

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.
- More collisions with bridge/pier/abutments 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 6:00 AM and 2:59 PM, and fewer crashes between 3:00 PM and 5:59 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	7,975	51.3	67	59.3	1,536	57.7
Turning left	1,302	8.4	8	7.1	173	6.5
Turning right	1,076	6.9	3	2.7	80	3.0
Stopped on roadway	1,052	6.8	15	13.3	207	7.8
In prior crash	5	0.0	0	0.0	2	0.1
Changing lanes	786	5.1	1	0.9	78	2.9
Backing	767	4.9	3	2.7	33	1.2
Slowing/stopping on roadway	1,176	7.6	5	4.4	263	9.9
Slowing/stopping on other	24	0.2	0	0.0	5	0.2
Starting up on roadway	276	1.8	0	0.0	72	2.7
Starting up on other	5	0.0	0	0.0	0	0.0
Entering parking	24	0.2	0	0.0	1	0.0
Leaving parking	13	0.1	0	0.0	2	0.1
Entering roadway	127	0.8	1	0.9	19	0.7
Leaving roadway	17	0.1	0	0.0	4	0.2
Making U-turn	31	0.2	0	0.0	4	0.2
Overtaking or passing	88	0.6	0	0.0	18	0.7
Avoiding object	13	0.1	0	0.0	2	0.1
Avoiding animal	6	0.0	0	0.0	1	0.0
Avoiding pedestrian	0	0.0	0	0.0	0	0.0
Avoiding vehicle (front/back)	141	0.9	1	0.9	35	1.3
Avoiding vehicle (angle)	40	0.3	0	0.0	8	0.3
Driverless moving	9	0.1	0	0.0	1	0.0
Parked	340	2.2	6	5.3	60	2.3
Crossing at intersection	3	0.0	0	0.0	1	0.0
Crossing not at intersection	0	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	2	0.0	0	0.0	0	0.0
In roadway against traffic	1	0.0	0	0.0	0	0.0
Standing / laying in roadway	0	0.0	0	0.0	0	0.0
Pushing / working on vehicle	0	0.0	0	0.0	0	0.0
Other work in roadway	1	0.0	0	0.0	0	0.0
Playing in roadway	0	0.0	0	0.0	0	0.0
In roadway other reason	1	0.0	0	0.0	0	0.0
Not in roadway	5	0.0	0	0.0	2	0.1
Negotiating a curve	145	0.9	3	2.7	42	1.6
Other	29	0.2	0	0.0	5	0.2
Unknown	47	0.3	0	0.0	6	0.2
Uncoded & errors	12	0.1	0	0.0	2	0.1
TOTAL	15,539	100.0	113	100.0	2,662	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	74	0.5	0	0.0	12	0.5
Cross centerline / median	32	0.2	1	0.9	4	0.2
Ran off roadway left	31	0.2	0	0.0	10	0.4
Ran off roadway right	81	0.5	0	0.0	13	0.5
Re-enter roadway	4	0.0	0	0.0	1	0.0
Overturn	250	1.6	2	1.8	105	3.9
Separation of units	12	0.1	0	0.0	1	0.0
Fire / explosion	51	0.3	2	1.8	2	0.1
Immersion	3	0.0	0	0.0	0	0.0
Jackknife	125	0.8	0	0.0	16	0.6
Downhill runaway	3	0.0	0	0.0	1	0.0
Cargo loss / shift	97	0.6	0	0.0	2	0.1
Individual fell from vehicle	5	0.0	0	0.0	5	0.2
Other noncollision	75	0.5	0	0.0	9	0.3
SUBTOTAL	843	5.4	5	4.4	181	6.8

