



WATERWAYS: Working for America

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Inland Waterway Users Board
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WATERWAYS: Working for America

Waterways transportation keeps commerce on the move with fewer societal impacts than truck or rail.

Highlights of “A Modal Comparison of Freight Transportation Effects on the General Public”

A Study in Freight Transportation Solutions

Highlights of “A Modal Comparison of Freight Transportation Effects on the General Public”

Conducted by the Texas Transportation Institute,
Center for Ports & Waterways, Texas A&M University

- compares the various surface transportation modes in terms of safety, energy efficiency and environmental impacts
- conducted over a one-year period
- peer-reviewed by independent university-based experts



A Study in Freight Transportation Solutions

The study “A Modal Comparison of Freight Transportation Effects on the General Public” was co-sponsored by the National Waterways Foundation and the U.S. Department of Transportation Maritime Administration (MARAD).



An “Inland Marine Highway” for Freight Transportation



Our “inland marine highways” move commerce to and from 38 states throughout the nation’s heartland and Pacific Northwest, serve industrial and agricultural centers, and facilitate imports and exports at gateway ports on the Gulf Coast.

- 12,000 miles of commercially navigable channels
- 240 lock sites

An “Inland Marine Highway” for Freight Transportation



Moving the nation's commodities

Barges are ideal for hauling bulk commodities and oversized or overweight equipment:

- Coal
- Petroleum
- Iron & Steel
- Project cargoes
- Grain
- Chemicals
- Aggregates
- Intermodal containers

An “Inland Marine Highway” for Freight Transportation



Moving the nation's commodities

Waterways transport:

- more than 60% of the nation's grain exports
- about 22% of domestic petroleum products
- 20% of the coal used in electricity generation

An “Inland Marine Highway” for Freight Transportation

Strengthening the economy

Each year, 624 million tons of waterborne cargo transit the inland waterways.

- This equals 14% of all intercity freight, valued at nearly **\$70 billion**.



Easing Rail and Highway Congestion in Our Communities



Waterways provide great cargo capacity and move freight more safely than truck or rail. In fact, they carry the equivalent of 58 million truck trips per year, with room to spare.

If waterborne cargo were diverted to highway or rail:

- Truck traffic would double on the Interstates
- Rail tonnage would increase 25%

Waterways Closure on the Mississippi and Illinois Rivers



If cargo going through St. Louis by barge were shifted from the river system to the city's already crowded Interstates:

- Highway costs over 10 years would increase from \$345 million to over \$721 million
- Truck traffic on St. Louis Interstates would increase by 200%
- Traffic delays would increase by almost 500%
- Injuries and fatalities on Interstate segments would increase from 36% to 45%
- Maintenance costs would increase 80% to 93%

Waterways Closure on the Mississippi and Illinois Rivers



If cargo going through St. Louis by barge were shifted from the river system to the city's already crowded Interstates:

*The loss of river transportation
would have
a dramatic negative impact!*



Easing Rail and Highway Congestion in Our Communities

Units to Carry
1,750 Short Tons of Dry Cargo



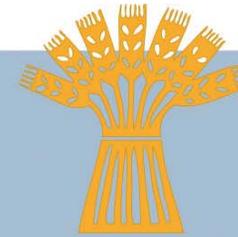
1 barge



16 rail cars



70 trucks



One loaded covered hopper barge carries 58,333 bushels of wheat, enough to make almost 2.5 million loaves of bread.



Easing Rail and Highway Congestion in Our Communities



A loaded tank barge carries 27,500 barrels of gasoline, enough to keep about 2,500 automobiles running for an entire year.

