

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 to crash.
- 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.
- Fewer crashes outside of the shoulder/curb.
- More crashes between the period of time between the hours of 7:00 AM and 3:59 PM.
- More crashes Monday through Thursday 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	194	60.6	3	75.0	34	72.3
Turning Left	19	5.9	0	0.0	3	6.4
Turning Right	21	6.6	0	0.0	2	4.3
Stopped on Roadway	11	3.4	0	0.0	2	4.3
Involved in Prior Crash at Same Location	0	0.0	0	0.0	0	0.0
Changing Lanes	3	0.9	0	0.0	0	0.0
Backing	19	5.9	0	0.0	0	0.0
Slowing/Stopping on Roadway	10	3.1	0	0.0	2	4.3
Slowing/Stopping Other Area	0	0.0	0	0.0	0	0.0
Starting Up on Roadway	5	1.6	0	0.0	0	0.0
Starting Up in Other Area	0	0.0	0	0.0	0	0.0
Entering Parking	1	0.3	0	0.0	0	0.0
Leaving Parking	0	0.0	0	0.0	0	0.0
Entering Roadway	3	0.9	0	0.0	1	2.1
Leaving Roadway	1	0.3	0	0.0	0	0.0
Making U-Turn	0	0.0	0	0.0	0	0.0
Overtaking or Passing	3	0.9	0	0.0	0	0.0
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)	3	0.9	0	0.0	1	2.1
Avoiding Vehicle (angle)	0	0.0	0	0.0	0	0.0
Driverless Moving	2	0.6	1	25.0	0	0.0
Parked	5	1.6	0	0.0	1	2.1
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/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 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	16	5.0	0	0.0	1	2.1
Other	1	0.3	0	0.0	0	0.0
Unknown	3	0.9	0	0.0	0	0.0
Uncoded & Errors	0	0.0	0	0.0	0	0.0
TOTAL	320	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	3	0.9	1	25.0	0	0.0
Ran Off Roadway Left	3	0.9	0	0.0	0	0.0
Ran Off Roadway Right	3	0.9	0	0.0	0	0.0
Re-Enter Roadway	0	0.0	0	0.0	0	0.0
Overturn	12	3.7	0	0.0	4	8.5
Separation of Units	1	0.3	0	0.0	1	2.1
Fire/Explosion	1	0.3	0	0.0	0	0.0
Immersion	0	0.0	0	0.0	0	0.0
Jackknife	2	0.6	0	0.0	1	2.1
Downhill Runaway	0	0.0	0	0.0	0	0.0
Cargo Loss/Shift	3	0.9	0	0.0	0	0.0
Individual Fell from Vehicle	0	0.0	0	0.0	0	0.0
Other Noncollision	3	0.9	0	0.0	0	0.0
Equipment Failure (blown tire, brake failure, etc.)	5	1.6	0	0.0	1	2.1
Cross Centerline	5	1.6	0	0.0	1	2.1
Cross Median	0	0.0	0	0.0	0	0.0
SUBTOTAL	41	12.8	1	25.0	8	17.0

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	0.6	1	25.0	1	2.1
Bicyclist	1	0.3	1	25.0	0	0.0
Motor Vehicle in Transport (in motion or on roadway)	177	55.3	1	25.0	30	63.8
Parked Motor Vehicle	13	4.1	0	0.0	1	2.1
Railroad Train	0	0.0	0	0.0	0	0.0
Animal	44	13.7	0	0.0	0	0.0
Other Nonfixed Object	7	2.2	0	0.0	1	2.1
Work Zone/Maintenance Equipment	0	0.0	0	0.0	0	0.0
Cargo Falling/Shifting/Anything Set in Motion by a Motor Vehicle	1	0.3	0	0.0	0	0.0
SUBTOTAL	245	76.6	3	75.0	33	70.2

The majority of heavy trucks/buses are involved in crashes with a motor vehicle in transport for all crashes (55.3%) and injury crashes (63.8%) 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/Support	1	0.3	0	0.0	0	0.0
Bridge Rail	2	0.6	0	0.0	1	2.1
Guardrail Face	3	0.9	0	0.0	1	2.1
Guardrail End	0	0.0	0	0.0	0	0.0
Other Post/Pole/Support	3	0.9	0	0.0	1	2.1
Culvert	2	0.6	0	0.0	0	0.0
Curb	0	0.0	0	0.0	0	0.0
Ditch	4	1.2	0	0.0	2	4.3
Embankment	1	0.3	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	3	0.9	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)	1	0.3	0	0.0	0	0.0
Other Fixed Object	0	0.0	0	0.0	0	0.0
Bridge Overhead Structure	0	0.0	0	0.0	0	0.0
Cable Barrier	0	0.0	0	0.0	0	0.0
Concrete Barrier	2	0.6	0	0.0	0	0.0
Traffic Sign/Post	0	0.0	0	0.0	0	0.0
Traffic Signal Equipment	1	0.3	0	0.0	0	0.0
Utility Pole/Light Support	10	3.1	0	0.0	1	2.1
SUBTOTAL	34	10.6	0	0.0	6	12.8

