

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	6,719	50.1	57	59.4	1,408	57.8
Turning left	1,182	8.8	4	4.2	179	7.3
Turning right	1,005	7.5	1	1.0	101	4.1
Stopped on roadway	971	7.2	17	17.7	192	7.9
In prior crash	1	0.0	1	1.0	0	0.0
Changing lanes	667	5.0	0	0.0	86	3.5
Backing	642	4.8	0	0.0	26	1.1
Slowing/stopping on roadway	1,039	7.7	6	6.3	230	9.4
Slowing/stopping other	15	0.1	0	0.0	0	0.0
Starting up on roadway	240	1.8	1	1.0	46	1.9
Starting up other	1	0.0	0	0.0	0	0.0
Entering parking	20	0.1	0	0.0	0	0.0
Leaving parking	14	0.1	0	0.0	2	0.1
Entering roadway	97	0.7	2	2.1	15	0.6
Leaving roadway	15	0.1	0	0.0	4	0.2
Making U-turn	31	0.2	0	0.0	3	0.1
Overtaking or passing	77	0.6	0	0.0	9	0.4
Avoiding object	10	0.1	0	0.0	4	0.2
Avoiding animal	5	0.0	0	0.0	0	0.0
Avoiding pedestrian	5	0.0	0	0.0	2	0.1
Avoiding vehicle (front/back)	140	1.0	3	3.1	40	1.6
Avoiding vehicle (angle)	39	0.3	1	1.0	6	0.2
Driverless moving	9	0.1	1	1.0	1	0.0
Parked	243	1.8	1	1.0	48	2.0
Crossing at intersection	2	0.0	0	0.0	1	0.0
Crossing not at intersection	1	0.0	0	0.0	1	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	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	1	0.0	0	0.0	0	0.0
Other working 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	1	0.0	0	0.0	0	0.0
Negotiating a curve	111	0.8	0	0.0	23	0.9
Other	47	0.4	1	1.0	6	0.2
Unknown	48	0.4	0	0.0	3	0.1
Uncoded & errors	14	0.1	0	0.0	1	0.0
TOTAL	13,416	100.0	96	100.0	2,437	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	51	0.4	0	0.0	9	0.4
Cross center/median	20	0.1	0	0.0	2	0.1
Ran off road left	24	0.2	0	0.0	5	0.2
Ran off road right	57	0.4	0	0.0	7	0.3
Re-enter road	4	0.0	0	0.0	0	0.0
Overturn	212	1.6	2	2.1	92	3.8
Separation of units	18	0.1	0	0.0	0	0.0
Fire/explosion	47	0.4	0	0.0	4	0.2
Immersion	2	0.0	0	0.0	0	0.0
Jackknife	102	0.8	0	0.0	12	0.5
Downhill runaway	0	0.0	0	0.0	0	0.0
Cargo loss/shift	70	0.5	0	0.0	8	0.3
Individual fell off	0	0.0	0	0.0	0	0.0
Other noncollision	63	0.5	0	0.0	16	0.7
SUBTOTAL	670	5.0	2	2.1	155	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	33	0.2	3	3.1	29	1.2
Bicycle / Pedalcycle	20	0.1	1	1.0	14	0.6
Motor vehicle in transport	10,414	77.6	84	87.5	2,058	84.4
Parked motor vehicle	561	4.2	1	1.0	29	1.2
Railway train	4	0.0	0	0.0	1	0.0
Animal	396	3.0	0	0.0	5	0.2
Other nonfixed objects	135	1.0	1	1.0	7	0.3
SUBTOTAL	11,563	86.2	90	93.8	2,143	87.9

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (77.6%), fatal crashes (87.5%), and injury crashes (84.4%) 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	41	0.3	0	0.0	6	0.2
Bridge parapet end	0	0.0	0	0.0	0	0.0
Bridge rail	17	0.1	0	0.0	1	0.0
Guardrail face	62	0.5	0	0.0	12	0.5
Guardrail end	14	0.1	0	0.0	3	0.1
Median barrier	87	0.6	0	0.0	26	1.1
Highway traffic sign post	69	0.5	0	0.0	3	0.1
Highway signal post	33	0.2	0	0.0	0	0.0
Luminaire/light support	150	1.1	0	0.0	8	0.3
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	43	0.3	0	0.0	2	0.1
Culvert	6	0.0	0	0.0	1	0.0
Curb	12	0.1	0	0.0	0	0.0
Ditch	127	0.9	1	1.0	29	1.2
Embankment	19	0.1	1	1.0	3	0.1
Fence	7	0.1	0	0.0	1	0.0
Mailbox	17	0.1	0	0.0	0	0.0
Tree	106	0.8	2	2.1	23	0.9
Rail crossing signal	12	0.1	0	0.0	0	0.0
Building	14	0.1	0	0.0	3	0.1
Traffic island	0	0.0	0	0.0	0	0.0
Fire hydrant	13	0.1	0	0.0	0	0.0
Impact attenuator	7	0.1	0	0.0	0	0.0
Other fixed object	101	0.8	0	0.0	4	0.2
SUBTOTAL	957	7.1	4	4.2	125	5.1

