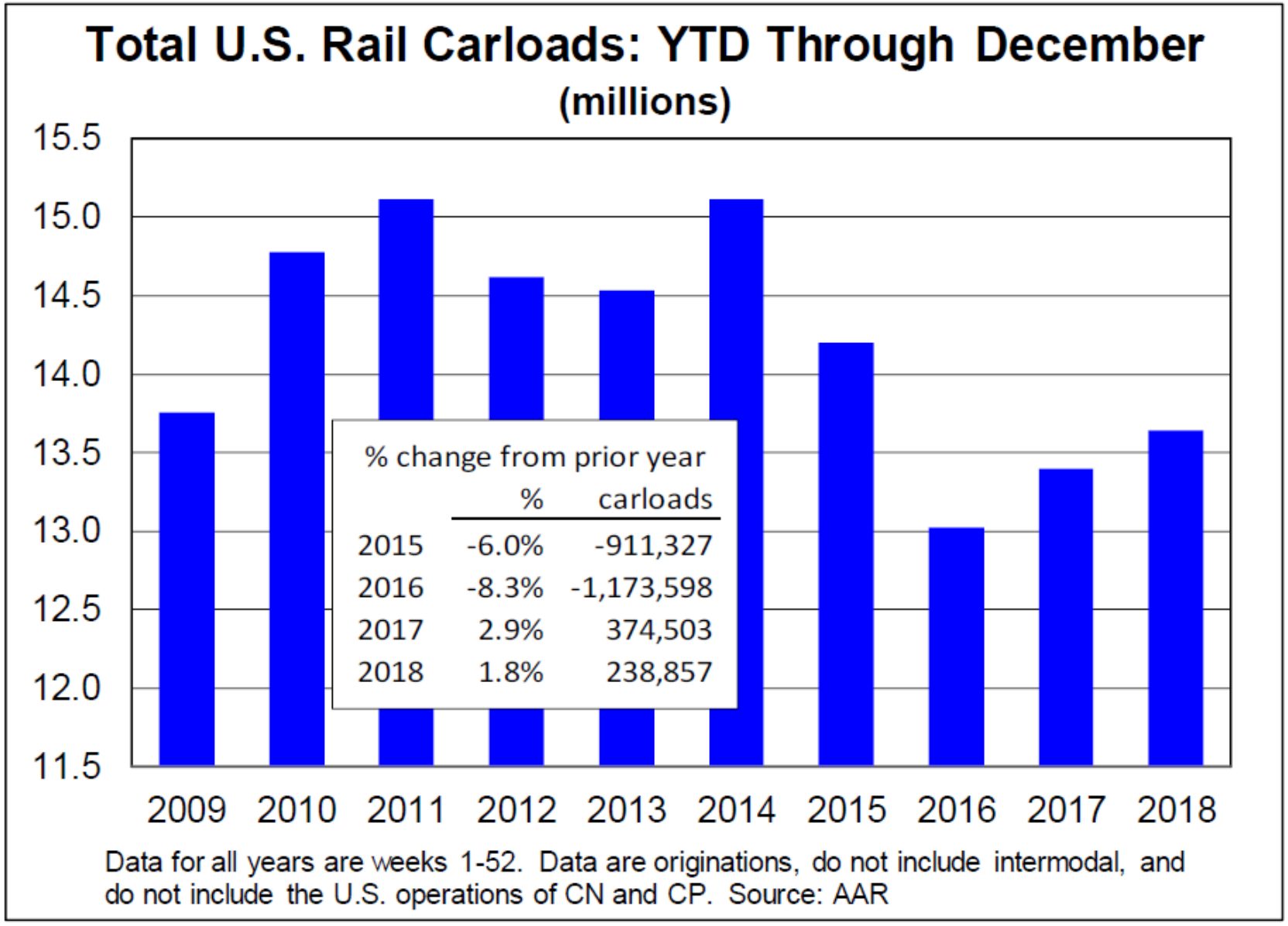
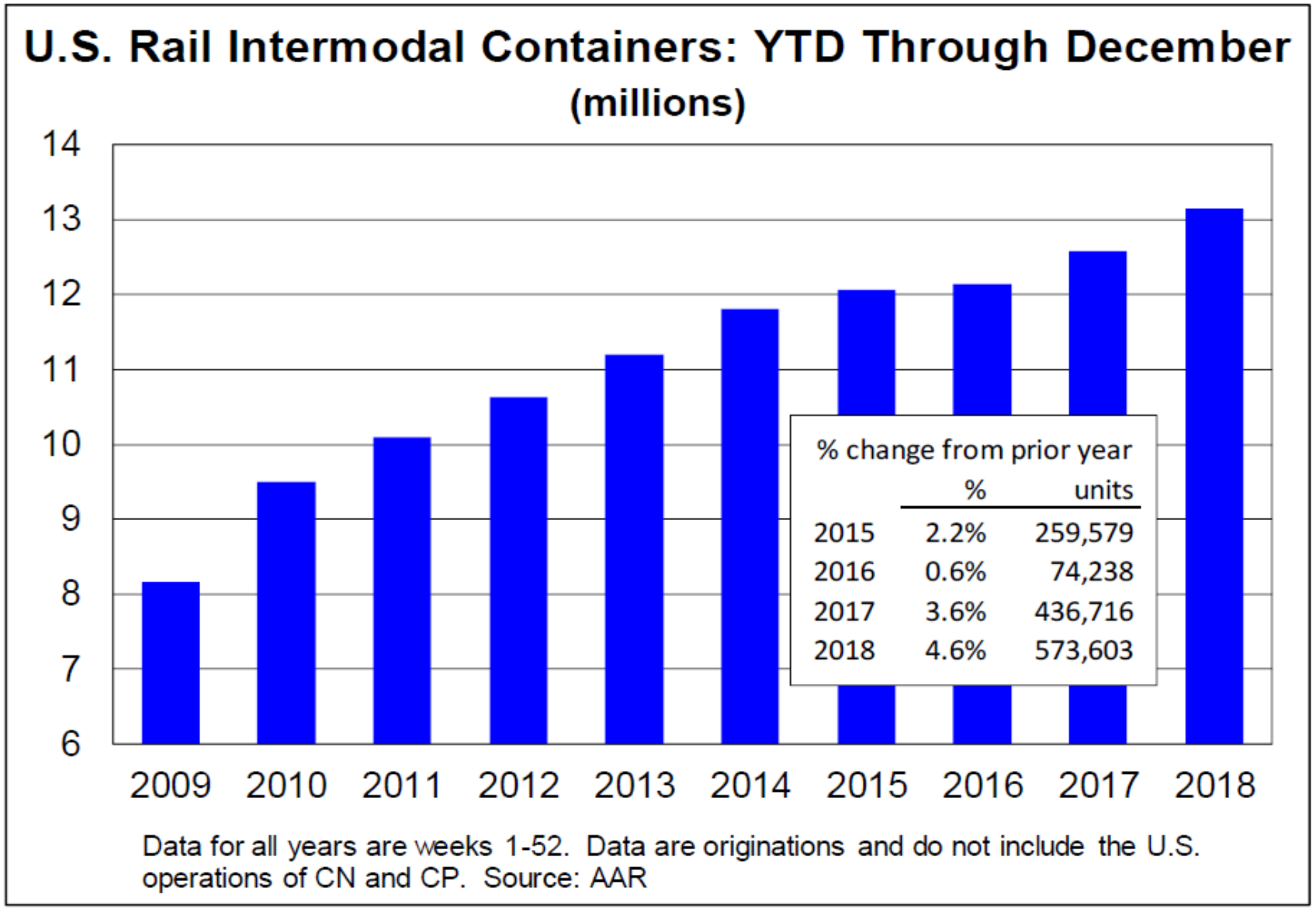
AAR's Activities & Goals for Regulatory Improvement, the Use of New Technologies, and other Mechanical Activities.

