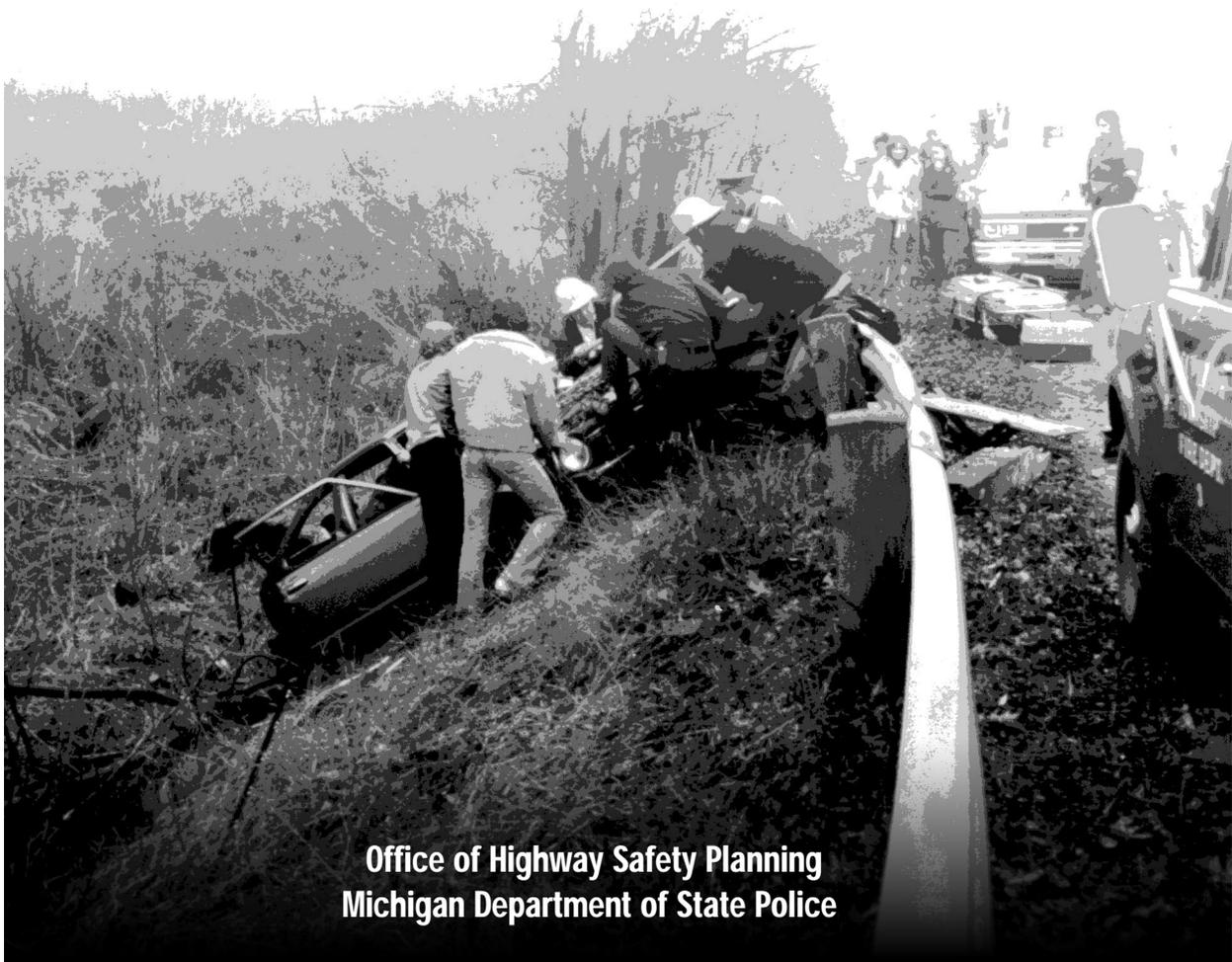


1997

Michigan Traffic Crash Facts



Office of Highway Safety Planning
Michigan Department of State Police

EXECUTIVE SUMMARY

The 1997 traffic fatality count was 1,446, down 3.9 percent from the 1996 figure of 1,505. Compared with 1996, injuries were down 3.5 percent and total crashes were down 2.2 percent. These figures translated into a death rate of 1.6 per 100 million miles of travel, down 5.9 percent from the death rate of 1.7 reported in 1996. Nationally, fatalities were down 0.2 percent.

Exposure factors in 1997 showed increases in vehicle registrations, the number of drivers on Michigan roads, and travel mileage. They included motor vehicle registrations up 0.1 percent to 8.12 million, the number of Drivers of Record up 1.6 percent to 7.09 million, and vehicle travel mileage up 1.7 percent to 89.2 billion.

Consumption of alcohol continues to be a major factor in Michigan crashes, particularly the more serious crashes. In 1997, 4.7 percent of all crashes, including property damage only, were reported to involve drinking, and 22.7 percent resulted in injury or death. However, 46.3 percent of alcohol-related crashes involved injury or death, and 37.5 percent of fatal crashes involved drinking. Over 58.4 percent of alcohol-related fatal crashes involved only one vehicle, whereas only 30.2 percent of all crashes involved one vehicle.

Data on crashes in this book was obtained from 1997 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 for the Office of Highway Safety Planning with data on file at the Michigan Department of State Police as of May 1, 1998. We acknowledge, with appreciation, all involved agencies for their assistance.


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



STATE OF MICHIGAN



JOHN ENGLER, Governor

DEPARTMENT OF STATE POLICE

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INTRODUCTION

We are pleased to present the *1997 Michigan Traffic Crash Facts*. Michigan experienced a decrease in the number of traffic deaths in 1997, and in the death rate (calculated on the basis of traffic deaths per 100 million motor vehicle miles traveled). We are encouraged by these decreases, and, have dedicated ourselves to providing traffic safety programs that will foster safer travel on Michigan roads.

This year we have divided the *1997 Michigan Traffic Crash Facts* into two volumes. Volume one provides statewide statistical information on Historical, Special Focus (Age, Alcohol, and Deer), Crash, Vehicle/Driver and Occupant/Person. Volume two is titled *1997 Michigan Traffic Crash Facts for County/Communities*. This volume provides crash statistics for Michigan counties and communities. Although some of this information was previously provided, the section has been significantly expanded to provide quick access to more local information.

Your comments about this report are important to us. If you discover something that you think would be helpful to see next year, please let us know. We rely on your input to make this document user friendly and a valued technical resource.

This report will also be available after December 1998 on the Internet at www.ohsp.msp.state.mi.us.

A handwritten signature in cursive script that reads "Betty J. Mercer".

BETTY J. MERCER
Division Director
Office of Highway Safety Planning



UD-10 (FRONT)

UD-10 (BACK)

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 holders (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 Judgement), 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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**Quick Facts
& Figures**

1997

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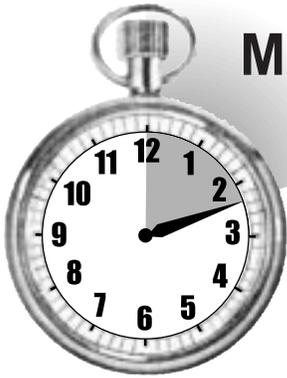
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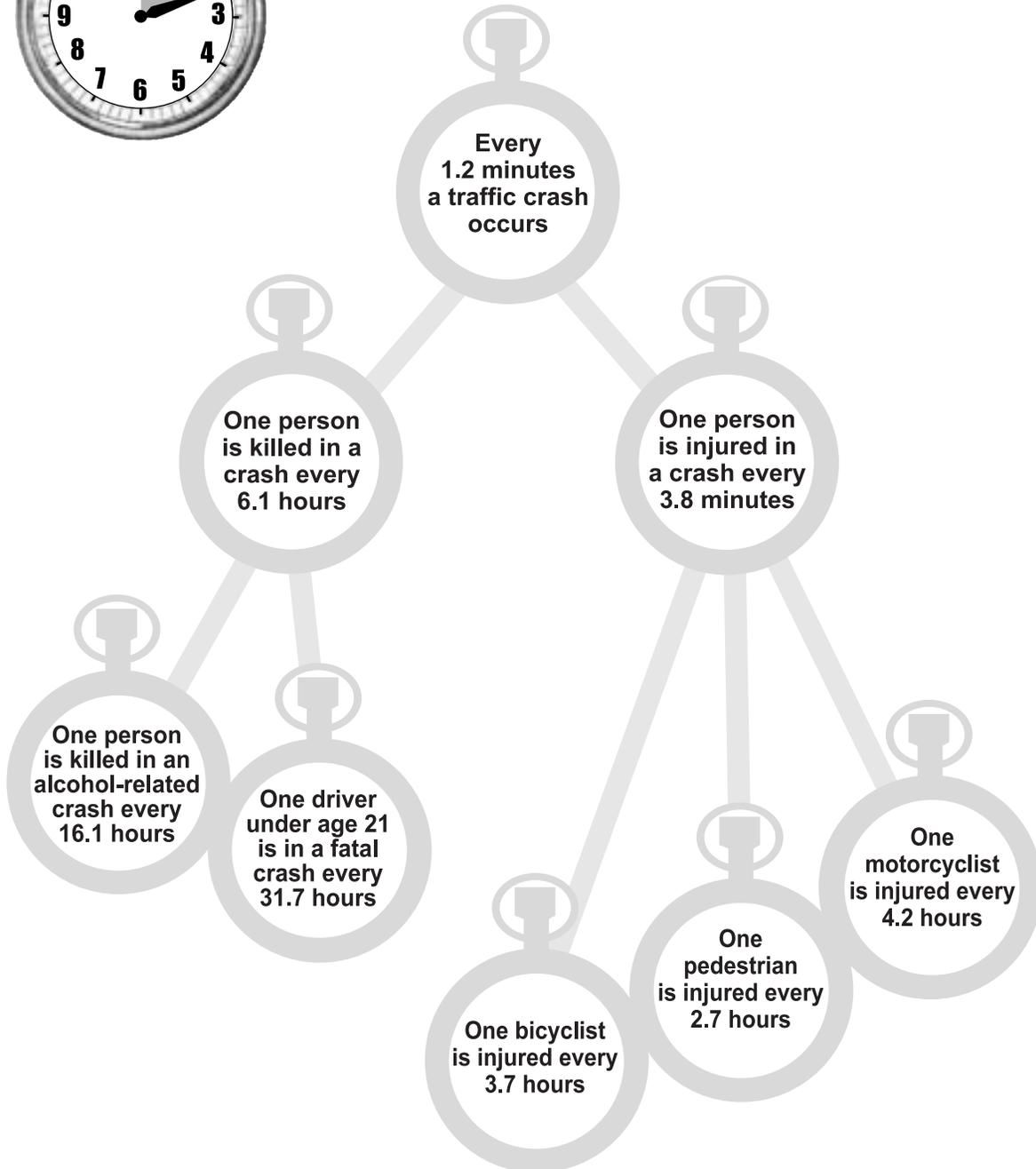
1997 QUICK FACTS

- Some exposure factor comparisons between 1997 and 1996 show motor vehicle registrations rose **0.1** percent, number of Drivers of Record on Michigan roads increased **1.6** percent, and vehicle mileage increased **1.7** percent.
- The 1997 death rate fell to **1.6** deaths per 100 million miles of travel. This is a decrease of **5.9** percent from the 1996 death rate of **1.7**, and it is below the ten-year average of **1.8** (1988-1997).
- There were **1,446** persons killed and **137,548** persons injured in **425,793** reported motor vehicle traffic crashes in Michigan during 1997. Compared with 1996 experience, deaths decreased **3.9** percent, injuries decreased **3.5** percent, and total reported crashes showed a decrease of **2.2** percent.
- This year's death toll of **1,446** was down **3.9** percent from the 1996 figure of **1,505**.
- The **1,446** persons killed were the result of **1,283** fatal crashes for an average of **1.1** deaths per fatal crash.
- There were **425,793** reported crashes of which **1,283** were fatal, **95,359** were personal injury, and **329,151** were property damage only crashes.
- Of all fatal crashes, **30.6** percent occurred at intersections.
- Of all fatal crashes, **37.5** percent involved at least one drinking operator or pedestrian.
- Excessive speed was indicated as the hazardous action by **14.3** percent of the drivers involved in fatal crashes.
- In 1997 there were **128,617** single vehicle crashes, a decrease of **4.0** percent over last year's count of **133,997**.
- Of the **425,793** total crashes, **128,617 (30.2%)** involved one vehicle.
- Of the **1,283** fatal crashes, **558 (43.5%)** involved one vehicle.
- Of the **481** alcohol-related fatal crashes, **281 (58.4%)** involved one vehicle. This is a **6.0** percent decrease from last year's figure of **299** single vehicle, alcohol-related fatal crashes.
- Of the **2,124** drivers involved in fatal crashes, **13.0** percent were under 21 years of age and **20.9** percent of all drivers involved in fatal crashes were under 25 years of age.
- In the last five years (1993-1997), **7,321** persons have been killed in Michigan traffic crashes. This is an average of **1,464** per year. During the previous five-year period (1992-1996), **7,175** persons were killed, for an average of **1,435** per year.
- Of the **9,773,892** persons living in Michigan [1] one out of every **6,759** was killed in a traffic crash; one out of every **71** persons was injured.
- For each person killed there were **95.1** persons injured.
- There were **137,548** 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, five out of six accidental deaths for teenagers and young adults (ages 15-24) are due to motor vehicle crashes.
- The pedestrian death toll for Michigan stands at **167** persons. This represents a decrease of **25** deaths over the 1996 figure.
- For each pedestrian killed, there were **19.1** pedestrians injured.
- Of the pedestrians killed, **43.1** percent were killed while crossing streets other than at intersections.
- Of all pedestrians killed, **21.6** percent were under the age of 21 years and **22.8** percent were 55 and older.
- During the past five years, a total of **902** pedestrians have been killed, an average of **180** per year.
- During the past five years, a total of **147** bicyclists have been killed, an average of **29** per year.
- Children under the age of **16** accounted for **34.5** percent of the bicycle deaths.
- Of the **774,717** drivers and injured passengers involved in crashes, **608,173** or **78.5** percent were *reported* to have been using occupant restraints. Restraint usage among fatal victims, where usage was known, was reported to be **43.9** percent in 1997.
- Motor vehicle occupants age 55 to 64 and 65 to 74 tied for the highest reported restraint usage (**93.2%**) among age groups. Children age 11 to 15 had the lowest reported restraint usage (**68.1%**).
- The economic loss in Michigan traffic crashes amounted to **\$9,707,518,300**.



Michigan's Crash Watch 1997



Who Dies in Michigan Motor Vehicle Crashes?

A Daily Toll

- Four people dead - ***ONE FAMILY EVERYDAY!***
- One person dead in an alcohol-related crash everyday
- Daily economic costs to Michigan residents of:

27 MILLION DOLLARS

11.4 million - for fatalities

13.6 million - for injuries

1.5 million - for property damage

An Annual Toll

- Economic Cost of motor vehicle crashes to Michigan residents is 9.7 billion a year
- 4.2 billion in economic loss due to Michigan motor vehicle fatalities a year
- Alcohol related fatalities amounted to 544 people in 1997
- 1,446 people died in 1997
- ***ONE PERSON DIED EVERY 6 HOURS, 3 MINUTES!***

1997

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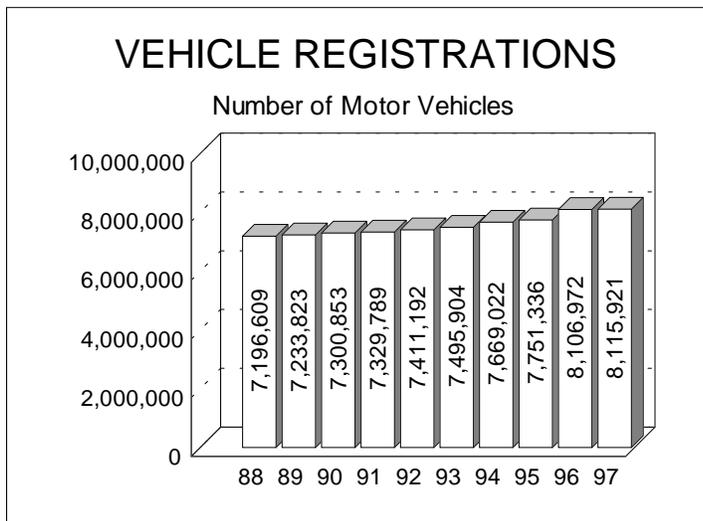
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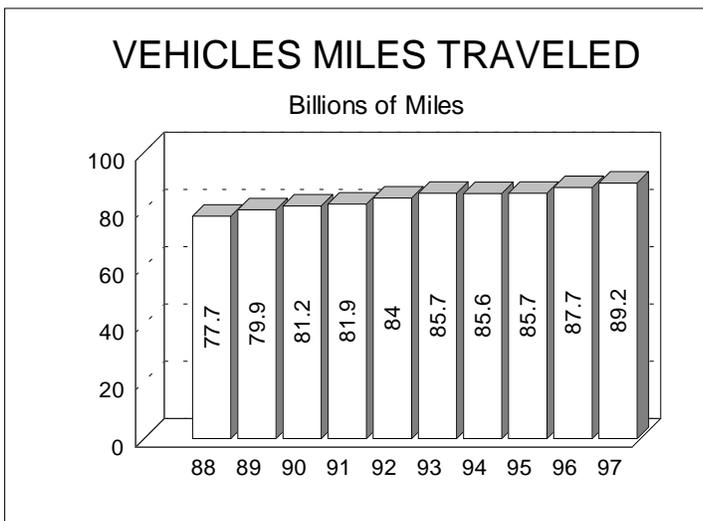
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**Historical
Information**

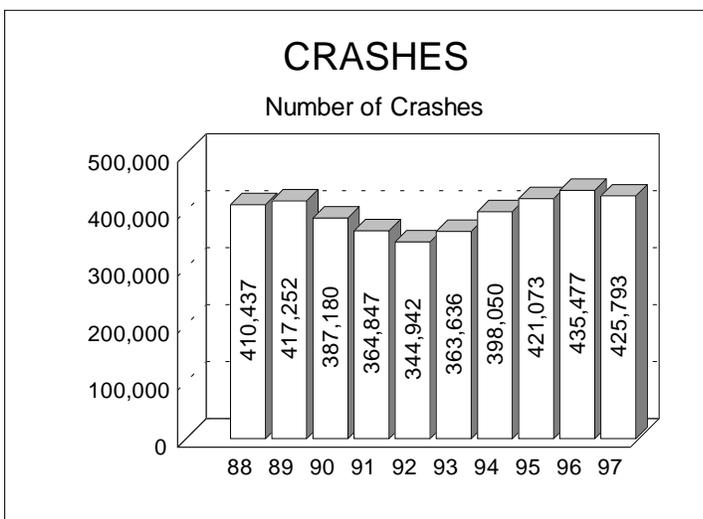
10 YEAR



Vehicle Registrations have been increasing steadily since 1988, reaching 8,115,921 in 1997.

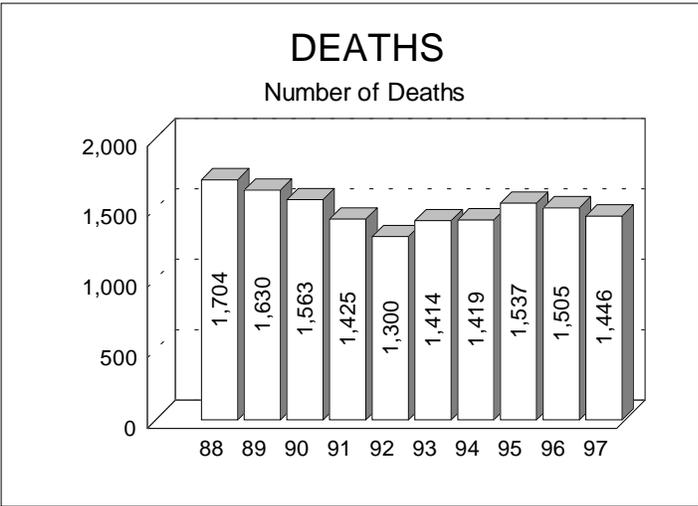


Vehicle miles of travel have increased 14.8 percent since 1988, reaching 89.2 billion miles in 1997.

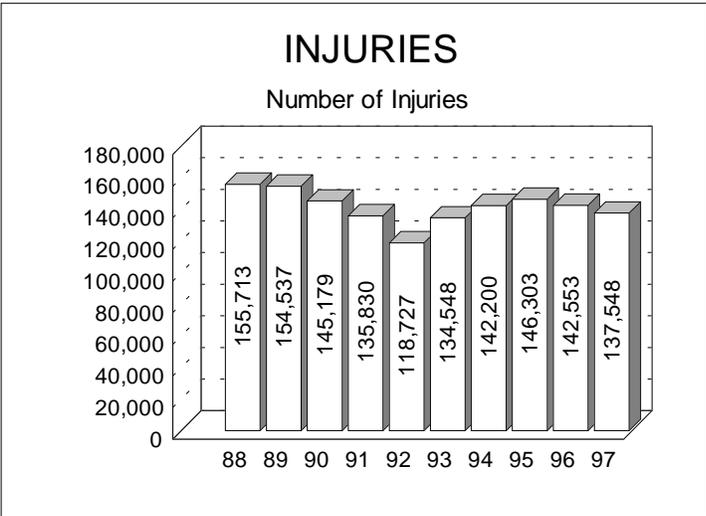


There were 425,793 total crashes statewide in 1997, a 2.2 percent decrease from 1996.

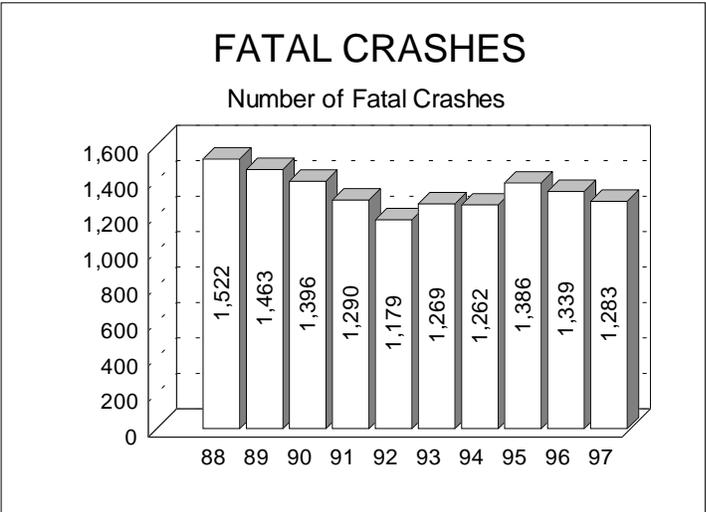
10 YEAR TRENDS (continued)



Number of deaths has remained below the high of 1,704 in 1988. In 1997, 1,446 people died in motor vehicle crashes, a decline of 3.9 percent from 1996.

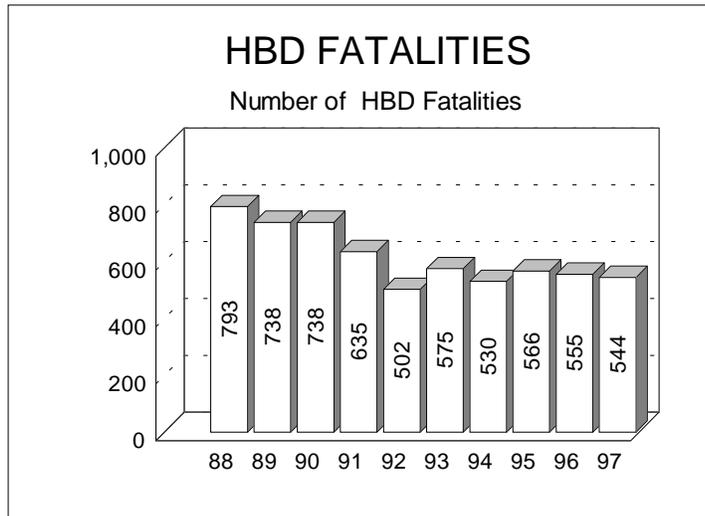


137,548 people received nonfatal injuries in Michigan motor vehicle crashes in 1997, down 11.7 percent from the high of 155,713 in 1988.