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	5	4.4	30	1.1
Bicyclist (pedalcycle)	18	0.1	0	0.0	11	0.4
Motor vehicle in transport	11,978	77.1	100	88.5	2,244	84.3
Parked motor vehicle	682	4.4	0	0.0	30	1.1
Railroad train / engineer	5	0.0	0	0.0	0	0.0
Animal	480	3.1	0	0.0	3	0.1
Other nonfixed object	170	1.1	1	0.9	6	0.2
SUBTOTAL	13,373	86.1	106	93.8	2,324	87.3

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (77.1%), fatal crashes (88.5%), and injury crashes (84.3%) 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	39	0.3	0	0.0	4	0.2
Bridge parapet end	0	0.0	0	0.0	0	0.0
Bridge rail	31	0.2	0	0.0	1	0.0
Guardrail face	81	0.5	0	0.0	15	0.6
Guardrail end	17	0.1	0	0.0	3	0.1
Median barrier	108	0.7	1	0.9	34	1.3
Highway traffic sign post	64	0.4	0	0.0	2	0.1
Highway signal post	38	0.2	0	0.0	1	0.0
Luminaire / light support	164	1.1	0	0.0	3	0.1
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	42	0.3	0	0.0	0	0.0
Culvert	5	0.0	0	0.0	0	0.0
Curb	8	0.1	0	0.0	0	0.0
Ditch	120	0.8	0	0.0	23	0.9
Embankment	15	0.1	0	0.0	4	0.2
Fence	8	0.1	0	0.0	2	0.1
Mailbox	21	0.1	0	0.0	0	0.0
Tree	129	0.8	0	0.0	31	1.2
Railroad crossing signal	12	0.1	0	0.0	0	0.0
Building	7	0.0	0	0.0	2	0.1
Traffic island	0	0.0	0	0.0	0	0.0
Fire hydrant	26	0.2	0	0.0	0	0.0
Impact attenuator (crash cushion)	11	0.1	0	0.0	2	0.1
Other fixed object	115	0.7	0	0.0	2	0.1
SUBTOTAL	1,061	6.8	1	0.9	129	4.8

	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	262	1.7	1	0.9	28	1.1
MOST HARMFUL EVENT TOTAL	15,539	100.0	113	100.0	2,662	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	2,193	14.1	5	4.4	258	9.7
Head On	174	1.1	21	18.6	76	2.9
Head On - Left Turn	141	0.9	0	0.0	64	2.4
Angle	1,802	11.6	26	23.0	525	19.7
Rear-end	3,445	22.2	34	30.1	846	31.8
Rear End - Left Turn	122	0.8	4	3.5	34	1.3
Rear End - Right Turn	115	0.7	0	0.0	21	0.8
Sideswipe - Same Direction	4,887	31.4	6	5.3	436	16.4
Sideswipe - Opposite Direction	606	3.9	2	1.8	84	3.2
Backing	645	4.2	2	1.8	24	0.9
Other / Unknown	1,409	9.1	13	11.5	294	11.0
TOTAL	15,539	100.0	113	100.0	2,662	100.0

The highest percentage of heavy trucks/buses are involved in same direction sideswipes for all crashes (31.4%) and in rear-end crashes for fatal crashes (30.1%) and injury crashes (31.8%).

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	7,790	50.1	78	69.0	1,497	56.2	26	1.0
Speed too fast	717	4.6	3	2.7	162	6.1	346	13.4
Speed too slow	6	0.0	1	0.9	3	0.1	0	0.0
Failed to yield	910	5.9	5	4.4	185	6.9	414	16.0
Disregard traffic control	158	1.0	3	2.7	62	2.3	88	3.4
Drove wrong way	4	0.0	0	0.0	2	0.1	3	0.1
Drove left of center	63	0.4	2	1.8	6	0.2	17	0.7
Improper passing	102	0.7	0	0.0	8	0.3	22	0.9
Improper lane use	819	5.3	1	0.9	76	2.9	253	9.8
Improper turn	468	3.0	0	0.0	20	0.8	150	5.8
Improper / no signal	18	0.1	0	0.0	3	0.1	4	0.2
Improper backing	575	3.7	0	0.0	18	0.7	152	5.9
Unable to stop in assured clear distance	1,471	9.5	6	5.3	345	13.0	709	27.4
Reckless driving	18	0.1	1	0.9	8	0.3	4	0.2
Careless / negligent driving	334	2.1	0	0.0	79	3.0	161	6.2
Other	1,133	7.3	5	4.4	84	3.2	232	9.0
Unknown	953	6.1	8	7.1	104	3.9	6	0.2
TOTAL	15,539	100.0	113	100.0	2,662	100.0	2,587	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes (9.5%), fatal crashes (5.3%), and injury crashes (13.0%) is unable to stop in assured clear distance.

