



U.S. Department of Transportation  
Federal Motor Carrier Safety Administration

# Crash Involvements of Small Trucks and Their Safety Impact

**MOTOR CARRIER SAFETY ADVISORY COMMITTEE**  
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Jenny Guarino, Analysis Division. Office of Analysis, Research, and Technology, FMCSA



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Office of Research and Information Technology

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# Agenda

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- Data Sources
- Notable Data Changes
- Safety breakouts:
  - Large Trucks by Truck Weight Rating
  - Land Use and Functional System
  - Driver-Related Factors
  - Body Type
  - Issuing Authority
  - Pre-Crash Events

# Data Sources

- This presentation uses the National Highway Traffic Safety Administration's (NHTSA) Fatality Analysis Reporting System (FARS)
- FARS is a census of fatal motor vehicle crashes with a set of data files documenting all qualifying fatalities that occurred within the 50 States, the District of Columbia, and Puerto Rico since 1975. To qualify as a FARS case, the crash had to involve a motor vehicle traveling on a trafficway customarily open to the public, and must have resulted in the death of a motorist or a non-motorist within 30 days of the crash.
- FARS defines a large truck as a truck with a gross vehicle weight rating (GVWR) greater than 10,000 lbs.

# 2016 Data Changes

- With the release of the 2018 Annual Report File (ARF), NHTSA amended the 2016 Final File and released the 2017 Final File.
- Changes in 2016 Final File include:
  - The number of alcohol-impaired-driving fatalities for 2016 changed from 10,996 to 10,967.
  - The number of fatalities involving large trucks changed from 4,369 to 4,678 due to the light pickup truck classification revision. This methodology change will be reflected in 2017 and 2018 large truck crash counts.

# Large Trucks in Fatal Crashes by Truck Weight Rating, 2016 – 2018

Truck Weight Rating	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Class 1: < 6,000 lb	0	0.0%	0	0.0%	1	*
Class 2: 6,001 - 10,000 lb	3	0.1%	1	*	1	*
Class 3: 10,001 - 14,000 lb	478	10.5%	592	12.3%	619	12.7%
Class 4: 14,001 - 16,000 lb	116	2.5%	102	2.1%	108	2.2%
Class 5: 16,001 - 19,500 lb	112	2.5%	151	3.1%	170	3.5%
Class 6: 19,501 - 26,000 lb	249	5.5%	246	5.1%	287	5.9%
Class 7: 26,001 - 33,000 lb	225	4.9%	271	5.6%	226	4.6%
Class 8: > 33,000 lb	3,082	67.6%	3,319	69.1%	3,307	68.0%
Unknown	297	6.5%	122	2.5%	143	2.9%
<b>Total</b>	<b>4,562</b>	<b>100.0%</b>	<b>4,804</b>	<b>100.0%</b>	<b>4,862</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

- From 2017 - 2018:
  - the number of large trucks in a fatal crash with a weight rating between 10,001 and 14,000 lbs increased 4.6 percent
  - The number of large trucks in a fatal crash with a weight rating greater than 26,000 lbs decreased 1.6 percent