Units to Carry
27,500 Barrels of Liquid Cargo

1 barge



46 rail cars



144 trucks

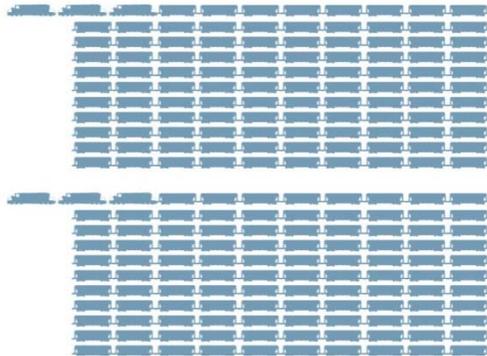


One 15-Barge Tow Equals 216 Rail Cars or 1,050 Trucks

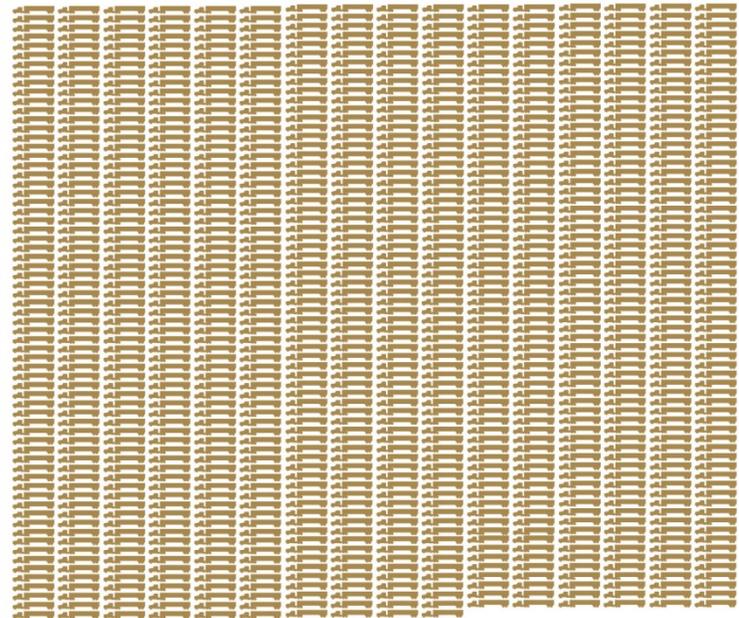
One 15-Barge Tow



216 Rail Cars + 6 Locomotives



1,050 Large Semi Tractor-Trailers



Moving Freight Efficiently Throughout America

Transporting freight by water is also the most energy-efficient choice.

Barges can move one ton of cargo 576 miles per gallon of fuel. A rail car would move the same ton of cargo 413 miles, and a truck only 155 miles.



Ton-miles Traveled per Gallon of Fuel

Safeguarding Our Health and the Environment

Inland waterways transport generates fewer emissions than rail or truck per ton-mile.

Barge transportation generates the lowest emissions as measured in grams per ton-miles in four standards tracked by the EPA:

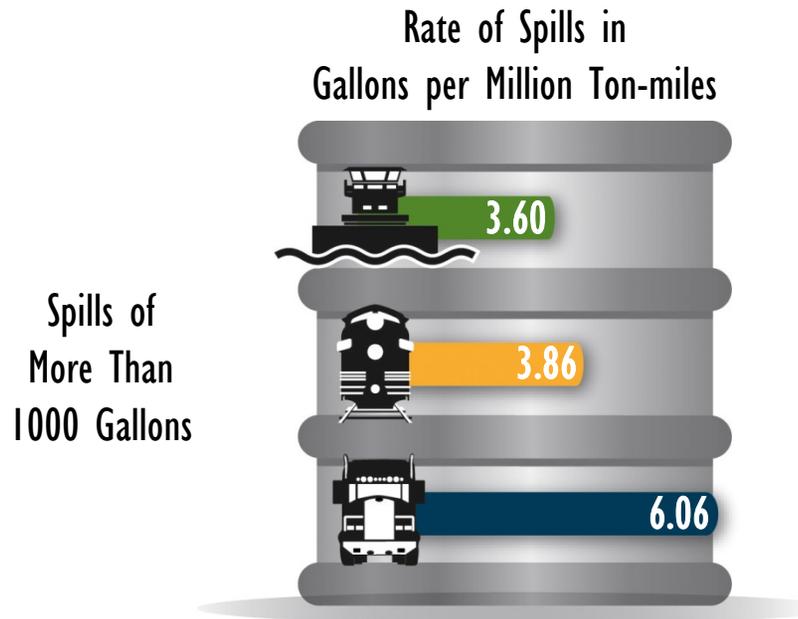
- Particulate matter (PM)
- Carbon monoxide (CO)
- Hydrocarbons (HC)
- Nitrogen oxides (NOx)



Safeguarding Our Health and the Environment

Inland waterways transport moves hazardous materials safely.