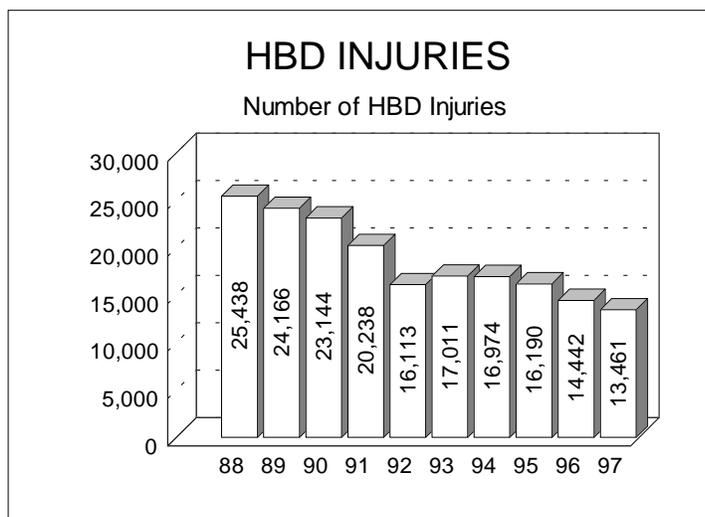


After reaching a peak in 1988, fatal crashes had declined until 1992. In 1997, there were 1,283 fatal crashes, down 4.2 percent from 1996.

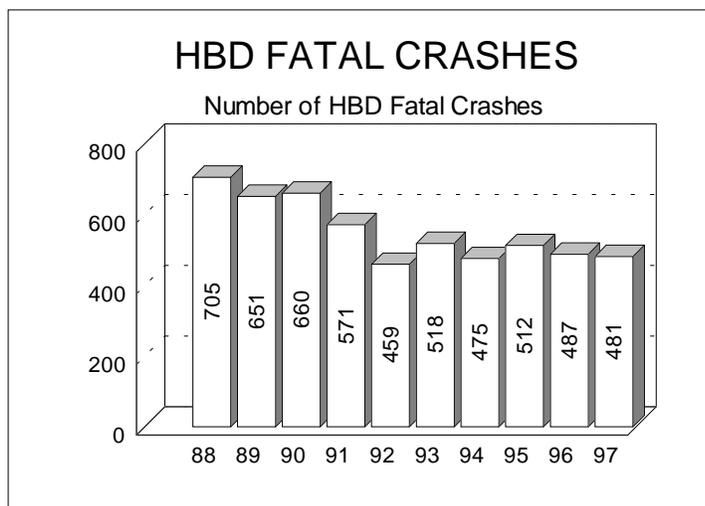
10 YEAR



Deaths in alcohol related crashes have decreased over the last ten years. There were 544 HBD fatalities in 1997, down 31.4 percent from 1988.

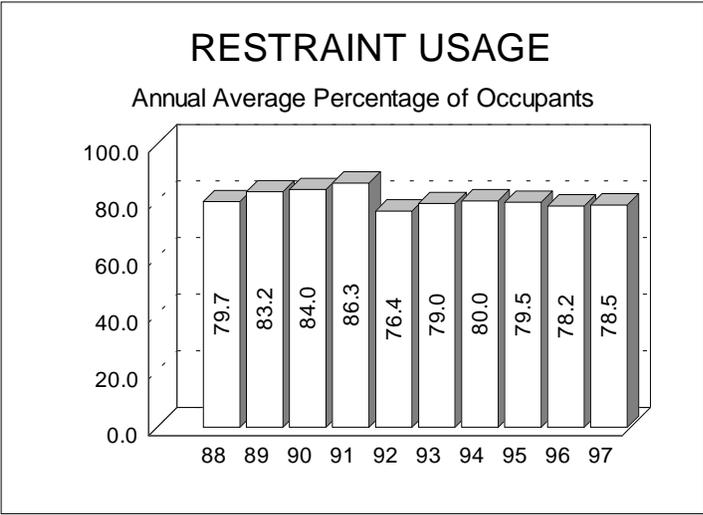


Mirroring the trend in deaths, HBD injuries have decreased over the last ten years. There were 13,461 injuries in 1997, down 47.1 percent from 1988.



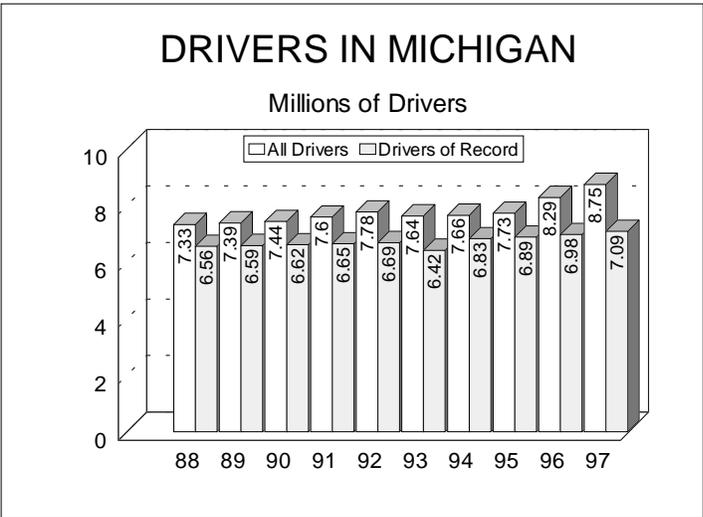
Alcohol involvement in fatal crashes has decreased 31.8 percent since 1988. In 1997, there were 481 HBD fatal crashes, down 1.2 percent from 1996.

10 YEAR TRENDS (continued)



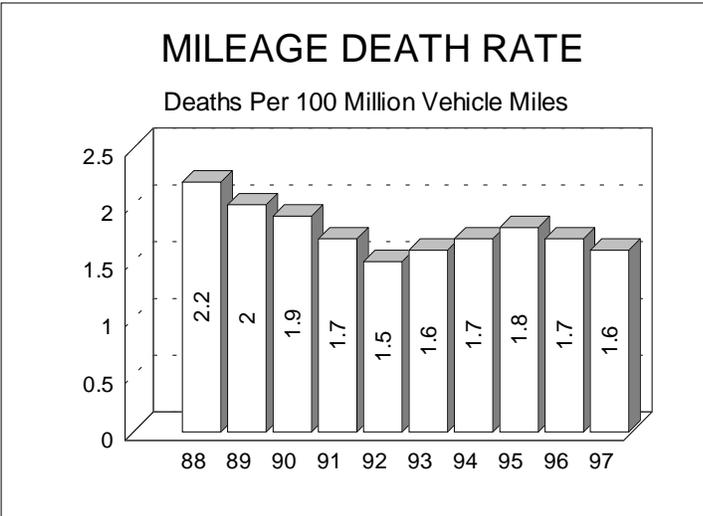
The percentage of motor vehicle occupants using restraints as reported by police in traffic crashes increased dramatically following implementation of Michigan's safety belt use law in July 1985. The ten-year average percentage is 80.5.

Note: Please see additional restraint usage information on page 144.



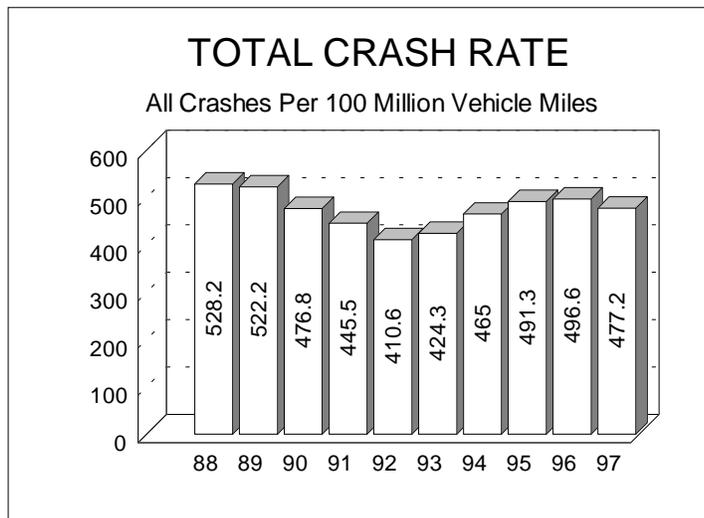
Beginning with this year's Michigan Traffic Crash Facts, we are using Drivers of Record (as defined by the Michigan Department of State, Office of Policy and Planning) for the total number of drivers on Michigan roads. Previously we used the All Drivers number. Both data elements are shown to the left.

For definitions of All Drivers and Drivers of Record, please refer to the Glossary.

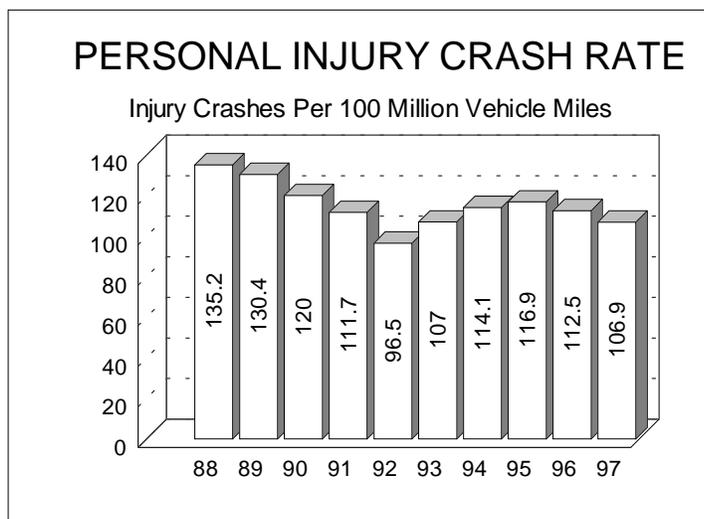


The 1.6 death rate in 1997 is a 5.9 percent decrease from 1996.

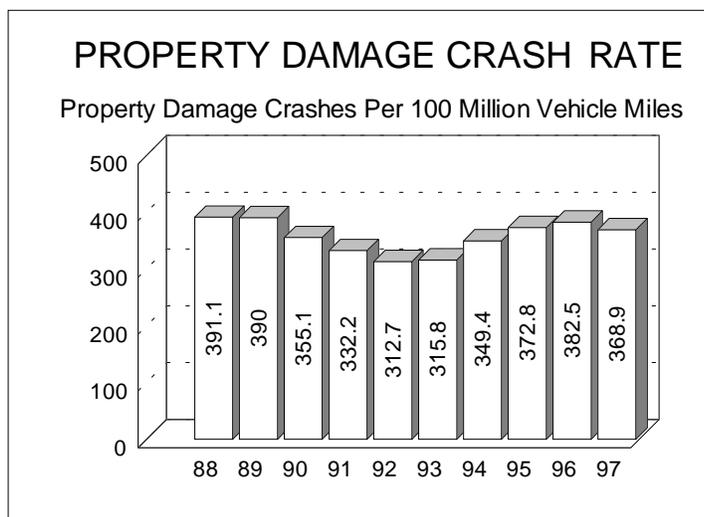
10 YEAR



The 477.2 total crash rate in 1997 is a 3.9 percent decrease from 1996.



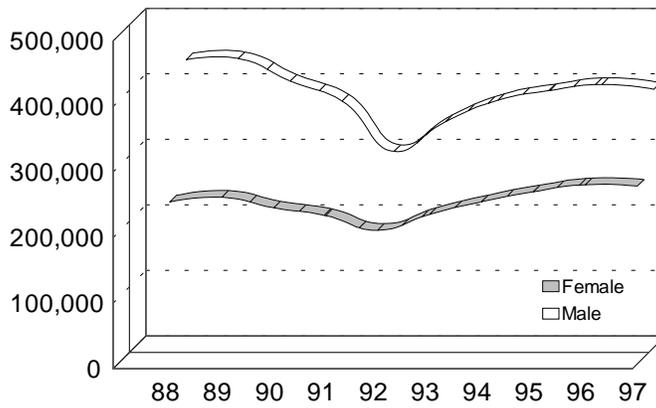
The 106.9 personal injury crash rate in 1997 is a 5 percent decrease from 1996.



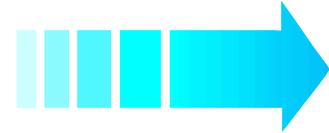
The 368.9 property damage crash rate in 1997 is a 3.6 percent decrease from 1996.

MALE vs. FEMALE DRIVERS

Number in All Crashes

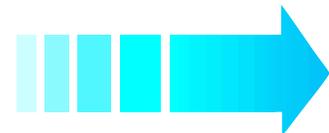
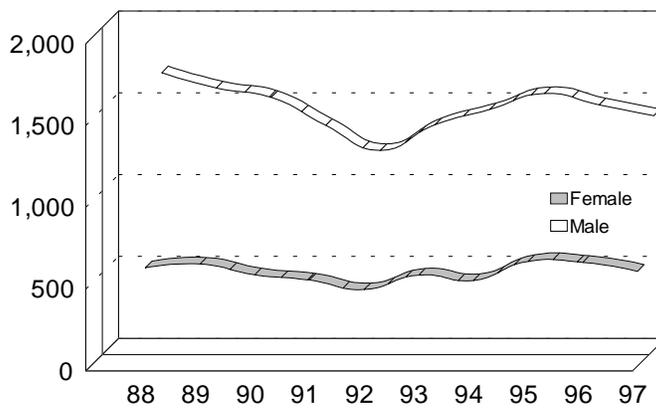


10 YEAR TRENDS (continued)



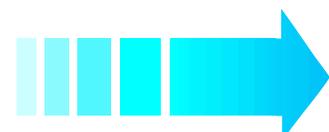
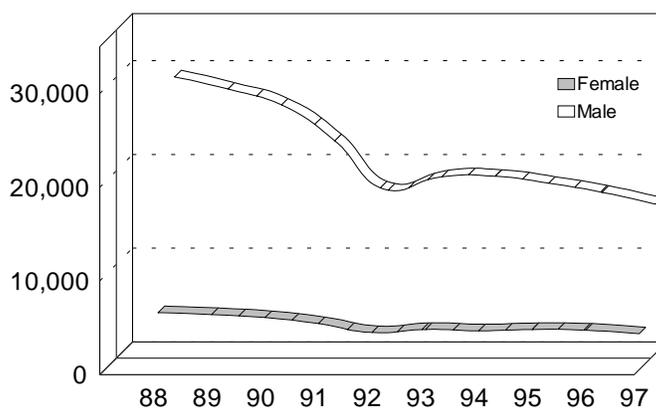
MALE vs. FEMALE DRIVERS

Number in Fatal Crashes



MALE vs. FEMALE DRINKING DRIVERS

Number in All Crashes



10 YEAR

| DRIVERS IN ALL CRASHES | | |
|------------------------|---------|---------|
| | Male | Female |
| 1988 | 439,047 | 246,916 |
| 1989 | 440,885 | 254,185 |
| 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 |

The crash data collection form (UD-10) was changed in 1992. Prior to 1992, drivers whose gender was not identified were coded as male. Slightly less than 10% of drivers were coded as unknown gender in 1997.

| DRIVERS IN FATAL CRASHES | | |
|--------------------------|-------|--------|
| | Male | Female |
| 1988 | 1,693 | 601 |
| 1989 | 1,600 | 624 |
| 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 |

Male drivers make up 70-75 percent of all drivers in fatal crashes.

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

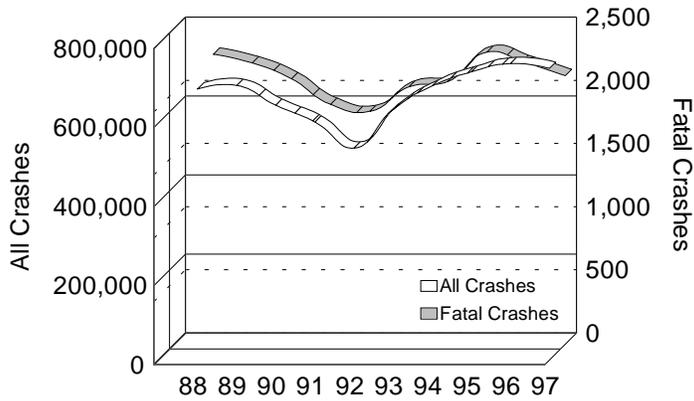
| DRINKING DRIVERS IN ALL CRASHES | | |
|---------------------------------|--------|--------|
| | Male | Female |
| 1988 | 29,496 | 6,091 |
| 1989 | 28,185 | 5,889 |
| 1990 | 26,498 | 5,568 |
| 1991 | 22,679 | 4,930 |
| 1992 | 17,414 | 3,976 |
| 1993 | 18,831 | 4,308 |
| 1994 | 18,889 | 4,163 |
| 1995 | 18,153 | 4,300 |
| 1996 | 17,186 | 4,225 |
| 1997 | 15,901 | 3,842 |

Males drivers have always accounted for the majority of all drinking drivers. The number of male drinking drivers has decreased 46.1 percent from 1988 to an all time low of 15,901 in 1997.

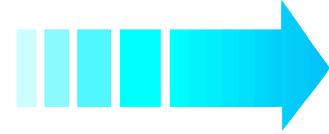
The number of female drinking drivers decreased to the lowest number of the ten year period, 3,842 in 1997.

ALL DRIVERS

Number in All and Fatal Crashes

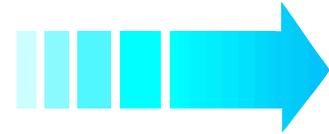
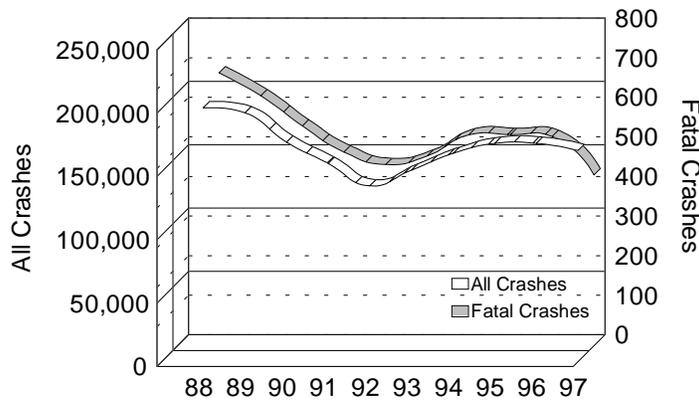


10 YEAR TRENDS (continued)



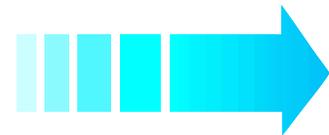
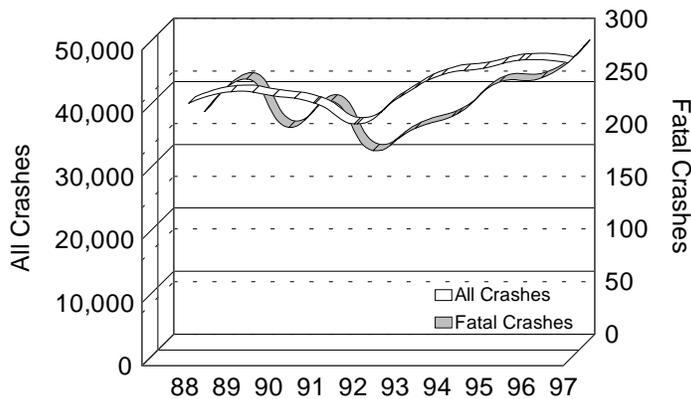
TEEN/YOUNG ADULT DRIVERS

Age 16-24: Number in All and Fatal Crashes



ELDERLY DRIVERS

Age 65-102: Number in All and Fatal Crashes



10 YEAR

| ALL DRIVERS | | |
|-------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 685,963 | 2,294 |
| 1989 | 695,070 | 2,224 |
| 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 |

Driver involvement in all crashes increased 7.6 percent over the ten year period.

Driver involvement in fatal crashes decreased 7.4 percent over the ten year period.

| TEEN/YOUNG ADULT DRIVERS | | |
|--------------------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 200,396 | 690 |
| 1989 | 196,547 | 632 |
| 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 |

Teen/Young Adult Drivers (age 16-24) represent 14.8 percent of the licensed drivers in 1997.

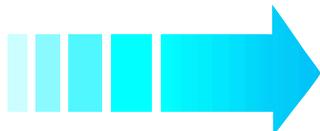
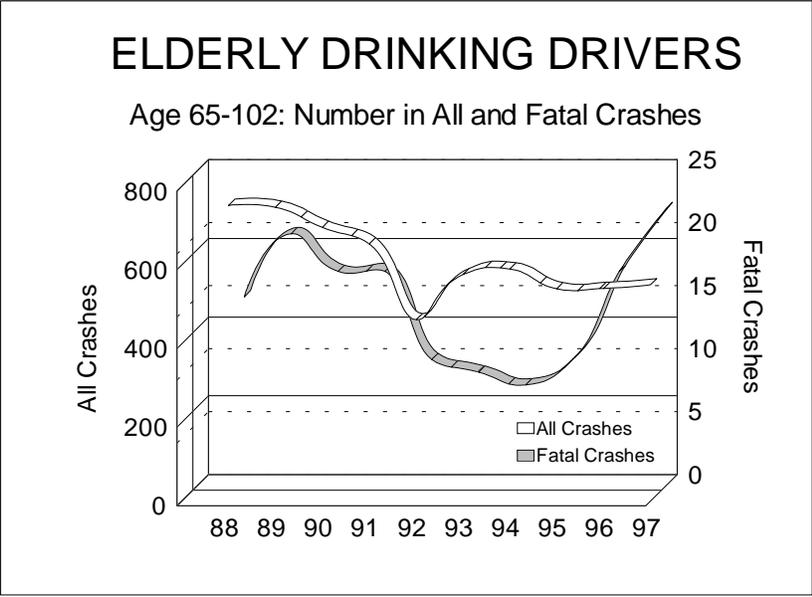
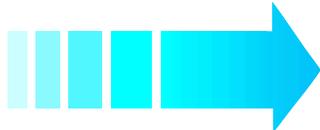
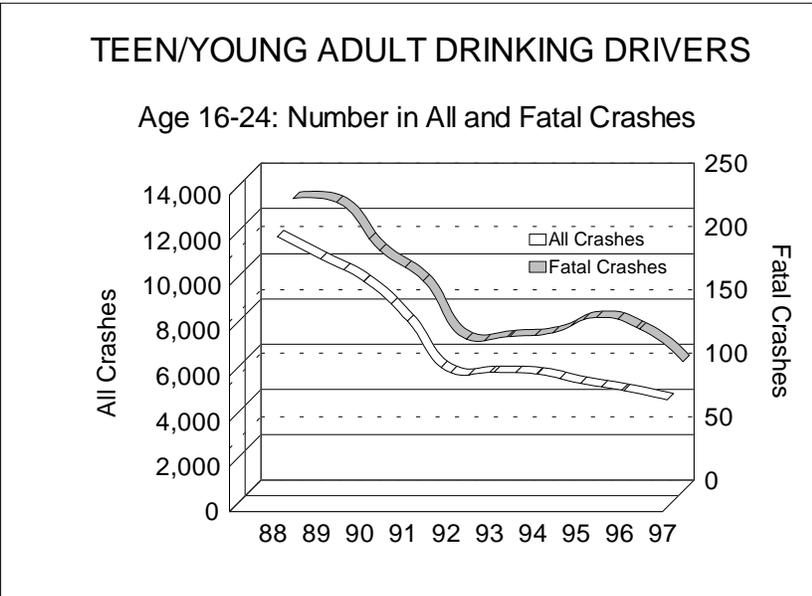
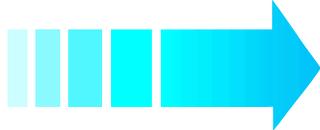
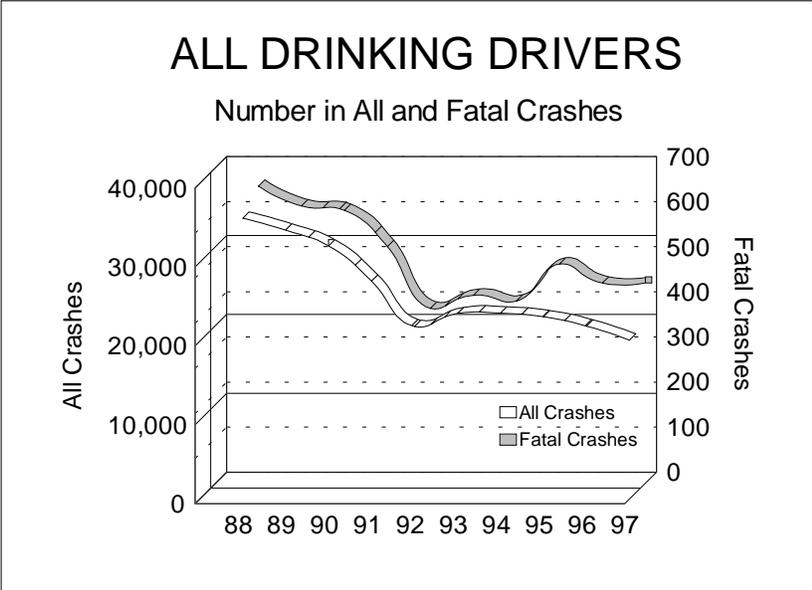
The number of Teen/Young Adult drivers in all crashes has decreased by 16.8 percent since 1988. Their involvement in fatal crashes decreased 37.4 percent during the same time period.

| ELDERLY DRIVERS | | |
|-----------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 40,812 | 222 |
| 1989 | 42,636 | 253 |
| 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 |

Elderly Drivers (age 65-102) represent 14.1 percent of the licensed drivers in 1997.