# 10,001-14,000lb Large Trucks in Fatal Crashes by Land Use and Functional System, 2016-2018

Functional System	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
<b>Rural Crashes</b>						
Interstate	28	5.9%	42	7.1%	44	7.1%
Freeway/Expressway	3	0.6%	8	1.4%	11	1.8%
Other Principal Arterial	116	24.3%	105	17.7%	117	18.9%
Minor Arterial	65	13.6%	71	12.0%	68	11.0%
Major Collector	64	13.4%	63	10.6%	84	13.6%
Minor Collector	13	2.7%	17	2.9%	16	2.6%
Local Roads	25	5.2%	28	4.7%	21	3.4%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total Large Trucks in Fatal Crashes on Rural Roads</b>	<b>314</b>	<b>65.7%</b>	<b>334</b>	<b>56.4%</b>	<b>361</b>	<b>58.3%</b>
<b>Urban Crashes</b>						
Interstate	23	4.8%	52	8.8%	47	7.6%
Freeway/Expressway	14	2.9%	18	3.0%	27	4.4%
Other Principal Arterial	63	13.2%	94	15.9%	84	13.6%
Minor Arterial	37	7.7%	47	7.9%	51	8.2%
Major Collector	18	3.8%	21	3.5%	19	3.1%
Minor Collector	2	0.4%	5	0.8%	6	1.0%
Local Roads	7	1.5%	20	3.4%	18	2.9%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total Large Trucks in Fatal Crashes on Urban Roads</b>	<b>164</b>	<b>34.3%</b>	<b>257</b>	<b>43.4%</b>	<b>252</b>	<b>40.7%</b>
Unknown Whether Rural or Urban	0	0.0%	1	0.2%	6	1.0%
<b>Grand Total</b>	<b>478</b>	<b>100.0%</b>	<b>592</b>	<b>100.0%</b>	<b>619</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

# 6,001-10,000lb Large Trucks in Fatal Crashes by Land Use and Functional System, 2016-2018

Functional System	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
<b>Rural Crashes</b>						
Interstate	0	0.0%	0	0.0%	0	0.0%
Freeway/Expressway	0	0.0%	0	0.0%	0	0.0%
Other Principal Arterial	0	0.0%	0	0.0%	0	0.0%
Minor Arterial	1	33.3%	0	0.0%	0	0.0%
Major Collector	0	0.0%	0	0.0%	0	0.0%
Minor Collector	0	0.0%	0	0.0%	0	0.0%
Local Roads	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total Large Trucks in Fatal Crashes on Rural Roads</b>	<b>1</b>	<b>33.3%</b>	<b>0</b>	<b>0.0%</b>	<b>0</b>	<b>0.0%</b>
<b>Urban Crashes</b>						
Interstate	0	0.0%	0	0.0%	0	0.0%
Freeway/Expressway	0	0.0%	0	0.0%	0	0.0%
Other Principal Arterial	1	33.3%	1	100.0%	0	0.0%
Minor Arterial	1	33.3%	0	0.0%	1	100.0%
Major Collector	0	0.0%	0	0.0%	0	0.0%
Minor Collector	0	0.0%	0	0.0%	0	0.0%
Local Roads	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total Large Trucks in Fatal Crashes on Urban Roads</b>	<b>2</b>	<b>66.7%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>
Unknown Whether Rural or Urban	0	0.0%	0	0.0%	0	0.0%
<b>Grand Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

# Top 10 Driver-Related Factors for 10,000 – 14,000lb Large Trucks, 2016 - 2018

Driver-Related Factors	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Impairment (Fatigue, Alcohol, Illness, etc.)	52	11.0%	64	11.0%	78	12.7%
Speeding of Any Kind	57	12.0%	62	10.6%	68	11.1%
Distraction/Inattention (Cell Phone, Lost in Thought, Eating, etc.)	36	7.6%	52	8.9%	50	8.1%
Failure to Yield Right of Way	24	5.1%	24	4.1%	40	6.5%
Failure to Keep in Proper Lane	29	6.1%	35	6.0%	36	5.9%
Careless Driving	25	5.3%	39	6.7%	34	5.5%
Officers; Failure to Obey Safety Zone Traffic Laws	16	3.4%	28	4.8%	16	2.6%
Vision Obscured (by Weather, Roadway Design, Vehicles, etc.)	16	3.4%	17	2.9%	14	2.3%
Non-Traffic Violation Charged - Manslaughter or Homicide or Other Assault	24	5.1%	16	2.7%	14	2.3%
Manner or Operating at Erratic or Suddenly Changing Speeds	9	1.9%	14	2.4%	14	2.3%
At Least One Driver-Related Factor Recorded	202	42.6%	253	43.4%	267	43.4%
No Driver-Related Factors Recorded	272	57.4%	330	56.6%	348	56.6%
<b>Total</b>	<b>474</b>	<b>100.0%</b>	<b>583</b>	<b>100.0%</b>	<b>615</b>	<b>100.0%</b>
At Least One Moving Violation Recorded	55	11.6%	82	14.1%	88	14.3%
No Moving Violations Recorded	419	88.4%	501	85.9%	527	85.7%
<b>Total</b>	<b>474</b>	<b>100.0%</b>	<b>583</b>	<b>100.0%</b>	<b>615</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

