1999

Michigan Traffic Crash Facts

Michigan Department of State Police

Funding for this project was provided by the Michigan Office of Highway Safety Planning (OHSP), which administers funding from the National Highway Traffic Safety Administration. OHSP is committed to saving lives and reducing injuries on Michigan roads through leadership, innovation, facilitation, and program support in partnership with other traffic safety professionals.

EXECUTIVE SUMMARY

The 1999 traffic fatality count was 1,386, up 1.4 percent from the 1998 figure of 1,367. Compared with 1998, injuries were down 5.3 percent and total crashes were up 2.9 percent. These figures translated into a death rate of 1.5 per 100 million miles of travel, the same as the 1998 death rate. Nationally, fatalities were up 0.2 percent.

Exposure factors in 1999 showed increases in vehicle registrations, the number of drivers on Michigan roads, and travel mileage. They included motor vehicle registrations up 2.2 percent to 8.41 million, the number of Drivers of Record up 1.0 percent to 7.22 million, and vehicle travel mileage up 1.6 percent to 93.06 billion.

Consumption of alcohol continues to be a major factor in Michigan crashes, particularly the more serious crashes. In 1999, 4.5 percent of all crashes, including property damage only, were reported to involve drinking, and 21.4 percent resulted in injury or death. However, 45.9 percent of alcohol-related crashes involved injury or death, and 38.8 percent of fatal crashes involved drinking. Over 66.3 percent of alcohol-related fatal crashes involved only one vehicle, whereas only 30.6 percent of all crashes involved one vehicle.

Data on crashes in this book was obtained from 1999 Michigan Traffic Crash Report Forms (UD-10) submitted by local police departments, sheriff jurisdictions, and the Department of State Police. Other related information was obtained from the Departments of Transportation, State, and Community Health.

The University of Michigan Transportation Research Institute produced this publication with data on file at the Michigan Department of State Police as of May 1, 2000. We acknowledge, with appreciation, all involved agencies for their assistance.

Col. Michael D. Robinson, Director
Michigan Department of State Police

UD-10 (FRONT)

UD-10 (BACK)

MICHIGAN VEHICLE CODE
Public Act 300 of 1949

Edited by the Office of Highway Safety Planning for discussion purposes.
Editorial remarks by OHSP appear in italic print.

MCL 257.622, Amended 1967 - The driver of a motor vehicle involved in an accident that injures or kills any person, or that damages property to an apparent extent totaling $400 or more, shall immediately report that accident at the nearest or most convenient police station, or to the nearest or most convenient police officer. The officer receiving the report, or his or her commanding officer, shall immediately forward each report to the director of State Police on forms prescribed by the director of State Police *(State of Michigan Traffic Crash Report, also known as the UD-10)*. The forms shall be completed in full by the investigating officer. The director of State Police shall analyze each report relative to the cause of the reported accident and shall prepare information compiled from reports filed under this section for public use. A copy of the report . . . shall be retained for at least three years at the local police department, sheriff's department, or local state police post making the report. *(As the repository of UD-10s submitted by all Michigan law enforcement agencies, the Department of State Police microfilms all UD-10s received at its Criminal Justice Data Center. The Data Center retains a microfilm copy of UD-10s for a period including the current processing year plus the three previous years. Microfilm copies and electronic databases containing information from individual UD-10s for crashes prior to this time period are purged.)*

MCL 257.624, Amended 1980 - (1) A report required by this chapter shall not be available for use in a court action, but a report shall be for the purpose of furnishing statistical information regarding the number and cause of accidents.

(2) The Office of Highway Safety Planning (OHSP) may authorize scientific studies and research for the reduction of death, injury, and property losses. All information, records of interviews, written reports, statements, notes, memoranda, or other data collected pursuant to the scientific studies and research conducted by the state, or by other persons, agencies, or organizations authorized by OHSP shall be used solely for the purpose of medical or scientific research and shall not disclose the name or identity of a person unless the person authorizes, in writing, the use of his or her name or identity. If a subject of the research study is deceased, the executor or heir of the deceased person may authorize, in writing, the disclosure of the deceased's name or identity. The furnishing of information to OHSP or to a representative of an authorized study or research project shall not subject a person, hospital, sanitarium, rest home, nursing home, or other person or agency furnishing the information to any action for damages or other relief. The information, records, reports, statements, notes, memoranda, or other data shall not be admissible as evidence in a court or before any other tribunal, board, agency, or person. A person participating in an authorized study or research project shall not disclose, directly or indirectly, the information so obtained except in strict conformity with the research project.

ABBREVIATIONS & ACRONYMS

- **BAC** **Bodily Alcohol Content** (formerly referred to as Blood Alcohol Content or Blood Alcohol Concentration). Determination of percent by weight of ethyl alcohol in blood. Usually measured in grams.
- **CJDC** **Criminal Justice Data Center**. A division of the Michigan Department of State Police.
- **CRD** **Child Restraint Device**. Also called child safety seats.
- **FHWA** **Federal Highway Administration**. A part of the United States Department of Transportation.
- **HBD** **Had Been Drinking** and/or under the influence of drugs.
- **HNBD** **Had Not Been Drinking** and/or under the influence of drugs.
- **KABC** Injury severity scale for traffic crash-related injuries: **K - Fatal**, **A - Incapacitating**, **B - Nonincapacitating**, **C - Possible.** See Glossary for definitions.
- **MALI** **Michigan Accident Location Index** (pronounced “MAY-lie”)
- **MDCH** **Michigan Department of Community Health** (formerly Michigan Department of Public Health)
- **MDOS** **Michigan Department of State**
- **MDOT** **Michigan Department of Transportation** (pronounced “EM-dot”)
- **NHTSA** **National Highway Traffic Safety Administration** (pronounced “NIT-zah”). A part of the United States Department of Transportation.
- **OHSP** **Office of Highway Safety Planning**. A division of the Michigan Department of State Police.
- **OUIL** **Operating Under the Influence of Liquor**. More serious of the drinking and driving violations in Michigan. Refers to driving with bodily alcohol content of 0.10g or more.
- **OWI** **Operating While Impaired**. Less serious of the drinking and driving violations in Michigan. Refers to driving with bodily alcohol content levels of 0.08g or 0.09g.
- **PDO** **Property Damage Only**. Refers to a traffic crash lacking personal injuries.
- **UD-10** Form number ascribed to *Michigan Traffic Crash Report* form, official document used to report traffic crashes in Michigan.
- **UMTRI** **University of Michigan Transportation Research Institute** (pronounced “UM-tree”)
- **USDOT** **United States Department of Transportation**
- **VMT** **Vehicle Miles Traveled** The estimated total number of miles traveled annually by motor vehicles on Michigan trafficways.

GLOSSARY

- **Crash Rate** - The number of crashes per 100 million vehicle miles traveled.
- **Crash Type** - A crash is typed by the first injury or damage-producing event, which may or may not be the most serious or significant event.
- **Death Rate** - Deaths per 100 million vehicle miles.
- **Driver/Operator** - The person who is in actual physical control of a vehicle in transit.
- **All Drivers** - Includes deceased drivers, out-of-state drivers with Michigan violations, former licensed drivers who hold expired licenses, and no license headers (QVF - Qualified Voter File, Child Support, Identification Card holders). Excludes records with sex code other than M or F, a zero birth date, or a birth date with non-numeric characters.
- **Drivers of Record** - Includes all valid drivers, plus any invalid drivers with any conviction; FAC/FCJ (Failure to Appear in Court/Failure to Comply with Judgment), crash involvement, or action during the listed time period.
- **Fatal Crash** - A fatality is counted when a person dies due to injuries from a traffic crash. Prior to 1979 deaths were counted if they occurred up to one year after the crash, in 1979 this time period was reduced to 90 days. In 1988 this was further reduced to 30 days.
- **Had Been Drinking (HBD) Crash** - Drinking and/or drug use prior to the crash by a driver, pedestrian, or cyclist as reported by the police, the coroner, or other accepted authorities.
- **Injury Severity**

  K (Fatal) - Any injury that results in death.

  A (Incapacitating Injury) - Any injury, other than a fatal injury, that prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred.

  B (Nonincapacitating Injury) - Any injury not incapacitating but evident to observers at the scene of the crash in which the injury occurred.

  C (Possible Injury) - Any injury reported or claimed that is not a fatal injury, incapacitating injury or nonincapacitating injury.
- **In Transport** - Denotes a motor vehicle in motion or on a roadway.
- **Most Severe Outcome in Crash** - The most severe injury sustained by any person involved in the crash, or property damage only.
- **Most Severe Outcome in Vehicle** - The most severe injury sustained by any person in the vehicle, or property damage only.
- **Motor Vehicle Crash** - A crash that involves a motor vehicle in transport on a public trafficway (in Michigan) and results in injury, death or at least $400.00 in property damage.
- **Noncollision** - A crash that does not involve a collision with another motor vehicle. Types of noncollision crashes include; explosion or fire in vehicle, rollover, immersion, etc.
- **Occupant** - Any person in or on a motor vehicle, this includes the driver.
- **Property Damage Only (PDO) Crash** - A crash that results in no fatalities or injuries, with a value of $400.00 as a reporting threshold.
- **Traffic Unit** - Anything in transit on a public trafficway (i.e., motor vehicle, motorcycle, bicycle, pedestrian, snowmobile, farm equipment).
- **Transition Area** - Increase or decrease in the number or travel lanes.
- **Valid Drivers** - Excludes non-valid categories such as no license, out-of-state drivers with Michigan violations, deceased, and licenses expired three months prior to Department of State run date.
- **"Zero Tolerance" -** Law which began November 1, 1994, making it illegal for any person in Michigan under the age of 21 to consume alcohol in the presence of a law enforcement officer, or to have a BAC of 0.02 percent or more. Sometimes referred to as Michigan's "Point Oh Two" law.

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COUNTY/COMMUNITIES

The following information for County/Communities can now be found in a separate volume entitled 1999 Michigan Traffic Crash Facts for County/Communities

Traffic Crash Summary ● *Alcohol Involved Traffic Crash Summary*

Deer Involved/Associated Traffic Crash Summary ● *1995 - 1999 County Rankings*

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Quick Facts & Figures

1999 QUICK FACTS

★ Some exposure factor comparisons between 1999 and 1998 show motor vehicle registrations rose **2.2** percent, number of Drivers of Record on Michigan roads increased **1.0** percent, and vehicle mileage increased **1.6** percent.

★ The 1999 death rate stayed at **1.5** deaths per 100 million miles of travel. This is the same as the 1998 death rate, and below the ten-year average of **1.7** (1990-1999).

★ There were **1,386** persons killed and **124,601** persons injured in **415,675** reported motor vehicle traffic crashes in Michigan during 1999. Compared with 1998 experience, deaths increased **1.4** percent, injuries decreased **5.3** percent, and total reported crashes showed a increase of **2.9** percent.

★ This year's death toll of **1,386** was up **1.4** percent from the 1998 figure of **1,367**.

★ The **1,386** persons killed were the result of **1,249** fatal crashes for an average of **1.1** deaths per fatal crash.

★ There were **415,675** reported crashes of which **1,249** were fatal, **87,820** were personal injury, and **326,606** were property damage only crashes.

★ Of all fatal crashes, **30.6** percent occurred at intersections.

★ Of all fatal crashes, **38.8** percent involved at least one drinking operator or pedestrian.

★ Excessive speed was indicated as the hazardous action by **12.8** percent of the drivers involved in fatal crashes.

★ In 1999 there were **126,990** single vehicle crashes, a increase of **4.1** percent over last year's count of **121,949**.

★ Of the **415,675** total crashes, **126,990 (30.6%)** involved one vehicle.

★ Of the **1,249** fatal crashes, **575 (46.0%)** involved one vehicle.

★ Of the **484** alcohol-related fatal crashes, **321 (66.3%)** involved one vehicle. This is an **8.1** percent increase from last year's figure of **297** single vehicle, alcohol-related fatal crashes.

★ Of the **2,061** drivers involved in fatal crashes, **13.4** percent were under 21 years of age and **23.3** percent of all drivers involved in fatal crashes were under 25 years of age.

★ In the last five years (1995-1999), **7,241** persons have been killed in Michigan traffic crashes. This is an average of **1,448** per year. During the previous five-year period (1994-1998), **7,274** persons were killed, for an average of **1,455** per year.

★ Of the **9,863,775** persons living in Michigan [1] one out of every **7,117** was killed in a traffic crash; one out of every **79** persons was injured.

★ For each person killed there were **89.9** persons injured.

★ There were **124,601** persons injured, crippled, or maimed in crashes.

★ According to figures provided by the Michigan Department of Community Health [2], accidental death for children in motor vehicle crashes routinely outpaces the next two most frequent causes: fire and drowning.

★ According to the Michigan Department of Community Health, four out of five accidental deaths for teenagers and young adults (ages 15-24) are due to motor vehicle crashes.

★ The pedestrian death toll for Michigan stands at **176** persons. This represents an increase of **4** deaths over the 1998 figure.

★ For each pedestrian killed, there were **17.7** pedestrians injured.

★ Of the pedestrians killed, **37.5** percent were killed while crossing streets other than at intersections.

★ Of all pedestrians killed, **23.9** percent were under the age of 21 years and **19.9** percent were 55 and older.

★ During the past five years, a total of **897** pedestrians have been killed, an average of **179** per year.

★ During the past five years, a total of **141** bicyclists have been killed, an average of **28** per year.

★ Children under the age of 16 accounted for **48.0** percent of the bicycle deaths.

★ Of the **750,429** drivers and injured passengers involved in crashes, **593,995** or **79.2** percent were *reported* to have been using occupant restraints. Restraint usage among fatal victims, where usage was known, was reported to be **44.4** percent in 1999.

★ Motor vehicle occupants age 75 to 100 had the highest reported restraint usage **(93.4%)** among age groups. Children age 11 to 15 had the lowest reported restraint usage **(70.2%)**.

★ The economic loss in Michigan traffic crashes amounted to **$9,598,032,187**.

Michigan's Crash Watch 1999

Every 1.3 minutes a traffic crash occurs

One person is killed in a crash every 6.3 hours

One person is injured in a crash every 4.2 minutes

One person is killed in an alcohol-related crash every 16.2 hours

One driver under age 21 is in a fatal crash every 31.7 hours

One bicyclist is injured every 3.9 hours

One pedestrian is injured every 2.8 hours

One motorcyclist is injured every 3.7 hours

WHO DIED IN MICHIGAN MOTOR VEHICLE CRASHES IN 1999?

THE DAILY TOLL

Four people died everyday.

Between one and two persons died in an alcohol-related crash everyday.

The daily economic cost to Michigan residents was:

$ $ $ $ $ **26.3 MILLION DOLLARS** $ $ $ $ $

11.8 million - for fatalities

12.9 million - for injuries

1.6 million - for property damage

THE ANNUAL TOLL

The economic cost of motor vehicle crashes to Michigan residents was $9.6 billion last year.

$4.3 billion in economic loss was due to Michigan motor vehicle fatalities.

Alcohol-related fatalities amounted to 541 people in 1999.

1,386 people died in 1999 in a motor vehicle crash.

Every 6 hours and 19 minutes one person died in a motor vehicle crash.

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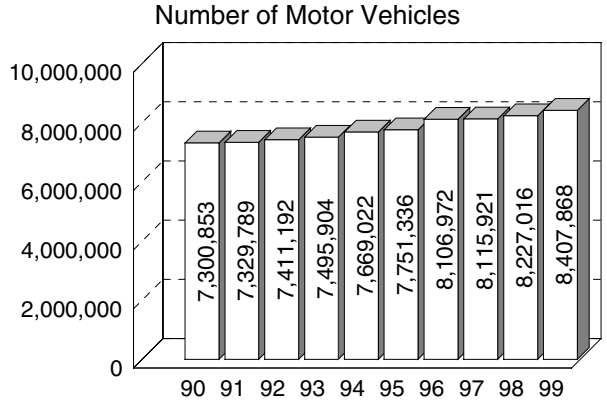
Historical Information

10-, 5-, and 1-year

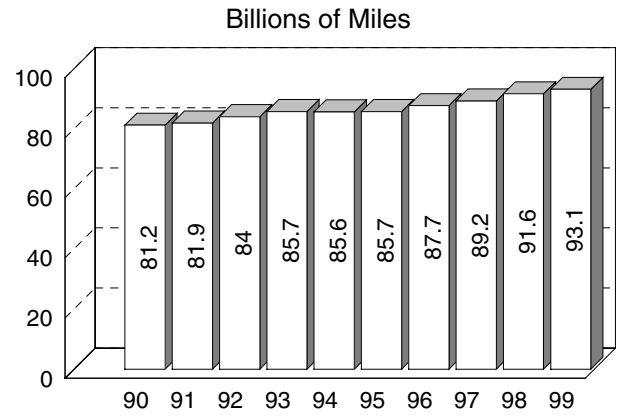
10 YEAR

VEHICLE REGISTRATIONS



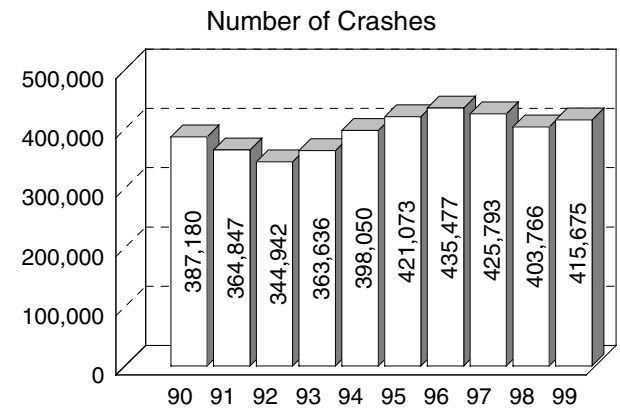
Vehicle Registrations have been increasing steadily since 1990, reaching 8,407,868 in 1999.

VEHICLES MILES TRAVELED



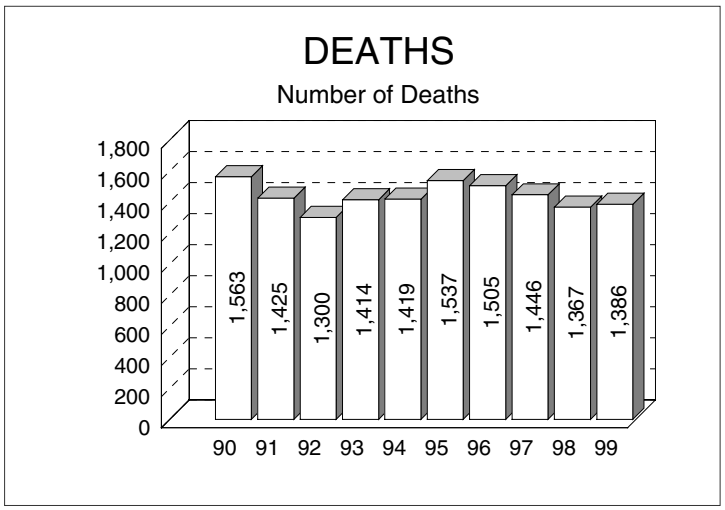
Vehicle miles of travel have increased 14.7 percent since 1990, reaching 93.1 billion miles in 1999.

CRASHES

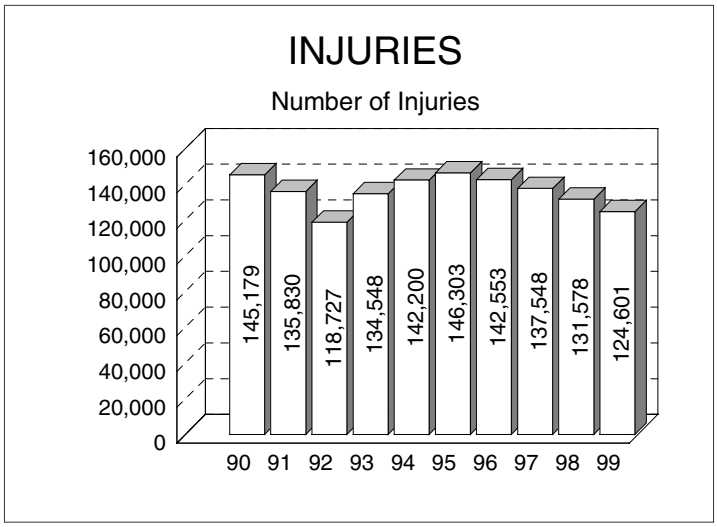


There were 415,675 total crashes statewide in 1999, a 2.9 percent increase from 1998.

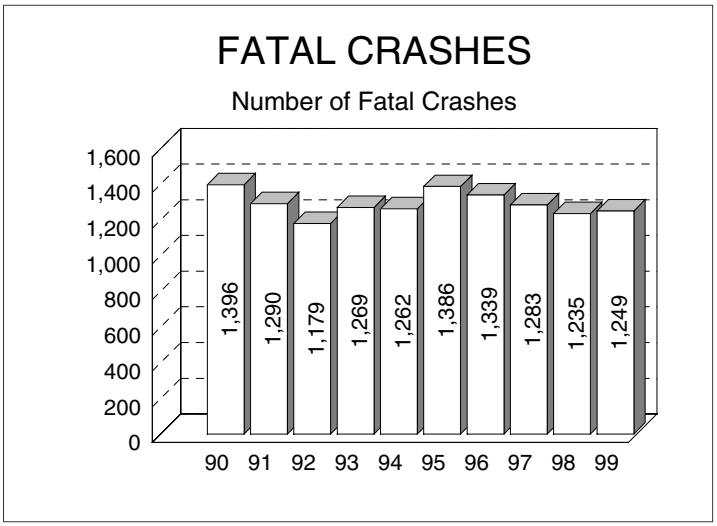
10 YEAR TRENDS (continued)



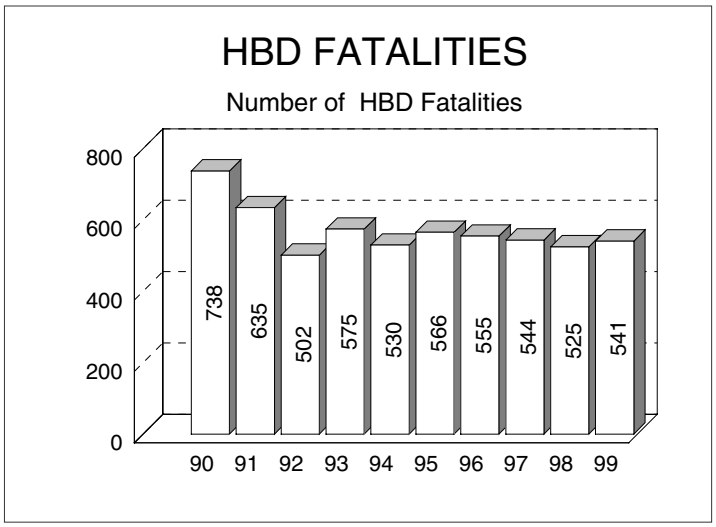
Number of deaths has remained below the high of 1,563 in 1990. In 1999, 1,386 people died in motor vehicle crashes, an increase of 1.4 percent from 1998.



124,601 people received nonfatal injuries in Michigan motor vehicle crashes in 1999, down 5.3 percent from 131,578 in 1998.

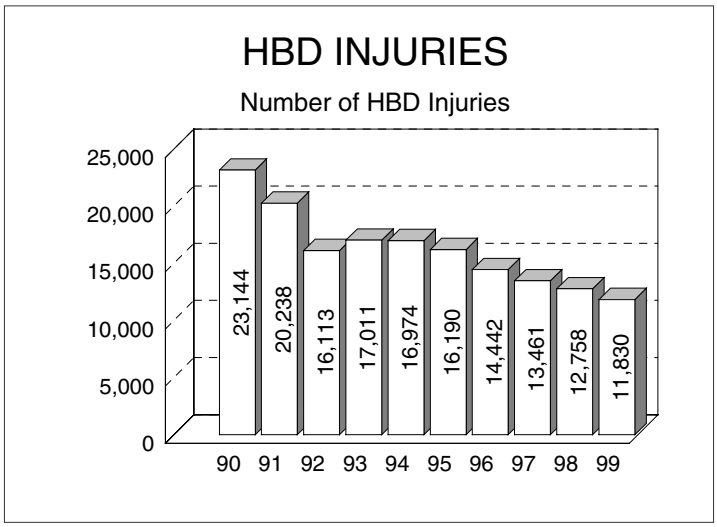


In 1999, there were 1,249 fatal crashes, down 10.5 percent from the high of 1,396 in 1990.

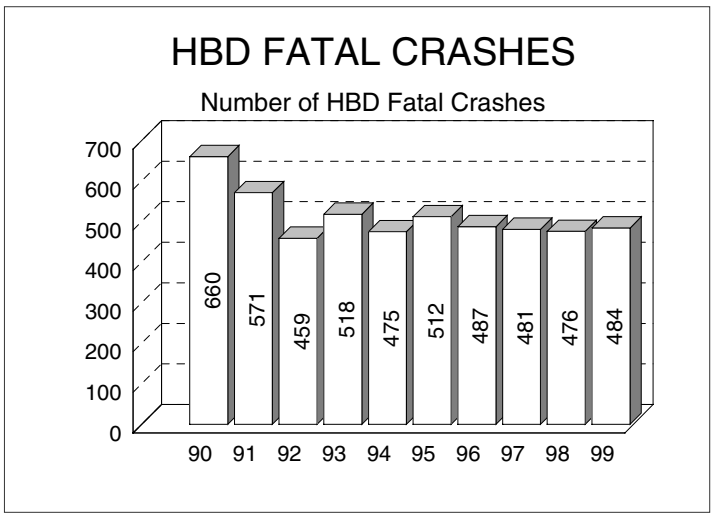


10 YEAR

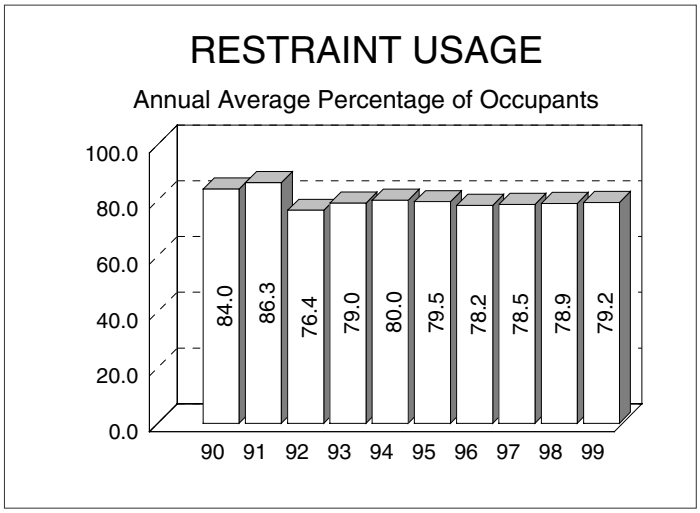
Deaths in alcohol related crashes have decreased over the last ten years. There were 541 HBD fatalities in 1999, down 26.7 percent from 1990.



Mirroring the trend in deaths, HBD injuries have decreased over the last ten years. There were 11,830 injuries in 1999, down 48.9 percent from 1990.



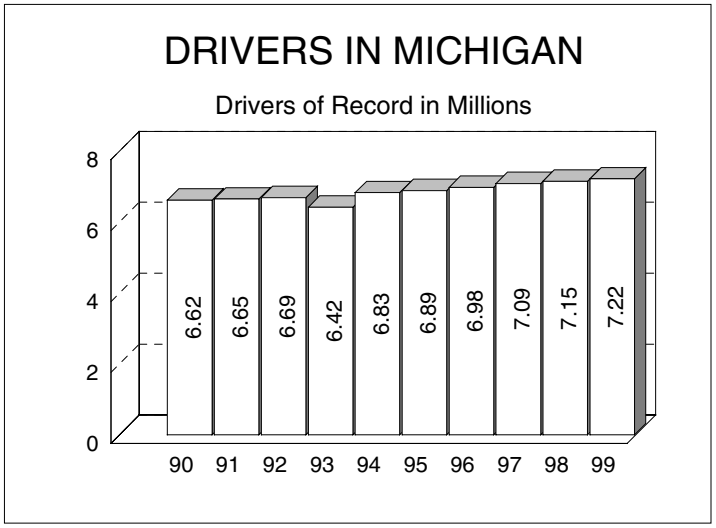
Alcohol involvement in fatal crashes has decreased 26.7 percent since 1990. In 1999, there were 484 HBD fatal crashes, up 1.7 percent from 1998.



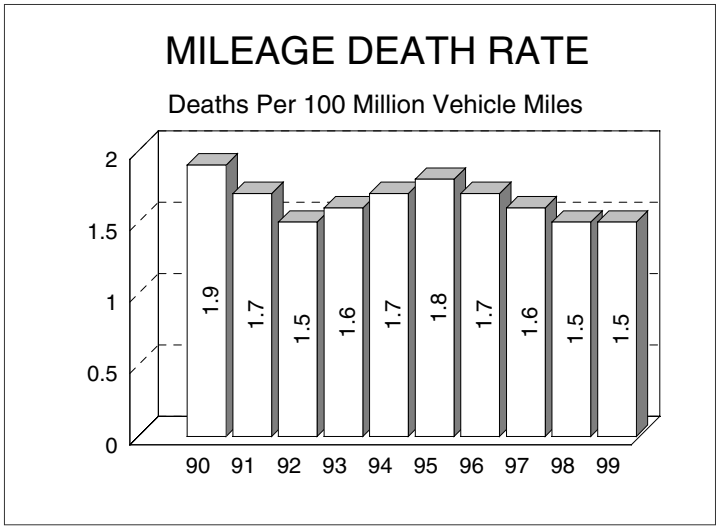
10 YEAR TRENDS (continued)

The percentage of motor vehicle occupants using restraints as reported by police in traffic crashes increased dramatically following implementation of Michigan's safety belt use law in July 1985. The ten-year average percentage is 80.

Note: Please see additional restraint usage information on page 160.

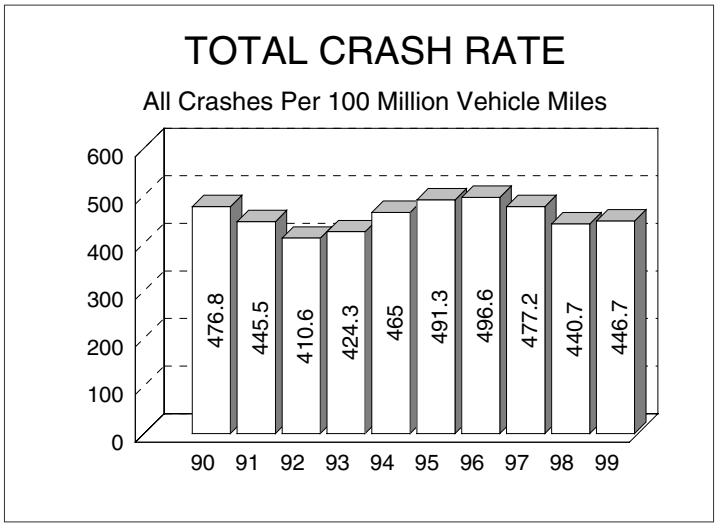


The number of Drivers of Record in Michigan has increased 8.5 percent in the last decade.

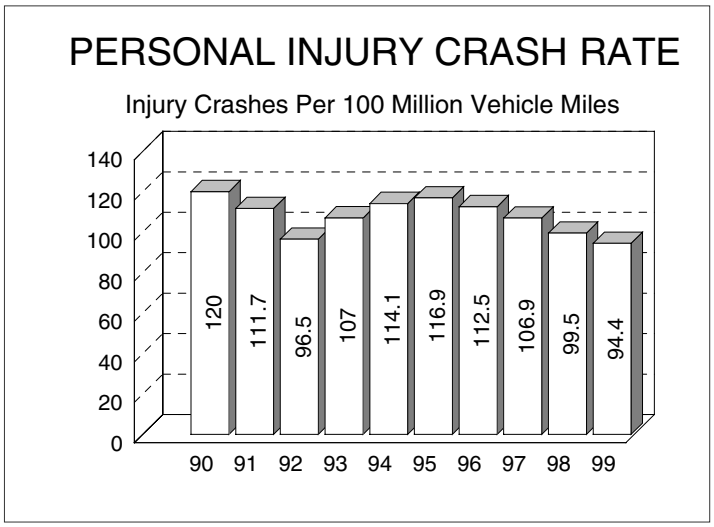


The 1.5 death rate in 1999 is a 21.1 percent decrease from 1990.

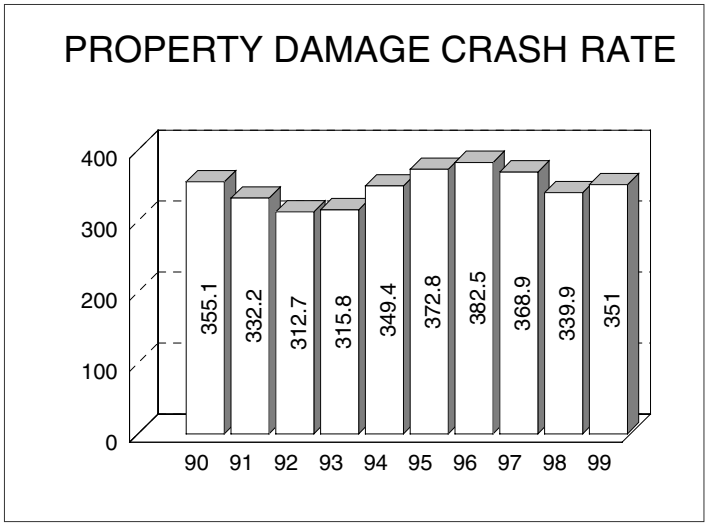
10 YEAR



The 446.7 total crash rate in 1999 is a 1.4 percent increase from 1998, and a 6.3 percent decrease from 1990.



The 94.4 personal injury crash rate in 1999 is a 5.1 percent decrease from 1998, and a 21.3 percent decrease from 1990.

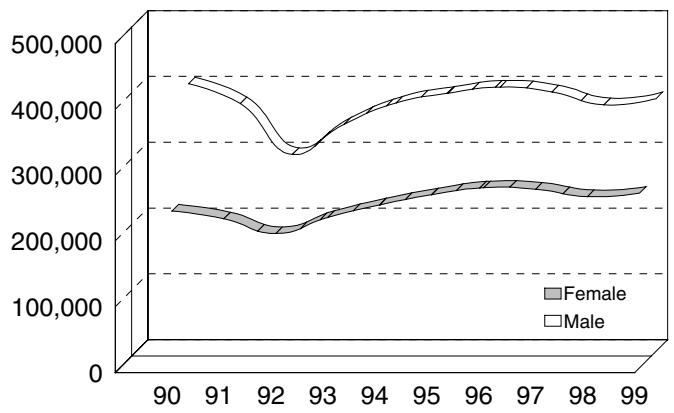


The 351.0 property damage crash rate in 1999 is a 3.3 percent increase from 1998, and a 1.2 percent decrease from 1990.

10 YEAR TRENDS (continued)

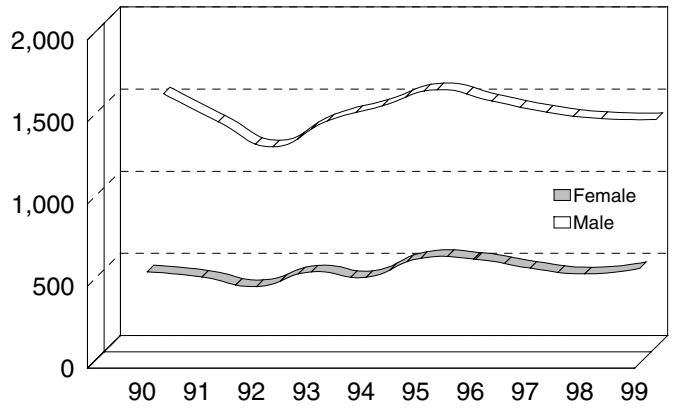
MALE vs. FEMALE DRIVERS

Number in All Crashes



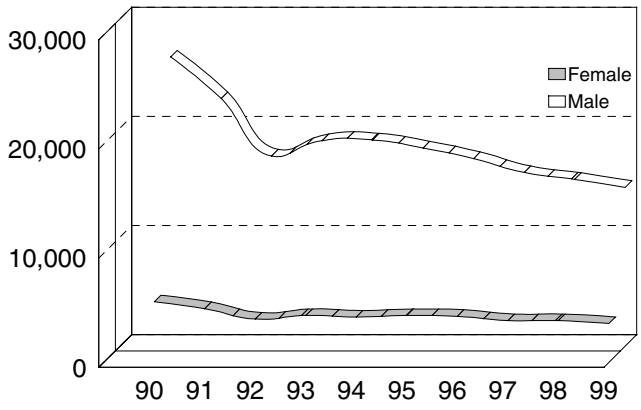
MALE vs. FEMALE DRIVERS

Number in Fatal Crashes



MALE vs. FEMALE DRINKING DRIVERS

Number in All Crashes



10
YEAR

DRIVERS IN ALL CRASHES		
	Male	Female
1990	406,500	238,045
1991	376,157	226,136
1992	299,006	203,795
1993	344,859	228,287
1994	377,212	247,333
1995	392,103	262,577
1996	401,350	273,361
1997	394,044	271,131
1998	374,505	259,843
1999	383,733	264,985

The crash data collection form (UD-10) was changed in 1992. Prior to 1992, drivers whose gender was not identified were coded as male. 9.7% of all drivers were coded as unknown gender in 1999.

DRIVERS IN FATAL CRASHES		
	Male	Female
1990	1,542	558
1991	1,371	526
1992	1,219	468
1993	1,376	557
1994	1,468	524
1995	1,566	640
1996	1,497	634
1997	1,430	580
1998	1,391	545
1999	1,385	578

Male drivers make up 67.2 percent of all drivers in fatal crashes.

Female driver involvement in fatal crashes generally follows overall fatal crash trends.

DRINKING DRIVERS IN ALL CRASHES		
	Male	Female
1990	26,498	5,568
1991	22,679	4,930
1992	17,414	3,976
1993	18,831	4,308
1994	18,889	4,163
1995	18,153	4,300
1996	17,186	4,225
1997	15,901	3,842
1998	15,280	3,833
1999	14,541	3,569

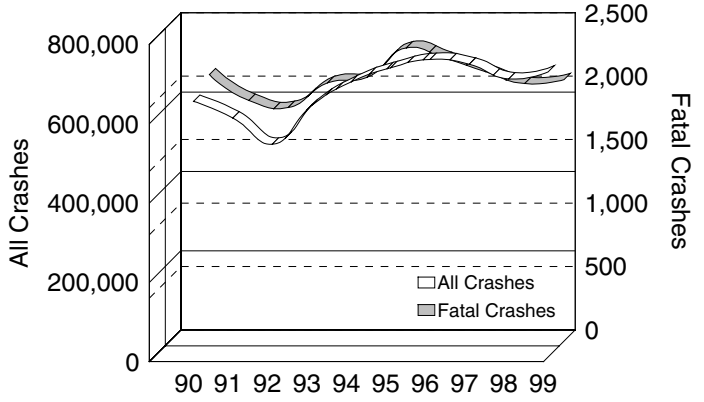
Males drivers have always accounted for the majority of all drinking drivers. The number of male drinking drivers decreased 45.1 percent from 1990 to an all time low of 14,541 in 1999.

The number of female drinking drivers decreased to the lowest number of the ten year period, 3,569 in 1999.

10 YEAR TRENDS (continued)

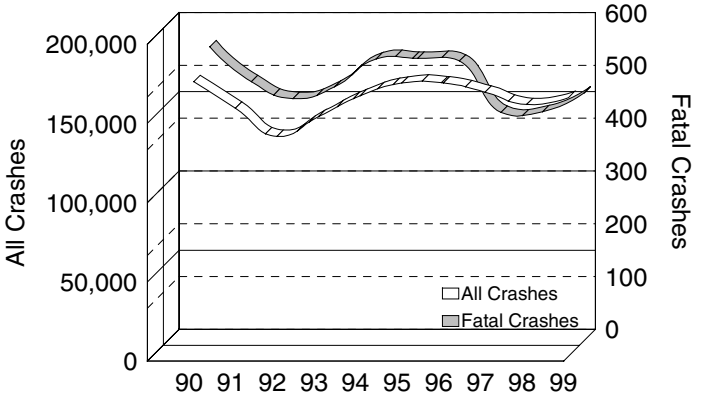
ALL DRIVERS

Number in All and Fatal Crashes



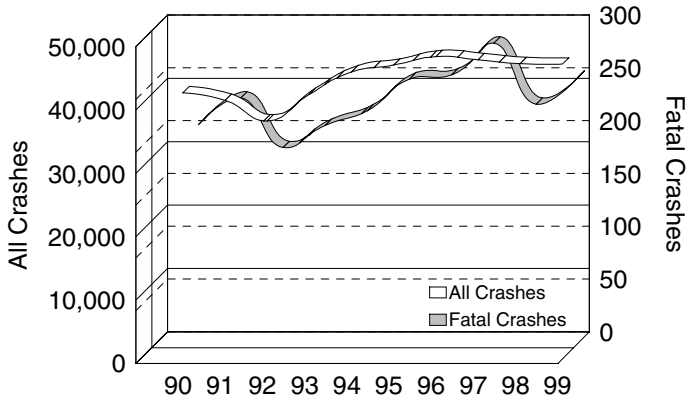
TEEN/YOUNG ADULT DRIVERS

Age 16-24: Number in All and Fatal Crashes



ELDERLY DRIVERS

Age 65-98: Number in All and Fatal Crashes



10 YEAR

ALL DRIVERS		
	All Crashes	Fatal Crashes
1990	644,545	2,100
1991	602,293	1,897
1992	536,279	1,841
1993	633,930	2,035
1994	693,575	2,078
1995	729,050	2,311
1996	750,103	2,226
1997	737,939	2,124
1998	701,056	2,029
1999	718,639	2,061

Driver involvement in all crashes increased 11.5 percent over the ten year period.

Driver involvement in fatal crashes decreased 1.9 percent over the ten year period.

TEEN/YOUNG ADULT DRIVERS		
	All Crashes	Fatal Crashes
1990	173,316	556
1991	156,548	490
1992	138,781	458
1993	151,284	480
1994	164,421	533
1995	172,373	534
1996	172,442	529
1997	166,693	432
1998	158,887	433
1999	163,239	469

Teen/Young Adult Drivers (age 16-24) represent 15.5 percent of the licensed drivers in 1999.

The number of Teen/Young Adult drivers in all crashes has decreased by 5.8 percent since 1990. Their involvement in fatal crashes decreased 15.6 percent during the same time period.

ELDERLY DRIVERS		
	All Crashes	Fatal Crashes
1990	41,992	207
1991	40,795	232
1992	37,539	185
1993	41,753	206
1994	45,280	220
1995	46,371	250
1996	47,695	254
1997	47,190	284
1998	46,582	226
1999	46,519	252

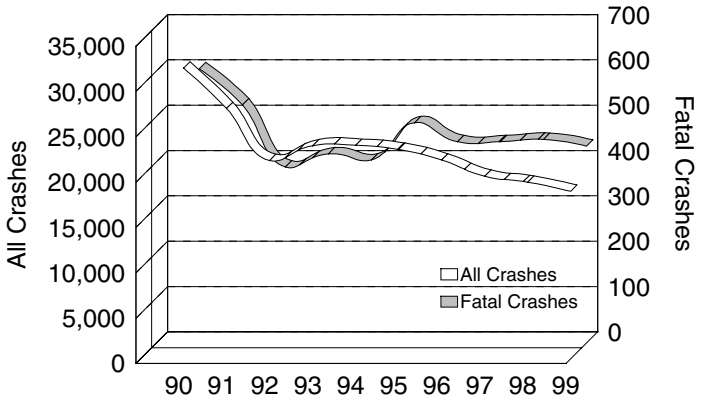
Elderly Drivers (age 65-100) represent 13.3 percent of the licensed drivers in 1999.

The number of drivers age 65 and older in all crashes has increased 10.8 percent since 1990. Their involvement in fatal crashes increased 21.7 percent during the same time period.

10 YEAR TRENDS (continued)

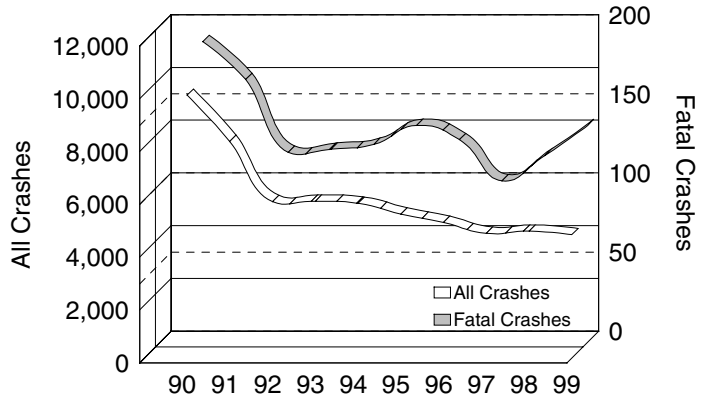
ALL DRINKING DRIVERS

Number in All and Fatal Crashes



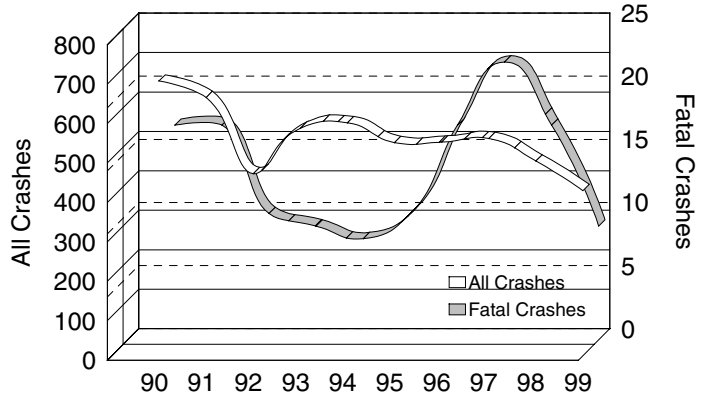
TEEN/YOUNG ADULT DRINKING DRIVERS

Age 16-24: Number in All and Fatal Crashes



ELDERLY DRINKING DRIVERS

Age 65-98: Number in All and Fatal Crashes



10 YEAR

DRINKING DRIVERS		
	All Crashes	Fatal Crashes
1990	32,066	605
1991	27,609	525
1992	21,879	388
1993	23,500	417
1994	23,546	404
1995	23,097	486
1996	21,919	444
1997	20,139	444
1998	19,483	449
1999	18,469	434

Drinking driver involvement in all crashes decreased 42.4 percent over the ten year period.

Drinking driver involvement in fatal crashes decreased 28.3 percent over the ten year period.

TEEN/YOUNG ADULT DRINKING DRIVERS		
	All Crashes	Fatal Crashes
1990	9,965	190
1991	8,210	166
1992	5,934	120
1993	5,947	122
1994	5,868	125
1995	5,461	137
1996	5,142	128
1997	4,731	102
1998	4,812	118
1999	4,676	137

The number of Teen/Young Adult drinking drivers in all crashes has decreased by 53.1 percent since 1990. Their involvement in fatal crashes decreased 27.9 percent during the same time period.

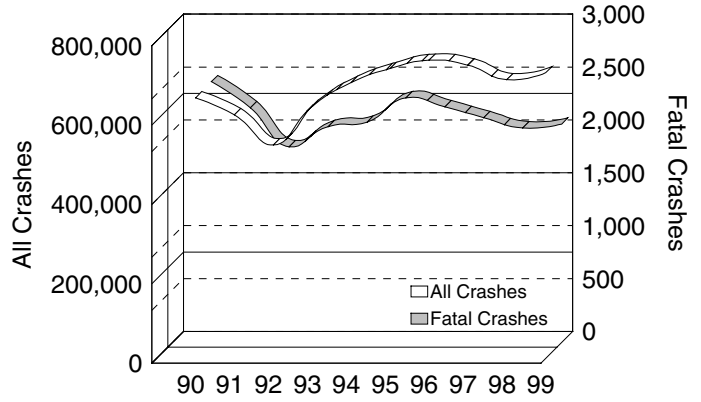
ELDERLY DRINKING DRIVERS		
	All Crashes	Fatal Crashes
1990	696	17
1991	654	17
1992	461	10
1993	576	9
1994	590	8
1995	540	10
1996	541	17
1997	550	22
1998	493	17
1999	418	9

The number of elderly drinking drivers (age 65-100) in all crashes has decreased 39.9 percent since 1990. Their involvement in fatal crashes has fluctuated over the same time period with a low of 8 in 1994.

10 YEAR TRENDS (continued)

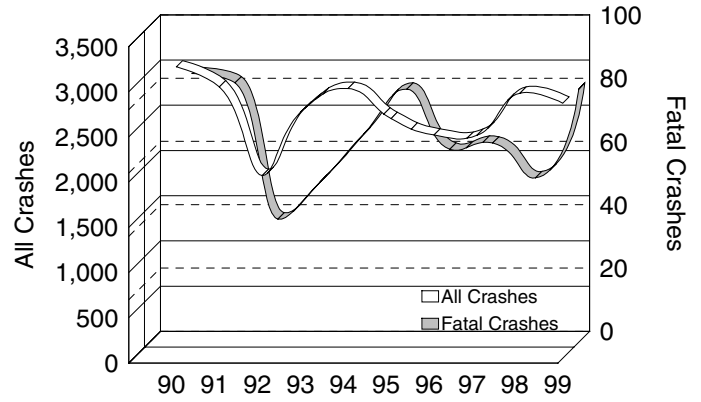
MOTOR VEHICLES

Number in All and Fatal Crashes



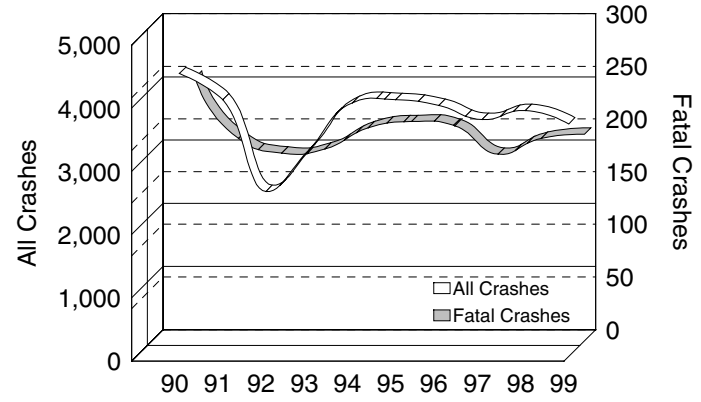
MOTORCYCLES

Number in All and Fatal Crashes



PEDESTRIANS

Number in All and Fatal Crashes



10 YEAR

MOTOR VEHICLES		
	All Crashes	Fatal Crashes
1990	656,750	2,467
1991	613,936	2,220
1992	538,025	1,851
1993	635,711	2,042
1994	695,423	2,084
1995	730,952	2,313
1996	751,804	2,229
1997	739,538	2,126
1998	702,680	2,029
1999	720,393	2,066

There has been a 16.3 percent decline in the number of motor vehicles involved in fatal crashes from 2,467 in 1990 to 2,066 in 1999.

MOTORCYCLES		
	All Crashes	Fatal Crashes
1990	3,222	85
1991	3,001	82
1992	2,022	39
1993	2,768	51
1994	2,982	66
1995	2,651	80
1996	2,468	61
1997	2,465	63
1998	2,931	52
1999	2,820	80

The number of motorcycles involved in fatal crashes decreased by 5.9 percent between 1990 and 1999.

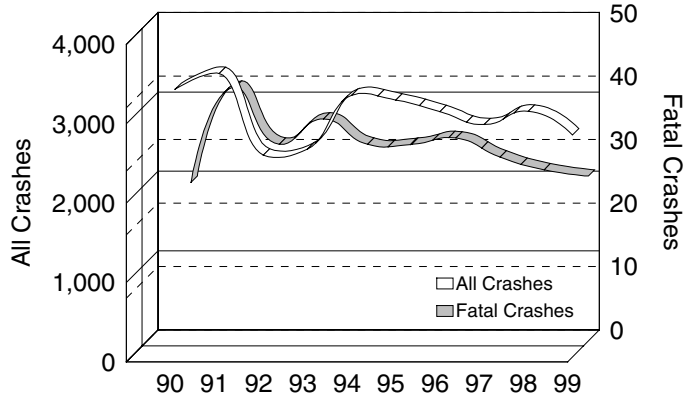
PEDESTRIANS		
	All Crashes	Fatal Crashes
1990	4,476	250
1991	4,061	192
1992	2,609	178
1993	3,275	182
1994	4,014	202
1995	4,064	208
1996	3,971	204
1997	3,749	177
1998	3,891	192
1999	3,677	196

There were 196 pedestrians involved in fatal crashes in 1999, up 10.7 percent from the ten year low of 177 in 1997.