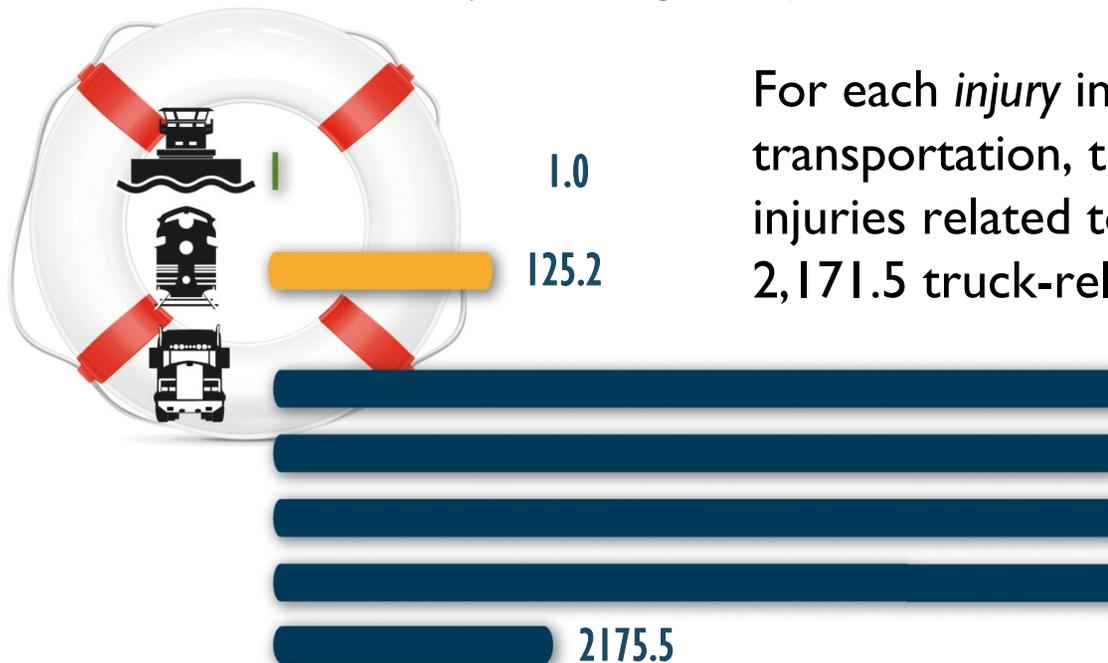
Overall, spill rates remain low. Trucks lose 6.06 gallons per one million ton-miles, rail cars 3.86 gallons and barges 3.6 gallons per one million ton-miles.



Safeguarding Our Health and the Environment

Inland waterways transport has a low injury record compared to rail or truck.

Injuries in Freight Transportation

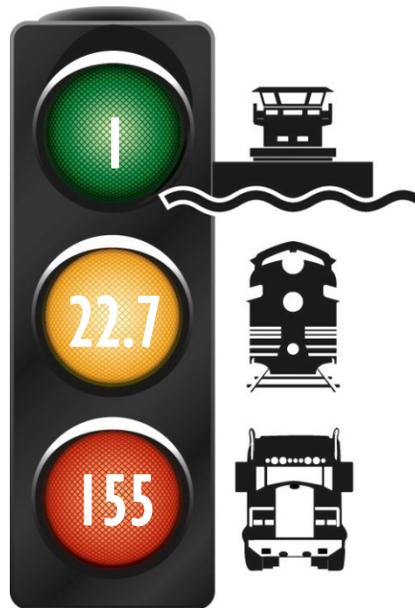


For each *injury* involving barge transportation, there are 125.2 injuries related to rail and 2,171.5 truck-related injuries.

