

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), and noncollision event (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 3:00 AM and 2:59 PM, and fewer crashes between 3:00 PM and 2:59 AM.
- More crashes Monday through Thursday and fewer crashes Friday through 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	6,210	49.8	80	69.0	1,257	57.3
Turning left	1,089	8.7	6	5.2	158	7.2
Turning right	875	7.0	0	0.0	61	2.8
Stopped on roadway	957	7.7	11	9.5	183	8.3
In prior crash	4	0.0	0	0.0	1	0.0
Changing lanes	615	4.9	0	0.0	69	3.1
Backing	638	5.1	0	0.0	32	1.5
Slowing/stopping on roadway	936	7.5	6	5.2	210	9.6
Slowing/stopping other	25	0.2	0	0.0	6	0.3
Starting up on roadway	247	2.0	1	0.9	60	2.7
Starting up other	3	0.0	0	0.0	0	0.0
Entering parking	26	0.2	0	0.0	2	0.1
Leaving parking	18	0.1	0	0.0	3	0.1
Entering roadway	99	0.8	0	0.0	12	0.5
Leaving roadway	12	0.1	0	0.0	2	0.1
Making U-turn	27	0.2	0	0.0	6	0.3
Overtaking or passing	67	0.5	0	0.0	8	0.4
Avoiding object	8	0.1	0	0.0	0	0.0
Avoiding animal	5	0.0	0	0.0	1	0.0
Avoiding pedestrian	3	0.0	1	0.9	0	0.0
Avoiding vehicle (front/back)	109	0.9	1	0.9	30	1.4
Avoiding vehicle (angle)	47	0.4	1	0.9	8	0.4
Driverless moving	9	0.1	0	0.0	0	0.0
Parked	251	2.0	7	6.0	43	2.0
Crossing at intersection	3	0.0	0	0.0	2	0.1
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	5	0.0	0	0.0	4	0.2
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	2	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	1	0.0	0	0.0	0	0.0
Negotiating a curve	47	0.4	0	0.0	15	0.7
Other	32	0.3	0	0.0	8	0.4
Unknown	91	0.7	0	0.0	11	0.5
Uncoded & errors	18	0.1	2	1.7	2	0.1
TOTAL	12,479	100.0	116	100.0	2,194	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	53	0.4	0	0.0	9	0.4
Cross center/median	15	0.1	0	0.0	2	0.1
Ran off road left	24	0.2	0	0.0	7	0.3
Ran off road right	42	0.3	0	0.0	4	0.2
Re-enter road	3	0.0	0	0.0	1	0.0
Overturn	199	1.6	4	3.4	90	4.1
Separation of units	13	0.1	0	0.0	0	0.0
Fire/explosion	38	0.3	1	0.9	4	0.2
Immersion	1	0.0	0	0.0	1	0.0
Jackknife	113	0.9	0	0.0	8	0.4
Downhill runaway	0	0.0	0	0.0	0	0.0
Cargo loss/shift	84	0.7	0	0.0	5	0.2
Individual fell off	1	0.0	0	0.0	0	0.0
Other noncollision	81	0.6	0	0.0	9	0.4
SUBTOTAL	667	5.3	5	4.3	140	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	43	0.3	10	8.6	26	1.2
Bicycle / Pedalcycle	21	0.2	3	2.6	17	0.8
Motor vehicle in transport	9,616	77.1	94	81.0	1,857	84.6
Parked motor vehicle	558	4.5	0	0.0	22	1.0
Railway train	4	0.0	0	0.0	1	0.0
Animal	319	2.6	0	0.0	3	0.1
Other nonfixed objects	141	1.1	0	0.0	19	0.9
SUBTOTAL	10,702	85.8	107	92.2	1,945	88.7

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (77.1%), fatal crashes (81.0%), and injury crashes (84.6%) 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	47	0.4	0	0.0	4	0.2
Bridge parapet end	0	0.0	0	0.0	0	0.0
Bridge rail	32	0.3	0	0.0	3	0.1
Guardrail face	62	0.5	0	0.0	8	0.4
Guardrail end	12	0.1	0	0.0	0	0.0
Median barrier	84	0.7	1	0.9	15	0.7
Highway traffic sign post	67	0.5	0	0.0	1	0.0
Highway signal post	32	0.3	0	0.0	0	0.0
Luminaire/light support	156	1.3	0	0.0	2	0.1
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	27	0.2	0	0.0	1	0.0
Culvert	9	0.1	0	0.0	3	0.1
Curb	7	0.1	0	0.0	0	0.0
Ditch	103	0.8	0	0.0	22	1.0
Embankment	21	0.2	0	0.0	3	0.1
Fence	13	0.1	0	0.0	0	0.0
Mailbox	15	0.1	0	0.0	0	0.0
Tree	100	0.8	2	1.7	24	1.1
Rail crossing signal	20	0.2	0	0.0	0	0.0
Building	13	0.1	0	0.0	4	0.2
Traffic island	1	0.0	0	0.0	0	0.0
Fire hydrant	19	0.2	0	0.0	0	0.0
Impact attenuator	7	0.1	0	0.0	2	0.1
Other fixed object	132	1.1	0	0.0	5	0.2
SUBTOTAL	979	7.8	3	2.6	97	4.4