Exporail Conference,
Mexico City, March 26 & 27, 2019

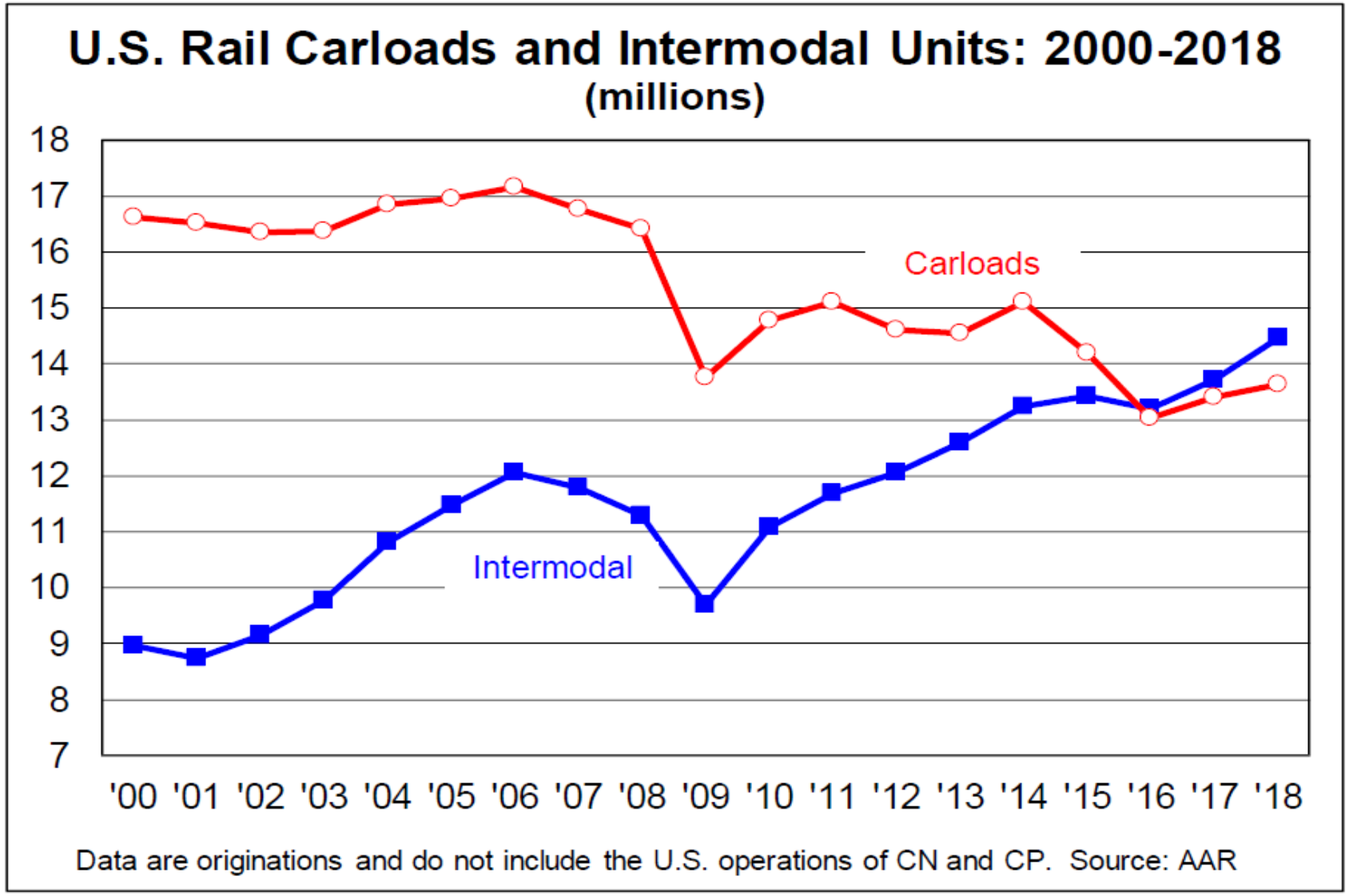
US Rail Carloads 2009 - 2018



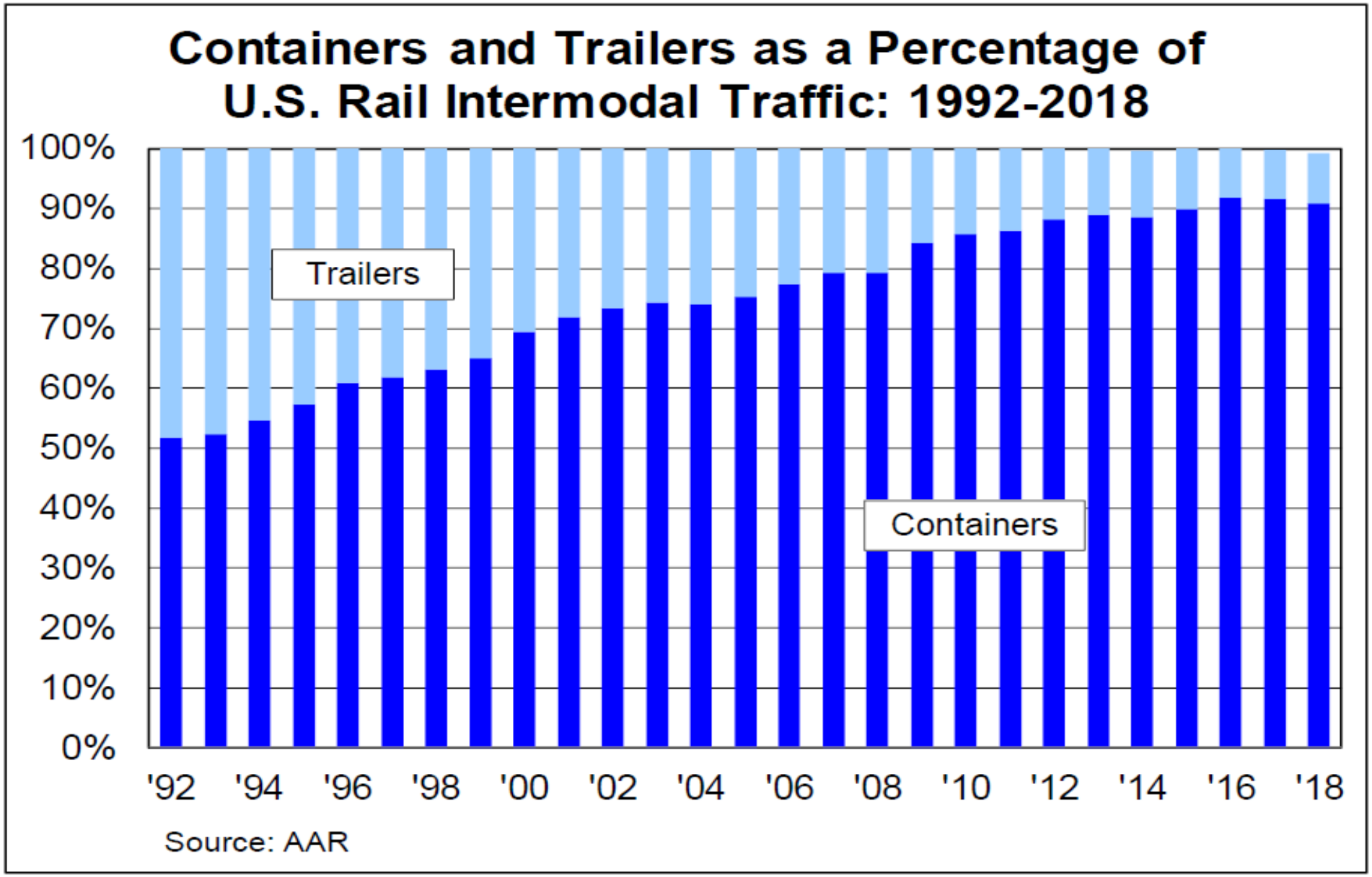
US Rail Intermodal Loadings 2009 - 2018