The number of drivers age 65 and older in all crashes has increased 15.6 percent since 1988. Their involvement in fatal crashes increased 27.9 percent during the same time period.

10 YEAR TRENDS (continued)



10 YEAR

| DRINKING DRIVERS | | |
|------------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 35,587 | 659 |
| 1989 | 34,074 | 615 |
| 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 |

Drinking driver involvement in all crashes decreased 43.4 percent over the ten year period.

Drinking driver involvement in fatal crashes decreased 32.6 percent over the ten year period.

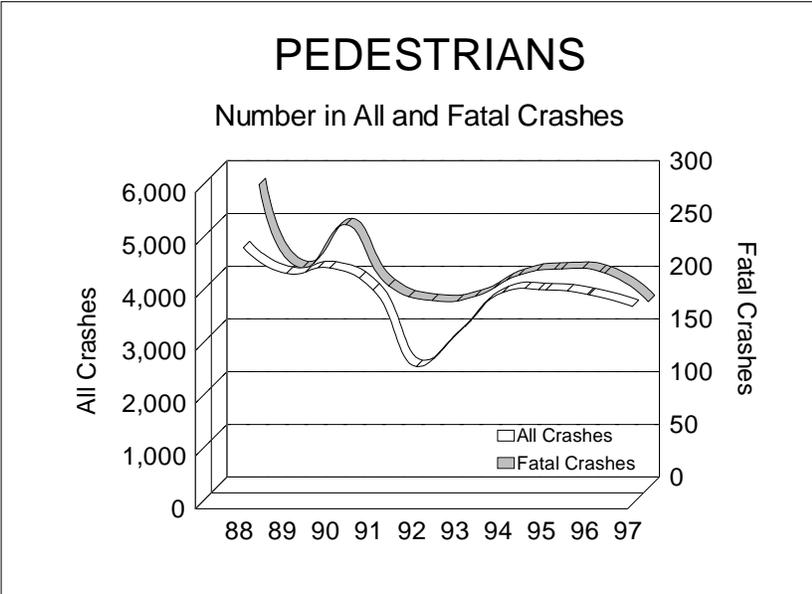
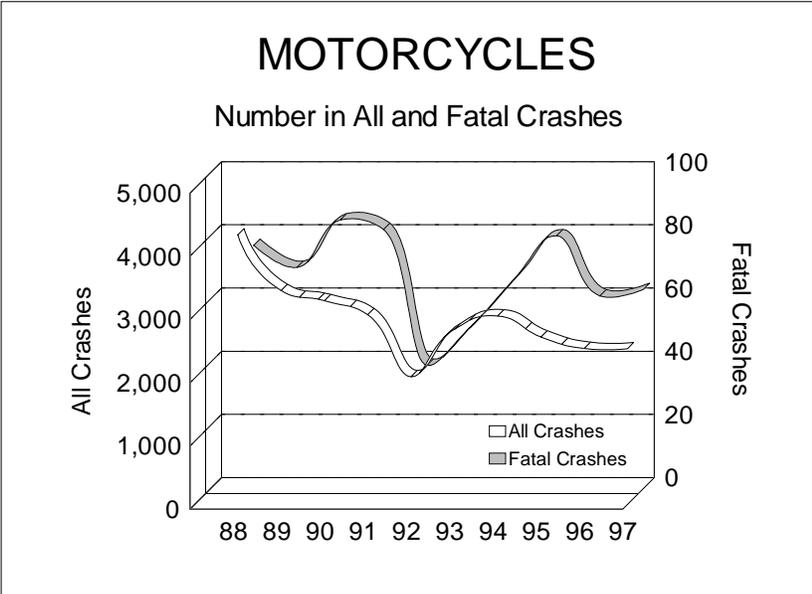
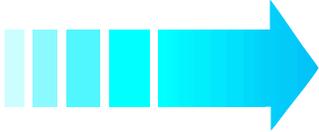
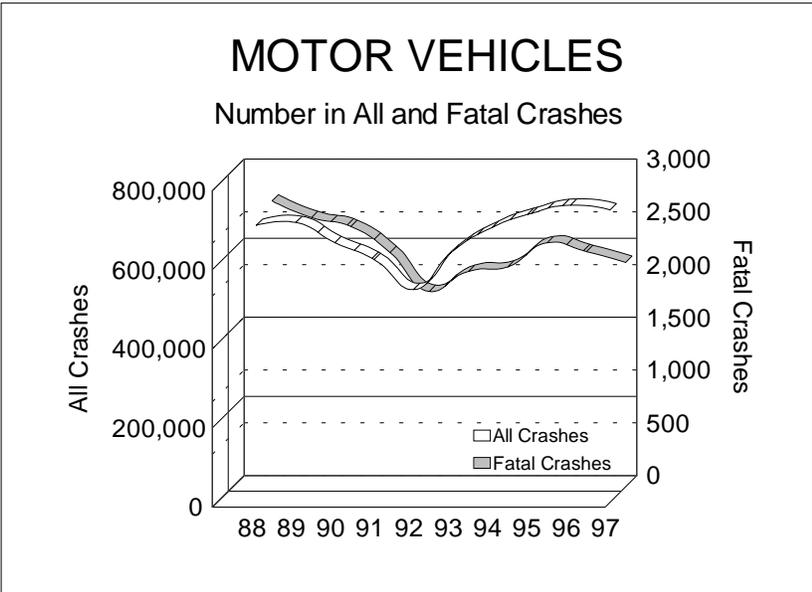
| TEEN/YOUNG ADULT DRINKING DRIVERS | | |
|-----------------------------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 11,949 | 231 |
| 1989 | 10,957 | 228 |
| 1990 | 9,965 | 190 |
| 1991 | 8,210 | 166 |
| 1992 | 5,934 | 120 |
| 1993 | 5,947 | 122 |
| 1994 | 5,868 | 125 |
| 1995 | 5,461 | 137 |
| 1996 | 5,142 | 128 |
| 1997 | 4,731 | 102 |

The number of Teen/Young Adult drinking drivers in all crashes has decreased by 60.4 percent since 1988. Their involvement in fatal crashes decreased 55.8 percent during the same time period.

| ELDERLY DRINKING DRIVERS | | |
|--------------------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 752 | 15 |
| 1989 | 747 | 20 |
| 1990 | 696 | 17 |
| 1991 | 654 | 17 |
| 1992 | 461 | 10 |
| 1993 | 576 | 9 |
| 1994 | 590 | 8 |
| 1995 | 540 | 10 |
| 1996 | 541 | 17 |
| 1997 | 550 | 22 |

The number of elderly drinking drivers (age 65-102) in all crashes has decreased 26.9 percent since 1988. Their involvement in fatal crashes increased 46.7 percent during the same time period.

10 YEAR TRENDS (continued)



10 YEAR

| MOTOR VEHICLES | | |
|----------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 700,431 | 2,709 |
| 1989 | 707,718 | 2,550 |
| 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 |

There has been a 21.5 percent decline in the number of motor vehicles involved in fatal crashes from 2,709 in 1988 to 2,126 in 1997.

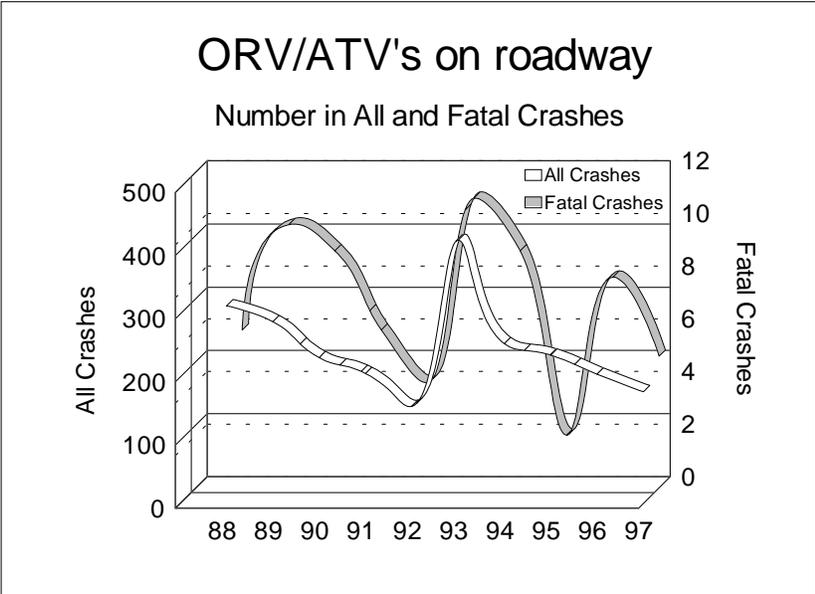
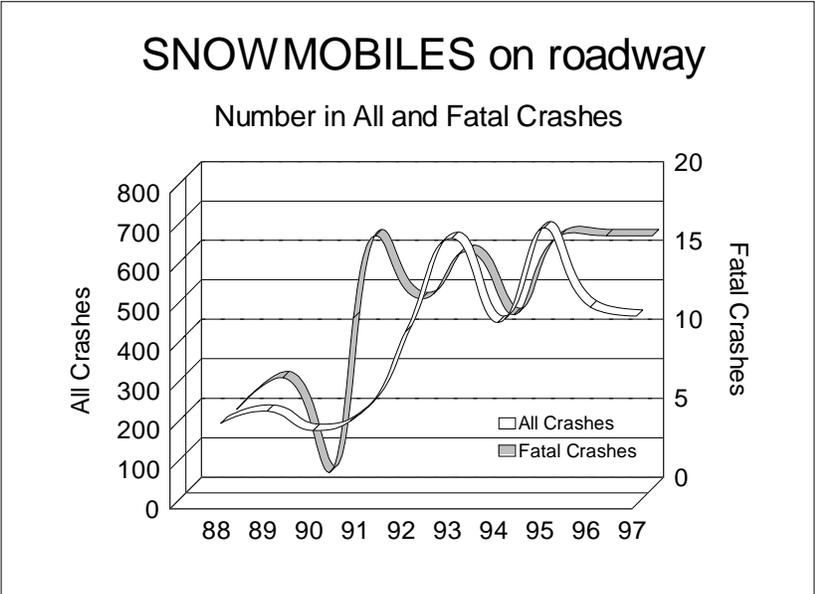
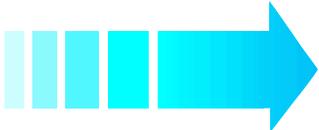
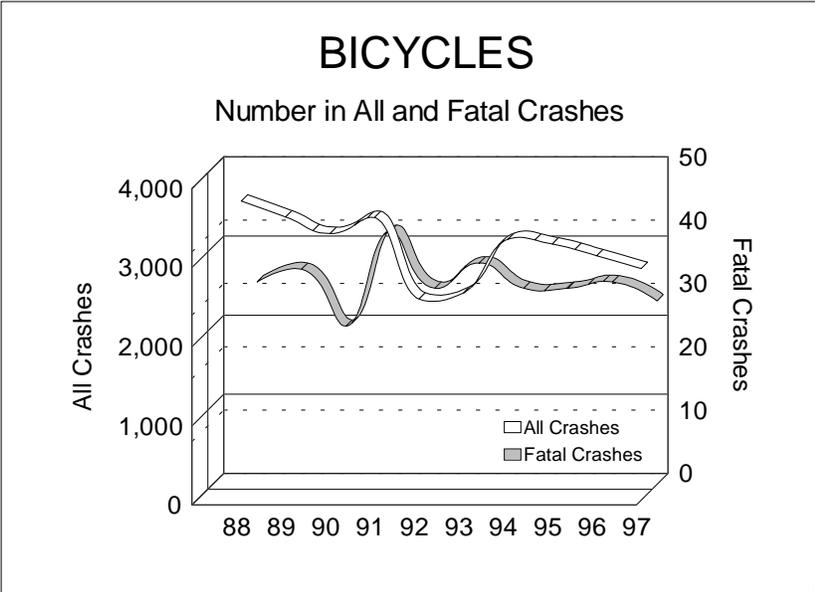
| MOTORCYCLES | | |
|-------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 4,265 | 77 |
| 1989 | 3,383 | 70 |
| 1990 | 3,222 | 85 |
| 1991 | 3,001 | 82 |
| 1992 | 2,022 | 39 |
| 1993 | 2,768 | 51 |
| 1994 | 2,982 | 66 |
| 1995 | 2,651 | 80 |
| 1996 | 2,468 | 61 |
| 1997 | 2,465 | 63 |

The number of motorcycles involved in fatal crashes decreased by 18.2 percent between 1988 and 1997.

| PEDESTRIANS | | |
|-------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 4,863 | 288 |
| 1989 | 4,374 | 209 |
| 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 |

There were 177 pedestrians involved in fatal crashes in 1997, a ten year low.

10 YEAR TRENDS (continued)



10 YEAR

| BICYCLES | | |
|-----------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 3,782 | 32 |
| 1989 | 3,582 | 34 |
| 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 |

Bicycles involved in fatal crashes decreased 9.4 percent over the ten year period.

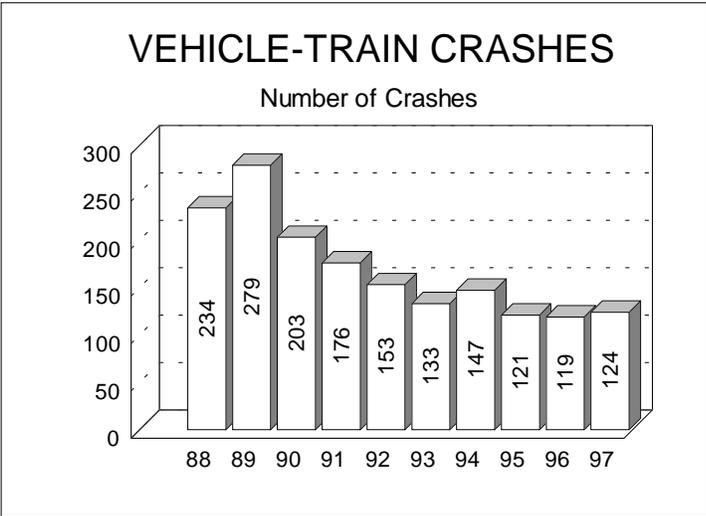
| SNOWMOBILES on Michigan roadways | | |
|---|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 205 | 5 |
| 1989 | 235 | 7 |
| 1990 | 186 | 1 |
| 1991 | 227 | 16 |
| 1992 | 437 | 12 |
| 1993 | 673 | 15 |
| 1994 | 460 | 11 |
| 1995 | 700 | 16 |
| 1996 | 499 | 16 |
| 1997 | 476 | 16 |

The number of snowmobiles involved in fatal crashes on Michigan roadways has increased 220 percent since 1988.

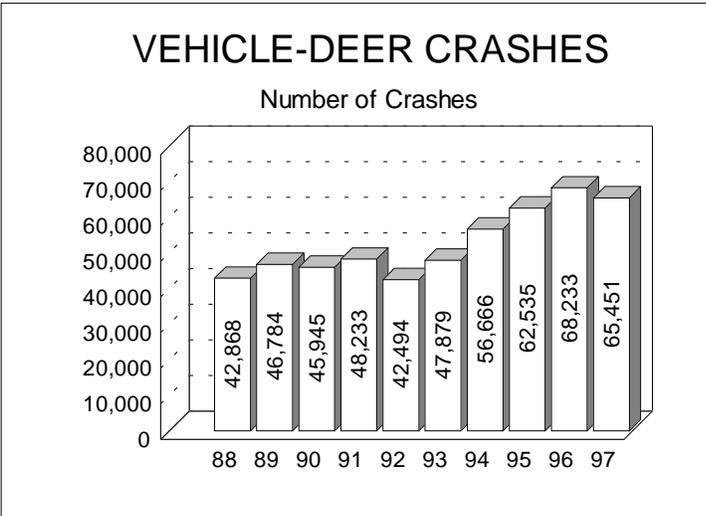
| ORV/ATV's on Michigan roadways | | |
|---------------------------------------|-------------|---------------|
| | All Crashes | Fatal Crashes |
| 1988 | 313 | 6 |
| 1989 | 288 | 10 |
| 1990 | 231 | 9 |
| 1991 | 206 | 6 |
| 1992 | 154 | 4 |
| 1993 | 417 | 11 |
| 1994 | 253 | 9 |
| 1995 | 235 | 2 |
| 1996 | 205 | 8 |
| 1997 | 177 | 5 |

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

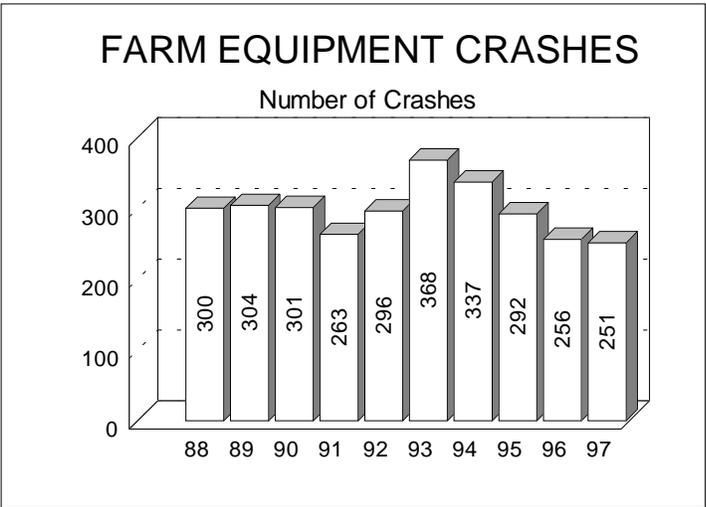
10 YEAR TRENDS (continued)



124 vehicle-train crashes occurred in 1997, a 4.2 percent increase from 1996.

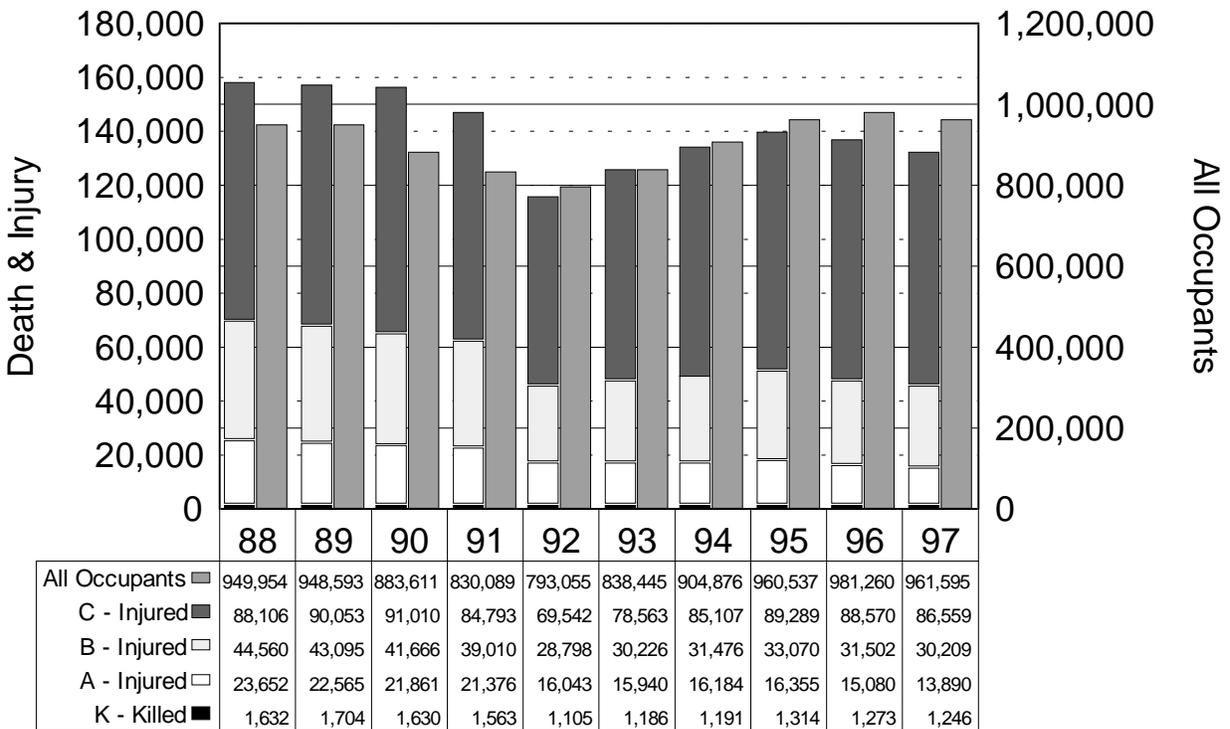


There has been a 52.7 percent rise from 42,868 vehicle-deer crashes in 1988 to 65,451 in 1997.



In 1997, there were 251 farm equipment crashes, down 31.8 percent from the 1993 high of 368.

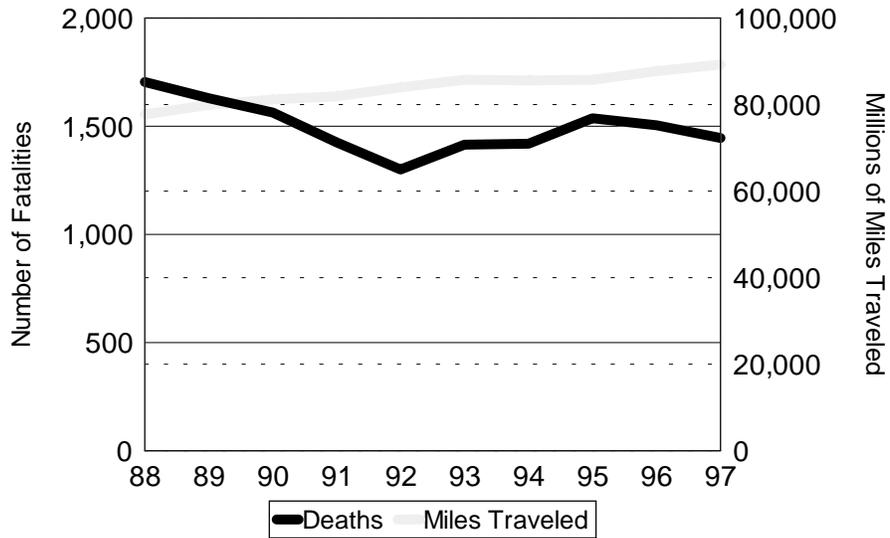
DEATH AND INJURY PER CRASH INVOLVED OCCUPANT



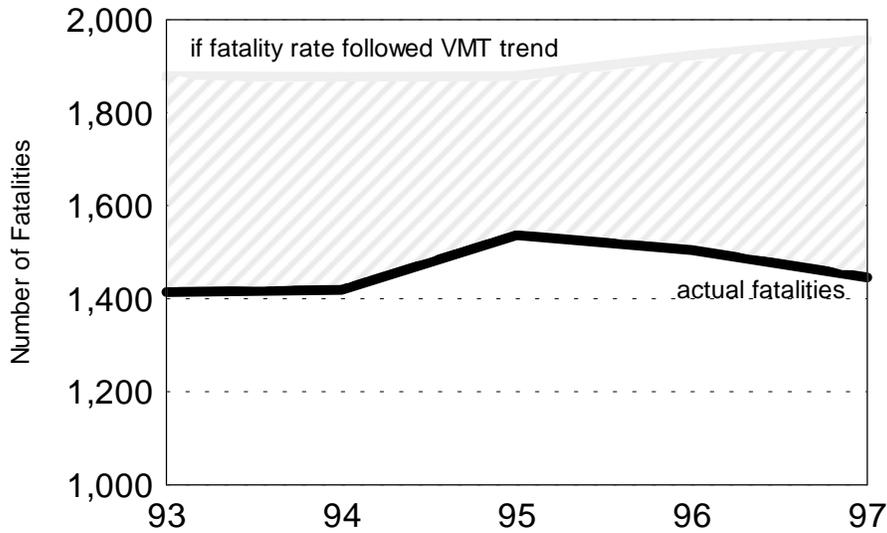
The proportion of death and injury to crash involved occupants has decreased over the last ten years. In 1997, 1,246 occupants of motor vehicles were fatally injured, 13,890 suffered an A (incapacitating) injury, 30,209 sustained a B (nonincapacitating) injury, and 86,559 sustained a C (possible) injury.