Safeguarding Our Health and the Environment

Inland waterways transport has a low *fatality* record compared to rail or truck.

Fatalities in Freight Transportation



For each barge transportation *fatality*, there are 22.7 fatalities related to rail and 155 truck-related fatalities.

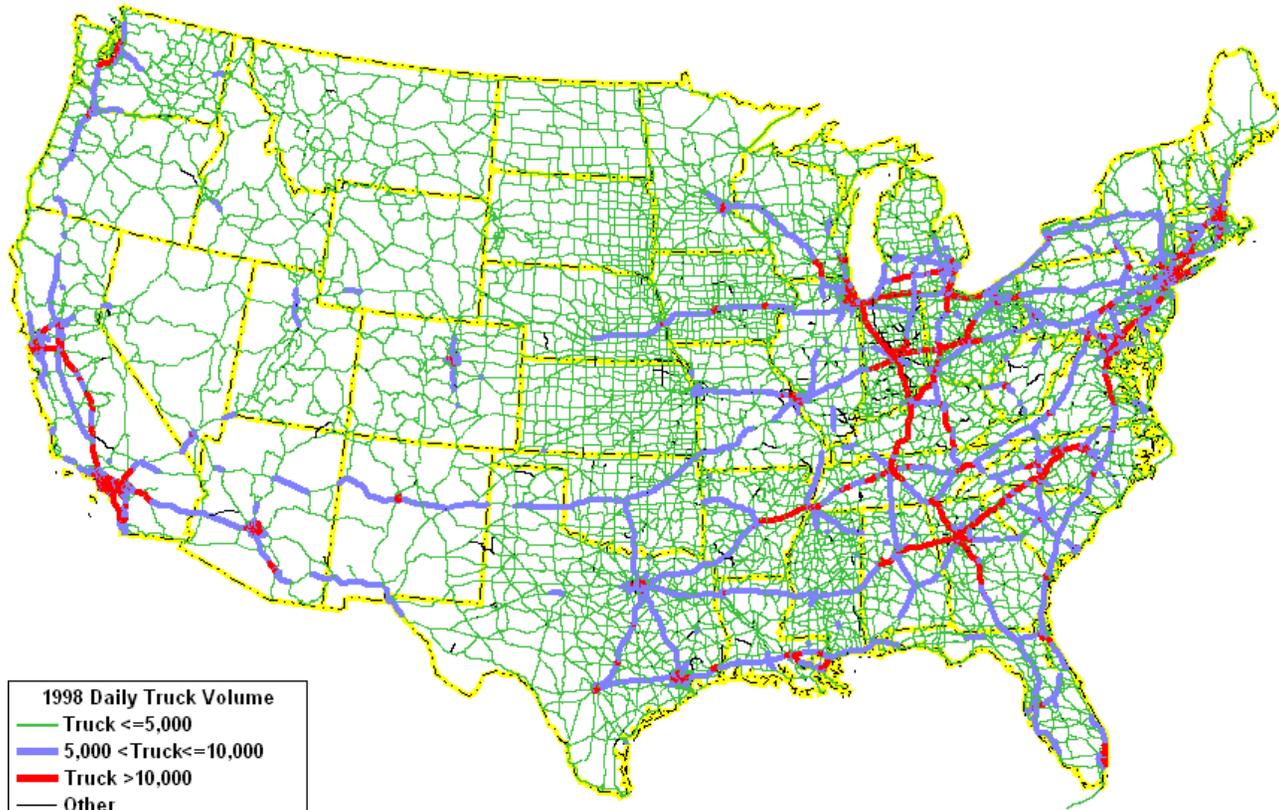
Anticipating Future Demands



Our inland waterways have capacity:

- to transport today's bulk commodities and intermodal cargo,
- to accommodate tomorrow's growth in those cargoes, and
- to accept cargo diverted from overcrowded highways and railways.

