

UPPER PENINSULA 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 Upper Peninsula crash picture, heavy truck/bus crashes in the Upper Peninsula involve:**

- More turning and backing as the Truck/Bus Driver Action Prior.
- More 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, and disregarding traffic control, 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 midnight and 2:59 PM, and fewer crashes between 3:00 PM and 11:59 PM.
- More crashes Monday through Friday and fewer crashes Saturday and Sunday.

UPPER PENINSULA 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	175	58.1	4	80.0	32	49.2
Turning left	20	6.6	0	0.0	8	12.3
Turning right	21	7.0	0	0.0	6	9.2
Stopped on roadway	13	4.3	1	20.0	3	4.6
In prior crash	0	0.0	0	0.0	0	0.0
Changing lanes	3	1.0	0	0.0	0	0.0
Backing	15	5.0	0	0.0	0	0.0
Slowing/stopping on roadway	12	4.0	0	0.0	5	7.7
Slowing/stopping on other	0	0.0	0	0.0	0	0.0
Starting up on roadway	6	2.0	0	0.0	3	4.6
Starting up on other	0	0.0	0	0.0	0	0.0
Entering parking	0	0.0	0	0.0	0	0.0
Leaving parking	0	0.0	0	0.0	0	0.0
Entering roadway	3	1.0	0	0.0	0	0.0
Leaving roadway	2	0.7	0	0.0	0	0.0
Making U-turn	1	0.3	0	0.0	0	0.0
Overtaking or passing	5	1.7	0	0.0	3	4.6
Avoiding object	0	0.0	0	0.0	0	0.0
Avoiding animal	0	0.0	0	0.0	0	0.0
Avoiding pedestrian	0	0.0	0	0.0	0	0.0
Avoiding vehicle (front/back)	4	1.3	0	0.0	1	1.5
Avoiding vehicle (angle)	0	0.0	0	0.0	0	0.0
Driverless moving	0	0.0	0	0.0	0	0.0
Parked	10	3.3	0	0.0	2	3.1
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 / 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	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
Negotiating a curve	9	3.0	0	0.0	2	3.1
Other	2	0.7	0	0.0	0	0.0
Unknown	0	0.0	0	0.0	0	0.0
Uncoded & errors	0	0.0	0	0.0	0	0.0
TOTAL	301	100.0	5	100.0	65	100.0

UPPER PENINSULA 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	3	1.0	0	0.0	0	0.0
Cross centerline / median	2	0.7	0	0.0	1	1.5
Ran off roadway left	0	0.0	0	0.0	0	0.0
Ran off roadway right	5	1.7	0	0.0	1	1.5
Re-enter roadway	0	0.0	0	0.0	0	0.0
Overturn	13	4.3	0	0.0	8	12.3
Separation of units	0	0.0	0	0.0	0	0.0
Fire / explosion	2	0.7	1	20.0	0	0.0
Immersion	0	0.0	0	0.0	0	0.0
Jackknife	2	0.7	0	0.0	0	0.0
Downhill runaway	0	0.0	0	0.0	0	0.0
Cargo loss / shift	3	1.0	0	0.0	0	0.0
Individual fell from vehicle	0	0.0	0	0.0	0	0.0
Other noncollision	2	0.7	0	0.0	1	1.5
SUBTOTAL	32	10.6	1	20.0	11	16.9

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	1	0.3	0	0.0	1	1.5
Bicyclist (pedalcycle)	1	0.3	0	0.0	1	1.5
Motor vehicle in transport	166	55.1	4	80.0	50	76.9
Parked motor vehicle	13	4.3	0	0.0	0	0.0
Railroad train / engineer	0	0.0	0	0.0	0	0.0
Animal	37	12.3	0	0.0	0	0.0
Other nonfixed object	6	2.0	0	0.0	0	0.0
SUBTOTAL	224	74.4	4	80.0	52	80.0

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (55.1%), fatal crashes (80.0%), and injury crashes (76.9%) for most harmful event in the crash.

UPPER PENINSULA 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	0	0.0	0	0.0	0	0.0
Bridge parapet end	0	0.0	0	0.0	0	0.0
Bridge rail	0	0.0	0	0.0	0	0.0
Guardrail face	3	1.0	0	0.0	1	1.5
Guardrail end	0	0.0	0	0.0	0	0.0
Median barrier	0	0.0	0	0.0	0	0.0
Highway traffic sign post	2	0.7	0	0.0	0	0.0
Highway signal post	2	0.7	0	0.0	0	0.0
Luminaire / light support	9	3.0	0	0.0	0	0.0
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	1	0.3	0	0.0	0	0.0
Culvert	1	0.3	0	0.0	0	0.0
Curb	0	0.0	0	0.0	0	0.0
Ditch	3	1.0	0	0.0	0	0.0
Embankment	1	0.3	0	0.0	0	0.0
Fence	1	0.3	0	0.0	0	0.0
Mailbox	1	0.3	0	0.0	0	0.0
Tree	3	1.0	0	0.0	0	0.0
Railroad crossing signal	0	0.0	0	0.0	0	0.0
Building	1	0.3	0	0.0	0	0.0
Traffic island	0	0.0	0	0.0	0	0.0
Fire hydrant	0	0.0	0	0.0	0	0.0
Impact attenuator (crash cushion)	0	0.0	0	0.0	0	0.0
Other fixed object	7	2.3	0	0.0	0	0.0
SUBTOTAL	35	11.6	0	0.0	1	1.5