10 YEAR TRENDS (continued)

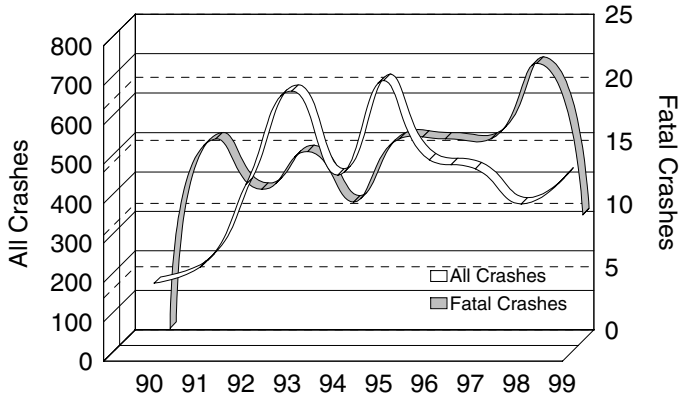
BICYCLES

Number in All and Fatal Crashes



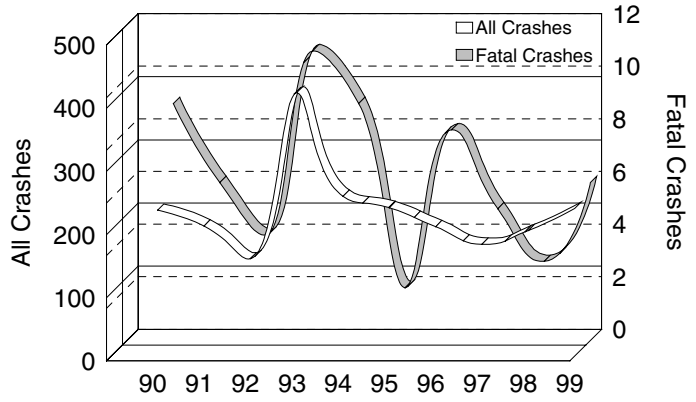
SNOWMOBILES on roadway

Number in All and Fatal Crashes



ORV/ATV's on roadway

Number in All and Fatal Crashes



10 YEAR

BICYCLES		
	All Crashes	Fatal Crashes
1990	3,372	25
1991	3,573	40
1992	2,544	31
1993	2,620	35
1994	3,298	31
1995	3,239	31
1996	3,091	32
1997	2,929	29
1998	3,097	27
1999	2,797	26

There were 26 bicycles involved in fatal crashes in 1999.

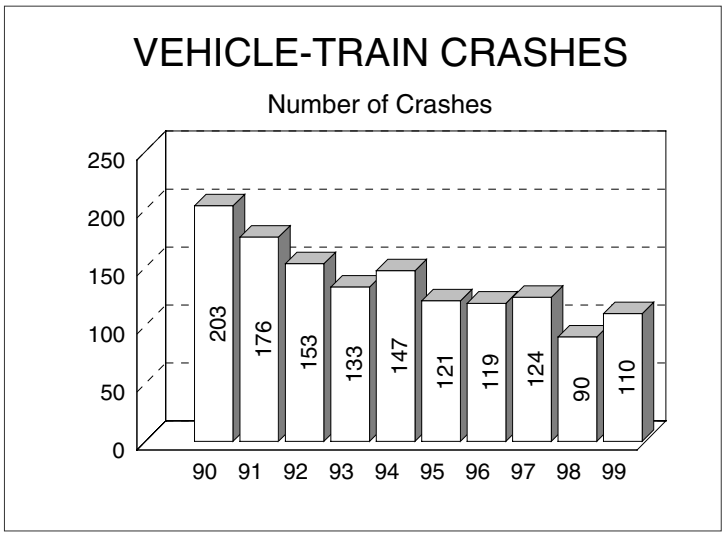
SNOWMOBILES on Michigan roadways		
	All Crashes	Fatal Crashes
1990	186	1
1991	227	16
1992	437	12
1993	673	15
1994	460	11
1995	700	16
1996	499	16
1997	476	16
1998	387	22
1999	463	10

The number of snowmobiles involved in fatal crashes on Michigan public roadways decreased 54.5 percent from the ten year high of 22 in 1998.

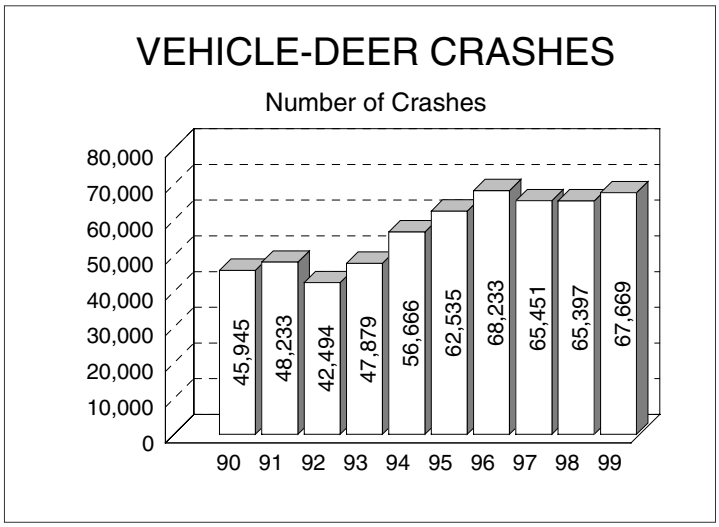
ORV/ATV's on Michigan roadways		
	All Crashes	Fatal Crashes
1990	231	9
1991	206	6
1992	154	4
1993	417	11
1994	253	9
1995	235	2
1996	205	8
1997	177	5
1998	199	3
1999	234	6

ORV/ATV's on Michigan public roadways involved in fatal crashes have fluctuated between a high of 11 in 1993 and a low of 2 in 1995.

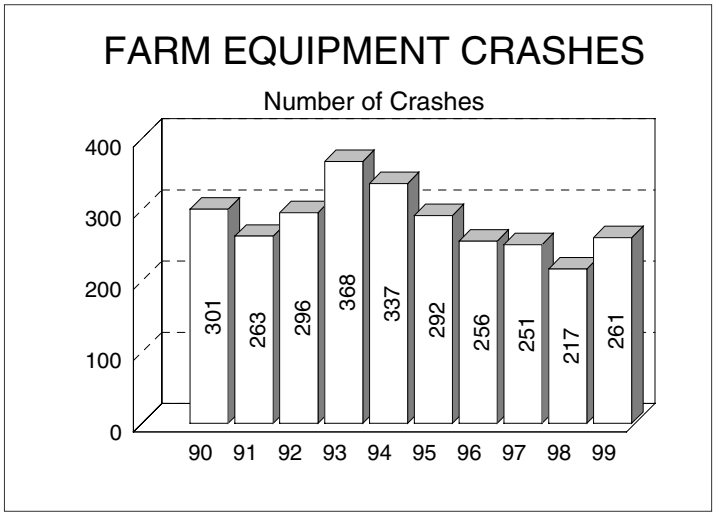
10 YEAR TRENDS (continued)



110 vehicle-train crashes occurred in 1999, a decrease of 45.8 percent in the 10 year period.



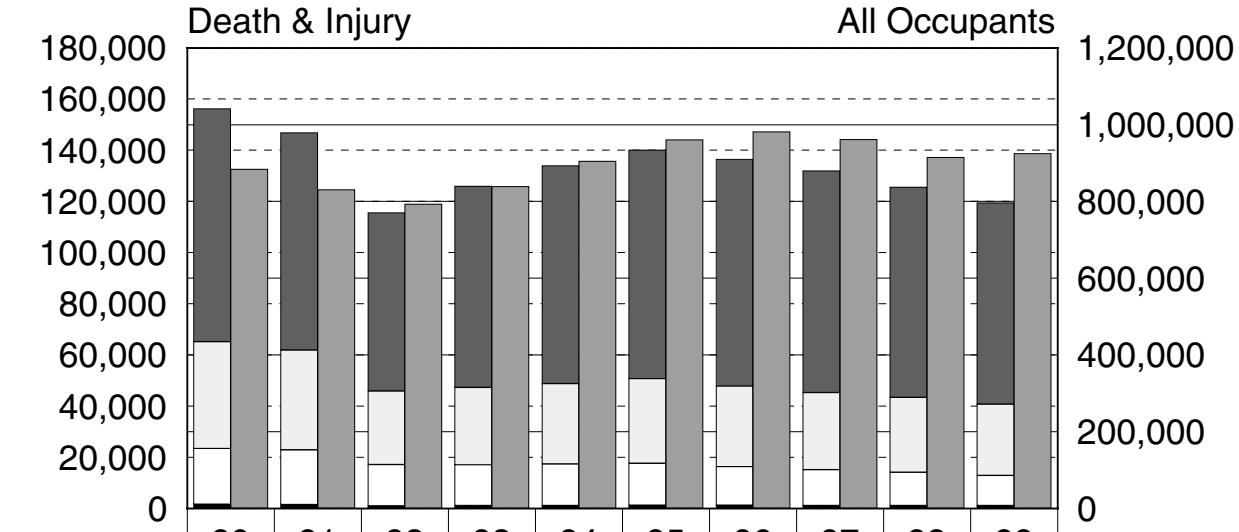
There has been a 47.3 percent rise from 45,945 vehicle-deer crashes in 1990 to 67,669 in 1999.



In 1999, there were 261 farm equipment crashes, down 29.1 percent from the 1993 high of 368.

10
YEAR

DEATH AND INJURY PER CRASH INVOLVED OCCUPANT

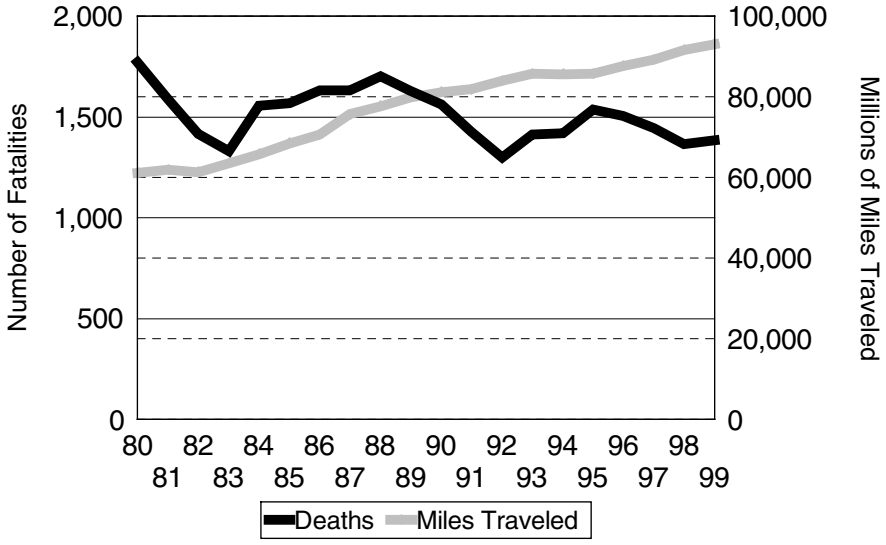


	90	91	92	93	94	95	96	97	98	99
All Occupants	883,611	830,089	793,055	838,445	904,876	960,537	981,260	961,595	914,248	924,476
C - Injured	91,010	84,793	69,542	78,563	85,107	89,289	88,570	86,559	82,218	78,565
B - Injured	41,666	39,010	28,798	30,226	31,476	33,070	31,502	30,209	29,236	27,856
A - Injured	21,861	21,376	16,043	15,940	16,184	16,355	15,080	13,890	12,989	11,789
K - Killed	1,630	1,563	1,105	1,186	1,191	1,314	1,273	1,246	1,166	1,183

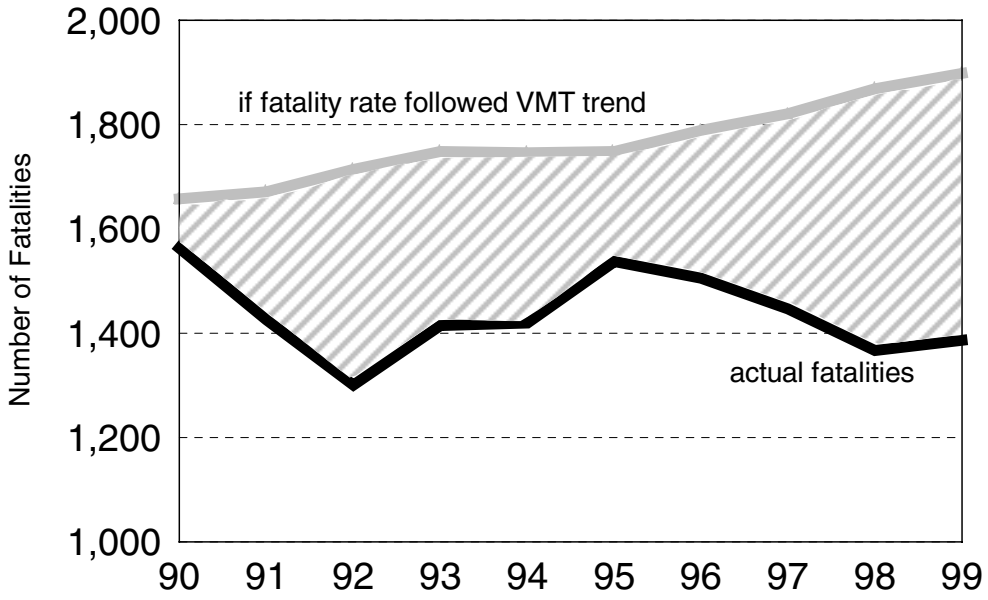
The proportion of death and injury to crash involved occupants has decreased over the last ten years. In 1999, 1,183 occupants of motor vehicles were fatally injured, 11,789 suffered an A (incapacitating) injury, 27,856 sustained a B (nonincapacitating) injury, and 78,565 sustained a C (possible) injury.

10 YEAR

FATALITIES AND VMT TRENDS



10 Year Highlight

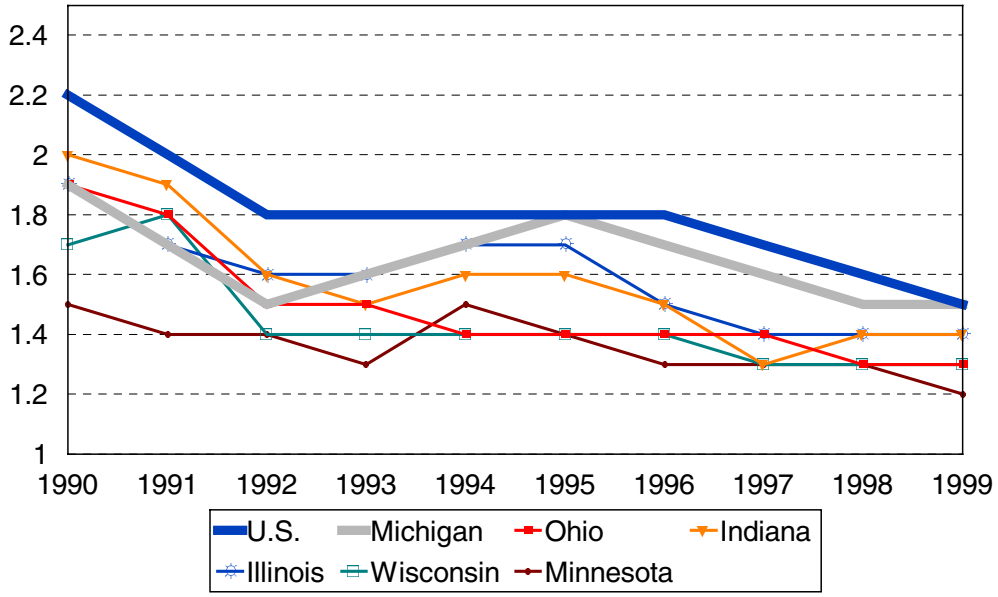


In the decade prior to 1989, the number of fatalities had been steadily increasing, following the VMT trend. A dramatic reversal in the fatality rate began in 1989. A projection of losses that would have been incurred if the fatality rate had continued to follow the VMT trend is provided above.

10 YEAR

MILEAGE DEATH RATES 1990 - 1999

Comparison - Michigan to U.S. and Surrounding States



The chart above shows the reduction in mileage death rates (motor vehicle traffic deaths per 100,000,000 vehicle miles) for Michigan, its neighboring states and the U.S. over the last ten years.

	U.S.	Michigan	Ohio	Indiana	Illinois	Wisconsin	Minnesota
1990	2.2	1.9	1.9	2.0	1.9	1.7	1.5
1991	2.0	1.7	1.8	1.9	1.7	1.8	1.4
1992	1.8	1.5	1.5	1.6	1.6	1.4	1.4
1993	1.8	1.6	1.5	1.5	1.6	1.4	1.3
1994	1.8	1.7	1.4	1.6	1.7	1.4	1.5
1995	1.8	1.8	1.4	1.6	1.7	1.4	1.4
1996	1.8	1.7	1.4	1.5	1.5	1.4	1.3
1997	1.7	1.6	1.4	1.3	1.4	1.3	1.3
1998	1.6	1.5	1.3	1.4	1.4	1.3	1.3
1999	1.5	1.5	*1.3	1.4	*1.4	1.3	1.2

* Provisional mileage death rates

U.S. data for this table and tables on the following page were provided by the National Safety Council [3]. State data for this table and tables on the following page were provided by Ohio [4], Indiana [5], Illinois [6], Wisconsin [7], and Minnesota [8].

10 YEAR

MICHIGAN AND SURROUNDING STATES COMPARISON OF FATALITIES AND VMT

Year	U.S. Persons Killed	Michigan Persons Killed	Ohio Persons Killed	Indiana Persons Killed	Illinois Persons Killed	Wisconsin Persons Killed	Minnesota Persons Killed
1990	46,814	1,563	1,637	1,049	1,589	763	568
1991	43,536	1,425	1,635	1,022	1,448	795	531
1992	40,982	1,300	1,440	901	1,384	645	581
1993	41,893	1,414	1,484	901	1,392	703	538
1994	42,700	1,419	1,368	974	1,554	706	644
1995	43,900	1,537	1,357	960	1,586	739	597
1996	43,300	1,505	1,395	982	1,477	759	576
1997	43,200	1,446	1,439	936	1,393	721	600
1998	41,200	1,367	1,423	978	1,393	709	650
1999	41,300	1,386	*1,430	1,017	*1,456	744	626

* Provisional fatalities

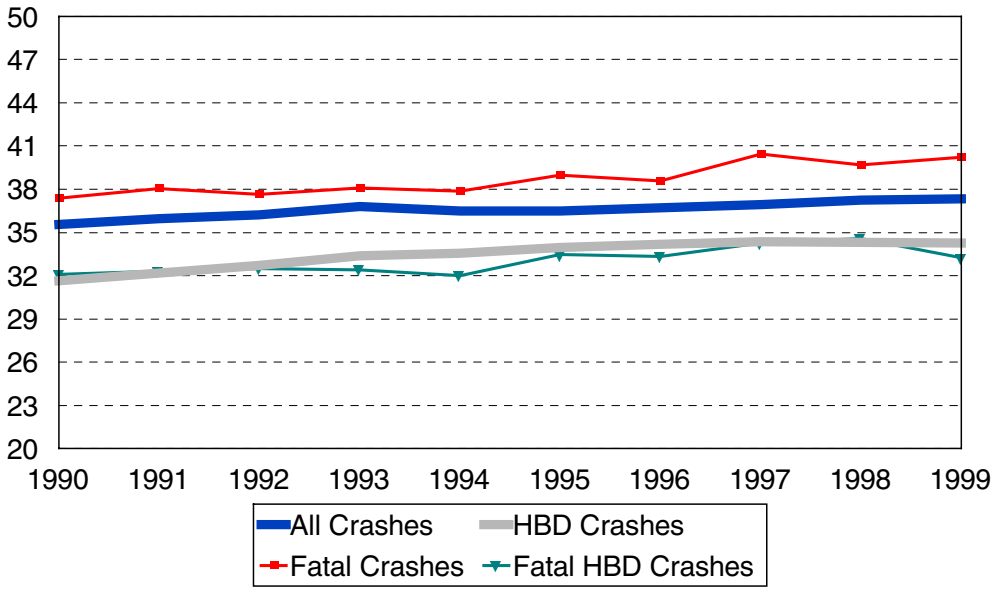
Year	U.S. VMT	Michigan VMT	Ohio VMT	Indiana VMT	Illinois VMT	Wisconsin VMT	Minnesota VMT
1990	2,148	81.2	88.2	53.7	83.6	44.3	38.8
1991	2,172	81.9	93.0	54.3	85.7	45.5	39.3
1992	2,240	84.0	95.2	57.1	87.9	47.5	41.3
1993	2,289	85.7	97.5	60.5	89.8	48.8	42.3
1994	2,347	85.6	99.0	62.1	92.1	50.3	43.4
1995	2,405	85.7	99.7	62.0	94.3	51.4	44.1
1996	2,467	87.7	102.8	66.0	96.9	52.6	45.2
1997	2,531	89.2	104.8	70.4	98.7	53.7	46.9
1998	2,618	91.6	106.0	70.7	100.9	56.0	48.5
1999	2,679	93.1	106.4	71.5	*101.8	57.0	50.7

* Projected VMT

VMT described in billions of miles

10
YEAR

AVERAGE AGE OF DRIVERS IN CRASHES 1990 - 1999

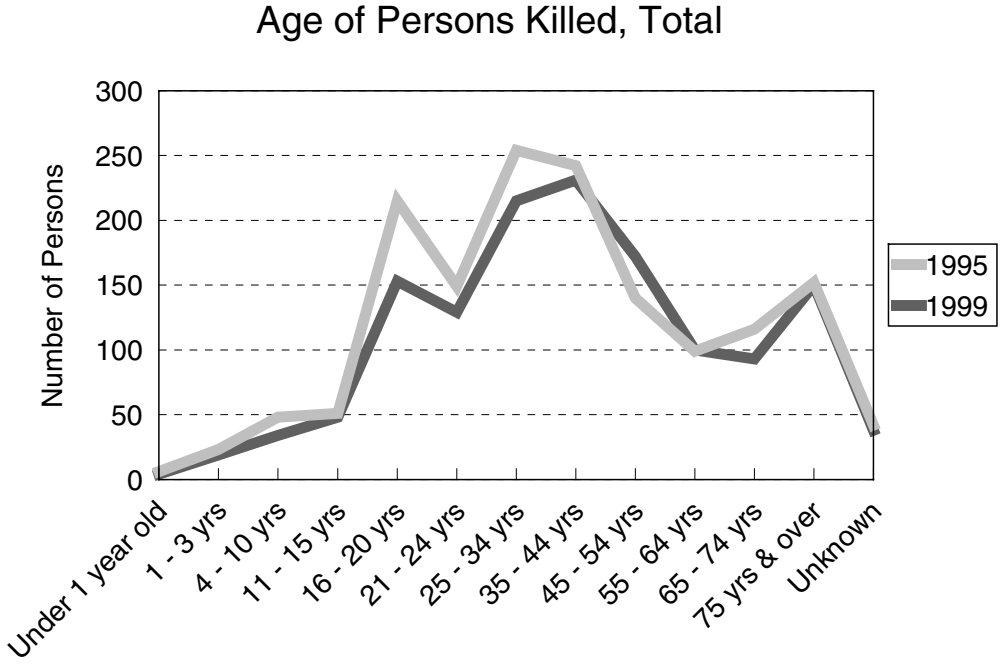


Reflecting the demographic trend of increasing age in the general population, the average age of crash-involved drivers has also increased. An aging driving population has implications for law enforcement prioritizing, highway design, traffic signing considerations, and Emergency Medical System procedures.

5
YEAR

TREND DATA FOR FATALITIES

TREND DATA FOR FATALITIES	1995	1996	1997	1998	1999
Age of Persons Killed, Total					
Under 1 year old	6	9	1	3	4
1 - 3 years	23	22	13	14	19
4 - 10 years	48	41	43	44	34
11 - 15 years	51	66	42	46	48
16 - 20 years	215	211	168	171	153
21 - 24 years	149	125	103	117	129
25 - 34 years	254	261	245	219	215
35 - 44 years	242	215	174	213	231
45 - 54 years	140	158	133	166	172
55 - 64 years	99	89	86	99	100
65 - 74 years	116	106	111	99	93
75 years and over	152	157	158	147	150
Unknown	42	45	169	29	38
Totals	1,537	1,505	1,446	1,367	1,386



The chart above shows the total number of deaths in motor vehicle crashes in Michigan by age, comparing 1995 with 1999.

5
YEAR

TREND DATA FOR FATALITIES	1995	1996	1997	1998	1999
Age of Drivers Involved in Fatal Crashes					
13 years and under	1	2	1	2	2
14 years	4	3	4	2	2
15 years	5	0	7	10	7
16 years	58	55	58	42	37
17 years	62	58	43	53	55
18 years	66	70	72	52	63
19 years	67	59	52	61	59
20 years	61	61	39	54	51
21 - 24 years	220	226	168	171	204
25 - 34 years	466	501	463	410	378
35 - 44 years	442	392	347	374	376
45 - 54 years	260	254	239	261	264
55 - 64 years	146	108	156	149	145
65 - 69 years	58	66	72	58	56
70 - 74 years	63	58	64	52	65
75 - 79 years	65	50	64	55	57
80 - 84 years	37	48	51	39	42
85 - 89 years	22	22	30	16	22
90 years and over	5	10	3	6	10
Unknown	203	183	191	162	166
Totals	2,311	2,226	2,124	2,029	2,061
Age of Drivers Involved in Single Vehicle Fatal Crashes					
13 years and under	1	1	0	1	2
14 years	4	0	3	2	2
15 years	3	0	4	4	2
16 years	21	20	23	12	12
17 years	21	19	18	18	21
18 years	20	21	30	19	19
19 years	19	21	14	24	18
20 years	23	22	10	21	21
21 - 24 years	77	79	46	65	72
25 - 34 years	127	128	149	127	118
35 - 44 years	110	104	87	104	108
45 - 54 years	61	49	54	75	73
55 - 64 years	30	29	35	35	24
65 - 69 years	9	17	19	17	12
70 - 74 years	12	12	12	9	9
75 - 79 years	12	16	10	8	9
80 - 84 years	10	11	7	9	4
85 - 89 years	1	2	3	0	6
90 years and over	0	1	2	0	1
Unknown	58	49	35	34	39
Totals	619	601	561	584	572

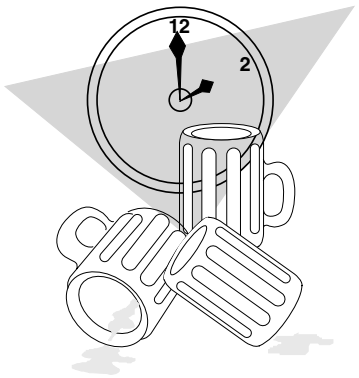
5 YEAR

TREND DATA FOR FATALITIES	1995	1996	1997	1998	1999
Age of Bicyclists Killed					
Under 1 year old	0	0	0	0	0
1 - 3 years	0	0	0	0	0
4 - 10 years	6	3	5	6	1
11 - 15 years	7	9	5	5	11
16 - 20 years	2	1	2	0	2
21 - 24 years	3	1	0	1	1
25 - 34 years	3	6	4	4	0
35 - 44 years	3	4	2	5	4
45 - 54 years	0	3	5	3	3
55 - 64 years	2	2	0	0	2
65 - 74 years	1	2	3	1	0
75 years and over	0	1	3	2	1
Unknown	1	0	0	0	0
Totals	28	32	29	27	25
Age of Pedestrians Killed					
Under 1 year old	1	1	0	0	1
1 - 3 years	3	5	1	6	8
4 - 10 years	14	14	16	17	20
11 - 15 years	10	10	9	9	7
16 - 20 years	10	11	10	9	6
21 - 24 years	15	5	8	4	6
25 - 34 years	27	26	27	22	25
35 - 44 years	42	35	32	30	37
45 - 54 years	19	35	26	20	31
55 - 64 years	15	22	6	15	15
65 - 74 years	15	12	17	14	8
75 years and over	12	14	14	25	12
Unknown	7	2	1	1	0
Totals	190	192	167	172	176
Action of Pedestrians Killed					
Crossing at intersection	22	22	14	16	10
Cross not at intersection	64	65	72	80	66
Getting on/off vehicle	1	1	1	1	4
In road with traffic	18	26	19	13	15
In road against traffic	5	1	4	3	9
Standing or lying in road	17	21	13	14	17
Pushing/working on vehicle	4	2	3	1	2
Other working in road	0	1	1	0	0
Playing in road	0	1	3	3	2
In road for other reason	15	15	7	8	12
Not in road	13	10	10	9	20
Other/Unknown	31	27	20	24	19
Totals	190	192	167	172	176

5 YEAR

FATAL CRASHES AND PERSONS KILLED FOR SELECTED HOLIDAY PERIODS IN MICHIGAN

HOLIDAY PERIOD	Fatal Crashes	Persons Killed	SUMMARY 1999
Memorial Day			This table shows traffic death tolls in Michigan for the past five years for the major holiday periods. Based on the *total* **1999** experience, deaths averaged **3.8** per day. Alcohol-related deaths averaged **1.5** per day. Based on the **1999** *Holiday Period* experience, deaths averaged **6.3** per day. Alcohol-related deaths averaged **3.3** per day.
1999 (3)	15 [9]	17 [10]	
1998 (3)	18 [7]	21 [8]	
1997 (3)	14 [8]	16 [9]	
1996 (3)	10 [7]	11 [7]	
1995 (3)	11	12	
Fourth of July			
1999 (3)	15 [8]	15 [8]	
1998 (3)	15 [9]	16 [10]	
1997 (3)	14 [9]	16 [10]	
1996 (4)	24 [8]	27 [8]	
1995 (4)	19	19	
Labor Day			
1999 (3)	18 [12]	21 [14]	
1998 (3)	20 [13]	22 [13]	
1997 (3)	15 [8]	19 [10]	
1996 (3)	21 [15]	27 [20]	
1995 (3)	22	30	
Thanksgiving			
1999 (4)	20 [9]	22 [9]	
1998 (4)	19 [10]	22 [10]	
1997 (4)	18 [6]	20 [6]	
1996 (4)	18 [8]	23 [8]	
1995 (4)	11	12	
Christmas			
1999 (3)	12 [6]	16 [6]	
1998 (3)	8 [2]	8 [2]	
1997 (4)	11 [3]	13 [3]	
1996 (1)	4 [0]	6 [0]	
1995 (3)	15	16	
New Years			
1999 (2)	19 [10]	22 [12]	
1998 (3)	12 [2]	12 [2]	
1997 (4)	18 [8]	21 [11]	
1996 (1)	4 [0]	5 [0]	
1995 (3)	13	14	

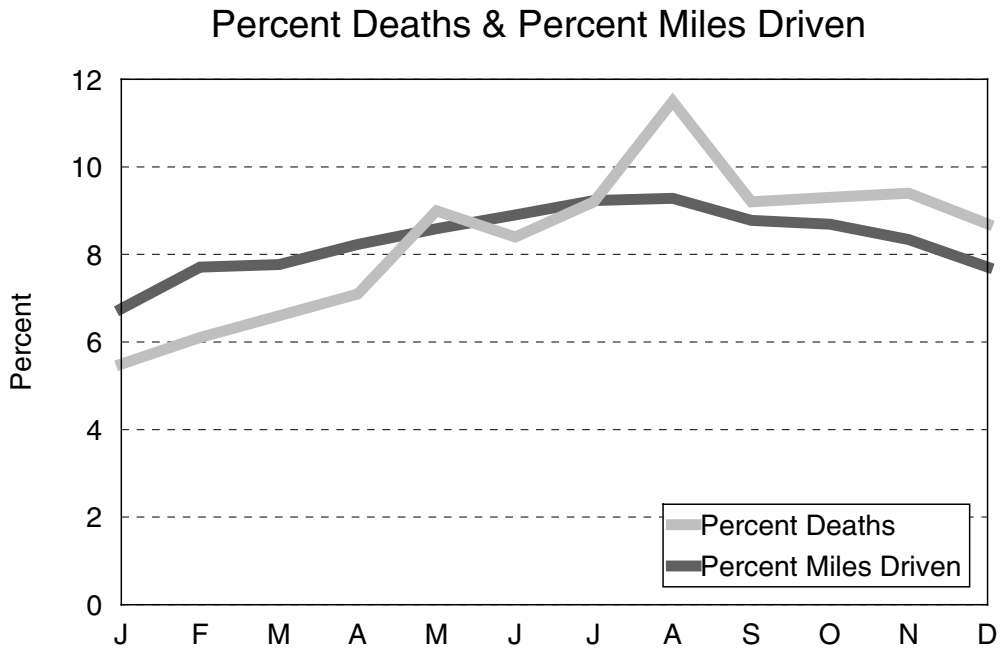


Figures in parentheses in the 1st column show number of full days in each holiday period.
Deaths are for these days plus six hours of the preceding day.
Figures in brackets in the 2nd and 3rd columns show the number of alcohol-related fatal crashes and deaths.

5 YEAR

MOTOR VEHICLE DEATHS AND MILEAGE BY MONTH

Month	TRAFFIC DEATHS					1999 PERCENTAGES	
	1995	1996	1997	1998	1999	Percent Deaths	Percent Miles Driven
January	122	131	102	116	76	5.5	6.76
February	90	98	106	71	84	6.1	7.71
March	109	103	85	97	92	6.6	7.77
April	111	98	80	91	98	7.1	8.23
May	118	128	128	113	125	9.0	8.59
June	141	135	140	120	116	8.4	8.90
July	127	146	166	133	128	9.2	9.23
August	159	121	130	116	160	11.5	9.28
September	157	138	128	123	128	9.2	8.78
October	134	135	134	126	129	9.3	8.69
November	136	136	125	117	130	9.4	8.34
December	133	136	122	144	120	8.7	7.71
Totals	1,537	1,505	1,446	1,367	1,386	100.0	100.0



The above chart shows that the *percent deaths* were lower for the months of January, February, March, April and June than for the other months in 1999 when compared to the *percent miles driven*.

1
YEAR

1998 - 1999 SUMMARY TRENDS

- Deaths among vehicle occupants (drivers and passengers) increased **0.2** percent.
- Alcohol use was indicated in 484 fatal crashes, an increase of **1.7** percent.
- Persons sustaining "A" level injuries (the most serious) decreased **9.5** percent.

	1998	1999	% CHANGE
NUMBER OF CRASHES			
Property Damage Crashes	311,394	326,606	4.9
Fatal Crashes	1,235	1,249	1.1
Personal Injury Crashes	91,137	87,820	-3.6
Total	**403,766**	**415,675**	**2.9**
ALCOHOL IN FATAL CRASHES			
Had Been Drinking (HBD)	476 (38.5%)	484 (38.8)	1.7
Had Not (HNBD)/Not Known If Drinking	759 (61.5%)	765 (61.2)	0.8
PERSONS IN CRASHES			
Killed and Injured	132,945	125,987	-5.2
Not Injured	541,296	560,035	3.5
Unknown Injury	72,282	74,855	3.6
Total	**746,523**	**760,877**	**1.9**
PERSONS INJURED			
Male	63,503	60,565	-4.6
Female	68,075	64,036	-5.9
Total	**131,578**	**124,601**	**-5.3**
"A" Injury	14,365	13,002	-9.5
"B" Injury	31,707	30,259	-4.6
"C" Injury	85,506	81,340	-4.9
Total	**131,578**	**124,601**	**-5.3**
PERSONS KILLED			
Male	899	909	1.1
Female	468	477	1.9
Total	**1,367**	**1,386**	**1.4**
Drivers	764	764	0.0
Passengers	306	308	0.7
Pedestrians	172	176	2.3
Bicyclists	27	25	-7.4
Motorcyclist	53	77	45.3
Farm Equipment	2	0	-100.0
Train Engineer	0	0	0.0
Snowmobile	21	10	-52.4
ORV/ATV	4	4	0.0
Other/Unknown	18	22	22.2
Total	**1,367**	**1,386**	**1.4**

1
YEAR

MORE MICHIGAN CRASH FACTS

CRASH FACTS	1998	1999	% Change
Deaths	1,367	1,386	1.4
Injuries	131,578	124,601	-5.3
Crashes	403,766	415,675	2.9
Drivers Involved	701,056	718,639	2.5
Vehicles Involved	702,680	720,393	2.5
Fatal Crashes	1,235	1,249	1.1
Estimated MV Mileage Traveled (billions)	91.6	93.1	1.6
Death Rate Per 100 Million Vehicle Miles	1.5	1.5	0.0
Fatal Crash Rate Per 100 Million Veh Miles	1.3	1.3	0.0

Michigan experienced a 1.4 percent increase in traffic fatalities, as well as a 5.3 percent decrease in injuries and a 2.9 percent increase in crashes. Vehicle mileage increased 1.6 percent and the death rate per 100 million vehicle miles remained at 1.5.

Based on provisional numbers, the National Safety Council estimates a national increase in traffic fatalities of 0.2 percent between 1998 (41,200) and 1999 (41,300).

1999 COST OF CRASHES IN MICHIGAN

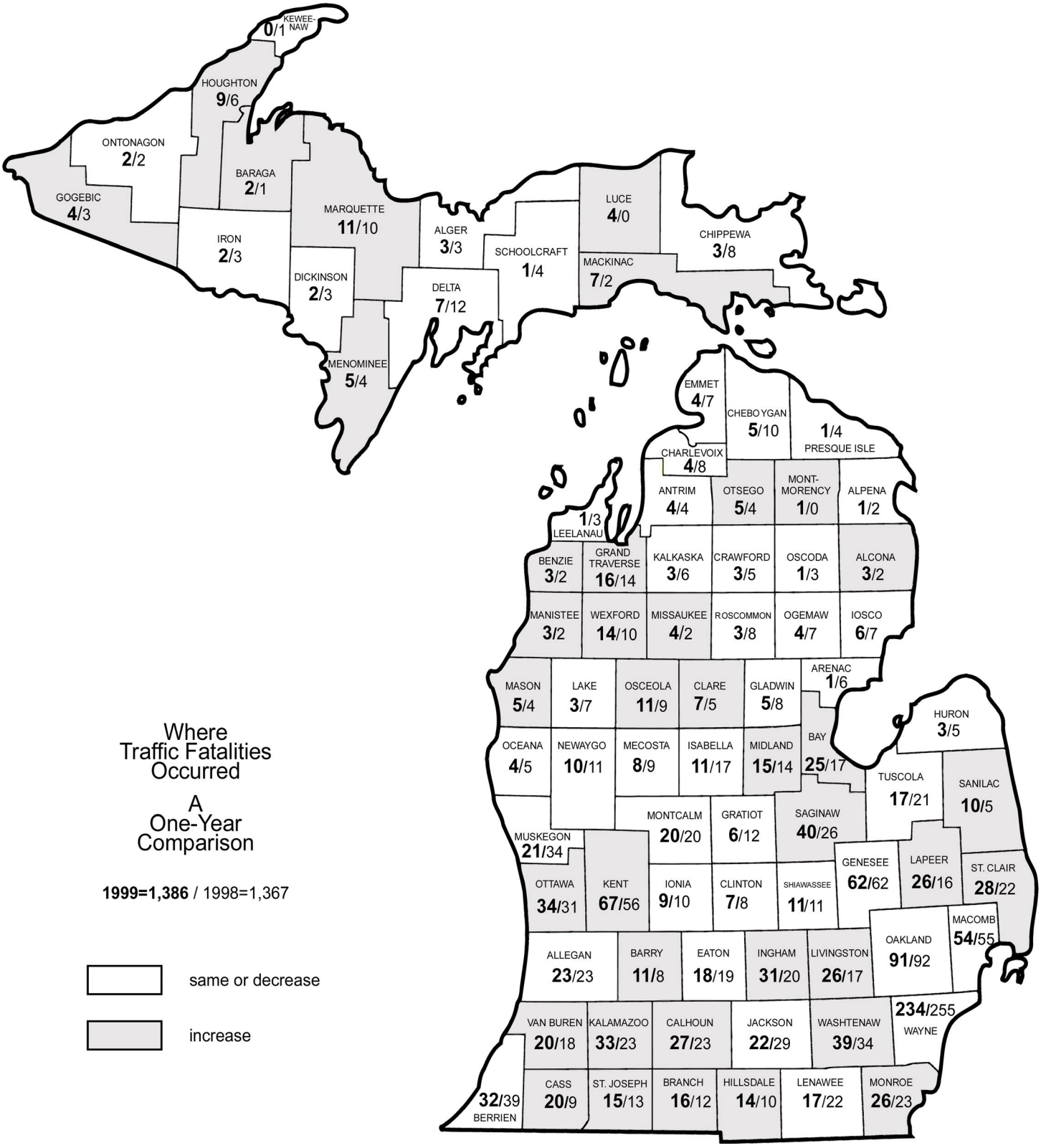
The cost estimate for Michigan crashes in 1999 is **$9,598,032,187**. This estimate is based on the National Safety Council's cost estimating procedures. Average comprehensive costs are based on the following figures:

Comprehensive Costs, 1999

Death	$3,100,150
Incapacitating injury	$153,453
Nonincapacitating evident injury	$39,481
Possible injury	$18,782
No injury	$1,787

These cost estimates are not intended for comparisons to previous years.

1
YEAR



Where Traffic Fatalities Occurred

A One-Year Comparison

1999=1,386 / 1998=1,367

same or decrease

increase

MOTOR VEHICLE TRAFFIC DEATHS IN MICHIGAN BY MONTH

Revised December 18, 2006

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1948	89	64	92	109	125	118	138	134	150	133	165	195	1,512
1949	101	82	160	91	110	99	116	138	169	144	149	136	1,441
1950	105	84	87	139	122	125	153	152	157	174	154	153	1,605
1951	131	103	103	117	119	137	170	163	158	146	160	133	1,640
1952	81	121	125	94	145	169	140	184	181	152	166	178	1,736
1953	139	116	136	132	134	173	176	183	187	187	167	175	1,905
1954	130	126	100	119	149	132	182	167	168	167	153	200	1,793
1955	134	117	116	160	157	192	169	209	160	204	208	190	2,016
1956	166	136	132	140	133	115	149	159	169	144	145	158	1,746
1957	121	98	118	118	130	122	127	152	123	143	135	161	1,548
1958	94	90	95	89	92	112	120	134	132	113	165	146	1,382
1959	76	69	91	126	126	124	148	128	155	125	144	161	1,473
1960	139	76	102	105	107	133	159	154	137	186	152	154	1,604
1961	105	99	113	138	133	114	141	166	128	139	148	143	1,567
1962	94	70	115	110	123	147	166	175	170	172	118	114	1,574
1963	107	95	124	142	148	173	188	177	163	179	196	195	1,887
1964	170	159	158	144	164	167	217	197	177	199	177	193	2,122
1965	153	113	135	143	156	181	211	220	193	214	172	245	2,136
1966	147	156	179	151	207	204	212	206	203	220	205	208	2,298
1967	130	105	141	162	187	140	210	189	223	230	216	204	2,137
1968	130	147	164	150	240	214	208	233	209	248	283	166	2,392
1969	137	158	173	169	239	236	218	254	230	236	219	218	2,487
1970	167	143	160	141	214	205	197	204	213	217	178	138	2,177
1971	137	124	155	144	187	212	222	227	155	209	202	178	2,152
1972	156	161	155	150	204	209	225	210	225	219	174	170	2,258
1973	187	156	173	140	180	230	225	201	204	209	171	137	2,213
1974	111	112	107	116	144	197	189	178	200	195	201	125	1,875
1975	120	97	112	93	149	169	195	203	190	162	161	160	1,811
1976	118	102	134	150	163	169	196	227	189	171	174	162	1,955
1977	126	87	122	143	184	179	223	194	164	189	181	158	1,950
1978	98	104	128	177	178	203	206	229	214	199	183	157	2,076
1979	102	103	129	152	146	155	190	171	174	187	171	169	1,849
1980	117	131	109	116	153	170	142	183	192	152	133	176	1,774
1981	99	100	108	116	116	155	159	171	149	155	113	148	1,589
1982	98	79	93	91	114	121	154	153	128	144	131	111	1,417
1983	113	94	83	91	91	127	121	117	131	153	115	95	1,331
1984	93	84	104	94	125	143	175	174	135	153	134	142	1,556
1985	108	91	77	133	137	167	146	136	131	135	161	147	1,569
1986	86	77	103	127	131	175	186	176	131	144	159	137	1,632
1987	91	104	99	106	138	165	151	176	149	164	161	128	1,632
1988	129	107	103	104	145	152	175	158	178	159	127	167	1,704
1989	138	102	94	96	123	156	156	177	155	146	123	164	1,630
1990	99	84	122	94	135	151	165	170	141	147	130	125	1,563
1991	103	79	115	106	129	145	130	141	125	129	104	119	1,425
1992	83	81	83	86	100	122	134	119	123	129	120	120	1,300
1993	123	91	89	72	127	103	149	140	131	146	134	109	1,414
1994	106	86	82	116	111	123	126	143	132	133	123	138	1,419
1995	122	90	109	111	118	141	127	159	157	134	136	133	1,537
1996	131	98	103	98	128	135	146	121	138	135	136	136	1,505
1997	102	106	85	80	128	140	166	130	128	134	125	122	1,446
1998	116	71	97	91	113	120	133	116	123	126	117	144	1,367
1999	76	84	92	98	125	116	128	160	128	129	130	120	1,386

MOTOR VEHICLE TRAFFIC CRASH AND RELATED DATA

Year	Deaths	Injuries	Crashes	Estimated Mileage (Millions)	Motor Vehicle Registrations*	Death Rate Per 100 million miles of travel
1948	1,512	40,892	140,172	19,069.2	2,030,685	7.9
1949	1,441	41,197	143,197	19,990.4	2,203,375	7.2
1950	1,605	45,734	161,750	21,494.5	2,439,593	7.5
1951	1,640	48,418	176,587	22,668.1	2,560,652	7.2
1952	1,736	49,119	160,829	23,093.1	2,586,834	7.5
1953	1,905	57,834	184,174	25,346.9	2,808,921	7.5
1954	1,793	56,444	185,534	26,041.2	2,889,740	6.9
1955	2,016	62,234	196,812	28,282.5	3,149,323	7.1
1956	1,746	61,158	197,995	28,429.3	3,173,704	6.1
1957	1,548	60,067	191,915	29,252.2	3,256,150	5.3
1958	1,382	57,767	177,934	29,411.3	3,157,441	4.7
1959	1,473	64,873	198,771	30,679.0	3,252,492	4.8
1960	1,604	91,026	209,724	31,842.4	3,352,234	5.0
1961	1,567	93,350	199,973	32,101.5	3,395,736	4.9
1962	1,574	108,143	233,078	34,498.0	3,498,758	4.6
1963	1,887	126,896	261,794	36,452.2	3,646,080	5.2
1964	2,122	144,623	284,444	38,617.6	3,860,791	5.5
1965	2,136	155,258	310,598	40,857.4	4,066,826	5.2
1966	2,298	156,694	302,880	43,940.1	4,133,199	5.2
1967	2,137	151,297	299,004	45,053.6	4,161,573	4.7
1968	2,392	160,413	305,495	48,047.4	4,327,885	5.0
1969	2,487	175,400	331,223	50,904.9	4,560,097	4.9
1970	2,177	161,719	313,715	53,148.1	4,683,919	4.1
1971	2,152	157,664	314,015	55,539.7	4,835,146	3.9
1972	2,258	178,929	359,745	57,817.1	5,160,985	3.9
1973	2,213	169,485	350,864	58,478.4	5,442,233	3.8
1974	1,875	141,132	324,763	55,748.7	5,652,406	3.4
1975	1,811	147,299	333,560	56,260.5	5,744,441	3.2
1976	1,955	162,894	365,600	61,638.0	5,861,908	3.2
1977	1,950	166,389	374,751	64,853.0	6,138,732	3.0
1978	2,076	169,202	389,193	67,380.0	6,436,365	3.1
1979	1,849	162,571	366,435	64,882.3	6,536,246	2.8
1980	1,774	144,972	314,594	61,190.1	6,570,735	2.9
1981	1,589	136,455	302,831	62,000.0	6,140,286	2.6
1982	1,417	130,061	294,971	61,321.0	6,400,942	2.3
1983	1,331	135,811	300,797	63,560.1	6,443,499	2.1
1984	1,556	150,740	335,193	65,727.0	6,509,192	2.4
1985	1,569	157,417	386,904	68,413.0	6,857,364	2.3
1986	1,632	158,032	400,694	70,622.0	6,952,263	2.3
1987	1,632	156,318	397,224	75,715.0	7,061,339	2.2
1988	1,704	155,713	410,437	77,700.0	7,196,609	2.2
1989	1,630	154,537	417,252	79,900.0	7,233,823	2.0
1990	1,563	145,179	387,180	81,200.0	7,300,853	1.9
1991	1,425	135,830	364,847	81,900.0	7,329,789	1.7
1992	1,300	118,727	344,942	84,000.0	7,411,192	1.5
1993	1,414	134,548	363,636	85,700.0	7,495,904	1.6
1994	1,419	142,200	398,050	85,600.0	7,669,022	1.7
1995	1,537	146,303	421,073	85,699.6	7,751,336	1.8
1996	1,505	142,553	435,477	87,700.0	8,106,972	1.7
1997	1,446	137,548	425,793	89,232.0	8,115,921	1.6
1998	1,367	131,578	403,766	91,616.0	8,227,016	1.5
1999	1,386	124,601	415,675	93,060.3	8,407,868	1.5

* Excludes trailers and trailer coaches

1999
1999
1999
1999
1999
1999
1999
1999
1999
1999
1999
1999

Special Focus

Heavy Truck/ Bus
Age
Alcohol
Deer

HEAVY TRUCK/BUS

The crashes highlighted in this section all involve a heavy truck/bus – defined as having a Gross Vehicle Weight Rating (GVWR) over 10,000 lbs. These vehicles require a Commercial Driver's License (CDL).