In 2018, 43.4% of 10,000 – 14,000lb large truck drivers had at least one driver related factor recorded at the time of crash. Of those:

- 12.7% of drivers were impaired at the time of crash
- 11.7% were speeding

# Driver-Related Factors for 6,001-10,000lb Large Trucks, 2016 - 2018

Driver-Related Factors	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Failure to Obey Actual Traffic Sign, Traffic Control Devices or Traffic Officers; Failure to Obey Safety Zone Traffic Laws	0	0.0%	0	0.0%	1	100.0%
Careless Driving	1	33.3%	0	0.0%	0	0.0%
Following Improperly	1	33.3%	0	0.0%	0	0.0%
Failure to Yield Right of Way	1	33.3%	0	0.0%	0	0.0%
Making Improper Turn	1	33.3%	0	0.0%	0	0.0%
Vision Obscured (by Weather, Roadway Design, Vehicles, etc.)	1	33.3%	0	0.0%	0	0.0%
Distraction/Inattention (Cell Phone, Lost in Thought, Eating, etc.)	1	33.3%	0	0.0%	0	0.0%
Impairment (Fatigue, Alcohol, Illness, etc.)	0	0.0%	1	100.0%	0	0.0%
Speeding of Any Kind	0	0.0%	1	100.0%	0	0.0%
At Least One Driver-Related Factor Recorded	3	100.0%	1	100.0%	1	100.0%
No Driver-Related Factors Recorded	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>
At Least One Moving Violation Recorded	2	66.7%	0	0.0%	0	0.0%
No Moving Violations Recorded	1	33.3%	1	100.0%	1	100.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

In 2018, there was one 6,000 – 10,000lb large truck driver in a fatal crash. This driver was coded as having failed to obey traffic signs, devices or safety zone laws.

# 10,001-14,000lb Large Trucks in Fatal Crashes by Body Type, 2016-2018

Body Type	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Step Van	0	0.0%	1	0.2%	0	0.0%
Single-Unit Straight Truck (10,000 lbs < GVWR < or = 19,500 lbs)	130	27.2%	150	25.3%	216	34.9%
Single-Unit Straight Truck (19,500 lbs < GVWR < or = 26,000 lbs)	2	0.4%	11	1.9%	6	1.0%
Single-Unit Straight Truck (GVWR>26,000 lbs)	0	0.0%	3	0.5%	0	0.0%
Single-Unit Straight Truck (GVWR unknown)	5	1.0%	5	0.8%	4	0.6%
Truck/Tractor (Cab Only, or with Any Number of Trailing Units: Any Weight)	1	0.2%	0	0.0%	1	0.2%
Medium/Heavy Pickup (GVWR > 10,000 lbs, Since 2001)	338	70.7%	421	71.1%	390	63.0%
Unknown if Single-Unit or Combination-Unit Medium Truck (10,000 lbs < GVWR < 26,000 lbs)	1	0.2%	0	0.0%	0	0.0%
Unknown Medium/Heavy Truck Type	1	0.2%	1	0.2%	2	0.3%
<b>Total</b>	<b>478</b>	<b>100.0%</b>	<b>592</b>	<b>100.0%</b>	<b>619</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

## In 2018:

- 63.0% of the 10,000 – 14,000lb large trucks were coded as medium/heavy pickup.
- 34.9% of the 10,000 – 14,000lb large trucks were coded as single-unit straight trucks

