

HEAVY TRUCK/BUS INVOLVED CRASHES

These crashes involve a heavy truck/bus - defined as having a Gross Vehicle Weight Rating (GVWR) over 10,000 lbs.

Heavy truck/bus crashes differ from other vehicle crashes in a number of ways, many reflecting the size and use of these vehicles. **When compared to the overall crash picture, heavy truck/bus crashes involve:**

- More turning, backing, and changing lanes as the truck/bus driver action prior to crash.
- More collisions with bridge piers/abutments/supports and parked motor vehicles, as well as noncollision events such as jackknife, cargo loss/shift, and overturn as the most harmful event.
- Fewer collisions with ditches, trees, and animals.
- Fewer single-vehicle crashes but more sideswipes.
- Fewer drivers indicated to be speeding, failing to yield, reckless driving, disregarding traffic control, and unable to stop in assured clear distance, but more drivers indicated to be making backing, lane use, and turning errors.
- Fewer crashes outside of the shoulder/curb.
- More crashes between the hours of 7:00 AM and 3:59 PM, and fewer crashes between 4:00 PM and 6:59 AM.
- More crashes Monday through Friday and fewer crashes Saturday and Sunday.

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

DRIVER ACTION PRIOR TO CRASH	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Going Straight Ahead	6,319	53.2	52	66.7	1,187	59.3
Turning Left	921	7.8	4	5.1	138	6.9
Turning Right	789	6.6	1	1.3	81	4.0
Stopped on Roadway	745	6.3	2	2.6	166	8.3
Involved in Prior Crash at Same Location	1	0.0	0	0.0	1	0.0
Changing Lanes	522	4.4	0	0.0	49	2.4
Backing	647	5.5	1	1.3	25	1.2
Slowing/Stopping on Roadway	715	6.0	3	3.8	141	7.0
Slowing/Stopping Other Area	16	0.1	0	0.0	1	0.0
Starting Up on Roadway	178	1.5	1	1.3	26	1.3
Starting Up in Other Area	0	0.0	0	0.0	0	0.0
Entering Parking	17	0.1	0	0.0	1	0.0
Leaving Parking	20	0.2	0	0.0	3	0.1
Entering Roadway	85	0.7	0	0.0	14	0.7
Leaving Roadway	9	0.1	0	0.0	3	0.1
Making U-Turn	33	0.3	0	0.0	6	0.3
Overtaking or Passing	67	0.6	0	0.0	9	0.4
Avoiding Object	10	0.1	1	1.3	1	0.0
Avoiding Animal	6	0.1	0	0.0	0	0.0
Avoiding Pedestrian	2	0.0	1	1.3	0	0.0
Avoiding Vehicle (front/back)	98	0.8	1	1.3	20	1.0
Avoiding Vehicle (angle)	39	0.3	0	0.0	7	0.3
Driverless Moving	7	0.1	1	1.3	0	0.0
Parked	371	3.1	5	6.4	76	3.8
Crossing at Intersection	0	0.0	0	0.0	0	0.0
Crossing Not at Intersection	1	0.0	0	0.0	0	0.0
Getting On/Off Vehicle	0	0.0	0	0.0	0	0.0
In Roadway With Traffic	1	0.0	0	0.0	0	0.0
In Roadway Against Traffic	2	0.0	0	0.0	0	0.0
Standing/Lying in Roadway	0	0.0	0	0.0	0	0.0
Pushing/Working on Vehicle	1	0.0	0	0.0	0	0.0
Other Work in Roadway	0	0.0	0	0.0	0	0.0
Playing in Roadway	0	0.0	0	0.0	0	0.0
In Roadway Other Reason	3	0.0	0	0.0	1	0.0
Not in Roadway	1	0.0	0	0.0	1	0.0
Negotiating a Curve	183	1.5	4	5.1	40	2.0
Other	17	0.1	0	0.0	2	0.1
Unknown	36	0.3	1	1.3	1	0.0
Uncoded & Errors	5	0.0	0	0.0	1	0.0
TOTAL	11,867	100.0	78	100.0	2,001	100.0

