

## Freight Services

The Alaska Railroad (ARRC) provides seamless freight operation between shipping points in the Lower 48 to many destinations in Alaska. Port facilities in Seattle, Whittier, Seward and Anchorage provide crucial links between marine and land transportation modes. Rail yards in Seward, Whittier, Anchorage and Fairbanks offer centralized distribution hubs for other transportation modes.

### Freight Revenue & Expense

Freight is the Alaska Railroad's bread-and-butter, generating about two-thirds (65%) of operating revenues (excluding capital grants). In 2014, the railroad hauled 4.92 million tons of freight. Major lines of freight business include:

- **Petroleum** – The majority of petroleum products move from Anchorage to a fuel distribution center in North Pole.
- **Barge / Interline Services** – Alaska Rail Marine (ARM) moves rail shipments to/from Alaska via Seattle, interchanging with railroads in the Lower 48. Containers and railcars arriving by ARM barge move from Whittier to Anchorage or Fairbank. CN Barges move railcar shipments to/from Alaska via Prince Rupert, interchanging with Canadian National Railway.
- **Trailers/Containers on Flat Cars** – TOFC/COFC moves north and south between Seward, Whittier, Anchorage and Fairbanks.



- **Coal** – Coal from Usibelli Coal Mine in Healy moves to the Fairbanks area for local markets, and to Seward, where it ships overseas.
- **Gravel** – Seasonally (April - October) aggregate products move from the Matanuska-Susitna Valley to Anchorage.
- **Miscellaneous/In-state Local** – Other freight includes specialty movements of very large or oddly-shaped equipment and materials, as well as in-state shipments of cement, scrap metal, military equipment and pipe.

While freight-hauling is a major revenue source, it also involves capital- and maintenance-intensive expense. ARRC continues to seek ways to improve efficiency through time savings, fuel conservation, less wear-and-tear. A prime example is the use of distributed power, in which locomotives are placed at the front, middle and end of mile-long trains, enabling them to travel over steeper inclines (such as the track through the mountain pass between Portage and Seward) without splitting the train into sections.

### Mitigating Impacts

Railroads are ideal for safely and efficiently transporting heavy, bulky freight, ranging from natural resources such as petroleum, gravel and coal, to containerized cargo and heavy equipment.



If not for the railroad, many more trucks would be needed to haul commodities over state and municipal roadways.

The information in the table on page 2 illustrates how the Alaska Railroad mitigates the impact of moving natural resource products by keeping nearly 305,000 dump trucks and fuel tank trucks off the road in 2014 alone. Also during 2014, the railroad moved 21,993 cargo-filled trailers and containers by railroad flatcar instead of by truck on the highway.

Hauling heavy, bulky commodities by rail also makes sense from a fuel conservation standpoint. According to the American Association of Railroads (AAR), a freight train moves a ton of freight an average of 484 miles on a single gallon of fuel. According to a recent independent study produced for the Federal Railroad Administration, railroads on average are four times more fuel-efficient than trucks. Thanks to locomotive and other technology improvements, railroad fuel efficiency is up 106 percent since 1980.

## Freight Fleet

The Alaska Railroad's freight service fleet includes 863 railcars that are owned or leased by ARRC, along with 180 railcars leased by customers. The railroad has developed a

comprehensive fleet management program involving rehabilitation and replacement. The railroad's revenue-service freight fleet of 1,043 railcars includes:

- **Tank Car** – Moves liquid bulk cargo including jet fuel, gasoline, asphalt, vegetable oils, aircraft deicer, and various other chemicals. *Fleet: 2 cars plus 180 tankers leased by customers for in-state use only*
- **Flat Car** – Moves trailers and containers, pipe, lumber, and heavy equipment. *Fleet: 354 cars*
- **Air Dump** – Side-dumping railcars used primarily to transport ballast and other rock material for track maintenance. *Fleet: 31 cars*
- **Open Top Hopper** – Moves bulk solids, primarily coal and gravel, and unloads from the bottom. *Fleet: 411 cars*
- **Covered Hopper** – Moves dry bulk including grain, fertilizer and cement. *Fleet: 41 cars*
- **Boxcar** – Moves a variety of commodities including lumber, paper and drilling mud. *Fleet: 14 cars*
- **Gondola** – Moves metal products (pipe, sheet pile, rebar) north and scrap south. *Fleet: 10 cars*

## Positive impact of trains moving natural resources

Natural Resource	Railcars Hauled	Average Number Trucks Equivalent to One Railcar <sup>1</sup>	Truck Moves Replaced <sup>1</sup>	Transport Miles <sup>2</sup>	Vehicle Miles Eliminated <sup>3</sup>
Petroleum, Gravel, Domestic and Export Coal <sup>2</sup>	44,286 Tankers and Hoppers	Petroleum: 5 tank trucks/ tanker railcar Gravel: 8 dump trucks/hopper Coal: 6 dump trucks/hopper	304,766 trucks not traveling on highways	Petroleum: 356 Gravel: 40 Domestic Coal: 111 Export Coal: 360	37.4 million vehicle miles not driven on highways



Assumptions (source Los Angeles Fire Department; Alaska Railroad):

<sup>1</sup> The number of trucks replaced by a railcar includes movement of the loaded truck and movement of the empty truck to be reloaded.

- **GRAVEL:** A road-legal 40-foot side-dump truck has a heaped capacity of 32 cubic yards = 25 tons gravel. Each hopper railcar holds about 100 tons of gravel — 100 divided by 25 tons / truck = 4 x both ways = 8 trucks / hopper railcar.
- **COAL:** Typical Usibelli coal is about 1 cubic yard per ton, so each 40-foot side-dump truck could haul 32 tons. Each hopper railcar holds about 100 tons of coal — 100 divided by 32 tons / truck = 3 x both ways = 6 trucks / hopper railcar.
- **REFINED PETROLEUM:** Large road-legal distribution tank trucks typically hold about 9,000 gallons. A rail tanker car typically holds 22,700 gallons — 22,700 divided by 9,000 / truck = 2.5 x both ways = 5 tanker trucks / tanker railcar.

<sup>2</sup> Petroleum trains operate between Fairbanks and Anchorage, 356 miles one-way. Gravel trains operate between Mat-Su Valley and Anchorage, 40 miles one-way. Export coal trains operate between Healy and Seward, 360 miles one-way. Domestic coal trains operate between Healy and Fairbanks, 111 miles one-way.

<sup>3</sup> Refers to approximate vehicle miles traveled (VMT) eliminated from state highways, based on the number of equivalent trucks multiplied by miles the resource is moved.