Heavy Truck/Bus crashes differ from other vehicle crashes in a number of ways, many reflecting the size and use of the these vehicles. When compared to the overall crash picture, heavy truck/bus crashes involve:

- More turning, backing and changing lanes (see Driver Action Prior)
- More overturns and other non-collisions (see Most Harmful Event)
- Fewer single-vehicle crashes but more sideswipes (see Crash Type)
- Fewer drivers indicated to be speeding and failing to yield, but more drivers indicated to be making backing, lane use and turning errors (see Hazardous Action, Citation)
- More on road crashes (see Location of First Impact in Crash – On Road)
- More daytime crashes (see Time of Day)
- More interstate route crashes (see Roadway Type)
- More weekday crashes (see Day of Week)

HEAVY TRUCK/BUS INVOLVED CRASHES

HEAVY TRUCK/BUS 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	9,837	45.4	100	65.8	2,110	51.0
Turning left	1,849	8.5	7	4.6	312	7.5
Turning right	1,877	8.7	1	0.7	227	5.5
Stopped on roadway	1,474	6.8	11	7.2	331	8.0
In prior crash	18	0.1	2	1.3	7	0.2
Changing lanes	967	4.5	2	1.3	126	3.0
Backing	1,430	6.6	2	1.3	62	1.5
Slowing/stopping on roadway	1,390	6.4	4	2.6	377	9.1
Slowing/stopping other	24	0.1	0	0.0	6	0.1
Starting up on roadway	434	2.0	1	0.7	107	2.6
Starting up other	13	0.1	0	0.0	0	0.0
Entering parking	46	0.2	0	0.0	4	0.1
Leaving parking	57	0.3	0	0.0	5	0.1
Entering roadway	226	1.0	2	1.3	50	1.2
Leaving roadway	37	0.2	1	0.7	12	0.3
Making U-turn	48	0.2	1	0.7	7	0.2
Overtaking or passing	178	0.8	1	0.7	28	0.7
Avoiding object	22	0.1	0	0.0	8	0.2
Avoiding pedestrian	8	0.0	0	0.0	2	0.0
Avoiding vehicle (front/back)	282	1.3	6	3.9	96	2.3
Avoiding vehicle (angle)	95	0.4	1	0.7	23	0.6
Driverless moving	28	0.1	0	0.0	5	0.1
Parked	517	2.4	7	4.6	111	2.7
Crossing at intersection	0	0.0	0	0.0	0	0.0
Crossing not at intersection	1	0.0	0	0.0	1	0.0
Getting on/off vehicle	0	0.0	0	0.0	0	0.0
In roadway with traffic	1	0.0	0	0.0	1	0.0
In roadway against traffic	0	0.0	0	0.0	0	0.0
Standing/lying in roadway	2	0.0	0	0.0	1	0.0
Pushing/working on vehicle	0	0.0	0	0.0	0	0.0
Other working 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
Other	34	0.2	0	0.0	3	0.1
Unknown	770	3.6	3	2.0	114	2.8
Total	21,665	100.0	152	100.0	4,136	100.0

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	164	0.8	0	0.0	36	0.9
Cross center/median	33	0.2	0	0.0	2	0.0
Ran off road left	46	0.2	0	0.0	6	0.1
Ran off road right	58	0.3	0	0.0	20	0.5
Re-enter road	9	0.0	0	0.0	1	0.0
Overturn	293	1.4	4	2.6	148	3.6
Separation of units	146	0.7	1	0.7	18	0.4
Fire/explosion	44	0.2	1	0.7	6	0.1
Immersion	2	0.0	0	0.0	1	0.0
Jackknife	163	0.8	0	0.0	33	0.8
Downhill runaway	5	0.0	0	0.0	0	0.0
Cargo loss/shift	297	1.4	1	0.7	22	0.5
Individual fell off	12	0.1	2	1.3	3	0.1
Other noncollision	223	1.0	0	0.0	24	0.6
NONCOLLISION Subtotal	1,495	6.9	9	5.9	320	7.7

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	55	0.3	7	4.6	42	1.0
Pedalcycle	32	0.1	3	2.0	22	0.5
Motor vehicle in transport	14,840	68.5	122	80.3	3,174	76.7
Parked motor vehicle	879	4.1	1	0.7	45	1.1
Railway train	14	0.1	1	0.7	4	0.1
Animal	606	2.8	0	0.0	14	0.3
Other nonfixed objects	272	1.3	0	0.0	20	0.5
COLLISION NONFIXED Subtotal	16,698	77.1	134	88.2	3,321	80.3

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	166	0.8	1	0.7	15	0.4
Bridge parapet end	13	0.1	0	0.0	1	0.0
Bridge rail	26	0.1	1	0.7	4	0.1
Guardrail face	49	0.2	0	0.0	9	0.2
Guardrail end	11	0.1	0	0.0	1	0.0
Median barrier	57	0.3	1	0.7	22	0.5
Highway traffic sign post	72	0.3	0	0.0	1	0.0
Signal post	23	0.1	0	0.0	1	0.0
Luminaire/light support	58	0.3	0	0.0	4	0.1
Utility pole	159	0.7	0	0.0	7	0.2
Other pole	40	0.2	0	0.0	2	0.0
Culvert	8	0.0	1	0.7	3	0.1
Curb	17	0.1	0	0.0	5	0.1
Ditch	139	0.6	2	1.3	42	1.0
Embankment	42	0.2	1	0.7	14	0.3
Fence	18	0.1	0	0.0	2	0.0
Mailbox	20	0.1	0	0.0	1	0.0
Tree	110	0.5	1	0.7	29	0.7
Rail crossing signal	41	0.2	0	0.0	0	0.0
Building	21	0.1	0	0.0	2	0.0
Traffic island	1	0.0	0	0.0	0	0.0
Fire hydrant	45	0.2	0	0.0	0	0.0
Impact attenuator	1	0.0	0	0.0	0	0.0
Other fixed object	268	1.2	0	0.0	12	0.3
COLLISION FIXED Subtotal	1,405	6.5	8	5.3	177	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
Unknown Event	2,067	9.5	1	0.7	318	7.7
TOTAL MOST HARMFUL EVENT	21,665	100.0	152	100.0	4,136	100.0

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 Fatal	Number of Heavy Trucks	% of Injury
Single Vehicle	2,790	12.9	15	9.9	409	9.9
Head On	332	1.5	31	20.4	139	3.4
Head On - Left Turn	262	1.2	6	3.9	106	2.6
Angle	3,432	15.8	51	33.6	946	22.9
Rear End	4,904	22.6	28	18.4	1,416	34.2
Rear End - Left Turn	230	1.1	2	1.3	65	1.6
Rear End - Right Turn	213	1.0	1	0.7	45	1.1
Sideswipe - Same Direction	5,336	24.6	4	2.6	556	13.4
Sideswipe - Opposite Direct	1,279	5.9	5	3.3	139	3.4
Other	2,615	12.1	9	5.9	273	6.6
Unknown	272	1.3	0	0.0	42	1.0
Total	21,665	100.0	152	100.0	4,136	100.0

HAZARDOUS ACTION OF HEAVY TRUCK/BUS	Truck/Bus Crashes		Fatal Crashes		Injury Crashes		Hazardous Citation Issued	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury	Number of Heavy Trucks	% of Issued
None	9,695	44.7	99	65.1	2,068	50.0	24	0.7
Speed too fast	778	3.6	3	2.0	265	6.4	348	9.5
Speed too slow	24	0.1	0	0.0	5	0.1	10	0.3
Failed to yield	1,139	5.3	8	5.3	300	7.3	494	13.5
Disregard traffic control	308	1.4	8	5.3	112	2.7	187	5.1
Drove wrong way	8	0.0	0	0.0	2	0.0	5	0.1
Drove left of center	138	0.6	4	2.6	17	0.4	39	1.1
Improper passing	171	0.8	0	0.0	17	0.4	33	0.9
Improper lane use	1,179	5.4	1	0.7	119	2.9	336	9.2
Improper turn	911	4.2	0	0.0	74	1.8	262	7.1
Improper/no signal	47	0.2	0	0.0	3	0.1	13	0.4
Improper backing	1,241	5.7	1	0.7	51	1.2	356	9.7
Unable to stop in assured clear distance	2,013	9.3	4	2.6	620	15.0	950	25.9
Other	2,446	11.3	11	7.2	286	6.9	592	16.1
Unknown	1,567	7.2	13	8.6	197	4.8	17	0.5
Total	21,665	100.0	152	100.0	4,136	100.0	3,666	100.0

HEAVY TRUCK/BUS INVOLVED CRASHES (continued)

LOCATION OF FIRST IMPACT IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
On Road	19,802	91.4	143	94.1	3,777	91.3
Median	135	0.6	1	0.7	35	0.8
Shoulder	661	3.1	5	3.3	136	3.3
Outside of Shoulder/Curb	687	3.2	3	2.0	140	3.4
Gore	28	0.1	0	0.0	12	0.3
Other/Unknown	352	1.6	0	0.0	36	0.9
Total	21,665	100.0	152	100.0	4,136	100.0

TIME OF DAY IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
12:00 mid. - 02:59 a.m.	597	2.8	11	7.2	139	3.4
03:00 a.m. - 05:59 a.m.	689	3.2	15	9.9	167	4.0
06:00 a.m. - 08:59 a.m.	3,658	16.9	20	13.2	709	17.1
09:00 a.m. - 11:59 a.m.	4,595	21.2	24	15.8	867	21.0
12:00 noon - 02:59 p.m.	4,912	22.7	30	19.7	882	21.3
03:00 p.m. - 05:59 p.m.	4,592	21.2	24	15.8	887	21.4
06:00 p.m. - 08:59 p.m.	1,603	7.4	18	11.8	292	7.1
09:00 p.m. - 11:59 p.m.	886	4.1	10	6.6	178	4.3
Unknown	133	0.6	0	0.0	15	0.4
Total	21,665	100.0	152	100.0	4,136	100.0

ROADWAY TYPE IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
Interstate Routes	4,301	19.9	22	14.5	936	22.6
U.S. & Michigan Roads	5,674	26.2	62	40.8	1,196	28.9
County & City Roads	11,690	54.0	68	44.7	2,004	48.5
Total	21,665	100.0	152	100.0	4,136	100.0

HEAVY TRUCK/BUS INVOLVED CRASHES (continued)

DAY OF WEEK IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
Sunday	703	3.2	9	5.9	161	3.9
Monday	3,885	17.9	19	12.5	733	17.7
Tuesday	4,189	19.3	24	15.8	768	18.6
Wednesday	4,051	18.7	30	19.7	784	19.0
Thursday	3,742	17.3	28	18.4	655	15.8
Friday	3,890	18.0	29	19.1	747	18.1
Saturday	1,205	5.6	13	8.6	288	7.0
Total	21,665	100.0	152	100.0	4,136	100.0

DRIVER GENDER IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
Male	17,795	82.1	124	81.6	3,490	84.4
Female	2,127	9.8	12	7.9	405	9.8
Unknown	1,743	8.0	16	10.5	241	5.8
Total	21,665	100.0	152	100.0	4,136	100.0

NUMBER OF OCCUPANTS in Heavy Truck/Bus	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
1 occupant	16,662	76.9	112	73.7	3,144	76.0
2 occupants	1,717	7.9	21	13.8	372	9.0
3 occupants	330	1.5	3	2.0	81	2.0
4 occupants	185	0.9	1	0.7	41	1.0
5 occupants	127	0.6	2	1.3	29	0.7
6 + occupants	1,012	4.7	1	0.7	236	5.7
0 occupants	551	2.5	8	5.3	116	2.8
Unknown	1,081	5.0	4	2.6	117	2.8
Total	21,665	100.0	152	100.0	4,136	100.0

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 Fatal	Number of Vehicles	% of Injury
Passenger Car and Station Wagon	13,561	72.6	113	64.9	2,972	70.2
Van and Motorhome	1,611	8.6	13	7.5	385	9.1
Pickup	2,564	13.7	29	16.7	628	14.8
Small Truck (under 10,000 lbs.)	361	1.9	2	1.1	80	1.9
Motorcycle	28	0.1	2	1.1	20	0.5
Moped	4	0.0	0	0.0	2	0.0
Go Cart	0	0.0	0	0.0	0	0.0
Snowmobile	5	0.0	0	0.0	2	0.0
Off Road Vehicle	0	0.0	0	0.0	0	0.0
Other	94	0.5	3	1.7	24	0.6
Unknown	447	2.4	12	6.9	122	2.9
Subtotal	18,675	100.0	174	100.0	4,235	100.0

HEAVY TRUCK/BUS VEHICLE TYPES	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
Commercial Vehicle: Group A	10,488	48.4	94	61.8	2,043	49.4
Commercial Vehicle: Group B	4,625	21.3	27	17.8	969	23.4
Commercial Vehicle: Group C	628	2.9	5	3.3	122	2.9
Other Truck	1,213	5.6	9	5.9	250	6.0
Unknown Truck	4,711	21.7	17	11.2	752	18.2
Subtotal	21,665	100.0	152	100.0	4,136	100.0
Total Vehicle Types in Heavy Truck/Bus Crashes	40,340	100.0	326	100.0	8,371	100.0

Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

HEAVY TRUCK/BUS INVOLVED CRASHES (continued)

Hazardous Citation Issued	Heavy Truck/Bus				Passenger Vehicles Involved with Heavy Trucks					
	Single Vehicle Crash		Multi-Vehicle Crash		Single Vehicle Crash		Multi-Vehicle All Crashes		Multi-Vehicle Heavy Truck /Bus Involved Crash	
	Number of Vehicles	% of citation	Number of Vehicles	% of citation	Number of Vehicles	% of citation	Number of Vehicles	% of citation	Number of Vehicles	% of citation
None	5	0.7	19	0.6	93	0.5	577	0.5	20	0.7
Speed too fast	217	30.9	131	4.4	8,587	45.8	4,576	4.3	376	12.7
Speed too slow	2	0.3	8	0.3	72	0.4	365	0.3	7	0.2
Failed to yield	3	0.4	491	16.6	104	0.6	33,220	31.3	614	20.8
Disregard traffic control	22	3.1	165	5.6	150	0.8	8,270	7.8	209	7.1
Drove wrong way	1	0.1	4	0.1	28	0.1	163	0.2	8	0.3
Drove left of center	3	0.4	36	1.2	283	1.5	1,303	1.2	73	2.5
Improper passing	5	0.7	28	0.9	85	0.5	1,414	1.3	134	4.5
Improper lane use	29	4.1	307	10.4	577	3.1	4,436	4.2	314	10.6
Improper turn	53	7.5	209	7.1	101	0.5	2,941	2.8	71	2.4
Improper/no signal	50	7.1	13	0.4	8	0.0	240	0.2	5	0.2
Improper backing	37	5.3	305	10.3	1,430	7.6	1883	1.8	25	0.8
Unable to stop in assured clear distance	269	38.3	913	30.9	1,340	7.2	41,269	38.8	775	26.2
Other	4	0.6	320	10.8	5,599	29.9	5,014	4.7	308	10.4
Unknown	3	0.4	10	0.3	281	1.5	560	0.5	19	0.6
Total Cited Vehicles	703	100.0	2,959	100.0	18,738	100.0	106,231	100.0	2,958	100.0
Percent of Total Vehicles		15.5		17.3		10.9		21.8		17.6
Vehicles with No Citation Issued	3,837	84.5	14,149	82.7	152,817	89.1	380,577	78.2	13,842	82.4
Total Vehicles Involved	4,540	100.0	17,100	100.0	171,555	100.0	486,808	100.0	16,800	100.0

SPECIAL FOCUS - AGE

Drivers on Michigan Roads:

The following tables describe driver actions and crash characteristics for motor vehicle drivers age 16-24; 25-64; and 65-100. These tables are provided to demonstrate the differences in the nature of the crashes for these age groups.

Generally, younger drivers are more involved in single-vehicle type off road crashes. Older drivers are more involved in angle type crashes, and are more likely to commit "Failed to Yield" as a hazardous action while younger drivers are more likely to be speeding. Younger drivers are least likely to be alone in their car at the time of the crash.

For more information on age and the crash experience please visit the Michigan Traffic Crash Facts section of the OHSP web site www.ohsp.state.mi.us

Nationally:

According to the American Academy of Pediatrics [9], motor vehicle-related crashes remain the leading cause of death in youth from 16 through 20 years of age, resulting in more than 5,000 such deaths annually. This age group constitutes only 7 percent of the US population yet accounts for 14 percent of all motor vehicle-related deaths. Youth 16 through 19 years of age constitute 5 percent of all licensed drivers and 3 percent of all vehicle miles traveled, yet teenage drivers are involved in 15 percent of the crashes in which they or other occupants are killed. The motor vehicle fatality rate of teenagers is higher than that of any other age group; on a per-mile-driven basis, 16-year-old drivers are more than 20 times as likely to have a crash as is the general population of drivers, and 17-year-old drivers are more than 6 times as likely.

DRIVER AGE 16-24

DRIVER ACTION PRIOR TO CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Going straight ahead	89,290	54.7	357	76.1	23,614	57.3
Turning left	14,760	9.0	29	6.2	4,261	10.3
Turning right	4,616	2.8	6	1.3	777	1.9
Stopped on roadway	13,112	8.0	8	1.7	3,432	8.3
In prior crash	250	0.2	1	0.2	76	0.2
Changing lanes	3,915	2.4	11	2.3	631	1.5
Backing	3,665	2.2	0	0.0	215	0.5
Slowing/stopping on roadway	15,251	9.3	11	2.3	3,530	8.6
Slowing/stopping other	197	0.1	0	0.0	43	0.1
Starting up on roadway	3,487	2.1	7	1.5	929	2.3
Starting up other	92	0.1	0	0.0	26	0.1
Entering parking	184	0.1	2	0.4	27	0.1
Leaving parking	643	0.4	0	0.0	121	0.3
Entering roadway	3,253	2.0	7	1.5	737	1.8
Leaving roadway	422	0.3	1	0.2	162	0.4
Making U-turn	388	0.2	2	0.4	111	0.3
Overtaking or passing	1,845	1.1	12	2.6	453	1.1
Avoiding object	742	0.5	0	0.0	249	0.6
Avoiding pedestrian	45	0.0	0	0.0	19	0.0
Avoiding vehicle (front/back)	1,694	1.0	5	1.1	480	1.2
Avoiding vehicle (angle)	690	0.4	2	0.4	195	0.5
Driverless moving	29	0.0	0	0.0	4	0.0
Parked	563	0.3	0	0.0	61	0.1
Crossing at intersection	20	0.0	0	0.0	9	0.0
Crossing not at intersection	4	0.0	0	0.0	4	0.0
Getting on/off vehicle	1	0.0	0	0.0	1	0.0
In roadway with traffic	2	0.0	0	0.0	1	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	3	0.0	0	0.0	1	0.0
Other working in roadway	0	0.0	0	0.0	0	0.0
Playing in roadway	1	0.0	0	0.0	1	0.0
In roadway other reason	2	0.0	0	0.0	2	0.0
Not in roadway	2	0.0	0	0.0	1	0.0
Other	103	0.1	1	0.2	33	0.1
Unknown	3,968	2.4	7	1.5	1,038	2.5
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

DRIVER AGE 16-24 (continued)

MOST HARMFUL EVENT IN A NONCOLLISION	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Loss of control	1,716	1.1	3	0.6	489	1.2
Cross center/median	366	0.2	0	0.0	55	0.1
Ran off road left	367	0.2	1	0.2	106	0.3
Ran off road right	450	0.3	2	0.4	99	0.2
Re-enter road	143	0.1	1	0.2	52	0.1
Overturn	3,198	2.0	42	9.0	1,672	4.1
Separation of units	729	0.4	1	0.2	190	0.5
Fire/explosion	279	0.2	2	0.4	34	0.1
Immersion	131	0.1	1	0.2	54	0.1
Jackknife	52	0.0	0	0.0	8	0.0
Downhill runaway	20	0.0	0	0.0	4	0.0
Cargo loss/shift	124	0.1	0	0.0	19	0.0
Individual fell off	110	0.1	2	0.4	95	0.2
Other noncollision	443	0.3	0	0.0	86	0.2
NONCOLLISION Subtotal	8,128	5.0	55	11.7	2,963	7.2

Teens and young adults have the highest incidence of overturn in fatal crashes when compared to the other two age groups (25-64 and 65-100).

MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Pedestrian	612	0.4	31	6.6	537	1.3
Pedalcycle	474	0.3	3	0.6	373	0.9
Motor vehicle in transport	112,776	69.1	274	58.4	29,363	71.2
Parked motor vehicle	3,125	1.9	6	1.3	423	1.0
Railway train	37	0.0	0	0.0	17	0.0
Animal	11,260	6.9	0	0.0	263	0.6
Other nonfixed objects	1,175	0.7	1	0.2	133	0.3
COLLISION NONFIXED Subtotal	129,459	79.3	315	67.2	31,109	75.4

DRIVER AGE 16-24 (continued)

MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Bridge/pier/abutment	174	0.1	3	0.6	71	0.2
Bridge parapet end	44	0.0	0	0.0	9	0.0
Bridge rail	131	0.1	0	0.0	37	0.1
Guardrail face	823	0.5	0	0.0	211	0.5
Guardrail end	151	0.1	1	0.2	50	0.1
Median barrier	794	0.5	0	0.0	298	0.7
Highway traffic sign post	708	0.4	1	0.2	53	0.1
Signal post	63	0.0	0	0.0	10	0.0
Luminaire/light support	157	0.1	2	0.4	38	0.1
Utility pole	1,089	0.7	9	1.9	430	1.0
Other pole	325	0.2	1	0.2	71	0.2
Culvert	255	0.2	2	0.4	113	0.3
Curb	643	0.4	0	0.0	81	0.2
Ditch	2,596	1.6	8	1.7	798	1.9
Embankment	651	0.4	1	0.2	234	0.6
Fence	436	0.3	0	0.0	61	0.1
Mailbox	740	0.5	0	0.0	61	0.1
Tree	3,876	2.4	56	11.9	1,588	3.9
Rail crossing signal	21	0.0	0	0.0	5	0.0
Building	208	0.1	3	0.6	80	0.2
Traffic island	15	0.0	0	0.0	0	0.0
Fire hydrant	175	0.1	0	0.0	38	0.1
Impact attenuator	8	0.0	0	0.0	4	0.0
Other fixed object	895	0.5	1	0.2	193	0.5
COLLISION FIXED Subtotal	14,978	9.2	88	18.8	4,534	11.0

Teens and young adults have the highest incidence of collision with ditches and trees in crashes when compared to the other two age groups.

	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Unknown Event	10,674	6.5	11	2.3	2,638	6.4
TOTAL MOST HARMFUL EVENT	163,239	100.0	469	100.0	41,244	100.0

DRIVER AGE 16-24 (continued)

CRASH TYPE	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Single Vehicle	32,693	20.0	163	34.8	7,340	17.8
Head On	3,116	1.9	86	18.3	1,336	3.2
Head On - Left Turn	7,174	4.4	25	5.3	3,028	7.3
Angle	39,895	24.4	119	25.4	11,897	28.8
Rear End	50,581	31.0	39	8.3	13,046	31.6
Rear End - Left Turn	2,711	1.7	1	0.2	827	2.0
Rear End - Right Turn	1,432	0.9	0	0.0	238	0.6
Sideswipe - Same Direction	13,246	8.1	6	1.3	1,331	3.2
Sideswipe - Opposite Direct	4,277	2.6	7	1.5	639	1.5
Other	6,652	4.1	21	4.5	1,249	3.0
Unknown	1,462	0.9	2	0.4	313	0.8
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

Teen and young adult drivers are involved in the largest proportion of single vehicle fatal crashes when compared to the other two age groups.

HAZARDOUS ACTION	All Crashes		Fatal Crashes		Injury Crashes		Hazardous Citation Issued	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury	Number	% of Issued
None	69,618	42.6	149	31.8	15,255	37.0	199	0.4
Speed too fast	14,828	9.1	100	21.3	4,686	11.4	6,484	13.9
Speed too slow	364	0.2	0	0.0	110	0.3	173	0.4
Failed to yield	19,032	11.7	40	8.5	5,623	13.6	11,513	24.7
Disregard traffic control	4,309	2.6	33	7.0	1,914	4.6	2,877	6.2
Drove wrong way	98	0.1	1	0.2	34	0.1	46	0.1
Drove left of center	1,194	0.7	28	6.0	459	1.1	585	1.3
Improper passing	1,377	0.8	5	1.1	260	0.6	621	1.3
Improper lane use	3,267	2.0	4	0.9	457	1.1	1,587	3.4
Improper turn	2,003	1.2	1	0.2	402	1.0	1,006	2.2
Improper/no signal	251	0.2	0	0.0	34	0.1	83	0.2
Improper backing	2,747	1.7	1	0.2	100	0.2	983	2.1
Unable to stop in assured clear distance	29,504	18.1	16	3.4	7,631	18.5	16,212	34.8
Other	10,093	6.2	59	12.6	3,108	7.5	3,948	8.5
Unknown	4,554	2.8	32	6.8	1,171	2.8	309	0.7
Total Drivers	163,239	100.0	469	100.0	41,244	100.0	46,626	100.0

Compared to the other two age groups, teen and young adult drivers have the highest incidence of fatal crashes when their speed is too fast.

DRIVER AGE 16-24 (continued)

LOCATION OF FIRST IMPACT IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
On Road	144,573	88.6	335	71.4	35,256	85.5
Median	761	0.5	5	1.1	284	0.7
Shoulder	5,441	3.3	19	4.1	1,573	3.8
Outside of Shoulder/Curb	10,158	6.2	95	20.3	3,436	8.3
Gore	265	0.2	3	0.6	94	0.2
Other/Unknown	2,041	1.3	12	2.6	601	1.5
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

When compared to the other two age groups in all crashes, teen and young adult drivers have the highest incidence of crashes where the first impact is on the shoulder of the roadway or outside the shoulder/curb.

TIME OF DAY IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
12:00 mid. - 02:59 a.m.	8,510	5.2	92	19.6	2,381	5.8
03:00 a.m. - 05:59 a.m.	3,939	2.4	29	6.2	1,100	2.7
06:00 a.m. - 08:59 a.m.	16,742	10.3	47	10.0	3,943	9.6
09:00 a.m. - 11:59 a.m.	16,323	10.0	32	6.8	4,177	10.1
12:00 noon - 02:59 p.m.	29,736	18.2	57	12.2	7,687	18.6
03:00 p.m. - 05:59 p.m.	43,313	26.5	69	14.7	11,117	27.0
06:00 p.m. - 08:59 p.m.	26,101	16.0	82	17.5	6,399	15.5
09:00 p.m. - 11:59 p.m.	17,538	10.7	59	12.6	4,234	10.3
Unknown	1,037	0.6	2	0.4	206	0.5
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

6:00 PM to 2:59 AM shows the highest involvement for teen and young adult drivers in all crashes compared to the other two age groups.

ROADWAY TYPE IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Interstate Routes	12,327	7.6	37	7.9	3,178	7.7
U.S. & Michigan Roads	39,132	24.0	133	28.4	9,992	24.2
County & City Roads	111,780	68.5	299	63.8	28,074	68.1
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

Teen and young adult drivers have a higher rate of incidence in fatal crashes on County and City roads than the other two age groups.

DRIVER AGE 16-24 (continued)

DAY OF WEEK IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Sunday	16,952	10.4	94	20.0	4,625	11.2
Monday	22,940	14.1	42	9.0	5,607	13.6
Tuesday	23,835	14.6	54	11.5	5,922	14.4
Wednesday	24,010	14.7	62	13.2	5,954	14.4
Thursday	23,511	14.4	45	9.6	5,851	14.2
Friday	30,660	18.8	78	16.6	7,646	18.5
Saturday	21,331	13.1	94	20.0	5,639	13.7
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

The weekend shows higher involvement of teen and young adult drivers in all crashes and fatal crashes when compared to the other two age groups.

DRIVER GENDER IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Male	93,441	57.2	337	71.9	22,545	54.7
Female	67,552	41.4	125	26.7	18,124	43.9
Unknown	2,246	1.4	7	1.5	575	1.4
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

NUMBER OF OCCUPANTS IN CAR	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
1 occupant	106,146	65.0	231	49.3	24,501	59.4
2 occupants	37,484	23.0	122	26.0	10,606	25.7
3 occupants	10,758	6.6	67	14.3	3,437	8.3
4 occupants	4,202	2.6	32	6.8	1,466	3.6
5 occupants	1,110	0.7	11	2.3	415	1.0
6 + occupants	435	0.3	3	0.6	180	0.4
0 occupants	1,418	0.9	2	0.4	254	0.6
Unknown	1,686	1.0	1	0.2	385	0.9
Total Drivers	163,239	100.0	469	100.0	41,244	100.0

DRIVER AGE 16-24 (continued)

VEHICLE TYPE CRASH INVOLVEMENT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Passenger Car and Station Wagon	126,547	77.5	342	72.9	32,455	78.7
Van and Motorhome	5,899	3.6	13	2.8	1,545	3.7
Pickup	25,346	15.5	81	17.3	5,554	13.5
Small Truck (under 10,000 lbs.)	2,652	1.6	3	0.6	647	1.6
Motorcycle	560	0.3	14	3.0	432	1.0
Moped	44	0.0	0	0.0	37	0.1
Go Cart	3	0.0	0	0.0	2	0.0
Snowmobile	93	0.1	1	0.2	62	0.2
Off Road Vehicle	76	0.0	4	0.9	62	0.2
Other	215	0.1	2	0.4	53	0.1
Unknown	712	0.4	2	0.4	170	0.4
CDL Truck/Bus (breakdown below)	1,092	0.7	7	1.5	225	0.5
Total Number of Drivers	163,239	100.0	469	100.0	41,244	100.0

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Commercial Vehicle: Group A	349	32.0	2	28.6	73	32.4
Commercial Vehicle: Group B	294	26.9	3	42.9	64	28.4
Commercial Vehicle: Group C	51	4.7	1	14.3	10	4.4
Other Truck	176	16.1	0	0.0	43	19.1
Unknown Truck	222	20.3	1	14.3	35	15.6
Total Number of Drivers	1,092	100.0	7	100.0	225	100.0

Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

DRIVER AGE 25-64

DRIVER ACTION PRIOR TO CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Going straight ahead	218,454	53.8	856	73.6	50,213	52.8
Turning left	28,616	7.0	52	4.5	7,892	8.3
Turning right	11,268	2.8	9	0.8	1,893	2.0
Stopped on roadway	49,033	12.1	44	3.8	13,944	14.7
In prior crash	504	0.1	1	0.1	173	0.2
Changing lanes	8,405	2.1	20	1.7	1,292	1.4
Backing	10,720	2.6	3	0.3	525	0.6
Slowing/stopping on roadway	38,227	9.4	26	2.2	9,643	10.1
Slowing/stopping other	527	0.1	4	0.3	123	0.1
Starting up on roadway	8,068	2.0	15	1.3	2,109	2.2
Starting up other	216	0.1	0	0.0	56	0.1
Entering parking	525	0.1	0	0.0	60	0.1
Leaving parking	1,408	0.3	3	0.3	264	0.3
Entering roadway	5,662	1.4	13	1.1	1,276	1.3
Leaving roadway	688	0.2	15	1.3	217	0.2
Making U-turn	852	0.2	3	0.3	226	0.2
Overtaking or passing	3,160	0.8	22	1.9	626	0.7
Avoiding object	969	0.2	4	0.3	261	0.3
Avoiding pedestrian	106	0.0	4	0.3	48	0.1
Avoiding vehicle (front/back)	3,455	0.9	32	2.8	941	1.0
Avoiding vehicle (angle)	1,526	0.4	7	0.6	433	0.5
Driverless moving	92	0.0	0	0.0	14	0.0
Parked	2,631	0.6	5	0.4	221	0.2
Crossing at intersection	26	0.0	0	0.0	13	0.0
Crossing not at intersection	17	0.0	0	0.0	13	0.0
Getting on/off vehicle	2	0.0	0	0.0	0	0.0
In roadway with traffic	4	0.0	1	0.1	3	0.0
In roadway against traffic	5	0.0	0	0.0	3	0.0
Standing/lying in roadway	8	0.0	0	0.0	3	0.0
Pushing/working on vehicle	6	0.0	0	0.0	2	0.0
Other working in roadway	2	0.0	0	0.0	0	0.0
Playing in roadway	0	0.0	0	0.0	0	0.0
In roadway other reason	3	0.0	0	0.0	2	0.0
Not in roadway	2	0.0	0	0.0	0	0.0
Other	264	0.1	3	0.3	70	0.1
Unknown	10,827	2.7	21	1.8	2,483	2.6
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

DRIVER AGE 25-64 (continued)

MOST HARMFUL EVENT IN A NONCOLLISION	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Loss of control	3,385	0.8	4	0.3	877	0.9
Cross center/median	1,103	0.3	0	0.0	137	0.1
Ran off road left	556	0.1	1	0.1	143	0.2
Ran off road right	906	0.2	3	0.3	246	0.3
Re-enter road	210	0.1	0	0.0	52	0.1
Overturn	4,374	1.1	63	5.4	2,332	2.5
Separation of units	1,823	0.4	5	0.4	439	0.5
Fire/explosion	574	0.1	4	0.3	82	0.1
Immersion	123	0.0	2	0.2	37	0.0
Jackknife	236	0.1	0	0.0	33	0.0
Downhill runaway	39	0.0	0	0.0	8	0.0
Cargo loss/shift	554	0.1	1	0.1	54	0.1
Individual fell off	218	0.1	8	0.7	167	0.2
Other noncollision	1,243	0.3	3	0.3	216	0.2
NONCOLLISION Subtotal	15,344	3.8	94	8.1	4,823	5.1

MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Pedestrian	1,455	0.4	98	8.4	1,198	1.3
Pedalcycle	1,397	0.3	17	1.5	1,071	1.1
Motor vehicle in transport	278,138	68.5	741	63.7	72,613	76.4
Parked motor vehicle	7,215	1.8	11	0.9	785	0.8
Railway train	88	0.0	5	0.4	38	0.0
Animal	45,936	11.3	2	0.2	919	1.0
Other nonfixed objects	4,244	1.0	5	0.4	429	0.5
COLLISION NONFIXED Subtotal	338,473	83.3	879	75.6	77,053	81.1

DRIVER AGE 25-64 (continued)

MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Bridge/pier/abutment	380	0.1	4	0.3	90	0.1
Bridge parapet end	88	0.0	0	0.0	14	0.0
Bridge rail	232	0.1	1	0.1	59	0.1
Guardrail face	1,439	0.4	5	0.4	388	0.4
Guardrail end	216	0.1	1	0.1	82	0.1
Median barrier	1,637	0.4	4	0.3	600	0.6
Highway traffic sign post	1,206	0.3	4	0.3	106	0.1
Signal post	156	0.0	1	0.1	23	0.0
Luminaire/light support	286	0.1	5	0.4	76	0.1
Utility pole	1,631	0.4	14	1.2	649	0.7
Other pole	534	0.1	2	0.2	117	0.1
Culvert	338	0.1	3	0.3	127	0.1
Curb	956	0.2	1	0.1	160	0.2
Ditch	3,629	0.9	18	1.5	1,142	1.2
Embankment	941	0.2	10	0.9	336	0.4
Fence	551	0.1	1	0.1	98	0.1
Mailbox	965	0.2	1	0.1	72	0.1
Tree	4,853	1.2	70	6.0	1,815	1.9
Rail crossing signal	68	0.0	0	0.0	4	0.0
Building	318	0.1	4	0.3	142	0.1
Traffic island	24	0.0	0	0.0	7	0.0
Fire hydrant	249	0.1	2	0.2	58	0.1
Impact attenuator	22	0.0	0	0.0	8	0.0
Other fixed object	1,877	0.5	10	0.9	408	0.4
COLLISION FIXED Subtotal	22,596	5.6	161	13.8	6,581	6.9

	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Unknown Event	29,865	7.4	29	2.5	6,585	6.9
TOTAL MOST HARMFUL EVENT	406,278	100.0	1,163	100.0	95,042	100.0

DRIVER AGE 25-64 (continued)

CRASH TYPE	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Single Vehicle	80,188	19.7	323	27.8	11,318	11.9
Head On	7,296	1.8	219	18.8	3,056	3.2
Head On - Left Turn	14,887	3.7	57	4.9	6,052	6.4
Angle	92,007	22.6	349	30.0	27,009	28.4
Rear End	129,835	32.0	115	9.9	35,911	37.8
Rear End - Left Turn	5,462	1.3	7	0.6	1,645	1.7
Rear End - Right Turn	4,271	1.1	2	0.2	773	0.8
Sideswipe - Same Direction	36,481	9.0	17	1.5	3,633	3.8
Sideswipe - Opposite Direct	11,541	2.8	22	1.9	1,601	1.7
Other	20,112	5.0	49	4.2	3,317	3.5
Unknown	4,198	1.0	3	0.3	727	0.8
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

HAZARDOUS ACTION	All Crashes		Fatal Crashes		Injury Crashes		Hazardous Citation Issued	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury	Number	% of Issued
None	237,321	58.4	549	47.2	51,274	53.9	448	0.6
Speed too fast	18,459	4.5	135	11.6	5,744	6.0	6,373	9.1
Speed too slow	655	0.2	0	0.0	169	0.2	248	0.4
Failed to yield	32,207	7.9	74	6.4	9,314	9.8	17,446	24.9
Disregard traffic control	7,895	1.9	57	4.9	3,335	3.5	4,600	6.6
Drove wrong way	268	0.1	9	0.8	92	0.1	112	0.2
Drove left of center	2,123	0.5	67	5.8	796	0.8	906	1.3
Improper passing	2,409	0.6	7	0.6	341	0.4	906	1.3
Improper lane use	7,800	1.9	12	1.0	1,057	1.1	3,188	4.6
Improper turn	4,389	1.1	2	0.2	829	0.9	1,714	2.4
Improper/no signal	525	0.1	1	0.1	72	0.1	148	0.2
Improper backing	8,194	2.0	2	0.2	290	0.3	2,316	3.3
Unable to stop in assured clear distance	51,418	12.7	52	4.5	13,348	14.0	24,655	35.2
Other	19,941	4.9	105	9.0	5,477	5.8	6,432	9.2
Unknown	12,674	3.1	91	7.8	2,904	3.1	489	0.7
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0	69,981	100.0

DRIVER AGE 25-64 (continued)

LOCATION OF FIRST IMPACT IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
On Road	377,212	92.8	937	80.6	86,571	91.1
Median	1,613	0.4	17	1.5	572	0.6
Shoulder	8,702	2.1	56	4.8	2,290	2.4
Outside of Shoulder/Curb	13,830	3.4	131	11.3	4,466	4.7
Gore	442	0.1	4	0.3	149	0.2
Other/Unknown	4,479	1.1	18	1.5	994	1.0
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

TIME OF DAY IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
12:00 mid. - 02:59 a.m.	13,612	3.4	139	12.0	3,475	3.7
03:00 a.m. - 05:59 a.m.	12,483	3.1	71	6.1	2,235	2.4
06:00 a.m. - 08:59 a.m.	57,765	14.2	116	10.0	12,056	12.7
09:00 a.m. - 11:59 a.m.	51,211	12.6	119	10.2	12,325	13.0
12:00 noon - 02:59 p.m.	74,223	18.3	181	15.6	18,856	19.8
03:00 p.m. - 05:59 p.m.	104,858	25.8	191	16.4	26,100	27.5
06:00 p.m. - 08:59 p.m.	58,797	14.5	190	16.3	12,708	13.4
09:00 p.m. - 11:59 p.m.	30,628	7.5	145	12.5	6,685	7.0
Unknown	2,701	0.7	11	0.9	602	0.6
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

ROADWAY TYPE IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Interstate Routes	38,105	9.4	120	10.3	9,506	10.0
U.S. & Michigan Roads	104,238	25.7	383	32.9	24,889	26.2
County & City Roads	263,935	65.0	660	56.7	60,647	63.8
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

DRIVER AGE 25-64 (continued)

DAY OF WEEK IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Sunday	35,009	8.6	161	13.8	8,828	9.3
Monday	60,703	14.9	138	11.9	13,664	14.4
Tuesday	63,483	15.6	135	11.6	14,548	15.3
Wednesday	62,511	15.4	179	15.4	14,227	15.0
Thursday	61,569	15.2	139	12.0	14,225	15.0
Friday	74,562	18.4	207	17.8	17,638	18.6
Saturday	48,441	11.9	204	17.5	11,912	12.5
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

DRIVER GENDER IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Male	233,279	57.4	812	69.8	51,986	54.7
Female	166,759	41.0	335	28.8	41,653	43.8
Unknown	6,240	1.5	16	1.4	1,403	1.5
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

NUMBER OF OCCUPANTS IN CAR	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
1 occupant	296,413	73.0	772	66.4	64,942	68.3
2 occupants	65,953	16.2	245	21.1	18,157	19.1
3 occupants	20,290	5.0	74	6.4	6,006	6.3
4 occupants	8,684	2.1	40	3.4	2,613	2.7
5 occupants	3,054	0.8	10	0.9	907	1.0
6 + occupants	2,387	0.6	9	0.8	696	0.7
0 occupants	4,793	1.2	5	0.4	728	0.8
Unknown	4,704	1.2	8	0.7	993	1.0
Total Drivers	406,278	100.0	1,163	100.0	95,042	100.0

DRIVER AGE 25-64 (continued)

VEHICLE TYPE CRASH INVOLVEMENT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Passenger Car and Station Wagon	265,875	65.4	636	54.7	64,122	67.5
Van and Motorhome	39,613	9.8	93	8.0	9,253	9.7
Pickup	70,302	17.3	222	19.1	14,192	14.9
Small Truck (under 10,000 lbs.)	10,416	2.6	24	2.1	2,191	2.3
Motorcycle	1,935	0.5	61	5.2	1,473	1.5
Moped	121	0.0	4	0.3	76	0.1
Go Cart	1	0.0	0	0.0	1	0.0
Snowmobile	235	0.1	8	0.7	145	0.2
Off Road Vehicle	82	0.0	2	0.2	55	0.1
Other	1,301	0.3	8	0.7	260	0.3
Unknown	2,294	0.6	3	0.3	491	0.5
CDL Truck/Bus (breakdown below)	14,103	3.5	102	8.8	2,783	2.9
Total Number of Drivers	406,278	100.0	1,163	100.0	95,042	100.0

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Commercial Vehicle: Group A	6,385	45.3	59	57.8	1,217	43.7
Commercial Vehicle: Group B	3,839	27.2	22	21.6	806	29.0
Commercial Vehicle: Group C	513	3.6	3	2.9	99	3.6
Other Truck	872	6.2	9	8.8	179	6.4
Unknown Truck	2,494	17.7	9	8.8	482	17.3
Total Number of Drivers	14,103	100.0	102	100.0	2,783	100.0

Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

DRIVER AGE 65-100

DRIVER ACTION PRIOR TO CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Going straight ahead	22,897	49.2	163	64.7	5,807	50.1
Turning left	5,793	12.5	31	12.3	1,730	14.9
Turning right	1,797	3.9	2	0.8	266	2.3
Stopped on roadway	4,318	9.3	9	3.6	1,272	11.0
In prior crash	56	0.1	0	0.0	27	0.2
Changing lanes	1,304	2.8	3	1.2	142	1.2
Backing	1,566	3.4	0	0.0	83	0.7
Slowing/stopping on roadway	3,270	7.0	7	2.8	934	8.1
Slowing/stopping other	56	0.1	1	0.4	14	0.1
Starting up on roadway	1,256	2.7	17	6.7	363	3.1
Starting up other	42	0.1	0	0.0	13	0.1
Entering parking	119	0.3	0	0.0	16	0.1
Leaving parking	309	0.7	1	0.4	61	0.5
Entering roadway	1,266	2.7	5	2.0	327	2.8
Leaving roadway	72	0.2	0	0.0	28	0.2
Making U-turn	189	0.4	1	0.4	47	0.4
Overtaking or passing	337	0.7	3	1.2	41	0.4
Avoiding object	46	0.1	0	0.0	9	0.1
Avoiding pedestrian	10	0.0	1	0.4	5	0.0
Avoiding vehicle (front/back)	226	0.5	0	0.0	51	0.4
Avoiding vehicle (angle)	108	0.2	0	0.0	31	0.3
Driverless moving	11	0.0	0	0.0	3	0.0
Parked	241	0.5	0	0.0	11	0.1
Crossing at intersection	3	0.0	0	0.0	3	0.0
Crossing not at intersection	6	0.0	1	0.4	2	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	1	0.0	0	0.0	1	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 working 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	1	0.0	0	0.0	0	0.0
Other	22	0.0	0	0.0	8	0.1
Unknown	1,197	2.6	7	2.8	291	2.5
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

DRIVER AGE 65-100 (continued)

MOST HARMFUL EVENT IN A NONCOLLISION	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Loss of control	395	0.8	4	1.6	85	0.7
Cross center/median	125	0.3	0	0.0	24	0.2
Ran off road left	58	0.1	0	0.0	16	0.1
Ran off road right	79	0.2	0	0.0	23	0.2
Re-enter road	16	0.0	0	0.0	7	0.1
Overturn	215	0.5	7	2.8	120	1.0
Separation of units	200	0.4	0	0.0	38	0.3
Fire/explosion	44	0.1	0	0.0	4	0.0
Immersion	11	0.0	1	0.4	5	0.0
Jackknife	15	0.0	0	0.0	3	0.0
Downhill runaway	3	0.0	0	0.0	0	0.0
Cargo loss/shift	25	0.1	0	0.0	2	0.0
Individual fell off	13	0.0	0	0.0	9	0.1
Other noncollision	84	0.2	0	0.0	17	0.1
NONCOLLISION Subtotal	1,283	2.8	12	4.8	353	3.0

MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Pedestrian	189	0.4	9	3.6	156	1.3
Pedalcycle	224	0.5	0	0.0	181	1.6
Motor vehicle in transport	34,717	74.6	195	77.4	9,334	80.6
Parked motor vehicle	1,204	2.6	1	0.4	129	1.1
Railway train	12	0.0	1	0.4	4	0.0
Animal	3,367	7.2	0	0.0	67	0.6
Other nonfixed objects	360	0.8	0	0.0	32	0.3
COLLISION NONFIXED Subtotal	40,073	86.1	206	81.7	9,903	85.5

DRIVER AGE 65-100 (continued)

MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Bridge/pier/abutment	14	0.0	0	0.0	3	0.0
Bridge parapet end	17	0.0	0	0.0	1	0.0
Bridge rail	10	0.0	0	0.0	4	0.0
Guardrail face	99	0.2	1	0.4	28	0.2
Guardrail end	17	0.0	0	0.0	6	0.1
Median barrier	64	0.1	1	0.4	21	0.2
Highway traffic sign post	129	0.3	0	0.0	11	0.1
Signal post	20	0.0	1	0.4	4	0.0
Luminaire/light support	31	0.1	1	0.4	10	0.1
Utility pole	144	0.3	2	0.8	64	0.6
Other pole	50	0.1	0	0.0	8	0.1
Culvert	25	0.1	0	0.0	13	0.1
Curb	71	0.2	0	0.0	17	0.1
Ditch	221	0.5	0	0.0	72	0.6
Embankment	71	0.2	1	0.4	25	0.2
Fence	61	0.1	0	0.0	10	0.1
Mailbox	100	0.2	0	0.0	6	0.1
Tree	392	0.8	18	7.1	163	1.4
Rail crossing signal	10	0.0	0	0.0	0	0.0
Building	74	0.2	1	0.4	40	0.3
Traffic island	2	0.0	0	0.0	0	0.0
Fire hydrant	17	0.0	0	0.0	4	0.0
Impact attenuator	0	0.0	0	0.0	0	0.0
Other fixed object	144	0.3	1	0.4	32	0.3
COLLISION FIXED Subtotal	1,783	3.8	27	10.7	542	4.7

	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Total	Number	% of Total
Unknown Event	3,380	7.3	7	2.8	788	6.8
TOTAL MOST HARMFUL EVENT	46,519	100.0	252	100.0	11,586	100.0

DRIVER AGE 65-100 (continued)

CRASH TYPE	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Single Vehicle	5,990	12.9	41	16.3	881	7.6
Head On	729	1.6	29	11.5	324	2.8
Head On - Left Turn	2,556	5.5	24	9.5	1,059	9.1
Angle	15,193	32.7	114	45.2	4,380	37.8
Rear End	11,754	25.3	24	9.5	3,631	31.3
Rear End - Left Turn	587	1.3	0	0.0	176	1.5
Rear End - Right Turn	357	0.8	1	0.4	61	0.5
Sideswipe - Same Direction	4,965	10.7	4	1.6	404	3.5
Sideswipe - Opposite Direct	1,457	3.1	9	3.6	178	1.5
Other	2,382	5.1	5	2.0	385	3.3
Unknown	549	1.2	1	0.4	107	0.9
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

Elderly drivers have the highest incidence of angle type crashes when compared to the other two age groups (16-24 and 25-64) in all crashes and fatal crashes.

HAZARDOUS ACTION	All Crashes		Fatal Crashes		Injury Crashes		Hazardous Citation Issued	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury	Number	% of Issued
None	22,070	47.4	82	32.5	5,010	43.2	42	0.4
Speed too fast	1,003	2.2	10	4.0	288	2.5	296	3.0
Speed too slow	80	0.2	0	0.0	26	0.2	22	0.2
Failed to yield	8,460	18.2	64	25.4	2,494	21.5	4,223	43.4
Disregard traffic control	1,643	3.5	23	9.1	673	5.8	922	9.5
Drove wrong way	54	0.1	2	0.8	22	0.2	31	0.3
Drove left of center	331	0.7	16	6.3	121	1.0	131	1.3
Improper passing	294	0.6	2	0.8	34	0.3	87	0.9
Improper lane use	1,497	3.2	0	0.0	143	1.2	555	5.7
Improper turn	940	2.0	2	0.8	191	1.6	394	4.1
Improper/no signal	78	0.2	0	0.0	8	0.1	22	0.2
Improper backing	1,239	2.7	0	0.0	48	0.4	237	2.4
Unable to stop in assured clear distance	4,999	10.7	16	6.3	1,593	13.7	2,196	22.6
Other	2,227	4.8	17	6.7	561	4.8	519	5.3
Unknown	1,604	3.4	18	7.1	374	3.2	43	0.4
Total Drivers	46,519	100.0	252	100.0	11,586	100.0	9,720	100.0

Compared to the other two age groups, elderly drivers have the highest incidence of failed to yield, disregard of traffic contol, improper lane use, improper turn, and improper backing as a hazardous action in all crashes.

DRIVER AGE 65-100 (continued)

LOCATION OF FIRST IMPACT IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
On Road	44,015	94.6	220	87.3	10,869	93.8
Median	119	0.3	2	0.8	43	0.4
Shoulder	724	1.6	6	2.4	157	1.4
Outside of Shoulder/Curb	1,145	2.5	19	7.5	381	3.3
Gore	34	0.1	0	0.0	7	0.1
Other/Unknown	482	1.0	5	2.0	129	1.1
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

TIME OF DAY IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
12:00 mid. - 02:59 a.m.	417	0.9	4	1.6	87	0.8
03:00 a.m. - 05:59 a.m.	360	0.8	4	1.6	74	0.6
06:00 a.m. - 08:59 a.m.	3,394	7.3	16	6.3	783	6.8
09:00 a.m. - 11:59 a.m.	9,825	21.1	59	23.4	2,422	20.9
12:00 noon - 02:59 p.m.	12,665	27.2	77	30.6	3,407	29.4
03:00 p.m. - 05:59 p.m.	12,300	26.4	50	19.8	3,220	27.8
06:00 p.m. - 08:59 p.m.	5,227	11.2	28	11.1	1,158	10.0
09:00 p.m. - 11:59 p.m.	2,009	4.3	13	5.2	366	3.2
Unknown	322	0.7	1	0.4	69	0.6
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

9:00 AM to 2:59 PM shows the highest involvement for elderly drivers compared to the other two age groups.

ROADWAY TYPE IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Interstate Routes	2,650	5.7	9	3.6	682	5.9
U.S. & Michigan Roads	12,582	27.0	98	38.9	3,217	27.8
County & City Roads	31,287	67.3	145	57.5	7,687	66.3
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

Elderly drivers have a higher rate of incidence in fatal crashes on U.S. and Michigan roads than the other two age groups.

DRIVER AGE 65-100 (continued)

DAY of WEEK IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Sunday	3,979	8.6	33	13.1	1,062	9.2
Monday	7,030	15.1	36	14.3	1,699	14.7
Tuesday	7,462	16.0	40	15.9	1,853	16.0
Wednesday	7,251	15.6	41	16.3	1,799	15.5
Thursday	7,131	15.3	31	12.3	1,703	14.7
Friday	8,331	17.9	37	14.7	2,115	18.3
Saturday	5,335	11.5	34	13.5	1,355	11.7
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

DRIVER GENDER IN CRASH	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Male	27,130	58.3	155	61.5	6,576	56.8
Female	18,755	40.3	93	36.9	4,852	41.9
Unknown	634	1.4	4	1.6	158	1.4
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

NUMBER OF OCCUPANTS IN CAR	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
1 occupant	33,786	72.6	169	67.1	8,031	69.3
2 occupants	10,082	21.7	70	27.8	2,822	24.4
3 occupants	1,173	2.5	8	3.2	386	3.3
4 occupants	392	0.8	4	1.6	112	1.0
5 occupants	88	0.2	0	0.0	33	0.3
6 + occupants	88	0.2	0	0.0	23	0.2
0 occupants	426	0.9	1	0.4	65	0.6
Unknown	484	1.0	0	0.0	114	1.0
Total Drivers	46,519	100.0	252	100.0	11,586	100.0

DRIVER AGE 65-100 (continued)

VEHICLE TYPE CRASH INVOLVEMENT	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Passenger Car and Station Wagon	37,148	79.9	195	77.4	9,431	81.4
Van and Motorhome	3,462	7.4	20	7.9	840	7.3
Pickup	4,696	10.1	29	11.5	1,022	8.8
Small Truck (under 10,000 lbs.)	570	1.2	2	0.8	124	1.1
Motorcycle	28	0.1	3	1.2	24	0.2
Moped	6	0.0	1	0.4	4	0.0
Go Cart	0	0.0	0	0.0	0	0.0
Snowmobile	4	0.0	0	0.0	2	0.0
Off Road Vehicle	3	0.0	0	0.0	3	0.0
Other	55	0.1	0	0.0	9	0.1
Unknown	212	0.5	1	0.4	57	0.5
CDL Truck/Bus (breakdown below)	335	0.7	1	0.4	70	0.6
Total Number of Drivers	46,519	100.0	252	100.0	11,586	100.0

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Drivers	% of Total	Number	% of Fatal	Number	% of Injury
Commercial Vehicle: Group A	125	37.3	0	0.0	26	37.1
Commercial Vehicle: Group B	92	27.5	0	0.0	17	24.3
Commercial Vehicle: Group C	26	7.8	0	0.0	5	7.1
Other Truck	21	6.3	0	0.0	7	10.0
Unknown Truck	71	21.2	1	100.0	15	21.4
Total Number of Drivers	335	100.0	1	100.0	70	100.0

Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

INJURY EXPERIENCE FOR PERSONS WHO HAD BEEN DRINKING

Alcohol and/or drug use affects the judgment and behavior of persons in addition to motor vehicle drivers. Consider the experience of drinking bicyclists, pedestrians, motorcyclists, snowmobilers, and ORV/ATV riders, when looking at crash statistics. Alcohol should not be used by anyone intending to navigate a roadway.