	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	131	1.0	1	0.9	12	0.5
MOST HARMFUL EVENT TOTAL	12,479	100.0	116	100.0	2,194	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	1,774	14.2	16	13.8	218	9.9
Head On	144	1.2	19	16.4	76	3.5
Head On - Left Turn	130	1.0	6	5.2	58	2.6
Angle	1,604	12.9	26	22.4	422	19.2
Rear End	2,779	22.3	32	27.6	733	33.4
Rear End - Left Turn	123	1.0	6	5.2	28	1.3
Rear End - Right Turn	98	0.8	0	0.0	22	1.0
Sideswipe - Same Direction	3,920	31.4	3	2.6	374	17.0
Sideswipe - Opposite Direction	475	3.8	7	6.0	52	2.4
Backing	192	1.5	0	0.0	10	0.5
Other/Unknown	1,240	9.9	1	0.9	201	9.2
TOTAL	12,479	100.0	116	100.0	2,194	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 (27.6%) and injury crashes (33.4%).

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	6,357	50.9	82	70.7	1,235	56.3	12	0.6
Speed too fast	519	4.2	4	3.4	121	5.5	213	10.1
Speed too slow	9	0.1	0	0.0	2	0.1	3	0.1
Failed to yield	704	5.6	2	1.7	145	6.6	338	16.0
Disregard traffic control	125	1.0	2	1.7	45	2.1	77	3.6
Drove wrong way	7	0.1	0	0.0	0	0.0	2	0.1
Drove left of center	54	0.4	1	0.9	5	0.2	20	0.9
Improper passing	77	0.6	0	0.0	4	0.2	18	0.9
Improper lane use	684	5.5	0	0.0	64	2.9	237	11.2
Improper turn	441	3.5	1	0.9	36	1.6	132	6.2
Improper/no signal	30	0.2	0	0.0	2	0.1	10	0.5
Improper backing	504	4.0	0	0.0	19	0.9	150	7.1
Unable to stop in assured clear distance	1,023	8.2	6	5.2	271	12.4	484	22.9
Reckless driving	11	0.1	1	0.9	2	0.1	6	0.3
Careless/negligent driving	341	2.7	4	3.4	80	3.6	202	9.5
Other	925	7.4	3	2.6	89	4.1	204	9.6
Unknown	668	5.4	10	8.6	74	3.4	8	0.4
TOTAL	12,479	100.0	116	100.0	2,194	100.0	2,116	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes (8.2%) and injury crashes (12.4%) is unable to stop in assured clear distance. For fatal crashes, unable to stop in assured clear distance (5.2%) is also the most common hazardous action coded after no hazardous action and unknown 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	11,342	90.9	103	88.8	2,023	92.2
Median	101	0.8	2	1.7	24	1.1
Shoulder	435	3.5	9	7.8	59	2.7
Outside of Shoulder/Curb	443	3.5	2	1.7	72	3.3
Gore	35	0.3	0	0.0	7	0.3
On-Street Parking	51	0.4	0	0.0	1	0.0
Off the Roadway	5	0.0	0	0.0	2	0.1
On the Sidewalk	8	0.1	0	0.0	0	0.0
In the Bicycle Lane	1	0.0	0	0.0	1	0.0
Other/Unknown	58	0.5	0	0.0	5	0.2
TOTAL	12,479	100.0	116	100.0	2,194	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	338	2.7	7	6.0	63	2.9
03:00 AM - 05:59 AM	443	3.5	5	4.3	93	4.2
06:00 AM - 08:59 AM	2,267	18.2	19	16.4	418	19.1
09:00 AM - 11:59 AM	2,636	21.1	17	14.7	444	20.2
12:00 PM - 02:59 PM	2,721	21.8	25	21.6	480	21.9
03:00 PM - 05:59 PM	2,669	21.4	21	18.1	426	19.4
06:00 PM - 08:59 PM	924	7.4	12	10.3	174	7.9
09:00 PM - 11:59 PM	470	3.8	10	8.6	95	4.3
Unknown	11	0.1	0	0.0	1	0.0
TOTAL	12,479	100.0	116	100.0	2,194	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 to be involved in crashes. This holds true for all crashes (21.8%), fatal crashes (21.6%), and injury crashes (21.9%).

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	3,396	27.2	35	30.2	692	31.5
U.S. & Michigan Roads	3,667	29.4	46	39.7	672	30.6
County & City Roads	5,395	43.2	35	30.2	823	37.5
Uncoded & Errors	21	0.2	0	0.0	7	0.3
TOTAL	12,479	100.0	116	100.0	2,194	100.0

The highest percentage of heavy trucks/buses are involved in all crashes (43.2%) and injury crashes (37.5%) on County & City Roads. For fatal crashes, the highest percentage of heavy trucks/buses are involved in crashes on U.S. and Michigan roads (39.7%).