US Railroad Carload vs Intermodal Trends 2000-2018

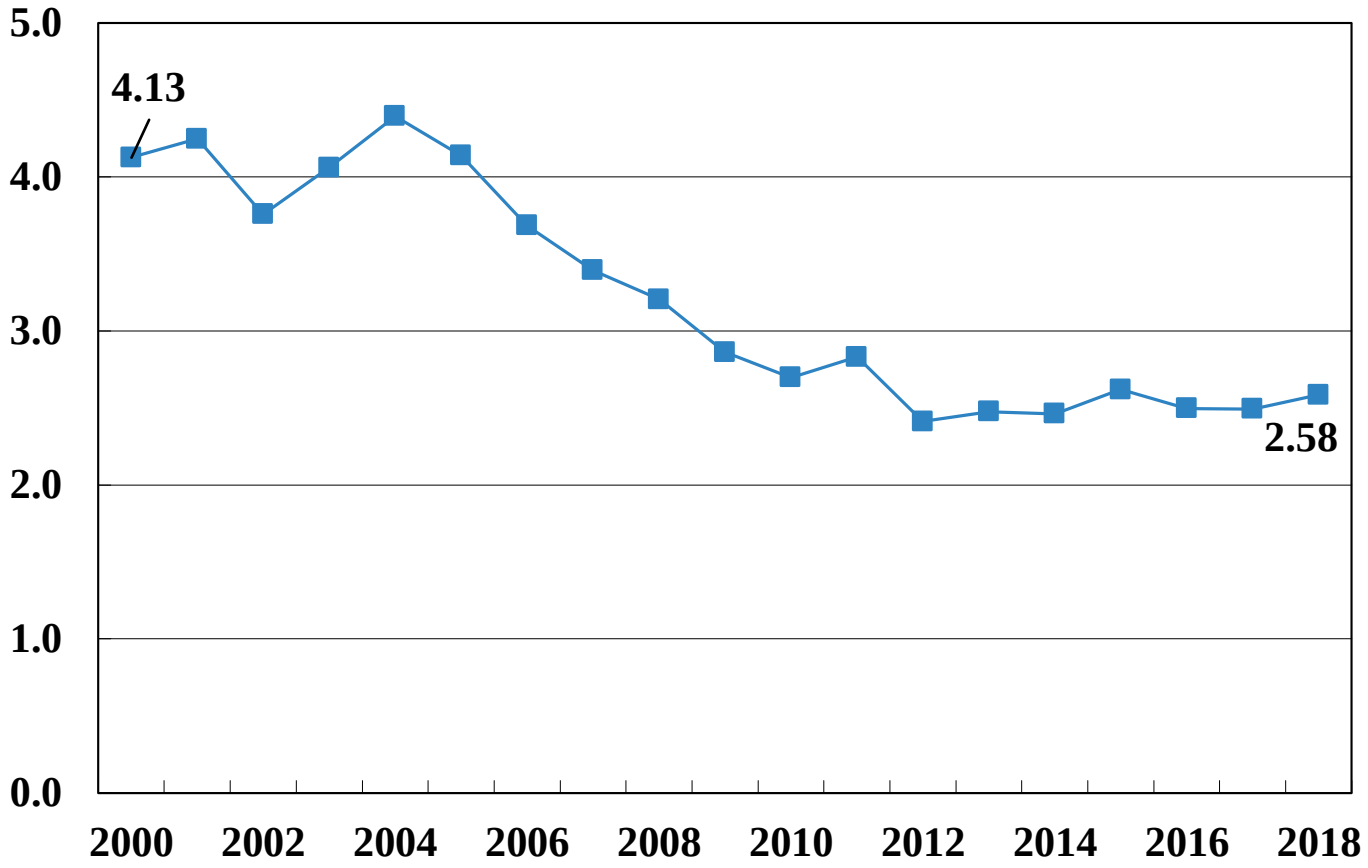


Containers vs Trailers 2000-2018



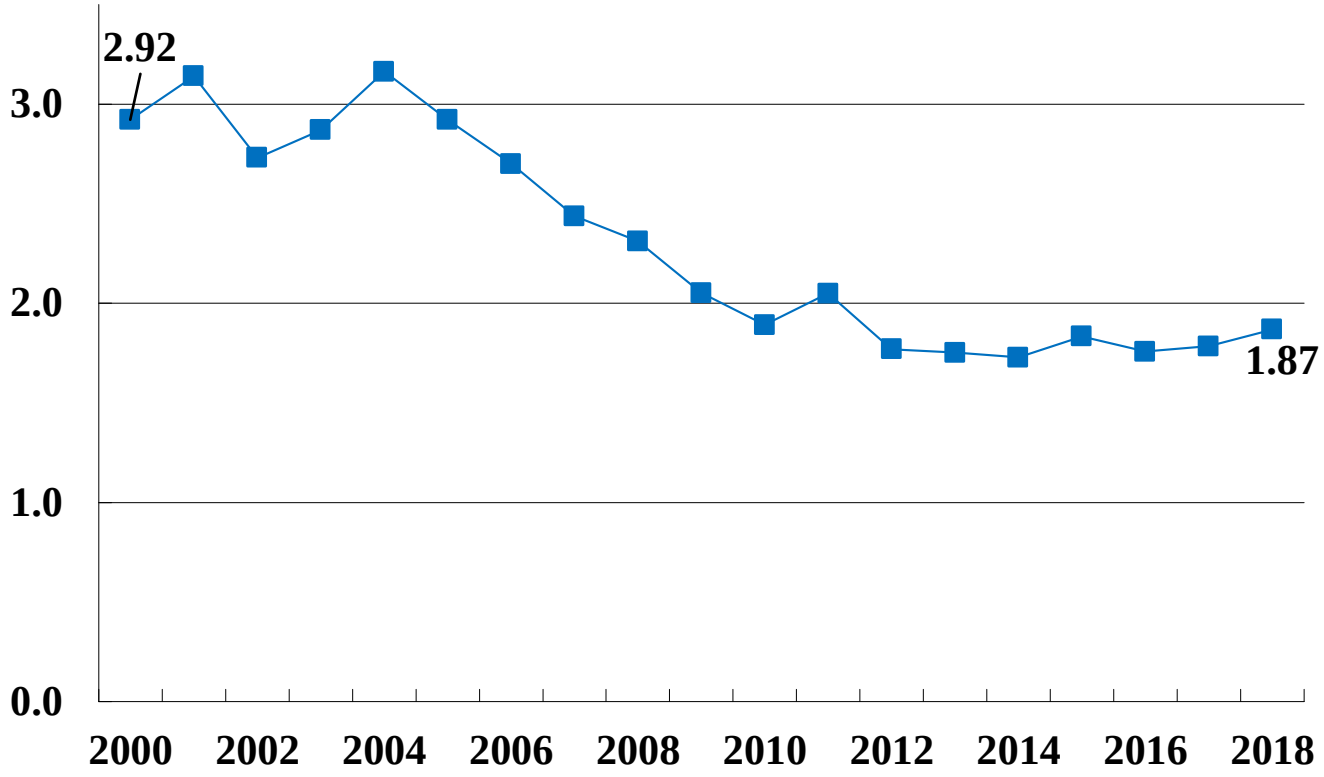
US Railroad Safety Statistics & Trends 2000-2018

