

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, and reckless driving, but more drivers indicated to be making backing, lane use, and turning errors.
- More crashes on the shoulder of the road.
- 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 Wednesday and fewer crashes on all other days of the week.

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	222	55.0	3	75.0	28	59.6
Turning left	26	6.4	0	0.0	4	8.5
Turning right	29	7.2	0	0.0	2	4.3
Stopped on roadway	18	4.5	0	0.0	4	8.5
In prior crash	0	0.0	0	0.0	0	0.0
Changing lanes	1	0.2	0	0.0	0	0.0
Backing	29	7.2	0	0.0	0	0.0
Slowing/stopping on roadway	25	6.2	0	0.0	4	8.5
Slowing/stopping on other	1	0.2	0	0.0	1	2.1
Starting up on roadway	9	2.2	0	0.0	3	6.4
Starting up on other	0	0.0	0	0.0	0	0.0
Entering parking	2	0.5	0	0.0	0	0.0
Leaving parking	0	0.0	0	0.0	0	0.0
Entering roadway	3	0.7	0	0.0	0	0.0
Leaving roadway	1	0.2	0	0.0	0	0.0
Making U-turn	2	0.5	0	0.0	0	0.0
Overtaking or passing	7	1.7	0	0.0	0	0.0
Avoiding object	0	0.0	0	0.0	0	0.0
Avoiding animal	1	0.2	0	0.0	0	0.0
Avoiding pedestrian	0	0.0	0	0.0	0	0.0
Avoiding vehicle (front/back)	5	1.2	0	0.0	0	0.0
Avoiding vehicle (angle)	1	0.2	0	0.0	0	0.0
Driverless moving	0	0.0	0	0.0	0	0.0
Parked	13	3.2	0	0.0	0	0.0
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	8	2.0	1	25.0	0	0.0
Other	1	0.2	0	0.0	1	2.1
Unknown	0	0.0	0	0.0	0	0.0
Uncoded & errors	0	0.0	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	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	8	2.0	0	0.0	1	2.1
Cross centerline / median	1	0.2	0	0.0	0	0.0
Ran off roadway left	3	0.7	0	0.0	0	0.0
Ran off roadway right	11	2.7	0	0.0	2	4.3
Re-enter roadway	0	0.0	0	0.0	0	0.0
Overturn	10	2.5	0	0.0	5	10.6
Separation of units	0	0.0	0	0.0	0	0.0
Fire / explosion	2	0.5	0	0.0	0	0.0
Immersion	0	0.0	0	0.0	0	0.0
Jackknife	5	1.2	0	0.0	0	0.0
Downhill runaway	0	0.0	0	0.0	0	0.0
Cargo loss / shift	5	1.2	0	0.0	0	0.0
Individual fell from vehicle	0	0.0	0	0.0	0	0.0
Other noncollision	2	0.5	0	0.0	1	2.1
SUBTOTAL	47	11.6	0	0.0	9	19.1

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	2	0.5	0	0.0	2	4.3
Bicyclist (pedalcycle)	0	0.0	0	0.0	0	0.0
Motor vehicle in transport	219	54.2	3	75.0	29	61.7
Parked motor vehicle	30	7.4	0	0.0	1	2.1
Railroad train / engineer	1	0.2	0	0.0	1	2.1
Animal	41	10.1	0	0.0	0	0.0
Other nonfixed object	10	2.5	0	0.0	1	2.1
SUBTOTAL	303	75.0	3	75.0	34	72.3

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (54.2%), fatal crashes (75.0%), and injury crashes (61.7%) 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	1	0.2	0	0.0	0	0.0
Guardrail face	3	0.7	0	0.0	0	0.0
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	4	1.0	0	0.0	0	0.0
Highway signal post	1	0.2	0	0.0	0	0.0
Luminaire / light support	7	1.7	1	25.0	0	0.0
Utility pole	0	0.0	0	0.0	0	0.0
Other pole	2	0.5	0	0.0	0	0.0
Culvert	0	0.0	0	0.0	0	0.0
Curb	1	0.2	0	0.0	0	0.0
Ditch	7	1.7	0	0.0	1	2.1
Embankment	2	0.5	0	0.0	0	0.0
Fence	0	0.0	0	0.0	0	0.0
Mailbox	0	0.0	0	0.0	0	0.0
Tree	7	1.7	0	0.0	1	2.1
Railroad crossing signal	1	0.2	0	0.0	0	0.0
Building	3	0.7	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	3	0.7	0	0.0	0	0.0
SUBTOTAL	42	10.4	1	25.0	2	4.3