	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	226	1.7	0	0.0	14	0.6
MOST HARMFUL EVENT TOTAL	13,416	100.0	96	100.0	2,437	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	1,912	14.3	6	6.3	235	9.6
Head On	124	0.9	17	17.7	56	2.3
Head On - Left Turn	154	1.1	3	3.1	59	2.4
Angle	1,614	12.0	21	21.9	478	19.6
Rear End	3,041	22.7	35	36.5	812	33.3
Rear End - Left Turn	138	1.0	1	1.0	47	1.9
Rear End - Right Turn	106	0.8	0	0.0	25	1.0
Sideswipe - Same Direction	4,216	31.4	5	5.2	421	17.3
Sideswipe - Opposite Direction	432	3.2	0	0.0	54	2.2
Backing	475	3.5	0	0.0	18	0.7
Other/Unknown	1,204	9.0	8	8.3	232	9.5
TOTAL	13,416	100.0	96	100.0	2,437	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 (36.5%) and injury crashes (33.3%).

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	6,956	51.8	71	74.0	1,407	57.7	22	1.0
Speed too fast	510	3.8	2	2.1	125	5.1	223	10.5
Speed too slow	3	0.0	0	0.0	0	0.0	1	0.0
Failed to yield	670	5.0	1	1.0	156	6.4	279	13.1
Disregard traffic control	143	1.1	4	4.2	58	2.4	97	4.6
Drove wrong way	4	0.0	0	0.0	0	0.0	1	0.0
Drove left of center	60	0.4	1	1.0	10	0.4	16	0.8
Improper passing	91	0.7	0	0.0	9	0.4	24	1.1
Improper lane use	705	5.3	0	0.0	57	2.3	216	10.2
Improper turn	480	3.6	1	1.0	35	1.4	155	7.3
Improper/no signal	15	0.1	0	0.0	1	0.0	3	0.1
Improper backing	511	3.8	0	0.0	18	0.7	163	7.7
Unable to stop in assured clear distance	1,226	9.1	5	5.2	310	12.7	536	25.2
Reckless driving	14	0.1	0	0.0	5	0.2	4	0.2
Careless/negligent driving	268	2.0	3	3.1	69	2.8	153	7.2
Other	990	7.4	5	5.2	82	3.4	223	10.5
Unknown	770	5.7	3	3.1	95	3.9	11	0.5
TOTAL	13,416	100.0	96	100.0	2,437	100.0	2,127	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes (9.1%) and injury crashes (12.7%) is unable to stop in assured clear distance. For fatal crashes, after no hazardous action, unable to stop in assured clear distance (5.2%) is the most common hazardous action coded, along with other hazardous action.

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	12,290	91.6	87	90.6	2,254	92.5
Median	108	0.8	1	1.0	19	0.8
Shoulder	424	3.2	5	5.2	72	3.0
Outside of Shoulder/Curb	397	3.0	2	2.1	75	3.1
Gore	24	0.2	1	1.0	8	0.3
On-Street Parking	111	0.8	0	0.0	5	0.2
Off the Roadway	2	0.0	0	0.0	1	0.0
On the Sidewalk	24	0.2	0	0.0	1	0.0
In the Bicycle Lane	4	0.0	0	0.0	0	0.0
Other/Unknown	32	0.2	0	0.0	2	0.1
TOTAL	13,416	100.0	96	100.0	2,437	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	358	2.7	6	6.2	78	3.2
3:00 AM - 5:59 AM	509	3.8	7	7.3	109	4.5
6:00 AM - 8:59 AM	2,572	19.2	15	15.6	465	19.1
9:00 AM - 11:59 AM	2,889	21.5	19	19.8	499	20.5
12:00 PM - 2:59 PM	2,967	22.1	23	24.0	539	22.1
3:00 PM - 5:59 PM	2,695	20.1	11	11.5	462	19.0
6:00 PM - 8:59 PM	922	6.9	5	5.2	172	7.1
9:00 PM - 11:59 PM	502	3.7	10	10.4	112	4.6
Unknown	2	0.0	0	0.0	1	0.0
TOTAL	13,416	100.0	96	100.0	2,437	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. This holds true for all crashes (22.1%), fatal crashes (24.0%), and injury crashes (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	3,655	27.2	19	19.8	754	30.9
U.S. & Michigan Roads	4,120	30.7	46	47.9	847	34.8
County & City Roads	5,612	41.8	31	32.3	830	34.1
Uncoded & Errors	29	0.2	0	0.0	6	0.2
TOTAL	13,416	100.0	96	100.0	2,437	100.0

The highest percentage of heavy trucks/buses are involved in all crashes (41.8%) on county and city roads. For fatal crashes (47.9%) and injury crashes (34.8%), the highest percentage of heavy trucks/buses are involved in crashes on U.S. and Michigan roads.