# 6,001-10,000lb Large Trucks in Fatal Crashes by Body Type, 2016-2018

Body Type	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Step Van	0	0.0%	0	0.0%	0	0.0%
Single-Unit Straight Truck (10,000 lbs < GVWR < or = 19,500 lbs)	1	33.3%	0	0.0%	0	0.0%
Single-Unit Straight Truck (19,500 lbs < GVWR < or = 26,000 lbs)	1	33.3%	0	0.0%	0	0.0%
Single-Unit Straight Truck (GVWR>26,000 lbs)	0	0.0%	0	0.0%	0	0.0%
Single-Unit Straight Truck (GVWR unknown)	1	33.3%	0	0.0%	1	100.0%
Truck/Tractor (Cab Only, or with Any Number of Trailing Units: Any Weight)	0	0.0%	0	0.0%	0	0.0%
Medium/Heavy Pickup (GVWR > 10,000 lbs, Since 2001)	0	0.0%	1	100.0%	0	0.0%
Unknown if Single-Unit or Combination-Unit Medium Truck (10,000 lbs < GVWR < 26,000 lbs)	0	0.0%	0	0.0%	0	0.0%
Unknown Medium/Heavy Truck Type	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

In 2018, the one 6,001 – 10,000lb large truck was coded as a single-unit truck with unknown GVWR.

# Issuing Authority of Large Trucks, 2016 - 2018

10,000 - 14,000lb Large Trucks						
Issuing Authority	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
FARS State Code	3	0.6%	7	1.2%	8	1.3%
US DOT	36	7.5%	63	10.6%	63	10.2%
MC/MX (ICC) <sup>a</sup>	1	0.2%	0	0.0%	0	0.0%
None	399	83.5%	445	75.2%	447	72.2%
Unknown	39	8.2%	77	13.0%	101	16.3%
<b>Total</b>	<b>478</b>	<b>100.0%</b>	<b>592</b>	<b>100.0%</b>	<b>619</b>	<b>100.0%</b>

**In 2018:**

**72.2%** had no issuing authority

**10.2%** has a USDOT number

6,001-10,000lb Large Trucks						
Issuing Authority	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
FARS State Code	0	0.0%	0	0.0%	0	0.0%
US DOT	1	33.3%	0	0.0%	0	0.0%
MC/MX (ICC) <sup>a</sup>	0	0.0%	0	0.0%	0	0.0%
None	2	66.7%	1	100.0%	1	100.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

**100%** had no issuing authority

<sup>a</sup>MC/MX (ICC) refers to interstate for-hire motor carriers and brokers that apply for operating authority. The MX number is assigned to carriers domiciled in Mexico, and the MC number is for all other carriers and brokers. The majority of large trucks assigned MC/MX (ICC) numbers also have US DOT numbers. If a US DOT or State number is not available at the time of the crash, the MC/MX (ICC) number is reported on the Police Accident Report.

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

# 10,001-14,000lb Large Trucks in Fatal Crashes by Critical Precrash Event, 2016-2018

Critical Precrash Event <sup>a</sup>	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Large Truck's Loss of Control <sup>b</sup>	24	5.0%	23	3.9%	29	4.7%
Large Truck's Movement <sup>c</sup>	148	31.0%	165	27.9%	157	25.4%
Other Vehicle in Large Truck's Lane <sup>d</sup>	78	16.3%	117	19.8%	131	21.2%
Other Vehicle's Encroachment into Large Truck's Lane <sup>e</sup>	173	36.2%	209	35.3%	223	36.0%
Pedestrian	34	7.1%	37	6.3%	49	7.9%
Pedalcyclist	10	2.1%	12	2.0%	13	2.1%
Animal	2	0.4%	4	0.7%	0	0.0%
Object	3	0.6%	3	0.5%	4	0.6%
Other	6	1.3%	22	3.7%	12	1.9%
Unknown	0	0.0%	0	0.0%	1	0.2%
<b>Total</b>	<b>478</b>	<b>100.0%</b>	<b>592</b>	<b>100.0%</b>	<b>619</b>	<b>100.0%</b>

<sup>a</sup>The critical precrash event is defined as the event which made this crash imminent (i.e., something occurred which made the collision possible).

