Michigan's Upper Peninsula Crash Experience: 2014-2018

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Contents

1.0 Executive Summary

This report analyzes police-reported traffic crashes in the Upper Peninsula of Michigan (the UP), primarily from 2014-2018. Key findings include:

- Of the 8,948 police-reported crashes in the UP in 2018, 33 were fatal (0.4%) and 182 (2.0%) involved a suspected serious injury.
- From 1982 to 2018, the number of police-reported crashes in the UP decreased 19.7%, the number of fatalities declined 39.7%, and the number of injuries dropped 56.6%.
- Marquette, Delta, and Houghton Counties had the highest crash counts, accounting for about 45% of all police-reported crashes in the UP from 2014 through 2018.
- All police-reported crashes peak in November (11.6%), December (11.1%), and January (11.0%) in the UP. Crashes involving a fatality, suspected serious injury, or suspected minor injury (KAB crashes) have the highest counts in August (12.4%), July (10.9%), and June (10.1%).
- From 2014-2018 in the UP, 56.0% of all crashes and 66.5% of KAB crashes occurred in daylight conditions.
- More than a third (37.1%) of all police-reported crashes in the UP involved a deer, but 97.9% of the deer crashes were property damage only.
- Over the past five winter seasons (October – April), the UP experienced an average of 2,717 winter weather crashes, defined as occurring under icy, snowy, or slushy road conditions.
- From 2014-2018 in the UP, 58.2% of the crash involvements of motorcycles were in crashes where at least one person was killed or sustained suspected serious or suspected minor injuries (KAB injuries).
- Speed too fast was the most common hazardous action among crash-involved drivers in the UP. An average of 141 KAB injuries occurred per year as a result of speeding crashes.
- Alcohol was involved in 3.7% of crashes in the UP, but 16.9% of KAB injuries occurred in crashes involving alcohol.
- Among crash-involved drivers 65 and older in the UP, 63.8% were male and 36.2% were female.
- Crash-involved passenger vehicle occupants age 14-18 had lower rates of restraint use than older passenger vehicle occupants.

2.0 Introduction

Michigan traffic crashes are defined as taking place on public roadways in Michigan, involving at least one motor vehicle in transport, and resulting in death, injury, or property damage of $1,000 or more. This report looks at the traffic crash experience of the fifteen counties in Michigan's Upper Peninsula (the UP). Compared with the rest of Michigan, the UP is more rural, skews older in population, and has harsher winters, all of which affect the nature of traffic crashes. Most of the analyses in the report are focused on police-reported crashes from the most recent five years of data, 2014-2018. Crashes are examined in terms of a variety of factors, including month, light condition, vehicle type, hazardous action, impairment, and more.

In this report, injury severity of people involved in crashes is frequently categorized according to the KABCO scale:

- K – fatal injury
- A – suspected serious injury
- B – suspected minor injury
- C – possible injury
- O – no apparent injury

Similarly, crashes are sometimes classified according to the most severe injury suffered by anyone involved in the crash. Again, the KABCO scale is used, with "property damage only" (PDO) referring to crashes where no one was killed or injured. A special emphasis is placed on KAB crashes in this report, including mileage-based rates of KAB injuries by county and crash type.

3.0 UP Crashes over Time and by County

3.1 Crash Trends

To help put crash statistics from recent years in an historical context, Figure 1 on the following page charts trends in the number of crashes, fatalities, and injuries in the Upper Peninsula from 1982 through 2018. The black solid line in Figure 1 (plotted against the left-axis) charts the total count of police-reported crashes each year. Crashes generally rose from 11,137 in 1982 to a peak of 18,656 in 1995 before trending back down to 8,948 in 2018. The 2018 crash count represents a decrease of 19.7% from 1982 and a decline of 52.0% from the high-point in 1995.

The blue dashed line in Figure 1 (plotted against the right-axis) charts annual fatalities. This number has vacillated, but after spiking in 1993 the general trend has been downward. Fatalities decreased 39.7% from 58 in 1982 to 35 in 2018, and the 2018 number is a drop of 58.3% since the high count of 84 in 1993.

The green dashed line in Figure 1 (plotted against the left-axis) tracks the number of people injured in crashes each year. From 3,546 injuries in 1982, this number rose to 4,124 in 1989 and has generally fallen since. The number injured has stayed below 2,000 every year since 2010. The 1,538 injuries in 2018 is down 56.6% from 1982 and down 62.7% from the high-point in 1989.

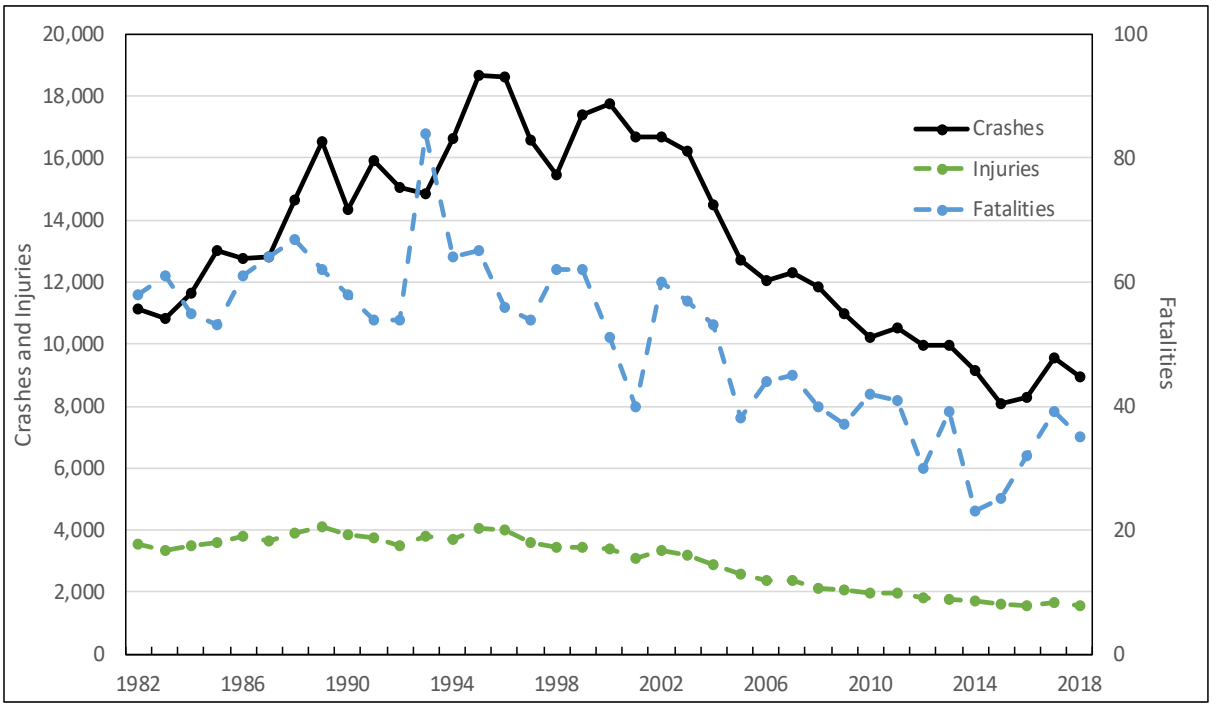

Figure 1 – Crashes, Injuries, and Fatalities in the UP from 1982-2018

Table 1 shows the number of crashes in the UP from 2014-2018 according to the worst degree of injury suffered in the crash. About 85.9% of all crashes during this time resulted in property damage only. A fatality occurred in 0.3% of all crashes, while the worst degree of injury was A in 2.0% of crashes, B in 3.7%, and C in 8.1%.

Table 1. Severity of Crashes in the UP

Crashes in the Upper Peninsula						
Worst Injury in the Crash	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Fatal (K)	20	25	29	35	33	142
Suspected Serious Injury (A)	165	166	166	195	182	874
Suspected Minor Injury (B)	326	286	349	333	338	1,632
Possible Injury (C)	830	735	648	706	633	3,552
Property Damage Only	7,785	6,887	7,072	8,273	7,762	37,779
Total	9,126	8,099	8,264	9,542	8,948	43,979

3.2 Crash Distributions by County

Crash counts from 2014 to 2018 for each of the fifteen counties in the UP are shown in Table 2. Given that the UP counties vary in population, it is not surprising that they also vary in number of crashes. Over the five years, Marquette had the greatest number of crashes with 8,863, and Keweenaw had the

lowest number with 386. While crashes typically occurred at the rate of nearly five per day in Marquette County, crashes took place at the average rate of just over one every five days in Keweenaw County.