BICYCLIST	Total	Drinking in Crash	Drinking Bicyclist
Bicyclists Killed	25	8	5
Bicyclists Injured	2,236	104	73
Bicyclists in Crashes	2,797	127	90

PEDESTRIAN	Total	Drinking in Crash	Drinking Pedestrian
Pedestrians Killed	176	82	68
Pedestrians Injured	3108	287	190
Pedestrians in Crashes	3,677	387	272

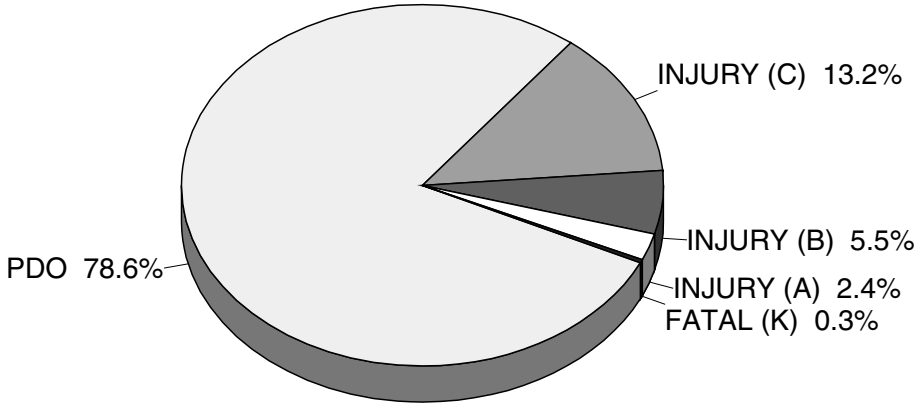
MOTORCYCLIST	Total	Drinking in Crash	Drinking Motorcyclist
Motorcyclists Killed	77	35	32
Motorcyclists Injured	2,383	289	253
Motorcyclists in Crashes	3,215	377	326

SNOWMOBILER *	Total	Drinking in Crash	Drinking Snowmobiler
Snowmobilers Killed	10	7	7
Snowmobilers Injured	271	83	72
Snowmobilers in Crashes	489	117	102

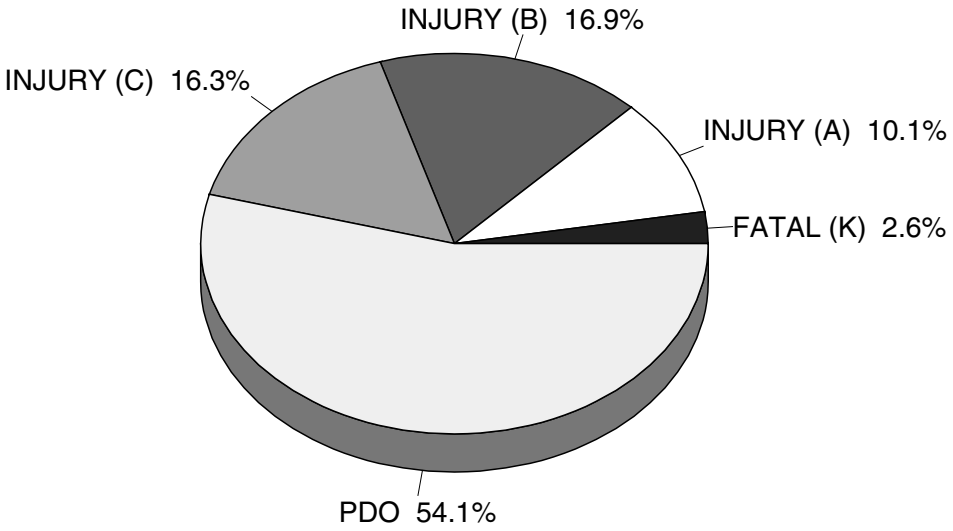
ORV/ATV RIDER *	Total	Drinking in Crash	Drinking ORV/ATV Rider
ORV/ATV Rider Killed	4	3	3
ORV/ATV Rider Injured	177	26	23
ORV/ATV Rider in Crashes	254	36	30

* on Michigan public roadways

ALL CRASHES BY INJURY SEVERITY

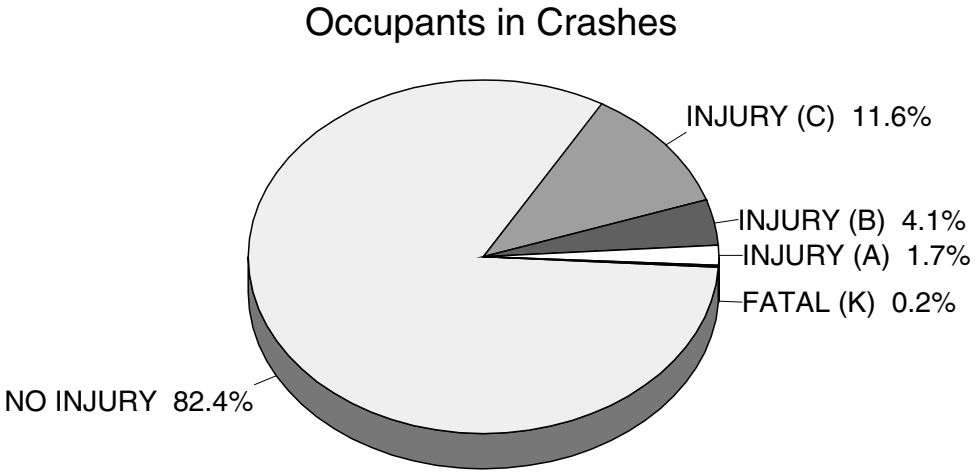


HBD CRASHES BY INJURY SEVERITY

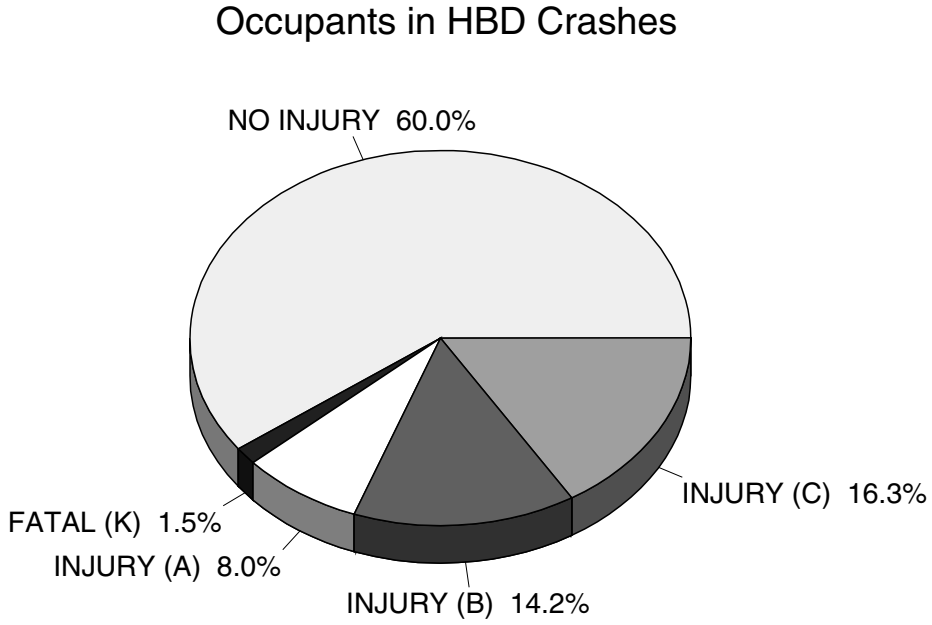


The problem of the drinking driver, pedestrian, and/or cyclist is seen when one compares the two charts on this page. A fatality in the crash is eight times more likely when one of the crash-involved operators is reported as had been drinking.

DEATH & INJURY PER CRASH INVOLVED OCCUPANT



The majority of occupants involved in crashes are not injured (82.4%). Two thirds of those who are injured receive only minor (C) injuries. Increased use of occupant restraints and airbags can reduce the number of killed and injured even further.

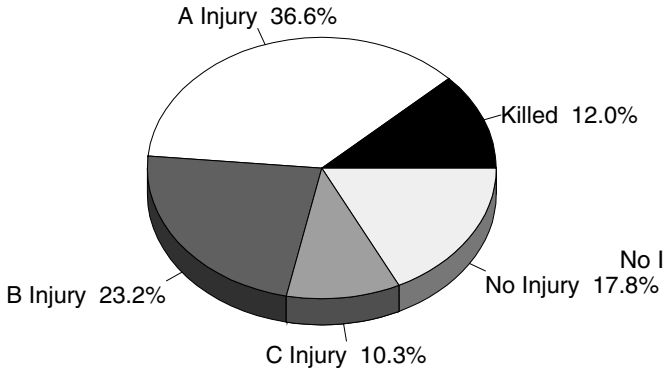


Crashes involving drinking tend to be more serious than nondrinking crashes. The percentage of fatalities is seven times higher than in all crashes and the more serious injury levels are almost four times higher.

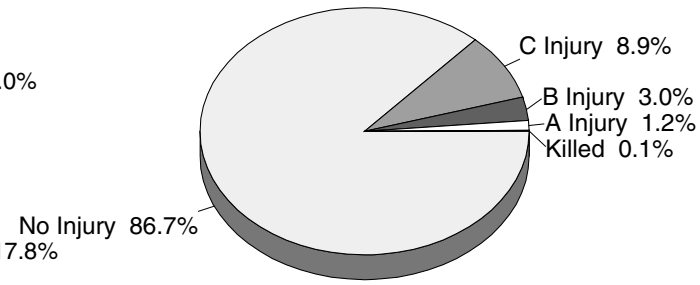
ALL DRIVERS and *HBD DRIVERS*
INJURY SEVERITY - EJECTED vs. NOT EJECTED

As can be seen in the two charts below, death and injury are much more likely when drivers are ejected from their vehicles.

Ejected

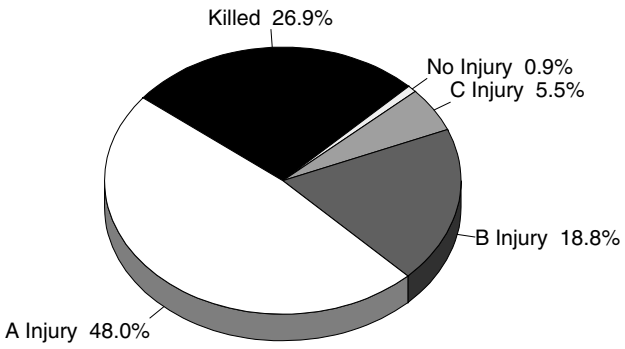


Not Ejected

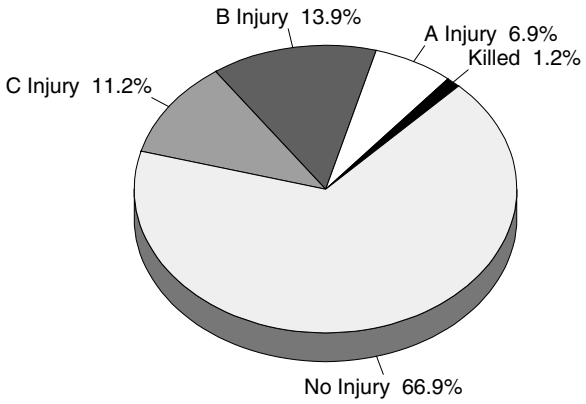


When compared to the charts above, the charts below demonstrate that the injury severity is much worse for drivers who had been drinking in both ejected, and nonejected events.

HBD Ejected

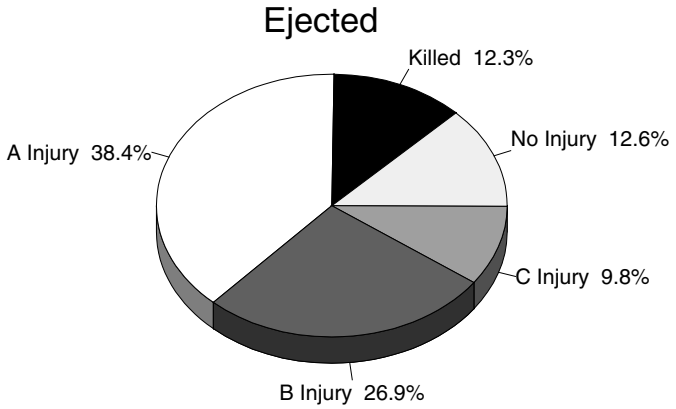


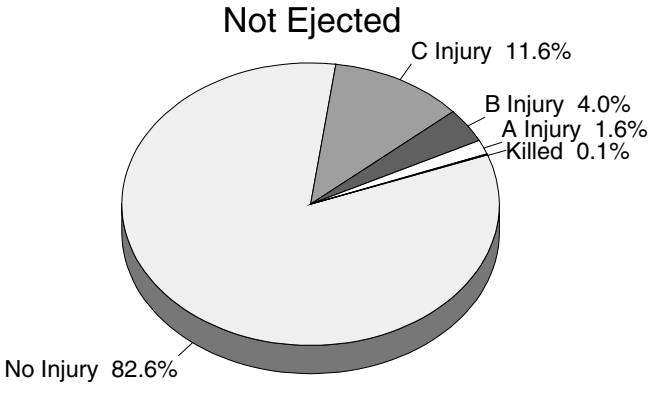
HBD Not Ejected



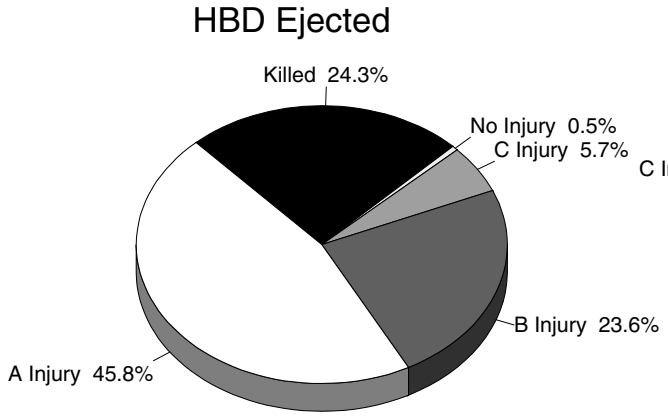
ALL OCCUPANTS and *OCCUPANTS of HBD CRASHES*
INJURY SEVERITY - EJECTED vs. NOT EJECTED

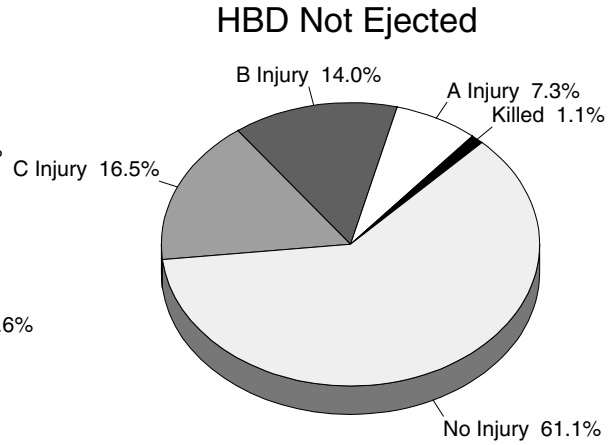
As can be seen in the two charts below, death and injury are much more likely when occupants are ejected from their vehicles.



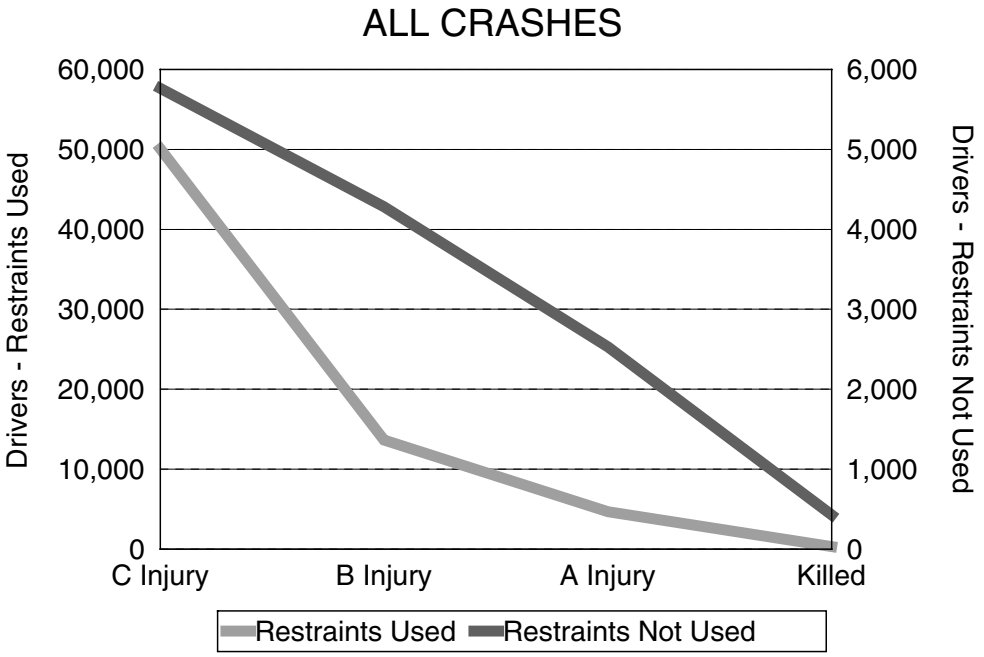


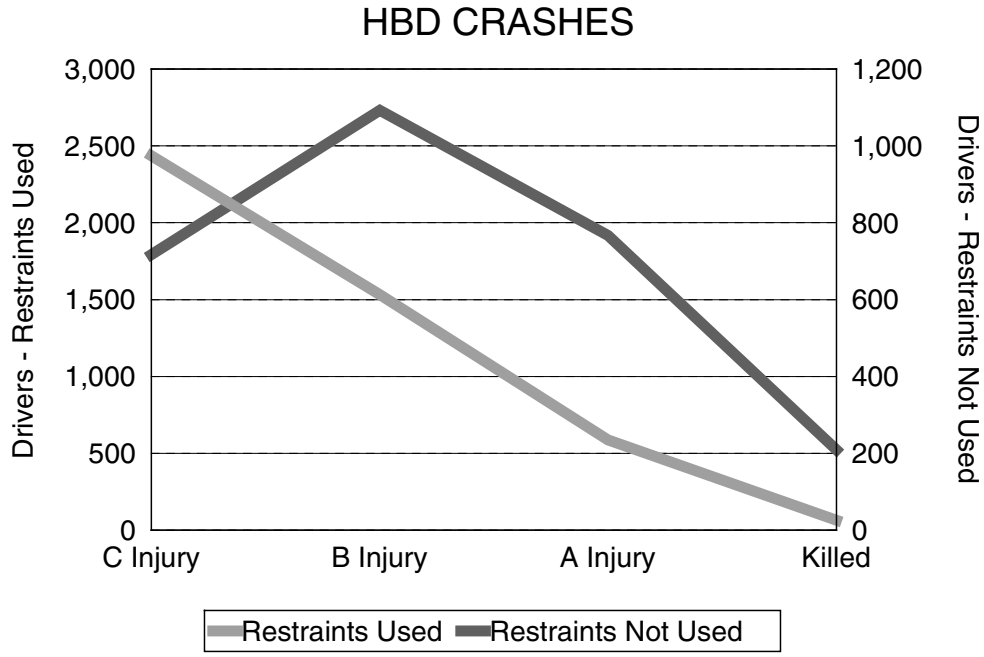
When compared to the charts above, the charts below demonstrate that the injury severity is much worse for occupants in a crash where drinking is reported in both ejected, and nonejected events.



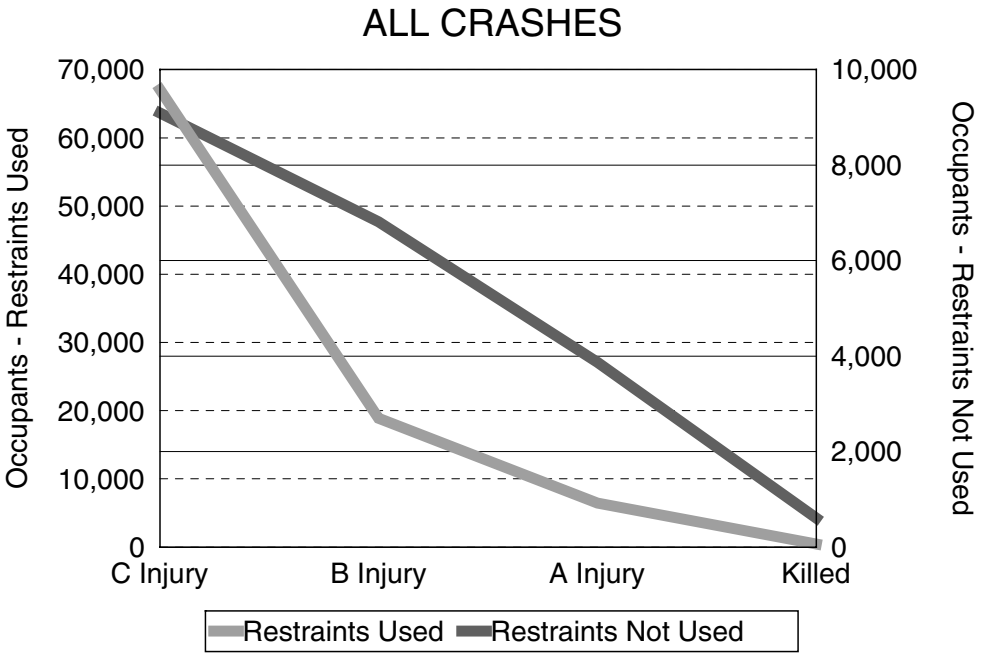


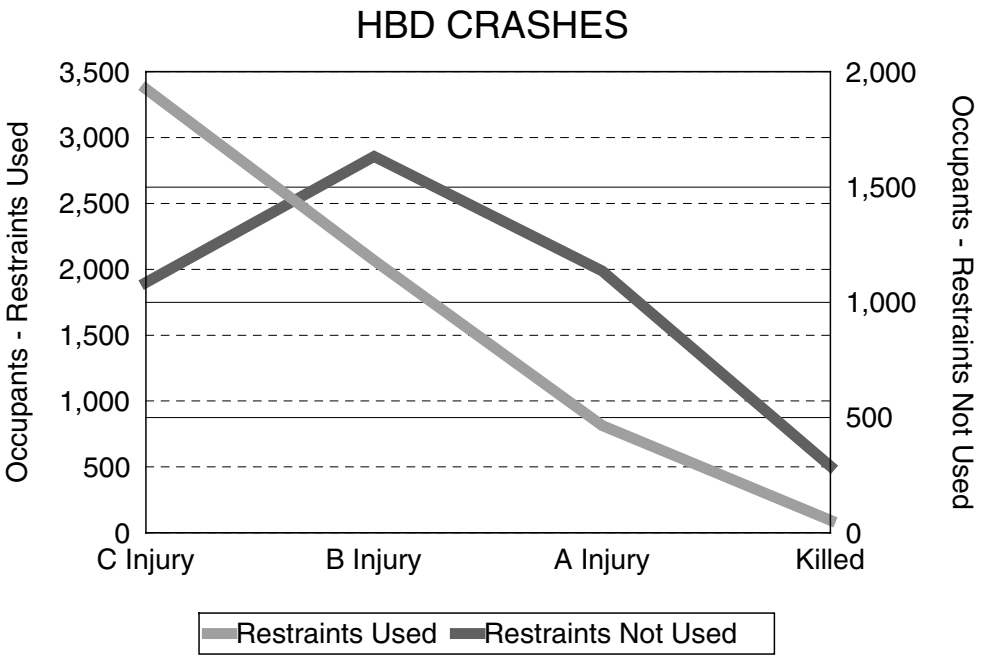
INJURY SEVERITY & RESTRAINT USE FOR CRASH INVOLVED KABC *DRIVERS*





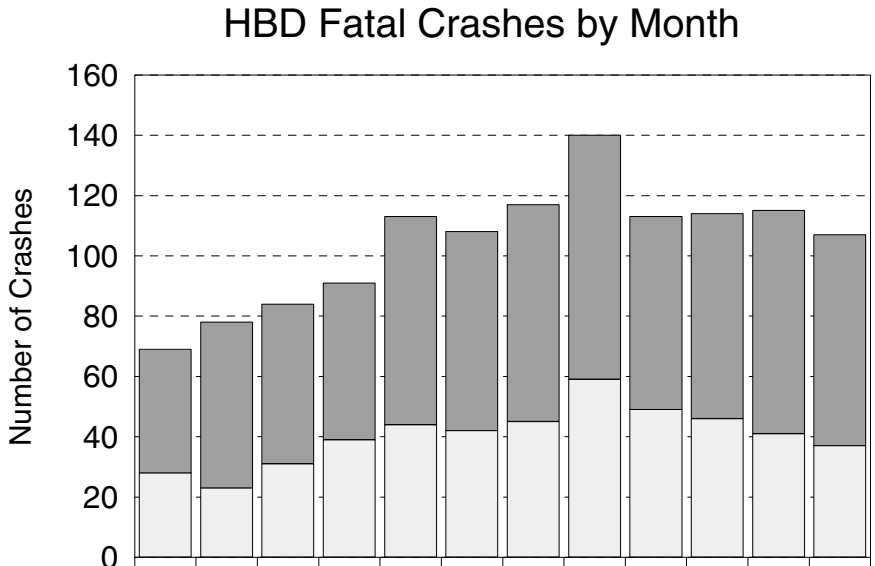
INJURY SEVERITY & RESTRAINT USE FOR CRASH INVOLVED KABC *OCCUPANTS*





ALCOHOL INVOLVEMENT IN FATAL CRASHES

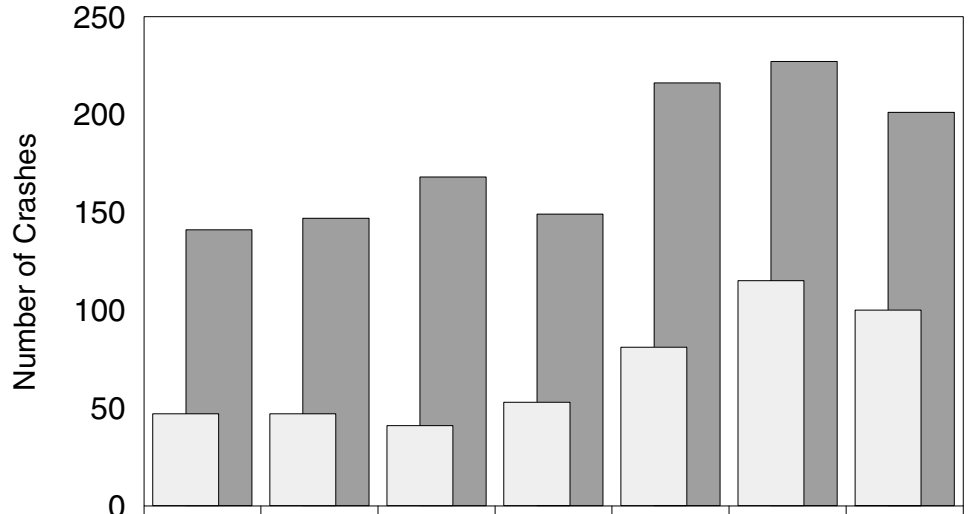
Fatal crashes were lowest in number during January, February and March. The number of fatal crashes then increased, hitting a high in July and again in August. The number of HBD fatal crashes does not show a discernable trend. Total persons killed in fatal crashes closely follows the number of crashes, as would be expected.



	J	F	M	A	M	J	J	A	S	O	N	D
Non-HBD Fatal Crashes	41	55	53	52	69	66	72	81	64	68	74	70
HBD Fatal Crashes	28	23	31	39	44	42	45	59	49	46	41	37

	J	F	M	A	M	J	J	A	S	O	N	D
Non-Alcohol Related Fatalities	44	60	58	55	74	73	82	89	69	77	85	79
Alcohol Related Fatalities	32	24	34	43	51	43	46	71	59	52	45	41

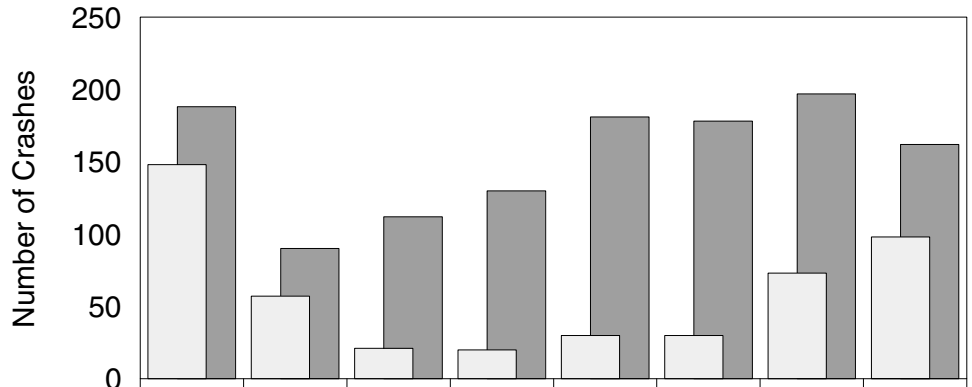
HBD Fatal Crashes by Day of Week



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
HBD Fatal Crashes	47	47	41	53	81	115	100
All Fatal Crashes	141	147	168	149	216	227	201

Saturday had the most fatal crashes in 1999. Saturday and Sunday had the highest proportions of drinking related fatal crashes. Half of the weekend fatal crashes involved drinking, while only 24.4 percent of fatal crashes on Wednesday involved drinking.

HBD Fatal Crashes by Time of Day



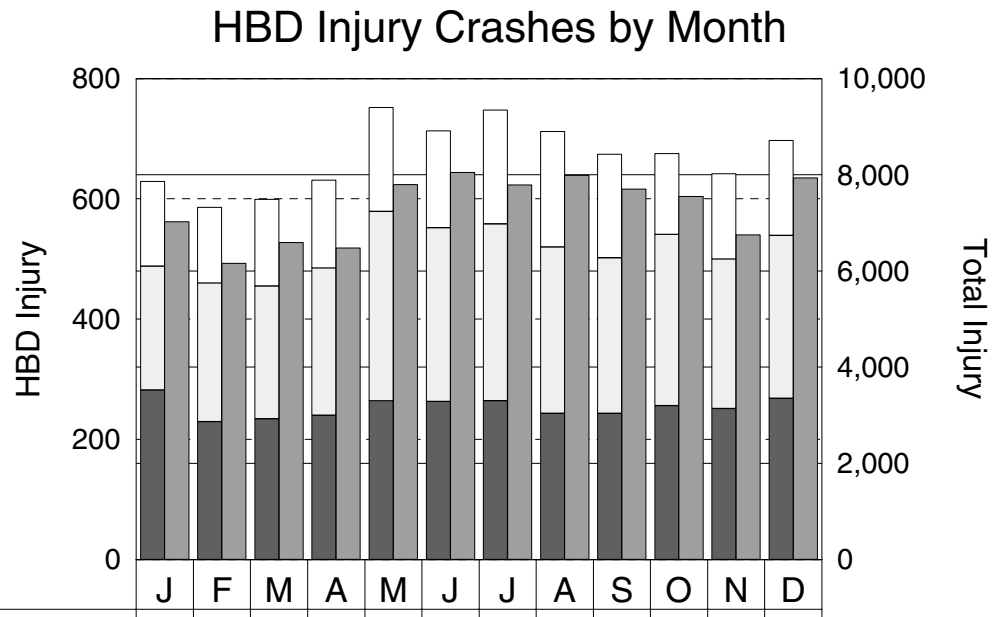
	12:00-2:59 A	3:00-5:59 A	6:00-8:59 A	9:00-11:59 A	12:00-2:59 P	3:00-5:59 P	6:00-8:59 P	9:00-11:59 P
HBD Fatal Crashes	148	57	21	20	30	30	73	98
All Fatal Crashes	188	90	112	130	181	178	197	162

Not surprisingly, the midnight to 2:59 AM time period had the highest rate of drinking involvement (78.7%), while the late morning hours had the lowest (15.4%).

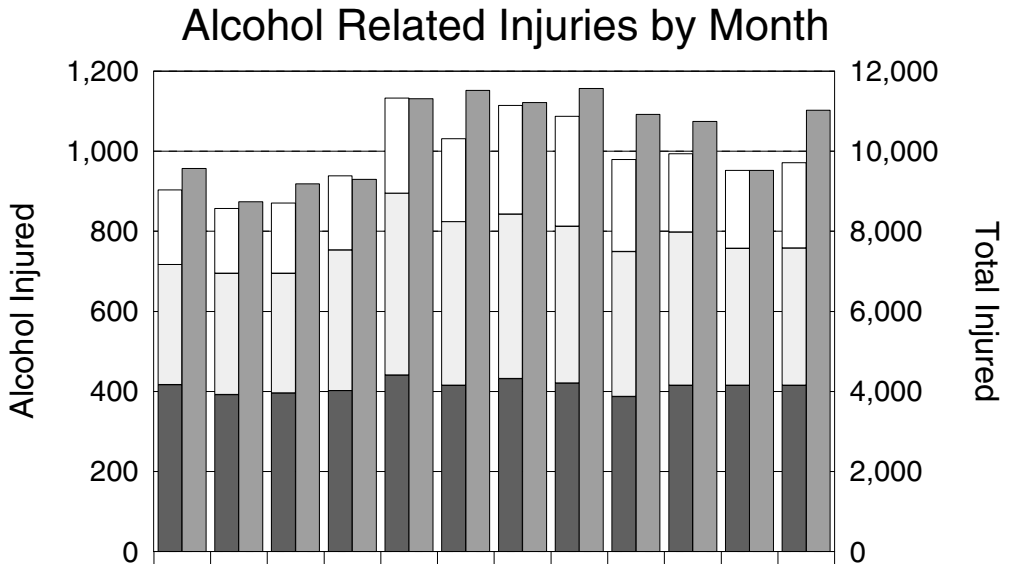
There were 11 fatal crashes where the time of day was unknown. Of these 11 fatal crashes, 7 were HBD.

ALCOHOL INVOLVEMENT IN INJURY CRASHES

Alcohol involvement in injury crashes is an important indicator of the alcohol impaired driving problem. In 1999, the highest number of HBD injury crashes occurred in May with 752. The highest proportion of HBD injury crashes occurred in April with 9.74 percent of the injury crashes in that month involving alcohol.

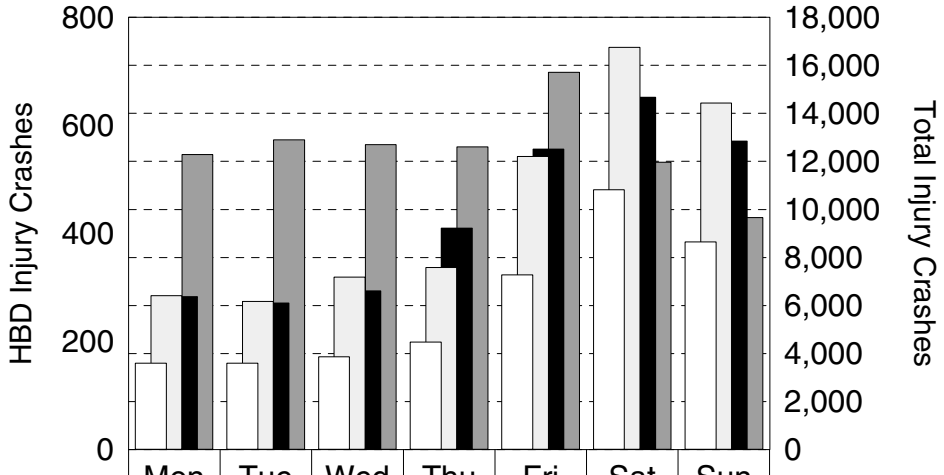


	J	F	M	A	M	J	J	A	S	O	N	D
Total Injury Crashes	7,027	6,159	6,593	6,478	7,799	8,052	7,787	7,990	7,703	7,547	6,749	7,936
A Injury - HBD Crashes	141	126	144	146	173	161	190	192	172	134	142	158
B Injury - HBD Crashes	206	231	221	245	315	289	294	277	259	285	249	271
C Injury - HBD Crashes	282	229	234	240	264	263	264	243	243	256	251	268



	J	F	M	A	M	J	J	A	S	O	N	D
Total Persons Injured	9,569	8,739	9,184	9,298	11,313	11,515	11,217	11,563	10,918	10,741	9,523	11,021
Alcohol Related A Injury	186	162	176	185	238	207	271	275	230	196	195	213
Alcohol Related B Injury	300	303	299	351	454	409	411	391	362	383	342	343
Alcohol Related C Injury	417	392	396	402	441	415	432	421	387	415	415	415

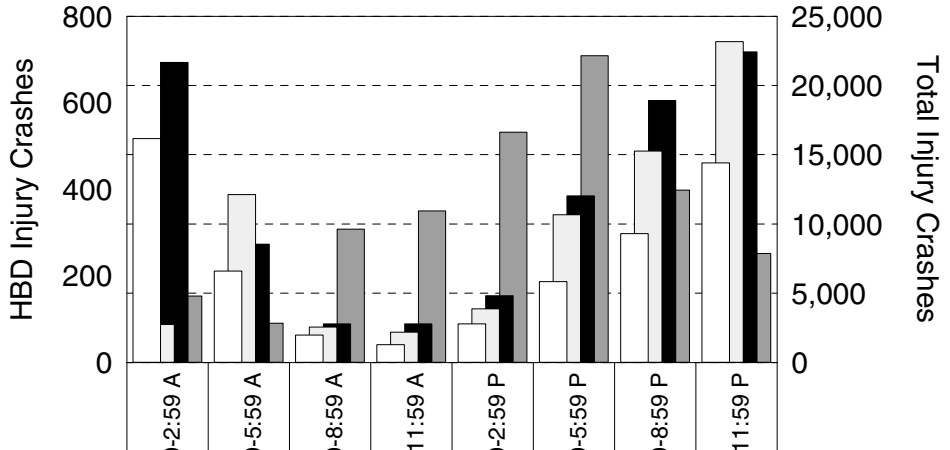
HBD Injury Crashes by Day of Week



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
A Injury - HBD	160	160	172	199	323	481	384
B Injury - HBD	285	274	319	337	542	744	641
C Injury - HBD	283	271	294	410	556	652	571
Total Injury Crashes	12,282	12,897	12,701	12,605	15,702	11,967	9,666

HBD injury crashes follow the same basic trends as total crashes through the work week, but the weekend sees a dramatic increase in the proportion of HBD injury crashes to total injury crashes.

HBD Injury Crashes by Time of Day



	12:00-2:59 A	3:00-5:59 A	6:00-8:59 A	9:00-11:59 A	12:00-2:59 P	3:00-5:59 P	6:00-8:59 P	9:00-11:59 P
A Injury - HBD	517	211	63	41	89	187	298	461
B Injury - HBD	88	388	82	70	124	341	488	741
C Injury - HBD	693	273	89	89	154	385	605	718
Total Injury Crashes	4,789	2,826	9,636	10,952	16,614	22,146	12,445	7,873

Total injury crash frequencies peak in the hours between 12:00 PM and 5:59 PM, while HBD injury crash frequencies peak between 9:00 PM and 2:59 AM. A particularly hazardous travel period is 12:00 AM to 2:59 AM.

REPORTED AGE OF DRINKING DRIVERS INVOLVED IN CRASHES

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Alcona	32	0	3	2	11	7	6	0	2	1	0
Alger	30	0	3	5	9	2	6	3	0	0	2
Allegan	284	1	45	40	84	65	19	6	4	2	18
Alpena	68	0	3	10	22	18	10	2	1	0	2
Antrim	52	0	6	5	21	11	2	3	0	0	4
Arenac	56	0	8	9	13	15	7	3	1	0	0
Baraga	19	0	0	3	4	6	2	3	0	0	1
Barry	135	2	15	17	42	33	16	4	0	3	3
Bay	288	0	32	44	80	71	35	15	4	2	5
Benzie	44	0	9	3	8	14	3	1	0	1	5
Berrien	316	2	22	46	66	79	33	13	8	3	44
Branch	88	0	12	17	22	19	7	1	2	0	8
Calhoun	282	0	32	56	60	69	33	9	6	1	16
Cass	142	0	8	17	41	33	9	3	2	1	28
Charlevoix	57	0	6	15	10	10	11	1	1	0	3
Cheboygan	65	0	8	7	18	16	7	4	3	0	2
Chippewa	110	0	14	20	21	28	10	4	3	0	10
Clare	68	0	7	13	13	18	9	3	2	2	1
Clinton	124	0	12	28	33	31	11	5	1	0	3
Crawford	40	0	4	5	7	13	4	1	1	0	5
Delta	91	2	18	13	18	13	14	3	1	2	7
Dickinson	44	0	6	4	7	8	6	2	1	2	8
Eaton	206	2	26	36	55	41	31	6	3	0	6
Emmet	86	0	11	9	30	18	10	5	1	1	1
Genesee	1,157	4	101	150	284	300	139	51	17	8	103
Gladwin	68	0	8	10	26	18	2	3	0	0	1
Gogebic	37	0	4	7	9	4	4	2	0	0	7
Grand Traverse	144	0	11	19	38	34	31	8	0	0	3
Gratiot	62	0	10	8	16	19	5	3	1	0	0
Hillsdale	88	1	6	19	21	20	9	1	1	1	9
Houghton	73	0	13	11	11	15	7	5	1	1	9
Huron	58	0	11	7	16	10	8	2	3	1	0
Ingham	457	1	42	101	119	99	58	13	4	2	18
Ionia	136	1	14	25	42	39	9	3	1	0	2
Iosco	80	0	15	10	15	20	10	4	3	1	2
Iron	40	0	7	8	6	6	7	0	0	0	6
Isabella	112	1	18	23	26	20	12	3	2	0	7
Jackson	363	0	33	57	93	107	43	12	5	1	12
Kalamazoo	454	1	60	74	122	104	55	12	3	3	20
Kalkaska	39	0	4	5	10	8	7	1	3	0	1
Kent	1,111	4	135	194	311	261	117	35	8	4	42
Keweenaw	10	0	0	4	4	2	0	0	0	0	0
Lake	39	0	2	7	14	7	3	4	2	0	0
Lapeer	189	0	15	38	62	37	26	6	3	0	2
Leelanau	40	0	5	11	11	7	3	0	2	0	1

REPORTED AGE OF DRINKING DRIVERS INVOLVED IN CRASHES (continued)

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Lenawee	203	0	27	30	54	30	23	3	4	1	31
Livingston	315	1	33	55	78	84	35	14	3	3	9
Luce	17	0	0	1	6	5	4	0	1	0	0
Mackinac	40	0	2	3	11	13	4	4	1	0	2
Macomb	1,316	2	122	188	375	368	140	62	19	5	35
Manistee	54	1	7	6	17	16	5	0	1	1	0
Marquette	113	1	15	24	30	21	11	2	3	0	6
Mason	62	0	4	15	17	12	6	5	1	0	2
Mecosta	114	1	14	23	28	21	15	4	2	1	5
Menominee	65	0	9	6	16	9	11	4	1	0	9
Midland	150	0	21	28	36	41	14	5	3	0	2
Missaukee	40	0	5	3	13	14	3	2	0	0	0
Monroe	314	0	41	39	74	74	35	9	4	0	38
Montcalm	151	2	20	24	45	36	16	3	2	0	3
Montmorency	17	0	1	3	4	8	0	0	0	0	1
Muskegon	269	1	37	42	62	73	34	11	0	1	8
Newaygo	128	0	14	16	38	26	20	7	1	2	4
Oakland	1,870	1	155	247	512	502	259	76	41	20	57
Oceana	92	0	10	7	36	19	8	6	1	1	4
Ogemaw	65	0	13	7	16	12	5	6	4	0	2
Ontonagon	18	0	1	6	1	6	2	0	0	0	2
Osceola	66	0	12	14	11	14	9	2	1	1	2
Oscoda	21	0	2	2	3	6	3	2	1	1	1
Otsego	57	0	6	6	21	20	1	2	0	0	1
Ottawa	375	1	56	63	111	79	31	10	4	1	19
Presque Isle	24	0	2	1	7	10	3	1	0	0	0
Roscommon	82	0	13	8	19	22	8	9	1	1	1
Saginaw	456	2	50	68	123	112	47	24	15	4	11
St. Clair	340	3	44	51	108	77	28	11	5	0	13
St. Joseph	147	0	15	21	48	33	13	3	1	1	12
Sanilac	67	0	7	18	21	8	6	2	2	1	2
Schoolcraft	27	1	4	5	7	5	2	2	0	0	1
Shiawassee	165	0	14	32	48	38	23	6	0	1	3
Tuscola	137	0	17	34	47	26	9	3	1	0	0
Van Buren	229	0	19	31	68	59	22	9	3	1	17
Washtenaw	511	1	53	88	122	125	68	21	5	0	28
Wayne	2,769	6	218	321	705	718	411	158	70	19	143
Wexford	97	1	8	12	30	23	15	3	0	2	3
UNKNOWN	2	0	0	1	1	0	0	0	0	0	0
Totals	18,469	47	1,915	2,761	4,920	4,540	2,205	759	307	111	904

MALE DRIVERS & INJURY SEVERITY IN CRASH

AGE OF DRIVER IN CRASH	Male Drivers		MOST SEVERE OUTCOME IN CRASH: Fatal		Injury			PDO
	Number	% of Total	Number	% of Fatal	A	B	C	
13 years and under	375	0.1	2	0.1	30	59	63	221
14 years	185	0.0	2	0.1	10	36	31	106
15 years	647	0.2	4	0.3	39	90	93	421
16 years	9,204	2.4	20	1.4	212	645	1,425	6,902
17 years	12,217	3.2	36	2.6	302	854	1,827	9,198
18 years	13,514	3.5	49	3.5	350	945	2,039	10,131
19 years	12,386	3.2	41	3.0	338	873	1,866	9,268
20 years	10,816	2.8	38	2.7	304	726	1,589	8,159
21 - 24 years	35,304	9.2	153	11.0	997	2,254	4,999	26,901
25 - 34 years	78,981	20.6	267	19.3	2,105	4,584	11,213	60,812
35 - 44 years	73,684	19.2	268	19.4	1,942	3,836	10,554	57,084
45 - 54 years	52,236	13.6	181	13.1	1,273	2,728	7,555	40,499
55 - 64 years	28,378	7.4	96	6.9	616	1,464	4,116	22,086
65 - 69 years	8,633	2.2	38	2.7	205	466	1,306	6,618
70 - 74 years	7,796	2.0	34	2.5	204	428	1,166	5,964
75 - 79 years	5,771	1.5	34	2.5	131	363	953	4,290
80 - 84 years	3,310	0.9	27	1.9	105	241	546	2,391
85 - 89 years	1,298	0.3	12	0.9	42	92	246	906
90 years and over	322	0.1	10	0.7	11	21	50	230
Not Stated	28,676	7.5	73	5.3	628	1,336	3,763	22,876
TOTAL	383,733	100.0	1,385	100.0	9,844	22,041	55,400	295,063

NOTE: The tables on this page and page 96 exclude 69,921 drivers of unknown gender.

The crash involvement for male drivers is up 2.5 percent from 1998.

The fatal crash involvement for male drivers is down 0.4 percent from 1998.

MALE DRINKING DRIVERS & INJURY SEVERITY IN CRASH

AGE OF DRINKING DRIVER IN CRASH	Male Drivers		MOST SEVERE OUTCOME IN CRASH: Fatal		Injury			PDO
	Number	% of Total	Number	% of Fatal	A	B	C	
13 years and under	11	0.1	1	0.3	1	3	1	5
14 years	6	0.0	0	0.0	3	0	1	2
15 years	13	0.1	0	0.0	0	4	1	8
16 years	92	0.6	3	0.8	7	11	15	56
17 years	192	1.3	8	2.3	28	29	29	98
18 years	378	2.6	8	2.3	35	84	44	207
19 years	440	3.0	16	4.5	49	101	62	212
20 years	476	3.3	16	4.5	51	86	69	254
21 - 24 years	2,243	15.4	65	18.3	218	398	313	1,249
25 - 34 years	3,844	26.4	88	24.8	379	713	601	2,063
35 - 44 years	3,390	23.3	76	21.4	371	537	591	1,815
45 - 54 years	1,793	12.3	47	13.2	177	261	317	991
55 - 64 years	639	4.4	12	3.4	47	92	98	390
65 - 69 years	162	1.1	2	0.6	16	27	26	91
70 - 74 years	106	0.7	2	0.6	10	13	15	66
75 - 79 years	59	0.4	1	0.3	2	6	14	36
80 - 84 years	30	0.2	1	0.3	4	2	5	18
85 - 89 years	6	0.0	1	0.3	0	1	0	4
90 years and over	1	0.0	0	0.0	0	0	0	1
Not Stated	660	4.5	8	2.3	54	91	108	399
TOTAL	14,541	100.0	355	100.0	1,452	2,459	2,310	7,965

NOTE: The tables on this page and page 97 exclude 359 drinking drivers of unknown gender.

The crash involvement for male drinking drivers is down 4.8 percent from 1998.

The fatal crash involvement for male drinking drivers is down 5.8 percent from 1998.

FEMALE DRIVERS & INJURY SEVERITY IN CRASH

AGE OF DRIVER IN CRASH	Female Drivers		MOST SEVERE OUTCOME IN CRASH: Fatal		Injury			PDO
	Number	% of Total	Number	% of Fatal	A	B	C	
13 years and under	211	0.1	0	0.0	16	28	38	129
14 years	106	0.0	0	0.0	11	11	17	67
15 years	518	0.2	3	0.5	24	47	95	349
16 years	7,184	2.7	17	2.9	199	566	1,305	5,097
17 years	9,012	3.4	19	3.3	243	655	1,640	6,455
18 years	9,403	3.5	14	2.4	251	607	1,662	6,869
19 years	8,605	3.2	15	2.6	228	549	1,550	6,263
20 years	7,775	2.9	11	1.9	171	506	1,367	5,720
21 - 24 years	25,573	9.7	49	8.5	593	1,555	4,477	18,899
25 - 34 years	57,160	21.6	105	18.2	1,236	3,111	10,242	42,466
35 - 44 years	54,723	20.7	107	18.5	1,187	2,835	9,438	41,156
45 - 54 years	37,209	14.0	77	13.3	816	1,835	6,587	27,894
55 - 64 years	17,667	6.7	46	8.0	399	894	3,073	13,255
65 - 69 years	5,635	2.1	15	2.6	122	284	983	4,231
70 - 74 years	5,140	1.9	30	5.2	141	289	863	3,817
75 - 79 years	4,312	1.6	23	4.0	105	263	783	3,138
80 - 84 years	2,560	1.0	15	2.6	76	204	438	1,827
85 - 89 years	919	0.3	10	1.7	26	72	159	652
90 years and over	189	0.1	0	0.0	4	12	28	145
Not Stated	11,084	4.2	22	3.8	197	505	1,592	8,768
TOTAL	264,985	100.0	578	100.0	6,045	14,828	46,337	197,197

The crash involvement for female drivers is up 2.0 percent from 1998.

The fatal crash involvement for female drivers is up 6.1 percent from 1998.

FEMALE DRINKING DRIVERS & INJURY SEVERITY IN CRASH

AGE OF DRINKING DRIVER IN CRASH	Female Drivers		MOST SEVERE OUTCOME IN CRASH: Fatal		Injury			PDO
	Number	% of Total	Number	% of Fatal	A	B	C	
13 years and under	3	0.1	0	0.0	0	2	0	1
14 years	1	0.0	0	0.0	1	0	0	0
15 years	12	0.3	2	2.8	5	2	2	1
16 years	32	0.9	2	2.8	3	10	2	15
17 years	43	1.2	3	4.2	6	7	4	23
18 years	60	1.7	0	0.0	6	14	11	29
19 years	92	2.6	1	1.4	19	15	13	44
20 years	90	2.5	1	1.4	10	21	16	42
21 - 24 years	470	13.2	11	15.5	48	83	83	245
25 - 34 years	1,006	28.2	22	31.0	105	175	190	514
35 - 44 years	1,103	30.9	14	19.7	98	161	202	628
45 - 54 years	377	10.6	4	5.6	34	59	83	197
55 - 64 years	112	3.1	6	8.5	8	18	15	65
65 - 69 years	27	0.8	0	0.0	5	1	5	16
70 - 74 years	10	0.3	1	1.4	0	2	2	5
75 - 79 years	8	0.2	1	1.4	0	2	0	5
80 - 84 years	4	0.1	0	0.0	0	0	1	3
85 - 89 years	1	0.0	0	0.0	0	0	0	1
90 years and over	0	0.0	0	0.0	0	0	0	0
Not Stated	118	3.3	3	4.2	9	19	22	65
TOTAL	3,569	100.0	71	100.0	357	591	651	1,899

The crash involvement for female drinking drivers is down 6.9 percent from 1998.

The fatal crash involvement for female drinking drivers is up 2.9 percent from 1998.