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

MOST HARMFUL EVENT IN A NONCOLLISION	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Loss of Control	81	0.7	1	1.3	17	0.8
Ran Off Roadway Left	32	0.3	0	0.0	3	0.1
Ran Off Roadway Right	58	0.5	0	0.0	11	0.5
Re-Enter Roadway	4	0.0	0	0.0	0	0.0
Overturn	229	1.9	7	9.0	87	4.3
Separation of Units	29	0.2	0	0.0	7	0.3
Fire/Explosion	50	0.4	2	2.6	4	0.2
Immersion	1	0.0	0	0.0	0	0.0
Jackknife	97	0.8	0	0.0	10	0.5
Downhill Runaway	1	0.0	0	0.0	0	0.0
Cargo Loss/Shift	78	0.7	0	0.0	3	0.1
Individual Fell from Vehicle	0	0.0	0	0.0	0	0.0
Other Noncollision	70	0.6	0	0.0	6	0.3
Equipment Failure (blown tire, brake failure, etc.)	85	0.7	0	0.0	4	0.2
Cross Centerline	30	0.3	0	0.0	2	0.1
Cross Median	4	0.0	0	0.0	0	0.0
SUBTOTAL	849	7.2	10	12.8	154	7.7

MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Pedestrian	40	0.3	9	11.5	27	1.3
Bicyclist	19	0.2	3	3.8	14	0.7
Motor Vehicle in Transport (in motion or on roadway)	8,742	73.7	55	70.5	1,639	81.9
Parked Motor Vehicle	537	4.5	1	1.3	36	1.8
Railroad Train	1	0.0	0	0.0	0	0.0
Animal	527	4.4	0	0.0	3	0.1
Other Nonfixed Object	144	1.2	0	0.0	8	0.4
Work Zone/Maintenance Equipment	9	0.1	0	0.0	2	0.1
Cargo Falling/Shifting/Anything Set in Motion by a Motor Vehicle	62	0.5	0	0.0	5	0.2
SUBTOTAL	10,081	84.9	68	87.2	1,734	86.7

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (73.7%), fatal crashes (70.5%), and injury crashes (81.9%) for most harmful event in the crash.

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Bridge Pier/Abutment/Support	39	0.3	0	0.0	3	0.1
Bridge Rail	17	0.1	0	0.0	1	0.0
Guardrail Face	42	0.4	0	0.0	9	0.4
Guardrail End	18	0.2	0	0.0	2	0.1
Other Post/Pole/Support	38	0.3	0	0.0	1	0.0
Culvert	8	0.1	0	0.0	2	0.1
Curb	9	0.1	0	0.0	1	0.0
Ditch	105	0.9	0	0.0	27	1.3
Embankment	15	0.1	0	0.0	3	0.1
Fence	9	0.1	0	0.0	1	0.0
Mailbox	10	0.1	0	0.0	0	0.0
Tree	111	0.9	0	0.0	22	1.1
Railroad Crossing Signal	17	0.1	0	0.0	1	0.0
Building	7	0.1	0	0.0	2	0.1
Traffic Island	0	0.0	0	0.0	0	0.0
Fire Hydrant	12	0.1	0	0.0	0	0.0
Impact Attenuator (crash cushion)	4	0.0	0	0.0	1	0.0
Other Fixed Object	97	0.8	0	0.0	2	0.1
Bridge Overhead Structure	27	0.2	0	0.0	3	0.1
Cable Barrier	22	0.2	0	0.0	5	0.2
Concrete Barrier	92	0.8	0	0.0	20	1.0
Traffic Sign/Post	63	0.5	0	0.0	2	0.1
Traffic Signal Equipment	37	0.3	0	0.0	0	0.0
Utility Pole/Light Support	138	1.2	0	0.0	5	0.2
SUBTOTAL	937	7.9	0	0.0	113	5.6

	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Uncoded & Errors	0	0.0	0	0.0	0	0.0
MOST HARMFUL EVENT TOTAL	11,867	100.0	78	100.0	2,001	100.0