Anticipating Future Demands



1998 Truck
Volumes on
U.S. Highways
(U.S. DOT reports)

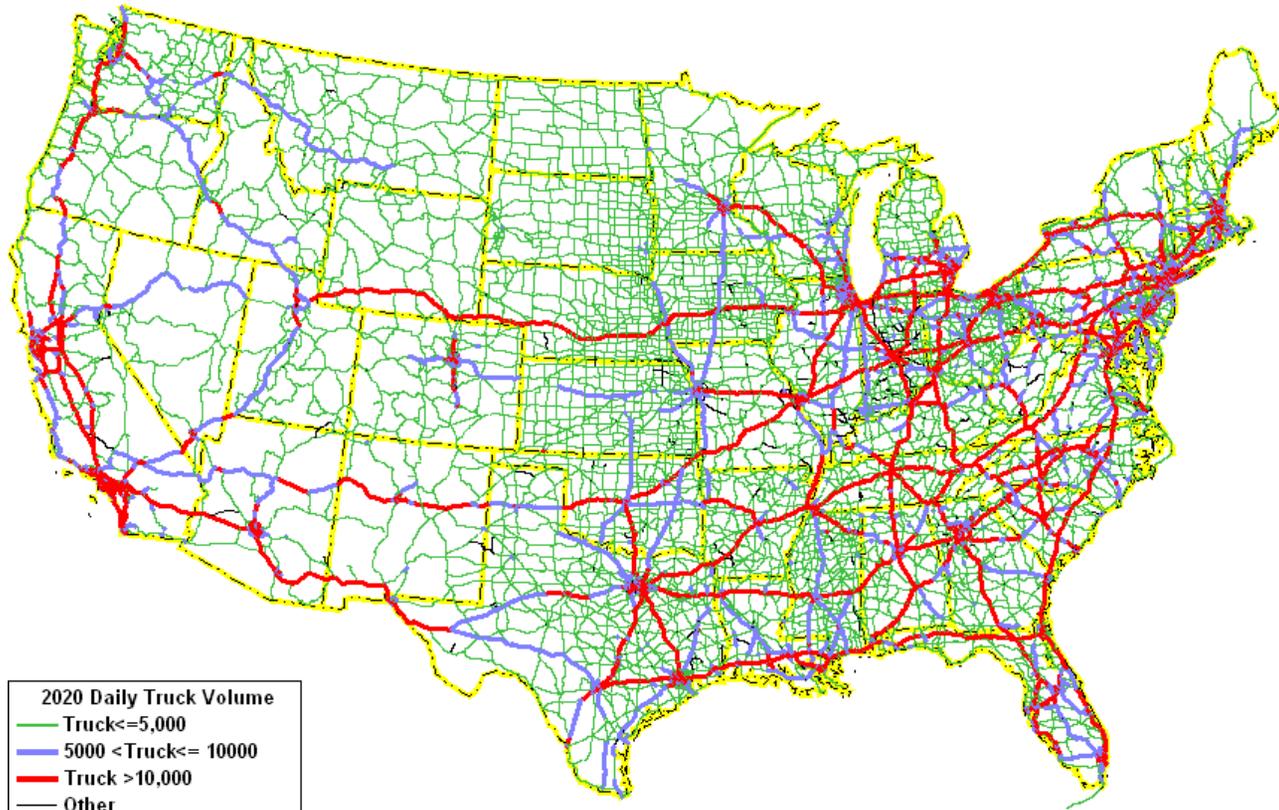
1998 Daily Truck Volume

- Truck $\leq 5,000$
- $5,000 < \text{Truck} \leq 10,000$
- Truck $> 10,000$
- Other