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	2,245	18.0	21	18.1	389	17.7
Tuesday	2,416	19.4	19	16.4	426	19.4
Wednesday	2,291	18.4	19	16.4	380	17.3
Thursday	2,323	18.6	24	20.7	426	19.4
Friday	2,074	16.6	21	18.1	342	15.6
Saturday	694	5.6	6	5.2	131	6.0
Sunday	436	3.5	6	5.2	100	4.6
TOTAL	12,479	100.0	116	100.0	2,194	100.0

The highest percentage of heavy trucks/buses are involved in all crashes (19.4%) on Tuesday, fatal crashes (20.7%) on Thursday, and injury crashes (19.4%) on Tuesday and Thursday.

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	10,704	85.8	103	88.8	1,897	86.5
Female	1,248	10.0	5	4.3	231	10.5
Unknown	527	4.2	8	6.9	66	3.0
TOTAL	12,479	100.0	116	100.0	2,194	100.0

The highest percentage of heavy truck/bus drivers are male in all crashes (85.8%), fatal crashes (88.8%), and injury crashes (86.5%).

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	10,168	81.5	99	85.3	1,743	79.4
2 occupants	840	6.7	7	6.0	177	8.1
3 occupants	173	1.4	2	1.7	32	1.5
4 occupants	84	0.7	0	0.0	11	0.5
5 occupants	85	0.7	1	0.9	20	0.9
6 + occupants	587	4.7	1	0.9	143	6.5
0 occupants	319	2.6	4	3.4	48	2.2
Unknown	223	1.8	2	1.7	20	0.9
TOTAL	12,479	100.0	116	100.0	2,194	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.	8,958	82.4	87	73.7	1,954	80.9
Motor Home	236	2.2	0	0.0	51	2.1
Pickup	1,174	10.8	4	3.4	287	11.9
Small Truck (under 10,000 lbs.)	136	1.3	3	2.5	21	0.9
Motorcycle	28	0.3	6	5.1	15	0.6
Moped	2	0.0	0	0.0	0	0.0
Go Cart	1	0.0	0	0.0	1	0.0
Snowmobile	2	0.0	0	0.0	1	0.0
Off Road Vehicle	2	0.0	1	0.8	0	0.0
Other	91	0.8	1	0.8	13	0.5
Unknown	238	2.2	16	13.6	71	2.9
SUBTOTAL	10,868	100.0	118	100.0	2,414	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	496	4.0	0	0.0	32	1.5
10,001 - 26,000 lbs.	2,615	21.0	18	15.5	396	18.0
Greater than 26,000 lbs.	9,114	73.0	98	84.5	1,748	79.7
Uncoded & Errors	254	2.0	0	0.0	18	0.8
SUBTOTAL	12,479	100.0	116	100.0	2,194	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	23,347	---	234	---	4,608	---

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 Ve- hicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
None	4	1.0	8	0.5	22	1.0	124	0.9	744	0.8
Speed too fast	164	40.4	49	2.9	273	12.2	6,804	50.2	3,460	3.9
Speed too slow	0	0.0	3	0.2	3	0.1	39	0.3	56	0.1
Failed to yield	5	1.2	333	19.5	485	21.7	546	4.0	24,183	26.9
Disregard traffic control	9	2.2	68	4.0	106	4.7	129	1.0	5,743	6.4
Drove wrong way	0	0.0	2	0.1	2	0.1	18	0.1	122	0.1
Drove left of center	1	0.2	19	1.1	34	1.5	109	0.8	793	0.9
Improper passing	0	0.0	18	1.1	76	3.4	29	0.2	773	0.9
Improper lane use	14	3.4	223	13.0	222	9.9	208	1.5	4,331	4.8
Improper turn	24	5.9	108	6.3	53	2.4	69	0.5	1,996	2.2
Improper/no signal	0	0.0	10	0.6	3	0.1	9	0.1	139	0.2
Improper backing	10	2.5	140	8.2	28	1.3	41	0.3	2,046	2.3
Unable to stop in assured clear distance	8	2.0	476	27.8	624	27.9	417	3.1	38,598	43.0
Reckless driving	1	0.2	5	0.3	22	1.0	441	3.3	421	0.5
Careless/Negligent driving	95	23.4	107	6.3	171	7.7	3,092	22.8	3,364	3.7
Other	66	16.3	138	8.1	108	4.8	1,305	9.6	2,915	3.2
Unknown	5	1.2	3	0.2	3	0.1	186	1.4	180	0.2
CITED VEHICLES SUBTOTAL	406	100.0	1,710	100.0	2,235	100.0	13,566	100.0	89,864	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 Ve- hicles	% of Total	Number of Vehicles	% of Total	Number of Vehicles	% of Total
Cited Vehicles	406	22.1	1,710	16.1	2,235	21.0	13,566	13.1	89,864	22.4
Vehicles with No Citation Issued	1,433	77.9	8,924	83.9	8,384	78.9	89,789	86.9	311,164	77.5
Vehicles with Unknown Citation	1	0.1	5	0.0	6	0.1	26	0.0	271	0.1
TOTAL VEHICLES IN- VOLVED	1,840	100.0	10,639	100.0	10,625	100.0	103,381	100.0	401,299	100.0