



**US Army Corps  
of Engineers**®

St. Paul District

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**Public Affairs**

# Corps Facts

## Comparing Navigation

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### Water Transportation

Water transport consumes much less energy per ton-mile of freight carried than either rail or truck. This factor, combined with the remoteness of the vessel's operating environment from population centers, substantially reduces the impact of its exhaust emissions. Hydrocarbon vapor emissions from tank ships and barges, while loading or unloading petroleum products, amount to only about .02 percent of all volatile organic emissions nationally.

Protection of the marine environment from pollution is a major concern shared by the barge and towing industry with both federal and state environmental agencies. The Coast Guard has law enforcement responsibilities relating to the protection of the marine environment, and many of its safety regulations for vessels have been enacted to serve this purpose. Additionally, the Clean Air Act of 1990 required installation of vapor recovery systems to reduce emissions of petroleum and petrochemical vapors on barges designed to carry liquid.

*Source: U.S. Environmental Protection Agency*

### Transportation Mode Comparison: Energy-Environment Efficiency

A semi can carry one ton of cargo 59 miles per one gallon of fuel.

A train can carry one ton of cargo 202 miles per one gallon of fuel.

An inland barge can carry one ton of cargo 514 miles per one gallon of fuel.

One barge (no tows) can transport 1,500 tons. Approximately 60 semi trucks or 15 jumbo railroad cars would be needed to transport the same amount of goods.

One 15-barge tow can transport 22,500 tons of goods. Approximately 900 semi trucks or two-and-three-fourths miles of railroad cars would be needed to transport the same amount of goods.

*Source: U.S. Department of Transportation*

### Transportation Mode Comparison: Emissions Produced

Pollutants (in pounds) produced in moving one ton of cargo 1,000 miles:

<u>Mode:</u>	<u>Hydrocarbon</u>	<u>Carbon Monoxide</u>	<u>Nitrous Oxide</u>
Towboat	.09	.20	.53
Train	.46	.64	1.83
Truck	.63	1.90	10.17

The U.S. Environmental Protection Agency predicts that a shift in transportation from vessels to trucks would cause: a 826 percent increase in fuel use annually, a 709 percent increase in exhaust emissions annually, a 5,967 percent increase in probable accidents each year, the need to annually dispose of 2,746 used truck tires and an additional truck traffic load of 1,333 heavy vehicles on the roads each day.

*Source: U.S. Environmental Protection Agency*