10 YEAR

FATALITIES AND VMT TRENDS



5 Year Highlight



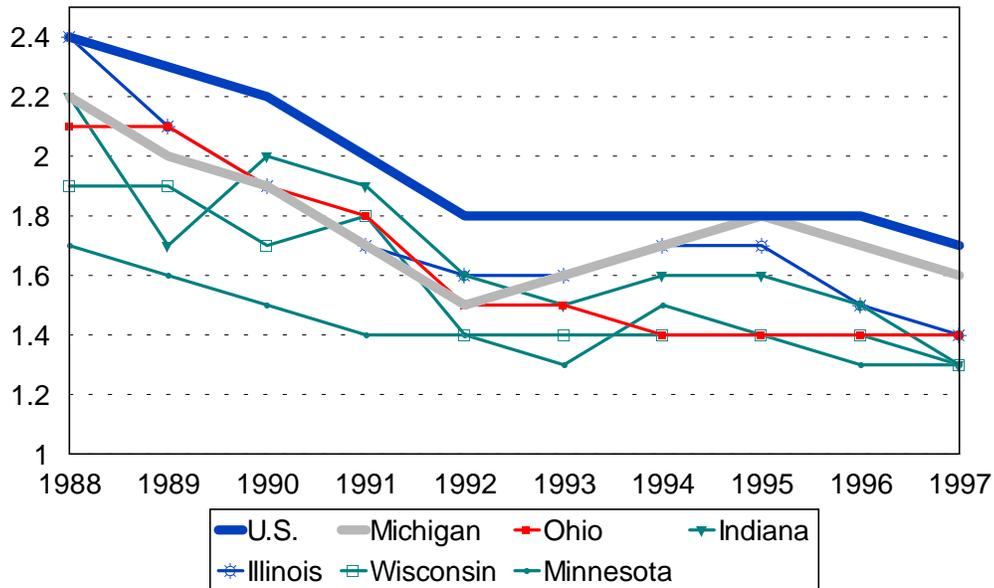
These charts show the dramatic reversal in the fatality rate that began in 1988, and a projection of losses that would have been incurred if the fatality rate had continued to follow the VMT trend.



10 YEAR

MILEAGE DEATH RATES 1988 - 1997

Comparison - Michigan to U.S. and Surrounding States



The chart above compares the Michigan mileage death rates (motor vehicle traffic deaths per 100,000,000 vehicle miles) to those of its neighboring states and the overall U.S. rates for a ten year period.

From 1988 to 1992, Michigan placed consistently in the middle of the pack, mirroring the U.S. trend towards a reduced fatality rate. Over the last five years, the Michigan mileage death rate has risen and fallen, never exceeding the U.S. rate.

| | U.S. | Michigan | Ohio | Indiana | Illinois | Wisconsin | Minnesota |
|------|------|----------|------|---------|----------|-----------|-----------|
| 1988 | 2.4 | 2.2 | 2.1 | 2.2 | 2.4 | 1.9 | 1.7 |
| 1989 | 2.3 | 2.0 | 2.1 | 1.7 | 2.1 | 1.9 | 1.6 |
| 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 |

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



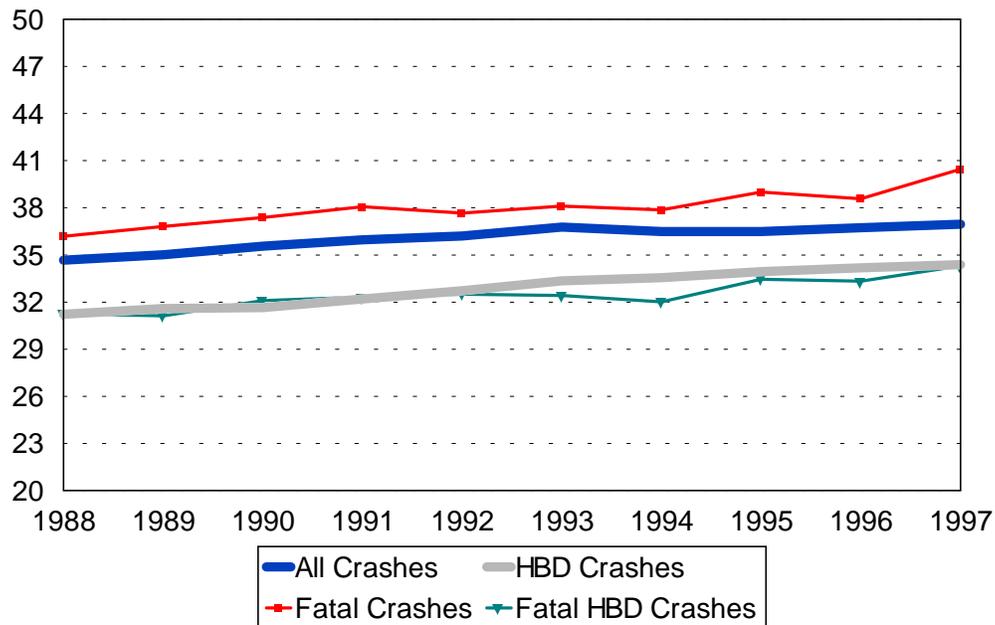
MICHIGAN AND SURROUNDING STATES COMPARISON OF FATALITIES AND VMT

| Year | U.S. Persons Killed | Michigan Persons Killed | Ohio Persons Killed | Indiana Persons Killed | Illinois Persons Killed | Wisconsin Persons Killed | Minnesota Persons Killed |
|------|------------------------|----------------------------|------------------------|---------------------------|----------------------------|-----------------------------|-----------------------------|
| 1988 | 49,078 | 1,704 | 1,748 | 1,099 | 1,860 | 813 | 615 |
| 1989 | 47,575 | 1,630 | 1,772 | 971 | 1,748 | 817 | 605 |
| 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 | 1,396 | 721 | 600 |

| Year | U.S. VMT | Michigan VMT | Ohio VMT | Indiana VMT | Illinois VMT | Wisconsin VMT | Minnesota VMT |
|------|-------------|-----------------|-------------|----------------|-----------------|------------------|------------------|
| 1988 | 2,026 | 77.7 | 81.8 | 51.1 | 78.6 | 42.3 | 36.4 |
| 1989 | 2,107 | 79.9 | 84.1 | 56.2 | 81.6 | 43.1 | 37.6 |
| 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 |

VMT described in billions of miles

AVERAGE AGE OF DRIVERS IN CRASHES 1988 - 1997

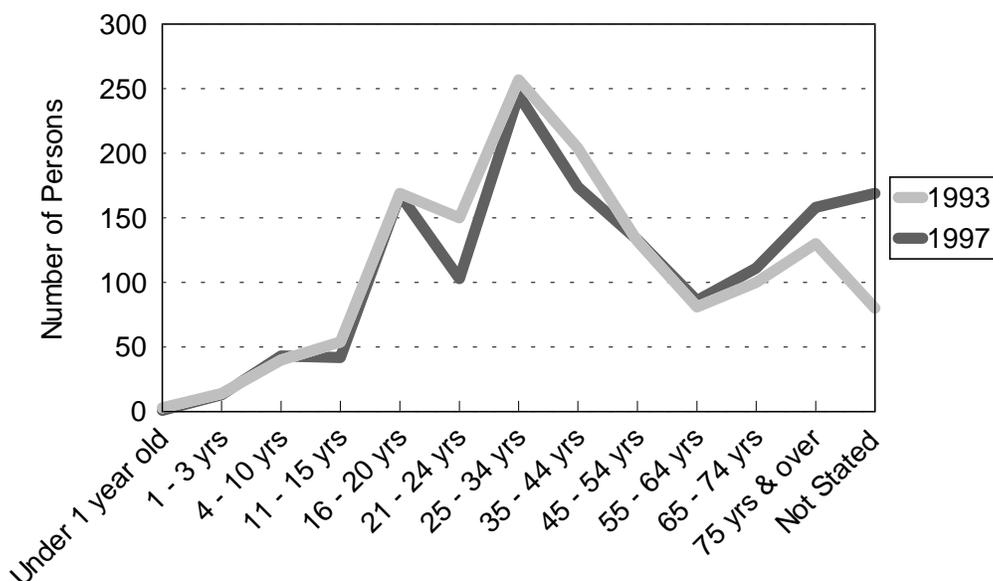


Reflecting the demographic trend of increasing age in the general population, the average age of crash-involved drivers has also increased. An aging driving population has implications for law enforcement prioritizing, highway design, traffic signing considerations, and Emergency Medical System procedures.

TREND DATA FOR FATALITIES

| TREND DATA FOR FATALITIES | 1993 | 1994 | 1995 | 1996 | 1997 |
|-------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Age of Persons Killed, Total | | | | | |
| Under 1 year old | 3 | 6 | 6 | 9 | 1 |
| 1 - 3 years | 14 | 24 | 23 | 22 | 13 |
| 4 - 10 years | 40 | 46 | 48 | 41 | 43 |
| 11 - 15 years | 54 | 61 | 51 | 66 | 42 |
| 16 - 20 years | 169 | 219 | 215 | 211 | 168 |
| 21 - 24 years | 150 | 144 | 149 | 125 | 103 |
| 25 - 34 years | 257 | 208 | 254 | 261 | 245 |
| 35 - 44 years | 204 | 200 | 242 | 215 | 174 |
| 45 - 54 years | 132 | 119 | 140 | 158 | 133 |
| 55 - 64 years | 81 | 84 | 99 | 89 | 86 |
| 65 - 74 years | 100 | 108 | 116 | 106 | 111 |
| 75 years and over | 130 | 134 | 152 | 157 | 158 |
| Not Stated | 80 | 66 | 42 | 45 | 169 |
| Totals | 1,414 | 1,419 | 1,537 | 1,505 | 1,446 |

Age of Persons Killed, Total



The chart above shows the total number of deaths in motor vehicle crashes in Michigan by age, comparing 1993 with 1997.

5 YEAR

| TREND DATA FOR FATALITIES | 1993 | 1994 | 1995 | 1996 | 1997 |
|---------------------------|------|------|------|------|------|
|---------------------------|------|------|------|------|------|

Age of Drivers Involved in Fatal Crashes

| | | | | | |
|-------------------|-------|-------|-------|-------|-------|
| Under 1 year old | 0 | 1 | 0 | 0 | 0 |
| 1 - 3 years | 0 | 0 | 0 | 0 | 0 |
| 4 - 10 years | 0 | 1 | 0 | 0 | 0 |
| 11 - 15 years | 13 | 11 | 10 | 5 | 12 |
| 16 - 20 years | 259 | 307 | 314 | 303 | 264 |
| 21 - 24 years | 218 | 222 | 220 | 226 | 168 |
| 25 - 34 years | 421 | 431 | 466 | 501 | 463 |
| 35 - 44 years | 340 | 369 | 442 | 392 | 347 |
| 45 - 54 years | 203 | 207 | 260 | 254 | 239 |
| 55 - 64 years | 115 | 110 | 146 | 108 | 156 |
| 65 - 74 years | 97 | 112 | 121 | 124 | 136 |
| 75 years and over | 106 | 105 | 129 | 130 | 148 |
| Not Stated | 217 | 170 | 203 | 183 | 191 |
| Totals | 1,989 | 2,046 | 2,311 | 2,226 | 2,124 |

Age of Pedestrians Killed

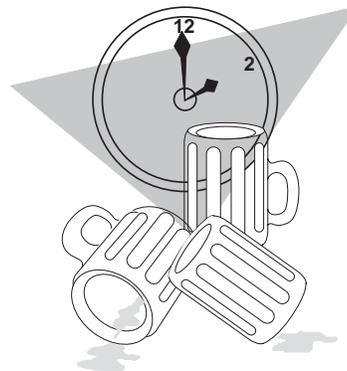
| | | | | | |
|-------------------|-----|-----|-----|-----|-----|
| Under 1 year old | 0 | 0 | 1 | 1 | 0 |
| 1 - 3 years | 1 | 10 | 3 | 5 | 1 |
| 4 - 10 years | 10 | 13 | 14 | 14 | 16 |
| 11 - 15 years | 9 | 10 | 10 | 10 | 9 |
| 16 - 20 years | 7 | 17 | 10 | 11 | 10 |
| 21 - 24 years | 12 | 11 | 15 | 5 | 8 |
| 25 - 34 years | 33 | 21 | 27 | 26 | 27 |
| 35 - 44 years | 35 | 29 | 42 | 35 | 32 |
| 45 - 54 years | 20 | 11 | 19 | 35 | 26 |
| 55 - 64 years | 6 | 15 | 15 | 22 | 6 |
| 65 - 74 years | 17 | 15 | 15 | 12 | 17 |
| 75 years and over | 15 | 23 | 12 | 14 | 14 |
| Not Stated | 6 | 7 | 7 | 2 | 1 |
| Totals | 171 | 182 | 190 | 192 | 167 |

Action of Pedestrians Killed

| | | | | | |
|----------------------------|-----|-----|-----|-----|-----|
| Crossing at intersection | 21 | 25 | 22 | 22 | 14 |
| Cross not at intersection | 54 | 66 | 64 | 65 | 72 |
| Getting on/off vehicle | 1 | 1 | 1 | 1 | 1 |
| In road with traffic | 14 | 12 | 18 | 26 | 19 |
| In road against traffic | 3 | 3 | 5 | 1 | 4 |
| Standing or lying in road | 15 | 14 | 17 | 21 | 13 |
| Pushing/working on vehicle | 3 | 4 | 4 | 2 | 3 |
| Other working in road | 0 | 3 | 0 | 1 | 1 |
| Playing in road | 0 | 0 | 0 | 1 | 3 |
| In road for other reason | 7 | 8 | 15 | 15 | 7 |
| Not in road | 8 | 14 | 13 | 10 | 10 |
| Other/Unknown | 45 | 32 | 31 | 27 | 20 |
| Totals | 171 | 182 | 190 | 192 | 167 |

FATAL CRASHES AND PERSONS KILLED FOR SELECTED HOLIDAY PERIODS IN MICHIGAN

| HOLIDAY PERIOD | Fatal Crashes | Persons Killed | SUMMARY 1997 |
|---|------------------------------------|-------------------------------------|---|
| Memorial Day 1997 (3) 1996 (3) 1995 (3) 1994 (3) 1993 (3) | 14 [8] 10 [7] 11 11 18 | 16 [9] 11 [7] 12 13 23 | <p>This table shows traffic death tolls in Michigan for the past five years for the major holiday periods.</p> <p>Based on the <i>total 1997</i> experience, deaths averaged 4.0 per day. Alcohol-related deaths averaged 1.5 per day.</p> <p>Based on the <i>1997 Holiday Period</i> experience, deaths averaged 5.0 per day. Alcohol-related deaths averaged 2.2 per day.</p> |
| Fourth of July 1997 (3) 1996 (4) 1995 (4) 1994 (3) 1993 (3) | 14 [9] 24 [8] 19 17 11 | 16 [10] 27 [8] 19 19 14 | |
| Labor Day 1997 (3) 1996 (3) 1995 (3) 1994 (3) 1993 (3) | 15 [8] 21 [15] 22 9 7 | 19 [8] 27 [20] 30 10 7 | |
| Thanksgiving 1997 (4) 1996 (4) 1995 (4) 1994 (4) 1993 (4) | 18 [6] 18 [8] 11 19 21 | 20 [6] 23 [8] 12 21 29 | |
| Christmas 1997 (4) 1996 (1) 1995 (3) 1994 (3) 1993 (3) | 11 [3] 4 [0] 15 17 9 | 13 [3] 6 [0] 16 23 9 | |
| New Years 1997 (4) 1996 (1) 1995 (3) 1994 (3) 1993 (3) | 18 [8] 4 [0] 13 16 18 | 21 [11] 5 [0] 14 16 19 | |



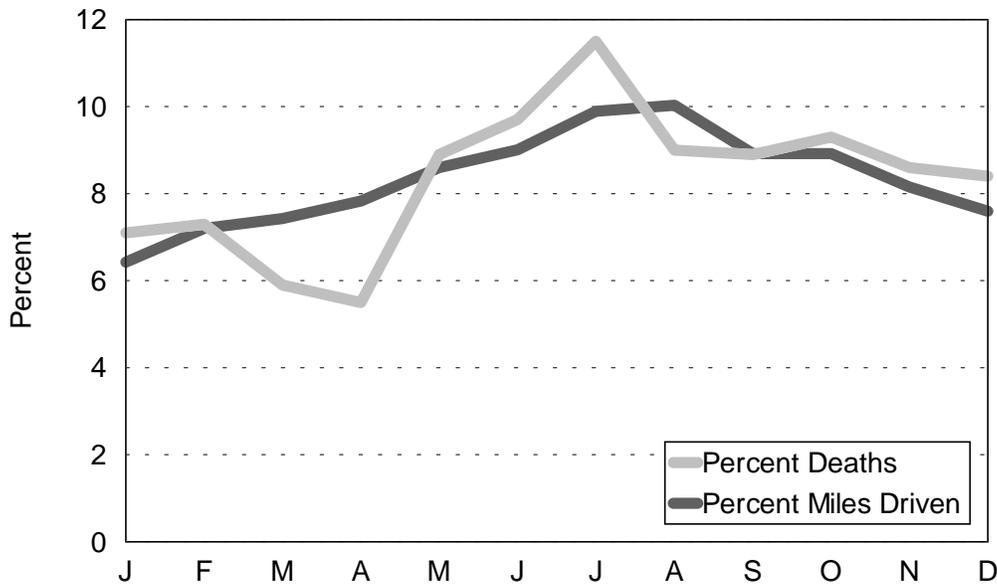
Figures in parentheses in the 1st column show number of full days in each holiday period. Deaths are for these days plus six hours of the preceding day.
 Figures in brackets in the 2nd and 3rd columns show the number of alcohol-related fatal crashes and deaths.

5 YEAR

MOTOR VEHICLE DEATHS AND MILEAGE BY MONTH

| Month | TRAFFIC DEATHS | | | | | 1997 PERCENTAGES | |
|-----------|----------------|-------|-------|-------|-------|------------------|----------------------|
| | 1993 | 1994 | 1995 | 1996 | 1997 | Percent Deaths | Percent Miles Driven |
| January | 123 | 106 | 122 | 131 | 102 | 7.1 | 6.43 |
| February | 91 | 86 | 90 | 98 | 106 | 7.3 | 7.20 |
| March | 89 | 82 | 109 | 103 | 85 | 5.9 | 7.43 |
| April | 72 | 116 | 111 | 98 | 80 | 5.5 | 7.83 |
| May | 127 | 111 | 118 | 128 | 128 | 8.9 | 8.60 |
| June | 103 | 123 | 141 | 135 | 140 | 9.7 | 9.01 |
| July | 149 | 126 | 127 | 146 | 166 | 11.5 | 9.89 |
| August | 140 | 143 | 159 | 121 | 130 | 9.0 | 10.03 |
| September | 131 | 132 | 157 | 138 | 128 | 8.9 | 8.92 |
| October | 146 | 133 | 134 | 135 | 134 | 9.3 | 8.92 |
| November | 134 | 123 | 136 | 136 | 125 | 8.6 | 8.15 |
| December | 109 | 138 | 133 | 136 | 122 | 8.4 | 7.60 |
| Totals | 1,414 | 1,419 | 1,537 | 1,505 | 1,446 | 100.0 | 100.0 |

Percent Deaths & Percent Miles Driven



The above chart shows that *deaths per miles driven* were lower for the months of March, April and August than for the other months in 1997.

1996 - 1997 SUMMARY TRENDS

- Deaths among vehicle occupants (drivers and passengers) decreased **2.6** percent.
- Alcohol use was indicated in 481 fatal crashes, a decrease of **1.2** percent.
- Persons sustaining "A" level injuries (the most serious) decreased **8.0** percent.

| | 1996 | 1997 | % CHANGE |
|--|----------------|----------------|-------------|
| NUMBER OF CRASHES | | | |
| Property Damage Crashes | 335,495 | 329,151 | -1.9 |
| Fatal Crashes | 1,339 | 1,283 | -4.2 |
| Personal Injury Crashes | 98,643 | 95,359 | -3.3 |
| Total | 435,477 | 425,793 | -2.2 |
| ALCOHOL IN FATAL CRASHES | | | |
| Had Been Drinking (HBD) | 487 (36.4%) | 481 (37.5%) | -1.2 |
| Had Not (HNBD)/Not Known If Drinking | 852 (63.6%) | 802 (62.5%) | -5.9 |
| PERSONS IN CRASHES | | | |
| Killed and Injured | 144,058 | 138,994 | -3.5 |
| Not Injured | 576,351 | 567,938 | -1.5 |
| Unknown Injury | 79,034 | 78,445 | -0.7 |
| Total | 799,443 | 785,377 | -1.8 |
| PERSONS INJURED | | | |
| Male | 69,106 | 66,351 | -4.0 |
| Female | 73,447 | 71,197 | -3.1 |
| Total | 142,553 | 137,548 | -3.5 |
| "A" Injury | 16,622 | 15,291 | -8.0 |
| "B" Injury | 34,063 | 32,678 | -4.1 |
| "C" Injury | 91,868 | 89,579 | -2.5 |
| Total | 142,553 | 137,548 | -3.5 |
| PERSONS KILLED | | | |
| Male | 970 | 918 | -5.4 |
| Female | 535 | 528 | -1.3 |
| Total | 1,505 | 1,446 | -3.9 |
| Drivers | 822 | 767 | -6.7 |
| Passengers | 344 | 369 | 7.3 |
| Pedestrians | 192 | 167 | -13.0 |
| Bicyclists | 32 | 29 | -9.4 |
| Motorcyclist | 62 | 63 | 1.6 |
| Farm Equipment | 1 | 2 | 100.0 |
| Train Engineer | 0 | 0 | 0.0 |
| Snowmobile | 13 | 17 | 30.8 |
| ORV/ATV | 9 | 5 | -44.4 |
| Other/Unknown | 30 | 27 | -10.0 |
| Total | 1,505 | 1,446 | -3.9 |

1

YEAR

MORE MICHIGAN CRASH FACTS

| CRASH FACTS | 1996 | 1997 | % Change |
|--|---------|---------|----------|
| Deaths | 1,505 | 1,446 | -3.9 |
| Injuries | 142,553 | 137,548 | -3.5 |
| Crashes | 435,477 | 425,793 | -2.2 |
| Drivers Involved | 750,103 | 737,939 | -1.6 |
| Vehicles Involved | 751,804 | 739,538 | -1.6 |
| Fatal Crashes | 1,339 | 1,283 | -4.2 |
| Estimated MV Mileage Traveled (billions) | 87.7 | 89.2 | 1.7 |
| Death Rate Per 100 Million Vehicle Miles | 1.7 | 1.6 | -5.9 |
| Fatal Crash Rate Per 100 Million Veh Miles | 1.5 | 1.4 | -6.7 |

Michigan experienced a 3.9 percent decrease in traffic fatalities, as well as a 3.5 percent decrease in injuries and a 2.2 percent decrease in crashes. Vehicle mileage increased 1.7 percent and the death rate per 100 million vehicle miles decreased 5.9 percent.

Based on provisional numbers, the National Safety Council estimates a national decrease in traffic fatalities of 0.2 percent between 1996 (43,300) and 1997 (43,200).



1997 COST OF CRASHES IN MICHIGAN

The cost estimate for Michigan crashes in 1997 is **\$9,707,518,300**. This estimate is based on the National Safety Council's cost estimating procedures. Average comprehensive costs are based on the following figures:

| Comprehensive Costs, 1997 | |
|--|-------------|
| Death | \$2,890,000 |
| Incapacitating injury | \$143,000 |
| Nonincapacitating evident injury | \$36,900 |
| Possible injury | \$17,600 |
| No injury | \$1,700 |

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

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 |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| 1946 | 107 | 98 | 121 | 88 | 110 | 106 | 119 | 130 | 123 | 143 | 160 | 165 | 1,470 |
| 1947 | 86 | 86 | 85 | 113 | 124 | 114 | 134 | 149 | 134 | 142 | 145 | 135 | 1,447 |
| 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 | 127 | 154 | 153 | 128 | 144 | 131 | 111 | 1,417 |
| 1983 | 113 | 94 | 83 | 94 | 91 | 121 | 121 | 117 | 131 | 153 | 115 | 95 | 1,331 |
| 1984 | 93 | 84 | 104 | 91 | 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 |

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 |
|------|--------|----------|---------|------------------------------|------------------------------|--|
| 1946 | 1,470 | 34,479 | 110,631 | 16,191.1 | 1,619,541 | 9.1 |
| 1947 | 1,447 | 38,195 | 137,619 | 17,661.1 | 1,850,274 | 8.2 |
| 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 |

* Excludes trailers and trailer coaches.