Table 2. Crashes in the UP by County

Crashes in the Upper Peninsula						
County	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
Alger	264	248	280	314	316	1,422
Baraga	284	259	285	349	323	1,500
Chippewa	949	867	890	980	924	4,610
Delta	1,368	1,148	1,153	1,334	1,237	6,240
Dickinson	907	781	793	957	851	4,289
Gogebic	241	219	228	226	258	1,172
Houghton	1,011	836	946	996	858	4,647
Iron	470	395	423	556	490	2,334
Keweenaw	77	64	79	93	73	386
Luce	178	165	140	192	181	856
Mackinac	547	428	414	578	633	2,600
Marquette	1,838	1,772	1,704	1,820	1,729	8,863
Menominee	465	428	390	427	361	2,071
Ontonagon	258	253	259	322	329	1,421
Schoolcraft	269	236	280	398	385	1,568
Total	9,126	8,099	8,264	9,542	8,948	43,979

Figure 2 shows the share of crashes from 2014-2018 in each of the UP counties. Marquette County had the highest share with 20.2% of all police-reported crashes in the UP. About 45% of the crashes occurred in the three counties of Marquette, Delta, and Houghton combined. Adding in the counties with the next four highest totals—Chippewa, Dickinson, Mackinac, and Iron—accounts for 76% of all crashes in the UP.

Upper Peninsula: 2014-2018

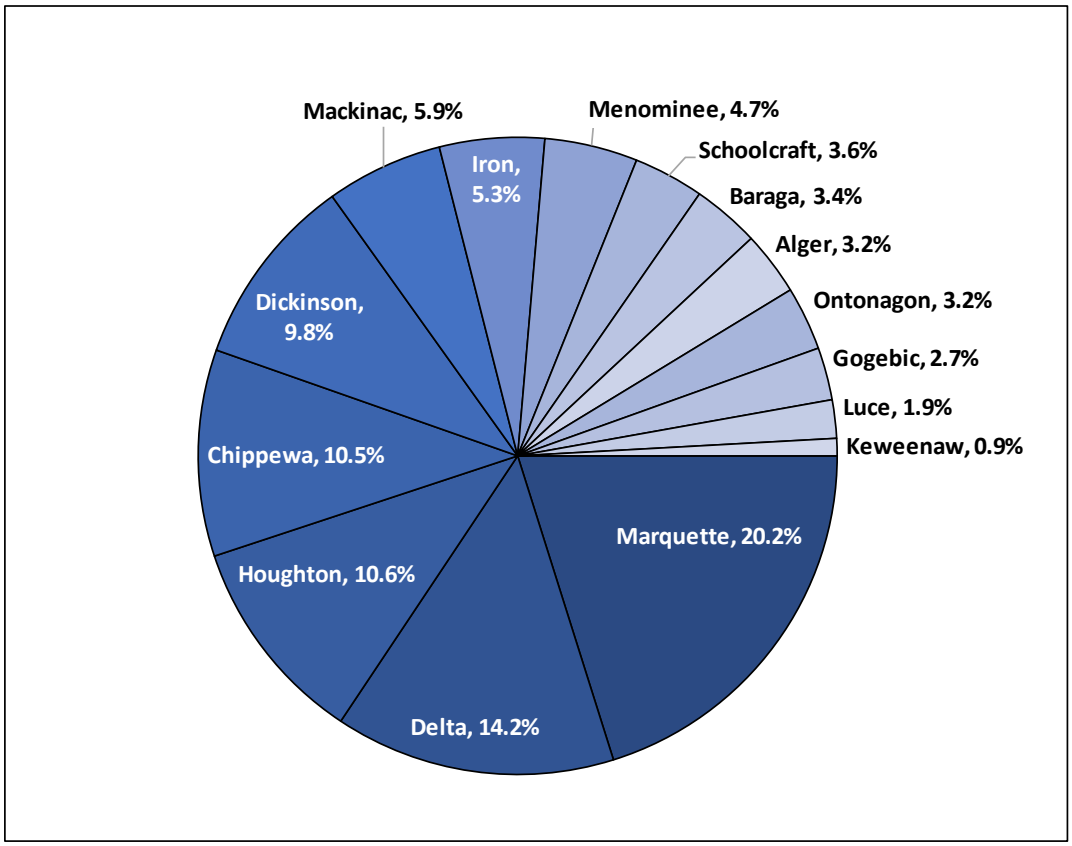

Figure 2 – Distribution of UP Crashes by County, 2014-2018

4.0 Crashes by Month

Table 3 shows the distribution by month of all police-reported crashes and crashes of KAB severity in the UP from 2014-2018. Figure 3 compares the percentage distributions by month between all crashes and KAB crashes. The two crash groups have distinctly different seasonal patterns. All police-reported crashes have the highest concentration in November (11.6%), December (11.1%), and January (11.0%). In contrast, only 7-8% of KAB crashes occur in each of those three months. KAB crashes peak in August with 12.4%, followed by July (10.9%) and June (10.1%).

Table 3. Crashes in the UP by Month, 2014-2018

Month	All Crashes		KAB Crashes	
	Crashes	Percent Distribution	Crashes	Percent Distribution
January	4,838	11.0%	199	7.5%
February	3,992	9.1%	206	7.8%
March	3,135	7.1%	159	6.0%
April	2,796	6.4%	151	5.7%
May	2,519	5.7%	205	7.7%
June	3,288	7.5%	267	10.1%
July	3,136	7.1%	288	10.9%
August	2,908	6.6%	328	12.4%
September	3,276	7.4%	257	9.7%
October	4,081	9.3%	186	7.0%
November	5,116	11.6%	206	7.8%
December	4,894	11.1%	196	7.4%
Total Crashes	43,979	100.0%	2,648	100.0%

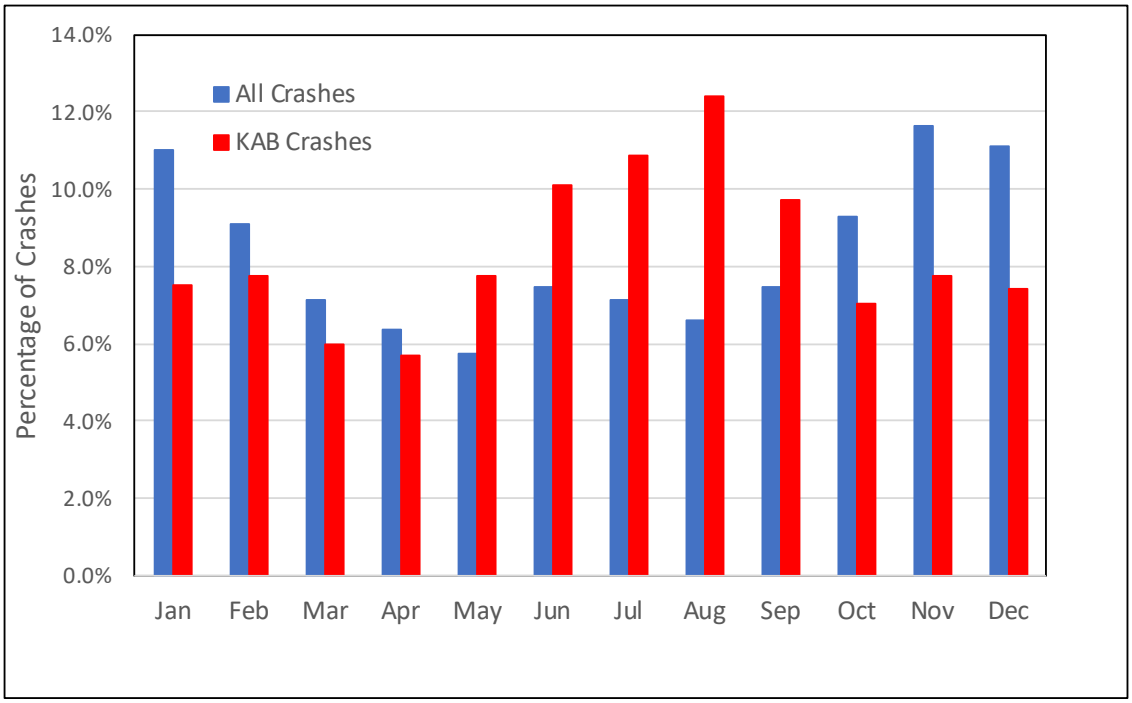

Figure 3 – Distribution of UP Crashes by Month, 2014-2018

Upper Peninsula: 2014-2018

There are likely several factors that contribute to the different seasonal patterns of all crashes vs. KAB crashes in the UP. One that can be identified in the crash data involves motorcycles. While only 1.1% of all crashes in the UP involved motorcycles, 11.0% of KAB crashes in the UP involved motorcycles. Conversely, while only 6.0% of all UP crashes were of KAB severity, 58.0% of all motorcycle crashes were of KAB severity. About 64% of the motorcycle crashes in the five-year time period occurred in the months of June, July, and August, so this is one reason KAB crashes are concentrated more in these months.