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

CRASH TYPE	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Single Vehicle	1,977	16.7	16	20.5	225	11.2
Head On	140	1.2	15	19.2	69	3.4
Head On - Left Turn	119	1.0	0	0.0	42	2.1
Angle	1,554	13.1	19	24.4	450	22.5
Rear-end	2,291	19.3	14	17.9	623	31.1
Rear End - Left Turn	95	0.8	2	2.6	20	1.0
Rear End - Right Turn	79	0.7	0	0.0	11	0.5
Sideswipe - Same Direction	3,542	29.8	3	3.8	336	16.8
Sideswipe - Opposite Directions	467	3.9	3	3.8	73	3.6
Backing	616	5.2	0	0.0	13	0.6
Other	938	7.9	6	7.7	136	6.8
Unknown	49	0.4	0	0.0	3	0.1
Uncoded & Errors	0	0.0	0	0.0	0	0.0
TOTAL	11,867	100.0	78	100.0	2,001	100.0

The highest percentage of heavy trucks/buses are involved in same direction sideswipes for all crashes (29.8%), angle crashes for fatal crashes (24.4%), and rear-end crashes for injury crashes (31.1%).

HAZARDOUS ACTION	ALL CRASHES		FATAL CRASHES		INJURY CRASHES		HAZARDOUS CITATION ISSUED	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
None	6,307	53.1	54	69.2	1,209	60.4	16	0.9
Speed Too Fast	472	4.0	2	2.6	103	5.1	247	13.3
Speed Too Slow	6	0.1	0	0.0	0	0.0	1	0.1
Failed to Yield	695	5.9	4	5.1	138	6.9	301	16.2
Disregard Traffic Control	117	1.0	1	1.3	42	2.1	68	3.7
Drove Wrong Way	7	0.1	0	0.0	2	0.1	4	0.2
Drove Left of Center	61	0.5	0	0.0	7	0.3	14	0.8
Improper Passing	70	0.6	0	0.0	1	0.0	24	1.3
Improper Lane Use	608	5.1	3	3.8	49	2.4	224	12.0
Improper Turn	333	2.8	0	0.0	20	1.0	91	4.9
Improper/No Signal	21	0.2	0	0.0	3	0.1	8	0.4
Improper Backing	489	4.1	1	1.3	14	0.7	130	7.0
Unable to Stop in Assured Clear Distance	895	7.5	4	5.1	206	10.3	411	22.1
Reckless Driving	10	0.1	0	0.0	2	0.1	3	0.2
Careless/Negligent Driving	248	2.1	3	3.8	61	3.0	124	6.7
Other	829	7.0	4	5.1	67	3.3	189	10.2
Unknown	699	5.9	2	2.6	77	3.8	5	0.3
TOTAL	11,867	100.0	78	100.0	2,001	100.0	1,860	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes (7.5%) and injury crashes (10.3%) is unable to stop in assured clear distance and for fatal crashes is failed to yield, unable to stop in assured clear distance, and other (5.1%).

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

RELATIONSHIP TO ROADWAY (LOCATION OF FIRST IMPACT)	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
On Road	10,883	91.7	69	88.5	1,855	92.7
Median	84	0.7	1	1.3	12	0.6
Shoulder	365	3.1	3	3.8	59	2.9
Outside of Shoulder/Curb	345	2.9	4	5.1	63	3.1
Gore	18	0.2	1	1.3	5	0.2
On-Street Parking	136	1.1	0	0.0	1	0.0
Off the Roadway	0	0.0	0	0.0	0	0.0
On the Sidewalk	13	0.1	0	0.0	1	0.0
In the Bicycle Lane	1	0.0	0	0.0	0	0.0
Other/Unknown	22	0.2	0	0.0	5	0.2
TOTAL	11,867	100.0	78	100.0	2,001	100.0