1997

1997

1997

1997

1997

1997

1997

1997

**Special
Focus**

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 65-102. 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 vehicle-to-vehicle crashes while turning. Older drivers are more likely to commit "Failed to Yield" crashes 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. Younger drivers have an overall drinking rate in crashes that is lower than the age 25-64 group, but a similar drinking rate in fatal crashes. Older drivers are less likely to be drinking than other age groups at any crash severity.



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 Total | # | % of Total | # | % of Total |
| Going straight ahead | 89,973 | 54.0 | 334 | 77.3 | 25,221 | 56.2 |
| Turning left | 15,366 | 9.2 | 20 | 4.6 | 4,739 | 10.6 |
| Turning right | 4,726 | 2.8 | 1 | 0.2 | 863 | 1.9 |
| Stopped on roadway | 13,454 | 8.1 | 10 | 2.3 | 4,019 | 9.0 |
| In prior crash | 277 | 0.2 | 0 | 0.0 | 79 | 0.2 |
| Changing lanes | 4,175 | 2.5 | 8 | 1.9 | 686 | 1.5 |
| Backing | 3,775 | 2.3 | 0 | 0.0 | 261 | 0.6 |
| Slowing/stopping on roadway | 15,344 | 9.2 | 9 | 2.1 | 3,826 | 8.5 |
| Slowing/stopping other | 207 | 0.1 | 1 | 0.2 | 47 | 0.1 |
| Starting up on roadway | 3,190 | 1.9 | 6 | 1.4 | 854 | 1.9 |
| Starting up other | 98 | 0.1 | 0 | 0.0 | 36 | 0.1 |
| Entering parking | 175 | 0.1 | 0 | 0.0 | 28 | 0.1 |
| Leaving parking | 692 | 0.4 | 0 | 0.0 | 125 | 0.3 |
| Entering roadway | 3,155 | 1.9 | 5 | 1.2 | 805 | 1.8 |
| Leaving roadway | 445 | 0.3 | 6 | 1.4 | 140 | 0.3 |
| Making U-turn | 360 | 0.2 | 0 | 0.0 | 102 | 0.2 |
| Overtaking or passing | 1,946 | 1.2 | 10 | 2.3 | 464 | 1.0 |
| Avoiding object | 702 | 0.4 | 1 | 0.2 | 238 | 0.5 |
| Avoiding pedestrian | 56 | 0.0 | 1 | 0.2 | 29 | 0.1 |
| Avoiding vehicle (front/back) | 1,739 | 1.0 | 7 | 1.6 | 485 | 1.1 |
| Avoiding vehicle (angle) | 759 | 0.5 | 2 | 0.5 | 196 | 0.4 |
| Driverless moving | 44 | 0.0 | 0 | 0.0 | 7 | 0.0 |
| Parked | 593 | 0.4 | 1 | 0.2 | 59 | 0.1 |
| Crossing at intersection | 10 | 0.0 | 0 | 0.0 | 8 | 0.0 |
| Crossing not at intersection | 7 | 0.0 | 0 | 0.0 | 4 | 0.0 |
| Getting on/off vehicle | 3 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| In roadway with traffic | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| In roadway against traffic | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Standing/lying in roadway | 2 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pushing/working on vehicle | 2 | 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 | 3 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Not in roadway | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Other | 150 | 0.1 | 1 | 0.2 | 52 | 0.1 |
| Unknown | 5,264 | 3.2 | 9 | 2.1 | 1,485 | 3.3 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |



DRIVER AGE 16-24 (continued)

| MOST HARMFUL EVENT IN A NONCOLLISION | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|--------------|------------|---------------|------------|----------------|------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Loss of control | 1,692 | 1.0 | 1 | 0.2 | 462 | 1.0 |
| Cross center/median | 299 | 0.2 | 0 | 0.0 | 90 | 0.2 |
| Ran off road left | 346 | 0.2 | 0 | 0.0 | 92 | 0.2 |
| Ran off road right | 463 | 0.3 | 1 | 0.2 | 117 | 0.3 |
| Re-enter road | 64 | 0.0 | 0 | 0.0 | 18 | 0.0 |
| Overturn | 3,280 | 2.0 | 28 | 6.5 | 1,656 | 3.7 |
| Separation of units | 710 | 0.4 | 0 | 0.0 | 195 | 0.4 |
| Fire/explosion | 250 | 0.1 | 3 | 0.7 | 41 | 0.1 |
| Immersion | 33 | 0.0 | 0 | 0.0 | 11 | 0.0 |
| Jackknife | 44 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Downhill runaway | 20 | 0.0 | 0 | 0.0 | 7 | 0.0 |
| Cargo loss/shift | 91 | 0.1 | 0 | 0.0 | 7 | 0.0 |
| Individual fell off | 131 | 0.1 | 2 | 0.5 | 113 | 0.3 |
| Other noncollision | 407 | 0.2 | 0 | 0.0 | 86 | 0.2 |
| NONCOLLISION Subtotal | 7,830 | 4.7 | 35 | 8.1 | 2,896 | 6.5 |

Teens and young adults have the highest incidence of overturn and fire/explosion in fatal crashes when compared to the other two age groups (25-64 and 65-102).

| MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|----------------|-------------|---------------|-------------|----------------|-------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Pedestrian | 617 | 0.4 | 27 | 6.3 | 536 | 1.2 |
| Pedalcycle | 529 | 0.3 | 4 | 0.9 | 416 | 0.9 |
| Motor vehicle in transport | 114,988 | 69.0 | 267 | 61.8 | 32,210 | 71.8 |
| Parked motor vehicle | 3,232 | 1.9 | 4 | 0.9 | 475 | 1.1 |
| Railway train | 46 | 0.0 | 4 | 0.9 | 19 | 0.0 |
| Animal | 10,841 | 6.5 | 1 | 0.2 | 257 | 0.6 |
| Other nonfixed objects | 1,103 | 0.7 | 1 | 0.2 | 140 | 0.3 |
| COLLISION NONFIXED Subtotal | 131,356 | 78.8 | 308 | 71.3 | 34,053 | 75.9 |

DRIVER AGE 16-24 (continued)

| MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|---------------|------------|---------------|-------------|----------------|-------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Bridge/pier/abutment | 226 | 0.1 | 1 | 0.2 | 85 | 0.2 |
| Bridge parapet end | 54 | 0.0 | 0 | 0.0 | 17 | 0.0 |
| Bridge rail | 150 | 0.1 | 0 | 0.0 | 44 | 0.1 |
| Guardrail face | 994 | 0.6 | 2 | 0.5 | 202 | 0.5 |
| Guardrail end | 157 | 0.1 | 1 | 0.2 | 60 | 0.1 |
| Median barrier | 854 | 0.5 | 1 | 0.2 | 346 | 0.8 |
| Highway traffic sign post | 855 | 0.5 | 1 | 0.2 | 60 | 0.1 |
| Signal post | 93 | 0.1 | 0 | 0.0 | 9 | 0.0 |
| Luminaire/light support | 173 | 0.1 | 0 | 0.0 | 59 | 0.1 |
| Utility pole | 1,308 | 0.8 | 4 | 0.9 | 515 | 1.1 |
| Other pole | 360 | 0.2 | 0 | 0.0 | 75 | 0.2 |
| Culvert | 274 | 0.2 | 2 | 0.5 | 112 | 0.2 |
| Curb | 693 | 0.4 | 1 | 0.2 | 110 | 0.2 |
| Ditch | 2,716 | 1.6 | 4 | 0.9 | 811 | 1.8 |
| Embankment | 703 | 0.4 | 3 | 0.7 | 251 | 0.6 |
| Fence | 465 | 0.3 | 1 | 0.2 | 70 | 0.2 |
| Mailbox | 835 | 0.5 | 0 | 0.0 | 60 | 0.1 |
| Tree | 4,051 | 2.4 | 58 | 13.4 | 1,697 | 3.8 |
| Rail crossing signal | 23 | 0.0 | 0 | 0.0 | 5 | 0.0 |
| Building | 280 | 0.2 | 0 | 0.0 | 112 | 0.2 |
| Traffic island | 21 | 0.0 | 0 | 0.0 | 4 | 0.0 |
| Fire hydrant | 181 | 0.1 | 0 | 0.0 | 41 | 0.1 |
| Impact attenuator | 16 | 0.0 | 0 | 0.0 | 6 | 0.0 |
| Other fixed object | 1,022 | 0.6 | 2 | 0.5 | 230 | 0.5 |
| COLLISION FIXED Subtotal | 16,504 | 9.9 | 81 | 18.8 | 4,981 | 11.1 |

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 Total | # | % of Total | # | % of Total |
| Unknown Event | 11,003 | 6.6 | 8 | 1.9 | 2,932 | 6.5 |
| TOTAL MOST HARMFUL EVENT | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |



DRIVER AGE 16-24 (continued)

| CRASH TYPE | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Single Vehicle | 32,724 | 19.6 | 141 | 32.6 | 7,471 | 16.7 |
| Head On | 3,499 | 2.1 | 82 | 19.0 | 1,559 | 3.5 |
| Head On - Left Turn | 7,149 | 4.3 | 11 | 2.5 | 3,089 | 6.9 |
| Angle | 41,893 | 25.1 | 154 | 35.6 | 13,050 | 29.1 |
| Rear End | 50,824 | 30.5 | 22 | 5.1 | 14,410 | 32.1 |
| Rear End - Left Turn | 2,806 | 1.7 | 3 | 0.7 | 866 | 1.9 |
| Rear End - Right Turn | 1,425 | 0.9 | 0 | 0.0 | 253 | 0.6 |
| Sideswipe - Same Direction | 13,248 | 7.9 | 2 | 0.5 | 1,561 | 3.5 |
| Sideswipe - Opposite Direct | 4,700 | 2.8 | 5 | 1.2 | 697 | 1.6 |
| Other | 6,597 | 4.0 | 10 | 2.3 | 1,465 | 3.3 |
| Unknown | 1,828 | 1.1 | 2 | 0.5 | 441 | 1.0 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 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 Total | # | % of Fatal | # | % of Injury | # | % of Issued |
| None | 70,183 | 42.1 | 130 | 30.1 | 16,739 | 37.3 | 228 | 0.5 |
| Speed too fast | 16,139 | 9.7 | 117 | 27.1 | 5,186 | 11.6 | 6,752 | 14.1 |
| Speed too slow | 352 | 0.2 | 0 | 0.0 | 100 | 0.2 | 154 | 0.3 |
| Failed to yield | 19,364 | 11.6 | 35 | 8.1 | 6,130 | 13.7 | 11,648 | 24.4 |
| Disregard traffic control | 4,517 | 2.7 | 41 | 9.5 | 2,028 | 4.5 | 2,951 | 6.2 |
| Drove wrong way | 106 | 0.1 | 3 | 0.7 | 34 | 0.1 | 47 | 0.1 |
| Drove left of center | 1,170 | 0.7 | 22 | 5.1 | 461 | 1.0 | 586 | 1.2 |
| Improper passing | 1,440 | 0.9 | 7 | 1.6 | 286 | 0.6 | 666 | 1.4 |
| Improper lane use | 3,314 | 2.0 | 3 | 0.7 | 486 | 1.1 | 1,680 | 3.5 |
| Improper turn | 2,195 | 1.3 | 0 | 0.0 | 497 | 1.1 | 1,115 | 2.3 |
| Improper/no signal | 275 | 0.2 | 0 | 0.0 | 46 | 0.1 | 88 | 0.2 |
| Improper backing | 2,885 | 1.7 | 0 | 0.0 | 131 | 0.3 | 1,049 | 2.2 |
| Unable to stop in assured clear distance | 29,722 | 17.8 | 10 | 2.3 | 8,194 | 18.3 | 16,437 | 34.4 |
| Other | 10,208 | 6.1 | 34 | 7.9 | 3,150 | 7.0 | 4,048 | 8.5 |
| Unknown | 4,823 | 2.9 | 30 | 6.9 | 1,394 | 3.1 | 282 | 0.6 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 | 47,731 | 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 or the driver disregards traffic control.

DRIVER AGE 16-24 (continued)

| LOCATION OF FIRST IMPACT IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| On Road | 147,029 | 88.2 | 325 | 75.2 | 38,730 | 86.3 |
| Median | 775 | 0.5 | 5 | 1.2 | 263 | 0.6 |
| Shoulder | 5,602 | 3.4 | 22 | 5.1 | 1,533 | 3.4 |
| Outside of Shoulder/Curb | 10,932 | 6.6 | 75 | 17.4 | 3,653 | 8.1 |
| Gore | 235 | 0.1 | 1 | 0.2 | 65 | 0.1 |
| Other/Unknown | 2,120 | 1.3 | 4 | 0.9 | 618 | 1.4 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 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 Total | # | % of Fatal | # | % of Injury |
| 12:00 mid. - 02:59 a.m. | 9,018 | 5.4 | 67 | 15.5 | 2,691 | 6.0 |
| 03:00 a.m. - 05:59 a.m. | 4,088 | 2.5 | 25 | 5.8 | 1,111 | 2.5 |
| 06:00 a.m. - 08:59 a.m. | 17,196 | 10.3 | 36 | 8.3 | 4,255 | 9.5 |
| 09:00 a.m. - 11:59 a.m. | 16,728 | 10.0 | 37 | 8.6 | 4,427 | 9.9 |
| 12:00 noon - 02:59 p.m. | 30,402 | 18.2 | 66 | 15.3 | 8,532 | 19.0 |
| 03:00 p.m. - 05:59 p.m. | 43,680 | 26.2 | 64 | 14.8 | 11,898 | 26.5 |
| 06:00 p.m. - 08:59 p.m. | 26,393 | 15.8 | 70 | 16.2 | 6,919 | 15.4 |
| 09:00 p.m. - 11:59 p.m. | 17,897 | 10.7 | 62 | 14.4 | 4,737 | 10.6 |
| Unknown | 1,291 | 0.8 | 5 | 1.2 | 292 | 0.7 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |

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

| ROADWAY TYPE IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Limited Access Roadway | 12,896 | 7.7 | 29 | 6.7 | 3,621 | 8.1 |
| U.S. & Michigan Roads | 43,269 | 26.0 | 119 | 27.5 | 11,922 | 26.6 |
| County & City Roads | 110,528 | 66.3 | 284 | 65.7 | 29,319 | 65.4 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 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 Total | # | % of Fatal | # | % of Injury |
| Sunday | 17,354 | 10.4 | 73 | 16.9 | 4,905 | 10.9 |
| Monday | 22,558 | 13.5 | 44 | 10.2 | 5,962 | 13.3 |
| Tuesday | 22,695 | 13.6 | 59 | 13.7 | 6,055 | 13.5 |
| Wednesday | 24,381 | 14.6 | 66 | 15.3 | 6,500 | 14.5 |
| Thursday | 25,449 | 15.3 | 46 | 10.6 | 6,841 | 15.2 |
| Friday | 30,397 | 18.2 | 59 | 13.7 | 8,072 | 18.0 |
| Saturday | 23,859 | 14.3 | 85 | 19.7 | 6,527 | 14.5 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |

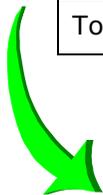
The weekend shows higher involvement of teen and young adult drivers in all crashes and fatal crashes when compared to the other two age groups.

| DRIVER GENDER IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Male | 95,621 | 57.4 | 295 | 68.3 | 24,338 | 54.3 |
| Female | 68,677 | 41.2 | 131 | 30.3 | 19,848 | 44.2 |
| Other/Unknown | 2,395 | 1.4 | 6 | 1.4 | 676 | 1.5 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |

| NUMBER OF OCCUPANTS IN CAR | All Crashes | | Fatal Crashes | | Injury Crashes | |
|----------------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| 1 occupant | 105,586 | 63.3 | 214 | 49.5 | 25,912 | 57.8 |
| 2 occupants | 39,432 | 23.7 | 130 | 30.1 | 11,739 | 26.2 |
| 3 occupants | 11,776 | 7.1 | 43 | 10.0 | 4,019 | 9.0 |
| 4 occupants | 4,623 | 2.8 | 21 | 4.9 | 1,697 | 3.8 |
| 5 occupants | 1,439 | 0.9 | 13 | 3.0 | 546 | 1.2 |
| 6 + occupants | 491 | 0.3 | 6 | 1.4 | 188 | 0.4 |
| 0 occupants | 1,585 | 1.0 | 1 | 0.2 | 326 | 0.7 |
| uncoded & errors | 1,761 | 1.1 | 4 | 0.9 | 435 | 1.0 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |

DRIVER AGE 16-24 (continued)

| VEHICLE TYPE CRASH INVOLVEMENT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Passenger Car and Station Wagon | 131,924 | 79.1 | 319 | 73.8 | 36,092 | 80.5 |
| Van and Motorhome | 6,095 | 3.7 | 9 | 2.1 | 1,602 | 3.6 |
| Pickup | 23,523 | 14.1 | 64 | 14.8 | 5,526 | 12.3 |
| Small Truck (under 10,000 lbs.) | 2,191 | 1.3 | 6 | 1.4 | 554 | 1.2 |
| Cycle | 595 | 0.4 | 19 | 4.4 | 445 | 1.0 |
| Moped | 47 | 0.0 | 0 | 0.0 | 37 | 0.1 |
| Go Cart | 3 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Snowmobile | 101 | 0.1 | 3 | 0.7 | 71 | 0.2 |
| Off Road Vehicle | 47 | 0.0 | 0 | 0.0 | 37 | 0.1 |
| Other | 203 | 0.1 | 0 | 0.0 | 51 | 0.1 |
| Uncoded | 866 | 0.5 | 1 | 0.2 | 223 | 0.5 |
| CDL Truck/Bus (breakdown below) | 1,098 | 0.7 | 11 | 2.5 | 221 | 0.5 |
| Total Drivers | 166,693 | 100.0 | 432 | 100.0 | 44,862 | 100.0 |



| CDL Truck/Bus Sub-category Types | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------------------|--------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Uncoded Truck | 119 | 10.8 | 4 | 36.4 | 26 | 11.8 |
| Commercial Vehicle: Group A | 372 | 33.9 | 5 | 45.5 | 69 | 31.2 |
| Commercial Vehicle: Group B | 318 | 29.0 | 1 | 9.1 | 65 | 29.4 |
| Commercial Vehicle: Group C | 53 | 4.8 | 0 | 0.0 | 12 | 5.4 |
| Other Truck | 155 | 14.1 | 1 | 9.1 | 33 | 14.9 |
| Unknown Truck | 81 | 7.4 | 0 | 0.0 | 16 | 7.2 |
| Total Drivers | 1,098 | 100.0 | 11 | 100.0 | 221 | 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 Total | # | % of Total | # | % of Total |
| Going straight ahead | 221,084 | 53.6 | 921 | 76.4 | 54,453 | 52.7 |
| Turning left | 29,501 | 7.2 | 38 | 3.2 | 8,549 | 8.3 |
| Turning right | 11,136 | 2.7 | 2 | 0.2 | 1,954 | 1.9 |
| Stopped on roadway | 49,924 | 12.1 | 33 | 2.7 | 15,254 | 14.8 |
| In prior crash | 602 | 0.1 | 3 | 0.2 | 200 | 0.2 |
| Changing lanes | 8,307 | 2.0 | 21 | 1.7 | 1,370 | 1.3 |
| Backing | 9,718 | 2.4 | 5 | 0.4 | 581 | 0.6 |
| Slowing/stopping on roadway | 38,322 | 9.3 | 28 | 2.3 | 10,203 | 9.9 |
| Slowing/stopping other | 498 | 0.1 | 1 | 0.1 | 117 | 0.1 |
| Starting up on roadway | 7,883 | 1.9 | 17 | 1.4 | 2,078 | 2.0 |
| Starting up other | 232 | 0.1 | 0 | 0.0 | 64 | 0.1 |
| Entering parking | 543 | 0.1 | 1 | 0.1 | 67 | 0.1 |
| Leaving parking | 1,475 | 0.4 | 1 | 0.1 | 270 | 0.3 |
| Entering roadway | 5,644 | 1.4 | 13 | 1.1 | 1,384 | 1.3 |
| Leaving roadway | 781 | 0.2 | 12 | 1.0 | 241 | 0.2 |
| Making U-turn | 938 | 0.2 | 4 | 0.3 | 280 | 0.3 |
| Overtaking or passing | 3,327 | 0.8 | 17 | 1.4 | 711 | 0.7 |
| Avoiding object | 1,028 | 0.2 | 6 | 0.5 | 257 | 0.2 |
| Avoiding pedestrian | 105 | 0.0 | 1 | 0.1 | 41 | 0.0 |
| Avoiding vehicle (front/back) | 3,835 | 0.9 | 22 | 1.8 | 1,134 | 1.1 |
| Avoiding vehicle (angle) | 1,675 | 0.4 | 15 | 1.2 | 462 | 0.4 |
| Driverless moving | 111 | 0.0 | 0 | 0.0 | 30 | 0.0 |
| Parked | 2,601 | 0.6 | 4 | 0.3 | 260 | 0.3 |
| Crossing at intersection | 25 | 0.0 | 0 | 0.0 | 15 | 0.0 |
| Crossing not at intersection | 22 | 0.0 | 0 | 0.0 | 19 | 0.0 |
| Getting on/off vehicle | 3 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| In roadway with traffic | 7 | 0.0 | 0 | 0.0 | 4 | 0.0 |
| In roadway against traffic | 7 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Standing/lying in roadway | 4 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Pushing/working on vehicle | 5 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Other working in roadway | 3 | 0.0 | 0 | 0.0 | 1 | 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 | 7 | 0.0 | 0 | 0.0 | 6 | 0.0 |
| Other | 239 | 0.1 | 4 | 0.3 | 68 | 0.1 |
| Unknown | 12,959 | 3.1 | 36 | 3.0 | 3,211 | 3.1 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |



DRIVER AGE 25-64 (continued)

| MOST HARMFUL EVENT IN A NONCOLLISION | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|---------------|------------|---------------|------------|----------------|------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Loss of control | 3,411 | 0.8 | 4 | 0.3 | 960 | 0.9 |
| Cross center/median | 664 | 0.2 | 1 | 0.1 | 134 | 0.1 |
| Ran off road left | 536 | 0.1 | 0 | 0.0 | 125 | 0.1 |
| Ran off road right | 865 | 0.2 | 1 | 0.1 | 246 | 0.2 |
| Re-enter road | 114 | 0.0 | 1 | 0.1 | 38 | 0.0 |
| Overturn | 4,736 | 1.1 | 68 | 5.6 | 2,350 | 2.3 |
| Separation of units | 1,814 | 0.4 | 6 | 0.5 | 496 | 0.5 |
| Fire/explosion | 557 | 0.1 | 3 | 0.2 | 88 | 0.1 |
| Immersion | 69 | 0.0 | 3 | 0.2 | 19 | 0.0 |
| Jackknife | 252 | 0.1 | 1 | 0.1 | 38 | 0.0 |
| Downhill runaway | 46 | 0.0 | 0 | 0.0 | 8 | 0.0 |
| Cargo loss/shift | 456 | 0.1 | 0 | 0.0 | 30 | 0.0 |
| Individual fell off | 217 | 0.1 | 10 | 0.8 | 174 | 0.2 |
| Other noncollision | 1,206 | 0.3 | 1 | 0.1 | 235 | 0.2 |
| NONCOLLISION Subtotal | 14,943 | 3.6 | 99 | 8.2 | 4,941 | 4.8 |

| MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|----------------|-------------|---------------|-------------|----------------|-------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Pedestrian | 1,534 | 0.4 | 92 | 7.6 | 1,281 | 1.2 |
| Pedalcycle | 1,465 | 0.4 | 22 | 1.8 | 1,137 | 1.1 |
| Motor vehicle in transport | 279,935 | 67.9 | 776 | 64.4 | 78,464 | 76.0 |
| Parked motor vehicle | 6,941 | 1.7 | 11 | 0.9 | 872 | 0.8 |
| Railway train | 97 | 0.0 | 2 | 0.2 | 40 | 0.0 |
| Animal | 45,397 | 11.0 | 1 | 0.1 | 991 | 1.0 |
| Other nonfixed objects | 4,143 | 1.0 | 6 | 0.5 | 449 | 0.4 |
| COLLISION NONFIXED Subtotal | 339,512 | 82.3 | 910 | 75.5 | 83,234 | 80.6 |