Two other factors observed in the crash data that drive the seasonal patterns are deer and winter road conditions. Deer crashes are relatively common (37.1% of all UP crashes) but rarely severe (5.3% of all KAB crashes in the UP). November and October have the most deer crashes, thus boosting the relative share of all crashes in those months. Crashes with icy/snowy/slushy road conditions are also common (29.9% of all UP crashes), but they are less severe than crashes overall (23.8% of all KAB crashes in the UP). Crashes with wintry road conditions peak in January and are also high in December and February, again increasing the concentration of all crashes during these months.

5.0 Light Condition

Table 4 compares all crashes and KAB crashes in the UP according to light condition at the time of the crash. Over half of both crashes overall and KAB crashes occurred during daylight, but KAB crashes had a higher percent of daylight (66.5%) than all crashes (56.0%). KAB crashes were relatively less likely to occur during dark/unlighted conditions (20.8%) than all crashes (27.4%). In the last section we saw that KAB crashes in the UP were more concentrated during the summer months compared with crashes overall. It appears that the seasonal crash patterns correlate with the light condition patterns. The months of the year with more KAB crashes also have more daylight hours in the UP.

Table 4. Crashes in the UP by Light Condition, 2014-2018

Light Condition	All Crashes		KAB Crashes	
	Crashes	Percent Distribution	Crashes	Percent Distribution
Daylight	24,612	56.0%	1,761	66.5%
Dawn	1,837	4.2%	67	2.5%
Dusk	1,928	4.4%	79	3.0%
Dark/Lighted	3,148	7.2%	185	7.0%
Dark/Unlighted	12,043	27.4%	550	20.8%
Other/Unknown	411	0.9%	6	0.2%
Total Crashes	43,979	100.0%	2,648	100.0%

6.0 Deer Crashes

Any consideration of the crash experience of the Upper Peninsula deserves a mention of deer. From 2014-2018, deer were involved in more than one out of three of all police-reported crashes in the UP. A total of 16,328 deer crashes took place during this time, which is 37.1% of the 43,979 total crashes. The annual average number of deer crashes was 3,266, and as Figure 4 shows, these counts were even higher in 2017 and 2018.

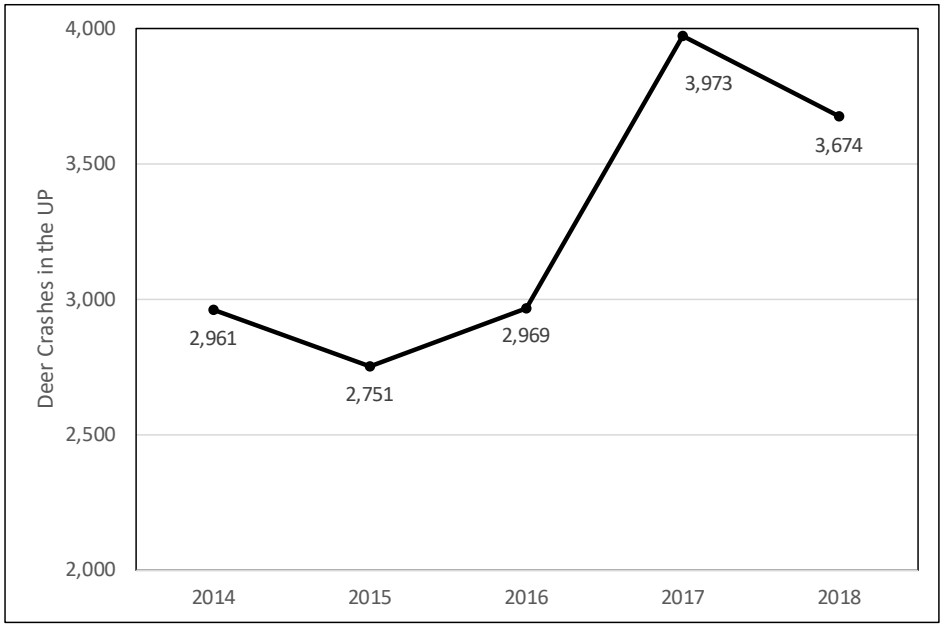

Figure 4 – Deer Crashes in the UP, 2014-2018

On the other hand, 97.9% of the deer crashes involved property damage only. Over the five-year period, there were four fatal deer crashes in the UP, 39 A-injury crashes (0.2%), and 98 B-injury (0.6%) crashes. A motorcycle was involved in 64 (45.4%) of these 141 KAB deer crashes. Nearly one-third of the KAB deer crashes in the UP in the five-year period occurred in two counties, Delta with 24 KAB deer crashes and Menominee with 20.

7.0 Winter Weather Crashes

7.1 Winter Weather Crashes by County

Table 5 shows counts of winter weather crashes in the UP by county. A winter weather crash is defined as one that took place from October-April where road conditions at the time of the crash were reported to be either icy, snowy, or slushy. The counts in the table are according to winter season, so the 2013-14 column has winter weather crashes that took place between October of 2013 and April of 2014. The average number of winter weather crashes per season in the UP was 2,717, which is very close to the 2017-2018 winter weather crash count of 2,699 (Figure 5).

Table 5. Winter Weather Crashes in the UP by County

Winter Weather Crashes in the Upper Peninsula						
County	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**Total**
Alger	106	116	82	87	136	527
Baraga	98	83	64	81	76	402
Chippewa	479	456	205	315	360	1,815
Delta	412	283	167	229	240	1,331
Dickinson	265	172	87	128	155	807
Gogebic	152	106	101	86	90	535
Houghton	559	399	333	327	419	2,037
Iron	162	98	71	111	110	552
Keweenaw	35	33	21	21	38	148
Luce	84	81	40	51	61	317
Mackinac	227	162	72	128	191	780
Marquette	822	796	485	451	586	3,140
Menominee	132	98	42	82	81	435
Ontonagon	102	71	70	59	77	379
Schoolcraft	103	79	38	79	79	378
Total	3,738	3,033	1,878	2,235	2,699	13,583

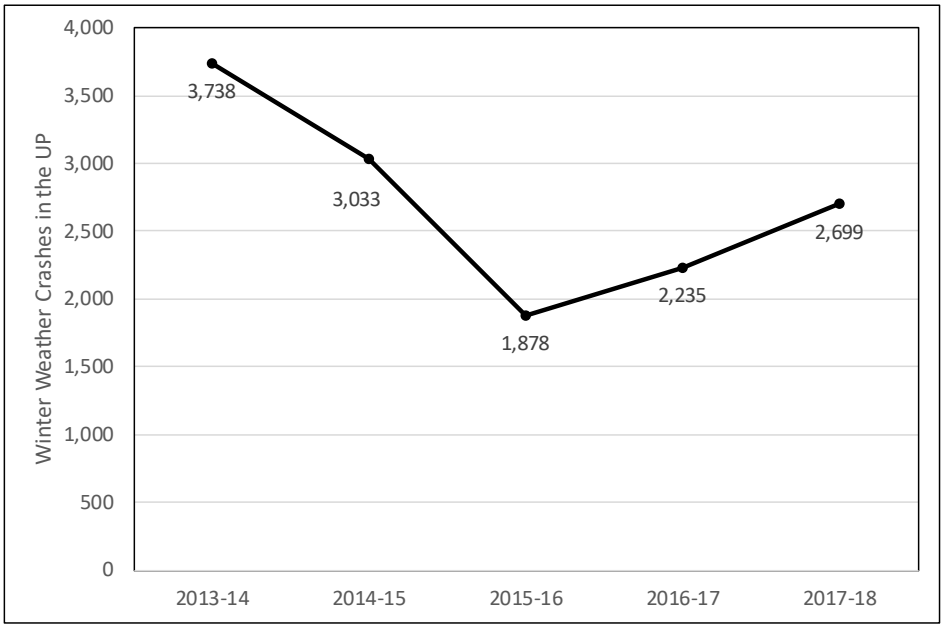

Figure 5 – Winter Weather Crashes in the UP, 2013-2018 Winter Seasons

7.2 Winter Weather Crashes by Driver Age Group

The first row in Table 6 shows winter weather crash counts by crash severity for crashes involving at least one driver age 14 to 18. The next three rows have similar counts for crashes involving drivers age 19 to 24, drivers age 25 to 64, and drivers 65 and older, respectively. The four driver age categories of crashes are not mutually exclusive because a crash can involve drivers from different age groups. Most of the winter weather crashes in each driver age group were property damage only, ranging from 84.2% of the driver age 14-18 group to 86.2% of the driver age 19-24 group. About 5.5% of both the crashes with the youngest drivers and the oldest drivers were of KAB severity, making them slightly more severe than crashes with drivers age 19-24 (4.6% KAB severity) or crashes with drivers age 25-64 (4.9% KAB severity).

