

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 fixed object (bridge/pier/abutments), nonfixed object (parked motor vehicles, jackknife, cargo loss/shift), and other non-collisions as the Most Harmful Event.
- Fewer collisions with fixed objects (ditches, trees), and nonfixed object (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 weekday crashes and a drop in weekend crashes.

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	6,129	49.1	71	63.4	1,206	55.0
Turning left	1,062	8.5	3	2.7	145	6.6
Turning right	988	7.9	0	0.0	97	4.4
Stopped on roadway	1,014	8.1	15	13.4	206	9.4
In prior crash	9	0.1	0	0.0	3	0.1
Changing lanes	567	4.5	2	1.8	56	2.6
Backing	647	5.2	0	0.0	33	1.5
Slowing/stopping on roadway	918	7.4	9	8.0	226	10.3
Slowing/stopping other	32	0.3	0	0.0	14	0.6
Starting up on roadway	233	1.9	3	2.7	53	2.4
Starting up other	1	0.0	0	0.0	0	0.0
Entering parking	18	0.1	0	0.0	0	0.0
Leaving parking	13	0.1	0	0.0	2	0.1
Entering roadway	103	0.8	0	0.0	15	0.7
Leaving roadway	14	0.1	0	0.0	0	0.0
Making U-turn	26	0.2	0	0.0	3	0.1
Overtaking or passing	78	0.6	0	0.0	12	0.5
Avoiding object	7	0.1	0	0.0	0	0.0
Avoiding animal	4	0.0	0	0.0	1	0.0
Avoiding pedestrian	3	0.0	0	0.0	2	0.1
Avoiding vehicle (front/back)	150	1.2	5	4.5	34	1.6
Avoiding vehicle (angle)	38	0.3	0	0.0	8	0.4
Driverless moving	13	0.1	0	0.0	0	0.0
Parked	254	2.0	4	3.6	61	2.8
Crossing at intersection	0	0.0	0	0.0	0	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	0	0.0	0	0.0	0	0.0
In roadway against traffic	0	0.0	0	0.0	0	0.0
Standing or lying 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 working 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	0	0.0	0	0.0	0	0.0
Not in roadway	0	0.0	0	0.0	0	0.0
Other	18	0.1	0	0.0	3	0.1
Unknown	147	1.2	0	0.0	11	0.5
TOTAL	12,486	100.0	112	100.0	2,191	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	29	0.2	0	0.0	6	0.3
Cross center/median	10	0.1	0	0.0	1	0.0
Ran off road left	25	0.2	1	0.9	2	0.1
Ran off road right	42	0.3	0	0.0	6	0.3
Re-enter road	2	0.0	0	0.0	0	0.0
Overturn	168	1.3	2	1.8	79	3.6
Separation of units	14	0.1	0	0.0	2	0.1
Fire/explosion	34	0.3	1	0.9	3	0.1
Immersion	0	0.0	0	0.0	0	0.0
Jackknife	102	0.8	0	0.0	8	0.4
Downhill runaway	1	0.0	0	0.0	1	0.0
Cargo loss/shift	85	0.7	0	0.0	3	0.1
Individual fell off	2	0.0	0	0.0	2	0.1
Other noncollision	129	1.0	0	0.0	28	1.3
SUBTOTAL	643	5.1	4	3.6	141	6.4

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	36	0.3	7	6.3	26	1.2
Bicycle / Pedalcycle	10	0.1	0	0.0	7	0.3
Motor vehicle in transport	9,718	77.8	95	84.8	1,877	85.7
Parked motor vehicle	565	4.5	2	1.8	20	0.9
Railway train	2	0.0	0	0.0	0	0.0
Animal	372	3.0	0	0.0	2	0.1
Other nonfixed objects	140	1.1	0	0.0	11	0.5
SUBTOTAL	10,843	86.8	104	92.9	1,943	88.7

