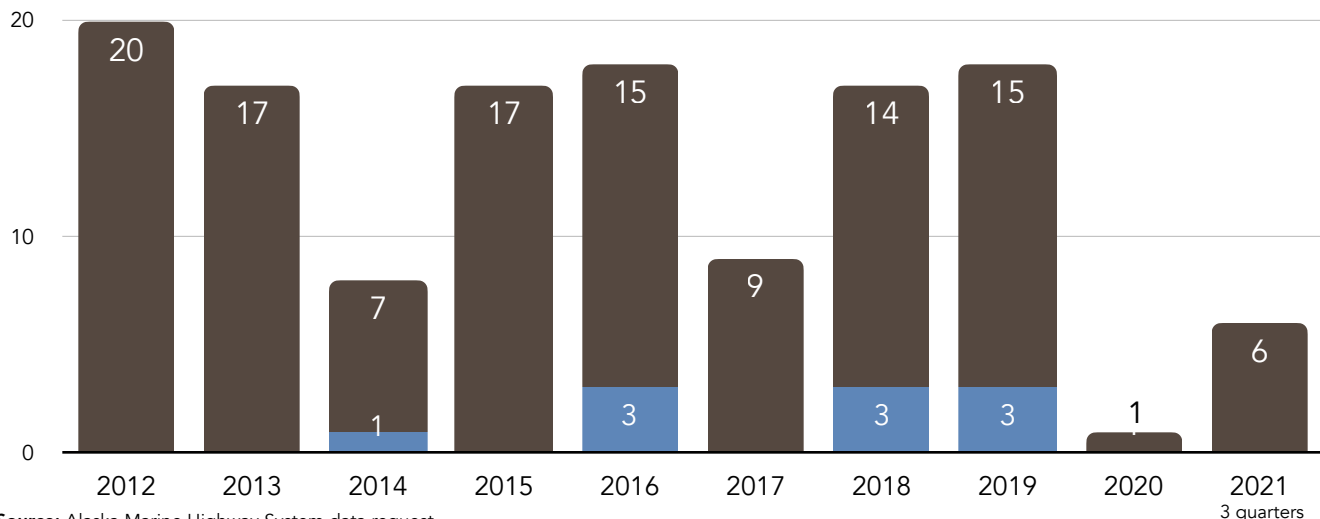
Source: Bureau of Transportation Statistics

Ferry Freight

Unlike barges or planes, more freight is shipped out via ferry in Wrangell than freight arriving from the lower-48. In 2019, three 20-foot equivalent shipping containers arrived in Wrangell from Bellingham on the ferry, while 15 TEUs of freight, most likely consisting of fish, were shipped by ferry headed for Washington State. On average from 2012 to 2020, shipping exports outnumbered freight imports by a ratio of 1:13.

Ferry Freight between Wrangell and Washington, 2012 to 2021		
Year	Loaded TEUs in Bellingham for Wrangell	Loaded TEUs in Wrangell for Bellingham
2012	0	20
2013	0	17
2014	1	7
2015	0	17
2016	3	15
2017	0	9
2018	3	14
2019	3	15
2020	0	1
2021 (3 quarters)	0	6
Avg. 2012-2020	1	13