Table 6. Winter Weather Crashes in the UP by Driver Age and Crash Severity, 2013-2018 Winter Seasons

Driver Age	Fatal	Suspected Serious	Suspected Minor	Possible	PDO	Total
Age 14-18	6	23	53	154	1,260	1,496
Age 19-24	6	39	99	289	2,697	3,130
Age 25-64	37	158	276	920	8,153	9,544
Age 65+	6	36	79	218	1,854	2,193

8.0 Vehicle Type

The first two columns of Table 7 show the breakdown of vehicle type for all motor vehicles involved in police-reported crashes in the UP from 2014-2018. The next two columns show vehicle involvements for the subset of KAB crashes. Among all crashes, 90.9% of the vehicle involvements were either passenger cars/SUVs/vans or pickup trucks, but this was true of only 76.8% of the vehicle involvements in KAB crashes.

Motorcycles, mopeds/gopeds, go-carts/golf carts, snowmobiles, and ORVs/ATVs all had a proportionately higher presence among KAB crashes than all crashes. For example, while motorcycles represented just 0.8% of all vehicles in crashes, they made up 7.8% of vehicles in KAB crashes. The right-most column in Table 3 shows the percentage of KAB crash involvements out of all crash involvements for each vehicle type. While less than 6% of crash involvements of passenger cars and pickup trucks were in KAB crashes, 58.2% of motorcycle crash involvements were in KAB crashes.

Table 7. Crash Involvements by Vehicle Type in the UP, 2014-2018

Vehicle Type	All Crashes		KAB Crashes		Percent KAB out of All
	Crash Involvements	Percent Distribution	Crash Involvements	Percent Distribution	
Passenger car, SUV, van	43,120	69.5%	2,244	57.4%	5.2%
Motor home	1,180	1.9%	59	1.5%	5.0%
Pickup truck	13,266	21.4%	758	19.4%	5.7%
Small truck under 10,000 lbs. GVWR	759	1.2%	42	1.1%	5.5%
Motorcycle	521	0.8%	303	7.8%	58.2%
Moped/goped	59	0.1%	38	1.0%	64.4%
Go-cart/golf cart	7	0.0%	3	0.1%	42.9%
Snowmobile	230	0.4%	99	2.5%	43.0%
ORV/ATV	272	0.4%	181	4.6%	66.5%
Other	280	0.5%	24	0.6%	8.6%
Truck/bus over 10,000 lbs.	1,496	2.4%	144	3.7%	9.6%
Uncoded & errors	867	1.4%	12	0.3%	1.4%
Total Vehicles	62,057	100.0%	3,907	100.0%	6.3%

9.0 Hazardous Actions

The top three hazardous actions for crash-involved drivers in the UP from 2014-2018 were speed too fast, failed to yield, and unable to stop in assured clear distance (Figure 6). About 21.4% of all KAB injuries in the UP over this time period occurred in crashes with a speeding driver. About 18.2% occurred in crashes where a driver failed to yield, and 7.2% took place when a driver was unable to stop. Some overlap between crashes defined by the three types of hazardous actions is possible because occasionally more than one driver in a crash is assigned a hazardous action.

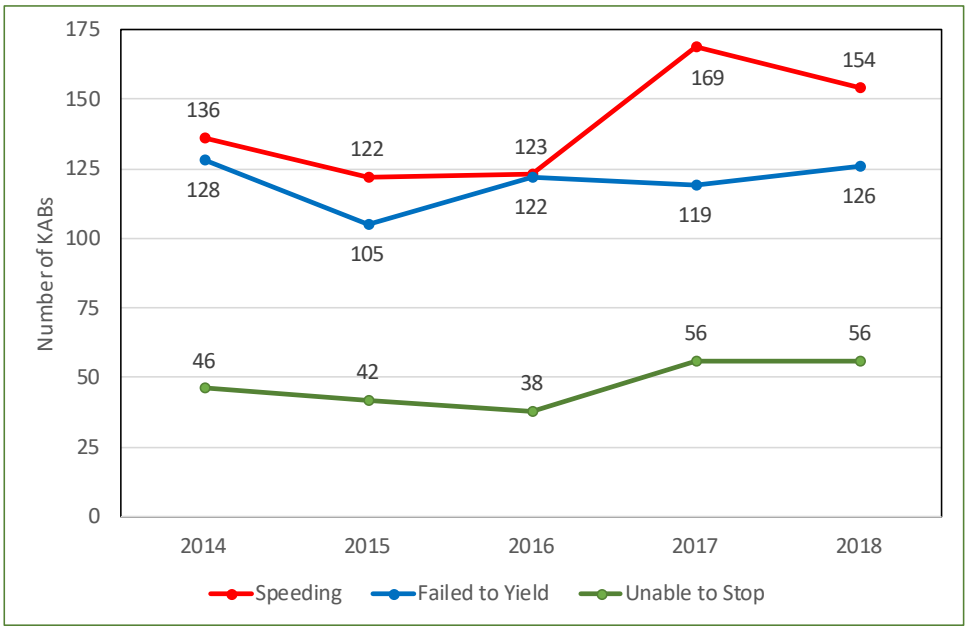

Figure 6 – KABs in the UP Resulting from Three Types of Hazardous Action Crashes, 2014-2018

10.0 Impairment

The data in Table 8 indicate that crashes involving alcohol tend to be more severe than crashes generally. In each of the five years of crash data in the UP, alcohol-involved crashes made up less than 4% of the total number of crashes, but 16.9% of all KAB injuries during the five years occurred in crashes involving alcohol. From 2014-2018, 48 people were killed in alcohol-involved crashes, 226 received A injuries, and 282 received B injuries.

Table 8. Role of Alcohol in Crashes in the UP

Metric	2014	2015	2016	2017	2018	Total
Alcohol-Involved Crashes	314	304	319	365	309	1,611
All Crashes	9,126	8,099	8,264	9,542	8,948	43,979
Percent Crashes Involving Alcohol	3.4%	3.8%	3.9%	3.8%	3.5%	3.7%
KABs in Alcohol Crashes	106	101	99	138	112	556
All KABs	611	590	667	727	693	3,288
Percent KABs Involving Alcohol	17.3%	17.1%	14.8%	19.0%	16.2%	16.9%

A similar pattern is seen in crashes involving drugs (Table 9). For the five years combined, drugs were involved in 1.0% of all crashes, but 5.5% of all KAB injuries resulted from crashes involving drugs. There were 30 fatalities, 73 A injuries, and 78 B injuries in drug-involved crashes from 2014-2018.

Table 9. Role of Drugs in Crashes in the UP

Metric	2014	2015	2016	2017	2018	Total
Drug-Involved Crashes	63	76	96	94	92	421
All Crashes	9,126	8,099	8,264	9,542	8,948	43,979
Percent Crashes Involving Drugs	0.7%	0.9%	1.2%	1.0%	1.0%	1.0%
KABs in Drug Crashes	23	23	55	38	42	181
All KABs	611	590	667	727	693	3,288
Percent KABs Involving Drugs	3.8%	3.9%	8.2%	5.2%	6.1%	5.5%

11.0 Driver Age and Gender

Table 10 has counts of crash-involved drivers in the UP from 2014-2018 by age group and gender. The table is restricted to drivers age 14 and older with known age and gender. All of the driver age groups shown in the table have more male than female drivers, but the percentage of male drivers increases with each older age group. Among the youngest drivers, those 14 to 18, 53.0% were male and 47.0% were female. Among the oldest drivers, 63.8% were male and 36.2% were female. These differences are illustrated in Figure 7.