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (77.8%), fatal crashes (84.8%), and injury crashes (85.7%) 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	77	0.6	0	0.0	7	0.3
Bridge parapet end	0	0.0	0	0.0	0	0.0
Bridge rail	30	0.2	0	0.0	4	0.2
Guardrail face	77	0.6	0	0.0	13	0.6
Guardrail end	21	0.2	0	0.0	1	0.0
Median barrier	84	0.7	1	0.9	15	0.7
Highway traffic sign post	44	0.4	0	0.0	2	0.1
Highway signal post	16	0.1	0	0.0	0	0.0
Luminaire/light support	120	1.0	0	0.0	6	0.3
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	32	0.3	0	0.0	1	0.0
Culvert	9	0.1	0	0.0	2	0.1
Curb	12	0.1	0	0.0	2	0.1
Ditch	120	1.0	1	0.9	22	1.0
Embankment	19	0.2	1	0.9	3	0.1
Fence	14	0.1	0	0.0	1	0.0
Mailbox	13	0.1	0	0.0	0	0.0
Tree	91	0.7	1	0.9	18	0.8
Rail crossing signal	20	0.2	0	0.0	0	0.0
Building	8	0.1	0	0.0	2	0.1
Traffic island	3	0.0	0	0.0	0	0.0
Fire hydrant	26	0.2	0	0.0	0	0.0
Impact attenuator	3	0.0	0	0.0	1	0.0
Other fixed object	133	1.1	0	0.0	5	0.2
SUBTOTAL	972	7.8	4	3.6	105	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
Unknown Event	28	0.2	0	0.0	2	0.1
MOST HARMFUL EVENT TOTAL	12,486	100.0	112	100.0	2,191	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	1,737	13.9	12	10.7	191	8.7
Head On	129	1.0	13	11.6	47	2.1
Head On - Left Turn	142	1.1	2	1.8	57	2.6
Angle	1,556	12.5	12	10.7	407	18.6
Rear End	2,968	23.8	27	24.1	786	35.9
Rear End - Left Turn	107	0.9	1	0.9	28	1.3
Rear End - Right Turn	107	0.9	0	0.0	25	1.1
Sideswipe - Same Direction	3,889	31.1	4	3.6	382	17.4
Sideswipe - Opposite Direction	489	3.9	5	4.5	56	2.6
Other/Unknown	1,362	10.9	36	32.1	212	9.7
TOTAL	12,486	100.0	112	100.0	2,191	100.0

The majority of heavy trucks/buses are involved in same direction sideswipes for all crashes (31.1%), other/unknown crashes for fatal crashes (32.1%), and rear end crashes for injury crashes (35.9%).

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	6,503	52.1	70	62.5	1,287	58.7	17	0.9
Speed too fast	532	4.3	10	8.9	137	6.3	197	10.3
Speed too slow	11	0.1	1	0.9	2	0.1	3	0.2
Failed to yield	654	5.2	1	0.9	125	5.7	288	15.0
Disregard traffic control	115	0.9	0	0.0	38	1.7	69	3.6
Drove wrong way	6	0.0	0	0.0	0	0.0	3	0.2
Drove left of center	57	0.5	1	0.9	5	0.2	14	0.7
Improper passing	75	0.6	0	0.0	6	0.3	25	1.3
Improper lane use	609	4.9	1	0.9	46	2.1	173	9.0
Improper turn	476	3.8	0	0.0	31	1.4	155	8.1
Improper/no signal	28	0.2	0	0.0	4	0.2	2	0.1
Improper backing	484	3.9	1	0.9	16	0.7	141	7.3
Unable to stop in assured clear distance	1,040	8.3	10	8.9	278	12.7	461	24.0
Reckless driving	11	0.1	1	0.9	2	0.1	4	0.2
Careless/negligent driving	293	2.3	9	8.0	65	3.0	155	8.1
Other	997	8.0	3	2.7	85	3.9	209	10.9
Unknown	595	4.8	4	3.6	64	2.9	3	0.2
TOTAL	12,486	100.0	112	100.0	2,191	100.0	1,919	100.0

After no hazardous action, the majority of heavy trucks/buses are unable to stop in an assured clear distance for all crashes (8.3%) and injury crashes (12.7%). The most common hazardous actions for heavy trucks/buses involved in fatal crashes after no hazardous action or unknown hazardous action are speed too fast and unable to stop in an assured clear distance (8.9%).