**Annual Wrangell Total Ferry Freight
(arriving and departing TEUs)**

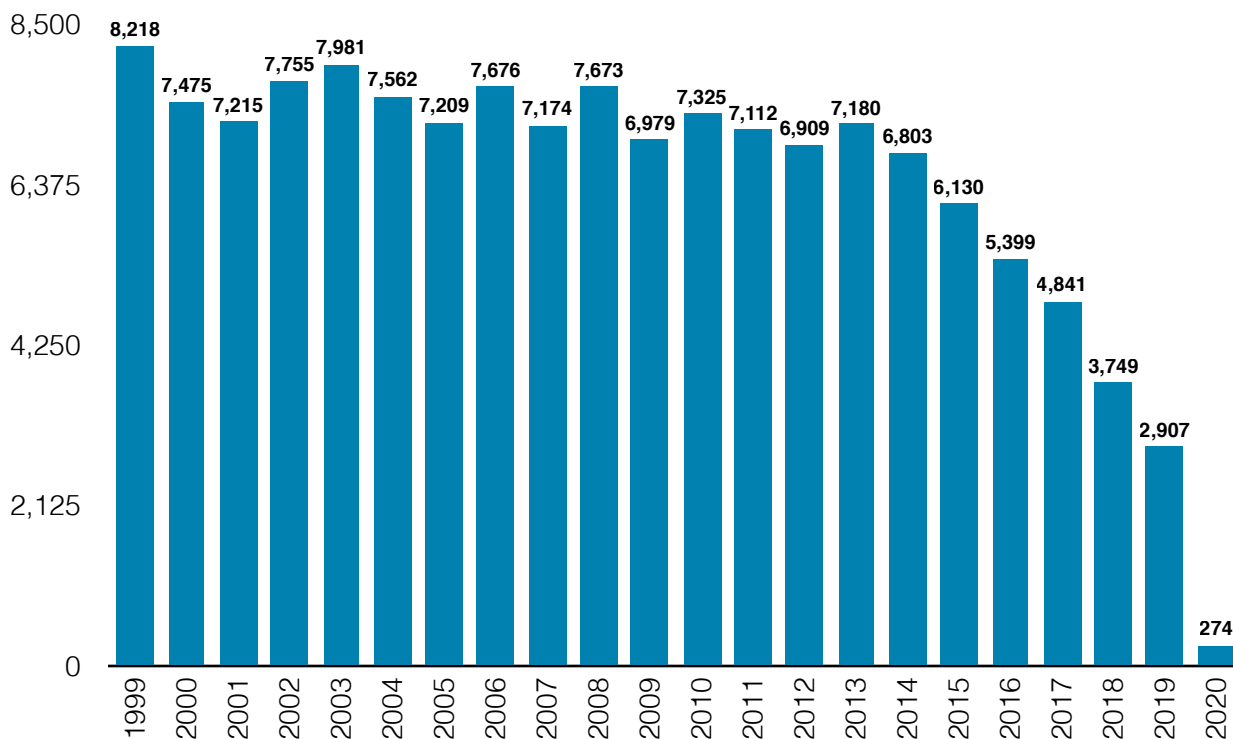


Source: Alaska Marine Highway System data request.

Declining Ferry Service

While major ferry freight shipments arrive and leave via large shipping containers, freight also often moves on the ferry in smaller, less measurable loads — in personal vehicles, on luggage carts, etc. To understand the full change in ferry freight services, it is also important to look at ferry service in general. In recent years the Alaska Marine Highway System has been hit hard by state budget cuts, significantly reducing state funding levels. Service and port calls have been cut significantly, and Wrangell has been disproportionately impacted. The reduced use of ferry freight over time is correlated to the loss of service.