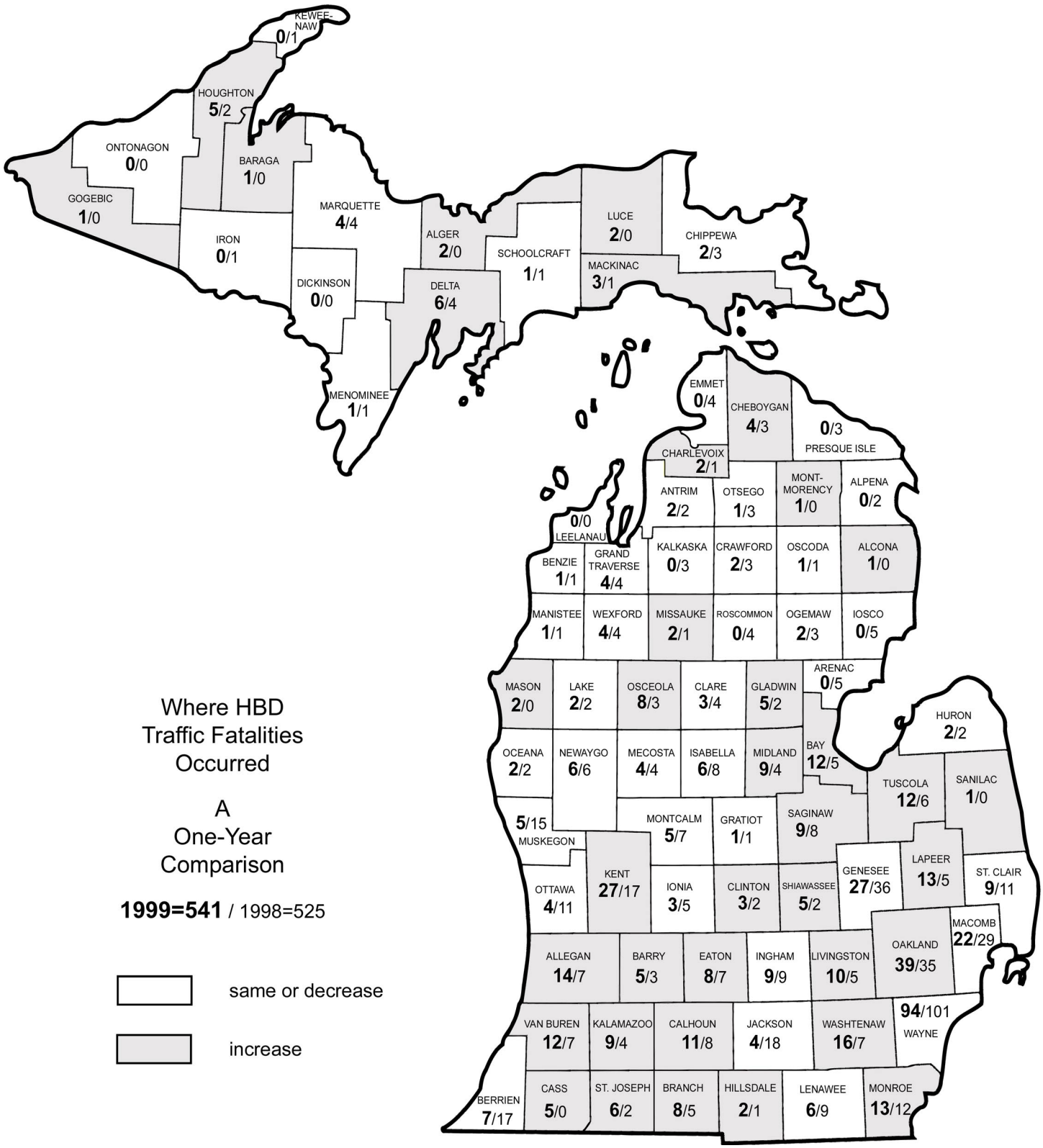
FATAL CRASHES AND FATALITIES WITH DRINKING INVOLVEMENT BY COUNTY

COUNTY	CRASHES			PERSONS		
	All Fatal Crashes	HBD Fatal Crashes	Percent HBD	Total Fatalities	HBD Fatalities	Percent HBD
Alcona	3	1	33.3	3	1	33.3
Alger	3	2	66.7	3	2	66.7
Allegan	21	12	57.1	23	14	60.9
Alpena	1	0	0.0	1	0	0.0
Antrim	3	1	33.3	4	2	50.0
Arenac	1	0	0.0	1	0	0.0
Baraga	2	1	50.0	2	1	50.0
Barry	11	5	45.5	11	5	45.5
Bay	22	9	40.9	25	12	48.0
Benzie	3	1	33.3	3	1	33.3
Berrien	29	6	20.7	32	7	21.9
Branch	13	7	53.8	16	8	50.0
Calhoun	25	10	40.0	27	11	40.7
Cass	18	4	22.2	20	5	25.0
Charlevoix	4	2	50.0	4	2	50.0
Cheboygan	4	3	75.0	5	4	80.0
Chippewa	3	2	66.7	3	2	66.7
Clare	6	3	50.0	7	3	42.9
Clinton	7	3	42.9	7	3	42.9
Crawford	3	2	66.7	3	2	66.7
Delta	6	5	83.3	7	6	85.7
Dickinson	2	0	0.0	2	0	0.0
Eaton	15	7	46.7	18	8	44.4
Emmet	4	0	0.0	4	0	0.0
Genesee	58	24	41.4	62	27	43.5
Gladwin	3	3	100.0	5	5	100.0
Gogebic	3	1	33.3	4	1	25.0
Grand Traverse	13	3	23.1	16	4	25.0
Gratiot	6	1	16.7	6	1	16.7
Hillsdale	12	2	16.7	14	2	14.3
Houghton	8	4	50.0	9	5	55.6
Huron	3	2	66.7	3	2	66.7
Ingham	25	7	28.0	31	9	29.0
Ionia	9	3	33.3	9	3	33.3
Iosco	5	0	0.0	6	0	0.0
Iron	2	0	0.0	2	0	0.0
Isabella	9	5	55.6	11	6	54.5
Jackson	21	4	19.0	22	4	18.2
Kalamazoo	31	9	29.0	33	9	27.3
Kalkaska	3	0	0.0	3	0	0.0
Kent	57	24	42.1	67	27	40.3
Keweenaw	0	0	---	0	0	---
Lake	3	2	66.7	3	2	66.7
Lapeer	21	9	42.9	26	13	50.0

FATAL CRASHES AND FATALITIES WITH DRINKING INVOLVEMENT BY COUNTY (continued)

	CRASHES			PERSONS		
COUNTY	All Fatal Crashes	HBD Fatal Crashes	Percent HBD	Total Fatalities	HBD Fatalities	Percent HBD
Leelanau	1	0	0.0	1	0	0.0
Lenawee	17	6	35.3	17	6	35.3
Livingston	22	9	40.9	26	10	38.5
Luce	3	2	66.7	4	2	50.0
Mackinac	4	2	50.0	7	3	42.9
Macomb	53	22	41.5	54	22	40.7
Manistee	3	1	33.3	3	1	33.3
Marquette	11	4	36.4	11	4	36.4
Mason	5	2	40.0	5	2	40.0
Mecosta	8	4	50.0	8	4	50.0
Menominee	5	1	20.0	5	1	20.0
Midland	13	7	53.8	15	9	60.0
Missaukee	3	2	66.7	4	2	50.0
Monroe	24	11	45.8	26	13	50.0
Montcalm	15	5	33.3	20	5	25.0
Montmorency	1	1	100.0	1	1	100.0
Muskegon	18	4	22.2	21	5	23.8
Newaygo	9	5	55.6	10	6	60.0
Oakland	88	38	43.2	91	39	42.9
Oceana	4	2	50.0	4	2	50.0
Ogemaw	4	2	50.0	4	2	50.0
Ontonagon	2	0	0.0	2	0	0.0
Osceola	10	7	70.0	11	8	72.7
Oscoda	1	1	100.0	1	1	100.0
Otsego	4	1	25.0	5	1	20.0
Ottawa	27	4	14.8	34	4	11.8
Presque Isle	1	0	0.0	1	0	0.0
Roscommon	3	0	0.0	3	0	0.0
Saginaw	35	9	25.7	40	9	22.5
St. Clair	24	7	29.2	28	9	32.1
St. Joseph	14	6	42.9	15	6	40.0
Sanilac	10	1	10.0	10	1	10.0
Schoolcraft	1	1	100.0	1	1	100.0
Shiawassee	10	4	40.0	11	5	45.5
Tuscola	14	9	64.3	17	12	70.6
Van Buren	17	9	52.9	20	12	60.0
Washtenaw	37	16	43.2	39	16	41.0
Wayne	217	87	40.1	234	94	40.2
Wexford	10	3	30.0	14	4	28.6
Totals	1,249	484	38.8	1,386	541	39.0

TRAFFIC FATALITIES WITH DRINKING INVOLVEMENT BY COUNTY



MOST SEVERE OUTCOME IN HBD CRASHES BY COUNTY

Note: While the Michigan *Traffic Crash Report* (UD-10) requests officers to report Bodily Alcohol Content (BAC) of all persons tested for alcohol after a traffic crash, only the BAC testing of deceased motor vehicle drivers and deceased railroad train engineers is required by law. Consequently, alcohol involvement in nonfatal crashes is frequently unreported, and is therefore generally believed to be higher than indicated in this table.

COUNTY	All HBD Crashes	MOST SEVERE OUTCOME IN HBD CRASH				
		Fatal	Injury			PDO
			A	B	C	
Alcona	32	1	4	4	7	16
Alger	30	2	2	6	3	17
Allegan	284	12	39	41	42	150
Alpena	66	0	13	8	6	39
Antrim	54	1	3	11	6	33
Arenac	56	0	11	12	4	29
Baraga	19	1	1	2	1	14
Barry	133	5	10	36	19	63
Bay	290	9	38	45	37	161
Benzie	44	1	8	5	9	21
Berrien	315	6	31	43	52	183
Branch	88	7	6	20	10	45
Calhoun	286	10	27	61	36	152
Cass	142	4	17	30	20	71
Charlevoix	57	2	3	13	8	31
Cheboygan	65	3	11	16	10	25
Chippewa	108	2	15	15	17	59
Clare	68	3	7	13	11	34
Clinton	125	3	11	24	18	69
Crawford	40	2	8	11	6	13
Delta	92	5	3	13	14	57
Dickinson	45	0	6	7	9	23
Eaton	205	7	20	36	31	111
Emmet	84	0	8	20	12	44
Genesee	1,169	24	61	211	228	645
Gladwin	68	3	9	15	12	29
Gogebic	37	1	4	4	5	23
Grand Traverse	146	3	12	23	18	90
Gratiot	62	1	10	12	4	35
Hillsdale	89	2	15	22	13	37
Houghton	71	4	9	10	7	41
Huron	58	2	12	12	6	26
Ingham	466	7	36	74	88	261
Ionia	137	3	24	22	15	73
Iosco	78	0	12	11	20	35
Iron	39	0	6	11	3	19
Isabella	112	5	15	25	11	56
Jackson	360	4	42	60	60	194
Kalamazoo	452	9	54	89	60	240
Kalkaska	40	0	4	10	4	22
Kent	1,126	24	95	174	151	682
Keweenaw	10	0	3	2	1	4

MOST SEVERE OUTCOME IN HBD CRASHES BY COUNTY (continued)

COUNTY	All HBD Crashes	MOST SEVERE OUTCOME IN HBD CRASH				
		Fatal	Injury			PDO
			A	B	C	
Lake	40	2	6	6	6	20
Lapeer	186	9	20	36	26	95
Leelanau	41	0	8	9	6	18
Lenawee	202	6	15	37	37	107
Livingston	312	9	41	65	38	159
Luce	17	2	5	3	1	6
Mackinac	43	2	2	7	6	26
Macomb	1,314	22	97	185	278	732
Manistee	53	1	6	11	4	31
Marquette	112	4	13	22	16	57
Mason	62	2	10	8	4	38
Mecosta	112	4	12	21	9	66
Menominee	68	1	8	12	10	37
Midland	152	7	16	35	22	72
Missaukee	39	2	4	11	2	20
Monroe	314	11	37	63	40	163
Montcalm	151	5	24	24	22	76
Montmorency	18	1	2	5	3	7
Muskegon	269	4	42	38	34	151
Newaygo	127	5	24	30	13	55
Oakland	1,885	38	152	282	358	1,055
Oceana	94	2	16	10	21	45
Ogemaw	65	2	7	14	5	37
Ontonagon	17	0	4	0	2	11
Osceola	70	7	7	16	12	28
Oscoda	21	1	4	2	3	11
Otsego	58	1	4	6	10	37
Ottawa	382	4	28	56	76	218
Presque Isle	23	0	5	9	0	9
Roscommon	81	0	11	16	6	48
Saginaw	457	9	55	82	58	253
St. Clair	339	7	37	66	58	171
St. Joseph	147	6	20	29	27	65
Sanilac	68	1	11	9	13	34
Schoolcraft	27	1	1	6	2	17
Shiawassee	166	4	22	35	31	74
Tuscola	136	9	16	28	19	64
Van Buren	228	9	36	50	22	111
Washtenaw	516	16	47	76	116	261
Wayne	2,837	87	268	426	516	1,540
Wexford	96	3	11	17	11	54
Unknown	2	0	0	0	0	2
Totals	18,595	484	1,879	3,142	3,037	10,053

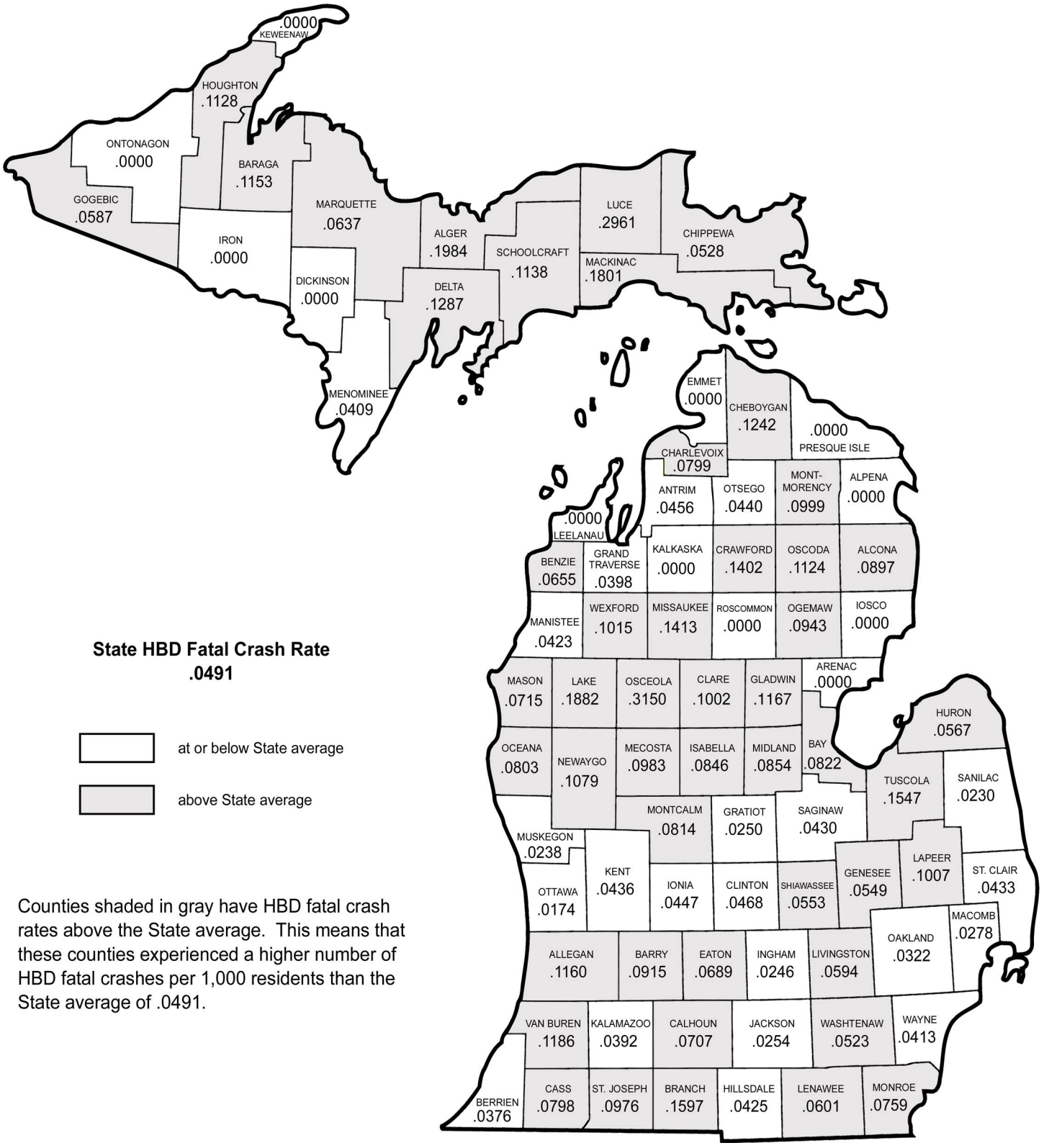
COUNTY RANKING BY HBD FATAL CRASH RATE
per 1,000 Michigan Residents

COUNTY	1999 Population Estimate	All Crashes	Fatal Crashes	HBD Crashes	HBD Fatal Crashes	HBD Fatal Crash Rate per 1,000 people	Rank
Osceola	22,220	1,783	10	70	7	0.3150	1
Luce	6,754	299	3	17	2	0.2961	2
Alger	10,083	609	3	30	2	0.1984	3
Lake	10,627	689	3	40	2	0.1882	4
Mackinac	11,103	928	4	43	2	0.1801	5
Branch	43,825	2,127	13	88	7	0.1597	6
Tuscola	58,195	2,229	14	136	9	0.1547	7
Missaukee	14,151	871	3	39	2	0.1413	8
Crawford	14,265	938	3	40	2	0.1402	9
Delta	38,848	2,482	6	92	5	0.1287	10
Cheboygan	24,153	1,205	4	65	3	0.1242	11
Van Buren	75,917	3,256	17	228	9	0.1186	12
Gladwin	25,697	1,196	3	68	3	0.1167	13
Allegan	103,406	3,969	21	284	12	0.1160	14
Baraga	8,672	560	2	19	1	0.1153	15
Schoolcraft	8,788	654	1	27	1	0.1138	16
Houghton	35,448	1,372	8	71	4	0.1128	17
Oscoda	8,899	434	1	21	1	0.1124	18
Newaygo	46,356	2,088	9	127	5	0.1079	19
Wexford	29,560	2,036	10	96	3	0.1015	20
Lapeer	89,391	3,763	21	186	9	0.1007	21
Clare	29,955	1,664	6	68	3	0.1002	22
Montmorency	10,014	470	1	18	1	0.0999	23
Mecosta	40,704	2,786	8	112	4	0.0983	24
St. Joseph	61,448	2,578	14	147	6	0.0976	25
Ogemaw	21,201	1,406	4	65	2	0.0943	26
Barry	54,648	2,598	11	133	5	0.0915	27
Alcona	11,147	858	3	32	1	0.0897	28
Midland	81,994	3,179	13	152	7	0.0854	29
Isabella	59,122	2,970	9	112	5	0.0846	30
Bay	109,514	4,019	22	290	9	0.0822	31
Montcalm	61,406	3,324	15	151	5	0.0814	32
Oceana	24,900	1,282	4	94	2	0.0803	33
Charlevoix	25,034	1,349	4	57	2	0.0799	34
Cass	50,129	1,957	18	142	4	0.0798	35
Monroe	144,913	4,517	24	314	11	0.0759	36
Mason	27,966	1,818	5	62	2	0.0715	37
Calhoun	141,380	6,826	25	286	10	0.0707	38
Eaton	101,612	4,462	15	205	7	0.0689	39
Benzie	15,257	684	3	44	1	0.0655	40
Marquette	62,758	2,668	11	112	4	0.0637	41
Lenawee	99,780	3,668	17	202	6	0.0601	42
Livingston	151,496	5,552	22	312	9	0.0594	43
Gogebic	17,043	579	3	37	1	0.0587	44
Huron	35,283	1,856	3	58	2	0.0567	45

COUNTY RANKING BY HBD FATAL CRASH RATE
per 1,000 Michigan Residents (continued)

COUNTY	1999 Population Estimate	All Crashes	Fatal Crashes	HBD Crashes	HBD Fatal Crashes	HBD Fatal Crash Rate per 1,000 people	Rank
Shiawassee	72,346	2,656	10	166	4	0.0553	46
Genesee	437,349	15,789	58	1,169	24	0.0549	47
Chippewa	37,904	1,710	3	108	2	0.0528	48
Washtenaw	306,073	13,209	37	516	16	0.0523	49
Clinton	64,054	2,439	7	125	3	0.0468	50
Antrim	21,953	1,210	3	54	1	0.0456	51
Ionia	67,126	2,782	9	137	3	0.0447	52
Otsego	22,719	1,169	4	58	1	0.0440	53
Kent	550,388	26,200	57	1,126	24	0.0436	54
St. Clair	161,755	5,442	24	339	7	0.0433	55
Saginaw	209,245	8,496	35	457	9	0.0430	56
Hillsdale	47,042	2,298	12	89	2	0.0425	57
Manistee	23,665	1,354	3	53	1	0.0423	58
Wayne	2,106,495	86,863	217	2,837	87	0.0413	59
Menominee	24,449	2,195	5	68	1	0.0409	60
Grand Traverse	75,352	3,971	13	146	3	0.0398	61
Kalamazoo	229,867	10,199	31	452	9	0.0392	62
Berrien	159,709	5,986	29	315	6	0.0376	63
Oakland	1,179,978	48,976	88	1,885	38	0.0322	64
Macomb	792,082	26,447	53	1,314	22	0.0278	65
Jackson	157,271	7,023	21	360	4	0.0254	66
Gratiot	40,027	1,897	6	62	1	0.0250	67
Ingham	285,123	12,102	25	466	7	0.0246	68
Muskegon	168,037	6,035	18	269	4	0.0238	69
Sanilac	43,451	1,982	10	68	1	0.0230	70
Ottawa	230,261	7,783	27	382	4	0.0174	71
Alpena	30,615	1,493	1	66	0	0.0000	72
Arenac	16,547	1,057	1	56	0	0.0000	73
Dickinson	26,944	1,544	2	45	0	0.0000	74
Emmet	28,995	1,853	4	84	0	0.0000	75
Iosco	25,928	1,326	5	78	0	0.0000	76
Iron	12,817	1,036	2	39	0	0.0000	77
Kalkaska	15,808	913	3	40	0	0.0000	78
Keweenaw	2,142	103	0	10	0	0.0000	79
Leelanau	19,370	720	1	41	0	0.0000	80
Ontonagon	7,668	683	2	17	0	0.0000	81
Presque Isle	14,596	820	1	23	0	0.0000	82
Roscommon	23,562	1,278	3	81	0	0.0000	83
Unknown		78	0	2	0		
State Totals	9,863,775	415,675	1,249	18,595	484	0.04907	

COUNTY RANKING
BY HBD FATAL CRASH RATE



State HBD Fatal Crash Rate
.0491

at or below State average

above State average

Counties shaded in gray have HBD fatal crash rates above the State average. This means that these counties experienced a higher number of HBD fatal crashes per 1,000 residents than the State average of .0491.

REPORTED STATEWIDE ALCOHOL INVOLVED TRAFFIC CRASHES BY COUNTY IN MICHIGAN

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Alcona	32	1	15	16	0	2	1	29	1	20
Alger	30	2	11	17	0	1	7	22	2	14
Allegan	284	12	122	150	17	25	18	224	14	172
Alpena	66	0	27	39	0	13	2	51	0	37
Antrim	54	1	20	33	0	12	3	39	2	22
Arenac	56	0	27	29	3	7	4	42	0	44
Baraga	19	1	4	14	0	7	1	11	1	7
Barry	133	5	65	63	0	0	17	116	5	90
Bay	290	9	120	161	12	8	49	221	12	181
Benzie	44	1	22	21	0	4	8	32	1	26
Berrien	315	6	126	183	29	36	20	230	7	198
Branch	88	7	36	45	7	7	0	74	8	49
Calhoun	286	10	124	152	42	2	25	217	11	193
Cass	142	4	67	71	0	15	36	91	5	98
Charlevoix	57	2	24	31	0	3	5	49	2	31
Cheboygan	65	3	37	25	6	4	9	46	4	56
Chippewa	108	2	47	59	19	0	12	77	2	61
Clare	68	3	31	34	0	14	7	47	3	40
Clinton	125	3	53	69	17	11	5	92	3	67
Crawford	40	2	25	13	5	2	3	30	2	38
Delta	92	5	30	57	0	15	11	66	6	46
Dickinson	45	0	22	23	0	11	5	29	0	30
Eaton	205	7	87	111	20	11	42	132	8	138
Emmet	84	0	40	44	0	13	8	63	0	57
Genesee	1,169	24	500	645	119	13	150	887	27	797
Gladwin	68	3	36	29	0	0	19	49	5	53
Gogebic	37	1	13	23	0	11	2	24	1	17
Grand Traverse	146	3	53	90	0	27	8	111	4	79
Gratiot	62	1	26	35	0	13	12	37	1	39
Hillsdale	89	2	50	37	0	7	14	68	2	65
Houghton	71	4	26	41	0	11	18	42	5	33
Huron	58	2	30	26	0	0	12	46	2	53
Ingham	466	7	198	261	71	18	57	320	9	261
Ionia	137	3	61	73	19	0	16	102	3	99
Iosco	78	0	43	35	0	19	9	50	0	55
Iron	39	0	20	19	0	4	8	27	0	29
Isabella	112	5	51	56	0	7	10	95	6	78
Jackson	360	4	162	194	36	14	31	279	4	214
Kalamazoo	452	9	203	240	43	28	38	343	9	293
Kalkaska	40	0	18	22	0	6	4	30	0	22
Kent	1,126	24	420	682	67	120	117	822	27	628
Keweenaw	10	0	6	4	0	1	1	8	0	6
Lake	40	2	18	20	0	2	3	35	2	27
Lapeer	186	9	82	95	9	0	36	141	13	119
Leelanau	41	0	23	18	0	0	8	33	0	25
Lenawee	202	6	89	107	0	33	18	151	6	136

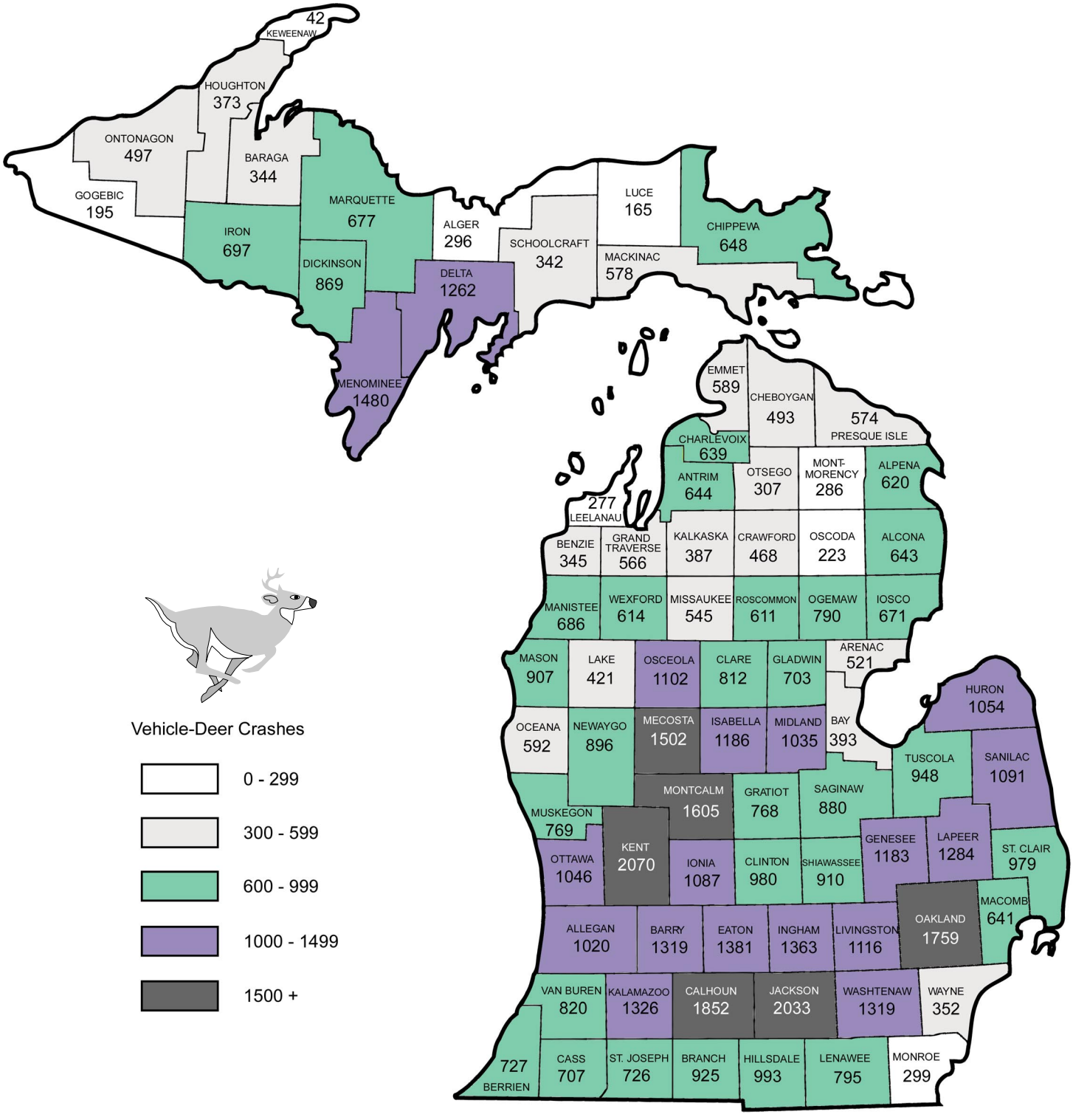
REPORTED STATEWIDE ALCOHOL INVOLVED TRAFFIC CRASHES BY COUNTY IN MICHIGAN (Continued)

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Livingston	312	9	144	159	41	24	29	218	10	209
Luce	17	2	9	6	0	0	4	13	2	11
Mackinac	43	2	15	26	6	6	3	28	3	18
Macomb	1,314	22	560	732	95	0	275	944	22	855
Manistee	53	1	21	31	0	2	4	47	1	29
Marquette	112	4	51	57	0	16	12	84	4	71
Mason	62	2	22	38	0	11	2	49	2	37
Mecosta	112	4	42	66	0	15	11	86	4	55
Menominee	68	1	30	37	0	10	1	57	1	41
Midland	152	7	73	72	0	19	21	112	9	125
Missaukee	39	2	17	20	0	0	9	30	2	25
Monroe	314	11	140	163	28	43	24	219	13	198
Montcalm	151	5	70	76	0	6	31	114	5	106
Montmorency	18	1	10	7	0	0	0	18	1	14
Muskegon	269	4	114	151	2	36	28	203	5	167
Newaygo	127	5	67	55	0	0	26	101	6	103
Oakland	1,885	38	792	1,055	300	70	239	1,276	39	1,143
Oceana	94	2	47	45	0	17	3	74	2	70
Ogemaw	65	2	26	37	5	0	13	47	2	43
Ontonagon	17	0	6	11	0	1	3	13	0	7
Osceola	70	7	35	28	0	11	8	51	8	57
Oscoda	21	1	9	11	0	0	9	12	1	14
Otsego	58	1	20	37	12	0	3	43	1	29
Ottawa	382	4	160	218	19	46	21	296	4	237
Presque Isle	23	0	14	9	0	4	2	17	0	17
Roscommon	81	0	33	48	11	1	20	49	0	50
Saginaw	457	9	195	253	26	0	78	353	9	294
St. Clair	339	7	161	171	34	0	52	253	9	228
St. Joseph	147	6	76	65	0	20	21	106	6	107
Sanilac	68	1	33	34	0	0	24	44	1	45
Schoolcraft	27	1	9	17	0	1	4	22	1	14
Shiawassee	166	4	88	74	7	0	34	125	5	113
Tuscola	136	9	63	64	0	0	23	113	12	95
Van Buren	228	9	108	111	18	0	33	177	12	175
Washtenaw	516	16	239	261	56	72	29	359	16	315
Wayne	2,837	87	1,210	1,540	400	146	340	1,951	94	1,818
Wexford	96	3	39	54	0	12	15	69	4	52
UNKNOWN	2	0	0	2	0	0	0	2	0	0
Totals	18,595	484	8,058	10,053	1,601	1,146	2,343	13,505	541	11,830

MICHIGAN MOTOR VEHICLE-DEER INVOLVED/ASSOCIATED CRASHES

Michigan had 67,669 reported motor vehicle-deer crashes during 1999. 2,234 people were injured and 6 people were killed as a result of those collisions. Of the 68,022 vehicles involved, 42,645 (62.7%) were passenger cars, 17,245 (25.4%) were pickups, and 5,614 (8.3%) were minivans, vans, motorhomes. All other vehicle types (including motorcycle, snowmobile, ORV/ATV, large trucks, moped) totaled 3.6 percent.

Contrary to common belief, motor vehicle-deer crashes are happening most often in Michigan's southern, heavily populated counties; Kent County had the highest number with 2,070 such crashes in 1999.

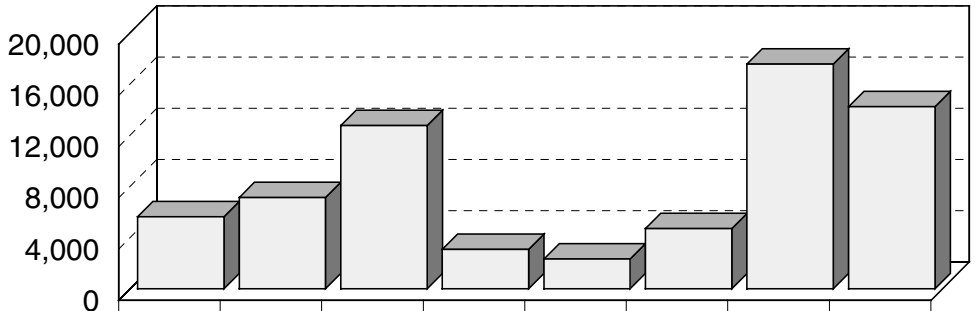


LIGHT CONDITION AND TIME OF DAY IN MOTOR VEHICLE-DEER CRASHES

LIGHT CONDITION	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Daylight	13,175	19.5	1	16.7	46	199	307	12,622
Dawn	5,628	8.3	1	16.7	5	43	79	5,500
Dusk	3,728	5.5	0	0.0	9	26	57	3,636
Dark - Lighted	2,123	3.1	0	0.0	3	11	40	2,069
Dark - Unlighted	42,319	62.5	4	66.7	73	290	708	41,244
Other/Unknown	696	1.0	0	0.0	0	6	12	678
Totals	67,669	100.0	6	100.0	136	575	1,203	65,749

Four of the six fatal deer crashes in Michigan in 1999 occurred in dark-unlighted conditions. All motor vehicle-deer involved/associated crashes peaked during the 6:00 - 8:59 PM time period. There were no fatal deer crashes during this time period.

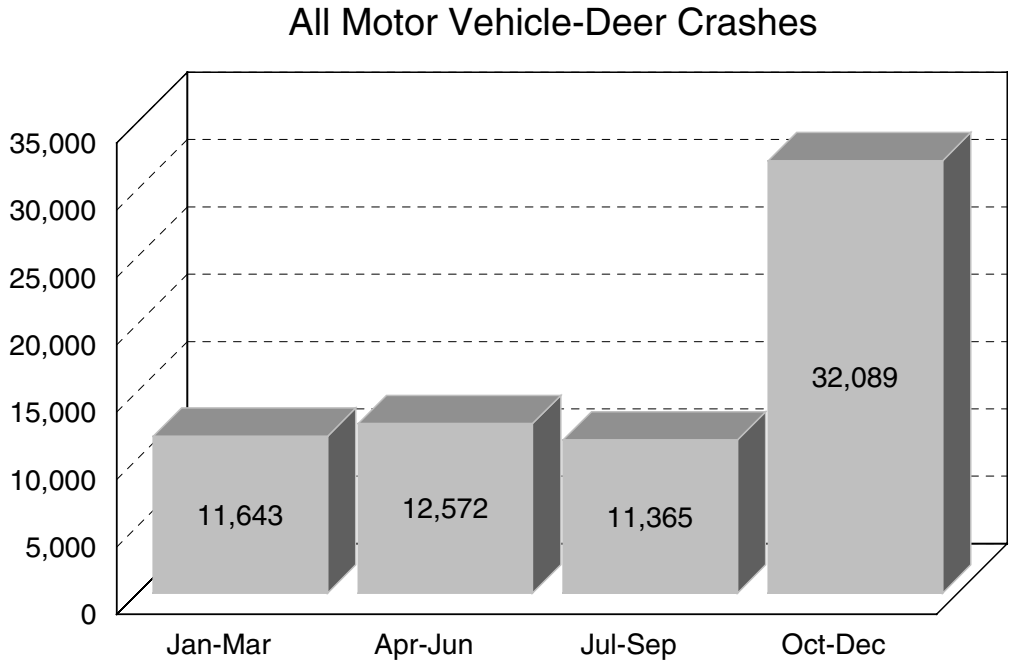
Time and Severity of All Motor Vehicle-Deer Crashes



	12:00 Mid. - 02:59 A	03:00 A - 05:59 A	06:00 A - 08:59 A	09:00 A - 11:59 A	12:00 Noon - 02:59 P	03:00 P - 05:59 P	06:00 P - 08:59 P	09:00 P - 11:59 P
All Crashes	5,616	7,113	12,749	3,069	2,307	4,700	17,542	14,228
Fatal Crashes	2	1	2	0	0	0	0	1

MONTHLY AND SEASONAL RATES FOR MOTOR VEHICLE-DEER CRASHES

MONTH	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
January	3,639	5.4	0	0.0	6	12	34	3,587
February	3,905	5.8	0	0.0	3	19	65	3,818
March	4,099	6.1	0	0.0	6	23	54	4,016
April	3,681	5.4	1	16.7	5	32	62	3,581
May	4,592	6.8	1	16.7	12	58	88	4,433
June	4,299	6.4	1	16.7	15	56	100	4,127
July	3,117	4.6	0	0.0	21	56	68	2,972
August	2,810	4.2	0	0.0	10	54	64	2,682
September	5,438	8.0	2	33.3	13	58	100	5,265
October	11,536	17.0	1	16.7	17	81	232	11,205
November	13,945	20.6	0	0.0	21	86	239	13,599
December	6,608	9.8	0	0.0	7	40	97	6,464
Totals	67,669	100.0	6	100.0	136	575	1,203	65,749



32,089 (47.4%) of all reported motor vehicle-deer collisions occurred during the fourth quarter of the year.

REPORTED STATEWIDE MOTOR VEHICLE-DEER CRASHES BY COUNTY IN MICHIGAN

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Alcona	643	0	11	632	0	101	110	432	0	14
Alger	296	0	8	288	0	35	118	143	0	9
Allegan	1,020	0	31	989	61	66	146	747	0	34
Alpena	620	0	15	605	0	69	131	420	0	17
Antrim	644	0	13	631	0	118	116	410	0	16
Arenac	521	0	7	514	41	118	36	326	0	7
Baraga	344	0	11	333	0	123	52	169	0	14
Barry	1,319	0	39	1,280	0	0	380	939	0	41
Bay	393	0	15	378	32	16	72	273	0	20
Benzie	345	0	6	339	0	58	45	242	0	7
Berrien	727	0	34	693	87	119	46	475	0	40
Branch	925	0	36	889	85	68	45	727	0	43
Calhoun	1,852	0	39	1,813	199	0	234	1,419	0	49
Cass	707	1	27	679	0	50	188	469	1	30
Charlevoix	639	0	11	628	0	180	97	362	0	12
Cheboygan	493	0	20	473	79	26	127	261	0	24
Chippewa	648	0	15	633	57	0	228	363	0	21
Clare	812	0	15	797	0	167	134	511	0	17
Clinton	980	0	24	956	115	135	58	672	0	29
Crawford	468	0	13	455	66	12	127	263	0	14
Delta	1,262	0	14	1,248	0	259	240	763	0	15
Dickinson	869	0	15	854	0	214	257	398	0	16
Eaton	1,381	0	38	1,343	140	36	322	883	0	44
Emmet	589	0	9	580	1	118	52	418	0	14
Genesee	1,183	0	30	1,153	95	32	147	909	0	43
Gladwin	703	0	22	681	0	0	255	448	0	27
Gogebic	195	0	11	184	0	95	11	89	0	16
Grand Traverse	566	0	16	550	0	48	91	427	0	16
Gratiot	768	0	17	751	0	125	113	530	0	18
Hillsdale	993	0	23	970	0	81	135	777	0	30
Houghton	373	0	9	364	0	74	121	178	0	10
Huron	1,054	0	22	1,032	0	0	353	701	0	30
Ingham	1,363	0	42	1,321	115	93	171	984	0	53
Ionia	1,087	0	31	1,056	78	0	272	737	0	35
Iosco	671	0	24	647	0	76	210	385	0	25
Iron	697	0	17	680	0	178	222	297	0	23
Isabella	1,186	0	25	1,161	0	130	81	975	0	31
Jackson	2,033	1	56	1,976	100	118	295	1,520	1	60
Kalamazoo	1,326	0	43	1,283	56	79	99	1,092	0	51
Kalkaska	387	0	4	383	0	41	86	260	0	4
Kent	2,070	0	67	2,003	131	99	269	1,571	0	74
Keweenaw	42	0	3	39	0	16	7	19	0	3
Lake	421	0	4	417	0	75	67	279	0	7
Lapeer	1,284	0	32	1,252	96	0	221	967	0	39
Leelanau	277	0	7	270	0	0	91	186	0	8
Lenawee	795	0	30	765	0	160	157	478	0	38

REPORTED STATEWIDE MOTOR VEHICLE-DEER CRASHES BY COUNTY IN MICHIGAN (Continued)

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Livingston	1,116	0	54	1,062	113	62	107	834	0	58
Luce	165	0	5	160	0	0	96	69	0	7
Mackinac	578	0	20	558	81	113	181	203	0	24
Macomb	641	1	33	607	26	0	118	497	1	34
Manistee	686	0	14	672	0	122	158	406	0	14
Marquette	677	0	24	653	0	155	111	411	0	28
Mason	907	0	25	882	0	262	7	638	0	29
Mecosta	1,502	0	25	1,477	0	257	289	956	0	29
Menominee	1,480	0	37	1,443	0	456	145	879	0	44
Midland	1,035	1	21	1,013	0	65	103	867	1	23
Missaukee	545	0	7	538	0	0	114	431	0	11
Monroe	299	0	21	278	37	57	25	180	0	23
Montcalm	1,605	0	37	1,568	0	53	416	1,136	0	40
Montmorency	286	0	2	284	0	0	110	176	0	3
Muskegon	769	0	33	736	13	74	62	620	0	34
Newaygo	896	0	16	880	0	0	254	642	0	18
Oakland	1,759	0	66	1,693	154	13	177	1,415	0	80
Oceana	592	0	17	575	0	145	42	405	0	18
Ogemaw	790	0	11	779	92	0	190	508	0	14
Ontonagon	497	0	6	491	0	92	215	190	0	6
Osceola	1,102	0	48	1,054	0	247	134	721	0	52
Oscoda	223	0	8	215	0	0	60	163	0	12
Otsego	307	0	12	295	77	0	30	200	0	12
Ottawa	1,046	0	34	1,012	132	41	68	805	0	39
Presque Isle	574	0	12	562	0	115	125	334	0	13
Roscommon	611	0	14	597	67	58	110	376	0	18
Saginaw	880	1	28	851	33	0	202	645	1	30
St. Clair	979	0	42	937	106	0	148	725	0	49
St. Joseph	726	0	21	705	0	96	129	501	0	29
Sanilac	1,091	0	37	1,054	0	0	350	741	0	42
Schoolcraft	342	0	13	329	0	105	104	133	0	15
Shiawassee	910	0	40	870	98	0	197	615	0	47
Tuscola	948	0	24	924	0	0	265	683	0	27
Van Buren	820	0	23	797	103	0	210	507	0	29
Washtenaw	1,319	1	54	1,264	64	138	107	1,010	1	61
Wayne	352	0	19	333	44	11	31	266	0	22
Wexford	614	0	9	605	0	55	234	325	0	10
UNKNOWN	29	0	1	28	0	0	0	29	0	2
Totals	67,669	6	1,914	65,749	2,874	6,400	12,259	46,136	6	2,234

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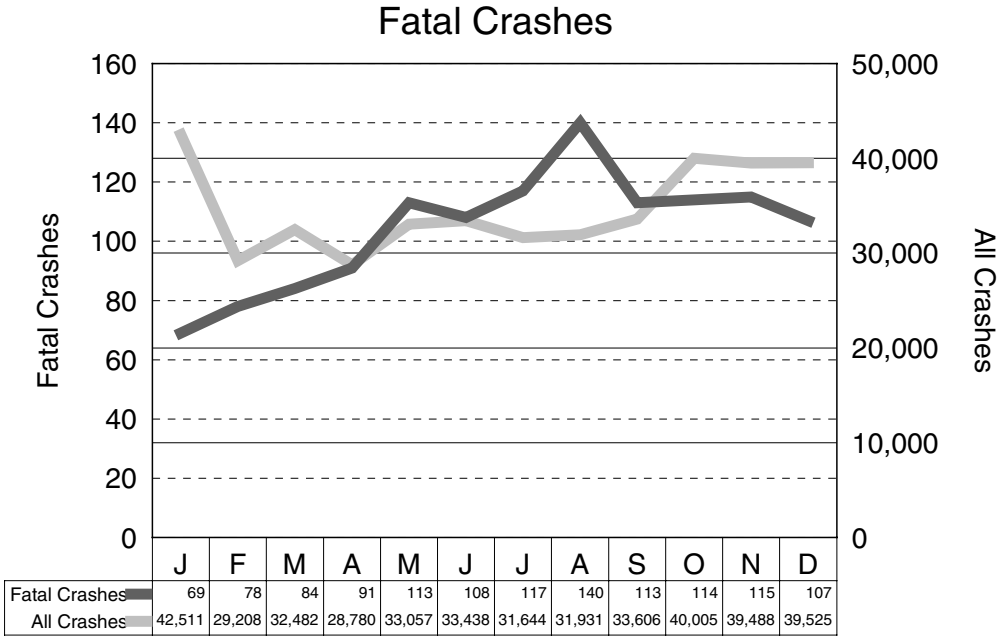
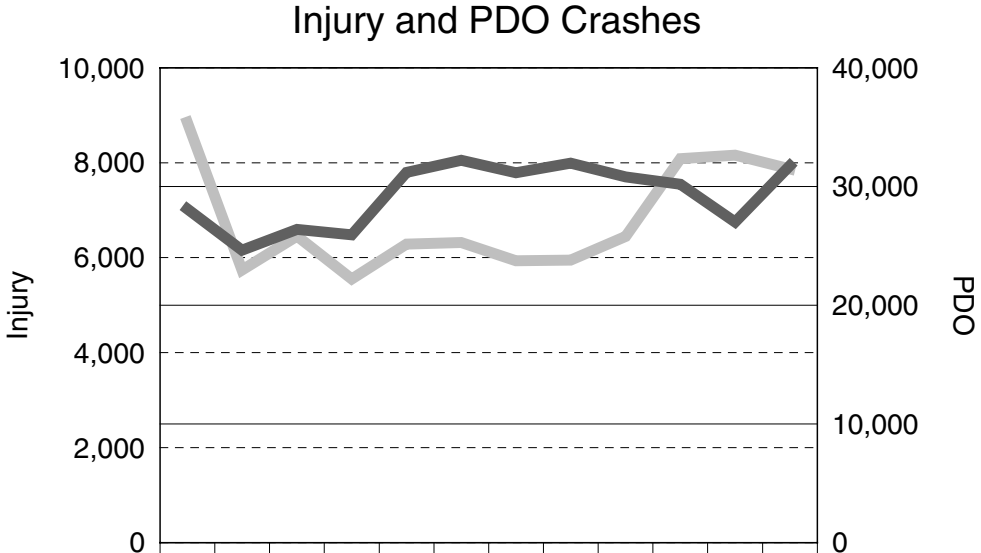
Crash

ALL CRASHES INJURY SEVERITY BY MONTH



	J	F	M	A	M	J	J	A	S	O	N	D
Fatal Crashes	69	78	84	91	113	108	117	140	113	114	115	107
All Crashes	42,511	29,208	32,482	28,780	33,057	33,438	31,644	31,931	33,606	40,005	39,488	39,525



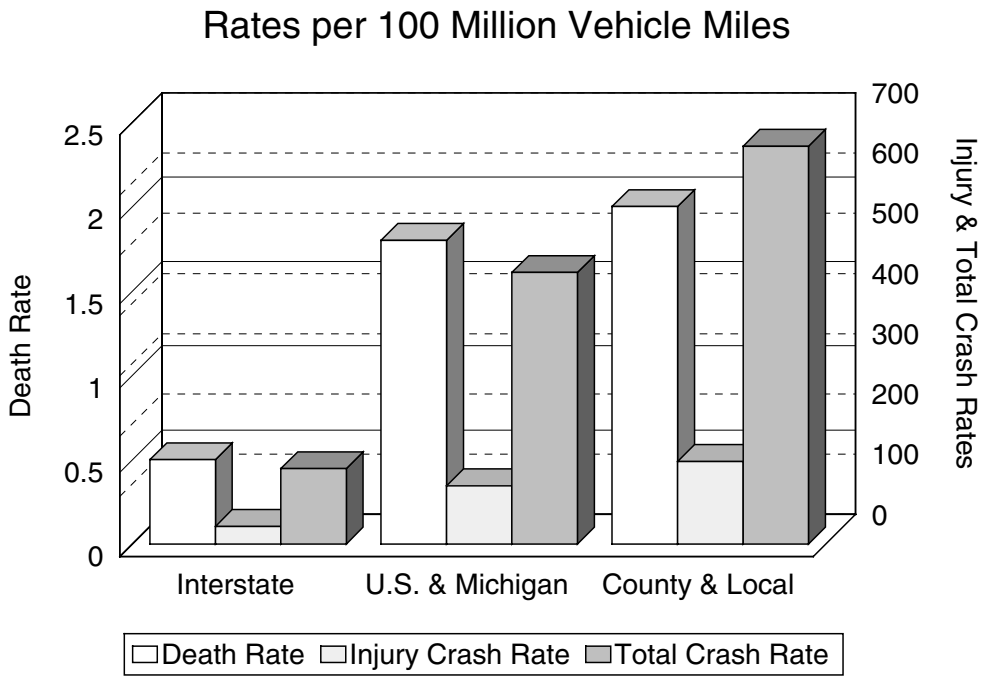
	J	F	M	A	M	J	J	A	S	O	N	D
INJURY	7,027	6,159	6,593	6,478	7,799	8,052	7,787	7,990	7,703	7,547	6,749	7,936
PDO	35,415	22,971	25,805	22,211	25,145	25,278	23,740	23,801	25,790	32,344	32,624	31,482

The charts on this page show that the months of June through August are peak months (24% or above) in terms of the percent of the number of crashes involving death or injury to the number of all crashes. That is, if a person was in a motor vehicle crash during one of these months there was a higher chance of that crash resulting in death or injury to one of the involved persons than if that crash happened during one of the other months.

CRASH EXPERIENCE BY ROADWAY TYPE

The table below provides a detailed breakdown of estimated vehicle mileage, crashes, death rates (deaths per 100 million vehicle miles), and crash rates (crashes per 100 million vehicle miles) for the major roadway types in Michigan. All rates are lowest on interstate routes. 1999 estimated mileage figures were provided by the Michigan Department of Transportation [10].

STATEWIDE	Estimated Mileage (Billions)	All Crashes	Injury Crashes	Deaths	Total Crash Rate	Injury Crash Rate	Death Rate
Interstate Routes	28.6	35,781	8,302	150	125.1	29.0	0.5
U.S. & Michigan Roads	21.9	98,680	21,151	396	450.6	96.6	1.8
County & City Roads	42.6	281,214	58,367	840	660.1	137.0	2.0
Totals	93.1	415,675	87,820	1,386	446.5	94.3	1.5



CRASH TYPE

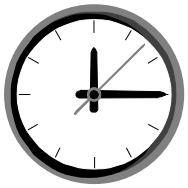
CRASH TYPE	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Single Vehicle	126,990	30.6	575	46.0	3,552	7,864	9,729	105,270
Head On	7,685	1.8	165	13.2	661	901	1,188	4,770
Head On - Left Turn	12,854	3.1	53	4.2	700	1,561	2,893	7,647
Angle	82,951	20.0	295	23.6	2,575	6,342	14,241	59,498
Rear End	100,440	24.2	77	6.2	1,287	3,543	20,373	75,160
Rear End - Left Turn	4,608	1.1	4	0.3	108	283	908	3,305
Rear End - Right Turn	3,302	0.8	1	0.1	21	59	486	2,735
Sideswipe - Same Direction	36,227	8.7	15	1.2	297	672	2,155	33,088
Sideswipe - Opposite Direct	11,791	2.8	18	1.4	149	371	829	10,424
Other/Unknown	28,827	6.9	46	3.7	607	1,220	2,245	24,709
Totals	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606

Single Vehicle, Head On, and Angle crash types produce the highest number of fatal crashes (82.9%). Single Vehicle crashes include rollovers, which are particularly deadly crash types. Rear End-Turning and Sideswipe crashes produce the lowest number of fatal crashes (3%).

RELATION TO ROADWAY

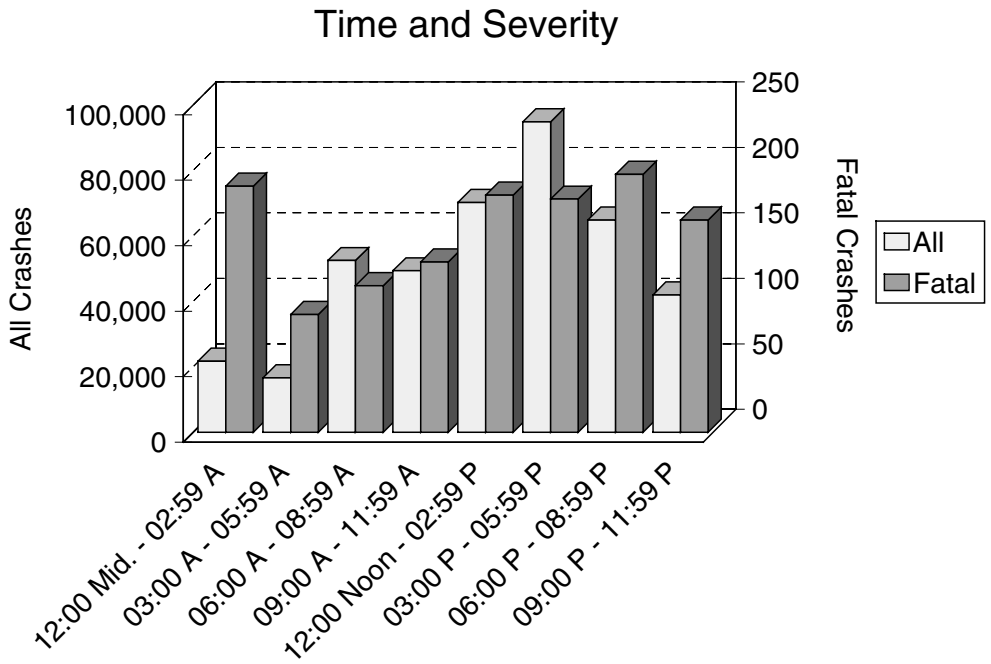
LOCATION OF FIRST IMPACT	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
On Road	361,581	87.0	850	68.1	7,282	17,120	47,906	288,423
Median	2,538	0.6	24	1.9	143	304	443	1,624
Shoulder	15,549	3.7	76	6.1	657	1,430	1,934	11,452
Outside of Shoulder/Curb	27,739	6.7	257	20.6	1,574	3,281	3,853	18,774
Gore	746	0.2	8	0.6	45	101	109	483
Other/Unknown	7,522	1.8	34	2.7	256	580	802	5,850
Totals	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606

Crashes that happen outside of the normal driving lanes are overrepresented in the fatal count. Only 6.7 percent of crashes occur outside the shoulder of the road, but these crashes account for 20.6 percent of the fatal crashes.