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	2,436	18.2	18	18.8	446	18.3
Tuesday	2,482	18.5	14	14.6	449	18.4
Wednesday	2,483	18.5	17	17.7	431	17.7
Thursday	2,472	18.4	19	19.8	430	17.6
Friday	2,413	18.0	21	21.9	433	17.8
Saturday	752	5.6	5	5.2	163	6.7
Sunday	378	2.8	2	2.1	85	3.5
TOTAL	13,416	100.0	96	100.0	2,437	100.0

The highest percentage of heavy trucks/buses are involved in all crashes (18.5%) on Tuesday and Wednesday, fatal crashes (21.9%) on Friday, and injury crashes (18.4%) 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	11,502	85.7	83	86.5	2,119	87.0
Female	1,361	10.1	8	8.3	263	10.8
Unknown	553	4.1	5	5.2	55	2.3
TOTAL	13,416	100.0	96	100.0	2,437	100.0

The highest percentage of heavy truck/bus drivers are male in all crashes (85.7%), fatal crashes (86.5%), and injury crashes (87.0%).

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	10,982	81.9	80	83.3	1,947	79.9
2 occupants	884	6.6	10	10.4	196	8.0
3 occupants	207	1.5	0	0.0	59	2.4
4 occupants	109	0.8	0	0.0	29	1.2
5 occupants	76	0.6	0	0.0	19	0.8
6 + occupants	570	4.2	2	2.1	126	5.2
0 occupants	334	2.5	4	4.2	42	1.7
Unknown	254	1.9	0	0.0	19	0.8
TOTAL	13,416	100.0	96	100.0	2,437	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.	9,862	84.5	72	71.3	2,285	84.8
Motor Home	41	0.4	1	1.0	9	0.3
Pickup	1,264	10.8	17	16.8	284	10.5
Small Truck (under 10,000 lbs.)	130	1.1	0	0.0	22	0.8
Motorcycle	27	0.2	3	3.0	16	0.6
Moped	4	0.0	0	0.0	4	0.1
Go Cart	0	0.0	0	0.0	0	0.0
Snowmobile	1	0.0	0	0.0	0	0.0
Off Road Vehicle	2	0.0	0	0.0	1	0.0
Other	111	1.0	0	0.0	8	0.3
Unknown	229	2.0	8	7.9	64	2.4
SUBTOTAL	11,671	100.0	101	100.0	2,693	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	256	1.9	0	0.0	17	0.7
10,001 - 26,000 lbs.	3,464	25.8	17	17.7	498	20.4
Greater than 26,000 lbs.	9,302	69.3	79	82.3	1,897	77.8
Uncoded & Errors	394	2.9	0	0.0	25	1.0
SUBTOTAL	13,416	100.0	96	100.0	2,437	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	25,087	---	197	---	5,130	---

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	7	1.6	15	0.9	18	0.8	143	1.1	808	0.9
Speed too fast	163	38.4	60	3.5	310	12.9	6,437	49.2	3,471	4.0
Speed too slow	0	0.0	1	0.1	4	0.2	23	0.2	38	0.0
Failed to yield	5	1.2	274	16.1	534	22.3	501	3.8	23,983	27.4
Disregard traffic control	14	3.3	83	4.9	135	5.6	126	1.0	5,483	6.3
Drove wrong way	1	0.2	0	0.0	2	0.1	13	0.1	107	0.1
Drove left of center	0	0.0	16	0.9	25	1.0	102	0.8	746	0.9
Improper passing	0	0.0	24	1.4	74	3.1	34	0.3	730	0.8
Improper lane use	15	3.5	201	11.8	249	10.4	220	1.7	4,446	5.1
Improper turn	28	6.6	127	7.5	49	2.0	71	0.5	1,949	2.2
Improper/no signal	1	0.2	2	0.1	9	0.4	3	0.0	160	0.2
Improper backing	9	2.1	154	9.0	25	1.0	25	0.2	1,914	2.2
Unable to stop in assured clear distance	15	3.5	521	30.6	643	26.8	405	3.1	37,274	42.5
Reckless driving	1	0.2	3	0.2	16	0.7	421	3.2	391	0.4
Careless/Negligent driving	85	20.0	68	4.0	178	7.4	2,856	21.8	2,967	3.4
Other	75	17.6	148	8.7	114	4.8	1,433	11.0	2,905	3.3
Unknown	6	1.4	5	0.3	11	0.5	258	2.0	234	0.3
CITED VEHICLES SUBTOTAL	425	100.0	1,702	100.0	2,396	100.0	13,071	100.0	87,606	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	425	21.3	1,702	14.9	2,396	20.9	13,071	12.3	87,606	22.0
Vehicles with No Citation Issued	1,567	78.7	9,719	85.1	9,034	79.0	93,560	87.7	309,631	77.9
Vehicles with Unknown Citation	0	0.0	3	0.0	8	0.1	20	0.0	234	0.1
TOTAL VEHICLES INVOLVED	1,992	100.0	11,424	100.0	11,438	100.0	106,651	100.0	397,471	100.0