Ferry Passengers Arriving in Wrangell 1999 to 2020



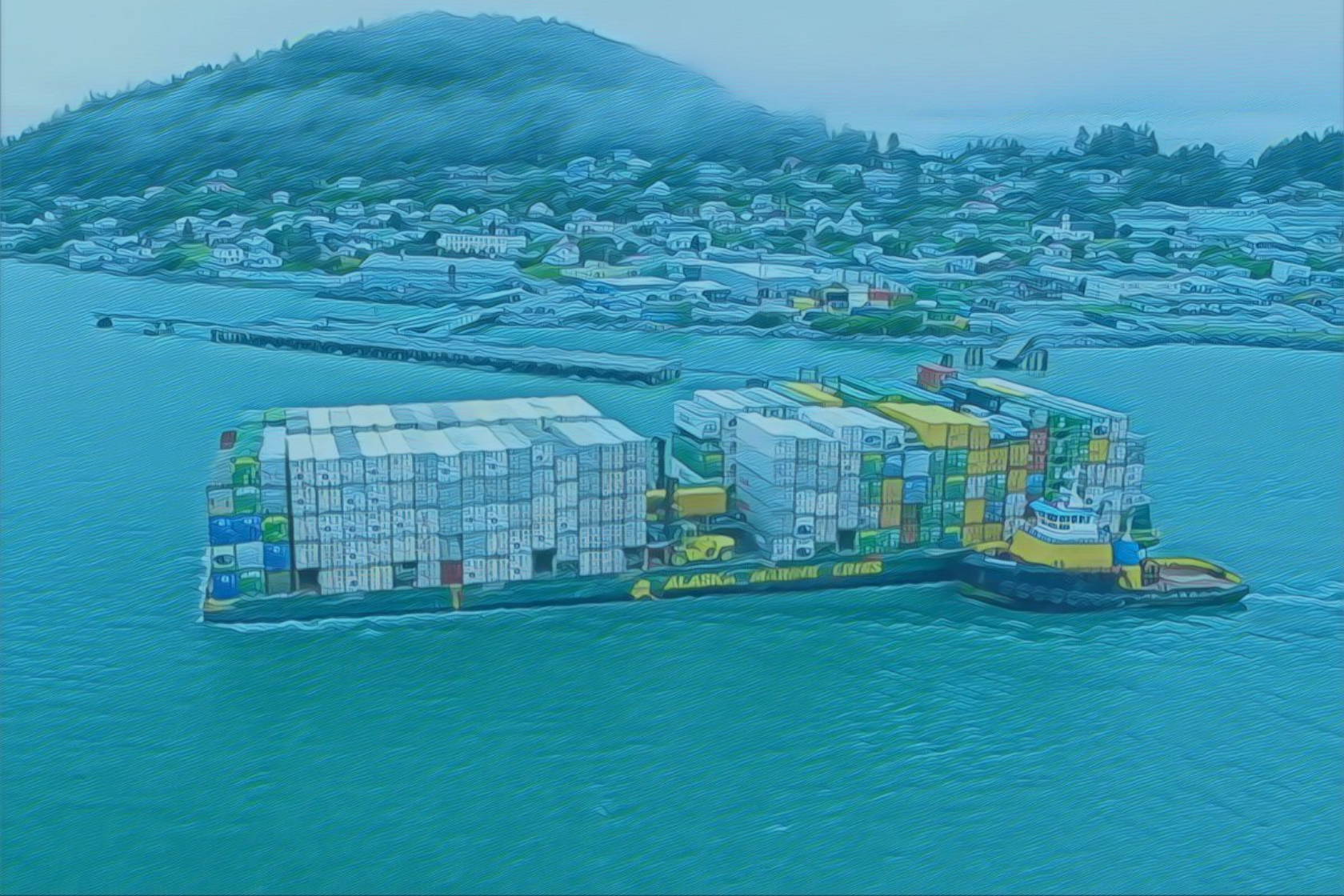
Declining Ferry Passengers

A good track change in ferry service is through passenger levels as declining ridership is proxy for declining service. In 2019, a total of 2,907 Alaska Marine Highway (AMHS) ferry passengers arrived in Wrangell. Since 2013, the number of passengers disembarking in Wrangell has decreased every year, for a loss of 60% of passenger ridership between 2013 and 2019. In 2020, ridership fell to just 274 passengers. The unreliability of the ferry scheduling and the increase in costs to travel have impacted ferry users, but even more significantly impacted those who have built their businesses around ferry services.

Source: Alaska Marine Highway System data request.

Appendix

Fuel conversion tables governing fuel
surcharge calculations for Alaska
Marine Lines



ALASKA MARINE LINES, INC.

RULES AND REGULATIONS	RULE
<p><u>APPLICATION OF ARBITRARY FUEL SURCHARGE:</u></p> <p>Refer to Alaska Marine Lines tariffs STB AKMR, Series.</p>	<p>345</p>
<p>TCR 4590</p> <p><u>APPLICATION OF INLAND FUEL SURCHARGE:</u></p> <p>The Fuel Surcharge applicable to Rules 340, 341, 500, 750, 751, 850, 900 and 990 of this tariff shall be determined using the Department of Energy Diesel Fuel Price Chart, West Coast at: (http://www.eia.gov/petroleum/gasdiesel/) and fuel conversion table on the following pages. The West Coast diesel fuel price published on each Monday will be used to determine the applicable surcharge. Should the Department of Energy not publish an index on Monday due to holiday or some other circumstance, the next available published date price will be utilized. Revisions will take effect on Sunday following the Monday publication.</p> <p>NOTE 1: For rates in cents, fractions will be adjusted as follows: Fractions of less than 1/2 cent or more will be dropped and fractions of 1/2 cent or more will be rounded to the next whole cent. Where the rate or charges is published in dollars and cents, apply the equivalent in cents.</p> <p>NOTE 2: References to Tariffs, Items, Notes, Rules, etc. will be as follows: Where reference is made in this Item to other Items, Notes, Rules, etc., it is understood that such reference is continuous and includes subsequent issues of such Items, Rules, etc.</p> <p>TCR 4539</p>	<p>346</p>
<p style="text-align: right;">(Continued)</p>	
<p style="text-align: center;">For explanation of abbreviations and reference marks not explained on this page, see the last page of this Tariff.</p>	
<p>ISSUED: February 11, 2021</p>	<p>EFFECTIVE: February 12, 2021</p>
<p style="text-align: center;">ISSUED BY: Margretta Grace, Director of Pricing P.O. Box 24348, Seattle, WA 98124 5615 W. Marginal Way S.W., Seattle, WA 98106</p>	

ALASKA MARINE LINES, INC.