Train accidents per million train-miles have dropped 37% since 2000 and 10% since 2009.



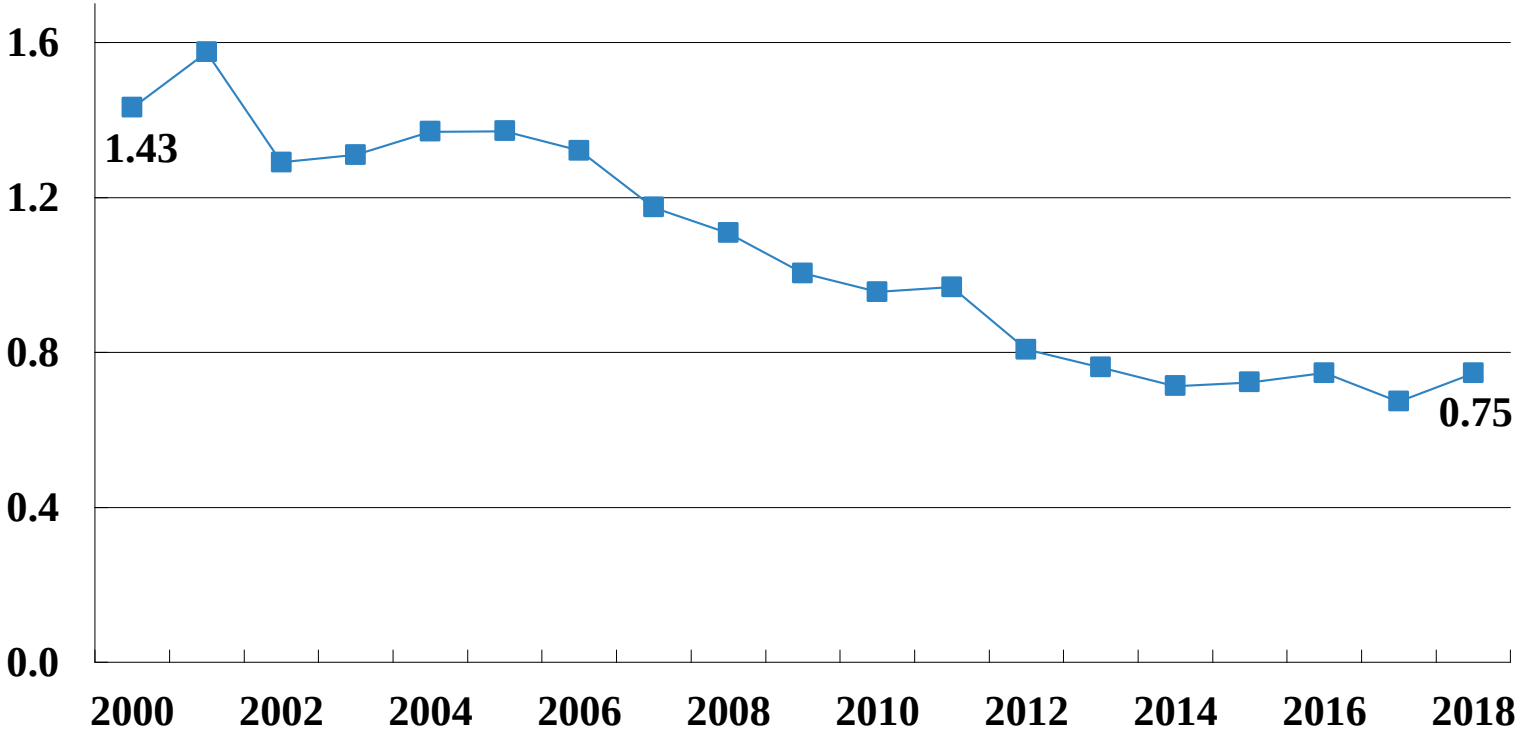
Sources: http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx. Note: Excludes grade crossing accidents. Data for 2018 are preliminary, as of March 2019.

Derailments per million train-miles have dropped 36% since 2000 and 9% since 2009.



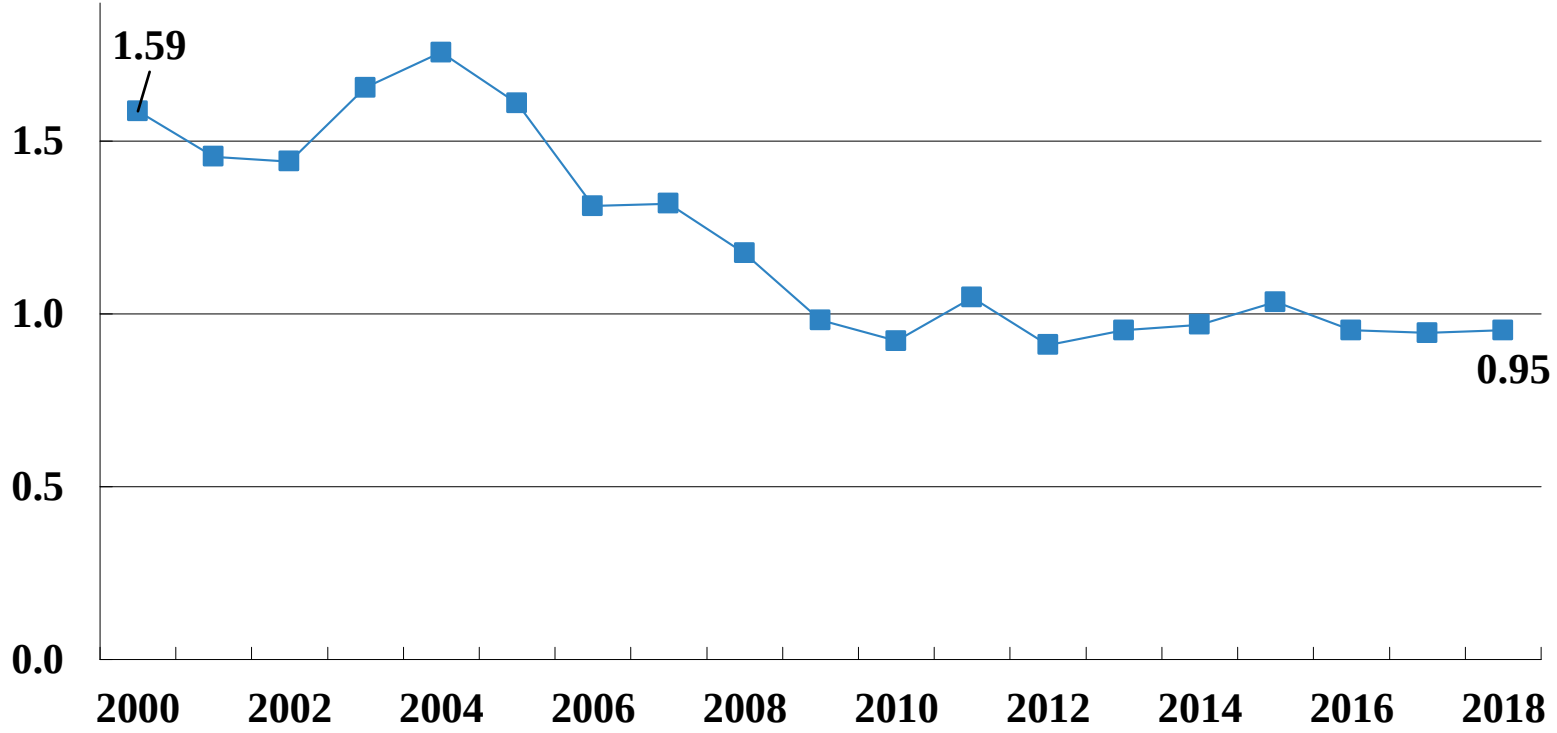
Sources: http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx (2011-2018 data).
FRA, Railroad Safety Statistics Annual Report, 2008-2010, Tables 1-1, 5-6.
Note: Excludes grade crossing accidents. Data for 2018 are preliminary as of March 2019.