Table 10. Crash-Involved Drivers by Age and Gender, 2014-2018

Driver Age	Male		Female		Total	
	Count	Percent	Count	Percent	Count	Percent
14-18	2,072	53.0%	1,840	47.0%	3,912	100.0%
19-24	4,878	57.1%	3,668	42.9%	8,546	100.0%
25-64	21,291	58.1%	15,373	41.9%	36,664	100.0%
65+	5,850	63.8%	3,314	36.2%	9,164	100.0%
Total	34,091	58.5%	24,195	41.5%	58,286	100.0%

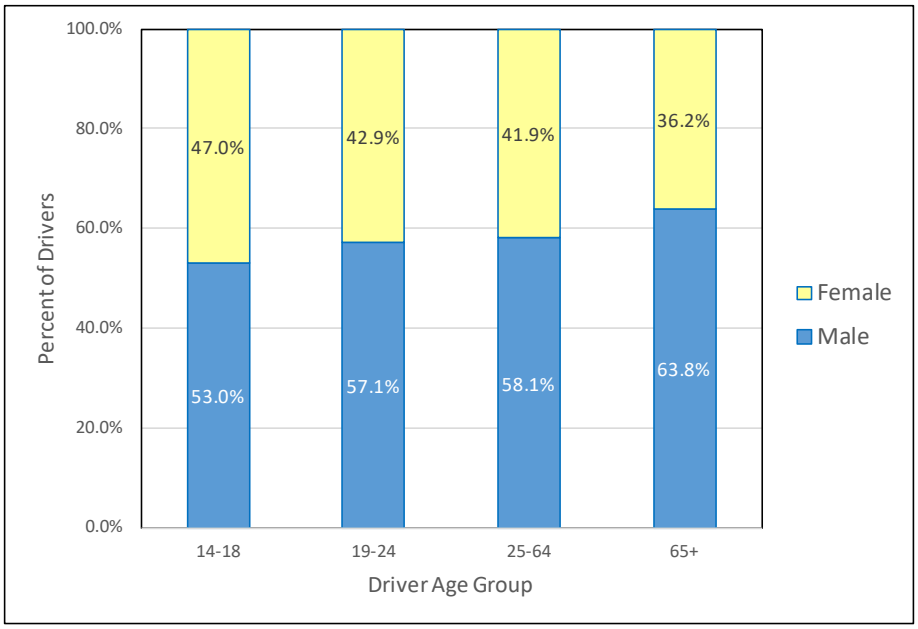

Figure 7 – Driver Gender Distributions by Age Group, 2014-2018

12.0 Non-Motorists

Bicyclists and pedestrians are rarely involved in police-reported crashes in the UP. Of the 43,979 crashes occurring from 2014-2018, 147 (0.3%) involved a bicyclist, and 187 (0.4%) involved a pedestrian. The injury outcomes of the 73,255 people in crashes in the UP from 2014-2018 are shown in Table 11 according to party type. Non-motorists (bicyclists and pedestrians) accounted for 3.9% of all fatalities, 6.8% of all people with A injuries, and 4.9% of all people with B injuries.

Table 11. Distribution of Injury Severity by Party Type, 2014-2018

Party Type	Fatal Injury (K)	Suspected Serious Injury (A)	Suspected Minor Injury (B)	Possible Injury (C)	No Injury (O)	Unknown Injury	Total
Motor vehicle driver	113	736	1,473	3,585	52,443	3,707	62,057
Motor vehicle passenger	35	255	497	1,198	8,645	210	10,840
Bicyclist	**1**	**18**	**49**	**49**	**26**	**5**	**148**
Pedestrian	**5**	**54**	**52**	**66**	**14**	**2**	**193**
Train engineer	0	0	0	0	16	1	17
Total	154	1,063	2,071	4,898	61,144	3,925	73,255

13.0 Occupant Protection

13.1 Restraint Use in Passenger Vehicles

Table 12 shows the injury outcome for passenger vehicle occupants in all police-reported crashes in the UP from 2014-2018 according to restraint use. Passenger vehicles are defined as being one of the first four categories listed under Vehicle Type in Table 7—passenger car, SUV, van; motor home; pickup truck; or small truck under 10,000 pounds. The "No restraint used" category in the table indicates that no type of belt or child restraint system was used. Restraint use by passenger vehicle occupants overall was quite high—98.3% of cases, excluding those with unknown restraint use.

Table 12. Distribution of Injury Severity by Occupant Restraint Use
for All Passenger Vehicle Occupants, 2014-2018

Person Restraint	Fatal Injury (K)	Suspected Serious Injury (A)	Suspected Minor Injury (B)	Possible Injury (C)	No Injury (O)	Unknown Injury	Total
No belts available	3	8	9	24	212	4	260
No restraint used	39	117	129	140	370	1	796
Lap and shoulder belt	54	480	1,349	4,032	54,456	72	60,443
Lap belt only	1	4	17	23	250	0	295
Shoulder belt only	0	1	9	34	336	0	380
Restraint failure	0	0	0	1	31	0	32
Child restraint used	0	6	27	83	948	3	1,067
Unknown/error	8	66	85	152	2,364	2,892	5,567
Total	105	682	1,625	4,489	58,967	2,972	68,840
Restraint Not Used	4.0%	11.8%	13.1%	15.5%	55.1%	0.5%	100.0%
Restraint Used	0.1%	0.8%	2.3%	6.7%	90.0%	0.1%	100.0%

The bottom two rows of Table 12 show injury distributions as a function of belt use. To calculate these percentages, the unknown cases of restraint use were excluded and all the other restraint use statuses were assigned to one of two categories. "Restraint not used" includes all cases of "no belts available" and "no restraint used." "Restraint used" includes lap and shoulder belt; lap belt only; shoulder belt only; restraint failure; and child restraint used. The result is that for each injury level, we can see the percent of crash-involved passenger vehicle occupants who were or were not using some sort of restraint. When restraints were used, crash-involved passenger vehicle occupants were uninjured 90.0% of the time. Only 0.1% of restrained occupants received fatal injuries, and 0.8% sustained suspected

serious injuries. In contrast, 4.0% of unrestrained occupants were killed, and 11.8% sustained suspected serious injuries.

Table 13 looks at restraint use for passenger vehicle occupants (both drivers and passengers) of known age in police-reported crashes in the UP from 2014-2018. Four age groups are considered, and occupants under the age of 14 are not included in the table. The unknown restraint category includes unknown restraint use, as well as all of the helmet use and child restraint use code levels. The table gives counts of passenger-vehicle occupants, as well as percentages out of all occupants in each age group. The overall proportion of restraint use is also provided, calculated with unknown/error excluded. While restraint use was high for all age groups, the lowest percent restrained was among occupants age 14-18 (97.4%), followed by occupants age 19-24 (97.8%).

Table 13. Restraint Use by Age Group for Passenger Vehicle Occupants, 2014-2018

Restraint Category	Age Group				
	14-18	**19-24**	**25-64**	**65+**	**Total**
No belts available	22 (0.4%)	40 (0.4%)	138 (0.4%)	47 (0.5%)	247 (0.4%)
No restraint used	109 (2.1%)	165 (1.7%)	391 (1.0%)	78 (0.8%)	743 (1.2%)
Lap and shoulder belt	4,916 (92.7%)	9,124 (92.9%)	35,833 (93.9%)	9,526 (95.3%)	59,399 (93.9%)
Lap belt only	43 (0.8%)	47 (0.5%)	136 (0.4%)	11 (0.1%)	237 (0.4%)
Shoulder belt only	26 (0.5%)	67 (0.7%)	226 (0.6%)	47 (0.5%)	366 (0.6%)
Restraint failure	4 (0.1%)	5 (0.1%)	14 (0.0%)	3 (0.0%)	26 (0.0%)
Unknown/error	185 (3.5%)	374 (3.8%)	1,410 (3.7%)	284 (2.8%)	2,253 (3.6%)
Total	5,305	9,822	38,148	9,996	63,271
Percent Restrained (excluding unknown)	97.4%	97.8%	98.6%	98.7%	98.4%

13.2 Motorcyclist Helmet Status

From 2014-2018, 602 motorcyclists (drivers and passengers) were involved in 502 crashes in the UP. Of these 602, 381 were reported to have been wearing a helmet at the time of the crash, 174 were reported to have been unhelmeted, and the remaining 47 had unknown helmet status. Of the 555 motorcyclists with known helmet status, about 68.6% were helmeted and 31.4% were not at the time of the crash.

Figure 8 shows the injury outcome for the motorcyclists with known helmet status. Probability of injury given a crash was generally higher for the unhelmeted motorcyclists. About 24.1% of helmeted motorcyclists received fatal or A-level injuries, compared with 35.1% of motorcyclists who were not

wearing a helmet at the time of the crash. Looked at a different way, 79.8% of the motorcycle riders who received C injuries were wearing a helmet, while only 38.9% of riders who were killed were wearing a helmet.