RULES AND REGULATIONS

RULE

APPLICATION OF INLAND FUEL RELATED SURCHARGES (Continued)
 Applicable to rates in Rules 340, 341, 500, 750, 751, 850, 900, and 990 only.

346

FUEL CONVERSION TABLE

US WEST COAST AVERAGE HIGHWAY DIESEL PRICE RANGE		FUEL SURCHARGE	US WEST COAST AVERAGE HIGHWAY DIESEL PRICE RANGE		FUEL SURCHARGE
\$0.00	\$1.239	0.0%	\$2.92	\$2.959	24.0%
\$1.24	\$1.279	1.0%	\$2.96	\$2.999	24.5%
\$1.28	\$1.319	1.5%	\$3.00	\$3.039	25.0%
\$1.32	\$1.359	2.0%	\$3.04	\$3.079	25.5%
\$1.36	\$1.399	2.5%	\$3.08	\$3.119	26.0%
\$1.40	\$1.439	3.0%	\$3.12	\$3.159	26.5%
\$1.44	\$1.479	3.5%	\$3.16	\$3.199	27.0%
\$1.48	\$1.519	4.0%	\$3.20	\$3.239	27.5%
\$1.52	\$1.559	4.5%	\$3.24	\$3.279	28.0%
\$1.56	\$1.599	5.0%	\$3.28	\$3.319	28.5%
\$1.60	\$1.639	5.5%	\$3.32	\$3.359	29.0%
\$1.64	\$1.679	6.0%	\$3.36	\$3.399	29.5%
\$1.68	\$1.719	6.5%	\$3.40	\$3.439	30.0%
\$1.72	\$1.759	7.0%	\$3.44	\$3.479	30.5%
\$1.76	\$1.799	7.5%	\$3.48	\$3.519	31.0%
\$1.80	\$1.839	8.0%	\$3.52	\$3.559	31.5%
\$1.84	\$1.879	8.5%	\$3.56	\$3.599	32.0%
\$1.88	\$1.919	9.0%	\$3.60	\$3.639	32.5%
\$1.92	\$1.959	9.5%	\$3.64	\$3.679	33.0%
\$1.96	\$1.999	10.5%	\$3.68	\$3.719	33.5%
\$2.00	\$2.039	11.5%	\$3.72	\$3.759	34.0%
\$2.04	\$2.079	12.5%	\$3.76	\$3.799	34.5%
\$2.08	\$2.119	13.0%	\$3.80	\$3.839	35.0%
\$2.12	\$2.159	13.5%	\$3.84	\$3.879	35.5%
\$2.16	\$2.199	14.5%	\$3.88	\$3.919	36.0%
\$2.20	\$2.239	15.0%	\$3.92	\$3.959	36.5%
\$2.24	\$2.279	15.5%	\$3.96	\$3.999	37.0%
\$2.28	\$2.319	16.0%	\$4.00	\$4.039	37.5%
\$2.32	\$2.359	16.5%	\$4.04	\$4.079	38.0%
\$2.36	\$2.399	17.0%	\$4.08	\$4.119	38.5%
\$2.40	\$2.439	17.5%	\$4.12	\$4.159	39.0%
\$2.44	\$2.479	18.0%	\$4.16	\$4.199	39.5%
\$2.48	\$2.519	18.5%	\$4.20	\$4.239	40.0%
\$2.52	\$2.559	19.0%	\$4.24	\$4.279	40.5%
\$2.56	\$2.599	19.5%	\$4.28	\$5.319	41.0%
\$2.60	\$2.639	20.0%	\$4.32	\$4.359	41.5%
\$2.64	\$2.679	20.5%	\$4.36	\$4.399	42.0%
\$2.68	\$2.719	21.0%	\$4.40	\$4.439	42.5%
\$2.72	\$2.759	21.5%	\$4.44	\$4.479	43.0%
\$2.76	\$2.799	22.0%	\$4.48	\$4.519	43.5%
\$2.80	\$2.839	22.5%	\$4.52	\$4.559	44.0%
\$2.84	\$2.879	23.0%	\$4.56	\$4.599	44.5%
\$2.88	\$2.919	23.5%	\$4.60	\$4.639	45.0%

TCR 4570

(Continued)

For explanation of abbreviations and reference marks not explained on this page, see the last page of this Tariff.

ISSUED: August 7, 2020

EFFECTIVE: August 9, 2020

ISSUED BY: Margretta Grace, Director of Pricing

P.O. Box 24348, Seattle, WA 98124

5615 W. Marginal Way S.W., Seattle, WA 98106

ALASKA MARINE LINES, INC.