Track-caused accidents per million train-miles have dropped 48% since 2000 and 26% since 2009.



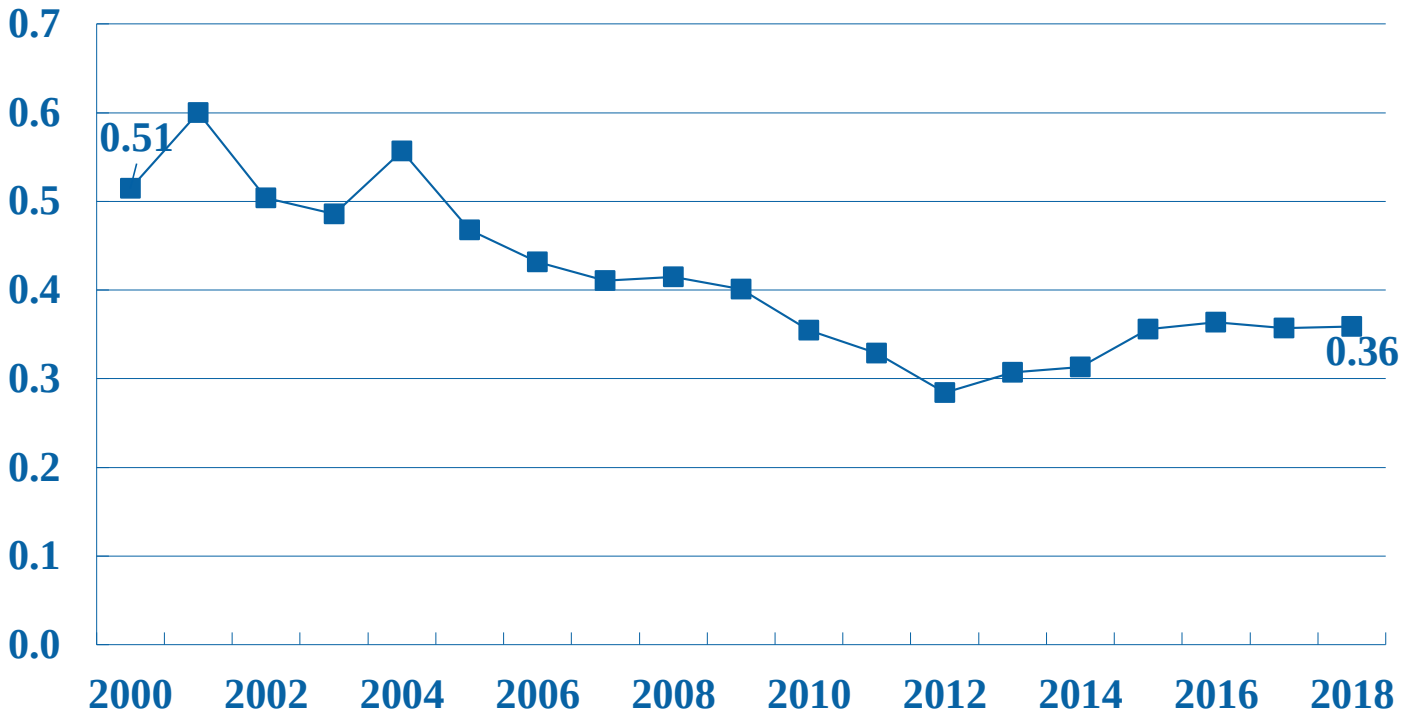
Sources: http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx (2011-2018 data).
FRA, Railroad Safety Statistics Annual Report, 2008-2010, Tables 1-1, 5-9.
Note: Excludes grade crossing accidents. Data for 2018 are preliminary, as of March 2019.

Human factors accidents per million train-miles have dropped 40% since 2000 and 3% since 2009.