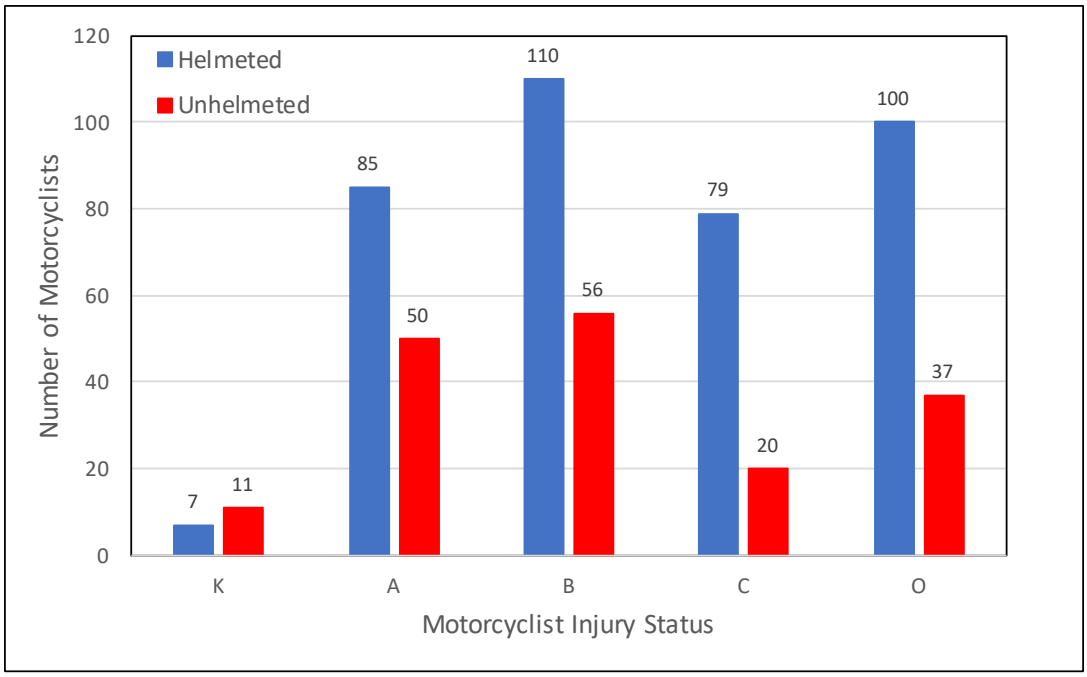

Figure 8 – Helmet Status and Injury Status of Crash-Involved Motorcyclists in the UP, 2014-2018

14.0 Mileage-Based Rates of KAB Injuries by County

Up to this point this report has focused on counts of traffic crashes, injuries, and fatalities in the UP. When the prevalence of crashes by county was discussed, it was not surprising that the most populous county in the UP, Marquette, had the greatest number of crashes, or that the least populous county, Keweenaw, had the lowest crash count. Another way to compare counties is to calculate their rates of crashes or injuries per a unit of exposure. This helps to equalize the inherent differences between counties in terms of size and amount of driving.

This section compares the counties in the UP according to mileage-based rates of KAB injuries in all crashes and five different subsets of crashes. Rates are presented in terms of number of KAB injuries per 100 million vehicle miles traveled (VMT). The rate tables provide a different perspective on the crash experience of the counties in the UP beyond the actual counts of KAB injuries in each. However, even though five years of data are used, the counts are still relatively small, so the resulting rates may sometimes be misleading. For example, Keweenaw County has the lowest amount of VMT of all the UP counties, so one crash there with several KABs will boost Keweenaw's KAB rate considerably.

The overall mileage-based rates of KABs in crashes for each county in the UP from 2014-2018 are presented in Table 14. The table shows the total number of KABs in crashes, the five-year mileage total

(source: Michigan Department of Transportation), and the rate of KABs per 100 million VMT. The counties are ranked 1 through 15 on the basis of this rate. Keweenaw County had the highest rate of KABs per 100 million VMT (26.44), and Schoolcraft had the lowest rate (12.50) over the five-year period. In fact, Schoolcraft's rate was less than half that of Keweenaw's. The rate of KABs per 100 million VMT for the UP as a whole was 19.73. The heavy horizontal line in the middle of the table divides the counties with rates higher than the overall UP rate from the counties whose rate was lower than the overall UP rate.

Table 14. KABs per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Keweenaw	56	211,809	26.44	1
Houghton	311	1,247,228	24.94	2
Dickinson	278	1,157,679	24.01	3
Luce	89	390,885	22.77	4
Alger	164	756,726	21.67	5
Marquette	607	2,877,140	21.10	6
Delta	418	2,012,937	20.77	7
Chippewa	378	1,879,217	20.11	8
Menominee	261	1,415,826	18.43	9
Iron	115	686,358	16.76	10
Baraga	97	579,555	16.74	11
Mackinac	206	1,300,495	15.84	12
Ontonagon	87	550,508	15.80	13
Gogebic	111	721,392	15.39	14
Schoolcraft	110	880,144	12.50	15
UP Total	3,288	16,667,899	19.73	---

Table 15 has similar rate comparisons for KABs resulting from alcohol-involved crashes. All of the rates are lower than the overall rates since KABs in alcohol-involved crashes are a subset of all KABs. Like the overall rates, Keweenaw County had the highest rate of KABs in alcohol crashes, and Schoolcraft County had the lowest, with Keweenaw's rate over three times Schoolcraft's rate. Again, the heavy horizontal line in the middle of the table separates the counties with rates higher than the UP average for KABs in alcohol-involved crashes from counties with rates below the UP average.

Table 15. KABs in Alcohol-Involved Crashes per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Keweenaw	14	211,809	6.61	1
Luce	20	390,885	5.12	2
Houghton	61	1,247,228	4.89	3
Iron	28	686,358	4.08	4
Chippewa	75	1,879,217	3.99	5
Dickinson	44	1,157,679	3.80	6
Mackinac	48	1,300,495	3.69	7
Baraga	20	579,555	3.45	8
Ontonagon	18	550,508	3.27	9
Marquette	85	2,877,140	2.95	10
Menominee	40	1,415,826	2.83	11
Gogebic	20	721,392	2.77	12
Alger	20	756,726	2.64	13
Delta	45	2,012,937	2.24	14
Schoolcraft	18	880,144	2.05	15
UP Total	556	16,667,899	3.34	---

In general, whether a county's ranking changed between Table 14 and Table 15 reflects the county's percent of alcohol-involved KABs out of all KABs compared with the UP as a whole. For example, Delta County was ranked seventh in the overall KAB rate but moved down to fourteenth in the rate of alcohol-involved KABs. Only 10.8% of the KABs in Delta County came from alcohol-involved crashes, compared with 16.9% for all of the UP.

Table 16 shows rates of KABs in crashes involving speeding drivers. Once again Keweenaw had the highest rate and Schoolcraft the lowest. The two counties had the same number of speed-related KABs, but Schoolcraft had a much higher VMT and therefore a much lower rate than Keweenaw. Dickinson had the third highest rate of KABs overall but was ranked eleventh in KABs in speeding crashes. While 21.4% of all KABs in the UP came in speeding crashes, only 15.1% of the KABs in Dickinson were a result of speeding crashes.

Table 16. KABs in Speeding Crashes per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Keweenaw	17	211,809	8.03	1
Luce	29	390,885	7.42	2
Alger	56	756,726	7.40	3
Chippewa	98	1,879,217	5.21	4
Iron	32	686,358	4.66	5
Houghton	58	1,247,228	4.65	6
Marquette	127	2,877,140	4.41	7
Mackinac	55	1,300,495	4.23	8
Baraga	24	579,555	4.14	9
Menominee	56	1,415,826	3.96	10
Dickinson	42	1,157,679	3.63	11
Ontonagon	18	550,508	3.27	12
Gogebic	22	721,392	3.05	13
Delta	53	2,012,937	2.63	14
Schoolcraft	17	880,144	1.93	15
UP Total	704	16,667,899	4.22	---

The rank order of counties by rates of KABs in failure to yield crashes (Table 17) differs from the previous comparisons. Dickinson and Marquette Counties had the highest rates and Keweenaw one of the lowest. Counties with higher VMTs and presence of larger towns tended to have higher rates of KABs in failure to yield crashes. One would expect the rate of failure to yield crashes to increase with traffic density.

Table 17. KABs in Failure to Yield Crashes per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Dickinson	73	1,157,679	6.31	1
Marquette	153	2,877,140	5.32	2
Gogebic	34	721,392	4.71	3
Delta	94	2,012,937	4.67	4
Houghton	53	1,247,228	4.25	5
Luce	14	390,885	3.58	6
Menominee	43	1,415,826	3.04	7
Alger	21	756,726	2.78	8
Iron	16	686,358	2.33	9
Chippewa	42	1,879,217	2.23	10
Mackinac	28	1,300,495	2.15	11
Baraga	11	579,555	1.90	12
Keweenaw	4	211,809	1.89	13
Schoolcraft	9	880,144	1.02	14
Ontonagon	5	550,508	0.91	15
UP Total	600	16,667,899	3.60	---

The mileage-based rates of KABs on icy/snowy/slushy roads are shown in Table 18. The rates vary only moderately between counties, but the northern tier of counties along the Lake Superior shore tended to have higher rates than the other counties of the UP; in fact, the counties with the top eight highest rates all border Lake Superior. Luce County had the highest rate (7.93) of KABs on icy/snowy/slushy roads among all UP counties, and Menominee had the lowest (3.04).