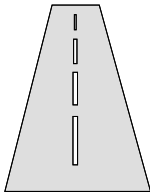


TIME AND SEVERITY

TIME OF DAY	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
12:00 mid. - 02:59 a.m.	21,740	5.2	188	15.1	914	1,737	2,138	16,763
03:00 a.m. - 05:59 a.m.	16,580	4.0	90	7.2	487	980	1,359	13,664
06:00 a.m. - 08:59 a.m.	52,436	12.6	112	9.0	960	2,233	6,443	42,688
09:00 a.m. - 11:59 a.m.	49,333	11.9	130	10.4	1,098	2,670	7,184	38,251
12:00 noon - 02:59 p.m.	70,175	16.9	181	14.5	1,586	3,913	11,115	53,380
03:00 p.m. - 05:59 p.m.	94,796	22.8	178	14.3	2,171	5,347	14,628	72,472
06:00 p.m. - 08:59 p.m.	64,812	15.6	197	15.8	1,505	3,425	7,515	52,170
09:00 p.m. - 11:59 p.m.	41,962	10.1	162	13.0	1,164	2,387	4,322	33,927
Unknown	3,841	0.9	11	0.9	72	124	343	3,291
Total	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606



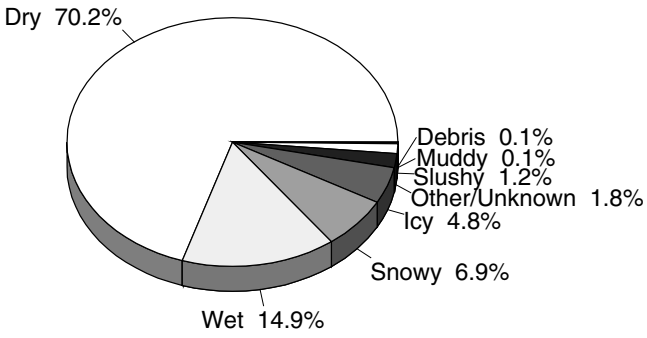
Crash frequencies peak in the late afternoon, then drop off steadily until 6:00 AM (the morning rush hour). Fatal crash frequencies rise with the frequency of other crashes, but continue at a high rate well into the early morning hours. There are proportionally more fatal crashes during the midnight to 2:59 AM time period.



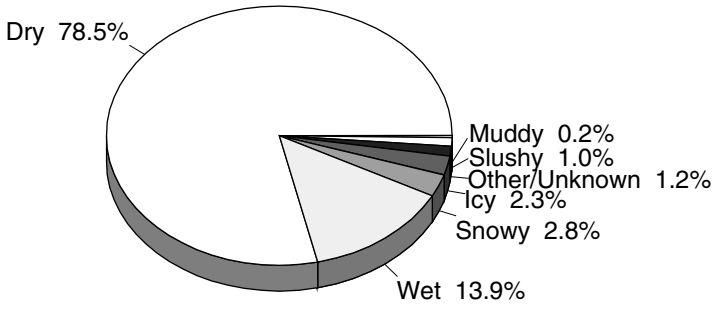
ROAD CONDITION

ROAD SURFACE CONDITION	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Dry	291,845	70.2	980	78.5	7,420	16,977	38,603	227,865
Wet	62,002	14.9	174	13.9	1,426	3,326	9,417	47,659
Icy	19,795	4.8	29	2.3	417	925	2,618	15,806
Snowy	28,712	6.9	35	2.8	426	963	2,930	24,358
Muddy	558	0.1	3	0.2	21	42	63	429
Slushy	5,079	1.2	13	1.0	113	255	689	4,009
Debris	239	0.1	0	0.0	10	28	29	172
Other/Unknown	7,445	1.8	15	1.2	124	300	698	6,308
Totals	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606

ALL CRASHES



FATAL CRASHES

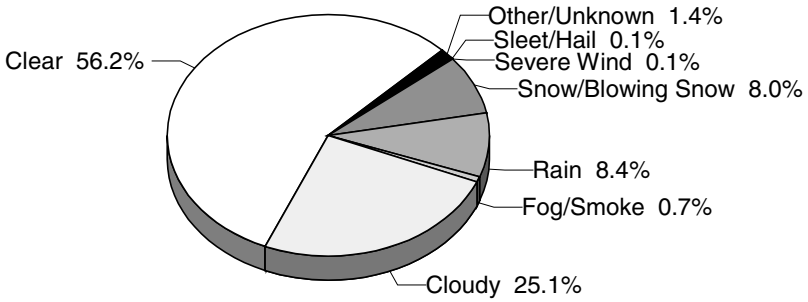


Most crashes (70.2%) and most fatal crashes (78.5%) occur on dry roads. This indicates that Michigan drivers do a good job of adjusting their driving behavior for bad road conditions.

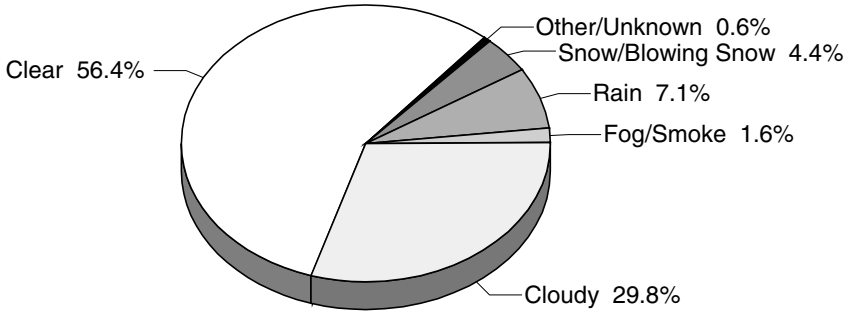
WEATHER CONDITION

WEATHER CONDITION	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Clear	233,598	56.2	705	56.4	5,969	13,383	30,741	182,800
Cloudy	104,379	25.1	372	29.8	2,423	5,827	14,015	81,742
Fog/Smoke	3,064	0.7	20	1.6	106	200	288	2,450
Rain	34,744	8.4	89	7.1	798	1,932	5,545	26,380
Snow/Blowing Snow	33,182	8.0	55	4.4	557	1,286	3,876	27,408
Severe Wind	236	0.1	0	0.0	6	12	22	196
Sleet/Hail	603	0.1	0	0.0	24	42	108	429
Other/Unknown	5,869	1.4	8	0.6	74	134	452	5,201
Totals	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606

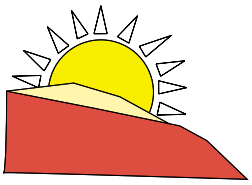
ALL CRASHES



FATAL CRASHES



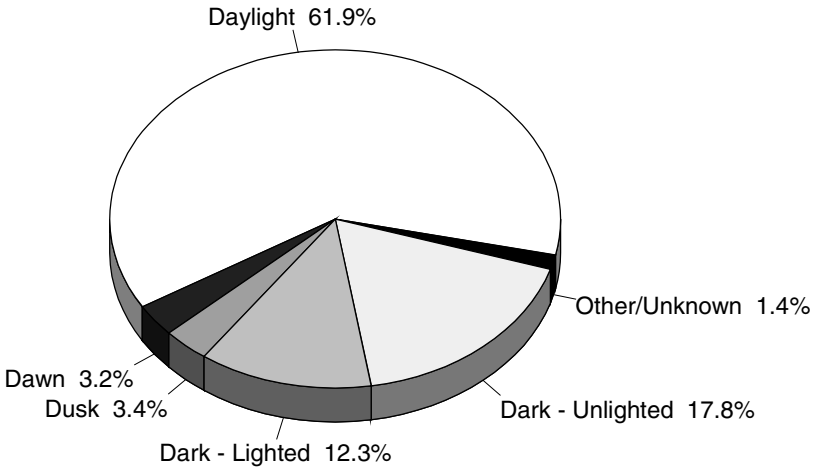
The majority of all crashes occur in good weather (56.2%) as do the majority of fatal crashes (56.4%). Fog/smoke is a particularly deadly weather condition as it is overrepresented in fatal crashes.



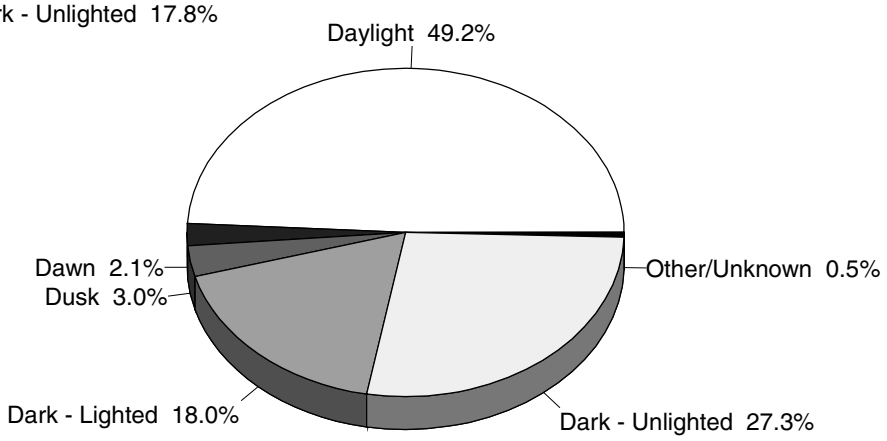
LIGHT CONDITION

LIGHT CONDITION	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Daylight	257,475	61.9	614	49.2	6,090	14,822	39,482	196,467
Dawn	13,143	3.2	26	2.1	195	505	1,189	11,228
Dusk	14,043	3.4	37	3.0	304	659	1,489	11,554
Dark – Lighted	51,125	12.3	225	18.0	1,617	3,340	7,349	38,594
Dark – Unlighted	74,108	17.8	341	27.3	1,672	3,334	5,044	63,717
Other/Unknown	5,781	1.4	6	0.5	79	156	494	5,046
Totals	415,675	100.0	1,249	100.0	9,957	22,816	55,047	326,606

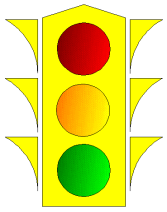
ALL CRASHES



FATAL CRASHES



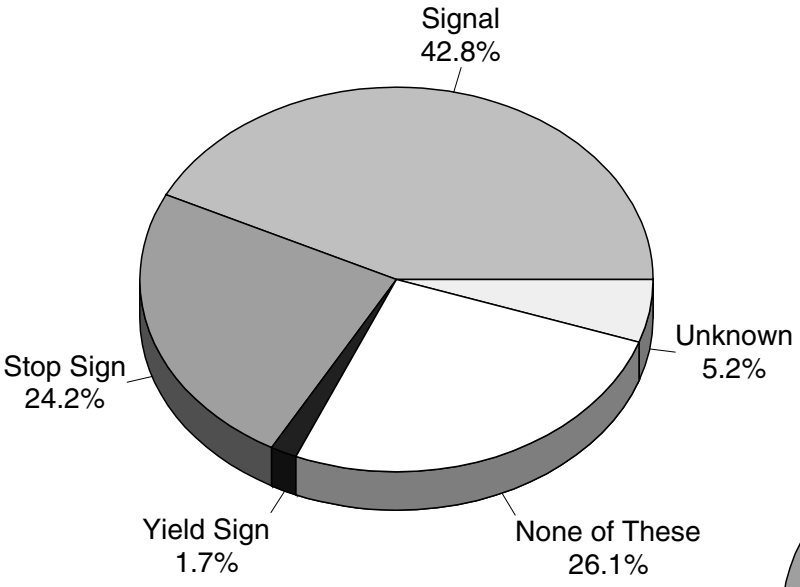
The majority (61.9%) of all crashes happen during daylight hours. Dark conditions create the greatest hazard, as they are overrepresented in fatal crashes. Areas without street lights have the highest fatality rate.



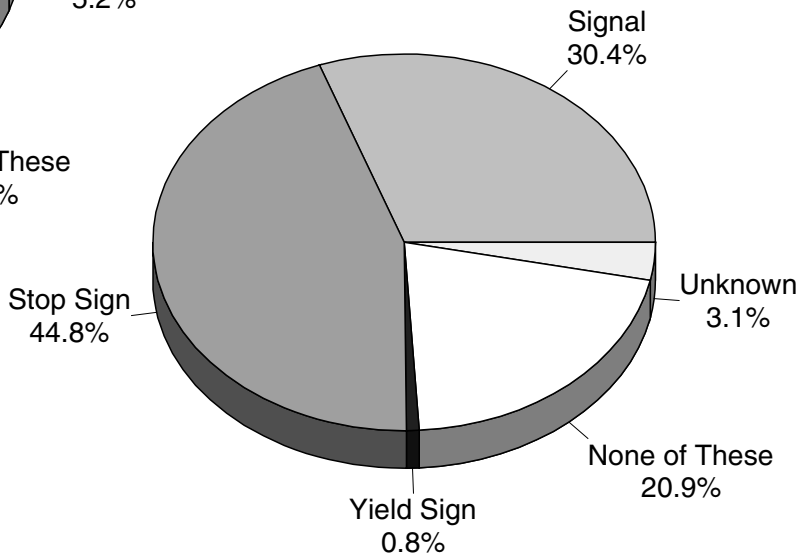
INTERSECTION CRASHES BY TRAFFIC CONTROL TYPE

TRAFFIC CONTROL TYPE	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Total	Number	% of Fatal	A	B	C	
Signal	60,411	42.8	116	30.4	1,500	3,901	11,877	43,017
Stop Sign	34,080	24.2	171	44.8	1,158	2,732	5,854	24,165
Yield Sign	2,402	1.7	3	0.8	78	211	450	1,660
None of These	36,856	26.1	80	20.9	912	2,220	5,680	27,964
Unknown	7,303	5.2	12	3.1	151	390	1,041	5,709
Totals	141,052	100.0	382	100.0	3,799	9,454	24,902	102,515

ALL CRASHES



FATAL CRASHES



Intersections with stop signs are overrepresented in fatal crashes. Driver perception, awareness, and adherence to traffic control signing are all key factors in crashes at intersections.

CONSTRUCTION ZONE CRASHES

CONSTRUCTION ZONE TYPE	All Crashes		Fatal Crashes		Injury Crashes			PDO Crashes
	Number	% of Subtotal	Number	% of Subtotal	A	B	C	
Construction/Maintenance								
Activity - On Road								
Lane Closed	3,294	47.4	7	29.2	67	126	507	2,587
Lane Open	1,039	15.0	3	12.5	29	46	154	807
Unknown Lane Closure	162	2.3	1	4.2	2	7	20	132
Activity - Off Road								
Lane Closed	354	5.1	0	0.0	4	12	72	266
Lane Open	473	6.8	4	16.7	18	20	59	372
Unknown Lane Closure	36	0.5	0	0.0	0	3	7	26
Activity - None								
Lane Closed	659	9.5	3	12.5	13	28	111	504
Lane Open	566	8.1	6	25.0	25	34	93	408
Unknown Lane Closure	37	0.5	0	0.0	2	3	6	26
Activity – Unknown								
Lane Closed	131	1.9	0	0.0	3	2	16	110
Lane Open	44	0.6	0	0.0	0	4	7	33
Unknown Lane Closure	153	2.2	0	0.0	0	5	23	125
Subtotal	6,948	100.0	24	100.0	163	290	1,075	5,396
Utility								
Activity - On Road								
Lane Closed	109	31.9	0	0.0	1	7	14	87
Lane Open	61	17.8	0	0.0	1	3	9	48
Unknown Lane Closure	5	1.5	0	0.0	0	0	0	5
Activity - Off Road								
Lane Closed	26	7.6	0	0.0	1	1	3	21
Lane Open	55	16.1	2	100.0	1	5	11	36
Unknown Lane Closure	3	0.9	0	0.0	0	0	1	2
Activity - None								
Lane Closed	9	2.6	0	0.0	0	0	2	7
Lane Open	23	6.7	0	0.0	1	2	4	16
Unknown Lane Closure	3	0.9	0	0.0	0	0	1	2
Activity - Unknown								
Lane Closed	1	0.3	0	0.0	0	0	0	1
Lane Open	2	0.6	0	0.0	0	1	0	1
Unknown Lane Closure	45	13.2	0	0.0	1	3	6	35
Subtotal	342	100.0	2	100.0	6	22	51	261
Total	7,290		26		169	312	1,126	5,657

REPORTED STATEWIDE TRAFFIC CRASHES BY COUNTY IN MICHIGAN

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Alcona	858	3	64	791	0	122	141	595	3	99
Alger	609	3	97	509	0	37	225	347	3	131
Allegan	3,969	21	882	3,066	287	367	724	2,591	23	1,226
Alpena	1,493	1	224	1,268	0	287	239	967	1	316
Antrim	1,210	3	143	1,064	0	240	203	767	4	212
Arenac	1,057	1	157	899	132	232	74	619	1	233
Baraga	560	2	74	484	0	206	58	296	2	113
Barry	2,598	11	403	2,184	0	0	734	1,864	11	581
Bay	4,019	22	1,014	2,983	299	120	1,110	2,490	25	1,450
Benzie	684	3	98	583	0	146	86	452	3	128
Berrien	5,986	29	1,386	4,571	918	829	606	3,633	32	2,080
Branch	2,127	13	373	1,741	208	390	76	1,453	16	524
Calhoun	6,826	25	1,195	5,606	1,184	47	808	4,787	27	1,678
Cass	1,957	18	414	1,525	3	165	551	1,238	20	633
Charlevoix	1,349	4	186	1,159	0	345	199	805	4	246
Cheboygan	1,205	4	256	945	190	65	239	711	5	358
Chippewa	1,710	3	272	1,435	321	0	364	1,025	3	384
Clare	1,664	6	237	1,421	0	397	269	998	7	346
Clinton	2,439	7	432	2,000	345	360	136	1,598	7	612
Crawford	938	3	164	771	218	22	196	502	3	228
Delta	2,482	6	312	2,164	0	538	398	1,546	7	435
Dickinson	1,544	2	210	1,332	0	479	359	706	2	269
Eaton	4,462	15	857	3,590	617	150	1,199	2,496	18	1,259
Emmet	1,853	4	300	1,549	23	608	136	1,086	4	455
Genesee	15,789	58	4,096	11,635	1,796	401	2,217	11,375	62	6,141
Gladwin	1,196	3	189	1,004	0	0	418	778	5	288
Gogebic	579	3	90	486	0	259	29	291	4	126
Grand Traverse	3,971	13	767	3,191	0	907	396	2,668	16	1,115
Gratiot	1,897	6	322	1,569	0	510	295	1,092	6	487
Hillsdale	2,298	12	376	1,910	0	215	494	1,589	14	547
Houghton	1,372	8	237	1,127	0	401	306	665	9	328
Huron	1,856	3	262	1,591	0	0	667	1,189	3	390
Ingham	12,102	25	2,525	9,552	1,691	448	1,930	8,033	31	3,483
Ionia	2,782	9	477	2,296	303	0	747	1,732	9	678
Iosco	1,326	5	217	1,104	0	276	291	759	6	291
Iron	1,036	2	116	918	0	221	296	519	2	156
Isabella	2,970	9	481	2,480	0	325	239	2,406	11	697
Jackson	7,023	21	1,252	5,750	898	325	1,014	4,786	22	1,698
Kalamazoo	10,199	31	2,020	8,148	819	620	1,141	7,619	33	2,844
Kalkaska	913	3	134	776	0	164	174	575	3	195
Kent	26,200	57	5,709	20,434	1,706	2,143	4,396	17,955	67	7,961
Keweenaw	103	0	20	83	0	36	16	51	0	22
Lake	689	3	100	586	0	113	102	474	3	134
Lapeer	3,763	21	709	3,033	238	0	1,035	2,490	26	1,064
Leelanau	720	1	111	608	0	0	268	452	1	159
Lenawee	3,668	17	785	2,866	0	791	675	2,202	17	1,187

REPORTED STATEWIDE TRAFFIC CRASHES BY COUNTY IN MICHIGAN (Continued)

COUNTY	All	Fatal	Injury	Property Damage	Inter-state	US Route	State Route	Local Street	Persons Killed	Persons Injured
Livingston	5,552	22	1,285	4,245	1,028	461	594	3,469	26	1,805
Luce	299	3	42	254	0	0	150	149	4	61
Mackinac	928	4	121	803	174	186	217	351	7	179
Macomb	26,447	53	6,545	19,849	1,735	0	6,488	18,224	54	9,282
Manistee	1,354	3	173	1,178	0	306	226	822	3	236
Marquette	2,668	11	491	2,166	0	752	266	1,650	11	692
Mason	1,818	5	283	1,530	0	597	32	1,189	5	413
Mecosta	2,786	8	324	2,454	0	678	495	1,613	8	455
Menominee	2,195	5	254	1,936	0	679	186	1,330	5	366
Midland	3,179	13	653	2,513	0	352	444	2,383	15	957
Missaukee	871	3	94	774	0	0	232	639	4	146
Monroe	4,517	24	1,181	3,312	450	742	625	2,700	26	1,728
Montcalm	3,324	15	533	2,776	0	114	1,036	2,174	20	787
Montmorency	470	1	57	412	0	0	163	307	1	76
Muskegon	6,035	18	1,390	4,627	49	1,012	686	4,288	21	1,958
Newaygo	2,088	9	365	1,714	0	0	654	1,434	10	535
Oakland	48,976	88	11,465	37,423	6,303	2,452	6,486	33,735	91	15,823
Oceana	1,282	4	211	1,067	0	306	84	892	4	280
Ogemaw	1,406	4	182	1,220	253	0	314	839	4	264
Ontonagon	683	2	49	632	0	121	257	305	2	62
Osceola	1,783	10	251	1,522	0	431	195	1,157	11	351
Oscoda	434	1	78	355	0	0	137	297	1	123
Otsego	1,169	4	236	929	293	0	228	648	5	339
Ottawa	7,783	27	1,693	6,063	436	1,095	619	5,633	34	2,407
Presque Isle	820	1	86	733	0	171	180	469	1	109
Roscommon	1,278	3	216	1,059	151	111	286	730	3	304
Saginaw	8,496	35	1,966	6,495	546	0	2,295	5,655	40	2,805
St. Clair	5,442	24	1,350	4,068	733	0	1,082	3,627	28	1,964
St. Joseph	2,578	14	507	2,057	0	640	426	1,512	15	759
Sanilac	1,982	10	289	1,683	0	0	708	1,274	10	415
Schoolcraft	654	1	90	563	0	172	170	312	1	118
Shiawassee	2,656	10	582	2,064	231	0	767	1,658	11	837
Tuscola	2,229	14	429	1,786	0	0	666	1,563	17	648
Van Buren	3,256	17	679	2,560	585	0	639	2,032	20	1,053
Washtenaw	13,209	37	2,801	10,371	1,792	1,765	928	8,724	39	3,779
Wayne	86,863	217	19,760	66,886	8,826	4,648	10,293	63,096	234	27,988
Wexford	2,036	10	350	1,676	0	558	494	984	14	492
UNKNOWN	78	0	14	64	0	0	0	78	0	18
Totals	415,675	1,249	87,820	326,606	35,781	32,656	66,024	281,214	1,386	124,601

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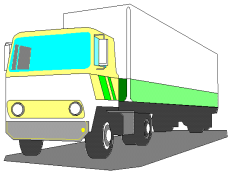
Vehicle/ Driver

VEHICLE TYPE CRASH INVOLVEMENT



Vehicle Types	Motor Vehicles		MOST SEVERE OUTCOME IN CRASH				MOST SEVERE OUTCOME IN VEHICLE			
			Fatal Crash		Injury	PDO	Fatality in Veh		Injury	No Injury
	Number of Vehicles	% of Total	Number	% of Total			Number	% of Total		
Passenger Car and Station Wagon	488,739	67.8	1,260	61.0	114,878	372,601	761	70.6	74,320	413,658
Van and Motorhome	55,368	7.7	138	6.7	12,723	42,507	53	4.9	6,807	48,508
Pickup	110,619	15.4	352	17.0	22,256	88,011	142	13.2	11,729	98,748
Small Truck (under 10,000 lbs.)	15,331	2.1	32	1.5	3,241	12,058	10	0.9	1,687	13,634
Motorcycle	2,820	0.4	80	3.9	2,090	650	74	6.9	2,065	681
Moped	266	0.0	6	0.3	185	75	6	0.6	178	82
Go Cart	16	0.0	0	0.0	10	6	0	0.0	9	7
Snowmobile	463	0.1	10	0.5	290	163	10	0.9	256	197
Off Road Vehicle	234	0.0	6	0.3	172	56	4	0.4	161	69
Other	2,068	0.3	11	0.5	417	1,640	2	0.2	191	1,875
Unkown	22,840	3.2	19	0.9	2,309	20,512	2	0.2	527	22,311
CDL Truck/Bus (breakdown below)	21,629	3.0	152	7.4	4,127	17,350	14	1.3	1,124	20,491
Total Number of Vehicles	720,393	100.0	2,066	100.0	162,698	555,629	1,078	100.0	99,054	620,261

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	Motor Vehicles		Fatal Crash		Injury	PDO	Fatality in Veh		Injury	No Injury
	Number of Vehicles	% of Total	Number	% of Total			Number	% of Total		
Commercial Vehicle: Group A	10,488	48.5	94	61.8	2,043	8,351	9	64.3	476	10,003
Commercial Vehicle: Group B	4,609	21.3	27	17.8	965	3,617	2	14.3	325	4,282
Commercial Vehicle: Group C	622	2.9	5	3.3	120	497	1	7.1	55	566
Other Truck	1,212	5.6	9	5.9	250	953	0	0.0	74	1,138
Unknown Truck	4,698	21.7	17	11.2	749	3,932	2	14.3	194	4,502
Total Number of Vehicles	21,629	100.0	152	100.0	4,127	17,350	14	100.0	1,124	20,491

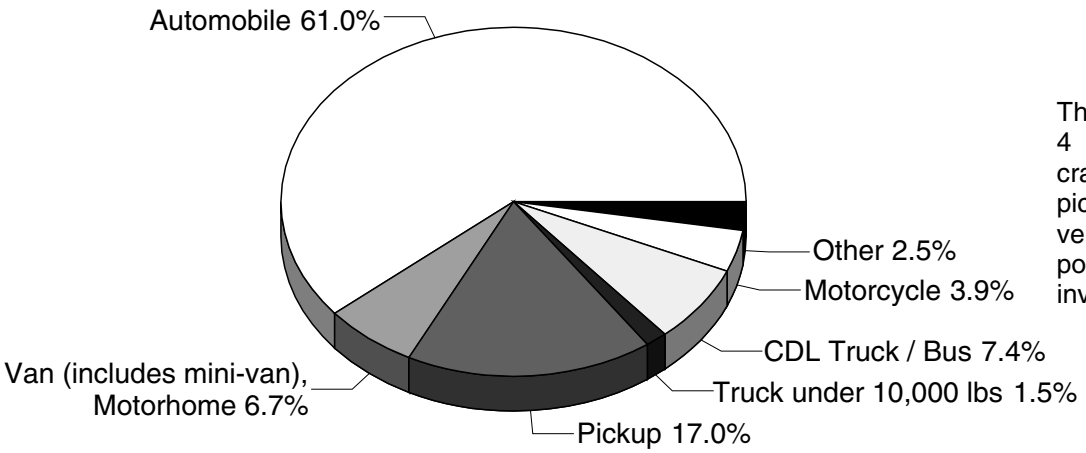
Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

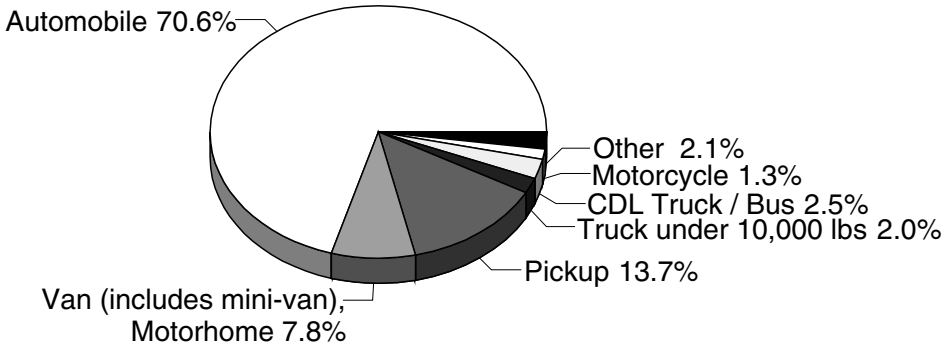
VEHICLE TYPES IN CRASHES BY CRASH SEVERITY

FATAL



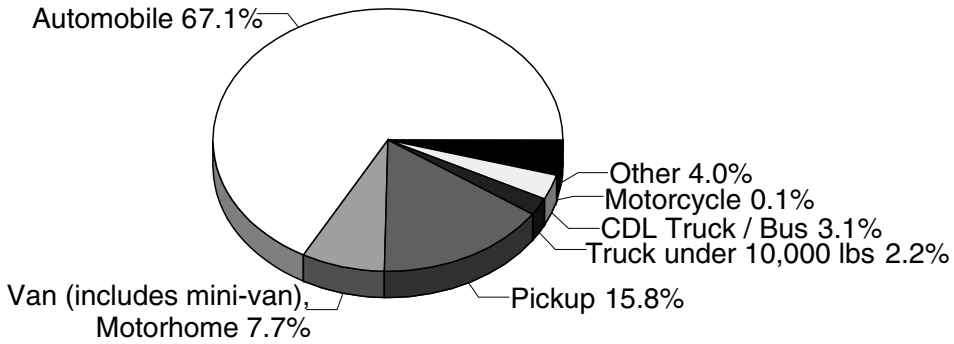
The top chart shows that 3 out of 4 vehicles involved in fatal crashes are automobiles or pickups. Van, Motorhome, the vehicle type that includes the popular minivan, has a fatal crash involvement of 6.7 percent.

INJURY



Special Note: "Other" consists of Moped, Go Cart, Snowmobile, Off Road Vehicle, Other, and Unknown.

PROPERTY DAMAGE ONLY



As with fatal crashes, Injury and PDO crashes are represented primarily by cars and pickups. One should also note the decline in proportional representation for motorcycles and heavy trucks compared to their levels in fatal crashes.

ACTION PRIOR TO CRASH

DRIVER ACTION	All Vehicles		MOST SEVERE OUTCOME IN CRASH				
			Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Going straight ahead	367,512	51.0	1,460	10,654	23,008	52,958	279,432
Turning left	53,981	7.5	116	1,612	4,064	9,116	39,073
Turning right	20,559	2.9	19	260	838	2,223	17,219
Stopped on roadway	70,399	9.8	73	1,012	3,021	15,598	50,695
In prior crash	1,034	0.1	7	38	77	209	703
Changing lanes	16,547	2.3	41	261	479	1,648	14,118
Backing	19,467	2.7	6	72	208	671	18,510
Slowing/stopping on roadway	60,556	8.4	46	682	2,044	12,258	45,526
Slowing/stopping other	869	0.1	5	17	41	144	662
Starting up on roadway	13,748	1.9	41	318	821	2,465	10,103
Starting up other	407	0.1	0	11	24	68	304
Entering parking	1,039	0.1	2	12	28	81	916
Leaving parking	2,839	0.4	5	38	125	328	2,343
Entering roadway	11,248	1.6	26	257	619	1,630	8,716
Leaving roadway	1,400	0.2	18	82	181	176	943
Making U-turn	1,736	0.2	8	72	120	252	1,284
Overtaking or passing	6,377	0.9	41	200	400	669	5,067
Avoiding object	1,978	0.3	4	74	174	296	1,430
Avoiding pedestrian	174	0.0	5	14	32	31	92
Avoiding vehicle (front/back)	5,708	0.8	39	209	421	936	4,103
Avoiding vehicle (angle)	2,489	0.3	10	97	225	376	1,781
Driverless moving	580	0.1	0	11	24	34	511
Parked	31,361	4.4	44	387	805	1,278	28,847
Crossing at intersection	89	0.0	0	4	12	23	50
Crossing not at intersection	69	0.0	1	13	20	15	20
Getting on/off vehicle	12	0.0	0	0	0	2	10
In roadway with traffic	16	0.0	1	0	3	7	5
In roadway against traffic	12	0.0	0	2	1	4	5
Standing or lying in roadway	14	0.0	1	4	1	2	6
Pushing/working on vehicle	13	0.0	0	2	1	1	9
Other working in roadway	2	0.0	0	0	0	0	2
Playing in roadway	5	0.0	0	2	2	0	1
In roadway other reason	15	0.0	0	1	3	1	10
Not in roadway	10	0.0	0	0	0	2	8
Other	549	0.1	5	25	38	72	409
Unknown	27,579	3.8	42	455	1,088	3,278	22,716
TOTAL	720,393	100.0	2,066	16,898	38,948	106,852	555,629

ACTION PRIOR TO CRASH (continued)

MOTORCYCLIST – INJURY SEVERITY

MOTORCYCLIST ACTION	All Motorcycles		All Motorcyclists		Fatal	Injury			No Injury
	Number of Motorcycles	% of Total	Number of Motorcyclist	% of Total		A	B	C	
Going straight ahead	1,842	65.3	2,105	65.5	67	482	695	449	361
Turning left	149	5.3	167	5.2	0	22	53	46	40
Turning right	99	3.5	111	3.5	1	10	36	29	30
Stopped on roadway	118	4.2	130	4.0	0	11	18	38	60
In prior crash	2	0.1	2	0.1	0	0	0	0	0
Changing lanes	49	1.7	52	1.6	0	8	19	5	18
Backing	2	0.1	2	0.1	0	0	0	1	1
Slowing/stopping on roadway	150	5.3	158	4.9	1	21	41	47	42
Slowing/stopping other	5	0.2	5	0.2	1	0	0	4	0
Starting up on roadway	25	0.9	28	0.9	0	2	15	5	6
Starting up other	3	0.1	7	0.2	0	0	4	2	1
Entering parking	1	0.0	1	0.0	0	0	1	0	0
Leaving parking	6	0.2	7	0.2	0	0	2	2	3
Entering roadway	25	0.9	36	1.1	0	10	12	4	10
Leaving roadway	12	0.4	16	0.5	1	2	4	6	2
Making U-turn	10	0.4	12	0.4	0	1	3	3	5
Overtaking or passing	62	2.2	69	2.1	0	19	23	13	13
Avoiding object	30	1.1	33	1.0	0	9	10	6	8
Avoiding pedestrian	4	0.1	6	0.2	0	0	3	0	3
Avoiding vehicle (front/back)	63	2.2	71	2.2	1	10	36	16	7
Avoiding vehicle (angle)	43	1.5	49	1.5	0	13	23	6	7
Driverless moving	1	0.0	2	0.1	0	0	2	0	0
Parked	36	1.3	36	1.1	0	0	1	0	8
Crossing at intersection	0	0.0	8	0.2	0	0	1	5	2
Crossing not at intersection	2	0.1	3	0.1	0	0	2	1	0
Getting on/off vehicle	0	0.0	0	0.0	0	0	0	0	0
In roadway with traffic	0	0.0	1	0.0	1	0	0	0	0
In roadway against traffic	0	0.0	4	0.1	0	1	1	1	1
Standing or lying in roadway	1	0.0	1	0.0	0	0	0	1	0
Pushing/working on vehicle	1	0.0	2	0.1	0	1	0	1	0
Other working in roadway	0	0.0	0	0.0	0	0	0	0	0
Playing in roadway	0	0.0	1	0.0	0	1	0	0	0
In roadway other reason	1	0.0	1	0.0	0	1	0	0	0
Not in roadway	0	0.0	2	0.1	0	0	0	2	0
Other	6	0.2	7	0.2	0	1	5	1	0
Unknown	72	2.6	80	2.5	4	8	30	16	15
TOTAL	2,820	100.0	3,215*	100.0	77	633	1,040	710	643

* Includes 112 motorcyclists (drivers and passengers) with unknown injury severity

ACTION PRIOR TO CRASH (continued)

BICYCLIST - INJURY SEVERITY

BICYCLIST ACTION	All Bicycles		Fatal	Injury			No Injury
	Number of Bicycles	% of Total		A	B	C	
Going straight ahead	1,444	51.6	9	166	519	467	227
Turning left	90	3.2	1	12	37	22	15
Turning right	32	1.1	1	4	8	13	6
Stopped on roadway	17	0.6	0	2	6	3	6
In prior crash	2	0.1	0	0	1	1	0
Changing lanes	39	1.4	0	7	16	11	4
Backing	3	0.1	0	0	1	0	2
Slowing/stopping on roadway	12	0.4	0	0	6	3	3
Slowing/stopping other	7	0.3	0	0	3	4	0
Starting up on roadway	18	0.6	0	1	7	3	7
Starting up other	6	0.2	0	0	2	4	0
Entering parking	4	0.1	0	1	1	1	1
Leaving parking	8	0.3	0	2	1	1	3
Entering roadway	206	7.4	2	21	72	70	37
Leaving roadway	4	0.1	0	3	0	1	0
Making U-turn	6	0.2	0	0	4	1	1
Overtaking or passing	6	0.2	0	0	3	2	1
Avoiding object	0	0.0	0	0	0	0	0
Avoiding pedestrian	0	0.0	0	0	0	0	0
Avoiding vehicle (front/back)	2	0.1	0	0	0	2	0
Avoiding vehicle (angle)	9	0.3	0	0	5	4	0
Driverless moving	2	0.1	0	0	0	1	1
Parked	6	0.2	0	2	3	0	1
Crossing at intersection	391	14.0	2	23	155	137	63
Crossing not at intersection	171	6.1	2	24	73	50	17
Getting on/off vehicle	1	0.0	0	0	1	0	0
In roadway with traffic	49	1.8	2	13	18	11	5
In roadway against traffic	31	1.1	0	2	11	13	3
Standing or lying in roadway	1	0.0	0	0	0	0	1
Pushing/working on vehicle	0	0.0	0	0	0	0	0
Other working in roadway	0	0.0	0	0	0	0	0
Playing in roadway	14	0.5	0	2	6	2	4
In roadway other reason	21	0.8	1	3	7	7	3
Not in roadway	35	1.3	1	3	11	11	9
Other	55	2.0	3	8	14	25	5
Unknown	105	3.8	1	9	36	31	12
TOTAL	2,797*	100.0	25	308	1,027	901	437

* Includes 99 bicyclists with unknown injury severity

ACTION PRIOR TO CRASH (continued)

PEDESTRIAN - INJURY SEVERITY

PEDESTRIAN ACTION	All Pedestrians		Fatal	Injury			No Injury
	Number of Pedestrians	% of Total		A	B	C	
Going straight ahead	178	4.8	7	28	54	50	29
Turning left	22	0.6	0	5	4	5	7
Turning right	7	0.2	0	2	3	1	0
Stopped on roadway	16	0.4	1	3	6	3	3
In prior crash	6	0.2	0	1	4	1	0
Changing lanes	5	0.1	0	0	3	1	0
Backing	4	0.1	0	0	1	1	2
Slowing/stopping on roadway	4	0.1	0	1	0	1	2
Slowing/stopping other	0	0.0	0	0	0	0	0
Starting up on roadway	3	0.1	0	0	1	0	1
Starting up other	0	0.0	0	0	0	0	0
Entering parking	0	0.0	0	0	0	0	0
Leaving parking	1	0.0	0	0	0	0	1
Entering roadway	32	0.9	0	6	16	8	1
Leaving roadway	6	0.2	0	1	1	3	1
Making U-turn	2	0.1	0	0	1	0	1
Overtaking or passing	0	0.0	0	0	0	0	0
Avoiding object	2	0.1	0	0	0	0	1
Avoiding pedestrian	1	0.0	0	0	1	0	0
Avoiding vehicle (front/back)	5	0.1	0	0	2	1	1
Avoiding vehicle (angle)	2	0.1	0	0	0	2	0
Driverless moving	2	0.1	0	0	1	1	0
Parked	12	0.3	0	2	3	2	3
Crossing at intersection	803	21.8	10	154	261	305	58
Crossing not at intersection	1,092	29.7	66	282	361	278	69
Getting on/off vehicle	60	1.6	4	16	20	14	5
In roadway with traffic	212	5.8	15	38	70	72	11
In roadway against traffic	55	1.5	9	9	16	18	3
Standing or lying in roadway	145	3.9	17	31	43	44	5
Pushing/working on vehicle	47	1.3	2	18	12	12	3
Other working in roadway	63	1.7	0	8	18	28	9
Playing in roadway	83	2.3	2	15	35	23	5
In roadway other reason	210	5.7	12	40	64	71	15
Not in roadway	179	4.9	20	39	51	60	5
Other	141	3.8	2	26	42	57	6
Unknown	277	7.5	9	68	73	86	18
TOTAL	3,677*	100.0	176	793	1,167	1,148	265

* Includes 128 pedestrians with unknown injury severity

MOST HARMFUL EVENT

MOST SEVERE OUTCOME IN CRASH

NONCOLLISION	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Loss of control	6,455	0.9	12	174	451	1,006	4,812
Cross center/median	1,749	0.2	0	34	75	140	1,500
Ran off road left	1,110	0.2	2	42	88	159	819
Ran off road right	1,579	0.2	5	41	122	234	1,177
Re-enter road	412	0.1	1	16	43	64	288
Overturn	8,557	1.2	119	828	1,709	1,930	3,971
Separation of units	3,171	0.4	7	84	144	489	2,447
Fire/explosion	1,056	0.1	7	13	32	85	919
Immersion	286	0.0	4	21	34	43	184
Jackknife	402	0.1	0	6	14	41	341
Downhill runaway	84	0.0	0	1	7	5	71
Cargo loss/shift	962	0.1	1	19	25	48	869
Individual fell off	399	0.1	11	108	147	56	77
Other noncollision	2,275	0.3	3	40	124	205	1,903
NONCOLLISION Subtotal	28,497	4.0	172	1,427	3,015	4,505	19,378

MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH NONFIXED OBJECT	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Pedestrian	2,881	0.4	160	624	911	892	294
Pedalcycle	2,546	0.4	22	274	909	794	547
Motor vehicle in transport	491,736	68.3	1,326	10,837	25,794	84,724	369,055
Parked motor vehicle	21,045	2.9	20	204	505	891	19,425
Railway train	163	0.0	6	16	21	24	96
Animal	62,679	8.7	2	59	388	881	61,349
Other nonfixed objects	6,474	0.9	6	86	205	371	5,806
COLLISION NONFIXED Subtotal	587,524	81.6	1,542	12,100	28,733	88,577	456,572

MOST HARMFUL EVENT (continued)

MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH FIXED OBJECT	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Bridge/pier/abutment	672	0.1	9	37	59	85	482
Bridge parapet end	403	0.1	0	9	13	13	368
Bridge rail	402	0.1	1	12	33	60	296
Guardrail face	2,590	0.4	6	66	212	400	1,906
Guardrail end	426	0.1	3	31	49	70	273
Median barrier	2,667	0.4	5	129	254	580	1,699
Highway traffic sign post	2,280	0.3	5	16	61	108	2,090
Signal post	265	0.0	2	9	12	16	226
Luminaire/light support	576	0.1	8	22	50	66	430
Utility pole	3,333	0.5	27	205	488	534	2,079
Other pole	1,045	0.1	3	31	71	113	827
Culvert	659	0.1	6	59	117	96	381
Curb	1,789	0.2	1	27	89	158	1,514
Ditch	6,923	1.0	27	299	810	1,021	4,766
Embankment	1,852	0.3	13	103	238	302	1,196
Fence	1,385	0.2	1	27	55	104	1,198
Mailbox	2,059	0.3	1	21	52	75	1,910
Tree	9,869	1.4	155	832	1,425	1,505	5,952
Rail crossing signal	132	0.0	0	1	4	4	123
Building	821	0.1	9	59	124	101	528
Traffic island	44	0.0	0	3	1	3	37
Fire hydrant	533	0.1	2	9	47	52	423
Impact attenuator	32	0.0	0	2	4	6	20
Other fixed object	3,347	0.5	12	92	266	332	2,645
COLLISION FIXED Subtotal	44,104	6.1	296	2,101	4,534	5,804	31,369

MOST SEVERE OUTCOME IN CRASH

	Motor Vehicles		Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Unknown Event	60,268	8.4	56	1,270	2,666	7,966	48,310
TOTAL MOST HARMFUL EVENT	720,393	100.0	2,066	16,898	38,948	106,852	555,629

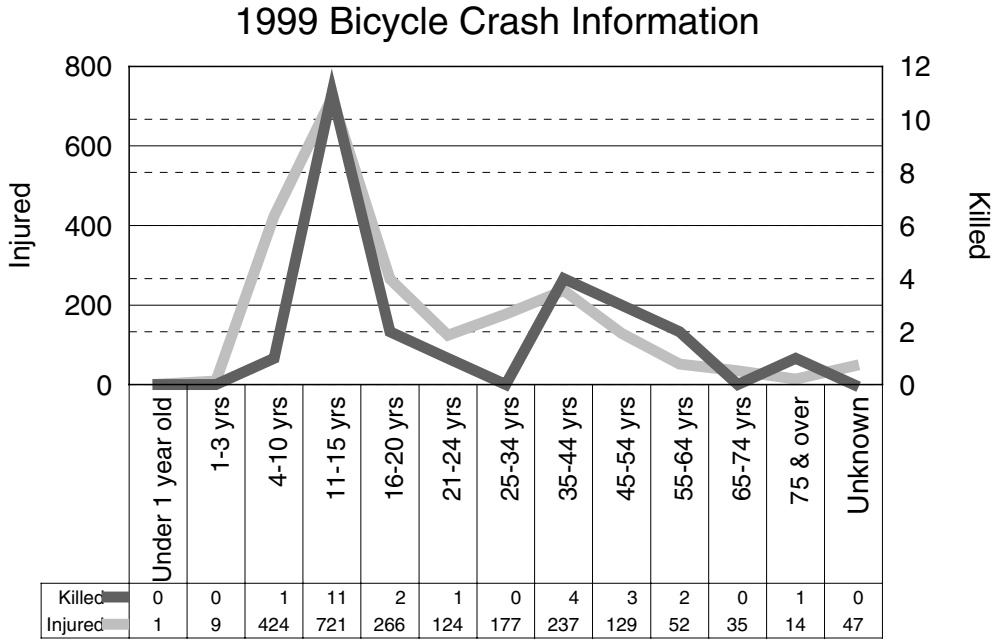
VEHICLE DEFECTS IN CRASH INVOLVEMENT

VEHICLE DEFECTS	Motor Vehicles		MOST SEVERE OUTCOME IN CRASH				
			Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
Brakes	1,664	0.2	4	49	115	317	1,179
Lights/reflectors	400	0.1	2	10	22	39	327
Steering	253	0.0	1	10	22	46	174
Tires/wheels	744	0.1	11	34	58	93	548
Windows	155	0.0	1	4	13	19	118
Other	1,678	0.2	5	41	76	190	1,366
Unknown	715,499	99.3	2,042	16,750	38,642	106,148	551,917
TOTAL	720,393	100.0	2,066	16,898	38,948	106,852	555,629

DRIVER HAZARDOUS ACTION

HAZARDOUS ACTION	All Vehicles		MOST SEVERE OUTCOME IN CRASH				
			Fatal	Injury			PDO
	Number of Vehicles	% of Total		A	B	C	
None	367,588	51.0	846	7,255	17,369	52,013	290,105
Speed too fast	38,184	5.3	265	1,822	3,791	6,089	26,217
Speed too slow	1,241	0.2	2	26	78	231	904
Failed to yield	65,206	9.1	184	2,029	5,155	11,596	46,242
Disregard traffic control	16,634	2.3	120	897	1,975	3,825	9,817
Drove wrong way	569	0.1	13	40	49	93	374
Drove left of center	4,498	0.6	114	328	521	647	2,888
Improper passing	5,175	0.7	14	94	203	456	4,408
Improper lane use	16,099	2.2	20	206	413	1,323	14,137
Improper turn	9,009	1.3	7	190	421	1,014	7,377
Improper/no signal	978	0.1	1	14	32	89	842
Improper backing	14,518	2.0	4	34	109	367	14,004
Unable to stop in assured clear distance	94,807	13.2	85	1,271	3,608	19,645	70,198
Other	38,565	5.4	202	1,700	3,417	5,027	28,219
Unknown	47,322	6.6	189	992	1,807	4,437	39,897
TOTAL	720,393	100.0	2,066	16,898	38,948	106,852	555,629

MICHIGAN BICYCLE CRASHES



In 1999, there were 2,797 bicyclists involved in motor vehicles crashes, with 25 bicyclists killed and 2,236 injured. The number of bicyclists killed represents a 7.4 percent decrease from 1998.

Children under 16 years of age accounted for 12 (48%) of the bicycle deaths in 1999.

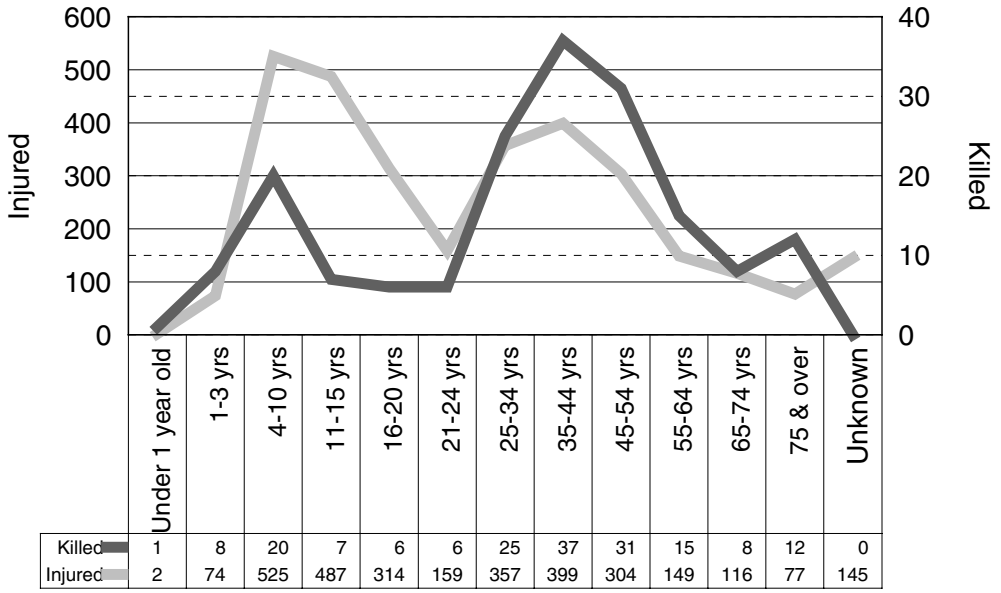
BICYCLE HELMET USE AND INJURY SEVERITY

HELMET USE	Fatality	Injury			No Injury
		A	B	C	
Worn	1	21	53	39	23
Not Worn	5	106	319	285	109
Unknown	19	181	655	577	305
TOTALS	25	308	1,027	901	437

The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration cites a study by the Centers for Disease Control [11] in giving us the following information: “Bicycle helmets are 85 to 88 percent effective in mitigating head and brain injuries, making the use of helmets the **single most effective countermeasure** available to reduce head injuries and fatalities resulting from bicycle crashes.”

MICHIGAN PEDESTRIAN CRASHES

1999 Pedestrian Crash Information

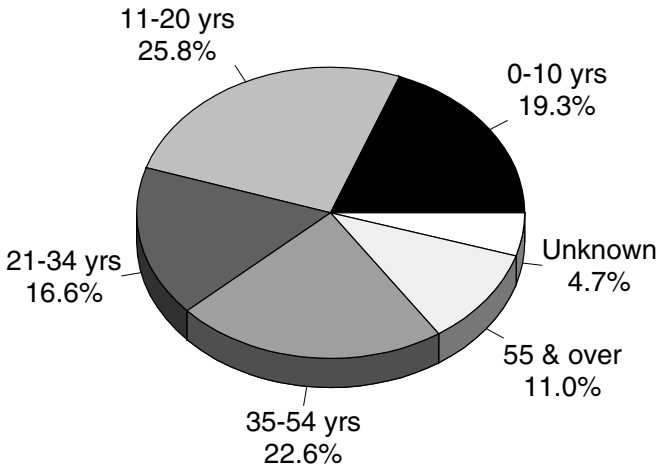


	Under 1 year old	1-3 yrs	4-10 yrs	11-15 yrs	16-20 yrs	21-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75 & over	Unknown
Killed	1	8	20	7	6	6	25	37	31	15	8	12	0
Injured	2	74	525	487	314	159	357	399	304	149	116	77	145

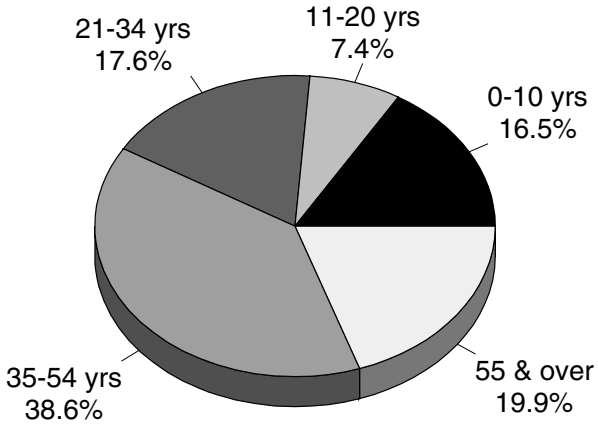
In 1999, there were 3,677 pedestrians involved in motor vehicles crashes, with 176 pedestrians killed and 3,108 injured. The number killed represents a 2.3 percent increase in fatalities from 1998.

Children under 16 years of age accounted for 36 (20.5%) of the pedestrian deaths in 1999. Adults over the age of 54 accounted for 35 (19.9%) of the pedestrian deaths in 1999.