TIME OF DAY	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
12:00 AM - 2:59 AM	351	3.0	6	7.7	80	4.0
3:00 AM - 5:59 AM	501	4.2	9	11.5	91	4.5
6:00 AM - 8:59 AM	1,935	16.3	7	9.0	316	15.8
9:00 AM - 11:59 AM	2,515	21.2	18	23.1	385	19.2
12:00 PM - 2:59 PM	2,955	24.9	17	21.8	493	24.6
3:00 PM - 5:59 PM	2,289	19.3	8	10.3	396	19.8
6:00 PM - 8:59 PM	880	7.4	10	12.8	156	7.8
9:00 PM - 11:59 PM	440	3.7	3	3.8	84	4.2
Unknown	1	0.0	0	0.0	0	0.0
TOTAL	11,867	100.0	78	100.0	2,001	100.0

Heavy truck/bus frequencies in crashes peak in the early afternoon, then drop off steadily until 3:00 AM. The time period between 12:00 PM and 2:59 PM is the most common time for trucks/buses to be involved in crashes overall (24.9%) and injury crashes (24.6%). The time period between 9:00 AM and 11:59 AM is the most common time for fatal crashes (23.1%).

ROADWAY TYPE	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Interstate Routes	2,792	23.5	19	24.4	504	25.2
U.S. and Michigan Roads	3,576	30.1	34	43.6	691	34.5
County & City Roads	5,485	46.2	25	32.1	804	40.2
Uncoded & Errors	14	0.1	0	0.0	2	0.1
TOTAL	11,867	100.0	78	100.0	2,001	100.0

For all crashes (46.2%) and for injury crashes (40.2%), the highest percentage of heavy trucks/buses are involved in crashes on county and city roads. For fatal crashes, the highest percentage of heavy trucks/buses are involved in crashes on U.S. and Michigan roads (43.6%).

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

DAY OF WEEK	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Monday	2,050	17.3	25	32.1	307	15.3
Tuesday	2,115	17.8	9	11.5	384	19.2
Wednesday	2,243	18.9	13	16.7	358	17.9
Thursday	2,239	18.9	10	12.8	375	18.7
Friday	2,003	16.9	8	10.3	345	17.2
Saturday	782	6.6	9	11.5	143	7.1
Sunday	435	3.7	4	5.1	89	4.4
TOTAL	11,867	100.0	78	100.0	2,001	100.0

The highest percentage of heavy trucks/buses are involved in crashes on Wednesday and Thursday for all crashes (18.9%), Monday for fatal crashes (32.1%), and Tuesday for injury crashes (19.2%).

DRIVER GENDER	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Male	10,479	88.3	70	89.7	1,793	89.6
Female	845	7.1	2	2.6	138	6.9
Unknown	543	4.6	6	7.7	70	3.5
TOTAL	11,867	100.0	78	100.0	2,001	100.0

The highest percentage of heavy truck/bus drivers are male in all crashes (88.3%), fatal crashes (89.7%), and injury crashes (89.6%).

NUMBER OF OCCUPANTS	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
1 occupant	9,955	83.9	63	80.8	1,625	81.2
2 occupants	913	7.7	6	7.7	203	10.1
3 occupants	148	1.2	2	2.6	28	1.4
4 occupants	62	0.5	0	0.0	20	1.0
5 occupants	41	0.3	2	2.6	13	0.6
6+ occupants	212	1.8	0	0.0	45	2.2
0 occupants	339	2.9	5	6.4	48	2.4
Unknown	197	1.7	0	0.0	19	0.9
TOTAL	11,867	100.0	78	100.0	2,001	100.0

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

VEHICLE TYPES INVOLVED IN CRASH WITH HEAVY TRUCK/BUS	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Vehicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
Passenger Car, SUV, Van	8,004	82.3	64	68.1	1,747	83.4
Motor Home	18	0.2	0	0.0	2	0.1
Pickup	1,256	12.9	12	12.8	259	12.4
Small Truck (under 10,000 lbs.)	50	0.5	0	0.0	6	0.3
Motorcycle	29	0.3	4	4.3	19	0.9
Moped	1	0.0	1	1.1	0	0.0
Go Cart	1	0.0	0	0.0	0	0.0
Snowmobile	1	0.0	0	0.0	0	0.0
Off Road Vehicle	1	0.0	0	0.0	1	0.0
Other	60	0.6	0	0.0	7	0.3
Uncoded & Errors	299	3.1	13	13.8	54	2.6
SUBTOTAL	9,720	100.0	94	100.0	2,095	100.0

