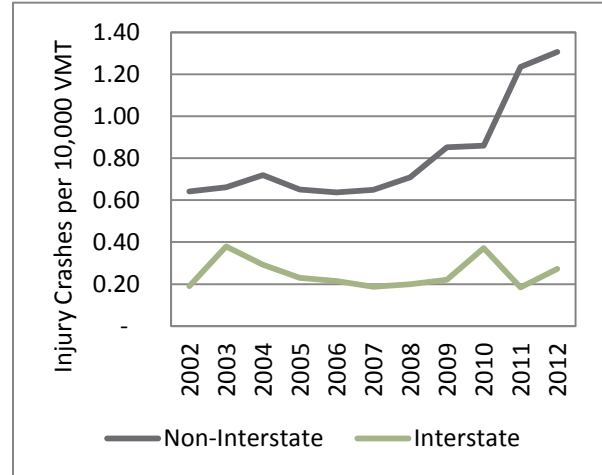


Truck Injury Crashes

North Dakota truck injury crash incidence, in terms of injury crashes per VMT, increased 80% between 2002 and 2012. In 2012, there were 1.13 truck injury crashes per 10,000 DVMT compared to 0.63 in 2002.

Between 2008 and 2012 trucks were involved in 8% of all injury crashes and 15% of severe injury crashes. Severe injuries are fatal and disabling. Figures below offer additional insight into injury truck crashes from 2008 to 2012 unless otherwise specified.



Truck Injury Crash Incidence, by Road System

Road and Area Type

- More than 90% of severe crashes involving trucks between 2008 and 2012 occurred on rural roads.
- Crashes involving large trucks were twice as likely to involve a severe injury than other crashes.
- The largest share, 50%, of severe injury crashes on the rural road system occurred on principal arterials, which are the primary state highway travel corridors in the state.
- 1 in 5, or 22%, of severe truck crashes occurred on local roads, which include county and township roads.

Severe Injury Crashes, by Road & Area

Functional Class	Rural	Urban
Interstate	35	19
Principal Arterial	151	8
Minor Arterial	37	3
Major Collector	14	0
Local Road	67	3
Total by Area	304	33

Some severe injury truck crash facts...

- 64% involving trucks occurred on undivided roads with two-way traffic.
- 30%, nearly one-third, occurred at intersections or were intersection related.
- 27% of severe injury crashes took place on hills.
- 12% occurred on curves. In about half of these cases the curves were horizontal.
- 86% of severe truck crashes were multi-vehicle crash events.
- 36% of multi-vehicle truck crashes occur at intersections or are intersection related. In these multi-vehicle events 22% were turning left and 5% right.
- 35% of single-vehicle and 23% of multiple-vehicle truck crashes are on hills.
- 31% of single-vehicle truck crashes take place on curves.

Note: Truck vehicle miles traveled (VMT) based on data collected for state roads (NDDOT).

Top Counties

- Six counties account for 59% of the severe truck crashes in the state. These six counties accounted for about 41% of the rural DVMT in 2012.

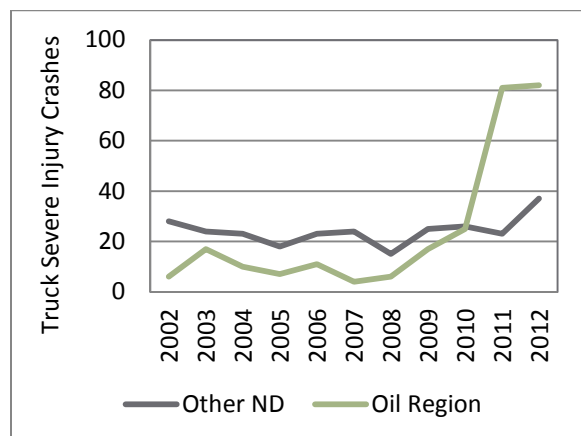
Top Six Counties for Truck Crashes

	Other Injury	Severe Injury	Total
McKenzie	128	57	185
Williams	116	55	171
Mountrail	79	28	107
Cass	98	27	125
Ward	51	20	71
Dunn	41	12	53

- Five of these six counties are in the oil region in western ND (see map on back page) - McKenzie, Williams, Mountrail, Ward and Dunn – and accounted for 51% of severe truck crashes in the state. These four counties accounted for 33% of the rural VMT in 2012 (NDDOT).

Oil Region

- Truck severe injury crashes in the oil region (see map on last page) increased by more than 1200% from 2008 to 2012. The remainder of the state experienced a 147% increase over the same period.