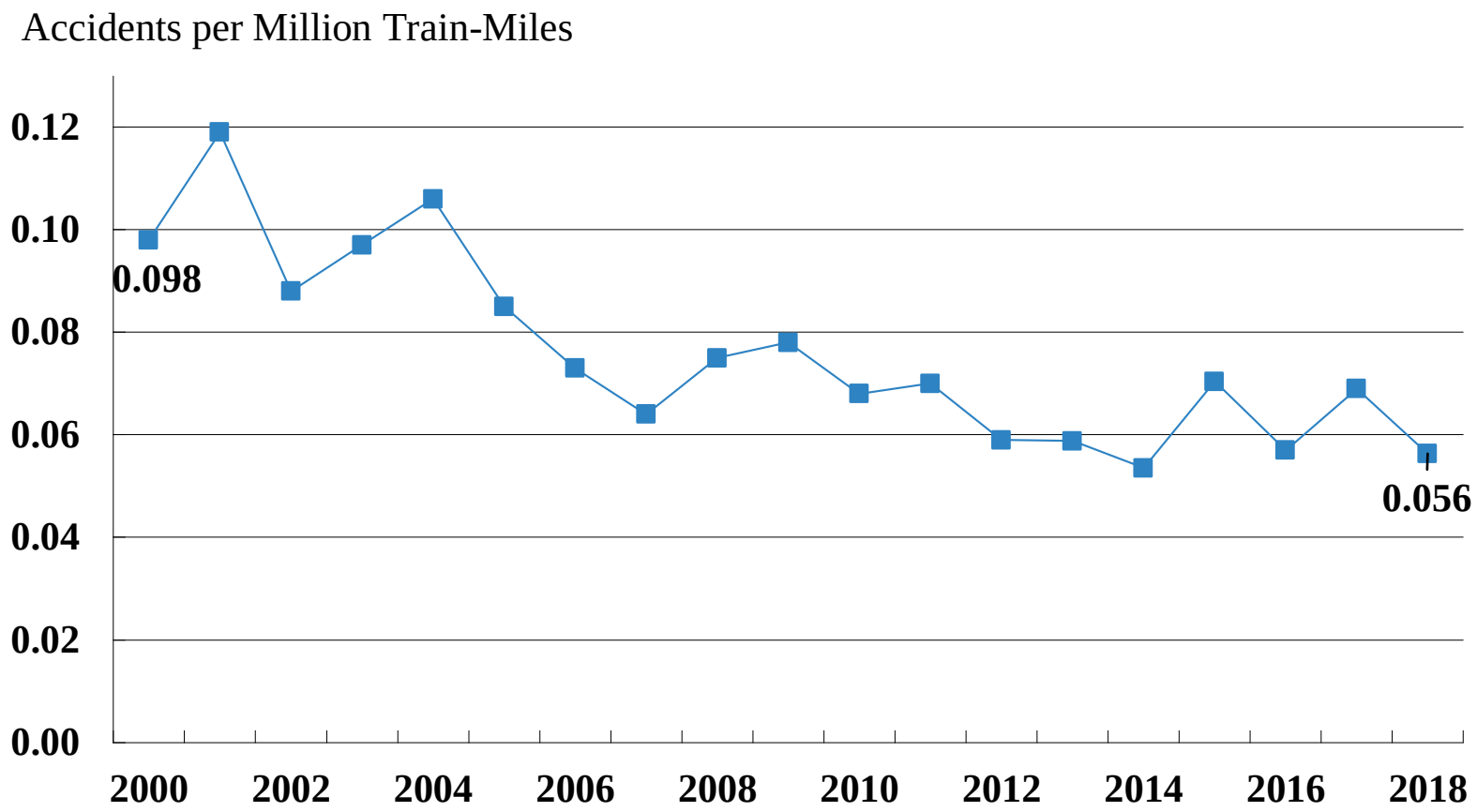
Sources: http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx (2011-2018 data).
FRA, Railroad Safety Statistics Annual Report, 2008-2010, Tables 1-1, 5-9.
Note: Excludes grade crossing accidents. Data for 2018 are preliminary as of March 2019.

Equipment-caused accidents per million train-miles have dropped 30% since 2000 and 11% since 2009.



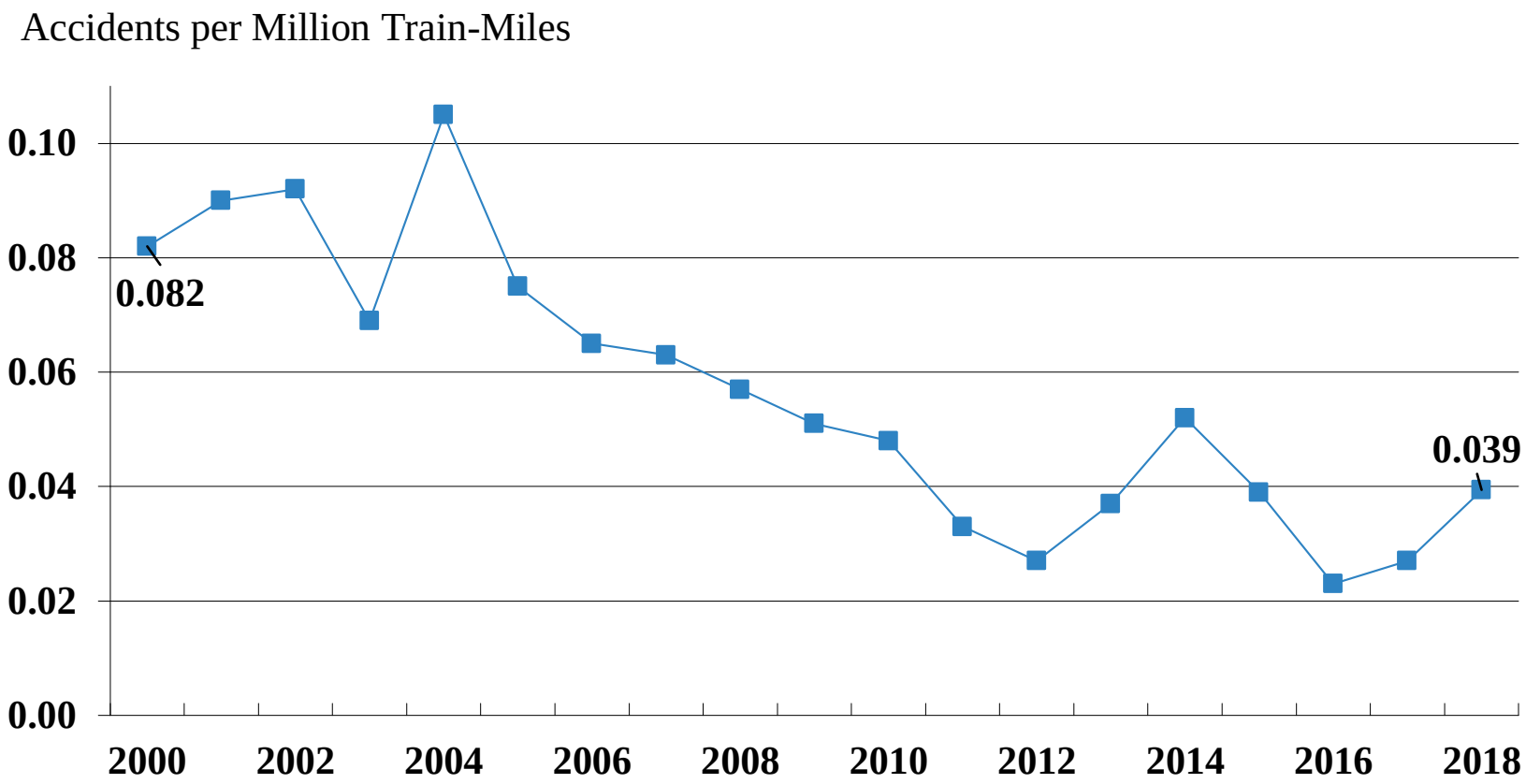
Sources: http://safetydata.fra.dot.gov/officeofsafety/publicsite/summary.aspx (2011-2018 data).
FRA, Railroad Safety Statistics Annual Report, 2008-2010, Tables 1-1, 5-9.
Note: Excludes grade crossing accidents. Data for 2018 are preliminary, as of March 2019.

Wheel equipment-related train accident rates have dropped 43% since 2000 and 28% since 2009.