DRIVER AGE 25-64 (continued)

| MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|---------------|------------|---------------|-------------|----------------|------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Bridge/pier/abutment | 439 | 0.1 | 9 | 0.7 | 135 | 0.1 |
| Bridge parapet end | 153 | 0.0 | 0 | 0.0 | 42 | 0.0 |
| Bridge rail | 341 | 0.1 | 1 | 0.1 | 99 | 0.1 |
| Guardrail face | 1,840 | 0.4 | 4 | 0.3 | 412 | 0.4 |
| Guardrail end | 283 | 0.1 | 2 | 0.2 | 107 | 0.1 |
| Median barrier | 1,925 | 0.5 | 4 | 0.3 | 734 | 0.7 |
| Highway traffic sign post | 1,457 | 0.4 | 0 | 0.0 | 121 | 0.1 |
| Signal post | 178 | 0.0 | 0 | 0.0 | 29 | 0.0 |
| Luminaire/light support | 371 | 0.1 | 2 | 0.2 | 104 | 0.1 |
| Utility pole | 1,969 | 0.5 | 19 | 1.6 | 757 | 0.7 |
| Other pole | 647 | 0.2 | 3 | 0.2 | 131 | 0.1 |
| Culvert | 394 | 0.1 | 6 | 0.5 | 131 | 0.1 |
| Curb | 1,146 | 0.3 | 2 | 0.2 | 180 | 0.2 |
| Ditch | 4,026 | 1.0 | 17 | 1.4 | 1,174 | 1.1 |
| Embankment | 1,043 | 0.3 | 3 | 0.2 | 346 | 0.3 |
| Fence | 732 | 0.2 | 0 | 0.0 | 97 | 0.1 |
| Mailbox | 1,128 | 0.3 | 1 | 0.1 | 86 | 0.1 |
| Tree | 5,439 | 1.3 | 79 | 6.6 | 2,066 | 2.0 |
| Rail crossing signal | 57 | 0.0 | 0 | 0.0 | 7 | 0.0 |
| Building | 446 | 0.1 | 6 | 0.5 | 178 | 0.2 |
| Traffic island | 39 | 0.0 | 0 | 0.0 | 7 | 0.0 |
| Fire hydrant | 299 | 0.1 | 1 | 0.1 | 70 | 0.1 |
| Impact attenuator | 33 | 0.0 | 0 | 0.0 | 18 | 0.0 |
| Other fixed object | 2,078 | 0.5 | 9 | 0.7 | 451 | 0.4 |
| COLLISION FIXED Subtotal | 26,463 | 6.4 | 168 | 13.9 | 7,482 | 7.2 |

| | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Unknown Event | 31,636 | 7.7 | 28 | 2.3 | 7,640 | 7.4 |
| TOTAL MOST HARMFUL EVENT | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |



DRIVER AGE 25-64 (continued)

| CRASH TYPE | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Single Vehicle | 81,735 | 19.8 | 325 | 27.0 | 11,980 | 11.6 |
| Head On | 8,225 | 2.0 | 240 | 19.9 | 3,635 | 3.5 |
| Head On - Left Turn | 15,206 | 3.7 | 36 | 3.0 | 6,427 | 6.2 |
| Angle | 95,210 | 23.1 | 413 | 34.3 | 29,339 | 28.4 |
| Rear End | 130,096 | 31.5 | 97 | 8.0 | 38,622 | 37.4 |
| Rear End - Left Turn | 5,560 | 1.3 | 7 | 0.6 | 1,770 | 1.7 |
| Rear End - Right Turn | 4,156 | 1.0 | 1 | 0.1 | 802 | 0.8 |
| Sideswipe - Same Direction | 35,765 | 8.7 | 16 | 1.3 | 4,135 | 4.0 |
| Sideswipe - Opposite Direct | 12,208 | 3.0 | 24 | 2.0 | 1,953 | 1.9 |
| Other | 19,599 | 4.8 | 45 | 3.7 | 3,629 | 3.5 |
| Unknown | 4,794 | 1.2 | 1 | 0.1 | 1,005 | 1.0 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

| HAZARDOUS ACTION | All Crashes | | Fatal Crashes | | Injury Crashes | | Hazardous Citation Issued | |
|--|----------------|--------------|---------------|--------------|----------------|--------------|---------------------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury | # | % of Issued |
| None | 240,678 | 58.3 | 581 | 48.2 | 55,867 | 54.1 | 507 | 0.7 |
| Speed too fast | 21,802 | 5.3 | 154 | 12.8 | 6,667 | 6.5 | 7,203 | 10.1 |
| Speed too slow | 607 | 0.1 | 4 | 0.3 | 204 | 0.2 | 184 | 0.3 |
| Failed to yield | 32,210 | 7.8 | 65 | 5.4 | 9,798 | 9.5 | 17,465 | 24.5 |
| Disregard traffic control | 7,915 | 1.9 | 60 | 5.0 | 3,550 | 3.4 | 4,729 | 6.6 |
| Drove wrong way | 249 | 0.1 | 4 | 0.3 | 98 | 0.1 | 114 | 0.2 |
| Drove left of center | 2,233 | 0.5 | 68 | 5.6 | 858 | 0.8 | 923 | 1.3 |
| Improper passing | 2,532 | 0.6 | 7 | 0.6 | 441 | 0.4 | 970 | 1.4 |
| Improper lane use | 7,362 | 1.8 | 13 | 1.1 | 1,073 | 1.0 | 3,188 | 4.5 |
| Improper turn | 4,608 | 1.1 | 0 | 0.0 | 957 | 0.9 | 1,944 | 2.7 |
| Improper/no signal | 575 | 0.1 | 0 | 0.0 | 95 | 0.1 | 159 | 0.2 |
| Improper backing | 7,457 | 1.8 | 0 | 0.0 | 303 | 0.3 | 2,138 | 3.0 |
| Unable to stop in assured clear distance | 51,304 | 12.4 | 41 | 3.4 | 14,431 | 14.0 | 24,764 | 34.7 |
| Other | 19,709 | 4.8 | 122 | 10.1 | 5,516 | 5.3 | 6,495 | 9.1 |
| Unknown | 13,313 | 3.2 | 86 | 7.1 | 3,439 | 3.3 | 520 | 0.7 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 | 71,303 | 100.0 |

Compared to the other two age groups (16-24 and 65-102), drivers in this age group are cited less frequently for hazardous action.

DRIVER AGE 25-64 (continued)

| LOCATION OF FIRST IMPACT IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| On Road | 379,694 | 92.0 | 975 | 80.9 | 93,973 | 91.0 |
| Median | 1,803 | 0.4 | 19 | 1.6 | 570 | 0.6 |
| Shoulder | 9,811 | 2.4 | 54 | 4.5 | 2,465 | 2.4 |
| Outside of Shoulder/Curb | 16,171 | 3.9 | 136 | 11.3 | 5,050 | 4.9 |
| Gore | 416 | 0.1 | 6 | 0.5 | 146 | 0.1 |
| Other/Unknown | 4,659 | 1.1 | 15 | 1.2 | 1,093 | 1.1 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

| TIME OF DAY IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| 12:00 mid. - 02:59 a.m. | 14,574 | 3.5 | 150 | 12.4 | 4,042 | 3.9 |
| 03:00 a.m. - 05:59 a.m. | 12,902 | 3.1 | 59 | 4.9 | 2,414 | 2.3 |
| 06:00 a.m. - 08:59 a.m. | 58,480 | 14.2 | 137 | 11.4 | 13,240 | 12.8 |
| 09:00 a.m. - 11:59 a.m. | 52,517 | 12.7 | 133 | 11.0 | 13,457 | 13.0 |
| 12:00 noon - 02:59 p.m. | 75,094 | 18.2 | 180 | 14.9 | 20,528 | 19.9 |
| 03:00 p.m. - 05:59 p.m. | 105,431 | 25.6 | 222 | 18.4 | 27,705 | 26.8 |
| 06:00 p.m. - 08:59 p.m. | 58,502 | 14.2 | 166 | 13.8 | 13,616 | 13.2 |
| 09:00 p.m. - 11:59 p.m. | 31,784 | 7.7 | 146 | 12.1 | 7,563 | 7.3 |
| Unknown | 3,270 | 0.8 | 12 | 1.0 | 732 | 0.7 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

| ROADWAY TYPE IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Limited Access Roadway | 40,058 | 9.7 | 148 | 12.3 | 10,580 | 10.2 |
| U.S. & Michigan Roads | 114,682 | 27.8 | 423 | 35.1 | 29,358 | 28.4 |
| County & City Roads | 257,814 | 62.5 | 634 | 52.6 | 63,359 | 61.3 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

DRIVER AGE 25-64 (continued)

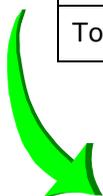
| DAY OF WEEK IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Sunday | 36,460 | 8.8 | 156 | 12.9 | 9,383 | 9.1 |
| Monday | 58,955 | 14.3 | 145 | 12.0 | 14,631 | 14.2 |
| Tuesday | 60,568 | 14.7 | 163 | 13.5 | 15,149 | 14.7 |
| Wednesday | 63,713 | 15.4 | 140 | 11.6 | 15,636 | 15.1 |
| Thursday | 65,642 | 15.9 | 179 | 14.9 | 16,188 | 15.7 |
| Friday | 73,493 | 17.8 | 193 | 16.0 | 18,283 | 17.7 |
| Saturday | 53,723 | 13.0 | 229 | 19.0 | 14,027 | 13.6 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

| DRIVER GENDER IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Male | 236,744 | 57.4 | 857 | 71.1 | 56,365 | 54.6 |
| Female | 169,502 | 41.1 | 332 | 27.6 | 45,339 | 43.9 |
| Other/Unknown | 6,308 | 1.5 | 16 | 1.3 | 1,593 | 1.5 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

| NUMBER OF OCCUPANTS IN CAR | All Crashes | | Fatal Crashes | | Injury Crashes | |
|----------------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| 1 occupant | 296,158 | 71.8 | 762 | 63.2 | 69,559 | 67.3 |
| 2 occupants | 69,547 | 16.9 | 260 | 21.6 | 20,170 | 19.5 |
| 3 occupants | 21,323 | 5.2 | 84 | 7.0 | 6,551 | 6.3 |
| 4 occupants | 9,453 | 2.3 | 55 | 4.6 | 3,020 | 2.9 |
| 5 occupants | 3,249 | 0.8 | 13 | 1.1 | 1,105 | 1.1 |
| 6 + occupants | 2,636 | 0.6 | 17 | 1.4 | 821 | 0.8 |
| 0 occupants | 5,086 | 1.2 | 2 | 0.2 | 877 | 0.8 |
| uncoded & errors | 5,102 | 1.2 | 12 | 1.0 | 1,194 | 1.2 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |

DRIVER AGE 25-64 (continued)

| VEHICLE TYPE CRASH INVOLVEMENT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|----------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Passenger Car and Station Wagon | 278,385 | 67.5 | 698 | 57.9 | 72,138 | 69.8 |
| Van and Motorhome | 40,202 | 9.7 | 110 | 9.1 | 9,930 | 9.6 |
| Pickup | 66,883 | 16.2 | 214 | 17.8 | 14,211 | 13.8 |
| Small Truck (under 10,000 lbs.) | 7,962 | 1.9 | 12 | 1.0 | 1,730 | 1.7 |
| Cycle | 1,595 | 0.4 | 39 | 3.2 | 1,224 | 1.2 |
| Moped | 87 | 0.0 | 0 | 0.0 | 64 | 0.1 |
| Go Cart | 2 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Snowmobile | 241 | 0.1 | 11 | 0.9 | 160 | 0.2 |
| Off Road Vehicle | 65 | 0.0 | 3 | 0.2 | 40 | 0.0 |
| Other | 1,147 | 0.3 | 12 | 1.0 | 247 | 0.2 |
| Uncoded | 2,621 | 0.6 | 6 | 0.5 | 638 | 0.6 |
| CDL Truck/Bus (breakdown below) | 13,364 | 3.2 | 100 | 8.3 | 2,914 | 2.8 |
| Total Drivers | 412,554 | 100.0 | 1,205 | 100.0 | 103,297 | 100.0 |



| CDL Truck/Bus Sub-category Types | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Uncoded Truck | 1,393 | 10.4 | 9 | 9.0 | 308 | 10.6 |
| Commercial Vehicle: Group A | 5,971 | 44.7 | 55 | 55.0 | 1,289 | 44.2 |
| Commercial Vehicle: Group B | 3,745 | 28.0 | 20 | 20.0 | 827 | 28.4 |
| Commercial Vehicle: Group C | 464 | 3.5 | 4 | 4.0 | 110 | 3.8 |
| Other Truck | 831 | 6.2 | 5 | 5.0 | 187 | 6.4 |
| Unknown Truck | 960 | 7.2 | 7 | 7.0 | 193 | 6.6 |
| Total Drivers | 13,364 | 100.0 | 100 | 100.0 | 2,914 | 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 65-102

| DRIVER ACTION PRIOR TO CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Going straight ahead | 22,822 | 48.4 | 190 | 66.9 | 6,207 | 49.6 |
| Turning left | 6,018 | 12.8 | 37 | 13.0 | 1,854 | 14.8 |
| Turning right | 1,692 | 3.6 | 2 | 0.7 | 290 | 2.3 |
| Stopped on roadway | 4,406 | 9.3 | 7 | 2.5 | 1,433 | 11.4 |
| In prior crash | 46 | 0.1 | 0 | 0.0 | 14 | 0.1 |
| Changing lanes | 1,365 | 2.9 | 3 | 1.1 | 161 | 1.3 |
| Backing | 1,505 | 3.2 | 0 | 0.0 | 86 | 0.7 |
| Slowing/stopping on roadway | 3,223 | 6.8 | 7 | 2.5 | 961 | 7.7 |
| Slowing/stopping other | 59 | 0.1 | 0 | 0.0 | 13 | 0.1 |
| Starting up on roadway | 1,248 | 2.6 | 14 | 4.9 | 366 | 2.9 |
| Starting up other | 48 | 0.1 | 1 | 0.4 | 10 | 0.1 |
| Entering parking | 123 | 0.3 | 0 | 0.0 | 24 | 0.2 |
| Leaving parking | 378 | 0.8 | 0 | 0.0 | 69 | 0.6 |
| Entering roadway | 1,324 | 2.8 | 10 | 3.5 | 310 | 2.5 |
| Leaving roadway | 90 | 0.2 | 2 | 0.7 | 30 | 0.2 |
| Making U-turn | 178 | 0.4 | 1 | 0.4 | 47 | 0.4 |
| Overtaking or passing | 343 | 0.7 | 0 | 0.0 | 49 | 0.4 |
| Avoiding object | 54 | 0.1 | 0 | 0.0 | 19 | 0.2 |
| Avoiding pedestrian | 15 | 0.0 | 0 | 0.0 | 9 | 0.1 |
| Avoiding vehicle (front/back) | 236 | 0.5 | 2 | 0.7 | 72 | 0.6 |
| Avoiding vehicle (angle) | 119 | 0.3 | 1 | 0.4 | 36 | 0.3 |
| Driverless moving | 8 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Parked | 259 | 0.5 | 0 | 0.0 | 19 | 0.2 |
| Crossing at intersection | 3 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Crossing not at intersection | 3 | 0.0 | 1 | 0.4 | 2 | 0.0 |
| Getting on/off vehicle | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| In roadway with traffic | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| In roadway against traffic | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Standing/lying in roadway | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Pushing/working on vehicle | 3 | 0.0 | 0 | 0.0 | 2 | 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 | 2 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Not in roadway | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Other | 29 | 0.1 | 1 | 0.4 | 12 | 0.1 |
| Unknown | 1,588 | 3.4 | 5 | 1.8 | 421 | 3.4 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |



DRIVER AGE 65-102 (continued)

| MOST HARMFUL EVENT IN A NONCOLLISION | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|--------------|------------|---------------|------------|----------------|------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Loss of control | 364 | 0.8 | 1 | 0.4 | 101 | 0.8 |
| Cross center/median | 96 | 0.2 | 0 | 0.0 | 25 | 0.2 |
| Ran off road left | 50 | 0.1 | 0 | 0.0 | 13 | 0.1 |
| Ran off road right | 81 | 0.2 | 1 | 0.4 | 20 | 0.2 |
| Re-enter road | 17 | 0.0 | 0 | 0.0 | 8 | 0.1 |
| Overturn | 268 | 0.6 | 7 | 2.5 | 150 | 1.2 |
| Separation of units | 205 | 0.4 | 0 | 0.0 | 56 | 0.4 |
| Fire/explosion | 45 | 0.1 | 1 | 0.4 | 12 | 0.1 |
| Immersion | 6 | 0.0 | 1 | 0.4 | 3 | 0.0 |
| Jackknife | 21 | 0.0 | 0 | 0.0 | 5 | 0.0 |
| Downhill runaway | 8 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Cargo loss/shift | 23 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Individual fell off | 12 | 0.0 | 1 | 0.4 | 6 | 0.0 |
| Other noncollision | 106 | 0.2 | 0 | 0.0 | 25 | 0.2 |
| NONCOLLISION Subtotal | 1,302 | 2.8 | 12 | 4.2 | 429 | 3.4 |

| MOST HARMFUL EVENT IN A COLLISION WITH A NONFIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|---------------|-------------|---------------|-------------|----------------|-------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Pedestrian | 198 | 0.4 | 12 | 4.2 | 167 | 1.3 |
| Pedalcycle | 208 | 0.4 | 2 | 0.7 | 165 | 1.3 |
| Motor vehicle in transport | 35,161 | 74.5 | 216 | 76.1 | 9,942 | 79.4 |
| Parked motor vehicle | 1,186 | 2.5 | 1 | 0.4 | 130 | 1.0 |
| Railway train | 11 | 0.0 | 1 | 0.4 | 3 | 0.0 |
| Animal | 3,077 | 6.5 | 2 | 0.7 | 65 | 0.5 |
| Other nonfixed objects | 338 | 0.7 | 0 | 0.0 | 47 | 0.4 |
| COLLISION NONFIXED Subtotal | 40,179 | 85.1 | 234 | 82.4 | 10,519 | 84.0 |

DRIVER AGE 65-102 (continued)

| MOST HARMFUL EVENT IN A COLLISION WITH A FIXED OBJECT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---|--------------|------------|---------------|-------------|----------------|------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Bridge/pier/abutment | 24 | 0.1 | 3 | 1.1 | 4 | 0.0 |
| Bridge parapet end | 10 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Bridge rail | 11 | 0.0 | 0 | 0.0 | 6 | 0.0 |
| Guardrail face | 96 | 0.2 | 1 | 0.4 | 24 | 0.2 |
| Guardrail end | 15 | 0.0 | 0 | 0.0 | 6 | 0.0 |
| Median barrier | 90 | 0.2 | 1 | 0.4 | 45 | 0.4 |
| Highway traffic sign post | 115 | 0.2 | 0 | 0.0 | 13 | 0.1 |
| Signal post | 11 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Luminaire/light support | 28 | 0.1 | 1 | 0.4 | 12 | 0.1 |
| Utility pole | 182 | 0.4 | 2 | 0.7 | 81 | 0.6 |
| Other pole | 64 | 0.1 | 0 | 0.0 | 20 | 0.2 |
| Culvert | 35 | 0.1 | 1 | 0.4 | 18 | 0.1 |
| Curb | 71 | 0.2 | 0 | 0.0 | 13 | 0.1 |
| Ditch | 290 | 0.6 | 4 | 1.4 | 96 | 0.8 |
| Embankment | 72 | 0.2 | 2 | 0.7 | 29 | 0.2 |
| Fence | 82 | 0.2 | 0 | 0.0 | 16 | 0.1 |
| Mailbox | 110 | 0.2 | 0 | 0.0 | 10 | 0.1 |
| Tree | 448 | 0.9 | 14 | 4.9 | 208 | 1.7 |
| Rail crossing signal | 14 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Building | 74 | 0.2 | 4 | 1.4 | 39 | 0.3 |
| Traffic island | 3 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Fire hydrant | 30 | 0.1 | 1 | 0.4 | 9 | 0.1 |
| Impact attenuator | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 |
| Other fixed object | 153 | 0.3 | 0 | 0.0 | 35 | 0.3 |
| COLLISION FIXED Subtotal | 2,029 | 4.3 | 34 | 12.0 | 690 | 5.5 |

| | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Total | # | % of Total |
| Unknown Event | 3,680 | 7.8 | 4 | 1.4 | 882 | 7.0 |
| TOTAL MOST HARMFUL EVENT | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |



DRIVER AGE 65-102 (continued)

| CRASH TYPE | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Single Vehicle | 5,746 | 12.2 | 53 | 18.7 | 1,027 | 8.2 |
| Head On | 829 | 1.8 | 52 | 18.3 | 367 | 2.9 |
| Head On - Left Turn | 2,617 | 5.5 | 20 | 7.0 | 1,088 | 8.7 |
| Angle | 15,816 | 33.5 | 121 | 42.6 | 4,659 | 37.2 |
| Rear End | 11,732 | 24.9 | 20 | 7.0 | 3,901 | 31.2 |
| Rear End - Left Turn | 694 | 1.5 | 3 | 1.1 | 217 | 1.7 |
| Rear End - Right Turn | 403 | 0.9 | 0 | 0.0 | 95 | 0.8 |
| Sideswipe - Same Direction | 4,890 | 10.4 | 2 | 0.7 | 439 | 3.5 |
| Sideswipe - Opposite Direct | 1,620 | 3.4 | 4 | 1.4 | 211 | 1.7 |
| Other | 2,241 | 4.7 | 7 | 2.5 | 397 | 3.2 |
| Unknown | 602 | 1.3 | 2 | 0.7 | 119 | 1.0 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 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 Total | # | % of Fatal | # | % of Injury | # | % of Issued |
| None | 22,370 | 47.4 | 84 | 29.6 | 5,489 | 43.8 | 45 | 0.4 |
| Speed too fast | 1,238 | 2.6 | 13 | 4.6 | 405 | 3.2 | 311 | 3.1 |
| Speed too slow | 86 | 0.2 | 1 | 0.4 | 24 | 0.2 | 30 | 0.3 |
| Failed to yield | 8,654 | 18.3 | 78 | 27.5 | 2,645 | 21.1 | 4,454 | 44.0 |
| Disregard traffic control | 1,560 | 3.3 | 21 | 7.4 | 656 | 5.2 | 916 | 9.1 |
| Drove wrong way | 64 | 0.1 | 4 | 1.4 | 17 | 0.1 | 38 | 0.4 |
| Drove left of center | 345 | 0.7 | 13 | 4.6 | 125 | 1.0 | 138 | 1.4 |
| Improper passing | 309 | 0.7 | 1 | 0.4 | 47 | 0.4 | 116 | 1.1 |
| Improper lane use | 1,572 | 3.3 | 3 | 1.1 | 179 | 1.4 | 617 | 6.1 |
| Improper turn | 1,009 | 2.1 | 4 | 1.4 | 228 | 1.8 | 450 | 4.4 |
| Improper/no signal | 75 | 0.2 | 0 | 0.0 | 14 | 0.1 | 11 | 0.1 |
| Improper backing | 1,238 | 2.6 | 0 | 0.0 | 48 | 0.4 | 265 | 2.6 |
| Unable to stop in assured clear distance | 4,728 | 10.0 | 14 | 4.9 | 1,628 | 13.0 | 2,140 | 21.2 |
| Other | 2,278 | 4.8 | 27 | 9.5 | 598 | 4.8 | 529 | 5.2 |
| Unknown | 1,664 | 3.5 | 21 | 7.4 | 417 | 3.3 | 53 | 0.5 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 | 10,113 | 100.0 |

Compared to the other two age groups, elderly drivers have 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.