	ALL CRASHES		FATAL CRASHES		INJURY CRASHES	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Total
Uncoded & Errors	0	0.0	0	0.0	0	0.0
MOST HARMFUL EVENT TOTAL	320	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	100	31.3	2	50.0	10	21.3
Head On	5	1.6	1	25.0	2	4.3
Head On - Left Turn	3	0.9	0	0.0	0	0.0
Angle	47	14.7	1	25.0	10	21.3
Rear-end	37	11.6	0	0.0	6	12.8
Rear End - Left Turn	3	0.9	0	0.0	1	2.1
Rear End - Right Turn	5	1.6	0	0.0	1	2.1
Sideswipe - Same Direction	48	15.0	0	0.0	4	8.5
Sideswipe - Opposite Directions	24	7.5	0	0.0	7	14.9
Backing	15	4.7	0	0.0	0	0.0
Other	30	9.4	0	0.0	6	12.8
Unknown	3	0.9	0	0.0	0	0.0
Uncoded & Errors	0	0.0	0	0.0	0	0.0
TOTAL	320	100.0	4	100.0	47	100.0

The highest percentage of heavy trucks/buses are involved in single vehicle crashes for all crashes (31.3%) and fatal crashes (50.0%) and both single vehicle 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	187	58.4	3	75.0	30	63.8	0	0.0
Speed Too Fast	23	7.2	0	0.0	4	8.5	9	25.7
Speed Too Slow	0	0.0	0	0.0	0	0.0	0	0.0
Failed to Yield	13	4.1	0	0.0	3	6.4	4	11.4
Disregard Traffic Control	2	0.6	0	0.0	0	0.0	1	2.9
Drove Wrong Way	0	0.0	0	0.0	0	0.0	0	0.0
Drove Left of Center	6	1.9	0	0.0	3	6.4	2	5.7
Improper Passing	2	0.6	0	0.0	0	0.0	1	2.9
Improper Lane Use	8	2.5	0	0.0	2	4.3	4	11.4
Improper Turn	5	1.6	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	11	3.4	0	0.0	0	0.0	1	2.9
Unable to Stop in Assured Clear Distance	13	4.1	0	0.0	1	2.1	5	14.3
Reckless Driving	0	0.0	0	0.0	0	0.0	0	0.0
Careless/Negligent Driving	10	3.1	0	0.0	1	2.1	4	11.4
Other	28	8.8	0	0.0	3	6.4	3	8.6
Unknown	12	3.8	1	25.0	0	0.0	1	2.9
TOTAL	320	100.0	4	100.0	47	100.0	35	100.0

After no hazardous action, the most common hazardous action coded for drivers of heavy trucks/buses in all crashes is "other" (8.8%).

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	271	84.7	4	100.0	38	80.9
Median	0	0.0	0	0.0	0	0.0
Shoulder	22	6.9	0	0.0	5	10.6
Outside of Shoulder/Curb	20	6.3	0	0.0	3	6.4
Gore	1	0.3	0	0.0	0	0.0
On-Street Parking	4	1.3	0	0.0	0	0.0
Off the Roadway	0	0.0	0	0.0	0	0.0
On the Sidewalk	0	0.0	0	0.0	0	0.0
In the Bicycle Lane	0	0.0	0	0.0	0	0.0
Other/Unknown	2	0.6	0	0.0	1	2.1
TOTAL	320	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	3.1	1	25.0	1	2.1
3:00 AM - 5:59 AM	21	6.6	0	0.0	2	4.3
6:00 AM - 8:59 AM	49	15.3	0	0.0	10	21.3
9:00 AM - 11:59 AM	79	24.7	0	0.0	13	27.7
12:00 PM - 2:59 PM	69	21.6	1	25.0	12	25.5
3:00 PM - 5:59 PM	52	16.3	1	25.0	8	17.0
6:00 PM - 8:59 PM	27	8.4	1	25.0	1	2.1
9:00 PM - 11:59 PM	13	4.1	0	0.0	0	0.0
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	320	100.0	4	100.0	47	100.0

Heavy truck/bus frequencies in crashes peak in the late evening, then drop off steadily until 3 AM. The most common time for heavy trucks/buses to be involved in crashes is between 9:00 PM and 11:59 PM for all crashes (24.7%) and for injury crashes (27.7%).