Severe Truck Crash Trends, by Region

Driver Elements

- 44% of truck drivers in single vehicle severe injury crashes were issued citations.
- In severe multi-vehicle truck injury crashes, a majority (66%) of the citations were associated with other vehicle drivers.
- In multi-vehicle severe injury crashes, 20% of truck drivers were issued citations and 39% of other vehicle drivers received citations when involved in truck injury crashes.
- *More care required* was the most common citation issued to drivers in injury crashes.
- *Failure to Yield* was a citation written to more than 1 of every 10 drivers, a common problem for both truck and other vehicle drivers.

Top Ten Citations in Truck Injury Crashes

Citation	Other Vehicles	Trucks
More Care Required	33%	46%
Other Offense	12%	16%
Failed to Yield	13%	12%
Following too Close	7%	8%
Failed to Stop	5%	4%
Careless Driving	3%	3%
Illegal Parking	2%	2%
Improper Turning	4%	2%
DUI (Alcohol)	15%	2%
Overtaking	4%	2%
Total Vehicles	397	738

Citation shares based on number issued.

- Safety restraints were used by 73% of truck drivers and 58% of other drivers in severe truck injury crashes. These shares increased from 67% of truck drivers and 57% of other drivers in 2011.

- At least one contributing factor was reported for 71% of trucks and 85% of other vehicles involved in truck crashes.
- Overall, *failure to yield and weather* account for 27% of contributing factors in truck injury crashes and were the most common named factors for truck drivers. *Failure to yield and speed/too fast for conditions* were the most common contributing factors for other vehicles.

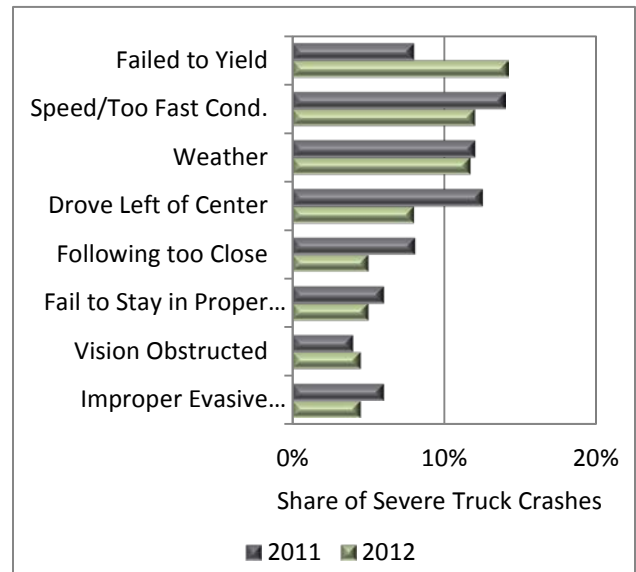
Top Contributing Factors in Severe Truck Injury Crashes

Factor	Other Vehicles	
	Trucks	Other
<i>None Reported</i>	15%	29%
Other	10%	17%
Failed to Yield	13%	16%
Weather	10%	14%
Speed/Too Fast for Cond.*	12%	11%
Drove Left of Center	11%	3%
Fail to Stay in Proper Lane	5%	5%
Following too Close	6%	4%
Improper Evasive Action	4%	4%
Vision Obstructed	4%	6%
Distracted - Inside Vehicle	4%	4%
Vehicle Operation Erratic	4%	1%
Improper Overtaking	4%	0%
Improper Turn	2%	3%
Disregard Traffic Signs	3%	1%
Attention Distracted	2%	2%
Distracted - Outside Vehicle	2%	1%
Total Vehicles	314	372

Up to three contributing factors possible for each vehicle.
 *Speed/Too Fast for Conditions

- Overall, the eight factors illustrated in the figure in the next column comprise 65% of the contributing factors in severe crashes. The most common were *failure to yield*, in 2012, and *driving too fast for conditions*, in 2011. Differences

between the trucks and other traffic can be identified in the table of contributing factors.