DRIVER AGE 65-102 (continued)

| LOCATION OF FIRST IMPACT IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-----------------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| On Road | 44,416 | 94.1 | 244 | 85.9 | 11,668 | 93.2 |
| Median | 135 | 0.3 | 3 | 1.1 | 43 | 0.3 |
| Shoulder | 822 | 1.7 | 4 | 1.4 | 192 | 1.5 |
| Outside of Shoulder/Curb | 1,278 | 2.7 | 27 | 9.5 | 459 | 3.7 |
| Gore | 40 | 0.1 | 1 | 0.4 | 13 | 0.1 |
| Other/Unknown | 499 | 1.1 | 5 | 1.8 | 145 | 1.2 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |

| TIME OF DAY IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| 12:00 mid. - 02:59 a.m. | 407 | 0.9 | 5 | 1.8 | 89 | 0.7 |
| 03:00 a.m. - 05:59 a.m. | 341 | 0.7 | 7 | 2.5 | 62 | 0.5 |
| 06:00 a.m. - 08:59 a.m. | 3,247 | 6.9 | 21 | 7.4 | 839 | 6.7 |
| 09:00 a.m. - 11:59 a.m. | 10,139 | 21.5 | 55 | 19.4 | 2,709 | 21.6 |
| 12:00 noon - 02:59 p.m. | 12,877 | 27.3 | 71 | 25.0 | 3,558 | 28.4 |
| 03:00 p.m. - 05:59 p.m. | 12,440 | 26.4 | 72 | 25.4 | 3,394 | 27.1 |
| 06:00 p.m. - 08:59 p.m. | 5,311 | 11.3 | 38 | 13.4 | 1,322 | 10.6 |
| 09:00 p.m. - 11:59 p.m. | 2,030 | 4.3 | 14 | 4.9 | 446 | 3.6 |
| Unknown | 398 | 0.8 | 1 | 0.4 | 101 | 0.8 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 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 Total | # | % of Fatal | # | % of Injury |
| Limited Access Roadway | 2,885 | 6.1 | 14 | 4.9 | 796 | 6.4 |
| U.S. & Michigan Roads | 13,686 | 29.0 | 123 | 43.3 | 3,690 | 29.5 |
| County & City Roads | 30,619 | 64.9 | 147 | 51.8 | 8,034 | 64.2 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 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 65-102 (continued)

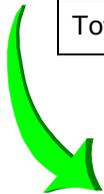
| DAY of WEEK IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|-------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Sunday | 4,135 | 8.8 | 27 | 9.5 | 1,128 | 9.0 |
| Monday | 7,090 | 15.0 | 43 | 15.1 | 1,854 | 14.8 |
| Tuesday | 7,288 | 15.4 | 37 | 13.0 | 1,965 | 15.7 |
| Wednesday | 7,493 | 15.9 | 42 | 14.8 | 1,935 | 15.5 |
| Thursday | 7,153 | 15.2 | 39 | 13.7 | 1,859 | 14.8 |
| Friday | 8,280 | 17.5 | 48 | 16.9 | 2,216 | 17.7 |
| Saturday | 5,751 | 12.2 | 48 | 16.9 | 1,563 | 12.5 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |

| DRIVER GENDER IN CRASH | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Male | 27,691 | 58.7 | 181 | 63.7 | 7,160 | 57.2 |
| Female | 18,798 | 39.8 | 95 | 33.5 | 5,178 | 41.4 |
| Other/Unknown | 701 | 1.5 | 8 | 2.8 | 182 | 1.5 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |

| NUMBER OF OCCUPANTS IN CAR | All Crashes | | Fatal Crashes | | Injury Crashes | |
|----------------------------------|-------------|------------|---------------|------------|----------------|-------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| 1 occupant | 33,530 | 71.1 | 164 | 57.7 | 8,445 | 67.5 |
| 2 occupants | 10,664 | 22.6 | 94 | 33.1 | 3,214 | 25.7 |
| 3 occupants | 1,215 | 2.6 | 16 | 5.6 | 402 | 3.2 |
| 4 occupants | 452 | 1.0 | 8 | 2.8 | 133 | 1.1 |
| 5 occupants | 110 | 0.2 | 0 | 0.0 | 37 | 0.3 |
| 6 + occupants | 81 | 0.2 | 0 | 0.0 | 20 | 0.2 |
| 0 occupants uncoded & errors | 581 | 1.2 | 0 | 0.0 | 130 | 1.0 |
| | 557 | 1.2 | 2 | 0.7 | 139 | 1.1 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |

DRIVER AGE 65-102 (continued)

| VEHICLE TYPE CRASH INVOLVEMENT | All Crashes | | Fatal Crashes | | Injury Crashes | |
|---------------------------------|---------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Passenger Car and Station Wagon | 38,641 | 81.9 | 229 | 80.6 | 10,460 | 83.5 |
| Van and Motorhome | 3,072 | 6.5 | 20 | 7.0 | 794 | 6.3 |
| Pickup | 4,430 | 9.4 | 27 | 9.5 | 1,004 | 8.0 |
| Small Truck (under 10,000 lbs.) | 426 | 0.9 | 2 | 0.7 | 104 | 0.8 |
| Cycle | 22 | 0.0 | 2 | 0.7 | 15 | 0.1 |
| Moped | 12 | 0.0 | 2 | 0.7 | 7 | 0.1 |
| Go Cart | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Snowmobile | 4 | 0.0 | 0 | 0.0 | 4 | 0.0 |
| Off Road Vehicle | 2 | 0.0 | 0 | 0.0 | 2 | 0.0 |
| Other | 76 | 0.2 | 0 | 0.0 | 16 | 0.1 |
| Uncoded | 255 | 0.5 | 2 | 0.7 | 64 | 0.5 |
| CDL Truck/Bus (breakdown below) | 250 | 0.5 | 0 | 0.0 | 50 | 0.4 |
| Total Drivers | 47,190 | 100.0 | 284 | 100.0 | 12,520 | 100.0 |



| CDL Truck/Bus Sub-category Types | All Crashes | | Fatal Crashes | | Injury Crashes | |
|----------------------------------|-------------|--------------|---------------|--------------|----------------|--------------|
| | Number | % of Total | # | % of Fatal | # | % of Injury |
| Uncoded Truck | 34 | 13.6 | 0 | 0.0 | 7 | 14.0 |
| Commercial Vehicle: Group A | 73 | 29.2 | 0 | 0.0 | 16 | 32.0 |
| Commercial Vehicle: Group B | 82 | 32.8 | 0 | 0.0 | 12 | 24.0 |
| Commercial Vehicle: Group C | 19 | 7.6 | 0 | 0.0 | 7 | 14.0 |
| Other Truck | 20 | 8.0 | 0 | 0.0 | 3 | 6.0 |
| Unknown Truck | 22 | 8.8 | 0 | 0.0 | 5 | 10.0 |
| Total Drivers | 250 | 100.0 | 0 | 100.0 | 50 | 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 | 29 | 7 | 6 |
| Bicyclists Injured | 2,367 | 132 | 95 |
| Bicyclists in Crashes | 2,929 | 159 | 119 |



| PEDESTRIAN | Total | Drinking in Crash | Drinking Pedestrian |
|------------------------|-------|-------------------|---------------------|
| Pedestrians Killed | 167 | 71 | 56 |
| Pedestrians Injured | 3,198 | 324 | 205 |
| Pedestrians in Crashes | 3,749 | 412 | 272 |



| MOTORCYCLIST | Total | Drinking in Crash | Drinking Motorcyclist |
|--------------------------|-------|-------------------|-----------------------|
| Motorcyclists Killed | 63 | 30 | 27 |
| Motorcyclists Injured | 2,103 | 277 | 236 |
| Motorcyclists in Crashes | 2,835 | 338 | 287 |



| SNOWMOBILER * | Total | Drinking in Crash | Drinking Snowmobiler |
|-------------------------|-------|-------------------|----------------------|
| Snowmobilers Killed | 17 | 9 | 9 |
| Snowmobilers Injured | 298 | 69 | 68 |
| Snowmobilers in Crashes | 516 | 96 | 92 |

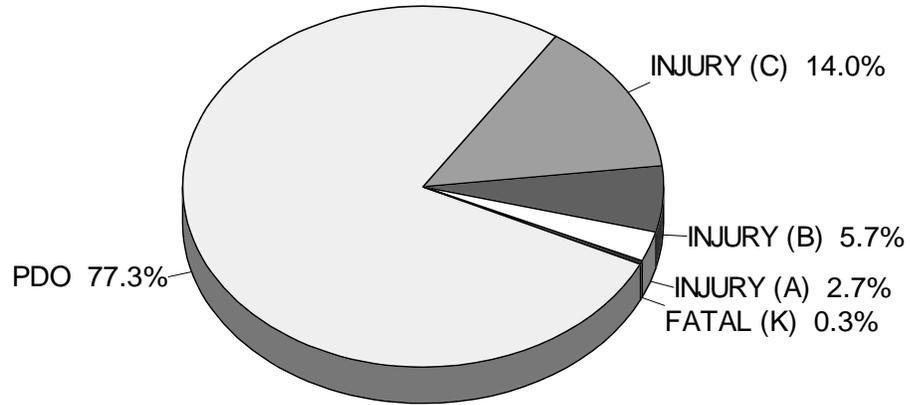


| ORV/ATV RIDER * | Total | Drinking in Crash | Drinking ORV/ATV Rider |
|--------------------------|-------|-------------------|------------------------|
| ORV/ATV Rider Killed | 5 | 3 | 3 |
| ORV/ATV Rider Injured | 135 | 20 | 19 |
| ORV/ATV Rider in Crashes | 200 | 25 | 24 |

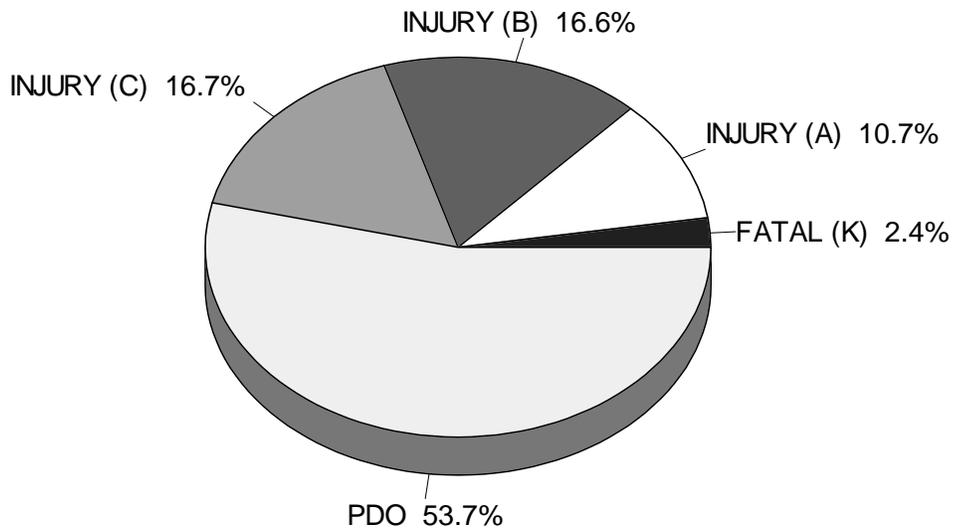


* on-road crashes

ALL CRASHES BY INJURY SEVERITY



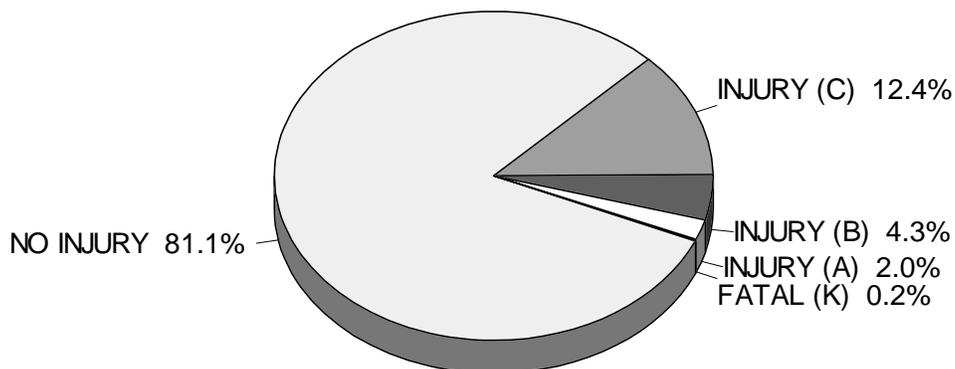
HBD CRASHES BY INJURY SEVERITY



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.

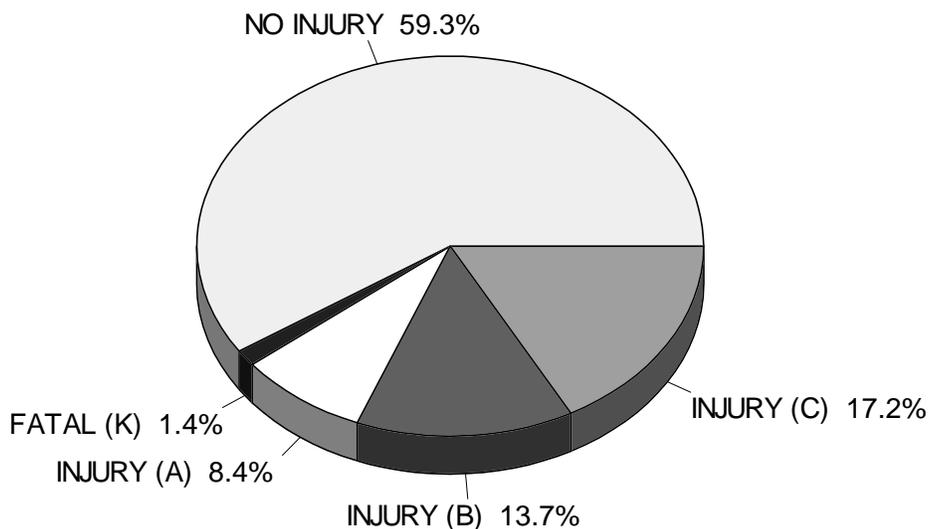
DEATH & INJURY PER CRASH INVOLVED OCCUPANT

Occupants in Crashes



The majority of occupants involved in crashes are not injured (81.1%). 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.

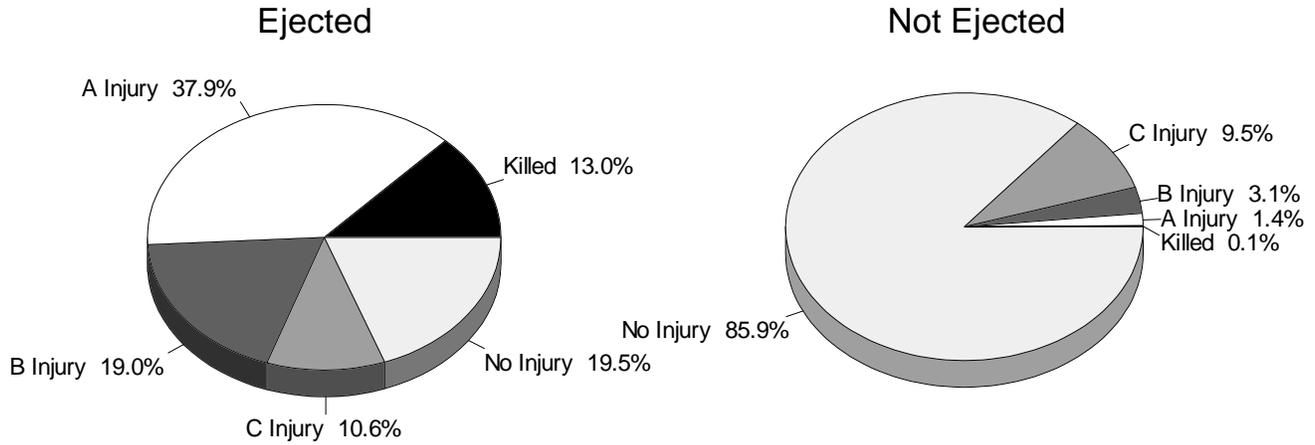
Occupants in HBD Crashes



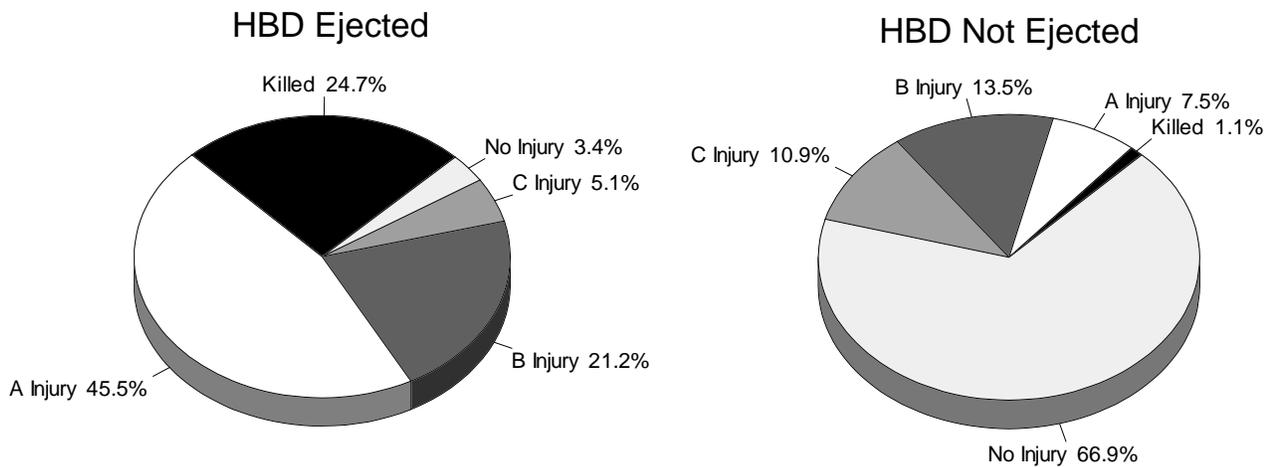
Crashes involving drinking tend to be more serious than nondrinking crashes. The percentage of fatalities is seven times higher than in all crashes and the more serious injury levels are three to four times higher.

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.

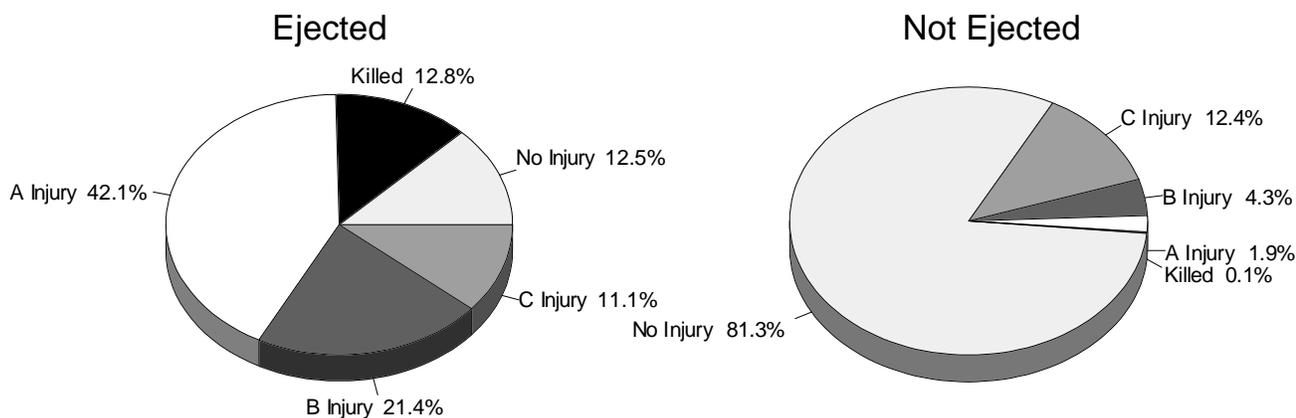


When compared to the charts above, the charts below demonstrate that the injury severity is much worse for drivers who had been drinking in both ejected, and nonejected events.

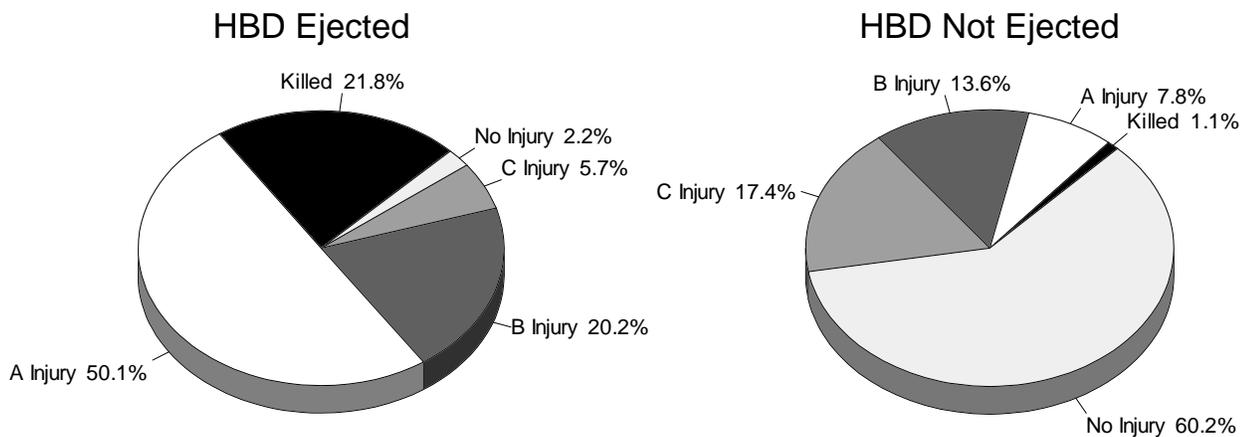


ALL OCCUPANTS and OCCUPANTS of HBD CRASHES INJURY SEVERITY - EJECTED vs. NOT EJECTED

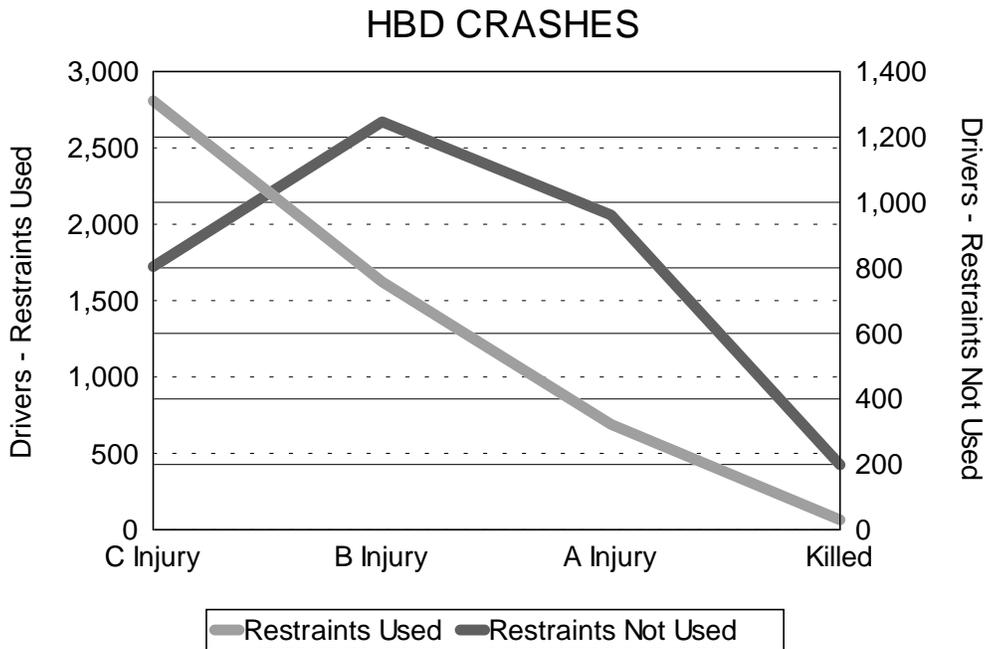
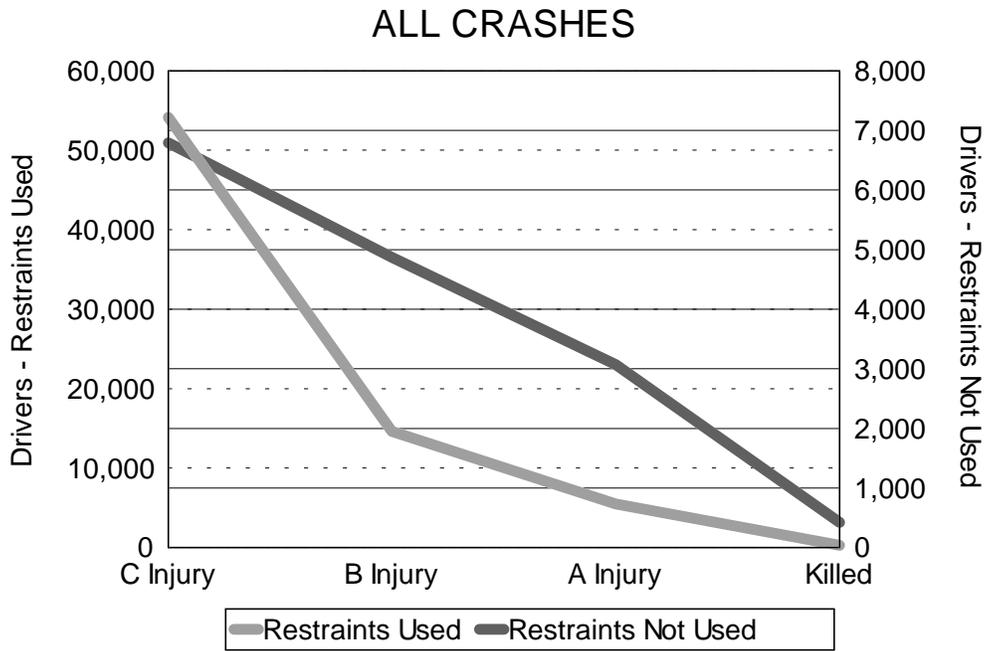
As can be seen in the two charts below, death and injury are much more likely when occupants are ejected from their vehicles.