Pedestrians Injured



Pedestrians Killed



MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

NONCOLLISION	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Loss of control	7	1.5	0	4	2	0	1
Cross center/median	1	0.2	0	0	0	0	1
Ran off road left	2	0.4	0	0	0	1	1
Ran off road right	1	0.2	0	0	1	0	0
Re-enter road	1	0.2	0	0	0	0	1
Overturn	29	6.3	1	6	6	11	5
Separation of units	3	0.6	0	0	0	3	0
Fire/explosion	1	0.2	0	0	0	1	0
Immersion	2	0.4	0	1	0	0	1
Jackknife	0	0.0	0	0	0	0	0
Downhill runaway	0	0.0	0	0	0	0	0
Cargo loss/shift	0	0.0	0	0	0	0	0
Individual fell off	28	6.0	1	16	5	5	1
Other noncollision	5	1.1	0	1	1	1	2
NONCOLLISION Subtotal	80	17.3	2	28	15	22	13

MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH NONFIXED OBJECT	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Pedestrian	5	1.1	0	2	3	0	0
Pedalcycle	0	0.0	0	0	0	0	0
Motor vehicle in transport	181	39.1	1	47	22	30	81
Parked motor vehicle	23	5.0	2	4	0	6	11
Railway train	1	0.2	0	0	0	0	1
Animal	15	3.2	0	2	0	1	12
Other nonfixed objects	4	0.9	0	2	1	0	1
COLLISION NONFIXED Subtotal	229	49.5	3	57	26	37	106

MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES (continued)

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

HAD A COLLISION WITH FIXED OBJECT	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
Bridge/pier/abutment	0	0.0	0	0	0	0	0
Bridge parapet end	0	0.0	0	0	0	0	0
Bridge rail	0	0.0	0	0	0	0	0
Guardrail face	2	0.4	0	0	0	2	0
Guardrail end	2	0.4	0	0	0	1	1
Median barrier	0	0.0	0	0	0	0	0
Highway traffic sign post	1	0.2	0	0	1	0	0
Signal post	0	0.0	0	0	0	0	0
Luminaire/light support	0	0.0	0	0	0	0	0
Utility pole	3	0.6	0	1	1	0	1
Other pole	5	1.1	0	2	2	0	1
Culvert	8	1.7	0	0	3	2	3
Curb	1	0.2	0	0	0	1	0
Ditch	7	1.5	0	1	3	2	1
Embankment	13	2.8	1	5	2	2	3
Fence	2	0.4	0	1	1	0	0
Mailbox	4	0.9	0	2	1	0	1
Tree	46	9.9	3	22	7	6	8
Rail crossing signal	0	0.0	0	0	0	0	0
Building	1	0.2	0	0	0	0	1
Traffic island	0	0.0	0	0	0	0	0
Fire hydrant	1	0.2	0	0	0	1	0
Impact attenuator	0	0.0	0	0	0	0	0
Other fixed object	15	3.2	0	2	7	4	2
COLLISION FIXED Subtotal	111	24.0	4	36	28	21	22
Unknown Event	43	9.3	1	5	7	8	22
TOTAL MOST HARMFUL EVENT	463	100.0	10	126	76	88	163

A total of 463 snowmobiles were reported in crashes on Michigan public roadways during 1999. Of these snowmobiles, 10 were involved in fatal crashes with 10 of their operators killed.

MICHIGAN ORV/ATV ON PUBLIC ROADWAY CRASHES

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

	ORV/ATV		Fatal	Injury			PDO
NONCOLLISION	Number of ORV/ATVs	% of Total		A	B	C	
Loss of control	9	3.8	0	3	4	1	1
Ran off road left	3	1.3	0	1	1	0	1
Overturn	21	9.0	0	6	12	3	0
Separation of Unit	1	0.4	0	0	0	0	1
Immersion	1	0.4	0	0	0	1	0
Individual fell off	15	6.4	1	7	5	2	0
Other noncollision	2	0.9	0	0	1	0	1
NONCOLLISION Subtotal	52	22.2	1	17	23	7	4
HAD A COLLISION WITH NONFIXED OBJECT							
Pedestrian	1	0.4	0	0	1	0	0
Motor vehicle in transport	98	41.9	4	26	23	10	35
Parked motor vehicle	8	3.4	0	1	1	0	6
Railway Train	1	0.4	1	0	0	0	0
Animal	4	1.7	0	1	1	0	2
Other nonfixed objects	3	1.3	0	1	2	0	0
COLLISION NONFIXED Subtotal	115	49.1	5	29	28	10	43
HAD A COLLISION WITH FIXED OBJECT							
Guardrail face	1	0.4	0	0	1	0	0
Traffic sign post	2	0.9	0	0	2	0	0
Utility pole	2	0.9	0	1	0	0	1
Other pole	1	0.4	0	1	0	0	0
Culvert	1	0.4	0	0	1	0	0
Ditch	6	2.6	0	2	3	1	0
Fence	5	2.1	0	2	2	1	0
Mailbox	3	1.3	0	1	2	0	0
Tree	15	6.4	0	7	6	1	1
Other fixed object	6	2.6	0	2	2	2	0
COLLISION FIXED Subtotal	42	17.9	0	16	19	5	2
Unknown Event	25	10.7	0	11	7	0	7
TOTAL MOST HARMFUL EVENT	234	100.0	6	73	77	22	56

A total of 234 Off Road Vehicles/All Terrain Vehicles were reported in crashes on Michigan public roadways during 1999. Of these ORV/ATVs, 6 were involved in fatal crashes with 4 of their operators killed. Two of the fatal crashes involved an ORV/ATV hitting an ORV/ATV, one was a single vehicle rollover, and in the other fatal crash the operator fell off of his vehicle.

MICHIGAN SNOWMOBILE ON PUBLIC ROADWAY CRASHES

MOST SEVERE OUTCOME IN CRASH

Driver Hazardous Action	Snowmobiles		Fatal	Injury			PDO
	Number of Snowmobiles	% of Total		A	B	C	
None	107	23.1	0	27	19	20	41
Speed too fast	118	25.5	8	45	22	24	19
Speed too slow	4	0.9	0	1	0	3	0
Failed to yield	51	11.0	1	6	7	8	29
Disregard traffic control	6	1.3	0	1	2	0	3
Drove wrong way	8	1.7	0	1	1	3	3
Drove left of center	5	1.1	0	2	1	0	2
Improper passing	1	0.2	0	0	0	0	1
Improper lane use	4	0.9	0	1	0	0	3
Improper turn	4	0.9	0	1	0	1	2
Improper/no signal	1	0.2	0	1	0	0	0
Improper backing	4	0.9	0	0	0	0	4
Unable to stop in assured clear distance	35	7.6	0	11	6	4	14
Other	70	15.1	1	19	15	13	22
Unknown	45	9.7	0	10	3	12	20
TOTAL	463	100.0	10	126	76	88	163

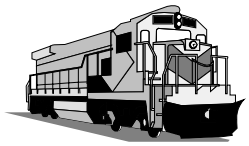
MICHIGAN ORV/ATV ON PUBLIC ROADWAY CRASHES

MOST SEVERE OUTCOME IN CRASH

Driver Hazardous Action	ORV/ATV		Fatal	Injury			PDO
	Number of ORV/ATVs	% of Total		A	B	C	
None	46	19.7	0	10	16	6	14
Speed too fast	53	22.6	2	22	22	4	3
Speed too slow	1	0.4	0	0	1	0	0
Failed to yield	27	11.5	0	6	5	6	10
Disregard traffic control	3	1.3	0	1	1	0	1
Drove wrong way	0	0.0	0	0	0	0	0
Drove left of center	2	0.9	0	1	0	0	1
Improper passing	1	0.4	0	1	0	0	0
Improper lane use	2	0.9	0	0	0	0	2
Improper turn	3	1.3	0	1	0	0	2
Improper/no signal	2	0.9	0	0	2	0	0
Improper backing	1	0.4	0	0	0	0	1
Unable to stop in assured clear distance	4	1.7	0	1	2	0	1
Other	72	30.8	4	24	25	6	13
Unknown	17	7.3	0	6	3	0	8
TOTAL	234	100.0	6	73	77	22	56

MICHIGAN FARM EQUIPMENT CRASHES

A total of 261 crashes involving farm equipment were reported on Michigan roadways during 1999. Of these crashes, 4 were fatal crashes with 5 persons killed in other vehicles. No operator of farm equipment was killed in a crash on Michigan roadways in 1999.



MICHIGAN VEHICLE - TRAIN CRASHES

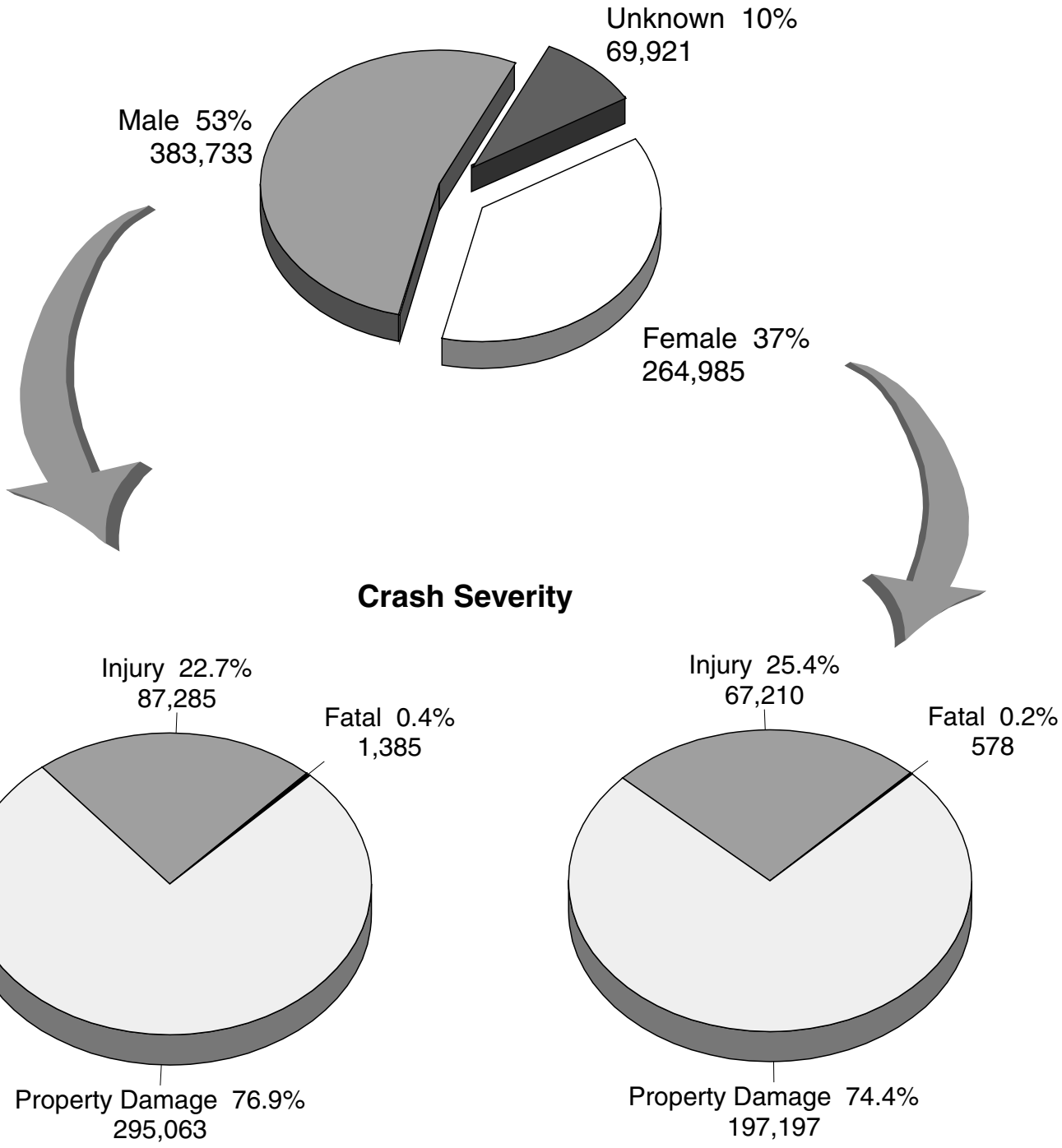
A total of 110 crashes involving trains were reported in Michigan during 1999. The National Highway Traffic Safety Administration's 1999 Fatal Accident Reporting System [12] reported 7 fatal train crashes in Michigan, and 7 persons killed as a result of those collisions.

MICHIGAN MOTORCYCLE CRASHES

MOTORCYCLE DATA	1998	1999	% Change
Registrations	147,056.0	160,752.0	9.3
Crashes	2,931.0	2,820.0	-3.8
Deaths	53.0	77.0	45.3
Persons Injured	2,456.0	2,383.0	-3.0
Death Rate based on 10,000 motorcycle registrations	3.6	4.8	33.3
Estimated Mileage based on 3,000 miles per motorcycle	441,168,000.0	482,256,000.0	9.3
Death Rate based on deaths per 100 million vehicle miles traveled	12.0	16.0	33.3

Motorcycles were involved in 0.68 percent of all traffic crashes in Michigan in 1999. Injuries were proportionately more severe to motorcyclists than to persons in motor vehicles. The 1999 death rate for motorcyclists was 16.0 per 100 million vehicle miles traveled compared to the overall 1.5 mileage death rate per 100 million vehicle miles traveled.

DRIVER GENDER INFORMATION - ALL CRASHES



A higher proportion of crashes involved male drivers than female drivers. When we examine the severity of crashes involving drivers of each gender, we see that fatal crashes are more prevalent among male drivers than female drivers (0.4% vs. 0.2%).

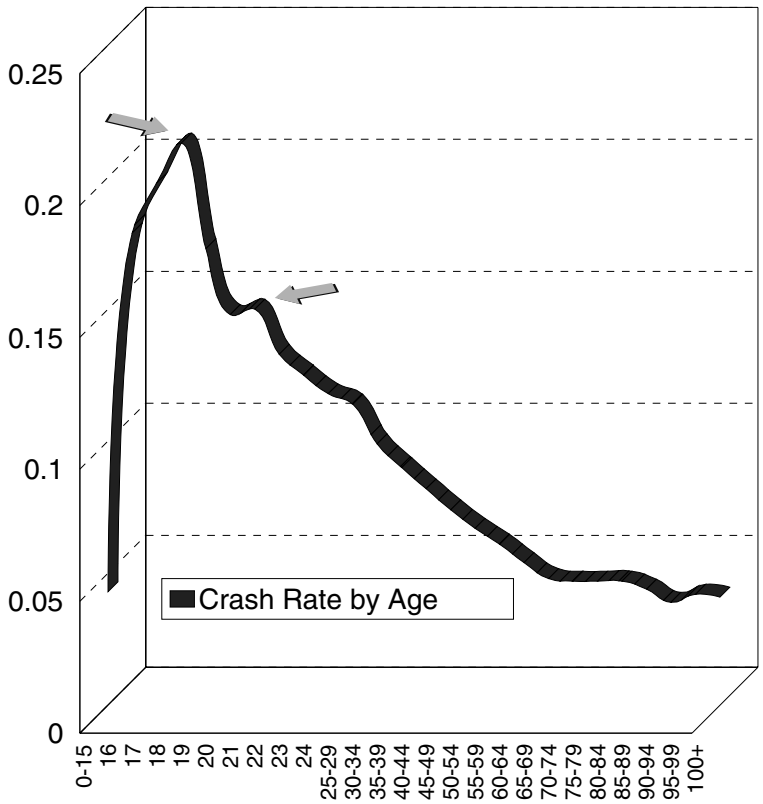
This 1999 chart was processed with numbers for all drivers (vehicle level).

PERSON AGE:
DEMOGRAPHICS AND CRASH INVOLVEMENTS

Age	Licensed Drivers	Michigan Population	Drivers in all crashes	Drivers in Fatal crashes	Occupants killed	Occupants injured	Bicyclist all crashes	Bicyclist fatal crashes	Pedestrian all crashes	Pedestrian fatal crashes
0-15	47,988	2,263,248	2,069	11	57	9,339	1,383	12	1,239	44
16	92,762	149,007	16,596	37	28	3,874	107	2	75	0
17	108,273	148,884	21,492	55	25	4,500	58	0	83	2
18	109,143	141,711	23,218	63	36	4,546	73	0	52	3
19	123,109	149,431	21,284	59	30	4,113	52	0	84	2
20	127,128	140,591	18,861	51	26	3,462	32	0	62	0
21	113,218	131,523	17,033	63	32	3,229	45	1	52	1
22	119,292	124,699	15,880	52	39	2,936	41	0	45	1
23	118,118	118,115	14,712	46	21	2,560	27	0	45	1
24	119,625	121,823	14,163	43	30	2,516	38	0	34	4
25-29	626,487	650,313	71,686	186	105	11,874	114	0	228	13
30-34	673,392	712,042	66,533	192	85	10,441	110	0	199	19
35-39	748,642	810,139	67,623	186	91	10,219	143	0	238	19
40-44	761,936	822,057	62,830	190	99	9,534	146	4	248	19
45-49	691,554	716,156	51,057	151	71	8,000	102	1	204	15
50-54	594,869	599,172	39,789	113	67	6,272	64	3	155	17
55-59	459,451	469,972	27,944	84	46	4,387	33	1	113	9
60-64	351,365	371,332	18,816	61	37	3,045	31	1	66	6
65-69	301,702	330,245	14,469	56	38	2,520	23	0	63	3
70-74	279,436	314,636	13,118	65	47	2,370	22	0	69	6
75-79	216,904	259,770	10,229	57	56	1,940	8	1	36	3
80-84	126,299	174,690	5,929	42	43	1,270	8	0	35	2
85-100+	64,802	144,219	2,776	32	38	673	0	0	24	7
Unknown	--	--	100,532	166	36	4,590	137	0	228	0
Totals	6,975,495	9,863,775	718,639	2,061	1,183	118,210	2,797	26	3,677	196

CRASH RATE PER LICENSED DRIVER BY AGE OF DRIVER IN ALL CRASHES

Age	Rate	Licensed Drivers	Drivers in all crashes
0-15	0.043	47,988	2,069
16	0.179	92,762	16,596
17	0.198	108,273	21,492
18	0.213	109,143	23,218
19	0.173	123,109	21,284
20	0.148	127,128	18,861
21	0.150	113,218	17,033
22	0.133	119,292	15,880
23	0.125	118,118	14,712
24	0.118	119,625	14,163
25-29	0.114	626,487	71,686
30-34	0.099	673,392	66,533
35-39	0.090	748,642	67,623
40-44	0.082	761,936	62,830
45-49	0.074	691,554	51,057
50-54	0.067	594,869	39,789
55-59	0.061	459,451	27,944
60-64	0.054	351,365	18,816
65-69	0.048	301,702	14,469
70-74	0.047	279,436	13,118
75-79	0.047	216,904	10,229
80-84	0.047	126,299	5,929
85-89	0.044	51,471	2,254
90-94	0.039	11,938	450
95-99	0.042	1,319	69
100+	0.041	74	1
Total		6,975,495	618,105



Drivers age 18 have the highest rate (total crashes in age group divided by total number of licensed drivers in age group) while the small peak at age 21 correlates with the beginning of legal drinking. The low crash rates of the oldest groups (per licensed driver) may reflect reduced driving and exposure to the risk of a crash relative to younger drivers.

REPORTED AGE OF DRIVERS INVOLVED IN ALL CRASHES

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Alcona	932	4	103	51	177	201	165	110	53	36	32
Alger	774	7	102	62	131	137	127	57	36	19	96
Allegan	5,821	23	956	540	1,226	1,110	717	409	215	135	490
Alpena	2,139	5	401	152	312	413	297	190	118	87	164
Antrim	1,488	2	236	139	271	290	219	139	77	25	90
Arenac	1,316	3	202	95	236	281	209	131	66	31	62
Baraga	676	1	83	52	111	110	126	69	37	29	58
Barry	3,318	19	595	267	640	676	492	237	138	80	174
Bay	6,974	23	1,165	614	1,156	1,217	872	568	335	286	738
Benzie	861	5	127	53	150	185	128	64	43	24	82
Berrien	9,968	32	1,405	771	1,666	1,576	1,175	672	453	349	1,869
Branch	2,872	12	495	265	529	532	336	201	120	50	332
Calhoun	10,550	32	1,500	918	1,877	1,813	1,404	733	473	326	1,474
Cass	2,684	7	430	189	463	433	311	189	95	63	504
Charlevoix	1,803	7	253	162	318	335	281	152	87	52	156
Cheboygan	1,531	4	233	114	272	331	199	117	88	52	121
Chippewa	2,347	4	396	192	417	447	281	157	119	63	271
Clare	2,148	9	304	183	395	428	328	205	119	63	114
Clinton	3,331	15	567	298	621	678	478	241	124	84	225
Crawford	1,180	8	177	85	197	236	177	123	55	28	94
Delta	3,359	10	522	251	533	592	508	257	186	116	384
Dickinson	2,060	3	287	115	293	384	273	140	95	89	381
Eaton	6,900	27	1,183	619	1,298	1,311	1,011	466	241	200	544
Emmet	2,808	6	455	233	477	552	399	220	130	79	257
Genesee	28,417	96	4,401	2,464	5,416	5,256	3,690	1,920	1,176	756	3,242
Gladwin	1,436	7	196	117	316	309	199	118	61	60	53
Gogebic	870	2	107	38	112	99	78	68	40	44	282
Grand Traverse	6,908	19	1,255	532	1,240	1,347	1,044	463	292	211	505
Gratiot	2,598	12	449	252	471	533	366	194	98	88	135
Hillsdale	3,144	11	538	289	582	573	399	231	103	106	312
Houghton	2,187	9	396	224	277	321	273	138	102	105	342
Huron	2,345	12	430	188	427	463	320	190	118	91	106
Ingham	21,851	52	3,369	2,722	4,197	3,869	2,811	1,327	695	461	2,348
Ionia	3,795	20	686	318	754	775	537	231	138	92	244
Iosco	1,735	7	271	118	318	356	235	152	129	60	89
Iron	1,217	6	119	76	151	229	203	102	76	65	190
Isabella	4,250	17	829	589	791	710	517	297	151	88	261
Jackson	10,817	28	1,676	935	2,033	2,066	1,405	801	442	327	1,104
Kalamazoo	17,989	53	2,975	2,168	3,360	2,994	2,195	1,084	641	438	2,081
Kalkaska	1,203	10	195	81	228	252	185	110	46	40	56
Kent	48,965	138	7,838	5,145	10,277	9,153	5,801	2,761	1,553	1,117	5,182
Keweenaw	124	0	11	11	16	21	19	9	14	4	19
Lake	794	5	84	59	159	143	134	102	50	25	33
Lapeer	5,501	11	1,046	483	1,112	1,152	745	383	192	113	264
Leelanau	949	4	142	79	158	164	133	79	60	28	102

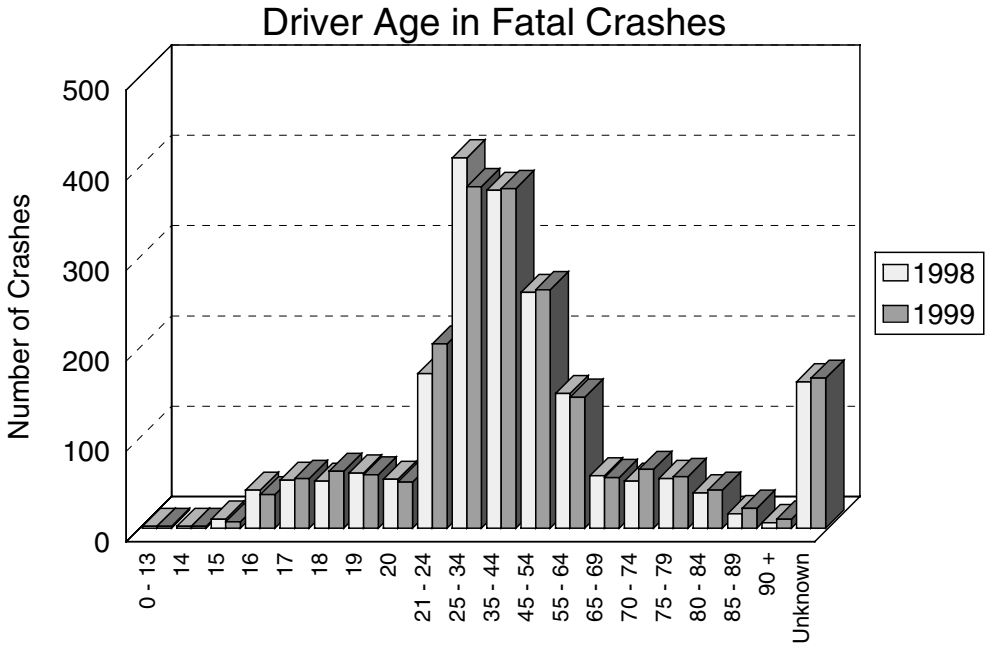
REPORTED AGE OF DRIVERS INVOLVED IN ALL CRASHES (continued)

COUNTY	All ages	0-15 years	16-20 years	21-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75 yrs & over	DOB unk
Lenawee	5,804	20	1,031	474	996	972	720	409	248	189	745
Livingston	8,873	33	1,635	772	1,790	1,833	1,188	578	228	181	635
Luce	348	1	43	26	71	57	59	30	20	8	33
Mackinac	1,084	4	115	84	188	206	184	101	48	34	120
Macomb	51,808	126	7,760	4,321	10,510	9,704	6,344	3,384	2,263	1,567	5,829
Manistee	1,781	4	226	122	290	328	274	152	107	85	193
Marquette	4,187	12	755	401	591	683	582	254	178	146	585
Mason	2,407	13	366	195	432	427	363	198	116	77	220
Mecosta	3,573	9	672	449	656	603	470	277	156	77	204
Menominee	2,699	7	379	137	386	455	359	220	129	58	569
Midland	4,827	14	893	476	857	959	649	366	195	144	274
Missaukee	1,038	4	173	96	227	213	138	74	37	34	42
Monroe	7,674	30	1,373	552	1,223	1,279	900	429	268	182	1,438
Montcalm	4,377	18	786	400	905	896	579	289	167	126	211
Montmorency	547	3	91	44	113	104	73	47	34	19	19
Muskegon	10,350	44	1,876	927	1,900	1,852	1,315	734	470	429	803
Newaygo	2,753	16	473	253	556	542	384	215	111	72	131
Oakland	95,672	226	12,751	7,874	20,921	19,696	13,247	6,392	3,424	2,421	8,720
Oceana	1,584	8	261	142	304	300	206	125	59	48	131
Ogemaw	1,725	10	280	126	299	366	253	169	99	49	74
Ontonagon	777	2	81	52	100	149	141	77	44	24	107
Osceola	2,111	4	278	220	438	444	317	181	74	59	96
Oscoda	547	1	80	48	96	106	62	64	38	24	28
Otsego	1,698	6	331	146	311	349	213	133	69	38	102
Ottawa	13,589	54	2,656	1,392	2,648	2,550	1,582	823	465	365	1,054
Presque Isle	944	4	145	55	148	204	156	79	70	34	49
Roscommon	1,619	6	270	120	284	308	239	167	100	51	74
Saginaw	14,876	55	2,405	1,293	2,866	2,604	1,995	1,128	746	473	1,311
St. Clair	9,099	32	1,625	778	1,664	1,669	1,122	591	366	299	953
St. Joseph	3,825	10	657	354	638	600	441	269	150	134	572
Sanilac	2,492	6	445	227	473	502	331	205	121	73	109
Schoolcraft	836	3	101	69	144	151	111	76	39	24	118
Shiawassee	3,852	13	727	356	766	745	519	258	132	97	239
Tuscola	2,973	7	523	247	602	620	417	219	137	97	104
Van Buren	4,814	14	803	367	856	863	594	283	175	132	727
Washtenaw	23,598	58	3,219	2,469	4,736	4,215	3,072	1,380	678	386	3,385
Wayne	169,710	384	15,450	12,199	31,467	27,249	19,051	9,525	5,992	3,897	44,496
Wexford	3,119	19	513	208	585	578	381	244	149	94	348
UNKNOWN	114	2	13	9	21	19	13	8	5	0	24
Totals	718,639	2,069	101,451	61,788	138,219	130,453	90,846	46,760	27,587	18,932	100,534

DRIVER AGE

AGE OF DRIVERS IN FATAL CRASHES	1998	1999	% Change	% 1999 Fatal Crash Involvement	Percent Active Driving Population*
13 years and under	2	2	0.0	0.1	0.0
14 years	2	2	0.0	0.1	0.3
15 years	10	7	-30.0	0.3	1.1
16 years	42	37	-11.9	1.8	1.4
17 years	53	55	3.8	2.7	1.6
18 years	52	63	21.2	3.1	1.8
19 years	61	59	-3.3	2.9	1.9
20 years	54	51	-5.6	2.5	1.8
21-24 years	171	204	19.3	9.9	7.0
25 - 34 years	410	378	-7.8	18.3	19.1
35 - 44 years	374	376	0.5	18.2	21.5
45 - 54 years	261	264	1.1	12.8	17.9
55 - 64 years	149	145	-2.7	7.0	11.2
65 - 69 years	58	56	-3.4	2.7	4.1
70 - 74 years	52	65	25.0	3.2	3.8
75 - 79 years	55	57	3.6	2.8	2.9
80 - 84 years	39	42	7.7	2.0	1.7
85 - 89 years	16	22	37.5	1.1	0.7
90 years and over	6	10	66.7	0.5	0.2
Unknown	162	166	2.5	8.1	---
TOTALS	2,029	2,061	1.6	100.0	100.0

* Figures courtesy of the Michigan Department of State [13]



REGISTRATION TRANSACTIONS

(Includes Original, Renewal, Correction, and Replacements)

Registration data courtesy of the Michigan Department of State [14]

	VEHICLE						OTHER		
COUNTY	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped
Alcona	7,168	3,827	3,096	201	14,292	809,796.68	2,637	936	63
Alger	5,021	3,154	1,797	228	10,200	575,372.94	1,827	1,465	21
Allegan	59,688	27,527	17,650	1,955	106,820	6,965,223.10	11,329	3,295	286
Alpena	18,634	10,125	6,876	580	36,215	2,308,999.69	4,638	2,438	52
Antrim	14,367	6,540	4,827	460	26,194	1,589,771.15	5,069	2,055	62
Arenac	9,768	5,473	3,724	440	19,405	1,162,938.48	4,045	1,463	47
Baraga	3,955	2,604	1,320	142	8,021	478,280.29	1,053	717	6
Barry	32,614	15,363	10,320	1,255	59,552	3,447,696.15	9,084	1,661	102
Bay	69,982	24,983	19,571	1,787	116,323	7,589,190.53	10,273	5,023	213
Benzie	10,140	4,602	3,468	307	18,517	1,056,622.36	3,807	1,230	46
Berrien	103,853	33,730	19,274	2,854	159,711	10,106,445.20	13,486	2,715	447
Branch	24,668	12,483	7,563	782	45,496	2,869,607.13	6,386	757	139
Calhoun	88,653	28,691	16,395	2,350	136,089	8,533,479.80	10,361	1,436	362
Cass	29,119	13,522	8,231	1,032	51,904	3,077,395.36	8,491	1,746	124
Charlevoix	16,448	7,654	5,218	645	29,965	1,978,548.87	4,896	2,516	63
Cheboygan	15,240	8,133	5,498	547	29,418	1,836,927.65	5,449	3,135	90
Chippewa	17,723	9,382	6,260	539	33,904	2,104,408.37	4,649	3,994	76
Clare	17,824	9,746	6,386	544	34,500	2,090,366.25	4,680	2,009	59
Clinton	38,346	16,283	11,486	1,105	67,220	4,357,560.19	6,481	2,391	165
Crawford	7,313	3,886	2,775	260	14,234	847,997.84	2,820	1,396	20
Delta	23,417	12,960	8,534	728	45,639	2,842,258.89	4,855	3,250	117
Dickinson	16,478	8,587	5,793	666	31,524	2,010,889.15	3,634	1,823	142
Eaton	62,042	23,123	14,742	1,869	101,776	8,399,298.06	8,587	2,157	178
Emmet	20,517	8,722	5,719	618	35,576	2,317,991.98	5,305	2,648	107
Genesee	272,860	85,591	47,756	7,185	413,392	27,636,306.00	32,279	11,278	549
Gladwin	15,282	8,106	5,748	536	29,672	1,752,520.42	4,924	1,598	59
Gogebic	9,211	4,819	2,454	288	16,772	956,349.02	2,304	1,387	62
Grand Traverse	54,066	19,146	14,978	1,496	89,686	6,238,248.17	12,843	4,597	131

REGISTRATION TRANSACTIONS (continued)

	VEHICLE						OTHER		
COUNTY	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped
Gratiot	23,011	11,185	7,674	657	42,527	2,634,355.65	3,471	1,455	91
Hillsdale	26,074	13,767	7,746	865	48,452	2,953,730.48	5,061	830	100
Houghton	18,139	8,033	4,084	589	30,845	1,835,936.08	3,808	2,230	60
Huron	22,693	12,712	7,304	642	43,351	2,982,761.71	3,478	2,501	178
Ingham	176,814	43,164	23,627	3,884	247,489	16,587,246.07	15,822	3,538	421
Ionia	32,870	15,036	9,008	1,000	57,914	3,439,042.15	5,209	1,450	183
Iosco	17,149	8,281	6,279	491	32,200	1,951,765.95	5,280	1,663	106
Iron	7,481	4,460	2,670	284	14,895	879,820.63	2,386	1,086	44
Isabella	28,700	13,232	8,346	821	51,099	3,668,674.19	4,703	1,680	67
Jackson	94,468	35,992	21,342	3,068	154,870	10,029,868.67	15,684	2,988	316
Kalamazoo	150,015	39,641	24,415	3,916	217,987	15,058,272.14	18,509	2,922	448
Kalkaska	9,031	5,713	3,810	330	18,884	1,405,829.30	2,700	1,807	19
Kent	368,150	111,105	70,389	8,620	558,264	46,441,812.55	44,993	9,681	957
Keweenaw	1,127	544	265	32	1,968	108,248.17	361	150	3
Lake	5,848	3,463	2,063	210	11,584	637,490.32	2,281	894	24
Lapeer	50,022	25,593	14,364	2,082	92,061	6,194,077.90	7,295	3,706	91
Leelanau	13,250	4,978	4,324	342	22,894	1,439,179.92	5,365	1,472	64
Lenawee	58,988	25,192	14,118	2,060	100,358	6,296,993.59	9,000	2,679	325
Livingston	95,437	35,313	23,042	3,709	157,501	11,245,477.84	17,561	5,297	184
Luce	3,152	2,299	1,625	79	7,155	494,843.31	1,355	1,086	15
Mackinac	6,549	3,823	2,427	175	12,974	787,119.75	3,038	2,071	28
Macomb	538,396	135,040	63,983	12,665	750,084	56,467,185.54	48,958	15,407	1,111
Manistee	14,732	7,225	5,048	491	27,496	1,688,954.39	3,787	1,361	77
Marquette	36,387	16,281	9,025	1,301	62,994	3,866,797.26	7,024	4,178	111
Mason	17,449	7,956	5,324	574	31,303	1,951,003.67	4,285	1,205	69
Mecosta	20,364	9,768	6,446	593	37,171	2,263,447.30	5,066	1,446	46
Menominee	13,550	7,247	4,852	503	26,152	1,588,610.77	2,824	1,437	301
Midland	54,998	18,354	14,766	1,668	89,786	5,573,838.50	9,144	2,570	144
Missaukee	7,491	5,020	3,224	275	16,010	1,013,586.16	2,100	1,249	26

REGISTRATION TRANSACTIONS (continued)

	VEHICLE						OTHER		
COUNTY	Passenger	Commercial	Trailer	Motorcycle	Total Plates	Total Revenue	Watercraft	Snowmobile	Moped
Monroe	88,768	37,232	19,260	3,341	148,601	9,946,621.78	10,931	4,206	322
Montcalm	33,577	17,013	10,828	1,049	62,467	3,742,400.30	7,120	1,920	152
Montmorency	5,912	3,674	2,666	160	12,412	749,763.63	2,303	1,358	16
Muskegon	105,531	33,676	23,475	3,528	166,210	9,862,166.09	15,200	4,371	445
Newaygo	26,709	13,547	9,282	884	50,422	2,926,859.00	7,003	2,432	84
Oakland	871,508	185,679	95,475	20,059	1,172,721	95,563,573.20	82,227	21,233	1,416
Oceana	15,339	7,899	4,313	478	28,029	1,689,456.33	2,998	1,653	90
Ogemaw	12,607	7,277	5,006	523	25,413	1,571,302.66	3,363	1,706	42
Ontonagon	4,482	2,873	1,649	146	9,150	517,539.96	1,083	1,145	17
Osceola	12,720	7,402	4,356	361	24,839	1,597,216.55	2,751	1,479	28
Oscoda	5,235	3,157	1,966	207	10,565	619,576.91	2,020	942	12
Otsego	13,672	7,788	5,038	497	26,995	2,064,465.41	3,240	2,729	27
Ottawa	143,112	44,389	36,778	3,804	228,083	15,720,939.98	23,984	5,730	799
Presque Isle	8,539	5,368	3,189	233	17,329	1,052,649.49	3,001	1,696	37
Roscommon	16,355	7,586	6,118	505	30,564	1,833,813.71	6,379	3,444	152
Saginaw	132,438	40,640	29,005	2,982	205,065	13,932,538.53	16,537	6,800	341
St. Clair	100,485	39,680	21,502	3,349	165,016	10,833,417.46	15,072	5,262	295
St. Joseph	36,785	16,556	10,249	1,592	65,182	3,844,206.76	8,581	896	175
Sanilac	25,610	14,111	7,209	912	47,842	3,200,300.70	2,265	1,721	73
Schoolcraft	4,717	3,145	2,083	168	10,113	641,279.70	1,789	1,284	36
Shiawassee	44,004	20,012	12,247	1,437	77,700	4,977,722.67	6,138	2,783	158
Tuscola	34,266	18,480	11,646	1,168	65,560	3,941,475.99	4,907	3,005	166
Van Buren	43,925	18,925	10,564	1,448	74,862	4,539,213.76	8,376	1,967	178
Washtenaw	193,091	44,648	21,829	4,626	264,194	18,804,290.59	15,132	3,461	368
Wayne	1,251,451	259,666	100,512	22,994	1,634,623	124,039,572.31	70,038	14,796	2,027
Wexford	18,731	8,444	5,916	594	33,685	2,090,353.18	4,587	2,290	51
Non-Resident	60,774	24,957	13,966	382	100,079	41,399,732.32	35,012	4,951	127
Unknown County							7,065	125	7
Totals	6,287,075	1,943,003	1,115,176	160,752	9,506,006	$709,128,908.65	825,842	256,540	17,038

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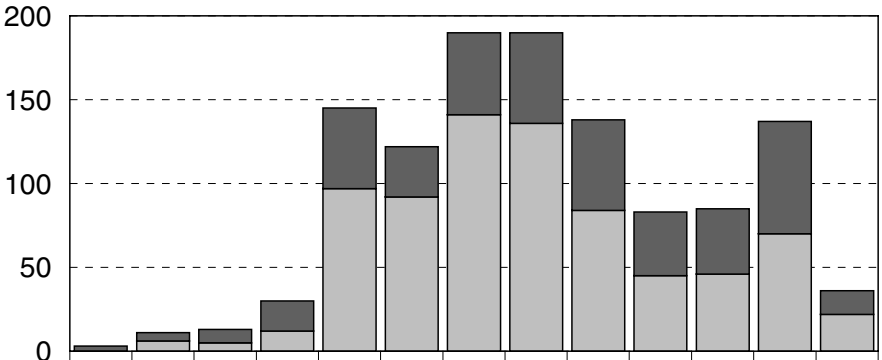
Occupant/ Person

AGE AND GENDER OF OCCUPANTS KILLED & INJURED IN MOTOR VEHICLE CRASHES

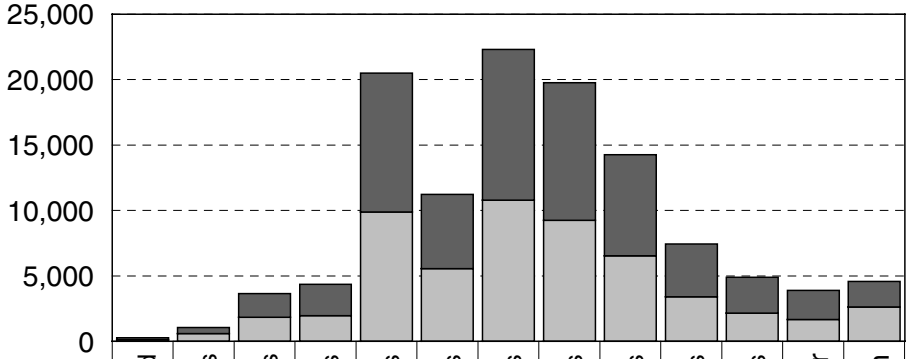
Occupants Killed



	Under 1 yr old	1-3 yrs	4-10 yrs	11-15 yrs	16-20 yrs	21-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75 yrs & over	Unknown
Females killed	3	5	8	18	48	30	49	54	54	38	39	67	14
Males killed	0	6	5	12	97	92	141	136	84	45	46	70	22

The majority (63.9%) of occupants killed in traffic crashes in 1999 were male.

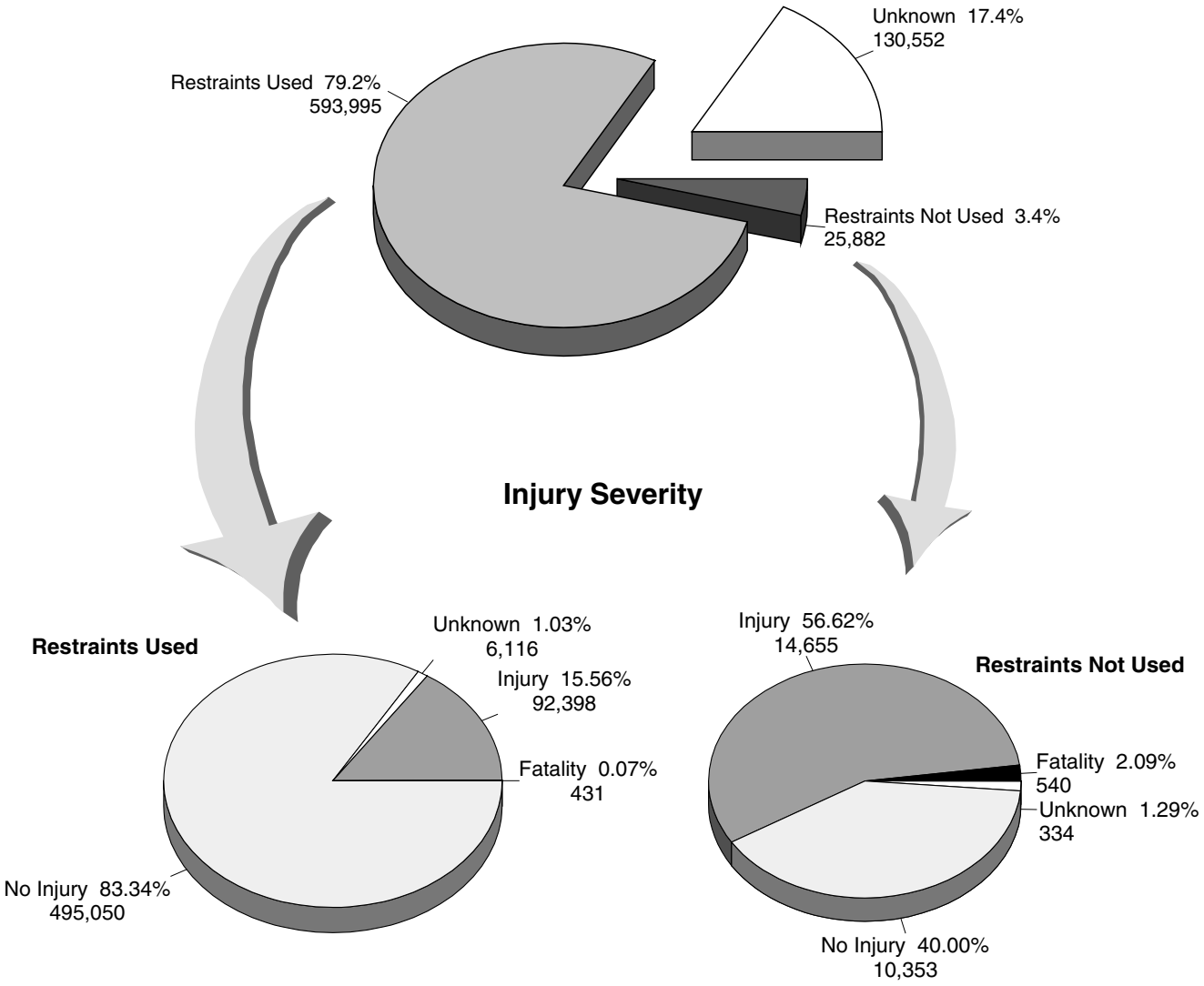
Occupants Injured



	Under 1 yr old	1-3 yrs	4-10 yrs	11-15 yrs	16-20 yrs	21-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75 yrs & over	Unknown
Females injured	143	457	1,816	2,404	10,615	5,680	11,516	10,507	7,729	4,031	2,730	2,206	1,962
Males injured	136	589	1,838	1,956	9,880	5,561	10,799	9,246	6,543	3,401	2,160	1,677	2,628

The majority (52.3%) of occupants injured in traffic crashes in 1999 were female.

REPORTED OCCUPANT RESTRAINT USAGE FOR ALL DRIVERS AND INJURED PASSENGERS

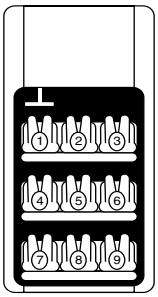


Restraint use by motorists is measured two ways: by what motorists REPORT to police at the scene of a traffic crash (reported usage), and by DIRECT OBSERVATION studies where motorists are totally unaware of the presence of researchers (observed usage). As expected, reported usage is routinely higher than observed usage.

Of the 750,429 drivers and injured passengers involved in crashes, 593,995 (79.2%) were REPORTED to be using occupant restraints.

However, a DIRECT OBSERVATION study by the University of Michigan Transportation Research Institute [15] estimated overall safety belt use was 74.8 percent for passenger cars, 70.2 percent for sport-utility vehicles, 73.6 percent for vans, and 53.7 percent for pickup trucks in 1999.

Occupants in crashes were thirty times more likely to be killed if they were not wearing their restraints.



MOTOR VEHICLE OCCUPANTS & INJURY SEVERITY BY SEATING POSITION AND KNOWN BELT USAGE

Seating Position	Belts Used*		Fatal	Injury			PDO
	Number	% of Total		A	B	C	
Left Front	563,765	96.1	314	4,705	13,748	50,567	494,431
Center Front	553	0.1	1	40	122	361	29
Right Front	16,892	2.9	92	1276	3519	11,823	182
Left Rear	2,056	0.4	8	132	478	1,309	129
Center Rear	549	0.1	0	42	127	371	9
Right Rear	2,025	0.3	5	144	456	1,419	1
Left Rear Third Seat	304	0.1	1	21	70	196	16
Center Rear Third Seat	126	0.0	0	11	34	77	4
Right Rear Third Seat	341	0.1	1	24	81	224	11
Unknown	198	0.0	0	9	12	30	147
TOTAL	586,809**	100.0	422	6,404	18,647	66,377	494,959

* Lap belt, shoulder belt or a combination of lap and shoulder belts used. Children who were coded as using or not using a child restraint device appear in separate tables on pages 162-163.

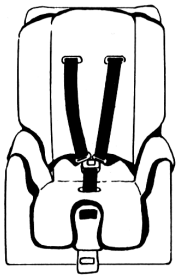
**This total does not include 6,112 occupants with unknown injury severity.

Seating Position	Belts Not Used*		Fatal	Injury			PDO
	Number	% of Total		A	B	C	
Left Front	18,176	71.6	370	1,920	3,172	3,042	9,672
Center Front	257	1.0	5	50	96	92	14
Right Front	3,418	13.5	103	673	1,279	1,291	72
Left Rear	1,300	5.1	16	139	271	436	438
Center Rear	349	1.4	8	68	118	143	12
Right Rear	950	3.7	19	154	312	463	2
Left Rear Third Seat	150	0.6	2	31	42	74	1
Center Rear Third Seat	87	0.3	2	9	26	50	0
Right Rear Third Seat	162	0.6	4	30	43	72	13
Unknown	538	2.1	10	85	106	254	83
TOTAL	25,387**	100.0	539	3,159	5,465	5,917	10,307

* No belts available or no belts used. Children who were coded as using or not using a child restraint device appear in separate tables on page 162-163.

**This total does not include 331 occupants with unknown injury severity.

Michigan law requires that all persons must wear a safety belt when riding in the front seat of a motor vehicle



REPORTED RESTRAINT USE - CHILDREN

Michigan law requires:

*Any child **under one year of age** riding in either the front or back seat of a vehicle must be in a Child Restraint Device (CRD).*

Sitting in all seats excluding Left Front Seats:

Restraint Usage	Children age 0		Fatal	Injury			No Injury
	Number	% of Total		A	B	C	
Belts Used	32	11.9	0	0	4	28	0
No Belts Used	13	4.8	0	3	3	6	1
CRD Used	193	71.7	3	3	38	149	0
CRD Not Used	15	5.6	0	3	3	9	0
Restraint Failed	3	1.1	0	0	2	1	0
Unknown	13	4.8	0	0	1	10	2
TOTAL	269	100.0	3	9	51	203	3

*Any child between the **ages of one and four** must be in a CRD when riding in the front seat of a vehicle and must either be in a CRD or restrained with a safety belt when riding in the back seat.*

Sitting in the Front Right and Front Center Seats:

Restraint Usage	Children age 1-3		Fatal	Injury			No Injury
	Number	% of Total		A	B	C	
Belts Used	89	44.5	0	5	28	56	0
No Belts Used	31	15.5	3	7	15	6	0
CRD Used	55	27.5	0	5	19	31	0
CRD Not Used	20	10.0	0	2	13	5	0
Restraint Failed	1	0.5	0	0	0	1	0
Unknown	4	2.0	0	1	1	2	0
TOTAL	200	100.0	3	20	76	101	0

REPORTED RESTRAINT USE - CHILDREN (continued)

Sitting in the Rear Seats and Other:

Restraint Usage	Children age 1-3		Fatal	Injury			No Injury
	Number	% of Total		A	B	C	
Belts Used	256	30.3	1	19	60	176	0
No Belts Used	58	6.9	1	13	25	19	0
CRD Used	462	54.7	5	27	126	303	1
CRD Not Used	29	3.4	1	5	13	10	0
Restraint Failed	2	0.2	0	0	0	2	0
Unknown	37	4.4	0	3	12	22	0
TOTAL	844	100.0	8	67	236	532	1

*Any child between the **ages of four and sixteen** must wear a safety belt when riding in either the front or back seat of a vehicle.*

Sitting in all seats excluding Left Front Seats:

Restraint Usage	Children age 4-15		Fatal	Injury			No Injury
	Number	% of Total		A	B	C	
Belts Used	5,442	72.9	12	364	1,401	3,664	1
No Belts Used	1,427	19.1	23	231	514	656	3
CRD Used	134	1.8	0	3	27	104	0
CRD Not Used	26	0.3	0	2	11	13	0
Restraint Failed	9	0.1	0	1	5	3	0
Unknown	427	5.7	1	75	120	228	3
TOTAL	7,465	100.0	36	676	2,078	4,668	7

Note: Safety equipment usage is often self-reported and may not reflect actual usage.

In a pilot study of child restraint device (CRD) use and misuse in Michigan [16] at the University of Michigan Transportation Research Institute, researchers discovered at least some degree of improper CRD use in 88.5 percent of case studies.

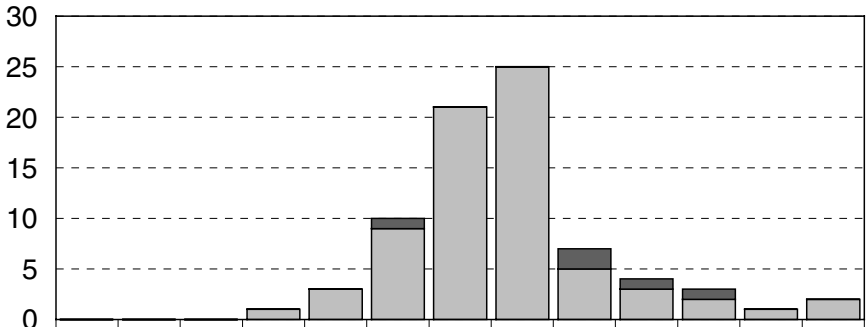
In a study of patterns of child restraint use [17] at the University of Michigan Transportation Research Institute, researchers found that overall child occupant restraint use for ages 0-15 in Michigan was 81.1 (+/- 1.8 percent). In addition, child occupant restraint use closely followed the driver belt use, with child occupant restraint use more than 86 percent when the driver was using a safety belt.

The driver of the vehicle will receive a citation for any child not restrained.

Placing a CRD in the front seat is not recommended in vehicles with passenger side airbags.

AGE AND GENDER OF MOTORCYCLISTS KILLED & INJURED IN MOTOR VEHICLE CRASHES

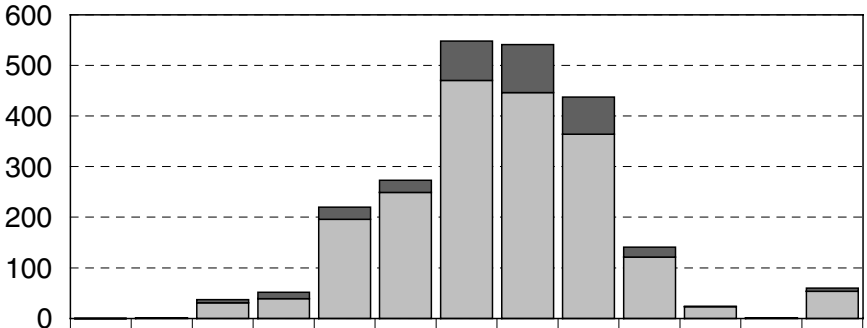
Motorcyclists Killed



	Under 1 yr old	1-3 yrs	4-10 yrs	11-15 yrs	16-20 yrs	21-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75 yrs & over	Unknown
Females killed	0	0	0	0	0	1	0	0	2	1	1	0	0
Males killed	0	0	0	1	3	9	21	25	5	3	2	1	2
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0

93.5 percent of the motorcyclists killed in traffic crashes in 1999 were male.
In comparison, 68.5 percent of all persons killed in crashes were male.