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	14,338	92.3	107	94.7	2,476	93.0
Median	125	0.8	0	0.0	17	0.6
Shoulder	457	2.9	6	5.3	91	3.4
Outside of Shoulder/Curb	421	2.7	0	0.0	55	2.1
Gore	18	0.1	0	0.0	6	0.2
On-Street Parking	129	0.8	0	0.0	4	0.2
Off the Roadway	0	0.0	0	0.0	0	0.0
On the Sidewalk	20	0.1	0	0.0	5	0.2
In the Bicycle Lane	0	0.0	0	0.0	0	0.0
Other/Unknown	31	0.2	0	0.0	8	0.3
TOTAL	15,539	100.0	113	100.0	2,662	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	430	2.8	3	2.7	90	3.4
3:00 AM - 5:59 AM	630	4.1	14	12.4	128	4.8
6:00 AM - 8:59 AM	2,890	18.6	11	9.7	476	17.9
9:00 AM - 11:59 AM	3,310	21.3	25	22.1	543	20.4
12:00 PM - 2:59 PM	3,452	22.2	23	20.4	591	22.2
3:00 PM - 5:59 PM	3,124	20.1	14	12.4	506	19.0
6:00 PM - 8:59 PM	1,137	7.3	12	10.6	209	7.9
9:00 PM - 11:59 PM	565	3.6	11	9.7	119	4.5
Unknown	1	0.0	0	0.0	0	0.0
TOTAL	15,539	100.0	113	100.0	2,662	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 (22.2%), as well as in injury crashes (22.2%). For fatal crashes, the 9:00 AM to 11:59 AM time period is the most common (22.1%).

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	4,306	27.7	33	29.2	816	30.7
U.S. and Michigan Roads	4,621	29.7	50	44.2	892	33.5
County & City Roads	6,591	42.4	30	26.5	950	35.7
Uncoded & Errors	21	0.1	0	0.0	4	0.2
TOTAL	15,539	100.0	113	100.0	2,662	100.0

For all crashes (42.4%) and for injury crashes (35.7%), 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 (44.2%).

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	2,846	18.3	20	17.7	482	18.1
Tuesday	2,924	18.8	24	21.2	512	19.2
Wednesday	2,743	17.7	18	15.9	451	16.9
Thursday	2,706	17.4	15	13.3	473	17.8
Friday	2,842	18.3	21	18.6	485	18.2
Saturday	941	6.1	7	6.2	176	6.6
Sunday	537	3.5	8	7.1	83	3.1
TOTAL	15,539	100.0	113	100.0	2,662	100.0

The highest percentage of heavy trucks/buses are involved in crashes on Tuesday. This holds true for all crashes (18.8%), fatal crashes (21.2%), and 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	13,349	85.9	93	82.3	2,356	88.5
Female	1,519	9.8	11	9.7	240	9.0
Unknown	671	4.3	9	8.0	66	2.5
TOTAL	15,539	100.0	113	100.0	2,662	100.0

The highest percentage of heavy truck/bus drivers are male in all crashes (85.9%), fatal crashes (82.3%), and injury crashes (88.5%).