	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	12	3.0	0	0.0	2	4.3
MOST HARMFUL EVENT TOTAL	404	100.0	4	100.0	47	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	121	30.0	1	25.0	8	17.0
Head On	6	1.5	1	25.0	3	6.4
Head On - Left Turn	6	1.5	0	0.0	1	2.1
Angle	51	12.6	1	25.0	10	21.3
Rear-end	58	14.4	0	0.0	8	17.0
Rear End - Left Turn	7	1.7	0	0.0	3	6.4
Rear End - Right Turn	3	0.7	0	0.0	0	0.0
Sideswipe - Same Direction	63	15.6	0	0.0	4	8.5
Sideswipe - Opposite Direction	33	8.2	1	25.0	7	14.9
Backing	20	5.0	0	0.0	0	0.0
Other / Unknown	36	8.9	0	0.0	3	6.4
TOTAL	404	100.0	4	100.0	47	100.0

The highest percentage of heavy trucks/buses are involved in single vehicle crashes for all crashes (30.0%) and angle crashes for injury crashes (21.3%).

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	216	53.5	2	50.0	26	55.3	0	0.0
Speed too fast	16	4.0	0	0.0	1	2.1	6	15.4
Speed too slow	0	0.0	0	0.0	0	0.0	0	0.0
Failed to yield	18	4.5	0	0.0	5	10.6	6	15.4
Disregard traffic control	5	1.2	0	0.0	2	4.3	4	10.3
Drove wrong way	0	0.0	0	0.0	0	0.0	0	0.0
Drove left of center	2	0.5	0	0.0	0	0.0	0	0.0
Improper passing	3	0.7	0	0.0	1	2.1	2	5.1
Improper lane use	14	3.5	0	0.0	1	2.1	1	2.6
Improper turn	17	4.2	0	0.0	0	0.0	2	5.1
Improper / no signal	0	0.0	0	0.0	0	0.0	0	0.0
Improper backing	21	5.2	0	0.0	0	0.0	1	2.6
Unable to stop in assured clear distance	25	6.2	0	0.0	5	10.6	5	12.8
Reckless driving	0	0.0	0	0.0	0	0.0	0	0.0
Careless / negligent driving	15	3.7	0	0.0	1	2.1	7	17.9
Other	38	9.4	0	0.0	5	10.6	5	12.8
Unknown	14	3.5	2	50.0	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	100.0	39	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes is "other" (9.4%).

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	345	85.4	3	75.0	43	91.5
Median	2	0.5	0	0.0	0	0.0
Shoulder	21	5.2	0	0.0	2	4.3
Outside of Shoulder/Curb	24	5.9	1	25.0	2	4.3
Gore	2	0.5	0	0.0	0	0.0
On-Street Parking	7	1.7	0	0.0	0	0.0
Off the Roadway	0	0.0	0	0.0	0	0.0
On the Sidewalk	1	0.2	0	0.0	0	0.0
In the Bicycle Lane	0	0.0	0	0.0	0	0.0
Other/Unknown	2	0.5	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	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	10	2.5	0	0.0	0	0.0
3:00 AM - 5:59 AM	18	4.5	0	0.0	2	4.3
6:00 AM - 8:59 AM	66	16.3	1	25.0	6	12.8
9:00 AM - 11:59 AM	85	21.0	3	75.0	10	21.3
12:00 PM - 2:59 PM	105	26.0	0	0.0	17	36.2
3:00 PM - 5:59 PM	81	20.0	0	0.0	10	21.3
6:00 PM - 8:59 PM	23	5.7	0	0.0	0	0.0
9:00 PM - 11:59 PM	16	4.0	0	0.0	2	4.3
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	100.0

Heavy truck/bus frequencies in crashes peak in the early afternoon, then drop off steadily until 3 AM. The most common time for heavy trucks/buses to be involved in crashes is between 12:00 PM and 2:59 PM for all crashes (26.0%) and for injury crashes (36.2%). For fatal crashes, the most common time is between 9:00 AM and 11:59 AM (75.0%).

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	22	5.4	0	0.0	0	0.0
U.S. and Michigan Roads	246	60.9	4	100.0	32	68.1
County & City Roads	129	31.9	0	0.0	15	31.9
Uncoded & Errors	7	1.7	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	100.0

The highest percentage of heavy trucks/buses are involved in crashes on U.S. & Michigan roads for all crashes (60.9%), fatal crashes (100.0%), and injury crashes (68.1%).