Table 18. KABs in Crashes on Icy/Snowy/Slushy Roads
per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Luce	31	390,885	7.93	1
Alger	55	756,726	7.27	2
Houghton	76	1,247,228	6.09	3
Chippewa	114	1,879,217	6.07	4
Marquette	156	2,877,140	5.42	5
Keweenaw	10	211,809	4.72	6
Gogebic	34	721,392	4.71	7
Baraga	27	579,555	4.66	8
Mackinac	55	1,300,495	4.23	9
Delta	77	2,012,937	3.83	10
Ontonagon	21	550,508	3.81	11
Dickinson	39	1,157,679	3.37	12
Schoolcraft	27	880,144	3.07	13
Iron	21	686,358	3.06	14
Menominee	43	1,415,826	3.04	15
UP Total	786	16,667,899	4.72	---

Rates of KABs in crashes involving at least one driver age 14 to 24 are shown in Table 19. Other than Keweenaw County having the second-highest rate, the counties with a relatively higher share of younger drivers and/or presence of college campuses tended to have higher rates. The rates of KABs in crashes with drivers 14-24 are also fairly well correlated with the overall VMT for the counties.

Table 19. KABs in Crashes with Driver Age 14-24 per 100 Million VMT by County, 2014-2018

County	KABs	VMT (thousands)	KABs per 100 Million VMT	Rank
Houghton	132	1,247,228	10.58	1
Keweenaw	21	211,809	9.91	2
Dickinson	104	1,157,679	8.98	3
Marquette	234	2,877,140	8.13	4
Chippewa	142	1,879,217	7.56	5
Delta	148	2,012,937	7.35	6
Menominee	96	1,415,826	6.78	7
Alger	46	756,726	6.08	8
Mackinac	74	1,300,495	5.69	9
Baraga	32	579,555	5.52	10
Luce	21	390,885	5.37	11
Schoolcraft	34	880,144	3.86	12
Iron	26	686,358	3.79	13
Gogebic	24	721,392	3.33	14
Ontonagon	13	550,508	2.36	15
UP Total	1,147	16,667,899	6.88	---

15.0 Comparisons with the Lower Peninsula

In this section, KABs resulting from a variety of crash types are compared between the Upper Peninsula and the Lower Peninsula in two ways. The first comparison is based on percentages. From 2014-2018, there were 3,288 KAB injuries in the UP and 121,792 in the Lower Peninsula. Table 20 shows the percentages of KABs resulting from particular crash types out of all KABs in the UP from 2014-2018, as well as the comparable percentages for the Lower Peninsula. The crash type categories are not mutually exclusive—one crash could be both a single-vehicle crash as well as a crash involving a pick-up truck. The crash type categories are displayed in descending order based on the number of KABs in the UP.

Table 20. Comparison of KABs in Different Crash Types between the Upper Peninsula and the Lower Peninsula, 2014-2018

Type of Crash	Upper Peninsula		Lower Peninsula	
	Number of KABs	Percent of All UP KABs	Number of KABs	Percent of All LP KABs
Single Vehicle	1,665	50.6%	41,024	33.7%
Driver 14-24 Involved	1,147	34.9%	45,052	37.0%
Pickup Truck Involved	910	27.7%	22,031	18.1%
Icy/Snowy/Slushy Roads	786	23.9%	12,452	10.2%
Speed Related	704	21.4%	17,496	14.4%
Driver 65+ Involved	700	21.3%	22,679	18.6%
Failure to Yield	600	18.2%	26,513	21.8%
Alcohol Involved	556	16.9%	14,894	12.2%
Motorcycle Involved	341	10.4%	8,875	7.3%
ORV/ATV Involved	186	5.7%	914	0.8%
Drugs Involved	181	5.5%	5,511	4.5%
Truck/Bus Involved	179	5.4%	5,878	4.8%
Deer Involved	164	5.0%	2,172	1.8%
Pedestrian Involved	116	3.5%	6,374	5.2%
Snowmobile Involved	91	2.8%	184	0.2%
Bicyclist Involved	68	2.1%	3,868	3.2%

Comparing the percentage of all KABs resulting from a particular type of crash in the UP with the percentage that crash type comprises out of all KABs in the Lower Peninsula (LP) points to some differences between these two geographical regions of Michigan. For example, about half (50.6%) of all KABs in the UP result from single-vehicle crashes, compared with about a third (33.7%) in the LP. A greater share of KABs in the UP come from crashes involving pickup trucks (27.7% compared with 18.1%), in wintry road conditions (23.9% compared with 10.2%), and involving alcohol (16.9% compared with 12.2%). Large differences in the relative percentages are also seen in the percent of KABs resulting from ORV/ATV crashes (5.7% in the UP and 0.8% in the LP), deer crashes (5.0% to 1.8%) and snowmobile crashes (2.8% to 0.2%), although all of these occur less frequently than the previous examples.

KABs resulting from the same categories of crash types were also compared using VMT rates (Table 21). One thing to note is that the overall mileage-based rate of KABs was slightly higher in the Lower Peninsula than in the UP. From 2014-2018, KAB injuries in the UP occurred at the rate of 19.73 per 100 million VMT, while KAB injuries in the LP occurred at the rate of 25.28 per 100 million VMT. All things being equal, we would expect the KAB injury rate in each crash category to be slightly higher for the LP than the UP. If the KAB injury rate for a type of crash in the UP is greater than or equal to the rate in the LP, it may reflect relatively greater exposure to that type of crash in the UP compared to the LP.

Upper Peninsula: 2014-2018

Table 21. Comparison of Mileage-Based Rates of KABs in Different Crash Types between the Upper Peninsula and the Lower Peninsula, 2014-2018

Type of Crash	Upper Peninsula		Lower Peninsula	
	Number of KABs	KAB Rate per 100 Million VMT	Number of KABs	KAB Rate per 100 Million VMT
Single Vehicle	1,665	9.99	41,024	8.51
Driver 14-24 Involved	1,147	6.88	45,052	9.35
Pickup Truck Involved	910	5.46	22,031	4.57
Icy/Snowy/Slushy Roads	786	4.72	12,452	2.58
Speed Related	704	4.22	17,496	3.63
Driver 65+ Involved	700	4.20	22,679	4.71
Failure to Yield	600	3.60	26,513	5.50
Alcohol Involved	556	3.34	14,894	3.09
Motorcycle Involved	341	2.05	8,875	1.84
ORV/ATV Involved	186	1.12	914	0.19
Drugs Involved	181	1.09	5,511	1.14
Truck/Bus Involved	179	1.07	5,878	1.22
Deer Involved	164	0.98	2,172	0.45
Pedestrian Involved	116	0.70	6,374	1.32
Snowmobile Involved	91	0.55	184	0.04
Bicyclist Involved	68	0.41	3,868	0.80
All Crashes	3,288	19.73	121,792	25.28

For the most complete picture, data in Tables 20 and 21 should be compared together. For example, while KABs from crashes involving ORV/ATV vehicles and crashes involving snowmobiles both have low counts compared with other crash types, they make up a higher percentage of all KABs in the UP compared with the LP (Table 20), and their rates per total VMT are also higher in the UP compared with the LP (Table 21). Mileage-based KAB rates in snowmobile crashes are 14 times higher in the UP than the LP, and ORV/ATV rates are six times higher in the UP than the LP. These differences suggest that snowmobiles and ORV/ATVs have relatively more exposure to traffic crashes in the UP compared to the LP and that there is a greater opportunity for countermeasures to address these kinds of crashes in the UP compared to the LP.

In contrast, KABs resulting from crashes involving pedestrians and crashes involving bicyclists make up smaller percentages of KABs in the UP compared with the LP and occur at lower rates per mile in the UP than the LP. This suggests that KABs resulting from non-motorist crashes are relatively less of a problem in the UP than the LP. The same can be said for KABs resulting from crashes involving drivers age 14-24,

although a much higher number of KABs result from young driver crashes than from non-motorist crashes.