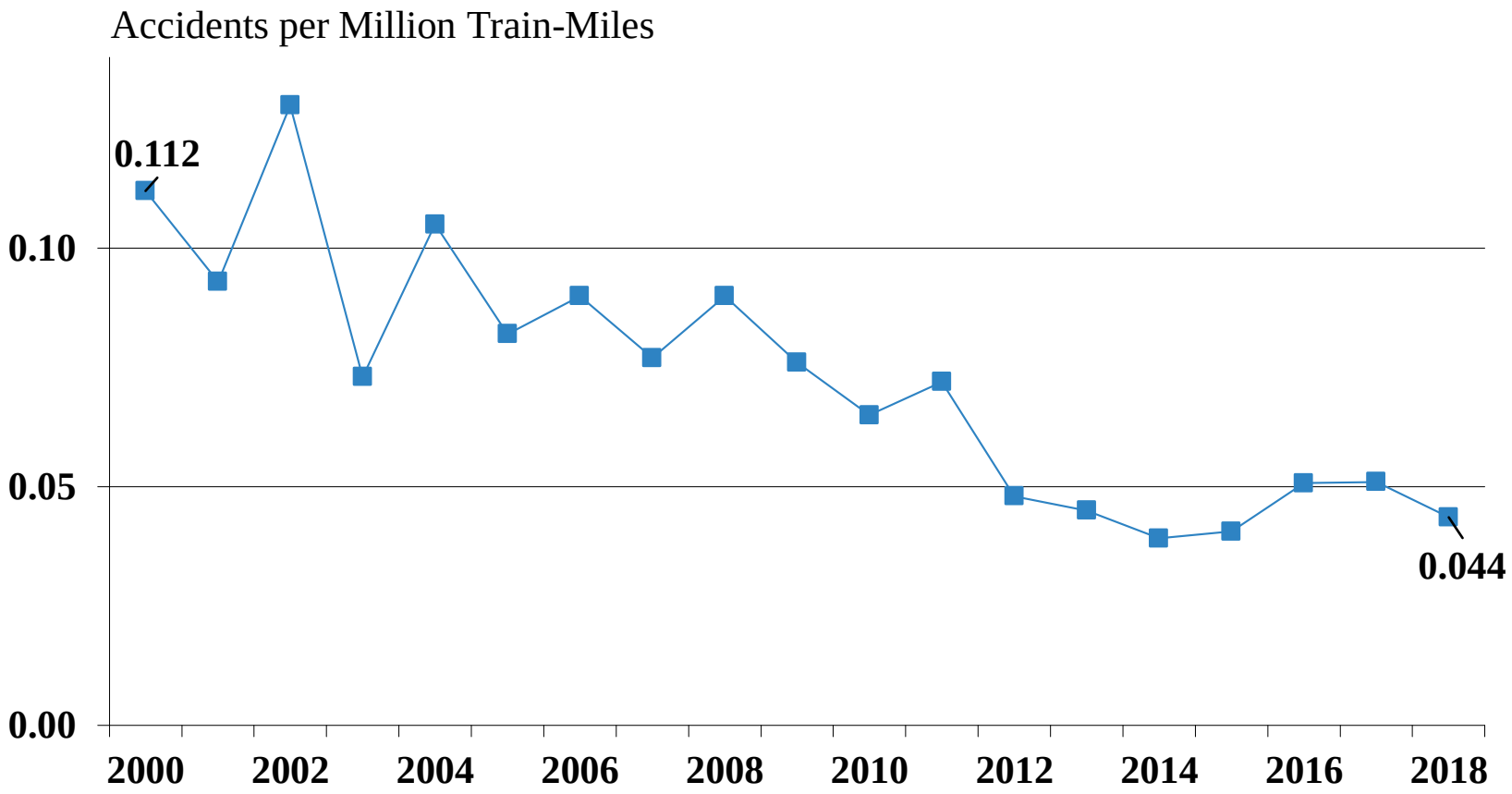
Sources: AAR Analysis of FRA Train Accident Database through 2018, as of March 2019.
Note: Includes accidents due to locomotive wheel defects. Data for 2018 are preliminary.

Axle and bearings-related train accident rates have dropped 52% since 2000 and 23% since 2009.



Sources: AAR Analysis of FRA Train Accident Database through 2018, as of March 2019.
Note: Includes accidents due to locomotive axle or bearing defects. Data for 2018 are preliminary.

Truck component-related train accident rates have dropped 61% since 2000 and 43% since 2009.



Sources: AAR Analysis of FRA Train Accident Database through 2018, as of March 2019.
Note: Includes accidents due to locomotive truck component defects. Data for 2018 are preliminary.

Regulatory Modernization to Further Improve Safety

Exporail Conference
Mexico City, March 26 & 27, 2019

Most Common Derailment Due to Mechanical Failure

Mechanical components that fail and cause derailments are difficult or impossible to find during walking inspections. The most common mechanical causes are:

- Defective wheels
- Failed bearings
- Broken axles
- Coupler defects
- Truck components

Wayside detection systems examine these components while the train is moving at track speed.

Regulatory Modernization to Improve Safety

AAR's Regulatory Modernization Technical Advisory Group has been developing petitions for modernizing federal regulations

- Goal = Performance-based regulations
- Fuel savings
- Operational flexibility
- Improved equipment utilization
- Improved customer service
- Most importantly = Improvement in safety

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

- The Electronic Air Brake Slip (eABS) is a better way to track air brake tests
- eABS identifies each individual car with a valid air test
- This takes air brake inspection records from the train level to the car level
- eABS indicates the time and location of the brake test
- eABS indicates what type of brake test was performed, whether Qualified Mechanical Inspection or train crew inspection
- eABS keeps track of the mileage remaining for each car in a train
- Picture a “Wheel Report” or train list with air brake information in additional columns

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

Air Brake Regulations contain restrictions due to the inability of positively identifying cars with a valid air test, or the point at which they will need to be retested per the regulations (i.e. 1,000 miles or 1,500 miles)

- Current regulations place restrictions on adding cars to a train without triggering the requirement for another initial terminal test
- Only one block of cars from one previously tested train is allowed to be added
- Current regulations place restrictions on removing cars from a train, and only allow one solid block of cars to be set off

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

Air Brake Regulations contain restrictions due to the inability of positively identifying cars with a valid air test, or the point at which they will need to be retested per the regulations (i.e. 1,000 mile or 1,500 miles)

Seeking to change the regulations to use an Electronic Air Brake Slip:

- Permit adding cars to any location, or several different locations, in a train
- Permit the removal of cars from any location in a train

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

For trains with an electronic air brake slip, we are seeking to change the regulations to:

- Permit the addition of blocks of cars from separate trains, as long as the cars all have a valid eABS
- Permit adding cars to any location in a train, or several different locations in a train
- Permit the removal of cars from any location in a train
- Permit a train to separate into two or more parts and continue as an independent train or as a block of cars in another train.

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

For trains with an eABS, we are seeking to change the regulations to:

- Increase the mileage interval for an air test performed by a train crew (non-QMI) from 1,000 miles to 1,500 miles
- Increase the mileage interval for a QMI inspection from 1,500 miles to 2,500 miles
- Eliminate any restrictions to the number of pick-ups and set-offs en route

Note: a pre-departure inspection (Part 232.215) requires a mechanical inspection whenever a car is placed in a train. There is no federal requirement to re-inspect en route.

The use of new Technology for Air Brake Tests: The Electronic Air Brake Slip

Air Brake Regulations contain restrictions due to inability of identifying cars with a valid air test or the point at which they will need to be retested per the regulations (i.e. 1,000 mile or 1,500 miles) (Class IA Inspection)

- Current regulations place a 1,000-mile restriction on the distance a train can operate before another brake inspection.
- In practice, major terminals are not spaced at 1,000-mile intervals so air brake inspections occur more frequently. A railroad's network operations are designed to route trains through terminals so an air test can be performed
- No safety benefit to inspecting train brakes at 1,000-mile intervals. The safety benefit is from wayside defect detection.
- Extended haul trains are limited to one pick-up and one set-off for their entire journey. This requires extra handling of freight cars, as cars are often hauled by additional trains to their destination. Extra handling induces risk of human factor accidents.