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	12,620	81.2	86	76.1	2,099	78.9
2 occupants	1,214	7.8	11	9.7	268	10.1
3 occupants	221	1.4	3	2.7	46	1.7
4 occupants	112	0.7	0	0.0	30	1.1
5 occupants	75	0.5	1	0.9	21	0.8
6+ occupants	605	3.9	4	3.5	124	4.7
0 occupants	415	2.7	8	7.1	54	2.0
Unknown	277	1.8	0	0.0	20	0.8
TOTAL	15,539	100.0	113	100.0	2,662	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	11,099	84.3	95	70.9	2,313	85.3
Motor Home	45	0.3	0	0.0	8	0.3
Pickup	1,488	11.3	20	14.9	296	10.9
Small Truck (under 10,000 lbs.)	101	0.8	0	0.0	11	0.4
Motorcycle	32	0.2	5	3.7	19	0.7
Moped	4	0.0	1	0.7	1	0.0
Go Cart	2	0.0	0	0.0	0	0.0
Snowmobile	0	0.0	0	0.0	0	0.0
Off Road Vehicle	0	0.0	0	0.0	0	0.0
Other	87	0.7	0	0.0	6	0.2
Unknown	315	2.4	13	9.7	57	2.1
SUBTOTAL	13,173	100.0	134	100.0	2,711	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	240	1.5	3	2.7	19	0.7
10,001 - 26,000 lbs	4,795	30.9	21	18.6	683	25.7
Greater than 26,000 lbs.	10,113	65.1	89	78.8	1,932	72.6
Uncoded & Errors	391	2.5	0	0.0	28	1.1
SUBTOTAL	15,539	100.0	113	100.0	2,662	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	28,712	---	247	---	5,373	---

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

DRIVER ACTION PRIOR TO CRASH 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	5	1.0	21	1.0	26	1.0	138	1.1	778	0.9
Speed too fast	260	53.5	86	4.1	323	12.2	6,670	52.2	3,393	3.9
Speed too slow	0	0.0	0	0.0	4	0.2	28	0.2	46	0.1
Failed to yield	7	1.4	407	19.4	606	22.8	453	3.5	24,118	28.0
Disregard traffic control	4	0.8	84	4.0	129	4.9	125	1.0	5,389	6.3
Drove wrong way	1	0.2	2	0.1	2	0.1	20	0.2	103	0.1
Drove left of center	1	0.2	16	0.8	41	1.5	123	1.0	730	0.8
Improper passing	0	0.0	22	1.0	64	2.4	28	0.2	756	0.9
Improper lane use	11	2.3	242	11.5	298	11.2	255	2.0	4,489	5.2
Improper turn	27	5.6	123	5.9	52	2.0	79	0.6	1,842	2.1
Improper / no signal	0	0.0	4	0.2	7	0.3	2	0.0	133	0.2
Improper backing	8	1.6	144	6.9	35	1.3	41	0.3	1,792	2.1
Unable to stop in assured clear distance	7	1.4	702	33.4	735	27.7	374	2.9	36,052	41.9
Reckless driving	1	0.2	3	0.1	16	0.6	372	2.9	347	0.4
Careless / negligent driving	74	15.2	87	4.1	201	7.6	2,481	19.4	2,798	3.3
Other	76	15.6	156	7.4	109	4.1	1,390	10.9	3,049	3.5
Unknown	4	0.8	2	0.1	7	0.3	205	1.6	226	0.3
CITED VEHICLES SUBTOTAL	486	100.0	2,101	100.0	2,655	100.0	12,784	100.0	86,041	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	486	21.2	2,101	15.9	2,655	20.7	12,784	11.9	86,041	22.2
Vehicles with No Citation Issued	1,807	78.8	11,144	84.1	10,190	79.3	94,587	88.1	300,610	77.7
Vehicles with Unknown Citation	0	0.0	1	0.0	9	0.1	25	0.0	223	0.1
TOTAL VEHICLES INVOLVED	2,293	100.0	13,246	100.0	12,854	100.0	107,396	100.0	386,874	100.0