	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	10	3.3	0	0.0	1	1.5
MOST HARMFUL EVENT TOTAL	301	100.0	5	100.0	65	100.0

UPPER PENINSULA 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	97	32.2	0	0.0	12	18.5
Head On	10	3.3	2	40.0	5	7.7
Head On - Left Turn	0	0.0	0	0.0	0	0.0
Angle	35	11.6	1	20.0	12	18.5
Rear-end	46	15.3	2	40.0	15	23.1
Rear End - Left Turn	6	2.0	0	0.0	3	4.6
Rear End - Right Turn	2	0.7	0	0.0	1	1.5
Sideswipe - Same Direction	42	14.0	0	0.0	5	7.7
Sideswipe - Opposite Direction	18	6.0	0	0.0	4	6.2
Backing	14	4.7	0	0.0	0	0.0
Other / Unknown	31	10.3	0	0.0	8	12.3
TOTAL	301	100.0	5	100.0	65	100.0

The highest percentage of heavy trucks/buses are involved in single vehicle crashes for all crashes (32.2%) and rear end crashes for injury crashes (23.1%).

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	180	59.8	5	100.0	41	63.1	0	0.0
Speed too fast	16	5.3	0	0.0	3	4.6	6	15.8
Speed too slow	0	0.0	0	0.0	0	0.0	0	0.0
Failed to yield	13	4.3	0	0.0	4	6.2	6	15.8
Disregard traffic control	1	0.3	0	0.0	0	0.0	0	0.0
Drove wrong way	0	0.0	0	0.0	0	0.0	0	0.0
Drove left of center	7	2.3	0	0.0	1	1.5	0	0.0
Improper passing	2	0.7	0	0.0	1	1.5	0	0.0
Improper lane use	5	1.7	0	0.0	0	0.0	1	2.6
Improper turn	4	1.3	0	0.0	0	0.0	0	0.0
Improper / no signal	0	0.0	0	0.0	0	0.0	0	0.0
Improper backing	10	3.3	0	0.0	0	0.0	1	2.6
Unable to stop in assured clear distance	24	8.0	0	0.0	8	12.3	11	28.9
Reckless driving	0	0.0	0	0.0	0	0.0	0	0.0
Careless / negligent driving	13	4.3	0	0.0	3	4.6	7	18.4
Other	22	7.3	0	0.0	2	3.1	6	15.8
Unknown	4	1.3	0	0.0	2	3.1	0	0.0
TOTAL	301	100.0	5	100.0	65	100.0	38	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes (8.0%) and injury crashes (12.3%) is unable to stop in assured clear distance.

UPPER PENINSULA 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	252	83.7	5	100.0	56	86.2
Median	2	0.7	0	0.0	0	0.0
Shoulder	21	7.0	0	0.0	6	9.2
Outside of Shoulder/Curb	17	5.6	0	0.0	3	4.6
Gore	1	0.3	0	0.0	0	0.0
On-Street Parking	5	1.7	0	0.0	0	0.0
Off the Roadway	0	0.0	0	0.0	0	0.0
On the Sidewalk	2	0.7	0	0.0	0	0.0
In the Bicycle Lane	0	0.0	0	0.0	0	0.0
Other/Unknown	1	0.3	0	0.0	0	0.0
TOTAL	301	100.0	5	100.0	65	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	14	4.7	0	0.0	4	6.2
3:00 AM - 5:59 AM	15	5.0	1	20.0	2	3.1
6:00 AM - 8:59 AM	62	20.6	0	0.0	11	16.9
9:00 AM - 11:59 AM	58	19.3	2	40.0	16	24.6
12:00 PM - 2:59 PM	64	21.3	1	20.0	16	24.6
3:00 PM - 5:59 PM	56	18.6	0	0.0	12	18.5
6:00 PM - 8:59 PM	24	8.0	1	20.0	2	3.1
9:00 PM - 11:59 PM	8	2.7	0	0.0	2	3.1
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	301	100.0	5	100.0	65	100.0

Heavy truck/bus frequencies in crashes peak in the early afternoon, then drop off steadily until midnight. The most common time for heavy trucks/buses to be involved in crashes is between 12:00 PM and 2:59 PM (21.3%) for all crashes, between 9:00 AM and 11:59 AM (40.0%) for fatal crashes, and between both 9:00 AM and 11:59 AM as well as 12:00 PM and 2:59 PM (24.6% each) for injury crashes.