RULES AND REGULATIONS

RULE

APPLICATION OF INLAND FUEL RELATED SURCHARGES (Continued)
 Applicable to rates in Rules 340, 341, 500, 750, 751, 850, 900, and 990 only.

346

FUEL CONVERSION TABLE

US WEST COAST AVERAGE HIGHWAY DIESEL PRICE RANGE		FUEL SURCHARGE	US WEST COAST AVERAGE HIGHWAY DIESEL PRICE RANGE		FUEL SURCHARGE
\$4.64	\$4.679	45.5%	\$6.36	\$6.399	67.0%
\$4.68	\$4.719	46.0%	\$6.40	\$6.439	67.5%
\$4.72	\$4.759	46.5%	\$6.44	\$6.479	68.0%
\$4.76	\$4.799	47.0%	\$6.48	\$6.519	68.5%
\$4.80	\$4.839	47.5%	\$6.52	\$6.559	69.0%
\$4.84	\$4.879	48.0%	\$6.56	\$6.599	69.5%
\$4.88	\$4.919	48.5%	\$6.60	\$6.639	70.0%
\$4.92	\$4.959	49.0%	\$6.64	\$6.679	70.5%
\$4.96	\$4.999	49.5%	\$6.68	\$6.719	71.0%
\$5.00	\$5.039	50.0%	\$6.72	\$6.759	71.5%
\$5.04	\$5.079	50.5%	\$6.76	\$6.799	72.0%
\$5.08	\$5.119	51.0%	\$6.80	\$6.839	72.5%
\$5.12	\$5.159	51.5%	\$6.84	\$6.879	73.0%
\$5.16	\$5.199	52.0%	\$6.88	\$6.919	73.5%
\$5.20	\$5.239	52.5%	\$6.92	\$6.959	74.0%
\$5.24	\$5.279	53.0%	\$6.96	\$6.999	74.5%
\$5.28	\$5.319	53.5%	\$7.00	\$7.039	75.0%
\$5.32	\$5.359	54.0%	\$7.04	\$7.079	75.5%
\$5.36	\$5.399	54.5%	\$7.08	\$7.119	76.0%
\$5.40	\$5.439	55.0%	\$7.12	\$7.159	76.5%
\$5.44	\$5.479	55.5%	\$7.16	\$7.199	77.0%
\$5.48	\$5.519	56.0%	\$7.20	\$7.239	77.5%
\$5.52	\$5.559	56.5%	\$7.24	\$7.279	78.0%
\$5.56	\$5.599	57.0%	\$7.28	\$7.319	78.5%
\$5.60	\$5.639	57.5%	\$7.32	\$7.359	79.0%
\$5.64	\$5.679	58.0%	\$7.36	\$7.399	79.5%
\$5.68	\$5.719	58.5%	\$7.40	\$7.439	80.0%
\$5.72	\$5.759	59.0%	\$7.44	\$7.479	80.5%
\$5.76	\$5.799	59.5%	\$7.48	\$7.519	81.0%
\$5.80	\$5.839	60.0%	\$7.52	\$7.559	81.5%
\$5.84	\$5.879	60.5%	\$7.56	\$7.599	82.0%
\$5.88	\$5.919	61.0%	\$7.60	\$7.639	82.5%
\$5.92	\$5.959	61.5%	\$7.64	\$7.679	83.0%
\$5.96	\$5.999	62.0%	\$7.68	\$7.719	83.5%
\$6.00	\$6.039	62.5%	\$7.72	\$7.759	84.0%
\$6.04	\$6.079	63.0%	\$7.76	\$7.799	84.5%
\$6.08	\$6.119	63.5%	\$7.80	\$7.839	85.0%
\$6.12	\$6.159	64.0%	\$7.84	\$8.879	85.5%
\$6.16	\$6.199	64.5%	\$7.88	\$7.919	86.0%
\$6.20	\$6.239	65.0%	\$7.92	\$7.959	86.5%
\$6.24	\$6.279	65.5%	\$7.96	\$7.999	87.0%
\$6.28	\$6.319	66.0%	\$8.00	\$8.039	87.5%
\$6.32	\$6.359	66.5%	\$8.04	\$8.079	88.0%

TCR 4539

For explanation of abbreviations and reference marks not explained on this page, see the last page of this Tariff.

ISSUED: November 14, 2019

EFFECTIVE: November 15, 2019

ISSUED BY: Margretta Grace, Director of Pricing

P.O. Box 24348, Seattle, WA 98124

5615 W. Marginal Way S.W., Seattle, WA 98106