We must modernize rail regulations: Our truck competition's efficiency is being increased

U.S. Department of Transportation Releases Broad Agency Announcement for Truck Platooning Early Deployment and Evaluation

The U.S. Department of Transportation has released a Broad Agency Announcement (BAA) to assess various aspects of in-service truck platoons that are delivering commercial goods by a fleet operator on their con

More than o llected, both technical ar safety, efficiency, a e recommend

The strategy or truck platooning c e two phases of the project al and then project exe

The objecti ng pilot deployment ensive deployment accelerate deployment of cooperative automated vehicle technologies to support the freight industry, enabling trucks to safely follow each other at distances that save fuel, thereby enhancing the economic competitiveness of freight shippers and lowering the costs of landed goods for consumers. The aim is to partner with entities that have already completed development of truck platooning systems and are ready to deploy in-service freight hauling.

> "It will accelerate deployment of cooperative automated vehicle technologies to support the freight industry, enabling trucks to safely follow each other at distances that enable the vehicles to save fuel, thereby enhancing the economic competitiveness of freight shippers and lowering the costs…."

The deadline for responses is October 23, 2018. To learn more about the BAA and submit a response visit the FedBizOps website.

Increasing rail safety and competitiveness by removing artificial barriers is in the public interest

Fatalities in Crashes Involving Large Trucks

Fatalities in crashes involving large trucks increased by 9 percent from 2016 to 2017. Combination trucks (tractor trailers) involved in fatal crashes increased by 5.8 percent from 2016 to 2017, and single-unit straight trucks involved in fatal crashes also increased by 18.7 percent.

Table 2 shows large-truck fatalities by category:

- Occupants of other vehicles involved in large-truck crashes had 280 more fatalities, an 8.8-percent increase from 2016.
- Large-truck occupant fatalities in multiple-vehicle crashes increased by 76, a 28.5-percent increase from 2016.
- Large-truck occupant fatalities in single-vehicle crashes increased by 40, an 8.7-percent increase from 2016.

Table 2
People Killed in Crashes Involving Large Trucks* 2016–2017

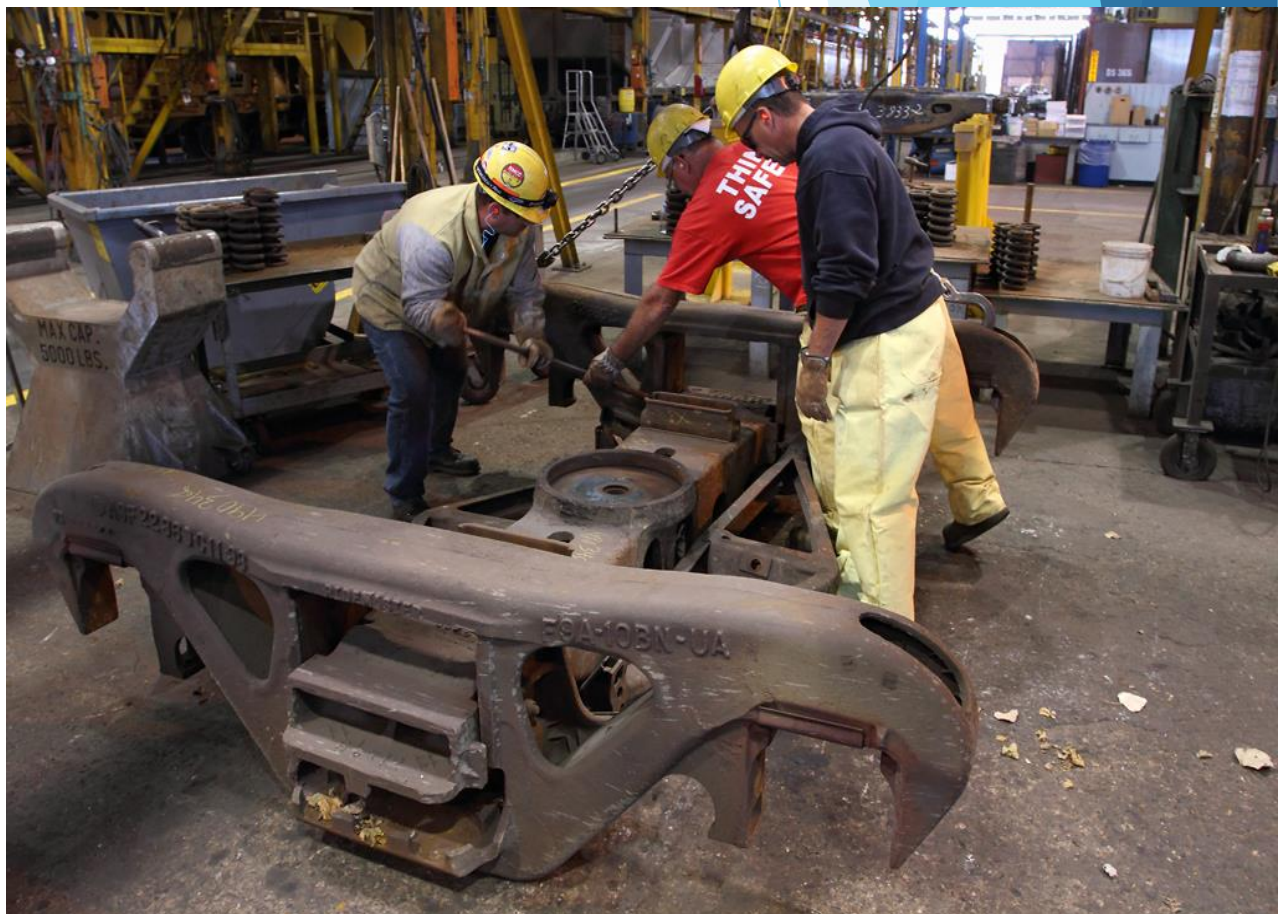
Person Type		2016	2017	Change	% Change
Occupants of Large Trucks	Single Vehicle	458	498	+40	+8.7%
	Multiple Vehicle	267	343	+76	+28.5%
	Total	725	841	+116	+16.0%
Other People	Other Vehicle Occupant	3,170	3,450	+280	+8.8%
	Nonoccupant	474	470	-4	-0.8%
	Total	3,644	3,920	+276	+7.6%
Total		4,369	4,761	+392	+9.0%

Sources: Fatalities—FARS 2016 Final File, 2017 ARF
* A large truck is defined as any medium or heavy truck, excluding buses and motor homes, with a gross vehicle weight rating greater than 10,000 pounds. (Includes commercial and non-commercial vehicles)

2019 North American Rail Mechanical Operations (NARMO) Seminar

- NARMO
  - Dallas, Texas
  - Registration Tuesday, May 14th
  - Presentations all day Wednesday, May 15th
  - Presentations in the morning of Thursday, May 16th
  - MID breakout sessions in the afternoon of May 16th

- Expected Topics:
  - Interchange Rule Updates
  - Interchange Rule Q&A
  - Damaged Defective Car Tracking
  - AAR Rulemaking process
  - Regulatory Modernization
  - Training by MID Staff



Thank you

Any Questions?