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	13	4.3	0	0.0	0	0.0
U.S. and Michigan Roads	200	66.4	5	100.0	51	78.5
County & City Roads	87	28.9	0	0.0	14	21.5
Uncoded & Errors	1	0.3	0	0.0	0	0.0
TOTAL	301	100.0	5	100.0	65	100.0

The highest percentage of heavy trucks/buses are involved in crashes on U.S. & Michigan roads for all crashes (66.4%), fatal crashes (100.0%), and injury crashes (78.5%).

UPPER PENINSULA 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	46	15.3	0	0.0	8	12.3
Tuesday	44	14.6	0	0.0	8	12.3
Wednesday	54	17.9	0	0.0	14	21.5
Thursday	50	16.6	0	0.0	13	20.0
Friday	67	22.3	2	40.0	15	23.1
Saturday	29	9.6	3	60.0	6	9.2
Sunday	11	3.7	0	0.0	1	1.5
TOTAL	301	100.0	5	100.0	65	100.0

The highest percentage of heavy trucks/buses are involved in crashes on Friday for all crashes (22.3%) and for injury crashes (23.1%).

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	279	92.7	5	100.0	57	87.7
Female	17	5.6	0	0.0	7	10.8
Unknown	5	1.7	0	0.0	1	1.5
TOTAL	301	100.0	5	100.0	65	100.0

The majority of heavy truck/bus drivers are male in all crashes (92.7%), fatal crashes (100.0%), and injury crashes (87.7%).

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	259	86.0	5	100.0	54	83.1
2 occupants	9	3.0	0	0.0	3	4.6
3 occupants	2	0.7	0	0.0	0	0.0
4 occupants	5	1.7	0	0.0	2	3.1
5 occupants	0	0.0	0	0.0	0	0.0
6+ occupants	18	6.0	0	0.0	5	7.7
0 occupants	7	2.3	0	0.0	1	1.5
Unknown	1	0.3	0	0.0	0	0.0
TOTAL	301	100.0	5	100.0	65	100.0

UPPER PENINSULA 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	156	75.4	8	100.0	44	73.3
Motor Home	0	0.0	0	0.0	0	0.0
Pickup	46	22.2	0	0.0	14	23.3
Small Truck (under 10,000 lbs.)	1	0.5	0	0.0	0	0.0
Motorcycle	0	0.0	0	0.0	0	0.0
Moped	0	0.0	0	0.0	0	0.0
Go Cart	0	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	2	1.0	0	0.0	0	0.0
Unknown	2	1.0	0	0.0	2	3.3
SUBTOTAL	207	100.0	8	100.0	60	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	3	1.0	0	0.0	0	0.0
10,001 - 26,000 lbs	95	31.6	0	0.0	13	20.0
Greater than 26,000 lbs.	201	66.8	5	100.0	52	80.0
Uncoded & Errors	2	0.7	0	0.0	0	0.0
SUBTOTAL	301	100.0	5	100.0	65	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	508	---	13	---	125	---

UPPER PENINSULA 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	0	0.0	0	0.0	1	2.6	4	1.0	9	1.2
Speed too fast	4	40.0	2	7.1	11	28.2	193	50.0	62	8.2
Speed too slow	0	0.0	0	0.0	0	0.0	1	0.3	0	0.0
Failed to yield	0	0.0	6	21.4	9	23.1	3	0.8	251	33.1
Disregard traffic control	0	0.0	0	0.0	3	7.7	3	0.8	61	8.0
Drove wrong way	0	0.0	0	0.0	0	0.0	1	0.3	3	0.4
Drove left of center	0	0.0	0	0.0	2	5.1	6	1.6	12	1.6
Improper passing	0	0.0	0	0.0	1	2.6	3	0.8	12	1.6
Improper lane use	0	0.0	1	3.6	0	0.0	0	0.0	24	3.2
Improper turn	0	0.0	0	0.0	1	2.6	0	0.0	14	1.8
Improper / no signal	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Improper backing	0	0.0	1	3.6	0	0.0	0	0.0	8	1.1
Unable to stop in assured clear distance	0	0.0	11	39.3	5	12.8	19	4.9	199	26.2
Reckless driving	0	0.0	0	0.0	1	2.6	13	3.4	6	0.8
Careless / negligent driving	3	30.0	4	14.3	5	12.8	114	29.5	68	9.0
Other	3	30.0	3	10.7	0	0.0	23	6.0	28	3.7
Unknown	0	0.0	0	0.0	0	0.0	3	0.8	2	0.3
CITED VEHICLES SUBTOTAL	10	100.0	28	100.0	39	100.0	386	100.0	759	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	10	10.1	28	13.9	39	19.0	386	6.9	759	12.5
Vehicles with No Citation Issued	89	89.9	174	86.1	166	81.0	5,217	93.1	5,295	87.5
Vehicles with Unknown Citation	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0
TOTAL VEHICLES INVOLVED	99	100.0	202	100.0	205	100.0	5,604	100.0	6,054	100.0