HEAVY TRUCK/BUS GROSS VEHICLE WEIGHT RATING	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
10,000 lbs. or less	114	1.0	0	0.0	7	0.3
10,001 - 26,000 lbs	4,256	35.9	17	21.8	633	31.6
Greater than 26,000 lbs.	7,312	61.6	61	78.2	1,355	67.7
Uncoded & Errors	185	1.6	0	0.0	6	0.3
SUBTOTAL	11,867	100.0	78	100.0	2,001	100.0

	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Vehicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
Total Number of Vehicles in Heavy Truck/Bus Crashes	21,587	---	172	---	4,096	---

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

DRIVER HAZARDOUS ACTION WHERE HAZARDOUS CITATION ISSUED	HEAVY TRUCK/BUS INVOLVED CRASH						NON-HEAVY TRUCK/BUS INVOLVED CRASH			
	Single Vehicle Crash		Multi-Vehicle Crash				Single Vehicle Crash		Multi-Vehicle Crash	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Non-Heavy Truck Vehicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
None	3	0.8	13	0.9	13	0.7	134	1.2	594	1.1
Speed Too Fast	193	50.0	54	3.7	234	11.8	5,278	48.2	2,216	4.0
Speed Too Slow	0	0.0	1	0.1	2	0.1	16	0.1	15	0.0
Failed to Yield	5	1.3	296	20.1	469	23.7	356	3.2	16,019	29.2
Disregard Traffic Control	3	0.8	65	4.4	149	7.5	136	1.2	4,399	8.0
Drove Wrong Way	1	0.3	3	0.2	5	0.3	9	0.1	82	0.1
Drove Left of Center	1	0.3	13	0.9	29	1.5	118	1.1	527	1.0
Improper Passing	1	0.3	23	1.6	54	2.7	29	0.3	563	1.0
Improper Lane Use	18	4.7	206	14.0	214	10.8	257	2.3	2,829	5.2
Improper Turn	18	4.7	73	5.0	36	1.8	60	0.5	1,389	2.5
Improper/No Signal	0	0.0	8	0.5	3	0.2	1	0.0	72	0.1
Improper Backing	4	1.0	126	8.5	20	1.0	25	0.2	1,155	2.1
Unable to Stop in Assured Clear Distance	12	3.1	399	27.1	490	24.7	306	2.8	20,471	37.3
Reckless Driving	0	0.0	3	0.2	11	0.6	358	3.3	339	0.6
Careless/Negligent Driving	62	16.1	62	4.2	155	7.8	2,345	21.4	1,941	3.5
Other	61	15.8	128	8.7	89	4.5	1,336	12.2	2,062	3.8
Unknown	4	1.0	1	0.1	8	0.4	194	1.8	196	0.4
CITED VEHICLES SUBTOTAL	386	100.0	1,474	100.0	1,981	100.0	10,958	100.0	54,869	100.0

	HEAVY TRUCK/BUS INVOLVED CRASH						NON-HEAVY TRUCK/BUS INVOLVED CRASH			
	Single Vehicle Crash		Multi-Vehicle Crash				Single Vehicle Crash		Multi-Vehicle Crash	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Non-Heavy Truck Vehicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
Cited Vehicles	386	18.9	1,474	15.0	1,981	21.0	10,958	11.4	54,869	19.9
Vehicles with No Citation Issued	1,661	81.1	8,344	85.0	7,434	78.9	85,060	88.6	220,375	80.0
Vehicles with Unknown Citation	0	0.0	2	0.0	5	0.1	9	0.0	184	0.1
TOTAL VEHICLES INVOLVED	2,047	100.0	9,820	100.0	9,420	100.0	96,027	100.0	275,428	100.0