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	11,320	90.7	74	66.1	2,007	91.6
Median	95	0.8	5	4.5	11	0.5
Shoulder	431	3.5	3	2.7	81	3.7
Outside of Shoulder/Curb	454	3.6	4	3.6	66	3.0
Gore	32	0.3	0	0.0	7	0.3
Other/Unknown	154	1.2	26	23.2	19	0.9
TOTAL	12,486	100.0	112	100.0	2,191	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 - 02:59 AM	315	2.5	6	5.4	59	2.7
03:00 AM - 05:59 AM	463	3.7	5	4.5	85	3.9
06:00 AM - 08:59 AM	2,241	17.9	10	8.9	383	17.5
09:00 AM - 11:59 AM	2,803	22.4	43	38.4	495	22.6
12:00 PM - 02:59 PM	2,746	22.0	27	24.1	496	22.6
03:00 PM - 05:59 PM	2,596	20.8	12	10.7	423	19.3
06:00 PM - 08:59 PM	860	6.9	6	5.4	155	7.1
09:00 PM - 11:59 PM	461	3.7	3	2.7	95	4.3
Unknown	1	0.0	0	0.0	0	0.0
TOTAL	12,486	100.0	112	100.0	2,191	100.0

Heavy truck/bus frequencies in crashes peak in the late morning, then drop off steadily until 3:00 AM. The majority of heavy trucks/buses are involved in fatal crashes (38.4%) from 9:00 to 11:59 AM and injury crashes (22.6%) from 9:00 to 11:59 AM and 12:00 to 2:59 PM.

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	3,532	28.3	49	43.8	699	31.9
U.S. & Michigan Roads	3,497	28.0	39	34.8	659	30.1
County & City Roads	5,457	43.7	24	21.4	833	38.0
TOTAL	12,486	100.0	112	100.0	2,191	100.0

The majority of heavy trucks/buses are involved in crashes on county and city roads for all crashes (43.7%) and injury crashes (38.0%). The number of heavy trucks/buses is the greatest for fatal crashes on interstate routes (43.8%).

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	2,220	17.8	10	8.9	359	16.4
Tuesday	2,310	18.5	8	7.1	406	18.5
Wednesday	2,387	19.1	18	16.1	396	18.1
Thursday	2,189	17.5	20	17.9	379	17.3
Friday	2,190	17.5	44	39.3	404	18.4
Saturday	767	6.1	9	8.0	152	6.9
Sunday	423	3.4	3	2.7	95	4.3
TOTAL	12,486	100.0	112	100.0	2,191	100.0

The majority of heavy trucks/buses are involved in all crashes (19.1%) on Wednesday, fatal crashes (39.3%) on Friday, and injury crashes (18.5%) on Tuesday.

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	10,690	85.6	104	92.9	1,913	87.3
Female	1,267	10.1	5	4.5	208	9.5
Unknown	529	4.2	3	2.7	70	3.2
TOTAL	12,486	100.0	112	100.0	2,191	100.0

The majority of heavy truck/bus drivers are male in all crashes (85.6%), fatal crashes (92.9%), and injury crashes (87.3%).

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	10,140	81.2	101	90.2	1,737	79.3
2 occupants	843	6.8	4	3.6	170	7.8
3 occupants	169	1.4	2	1.8	43	2.0
4 occupants	75	0.6	0	0.0	14	0.6
5 occupants	63	0.5	0	0.0	13	0.6
6 + occupants	681	5.5	2	1.8	148	6.8
0 occupants	309	2.5	3	2.7	52	2.4
Unknown	206	1.6	0	0.0	14	0.6
TOTAL	12,486	100.0	112	100.0	2,191	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 and Station Wagon	8,536	79.5	88	68.8	1,832	80.2
Van and Motorhome	542	5.0	7	5.5	104	4.6
Pickup	1,228	11.4	10	7.8	241	10.6
Small Truck (under 10,000 lbs.)	144	1.3	2	1.6	28	1.2
Motorcycle	33	0.3	10	7.8	16	0.7
Moped	3	0.0	1	0.8	2	0.1
Go Cart	1	0.0	0	0.0	0	0.0
Snowmobile	1	0.0	0	0.0	1	0.0
Off Road Vehicle	1	0.0	0	0.0	1	0.0
Other	71	0.7	0	0.0	8	0.4
Unknown	180	1.7	10	7.8	50	2.2
SUBTOTAL	10,740	100.0	128	100.0	2,283	100.0