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	76	18.8	2	50.0	9	19.1
Tuesday	75	18.6	0	0.0	7	14.9
Wednesday	100	24.8	0	0.0	9	19.1
Thursday	57	14.1	1	25.0	5	10.6
Friday	60	14.9	1	25.0	12	25.5
Saturday	20	5.0	0	0.0	2	4.3
Sunday	16	4.0	0	0.0	3	6.4
TOTAL	404	100.0	4	100.0	47	100.0

The highest percentage of heavy trucks/buses are involved in crashes on Wednesday for all crashes (24.8%) and Friday for injury crashes (25.5%).

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	375	92.8	4	100.0	44	93.6
Female	21	5.2	0	0.0	2	4.3
Unknown	8	2.0	0	0.0	1	2.1
TOTAL	404	100.0	4	100.0	47	100.0

The majority of heavy truck/bus drivers are male in all crashes (92.8%), fatal crashes (100.0%), and injury crashes (93.6%).

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	347	85.9	3	75.0	43	91.5
2 occupants	29	7.2	1	25.0	2	4.3
3 occupants	4	1.0	0	0.0	0	0.0
4 occupants	1	0.2	0	0.0	0	0.0
5 occupants	2	0.5	0	0.0	0	0.0
6+ occupants	12	3.0	0	0.0	1	2.1
0 occupants	9	2.2	0	0.0	1	2.1
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	404	100.0	4	100.0	47	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	192	70.6	3	100.0	28	68.3
Motor Home	1	0.4	0	0.0	0	0.0
Pickup	64	23.5	0	0.0	7	17.1
Small Truck (under 10,000 lbs.)	2	0.7	0	0.0	0	0.0
Motorcycle	2	0.7	0	0.0	2	4.9
Moped	0	0.0	0	0.0	0	0.0
Go Cart	0	0.0	0	0.0	0	0.0
Snowmobile	4	1.5	0	0.0	1	2.4
Off Road Vehicle	0	0.0	0	0.0	0	0.0
Other	3	1.1	0	0.0	1	2.4
Unknown	4	1.5	0	0.0	2	4.9
SUBTOTAL	272	100.0	3	100.0	41	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	8	2.0	0	0.0	0	0.0
10,001 - 26,000 lbs	144	35.6	0	0.0	10	21.3
Greater than 26,000 lbs.	250	61.9	4	100.0	37	78.7
Uncoded & Errors	2	0.5	0	0.0	0	0.0
SUBTOTAL	404	100.0	4	100.0	47	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	676	---	7	---	88	---

UPPER PENINSULA HEAVY TRUCK/BUS INVOLVED CRASHES (CONTINUED)

DRIVER HAZARDOUS ACTION WHERE 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	2.7	7	1.7	2	0.2
Speed too fast	3	21.4	3	12.0	12	32.4	209	50.7	93	10.8
Speed too slow	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Failed to yield	0	0.0	6	24.0	7	18.9	7	1.7	330	38.4
Disregard traffic control	1	7.1	3	12.0	0	0.0	0	0.0	84	9.8
Drove wrong way	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Drove left of center	0	0.0	0	0.0	0	0.0	1	0.2	15	1.7
Improper passing	0	0.0	2	8.0	0	0.0	0	0.0	11	1.3
Improper lane use	1	7.1	0	0.0	0	0.0	5	1.2	20	2.3
Improper turn	0	0.0	2	8.0	1	2.7	1	0.2	18	2.1
Improper / no signal	0	0.0	0	0.0	0	0.0	0	0.0	1	0.1
Improper backing	0	0.0	1	4.0	0	0.0	0	0.0	17	2.0
Unable to stop in assured clear distance	1	7.1	4	16.0	9	24.3	15	3.6	158	18.4
Reckless driving	0	0.0	0	0.0	0	0.0	14	3.4	9	1.0
Careless / negligent driving	4	28.6	3	12.0	3	8.1	121	29.4	65	7.6
Other	4	28.6	1	4.0	4	10.8	25	6.1	33	3.8
Unknown	0	0.0	0	0.0	0	0.0	7	1.7	2	0.2
CITED VEHICLES SUBTOTAL	14	100.0	25	100.0	37	100.0	412	100.0	859	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	14	11.1	25	9.0	37	13.9	412	7.7	859	12.6
Vehicles with No Citation Issued	112	88.9	253	91.0	230	86.1	4,924	92.3	5,969	87.4
Vehicles with Unknown Citation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL VEHICLES INVOLVED	126	100.0	278	100.0	267	100.0	5,336	100.0	6,828	100.0