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	16	5.0	0	0.0	2	4.3
U.S. and Michigan Roads	201	62.8	3	75.0	32	68.1
County & City Roads	102	31.9	1	25.0	12	25.5
Uncoded & Errors	1	0.3	0	0.0	1	2.1
TOTAL	320	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 (62.8%), fatal crashes (75.0%), 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	50	15.6	0	0.0	11	23.4
Tuesday	44	13.8	0	0.0	7	14.9
Wednesday	50	15.6	1	25.0	2	4.3
Thursday	83	25.9	2	50.0	11	23.4
Friday	47	14.7	0	0.0	9	19.1
Saturday	34	10.6	0	0.0	5	10.6
Sunday	12	3.8	1	25.0	2	4.3
TOTAL	320	100.0	4	100.0	47	100.0

The highest percentage of heavy trucks/buses are involved in crashes on Thursday for all crashes (25.9%) and fatal crashes (50.0%) and both Monday and Thursday for injury crashes (23.4%).

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	299	93.4	3	75.0	42	89.4
Female	13	4.1	0	0.0	4	8.5
Unknown	8	2.5	1	25.0	1	2.1
TOTAL	320	100.0	4	100.0	47	100.0

The majority of heavy truck/bus drivers are male in all crashes (93.4%), fatal crashes (75.0%), and injury crashes (89.4%).

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	278	86.9	3	75.0	41	87.2
2 occupants	23	7.2	0	0.0	3	6.4
3 occupants	2	0.6	0	0.0	0	0.0
4 occupants	1	0.3	0	0.0	0	0.0
5 occupants	2	0.6	0	0.0	1	2.1
6+ occupants	6	1.9	0	0.0	1	2.1
0 occupants	8	2.5	1	25.0	1	2.1
Unknown	0	0.0	0	0.0	0	0.0
TOTAL	320	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	149	65.4	2	40.0	26	61.9
Motor Home	1	0.4	0	0.0	1	2.4
Pickup	70	30.7	1	20.0	13	31.0
Small Truck (under 10,000 lbs.)	1	0.4	0	0.0	0	0.0
Motorcycle	1	0.4	0	0.0	1	2.4
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	1	0.4	0	0.0	0	0.0
Uncoded & Errors	5	2.2	2	40.0	1	2.4
SUBTOTAL	228	100.0	5	100.0	42	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	0.9	0	0.0	0	0.0
10,001 - 26,000 lbs	124	38.8	1	25.0	13	27.7
Greater than 26,000 lbs.	192	60.0	3	75.0	34	72.3
Uncoded & Errors	1	0.3	0	0.0	0	0.0
SUBTOTAL	320	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	548	---	9	---	89	---

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	0	0.0	5	1.2	1	0.2
Speed Too Fast	8	53.3	1	5.0	5	12.2	191	45.4	54	9.0
Speed Too Slow	0	0.0	0	0.0	0	0.0	1	0.2	0	0.0
Failed to Yield	0	0.0	4	20.0	12	29.3	4	1.0	221	36.7
Disregard Traffic Control	0	0.0	1	5.0	3	7.3	7	1.7	50	8.3
Drove Wrong Way	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Drove Left of Center	0	0.0	2	10.0	1	2.4	4	1.0	10	1.7
Improper Passing	0	0.0	1	5.0	0	0.0	1	0.2	6	1.0
Improper Lane Use	1	6.7	3	15.0	1	2.4	4	1.0	20	3.3
Improper Turn	0	0.0	0	0.0	2	4.9	3	0.7	17	2.8
Improper/No Signal	0	0.0	0	0.0	0	0.0	0	0.0	1	0.2
Improper Backing	0	0.0	1	5.0	3	7.3	0	0.0	2	0.3
Unable to Stop in Assured Clear Distance	1	6.7	4	20.0	7	17.1	3	0.7	124	20.6
Reckless Driving	0	0.0	0	0.0	0	0.0	10	2.4	6	1.0
Careless/Negligent Driving	3	20.0	1	5.0	3	7.3	139	33.0	64	10.6
Other	1	6.7	2	10.0	3	7.3	46	10.9	22	3.7
Unknown	1	6.7	0	0.0	1	2.4	3	0.7	4	0.7
CITED VEHICLES SUBTOTAL	15	100.0	20	100.0	41	100.0	421	100.0	602	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	15	14.7	20	9.2	41	18.4	421	8.8	602	13.1
Vehicles with No Citation Issued	87	85.3	198	90.8	182	81.6	4,337	91.2	3,988	86.9
Vehicles with Unknown Citation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
TOTAL VEHICLES INVOLVED	102	100.0	218	100.0	223	100.0	4,758	100.0	4,590	100.0