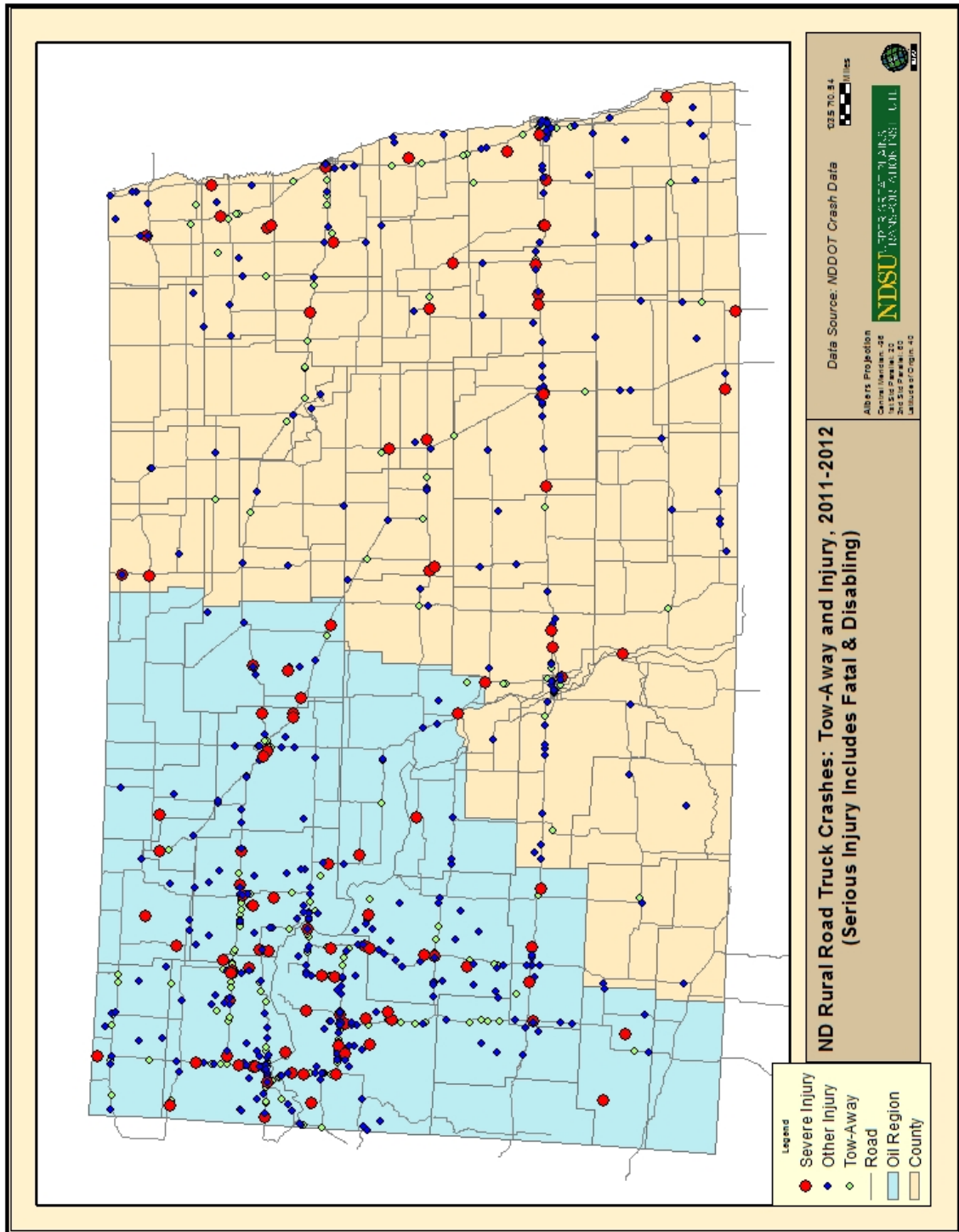
Top Contributing Severe Truck Crash Factors in 2011 & 2012

- 83% of severe truck crashes occur during workweek days.
- The most common time for crashes was between 1 p.m. and 5 p.m. This was likely related to workday traffic patterns.

Time of Day	Severe	Other Injury
Midnight to 5:59 a.m.	13%	13%
6 a.m. to 11:59 a.m.	32%	33%
1 p.m. to 5 p.m.	36%	37%
5 p.m. to 11:59 p.m.	19%	17%

- Snow and ice conditions were a factor in 15% of severe crashes and 22% of other injury crashes involving trucks.
- 23% of severe truck crashes occurred in the dark.





North Dakota State University does not discriminate on the basis of age, color, disability, gender expression/identity, genetic information, marital status, national origin, public assistance status, sex, sexual orientation, status as a U.S. veteran, race or religion. Direct inquiries to the Vice President for Equity, Diversity and Global Outreach, 205 Old Main, (701)231-7708.

The content of this report reflects the views of the authors, who are responsible for the facts and accuracy of the information presented. This document is disseminated under the sponsorship of the North Dakota Department of Transportation and the Federal Highway Administration.