<sup>b</sup>"Large Truck's Loss of Control" includes events such as loss of control due to a blow out/flat tire, stalled engine, poor road conditions, traveling too fast for conditions, and other disabling (e.g., wheel fell off) or non-disabling (e.g., hood flew up) vehicle problems.

<sup>c</sup>"Large Truck's Movement" includes events such as crossing an intersection, turning left or right, crossing lane lines, and deceleration.

<sup>d</sup>"Other Vehicle in Large Truck's Lane" includes events which involved another vehicle in the same lane as the large truck, and the other vehicle did something to make the crash imminent.

<sup>e</sup>"Other Vehicle's Encroachment into Large Truck's Lane" includes events in which encroachment by another vehicle from areas such as an adjacent lane (traveling in the same or opposite direction), crossing street, driveway, parking lane, or highway entrance made the crash imminent.

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

# 6,001-10,000lb Large Trucks in Fatal Crashes by Critical Precrash Event, 2016-2018

Critical Precrash Event <sup>a</sup>	2016		2017		2018	
	Number	Percent	Number	Percent	Number	Percent
Large Truck's Loss of Control <sup>b</sup>	0	0.0%	0	0.0%	0	0.0%
Large Truck's Movement <sup>c</sup>	1	33.3%	1	100.0%	1	100.0%
Other Vehicle in Large Truck's Lane <sup>d</sup>	0	0.0%	0	0.0%	0	0.0%
Other Vehicle's Encroachment into Large Truck's Lane <sup>e</sup>	0	0.0%	0	0.0%	0	0.0%
Pedestrian	1	33.3%	0	0.0%	0	0.0%
Pedalcyclist	1	33.3%	0	0.0%	0	0.0%
Animal	0	0.0%	0	0.0%	0	0.0%
Object	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
<b>Total</b>	<b>3</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>	<b>1</b>	<b>100.0%</b>

<sup>a</sup>The critical precrash event is defined as the event which made this crash imminent (i.e., something occurred which made the collision possible).

<sup>b</sup>"Large Truck's Loss of Control" includes events such as loss of control due to a blow out/flat tire, stalled engine, poor road conditions, traveling too fast for conditions, and other disabling (e.g., wheel fell off) or non-disabling (e.g., hood flew up) vehicle problems.

<sup>c</sup>"Large Truck's Movement" includes events such as crossing an intersection, turning left or right, crossing lane lines, and deceleration.

<sup>d</sup>"Other Vehicle in Large Truck's Lane" includes events which involved another vehicle in the same lane as the large truck, and the other vehicle did something to make the crash imminent.

<sup>e</sup>"Other Vehicle's Encroachment into Large Truck's Lane" includes events in which encroachment by another vehicle from areas such as an adjacent lane (traveling in the same or opposite direction), crossing street, driveway, parking lane, or highway entrance made the crash imminent.

Source: National Highway Traffic Safety Administration, Fatality Analysis Reporting System (FARS).

# Summary

- In 2018:
  - 10,000 – 14,000lb large trucks made up 12.7% of all large trucks in fatal crashes. Of those:
    - 72.2% had no issuing authority and 10.2% had a USDOT number
    - 63.0% were coded as medium/heavy pickup trucks
    - 36.0% had a critical pre-crash event associated with another vehicle encroaching into their lane
    - 43.4% of drivers had at least one driver related factor, with 12.7 being coded as impaired and 11.7% as speeding
  - There was only 1 large truck involved in a fatal crash that was 6,001 -1 0,000lbs.

# Contact Information

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**Jenny Guarino, Statistician**  
Analysis Division  
Federal Motor Carrier Safety Administration  
U.S. Department of Transportation  
[jenny.guarino@dot.gov](mailto:jenny.guarino@dot.gov)