0 100 200 300
Miles

Battelle, February 25, 2002

Anticipating Future Demands



2020 Truck
Volumes on
U.S. Highways
(U.S. DOT forecasts)

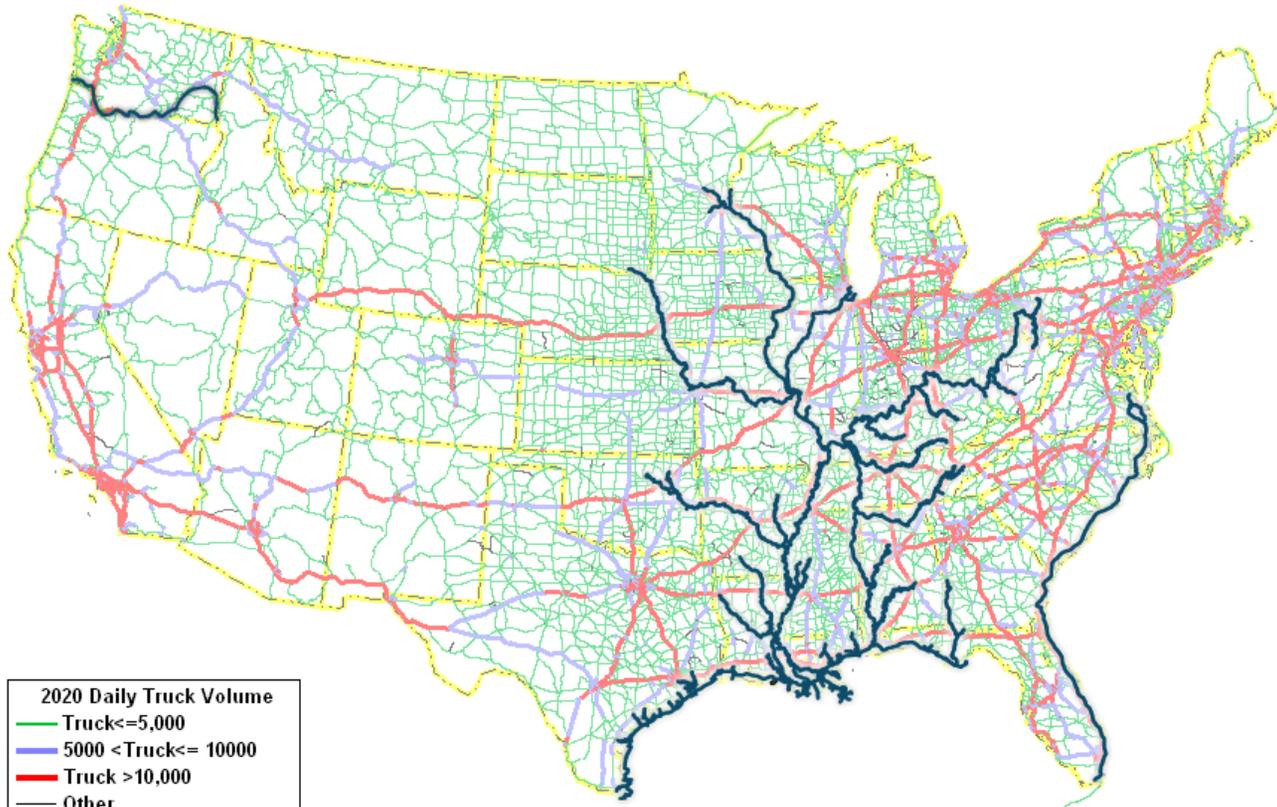
2020 Daily Truck Volume

- Truck <= 5,000
- 5000 < Truck <= 10000
- Truck > 10,000
- Other

0 100 200 300
Miles

Battelle, February 25, 2002

Anticipating Future Demands



Battelle, February 25, 2002

Waterways:
well-positioned
to respond
future needs

A Freight Transportation Solution for the Future



With the least impact of any surface mode on air quality, the environment, and public safety, as well as capacity to spare, our inland waterways are a transportation solution for the Nation's future.

A Study in Freight Transportation Solutions

An executive summary and the full study, “A Modal Comparison of Freight Transportation Effects on the General Public,” can be downloaded from www.nationalwaterwaysfoundation.org.



Factual and Intellectual Support for Waterways



The mission of the National Waterways Foundation is to develop the intellectual and factual arguments for an efficient, well-funded and secure inland waterways system.

Learn more about the Foundation:

- Visit www.nationalwaterwaysfoundation.org
- Call 703.373.2261
- E-mail NWF@vesselalliance.com



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