In the case of KABs resulting from crashes involving drivers 65 and older, the picture is a little more complicated. KABs from older driver crashes make up 21.3% of KABs in the UP and 18.6% of KABs in the LP, which is fairly consistent with the overall share of the 65 and older population, which is 22.1% of the UP population and 17.0% of the LP population, according to 2018 data. However, the mileage-based rate of KABs from older driver crashes is 12% higher in the LP (4.71) than the UP (4.20). But since the overall mileage-based rate for all KABs is 28% higher in the LP than the UP, the rate of KABs in older driver crashes in the UP is relatively higher compared with the LP than for KABs overall. Taking all this together suggests that KABs from older driver crashes are slightly over-represented in the UP compared with the LP. The difference is less that might be expected based on the 65 and older share of the population, so it is possible that older drivers in the UP driver fewer miles than their counterparts in the Lower Peninsula.

16.0 Summary

The numbers of crashes, fatalities, and injuries in the Upper Peninsula were charted from 1982 through 2018, and all three have all shown a downward trend since the mid-1990s. There were 8,948 police-reported crashes in the UP in 2018, resulting in 35 fatalities and 1,538 injuries. From their respective peak years to 2018, crashes decreased 52.0%, fatalities declined 58.3%, and injuries were down 62.7%.

Overall crashes in the UP peak in late fall/early winter, while KAB crashes peak in the summer months. The majority of crashes in the UP occur during daylight, even more so for KAB crashes than all crashes. Each winter, an average of 2,717 crashes occur on icy/snowy/slushy roads in the UP. More than one-third of police-reported crashes in the UP involve deer, but 97.9% of these deer crashes are property damage only.

County comparisons using the last five years of data showed Marquette County to have the highest number of KAB injuries in the UP but also the greatest number of vehicle miles travelled. Calculating rates of KABs per 100 million VMT showed Keweenaw County to have the highest rate of KABs in the UP. When mileage-based rates for KABs in different crash types were compared, Dickinson had the highest rate for KABs in failure to yield crashes, Luce was highest for KABs on icy/snowy/slushy roads, and Houghton had the highest rate for KABs in driver age 14 to 24 crashes.

17.0 Appendix

Two tables are included as an appendix. The first table lists the number of KAB crashes each year across a range of categories. The crash type categories are not mutually exclusive. All counts in this table are number of crashes, such as the number of KAB crashes involving a bicyclist or alcohol or wet roads. Percent change in counts from year to year and from 2014 to 2018 are also included in the table. Cells shaded red indicate an increase, and cells shaded green reflect a decrease.

The second table is structured similarly but has counts of people with KAB injuries in different crash type categories. Most of the categories have counts of all people in the crash type who suffered KAB injuries.

These categories are the ones that appear without “KABs” in their name, such as deer crashes, drugs involved, and driver 14-18 involved. All of these categories list counts of anyone involved in the crash with KAB injuries. In contrast, the categories that include “KABs” in their name, such as bicyclist KABs, snowmobiler KABs, and unrestrained occupant KABs, show KAB counts for the specified people indicated, not KAB counts for the entire crash. So in these examples, the table has counts of bicyclists with KAB injuries, snowmobilers with KAB injuries, and unrestrained occupants with KAB injuries.

Number of KAB Crashes in the UP, 2014-2018

Number of KAB Crashes by Category	2014	2015	2016	2017	2018	2014-2015 Percent	2015-2016 Percent	2016-2017 Percent	2017-2018 Percent	2014-2018 Percent
All KAB crashes	511	477	544	563	553	-6.7%	14.0%	3.5%	-1.8%	8.2%
Bicyclist involved	15	14	8	13	17	-6.7%	-42.9%	62.5%	30.8%	13.3%
Pedestrian involved	26	19	23	19	20	-26.9%	21.1%	-17.4%	5.3%	-23.1%
Motorcycle involved	66	53	67	57	48	-19.7%	26.4%	-14.9%	-15.8%	-27.3%
Snowmobile involved	20	11	18	21	18	-45.0%	63.6%	16.7%	-14.3%	-10.0%
ORV/ATV involved	24	28	34	47	35	16.7%	21.4%	38.2%	-25.5%	45.8%
Deer involved	28	15	35	37	26	-46.4%	133.3%	5.7%	-29.7%	-7.1%
Single-vehicle	280	267	317	328	291	-4.6%	18.7%	3.5%	-11.3%	3.9%
Alcohol involved	89	87	85	111	94	-2.2%	-2.3%	30.6%	-15.3%	5.6%
Drugs involved	19	20	38	26	33	5.3%	90.0%	-31.6%	26.9%	73.7%
Distraction involved	---	---	50	56	68	---	---	12.0%	21.4%	---
Lane departure	241	244	262	269	257	1.2%	7.4%	2.7%	-4.5%	6.6%
Hit-and-run	14	12	18	14	10	-14.3%	50.0%	-22.2%	-28.6%	-28.6%
Truck or bus involved	29	26	20	29	36	-10.3%	-23.1%	45.0%	24.1%	24.1%
Wet road	54	63	67	74	67	16.7%	6.3%	10.4%	-9.5%	24.1%
Icy road	66	46	37	50	53	-30.3%	-19.6%	35.1%	6.0%	-19.7%
Snowy road	82	42	57	70	58	-48.8%	35.7%	22.8%	-17.1%	-29.3%
Driver 14-18 involved	63	64	65	79	59	1.6%	1.6%	21.5%	-25.3%	-6.3%
Driver 65+ involved	110	88	102	109	123	-20.0%	15.9%	6.9%	12.8%	11.8%
Speeding involved	117	99	108	125	122	-15.4%	9.1%	15.7%	-2.4%	4.3%
Failure to yield involved	101	81	89	88	100	-19.8%	9.9%	-1.1%	13.6%	-1.0%
Unable to stop involved	39	32	32	44	48	-17.9%	0.0%	37.5%	9.1%	23.1%
Unrestrained occupant	59	74	59	94	70	25.4%	-20.3%	59.3%	-25.5%	18.6%

Number of KAB Injuries in the UP, 2014-2018

Number of KAB Injuries by Category	2014	2015	2016	2017	2018	2014-2015 Percent	2015-2016 Percent	2016-2017 Percent	2017-2018 Percent	2014-2018 Percent
All KABs	611	590	667	727	693	-3.4%	13.1%	9.0%	-4.7%	13.4%
Bicyclist KABs	15	14	8	14	17	-6.7%	-42.9%	75.0%	21.4%	13.3%
Pedestrian KABs	26	21	23	21	20	-19.2%	9.5%	-8.7%	-4.8%	-23.1%
Motorcyclist KABs	77	59	78	61	59	-23.4%	32.2%	-21.8%	-3.3%	-23.4%
Snowmobiler KABs	20	12	18	21	19	-40.0%	50.0%	16.7%	-9.5%	-5.0%
ORV/ATV rider KABs	25	32	35	50	42	28.0%	9.4%	42.9%	-16.0%	68.0%
Deer crashes	33	18	41	39	33	-45.5%	127.8%	-4.9%	-15.4%	0.0%
Single-vehicle	309	300	349	372	335	-2.9%	16.3%	6.6%	-9.9%	8.4%
Alcohol involved	106	101	99	138	112	-4.7%	-2.0%	39.4%	-18.8%	5.7%
Drugs involved	23	23	55	38	42	0.0%	139.1%	-30.9%	10.5%	82.6%
Distraction involved	---	---	67	82	89	---	---	22.4%	8.5%	---
Lane departure	279	285	303	349	318	2.2%	6.3%	15.2%	-8.9%	14.0%
Hit-and-run	14	14	22	15	10	0.0%	57.1%	-31.8%	-33.3%	-28.6%
Truck or bus involved	37	38	22	36	46	2.7%	-42.1%	63.6%	27.8%	24.3%
Wet road	62	74	79	104	82	19.4%	6.8%	31.6%	-21.2%	32.3%
Icy road	80	56	44	63	61	-30.0%	-21.4%	43.2%	-3.2%	-23.8%
Snowy road	95	53	65	99	67	-44.2%	22.6%	52.3%	-32.3%	-29.5%
Driver 14-18 involved	83	91	74	122	81	9.6%	-18.7%	64.9%	-33.6%	-2.4%
Driver 65+ involved	136	118	130	150	166	-13.2%	10.2%	15.4%	10.7%	22.1%
Speeding involved	136	122	123	169	154	-10.3%	0.8%	37.4%	-8.9%	13.2%
Failure to yield involved	128	105	122	119	126	-18.0%	16.2%	-2.5%	5.9%	-1.6%
Unable to stop involved	46	42	38	56	56	-8.7%	-9.5%	47.4%	0.0%	21.7%
Unrestrained occ. KABs	53	69	60	102	66	30.2%	-13.0%	70.0%	-35.3%	24.5%

Upper Peninsula: 2014-2018