HEAVY TRUCK/BUS VEHICLE TYPES	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Commercial Vehicle: Group A*	7,105	56.9	35	31.3	1,201	54.8
Commercial Vehicle: Group B**	2,713	21.7	15	13.4	524	23.9
Commercial Vehicle: Group C***	331	2.7	1	0.9	48	2.2
Other Truck	1,094	8.8	7	6.3	241	11.0
Unknown Truck	1,243	10.0	54	48.2	177	8.1
SUBTOTAL	12,486	100.0	112	100.0	2,191	100.0

* Group "A" is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

** Group "B" is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

*** Group "C" is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group "C" is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Total Vehicle Types in Heavy Truck/Bus Crashes	23,226	---	240	---	4,474	---

HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

HEAVY TRUCK/BUS DRIVER ACTION PRIOR TO CRASH HAZARDOUS CITATION ISSUED	HEAVY TRUCK/BUS INVOLVED CRASH						PASSENGER VEHICLE ONLY 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 Passenger Vehicles	% of Total	Number of Passenger Vehicles	% of Total	Number of Passenger Vehicles	% of Total
None	2	0.5	15	1.0	17	0.8	110	0.9	620	0.7
Speed too fast	145	39.8	52	3.3	265	12.1	5,902	47.7	3,278	3.9
Speed too slow	1	0.3	2	0.1	4	0.2	29	0.2	48	0.1
Failed to yield	7	1.9	281	18.1	456	20.8	464	3.7	23,045	27.1
Disregard traffic control	10	2.7	59	3.8	132	6.0	129	1.0	5,368	6.3
Drove wrong way	1	0.3	2	0.1	3	0.1	18	0.1	129	0.2
Drove left of center	0	0.0	14	0.9	36	1.6	85	0.7	783	0.9
Improper passing	0	0.0	25	1.6	61	2.8	24	0.2	736	0.9
Improper lane use	8	2.2	165	10.6	182	8.3	176	1.4	4,059	4.8
Improper turn	24	6.6	131	8.4	38	1.7	53	0.4	1,884	2.2
Improper/no signal	0	0.0	2	0.1	5	0.2	11	0.1	179	0.2
Improper backing	5	1.4	136	8.7	28	1.3	40	0.3	2,076	2.4
Unable to stop in assured clear distance	10	2.7	451	29.0	633	28.9	413	3.3	36,397	42.8
Reckless driving	2	0.5	2	0.1	16	0.7	502	4.1	425	0.5
Careless/Negligent driving	75	20.6	80	5.1	197	9.0	3,025	24.4	3,182	3.7
Other	73	20.1	136	8.7	110	5.0	1,259	10.2	2,718	3.2
Unknown	1	0.3	2	0.1	6	0.3	144	1.2	153	0.2
CITED VEHICLES SUBTOTAL	364	100.0	1,555	100.0	2,189	100.0	12,384	100.0	85,080	100.0

	HEAVY TRUCK/BUS INVOLVED CRASH						PASSENGER VEHICLE ONLY 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 Passenger Vehicles	% of Total	Number of Passenger Vehicles	% of Total	Number of Passenger Vehicles	% of Total
Cited Vehicles	364	20.1	1,555	14.6	2,189	20.7	12,384	12.4	85,080	22.5
Vehicles with No Citation Issued	1,451	79.9	9,116	85.4	8,368	79.3	87,734	87.6	292,847	77.5
TOTAL VEHICLES INVOLVED	1,815	100.0	10,671	100.0	10,557	100.0	100,118	100.0	377,927	100.0