Motorcyclists Injured



	Under 1 yr old	1-3 yrs	4-10 yrs	11-15 yrs	16-20 yrs	21-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75 yrs & over	Unknown
Females injured	0	0	6	13	24	24	78	95	73	20	1	0	6
Males injured	0	1	31	39	196	249	470	446	364	121	23	1	54
Unknown	0	0	1	2	7	6	11	8	7	1	1	0	4

83.7 percent of the motorcyclists injured in traffic crashes in 1999 were male.
In comparison, 50.9 percent of all persons injured in crashes were male.

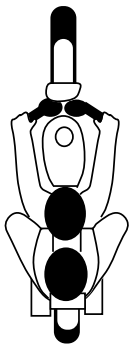
MOTORCYCLE HELMET USE AND INJURY SEVERITY

Helmet Worn Age of Motorcyclist	Fatality	Injury A	Injury B	Injury C	No Injury
3 years and under	0	0	0	0	0
4 - 10 years	0	1	6	3	0
11 - 15 years	0	5	11	6	4
16 - 20 years	2	38	70	41	35
21 - 24 years	7	43	95	48	59
25 - 34 years	13	103	175	97	85
35 - 44 years	19	106	143	111	105
45 - 54 years	4	88	144	98	75
55 - 64 years	3	29	51	26	16
65 - 74 years	2	2	7	6	0
75 years and over	1	0	0	1	0
Unknown	0	3	0	5	4
Subtotal	51	418	702	442	383

Drivers killed 49

Passengers killed 2

Helmet Not Worn Age of Motorcyclist	Fatality	Injury A	Injury B	Injury C	No Injury
3 years and under	0	0	1	0	0
4 - 10 years	0	1	5	4	0
11 - 15 years	0	5	7	5	0
16 - 20 years	0	3	8	3	2
21 - 24 years	0	4	5	2	1
25 - 34 years	2	8	2	4	0
35 – 44 years	1	4	4	4	2
45 – 54 years	0	2	3	0	0
55 – 64 years	0	0	0	1	0
65 - 74 years	0	0	0	0	0
75 years and over	0	0	0	0	0
Unknown	0	0	0	0	1
Subtotal	3	27	35	23	6



Drivers killed 3

Passengers killed 0

Helmet Use Unknown Age of Motorcyclist	Fatality	Injury A	Injury B	Injury C	No Injury
3 years and under	0	0	0	0	0
4 - 10 years	0	2	10	6	5
11 - 15 years	1	0	10	5	5
16 - 20 years	1	15	29	20	15
21 - 24 years	3	13	34	35	23
25 - 34 years	6	43	75	52	71
35 - 44 years	5	49	67	61	49
45 - 54 years	3	35	36	38	36
55 - 64 years	1	14	11	10	12
65 - 74 years	1	5	1	4	2
75 years and over	0	0	0	0	0
Unknown	2	12	30	14	36
Subtotal	23	188	303	245	254
TOTAL	77	633	1,040	710	643

In Michigan, helmet use law (Michigan Vehicle Code Public Act 300 of 1949, Section 257.658) requires that all motorcycle riders wear a helmet. As a result, according to studies by UMTRI [18], approximately 99 percent of the motorcyclists in Michigan wear helmets when riding. The fact that most fatalities (where helmet use is known) are wearing their helmets does not indicate that helmets are not an effective safety device.

OCCUPANT INJURY OUTCOME BY VEHICLE TYPE




Vehicle Types	Killed	A Injured	B Injured	C Injured	Total KABC	% of All Crash Involved KABC Occupants
Passenger Car and Station Wagon	840	8291	20115	60516	89,762	75.2
Van (Minivan) and Motorhome	60	783	1844	5895	8,582	7.2
Pickup	156	1464	3672	8472	13,764	11.5
Small Truck (under 10,000 lbs.)	13	202	495	1368	2,078	1.7
Motorcycle	76	608	1000	664	2,348	2.0
Moped	6	36	99	59	200	0.2
Go Cart	0	4	5	3	12	0.0
Snowmobile	10	114	76	80	280	0.2
Off Road Vehicle	4	73	74	28	179	0.1
Other	2	31	71	112	216	0.2
Unknown	2	58	130	389	579	0.5
CDL Truck/Bus (breakdown below)	14	125	275	979	1,393	1.2
Total Number of Occupants	1,183	11,789	27,856	78,565	119,393	100.0

Special Note: School bus is not recorded on the UD-10 and cannot be broken out of CDL Truck/Bus.

CDL Truck/Bus Sub-category Types	Killed	A Injured	B Injured	C Injured	Total KABC	% of All Crash Involved KABC Occupants
Commercial Vehicle: Group A	9	45	123	324	501	36.0
Commercial Vehicle: Group B	2	33	90	335	460	33.0
Commercial Vehicle: Group C	1	10	5	61	77	5.5
Other Truck	0	20	19	55	94	6.7
Unknown Truck	2	17	38	204	261	18.7
Total Number of Occupants	14	125	275	979	1,393	100.0

Group “A” is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

Group “B” is any single vehicle (including buses) with a GVWR of 26,001 lbs. or more. This would include a combination of vehicles with a combined GVWR over 26,000 lbs. when towing a trailer that has a GVWR of 10,000 lbs. or less.

Group “C” is any single vehicle with a GVWR of less than 26,001 lbs. or a combination of vehicles having a combined GVWR under 26,001 lbs. when the vehicle is required to display placards for hazardous material or designed to carry 16 passengers (including driver). Group “C” is also any vehicle carrying 15 or less people (including driver) transporting children to or from school and home on a regular basis for compensation.

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Appendix

1999 Michigan Traffic Crash FACT SHEET

The Big Picture
Traffic Crashes

The driver, the roadway, and the motor vehicle contribute in some measure to every crash. A preponderance of evidence, however, points to driver error as a chief cause in the majority of crashes.

There were 415,675 reported crashes of which 1,249 were fatal type, 87,820 were personal injury type, and 326,606 were property damage only type. Compared to 1998 this is a 2.9 percent increase in total reported crashes, a 1.1 percent increase in fatal crashes, a 3.6 percent decrease in personal injury crashes, and a 4.9 percent increase in property damage crashes.

1,386 persons were killed as a result of the 1,249 fatal crashes for an average of 1.1 deaths per fatal crash.

One out of every 7,117 persons in Michigan was killed in a traffic crash; one out of every 79 persons was injured.

A traffic crash was reported every 1 minute 16 seconds.

One person was killed every 6 hours and 19 minutes as a result of a traffic crash.

One person was injured every 4 minutes and 13 seconds in a traffic crash.

For each person killed there were 90 persons injured in crashes.

13,002 persons received A-injuries. An A-injury is incapacitating. It prevents normal activities and generally requires hospitalization.

The estimated economic loss due to traffic crashes was $9.6 billion. This translated into a loss of almost $1,000 per state resident, if costs were spread across the state's population.

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1999 Michigan Traffic Crash FACT SHEET

General Facts

Motor vehicle crashes are the leading cause of death among persons living in Michigan 1 to 24 years old.

720,393 motor vehicles were involved in 415,675 reported crashes. 1,249 of these were fatal crashes. These fatal crashes resulted in 1,386 deaths, compared to the 1,367 deaths that were the result of 1,235 fatal crashes in 1998.

Of the 1,386 motor vehicle deaths in 1999, 764 (55.1%) were drivers of vehicles, 308 (22.2%) were passengers in motor vehicles, 176 (12.7%) were pedestrians, 77 (5.6%) were motorcyclists, 25 (1.8%) were bicyclists, 10 (0.7%) were snowmobile operators, 4 (0.3%) were ORV/ATV operators, and 0 were operators of farm equipment. The person type is unknown/other for 22 (1.6%) of the fatalities.

Of the 1,072 drivers and passengers killed, 540 (50.4%) were not wearing seatbelts and 431 (40.2%) were wearing seatbelts. It is unknown whether 101 (9.4%) of the fatalities were belted.

622 deaths resulted from 575 single vehicle fatal crashes.

A higher proportion of crashes involved male drivers than female drivers. Fatal crashes were twice as prevalent among male drivers than female drivers (0.4% vs. 0.2%).

Excessive speed was reported by police as the hazardous action of 12.8 percent of the drivers in fatal crashes.

Of all fatal crashes, 30.6 percent occurred at intersections.

Most fatal crashes occurred on dry roadways (78.5%) in clear weather conditions (56.4%).

The majority of all crashes occurred during daylight hours (61.9%). Dark conditions created the greatest hazard, as they were overrepresented in fatal crashes.

In 1999:
More fatal crashes occurred between 6:00 and 8:59 PM than any other time period.
More fatal crashes occurred on Saturday than any other day.
More fatal crashes occurred in August than any other month.

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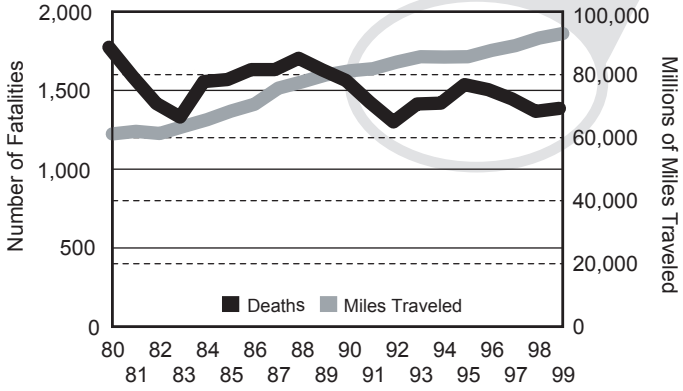
Trends

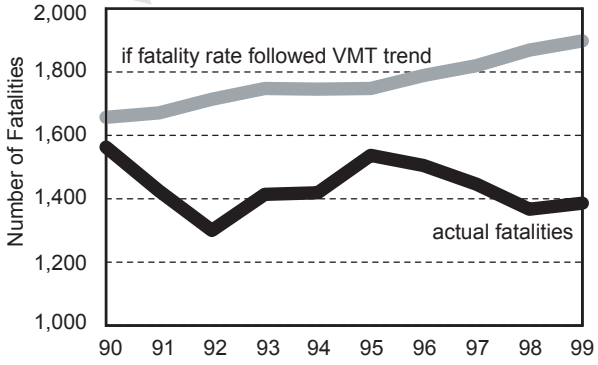
10 YEAR

These charts show the dramatic reversal in the fatality rate that began in 1988, and a projection of losses that would have been incurred if the rate had continued to follow the VMT trend.

FATALITIES AND VMT TRENDS



10 YEAR HIGHLIGHT



5 YEAR

In the last five years (1995-1999), 7,241 persons have been killed in Michigan traffic crashes. This is an average of 1,448 per year. During the previous five-year period (1994-1998), 7,274 persons were killed, for an average of 1,455 per year.

1 YEAR

- Total traffic crashes increased 2.9 percent statewide.
- Fatal crashes increased 1.1 percent.
- Persons killed increased 1.4 percent.
- Injury crashes decreased 3.6 percent.
- Persons injured increased 5.3 percent.
- Persons sustaining A-injuries (the most serious) decreased 9.5 percent.
- Motor vehicle occupant (driver and passenger) deaths increased 0.2 percent.
- Deaths among pedestrians, bicyclists, motorcyclists and their passengers, and farm equipment/snowmobile/ORV/ATV operators and their passengers increased 4.7 percent.
- Alcohol use was indicated in 484 fatal crashes, an increase of 1.7 percent.
- Between 1998 and 1999 motor vehicle registrations rose 2.2 percent to 8.41 million; the number of drivers of record increased 1.0 percent to 7.22 million and vehicle travel mileage was up 1.6 percent to 93.1 billion.

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1999 Michigan Traffic Crash FACT SHEET

Age 0-15

CHILDREN

0-15 The number one cause of accidental death for children ages 0-15 in Michigan is motor vehicle crashes.

0-15 According to figures provided by the Michigan Department of Community Health, accidental death for children in motor vehicle crashes routinely outpaces the next two most frequent causes: fire and drowning.

0-15 105 children (0-15 years old) died, and 11,747 children were injured in traffic crashes.

0-15 57 (54.3%) of the children killed in traffic crashes were motor vehicle passengers. This includes 7 drivers and 50 occupants.

0-15 Of the 2,263,248 children age 0-15 living in Michigan, there were 47,988 licensed drivers. 47,615 of these were in the graduated driver licensing program, 322 were moped operators, and 51 were minor restricted operators for family emergencies only. 2,069 (4.3%) of these drivers were involved in crashes (11 in fatal crashes).

0-15 In a pilot study of child restraint device (CRD) use and misuse in Michigan at the University of Michigan Transportation Research Institute, researchers discovered at least some degree of improper CRD use in 88.5 percent of case studies.

0-15 In a study of patterns of child restraint use at the University of Michigan Transportation Research Institute, researchers found that overall child occupant restraint use for ages 0-15 in Michigan was 81.1 (+/- 1.8) percent. In addition, child occupant restraint use closely followed the driver belt use, with child occupant restraint use more than 86 percent when the driver was using a safety belt.

0-15 Older children age 11 to 15, had the lowest **reported** restraint usage (70.2%), as reported by motorists to police at the scene of a traffic crash.

0-15 Children accounted for 20.5 percent of the pedestrians killed in Michigan in 1999, and 35.0 percent of all pedestrian injuries.

0-15 Children under 16 years of age accounted for 12 (48%) of the bicycles deaths in 1999.

Placing a child restraint device in the front seat is not recommended in vehicles with passenger side airbags.

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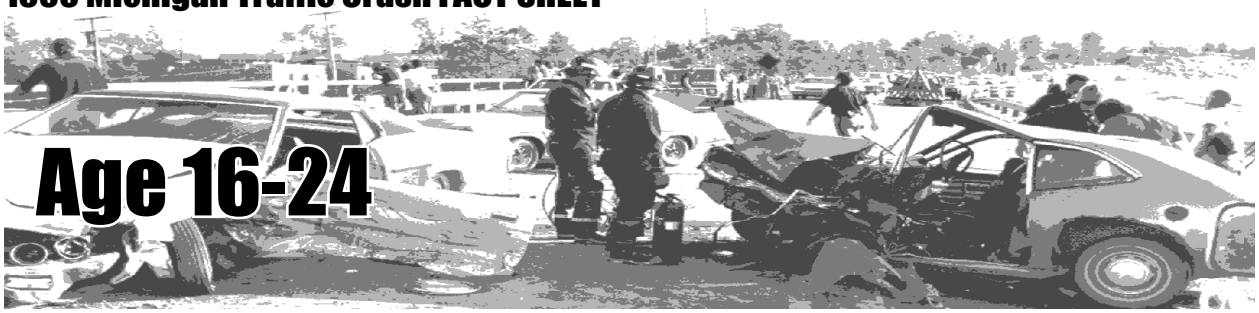

TEENS / YOUNG ADULTS

16-24 Teenagers and young adults ages 16-24 are disproportionately involved in motor vehicle crashes.

16-24 According to the Michigan Department of Community Health, four out of five accidental deaths for this age group are due to motor vehicle crashes.

16-24 Inexperience, risk-taking behavior and immaturity, and greater risk exposure (teens often drive at night with other teens in the vehicle) are all factors that increase crash risk for young drivers.

16-24 282 persons (16-24 years old) were killed in traffic crashes, of which 200 (70.9%) were drivers. The 16-24 age group accounted for one fifth of all traffic deaths.

16-24 In addition 32,706 teenagers and young adults were injured in traffic crashes.

16-24 Of the 1,225,784 young adults age 16-24 living in Michigan, there were 1,030,668 licensed drivers. 163,239 (15.8%) of these drivers were involved in crashes (469 in fatal crashes).

16-24 The 16-24 age group represented 15.5 percent of Michigan's active driving population, yet drivers in this group were involved in 22.7 percent of all crashes and in 22.8 percent of all fatal crashes.

16-24 Generally, younger drivers are more involved in single-vehicle type off road crashes, and are least likely to be alone in their car at the time of the crash.

16-24 Teenagers and young adults had the highest incidence of overturn in fatal crashes when compared to older drivers. They also had the highest incidence of fatal crashes when their speed was too fast.

16-24 The weekend shows higher involvement of teen and young adult drivers in all crashes and fatal crashes when compared to older drivers.

16-24 Teenagers and young adults accounted for 6.8 percent of the pedestrians killed in Michigan in 1999, and 15.2 percent of all pedestrian injuries.

16-24 3 (12%) of the bicycles deaths in 1999 were teenagers and young adults.

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Age 65 and over

ELDERLY

65+ Findings show that older drivers rank lower in aggressive actions, rank higher in comprehension errors, tend to make necessary adjustments in their driving behavior (based on their own experience), and strongly desire to keep their cars to assure independence.

65+ Safety problems for the older driver are directly tied to the aging process. Changes in vision, the ability to concentrate, and reaction time all contribute to driving errors.

65+ Drivers age 65 and older made up 13.3 percent of Michigan's active driving population. They were involved in 6.5 percent of all crashes and 12.2 percent of the fatal crashes.

65+ Older drivers were more involved in angle type crashes than younger drivers. Older drivers also had the highest incidence of failed to yield, disregard of traffic control, improper lane use, improper turn, and improper backing as a hazardous action in all crashes.

65+ 243 persons (65 and older) were killed in traffic crashes, 183 (75.3%) of them were drivers.

65+ In addition 9,050 persons age 65 and older were injured in traffic crashes.

65+ Of the 1,223,560 persons age 65 and older living in Michigan, there were 989,143 licensed drivers. 46,521 (4.7%) of these drivers were involved in crashes (252 in fatal crashes).

65+ 11.4 percent of the pedestrians killed in Michigan in 1999 were age 65 and older; 6.2 percent of the pedestrians injured were age 65 and older.

65+ 1 (4%) bicyclist killed in 1999 was over the age of 65.

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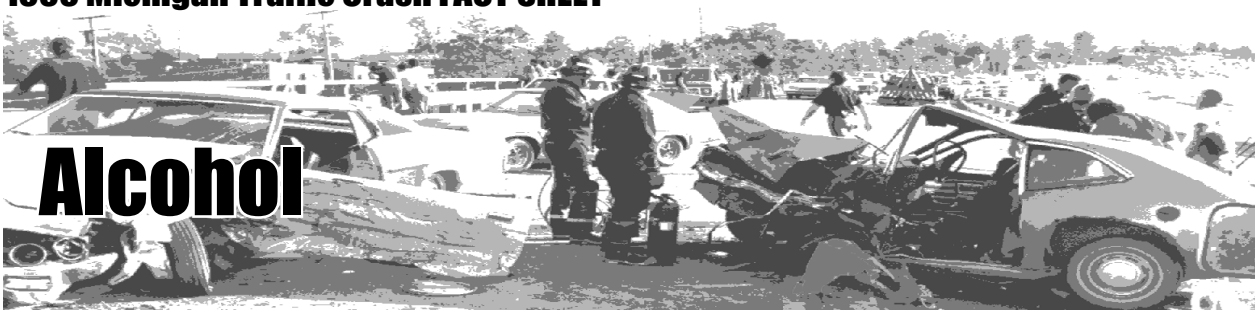
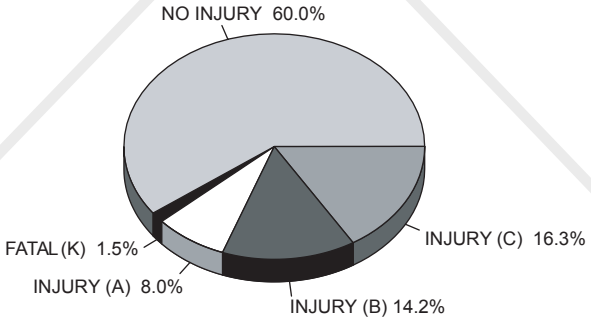


Information regarding alcohol involvement was collected from all investigated fatal motor vehicle traffic crashes in Michigan during 1999. A fatal crash is alcohol related if any driver, pedestrian, or bicyclist involved was reported by the police officer on the Traffic Crash Report as "had been drinking."

Alcohol impairment has major effects on traffic safety.

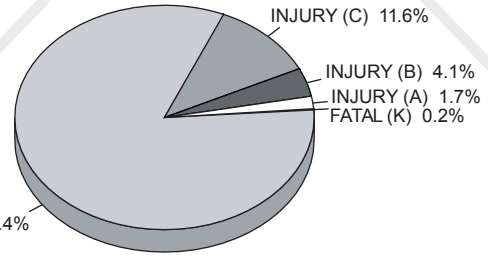
- A total of 1,249 fatal crashes occurred in Michigan in 1999. 484 or 38.8 percent of those fatal crashes were alcohol-related.
- The fatality count of persons involved in alcohol-related fatal crashes was 541 in 1999. This accounts for 39.0 percent of the total number of persons killed (1,386).
- Crashes involving drinking tend to be more serious than nondrinking crashes. The percentage of fatalities is seven times higher than in all crashes and the more serious injury levels are almost four times higher.
- 66.3 percent of all alcohol-related fatal crashes involved one vehicle.
- Of the pedestrians killed in 1999, 82 deaths were the result of a had-been-drinking crash and 68 (82.9%) of these pedestrians had been drinking.
- Of the motorcyclists killed in 1999, 35 deaths were the result of a had-been-drinking crash and 32 (91.4%) of these motorcyclists had been drinking.
- Of the bicyclists killed in 1999, 8 deaths were the result of a had-been-drinking crash and 5 (62.5%) of these bicyclists had been drinking.
- Of the snowmobilers killed on Michigan roadways in 1999, 7 deaths were the result of a had-been-drinking crash and 7 (100%)of these snowmobilers had been drinking.

OCCUPANTS IN HBD CRASHES



INJURY (A) - Incapacitating
INJURY (B) - Nonincapacitating
INJURY (C) - Possible Injury

OCCUPANTS IN CRASHES



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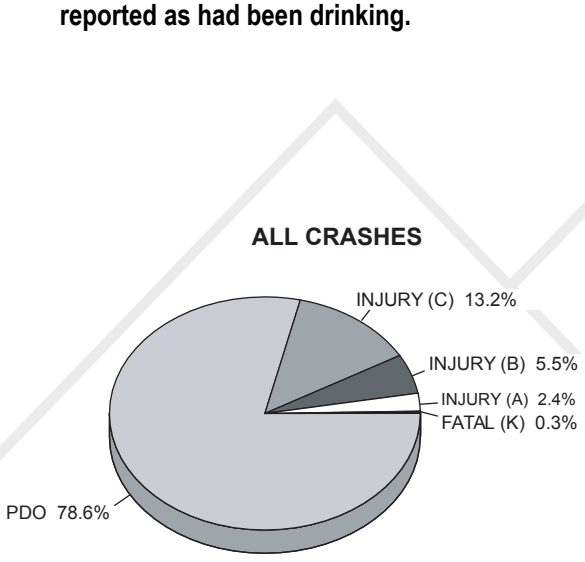
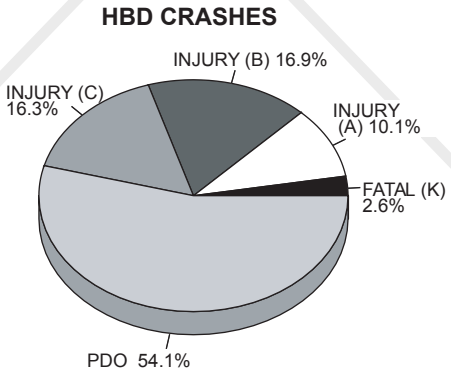
Alcohol

- Had been drinking **injury** crashes peak on Friday, Saturday and Sunday, and in the hours between 9:00 PM and 2:59 AM. Midnight to 2:59 AM is a particularly hazardous travel period.
- In 1999, had been drinking injury crashes were highest in May (752) and July (748).
- The highest number of HBD **fatal** crashes, 59, occurred in August.
- The midnight to 2:59 AM time period had the highest rate of had been drinking **fatal** crashes (30.6%), while the late morning hours had the lowest (4.1%).
- Saturday and Sunday had the highest proportions of alcohol-related **fatal** crashes. 296 out of 644 of the weekend **fatal** crashes involved drinking.
- The severity of injuries is much worse for drivers and passengers who had been drinking.
- Of the 18,110 (gender reported) drinking drivers involved in crashes, 14,541 (80.3%) were male and 3,569 (19.7%) were female.
- 4,654 (25.7%) of the (gender reported) drinking drivers in crashes were age 24 and younger.
- **38.8 percent of all fatal crashes involved at least one drinking operator or pedestrian.**
- **A fatality in a crash is over eight times more likely when one of the crash-involved operators is reported as had been drinking.**





INJURY (A) - Incapacitating
INJURY (B) - Nonincapacitating
INJURY (C) - Possible Injury
PDO - Property Damage Only

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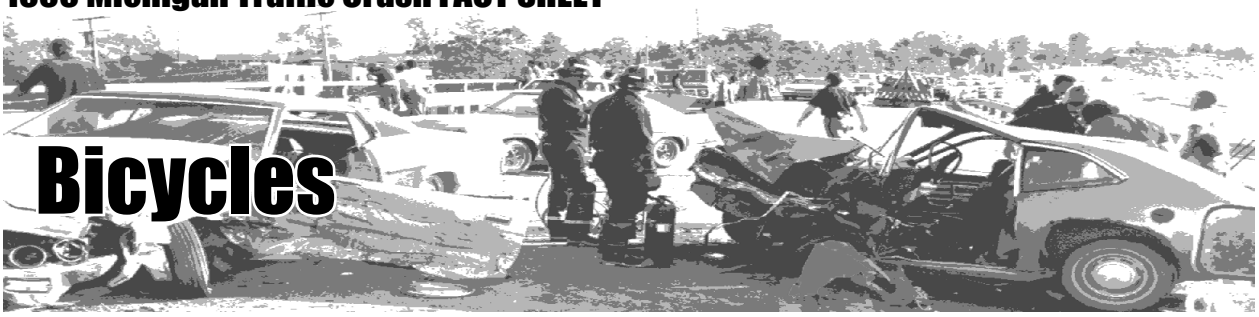
1999 Michigan Traffic Crash FACT SHEET



Bicycles

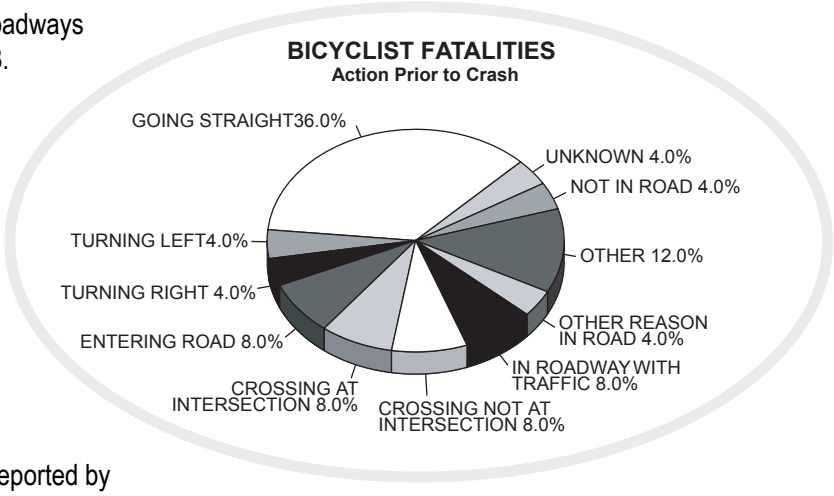
This sheet addresses the problem of deaths and serious injuries among bicyclists involved in vehicle-related crashes. At least one motor vehicle needs to be involved for the crash to be reportable as a motor vehicle crash.

2,797 bicyclists were involved in motor vehicle crashes in Michigan in 1999.

25 bicyclists were killed on Michigan roadways in 1999, two less than reported in 1998.

2,236 bicyclist injuries were reported to police agencies.

At all ages, males (2,177) were involved in more bicycle crashes than females (620). The male to female ratio of bicycle deaths was 5:1, with 21 male bicyclists killed and 4 female bicyclists killed.



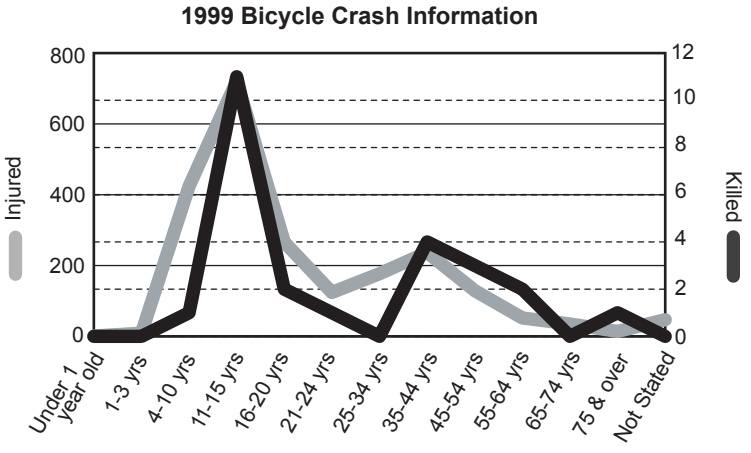
9 of the bicyclists killed (36.0%) were reported by police to be "going straight ahead" just prior to crash.

81.5 percent of all bicyclists in motor vehicle crashes and 11 of the 25 bicyclists killed were riding during daylight hours.

3:00 PM - 5:59 PM were the peak hours for bicyclist involvement in all crashes and injuries to bicyclists.
6:00 PM - 8:59 PM were the peak hours for bicyclist fatalities.

Of the bicyclists killed in 1999, 8 deaths were the result of a had-been-drinking crash and 5 (62.5%) of these bicyclists had been drinking.

48.0 percent of all bicyclist deaths occurred to children under 16 years of age. Children aged 11 to 15 years represented 44.0 percent of the total number of bicyclist fatalities. Children aged 4 to 10 years represented 4.0 percent of the total number of bicyclist fatalities.



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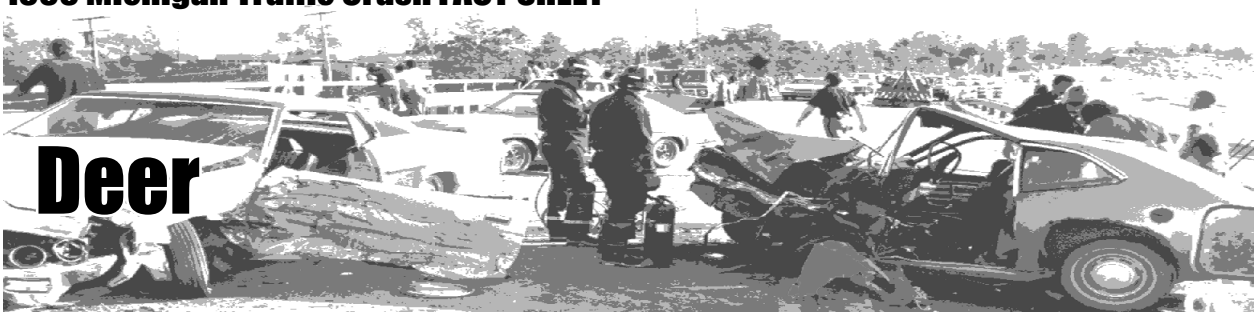


Deer

Contrary to common belief, motor vehicle-deer crashes are happening most often in Michigan's southern, heavily populated counties; Kent County had the highest number with 2,070 such crashes in 1999.

Michigan had 67,669 reported motor vehicle-deer crashes during 1999. This is a 47.3 percent rise from 45,945 vehicle-deer crashes in 1990.

62.7 percent of the vehicles involved in vehicle-deer crashes in 1999 were passenger cars.

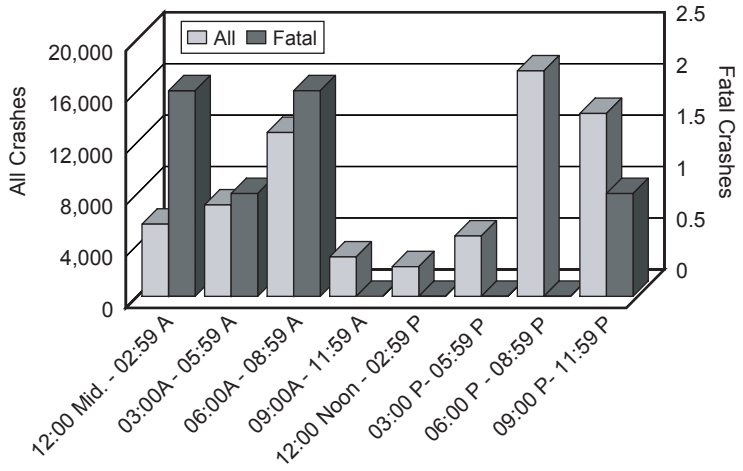
2,234 people were injured and 6 people were killed as a result of those collisions.

All motor vehicle-deer involved/associated crashes peaked during the 6:00 PM - 8:59 PM time period. Fatal deer crashes occurred during the 9:00 PM - 8:59 AM time periods.

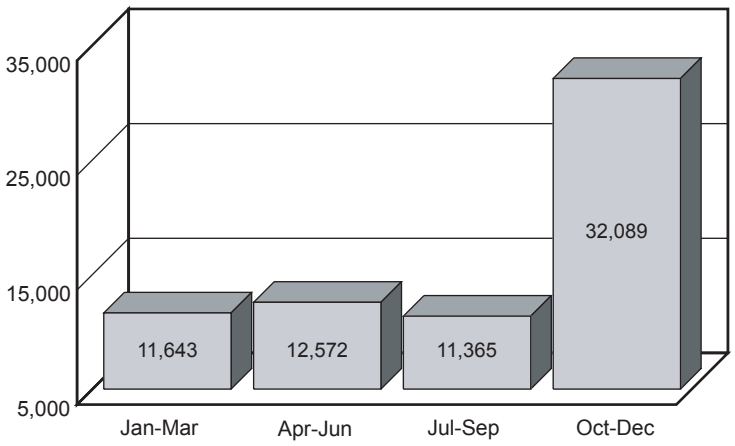
The top ten counties, each experiencing over 1,325 vehicle-deer crashes in 1999, were: Kent 2,070, Jackson 2,033, Calhoun 1,852, Oakland 1,759, Montcalm 1,605, Mecosta 1,502, Menominee 1,480, Eaton 1,381, Ingham 1,363 and Kalamazoo 1,326.

32,089 (47.4%) of all reported motor vehicle-deer collisions occurred during the fourth quarter of the year.

TIME AND SEVERITY OF ALL MOTOR VEHICLE-DEER CRASHES



ALL MOTOR VEHICLE-DEER CRASHES



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Deer
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Deer

The Michigan Deer Crash Coalition offers this advice to drivers:

Stay aware, alert, awake, and sober.

Wear your seatbelt.

Heed deer crossing and speed limit signs. Deer crossing signs are an excellent reminder for driving cautiously in areas where the deer population is heaviest.

Drive at moderate speeds through posted deer areas at all times of the day and night.

Deliberately look for deer and if you see them, slow down.

Don't rely on deer whistles or high-beam headlights to deter deer. Drive cautiously at all times.

When possible, adjust travel time during peak evening crash periods, especially in October, November and December.

Striking the deer is frequently the safest action to take. Motorists making evasive maneuvers may be involved in a more serious crash.

Beware: Deer are unpredictable when faced with headlights, blowing horns, and fast-moving vehicles. They dart into traffic and often move in groups running zigzag courses across roadways.

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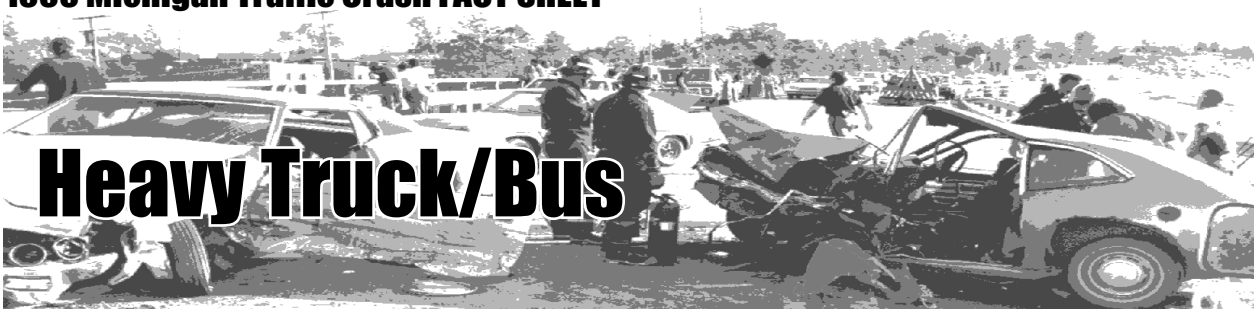

Heavy Truck/Bus

Heavy truck/bus crashes differ from other vehicle crashes in a number of ways. When compared to the overall crash picture, heavy truck/bus crashes involve:

- More turning, backing and changing lanes
- More overturns and other non-collisions
- Fewer single vehicle crashes but more sideswipes
- Fewer drivers indicated to be speeding and failing to yield, but more drivers indicated to be making backing, lane use and turning errors
- More on road crashes
- More daytime crashes
- More interstate route crashes
- More weekday crashes

CRASH TYPE	All Crashes		Fatal Crashes		Injury Crashes	
	Number of Heavy Trucks	% of Total	Number of Heavy Trucks	% of Fatal	Number of Heavy Trucks	% of Injury
Single Vehicle	2,790	12.9	15	9.9	409	9.9
Head On	332	1.5	31	20.4	139	3.4
Head On - Left Turn	262	1.2	6	3.9	106	2.6
Angle	3,432	15.8	51	33.6	946	22.9
Rear End	4,904	22.6	28	18.4	1,416	34.2
Rear End - Left Turn	230	1.1	2	1.3	65	1.6
Rear End - Right Turn	213	1.0	1	0.7	45	1.1
Sideswipe - Same Direction	5,336	24.6	4	2.6	556	13.4
Sideswipe - Opposite Direction	1,279	5.9	5	3.3	139	3.4
Other	2,615	12.1	9	5.9	273	6.6
Unknown	272	1.3	0	0.0	42	1.0
Total Drivers	21,665	100.0	152	100.0	4,136	100.0

- In 1999, 21,665 heavy truck/buses were involved in crashes in Michigan. 152 of them were involved in fatal crashes.
- There were 20,814 heavy truck/bus involved **crashes** in which 165 people were killed and 5,612 injured.
- Heavy truck/buses were involved in 5.0 percent of all traffic crashes in Michigan in 1999.

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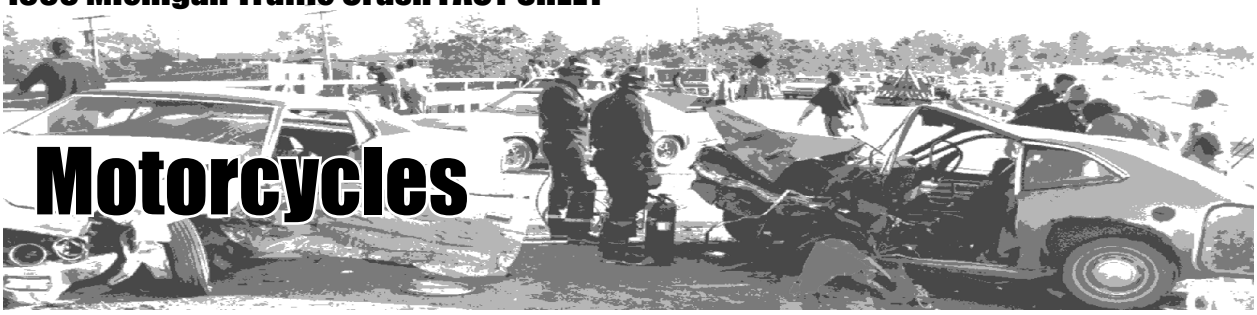


Motorcycles

In a crash, motorcyclists lack the protection of an enclosed vehicle.

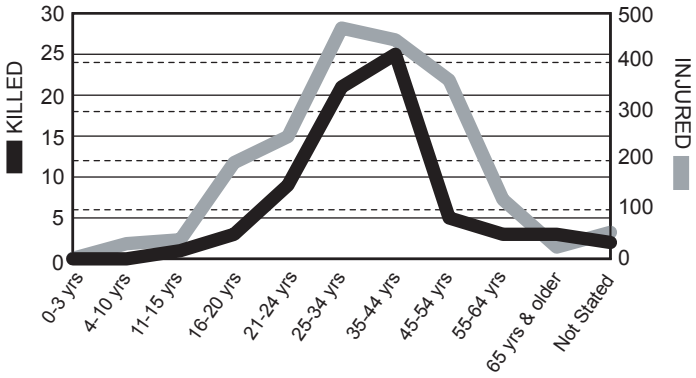
The 1999 death rate for motorcyclists was 16.0 per 100 million vehicle miles traveled compared to the overall mileage death rate of 1.5 per 100 million vehicle miles traveled.

Injuries to motorcyclists were proportionately more severe than injuries to persons in other motor vehicles.

There were 2,820 motorcycle-involved crashes in which 77 people were killed and 2,383 injured.

Motorcycles were involved in 0.68 percent of all traffic crashes in Michigan in 1999.

AGE OF MALE MOTORCYCLISTS KILLED & INJURED IN MOTOR VEHICLE CRASHES



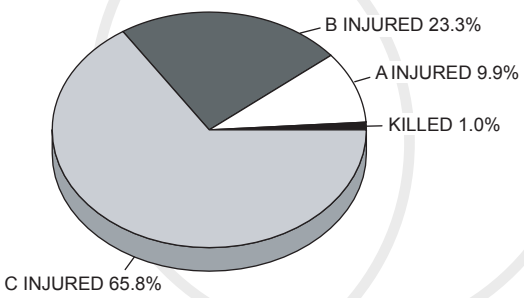
Because motorcycles have a low profile, they tend to be less visible than other motor vehicles. 67 (87.0%) of the 77 motorcyclists killed were reported by police as "going straight ahead" just prior to crash.

Of the motorcyclists killed in traffic crashes in 1999, 93.5 percent were male.

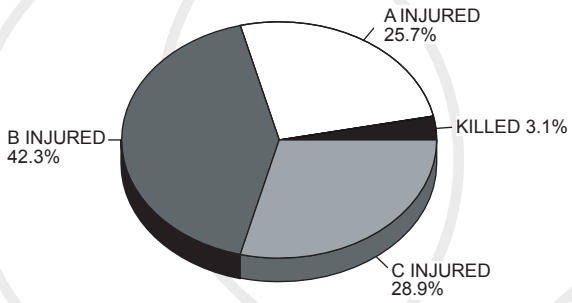
Of the motorcyclists killed in 1999, 35 deaths were the result of a had been drinking crash and 32 (91.4%) of these motorcyclists had been drinking.

Of the male motorcyclists injured, 470 (23.6%) were 25 - 34 years old.

KILLED & ABC INJURED OCCUPANTS



KILLED & ABC INJURED MOTORCYCLISTS



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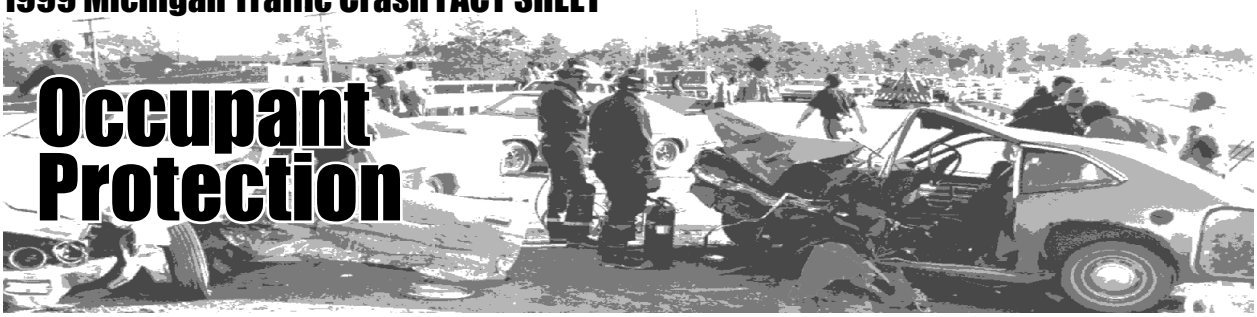


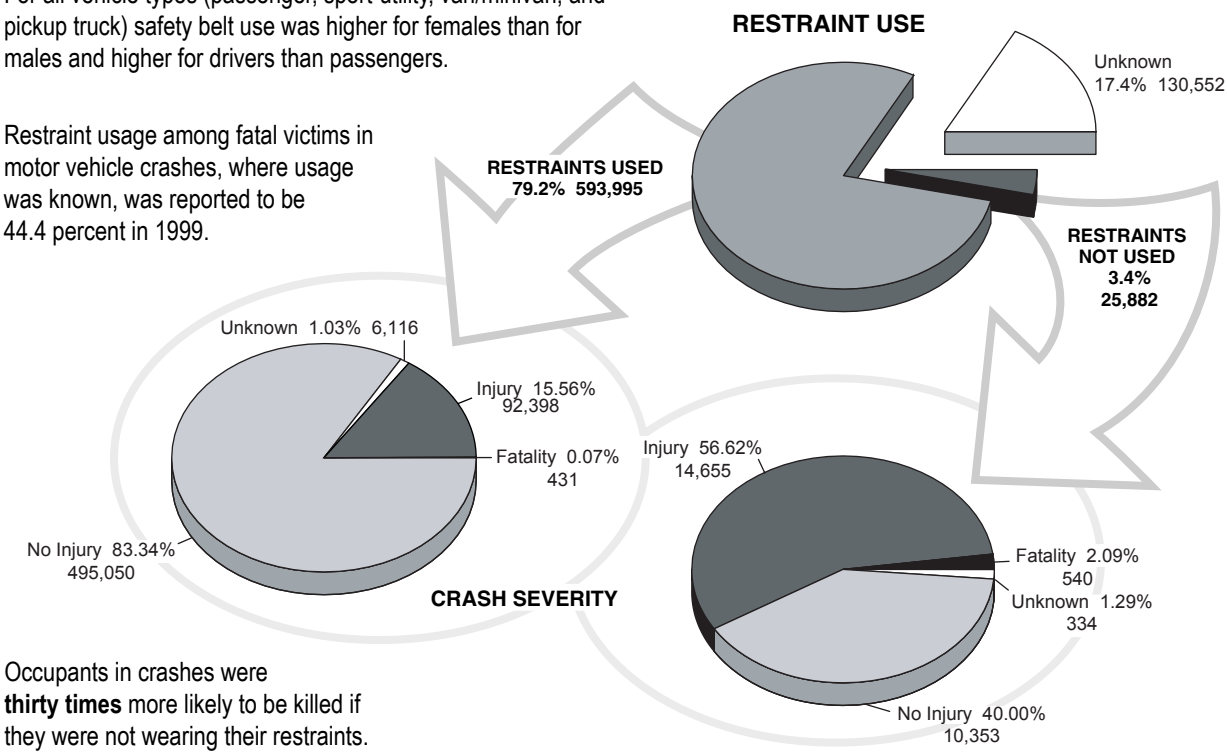
Occupant Protection

Restraint use by motorists is measured two ways: by what motorists REPORT to police at the scene of a traffic crash (reported usage), and by DIRECT OBSERVATION studies where motorists are totally unaware of the presence of researchers (observed usage). As expected, reported usage is routinely much higher than observed usage.

- Of the 750,429 drivers and injured passengers involved in crashes, 593,995 or 79.2 percent were REPORTED to have been using occupant restraints. However, a DIRECT OBSERVATION study by the University of Michigan Transportation Research Institute estimated overall safety belt use was 74.8 percent for passenger cars, 70.2 percent for sport-utility vehicles, 73.6 percent for vans/minivans, and 53.7 percent for pickup trucks in 1999.

- For all vehicle types (passenger, sport-utility, van/minivan, and pickup truck) safety belt use was higher for females than for males and higher for drivers than passengers.

- Restraint usage among fatal victims in motor vehicle crashes, where usage was known, was reported to be 44.4 percent in 1999.



- Occupants in crashes were **thirty times** more likely to be killed if they were not wearing their restraints.

- Motor vehicle occupants aged 75 to 100 had the highest reported restraint usage (93.4%) of any age group. Children age 11 to 15 had the lowest reported restraint usage (70.2%).

- In a pilot study of child restraint device (CRD) use and misuse in Michigan at the University of Michigan Transportation Research Institute, researchers discovered at least some degree of improper CRD use in 88.5 percent of case studies.

- Restraint use can prevent ejection from a motor vehicle. Ejection is associated with higher levels of injury severity and greater numbers of fatalities. 12.0 percent of the occupants ejected from motor vehicles died.

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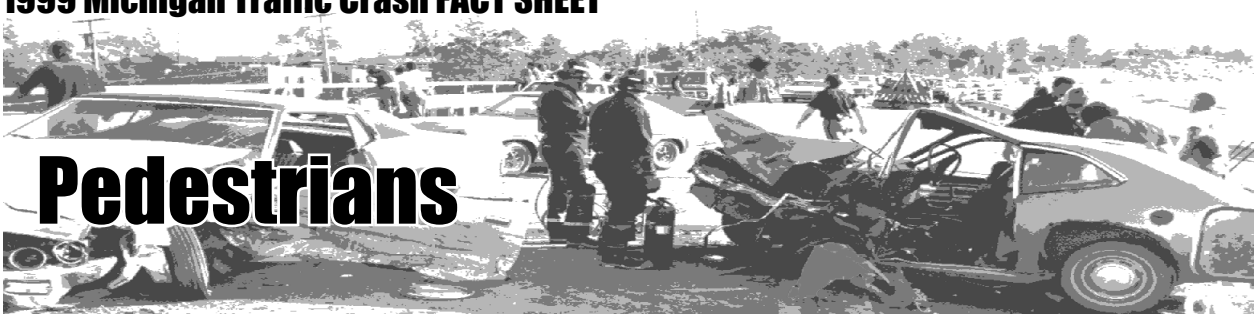


Pedestrians

This sheet addresses the problem of deaths and serious injuries among pedestrians involved in vehicle-related crashes. At least one motor vehicle needs to be involved for the crash to be reportable as a motor vehicle crash.

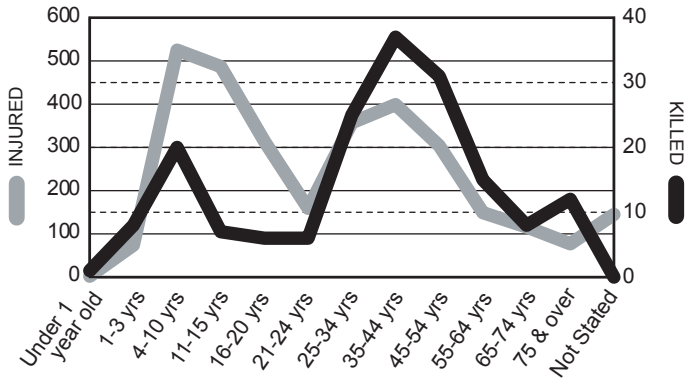
Since 1990, a total of 1,826 pedestrians have been killed, accounting for 12.7 percent of all traffic crash deaths during that period.

There were 3,677 pedestrians involved in motor vehicle crashes, with 176 pedestrians killed and 3,108 pedestrians injured.

The male to female ratio of pedestrian deaths was 2.8:1.

The 176 pedestrian fatality count is an increase of 4 deaths (2.3%) from the 1998 figure. For each pedestrian killed, there were 17.7 pedestrians injured.

1999 PEDESTRIAN CRASH INFORMATION



Most pedestrian crashes occurred during the late afternoon hours (3:00 PM - 5:59 PM) under clear conditions. However, most pedestrian fatalities occurred during hours of darkness. Friday was the deadliest day for pedestrians in 1999 with 37 fatalities.

Of the pedestrians killed in 1999, 82 deaths were the result of a had-been-drinking crash and 68 (82.9%) of these pedestrians had been drinking.

Of all pedestrian actions prior to a crash, "crossing not at an intersection" is the most deadly, accounting for 37.5 percent of the pedestrian fatalities.

Of all pedestrians killed, 20.5 percent were children 0-15, 6.8 percent were age 16-24, 35.2 percent were age 25-44, 26.1 percent were age 45-64, and 11.4 percent were 65 and older.

1999 PEDESTRIAN FATALITIES BY AGE

Pedestrian Action Prior to Crash	Total	0-3	4-10	11-15	16-20	21-24	25-44	45-64	65 & over
Going straight ahead	7	0	1	2	0	0	2	2	0
Stopped on roadway	1	0	0	0	0	0	1	0	0
Crossing at intersection	10	0	1	0	0	0	3	3	3
Crossing not at intersection	66	4	10	4	0	1	18	16	13
Getting on/off vehicle	4	0	1	0	0	0	1	1	1
In roadway with traffic	15	0	1	0	0	2	8	3	1
In roadway against traffic	9	0	0	0	1	1	4	3	0
Standing or lying in roadway	17	1	0	1	2	0	6	6	1
Pushing/working on vehicle	2	0	0	0	0	0	1	1	0
Playing in roadway	2	1	1	0	0	0	0	0	0
In roadway for other reason	12	1	2	0	1	1	6	1	0
Not in roadway	20	1	3	0	1	0	5	9	1
Other/Unknown	11	1	0	0	1	1	7	1	0
Totals	**176**	**9**	**20**	**7**	**6**	**6**	**62**	**46**	**20**

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