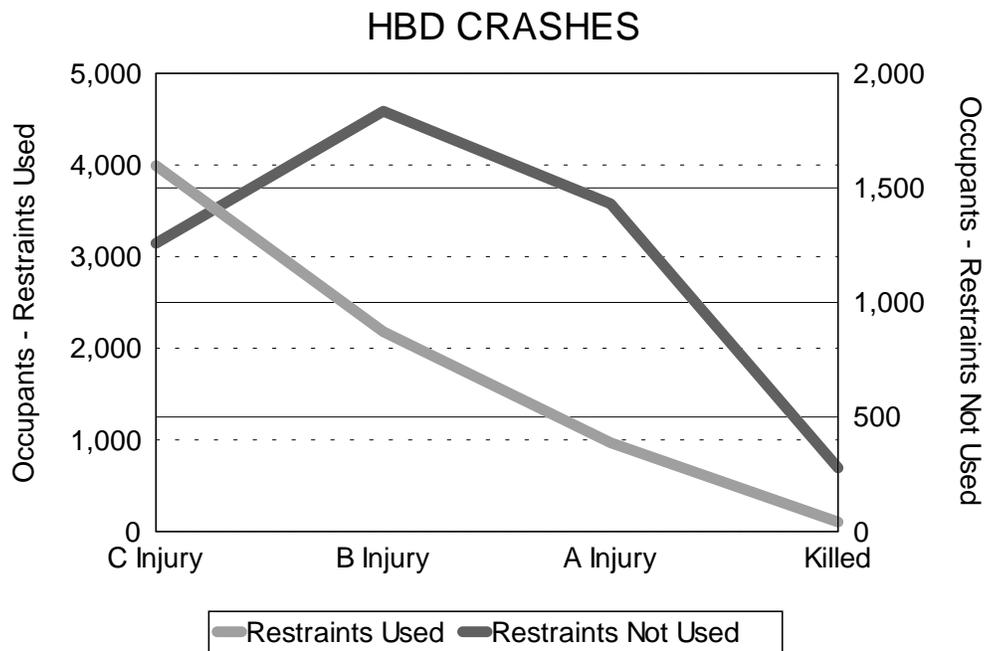
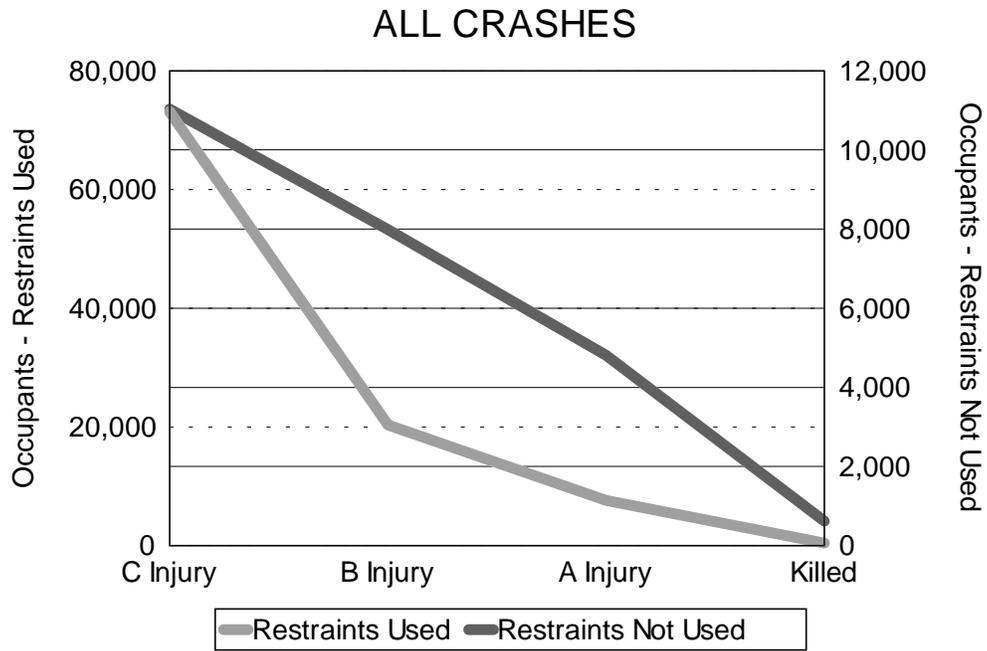
When compared to the charts above, the charts below demonstrate that the injury severity is much worse for occupants in a crash where drinking is reported in both ejected, and nonejected events.



INJURY SEVERITY & RESTRAINT USE FOR CRASH INVOLVED KABC DRIVERS



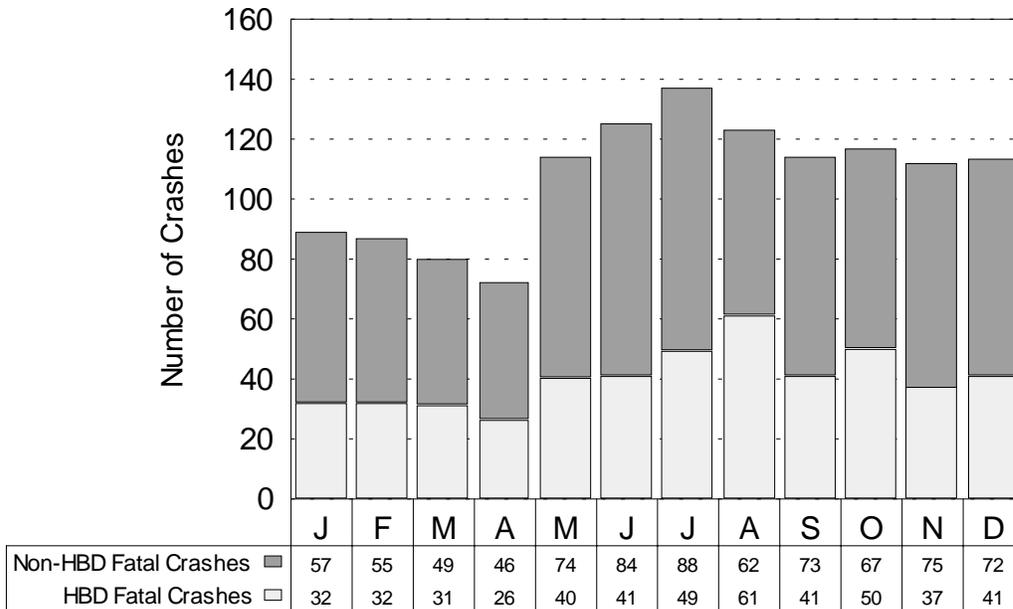
INJURY SEVERITY & RESTRAINT USE FOR CRASH INVOLVED KABC OCCUPANTS



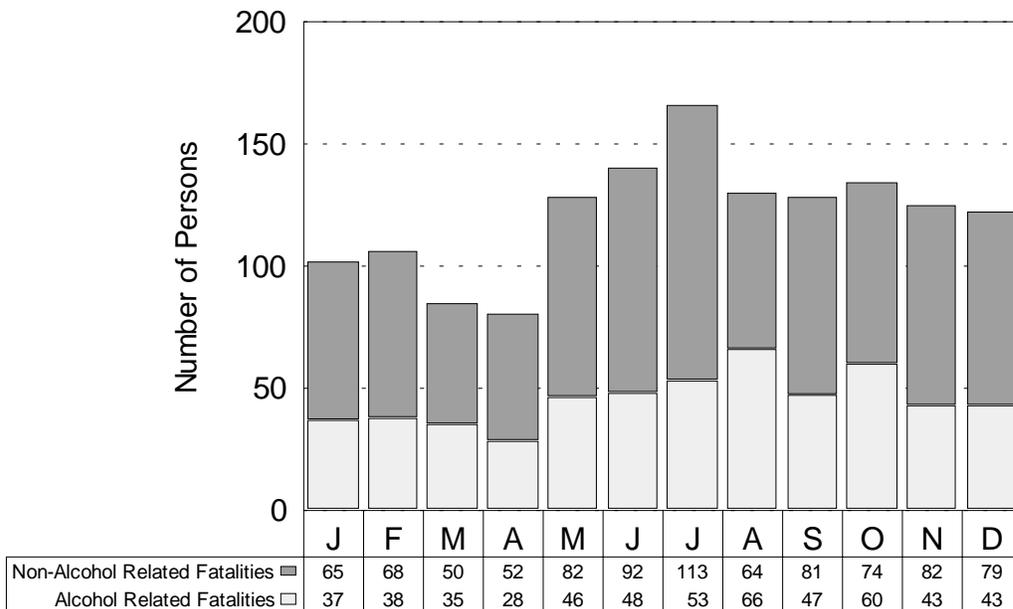
ALCOHOL INVOLVEMENT IN FATAL CRASHES

Fatal crashes were lowest in number during February, March and April. The number of fatal crashes then increased, peaking in July. These numbers follow the increase in travel during the summer months. The number of HBD fatal crashes peaked in August. Total persons killed in fatal crashes closely follows the number of crashes, as would be expected.

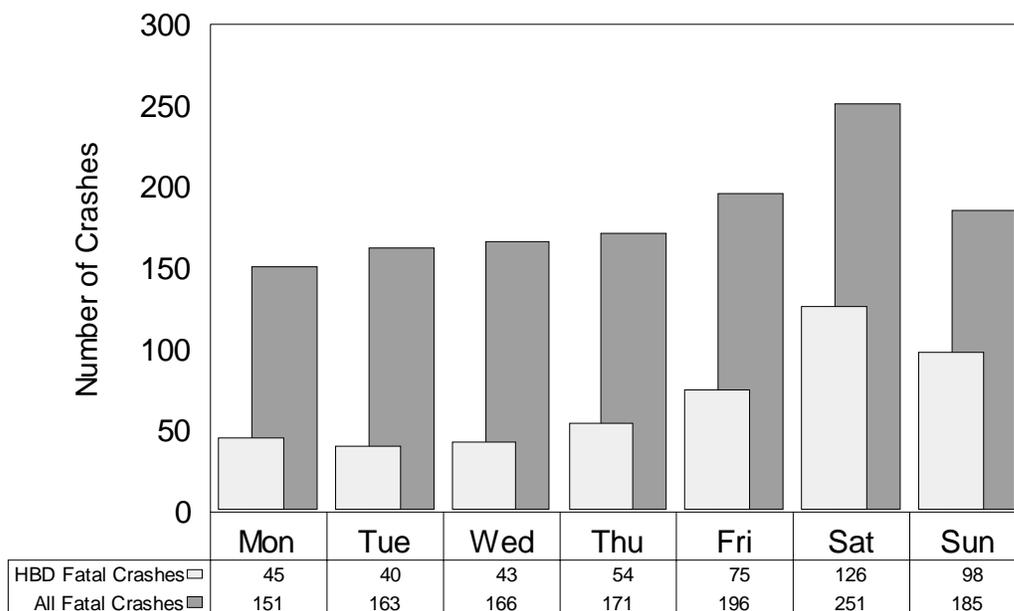
HBD Fatal Crashes by Month



Alcohol Related Fatalities by Month

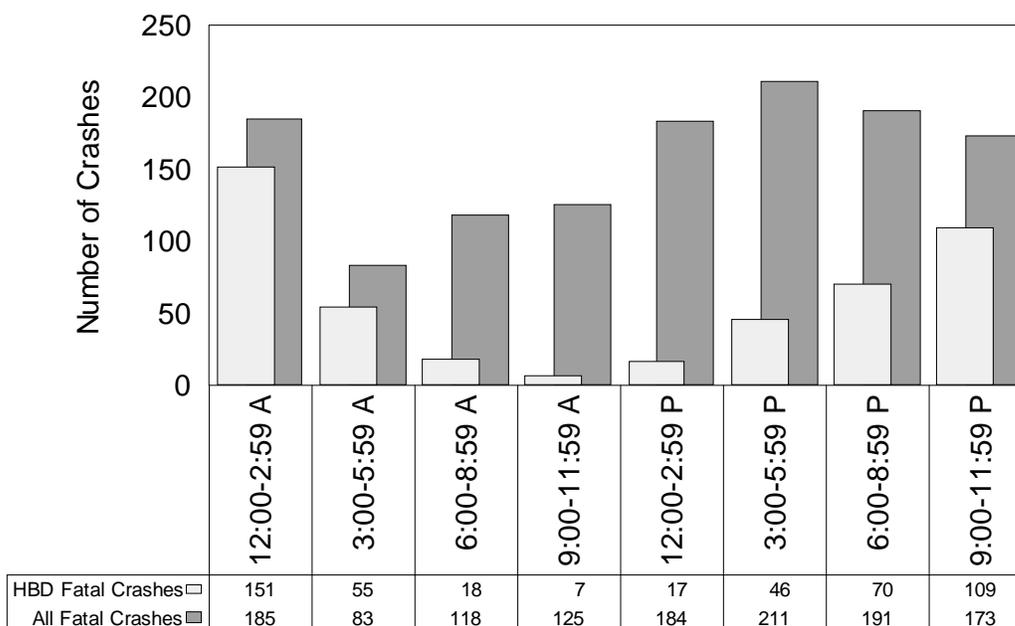


HBD Fatal Crashes by Day of Week



Saturday had the most fatal crashes in 1997. Saturday and Sunday had the highest proportions of drinking related fatal crashes. Half of the weekend fatal crashes involved drinking, while only 24.5 percent of fatal crashes on Tuesday involved drinking.

HBD Fatal Crashes by Time of Day



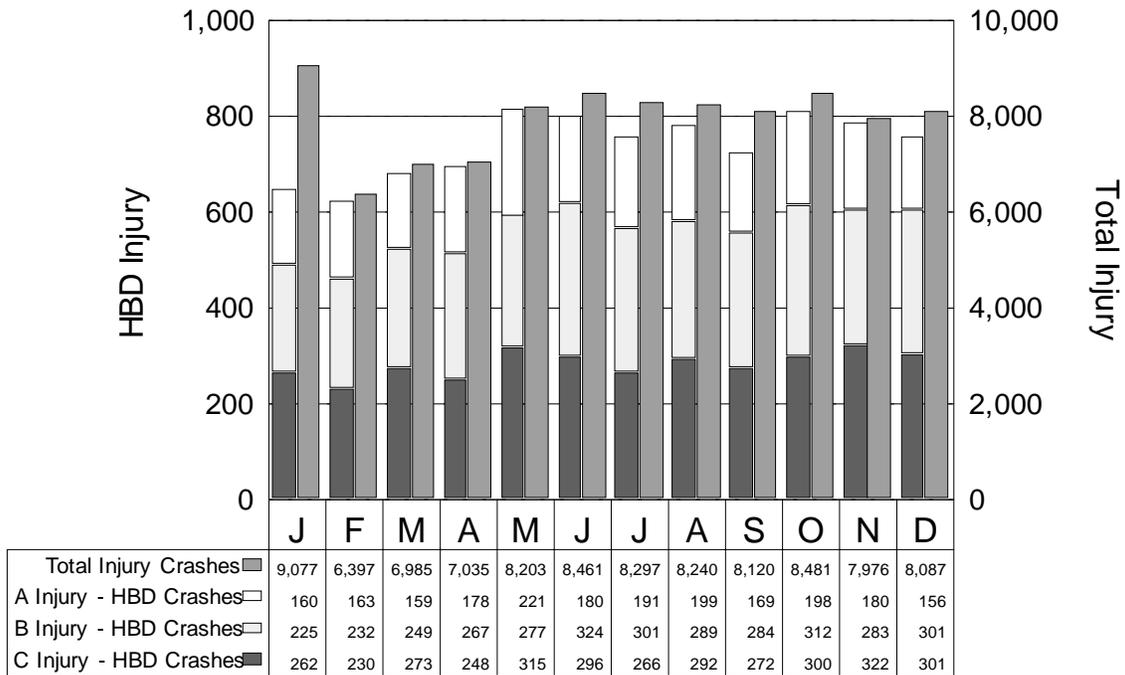
Not surprisingly, the midnight to 2:59 AM time period had the highest rate of drinking involvement (81.6%), while the late morning hours had the lowest (5.6%).

There were 13 fatal crashes where the time of day was unknown. Of these 13 fatal crashes, 8 were HBD.

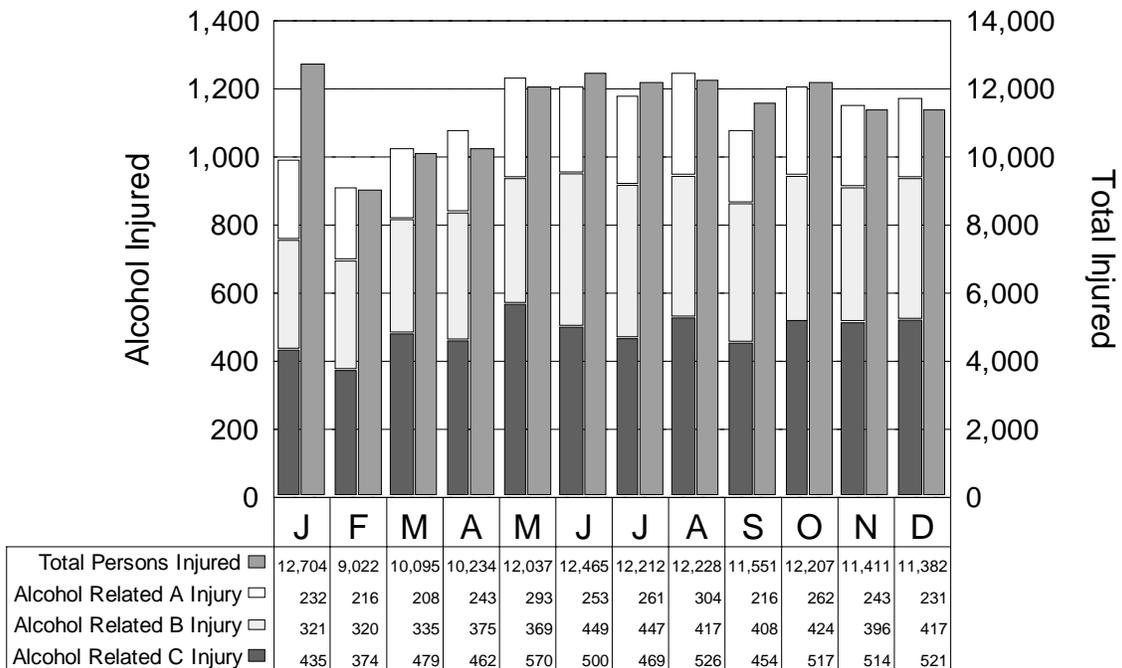
ALCOHOL INVOLVEMENT IN INJURY CRASHES

Alcohol involvement in injury crashes is an important indicator of the alcohol impaired driving problem. In 1997, the highest number of HBD injury crashes occurred in May with 813. The highest proportion of HBD injury crashes occurred in May with 9.91 percent of the injury crashes in that month involving alcohol.

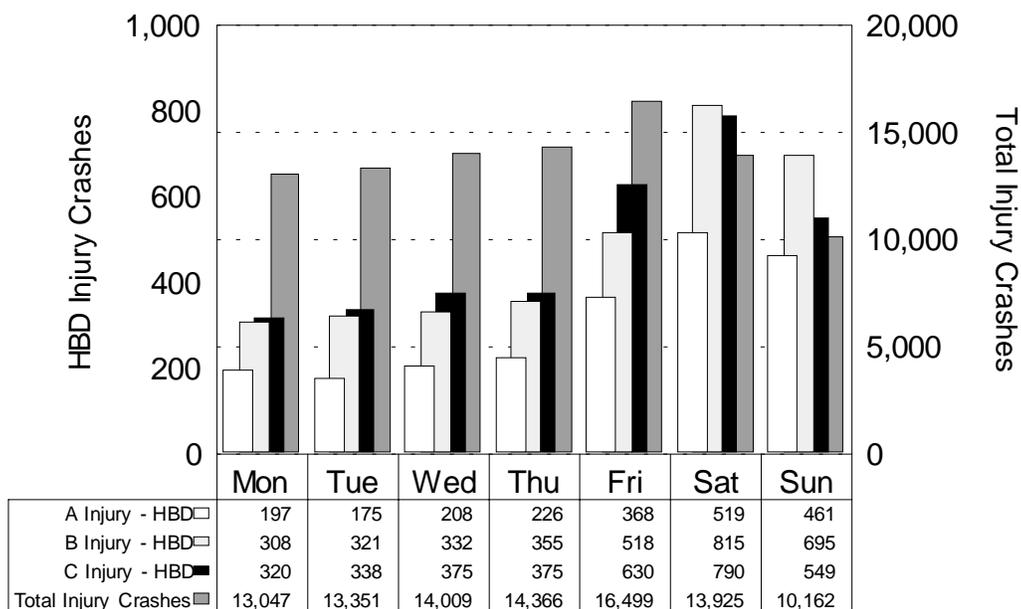
HBD Injury Crashes by Month



Alcohol Related Injuries by Month

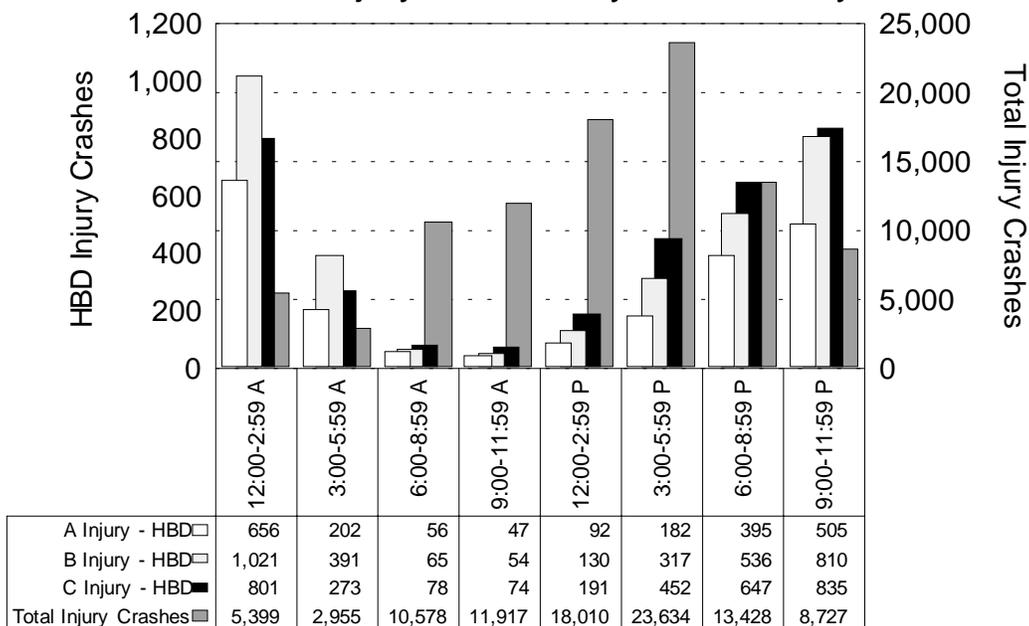


HBD Injury Crashes by Day of Week



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



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 | 49 | 0 | 3 | 4 | 17 | 17 | 4 | 2 | 1 | 0 | 1 |
| Alger | 32 | 0 | 2 | 3 | 7 | 5 | 3 | 4 | 2 | 1 | 5 |
| Allegan | 288 | 2 | 35 | 48 | 84 | 70 | 22 | 10 | 4 | 3 | 10 |
| Alpena | 65 | 0 | 8 | 10 | 20 | 17 | 6 | 1 | 0 | 1 | 2 |
| Antrim | 61 | 0 | 6 | 10 | 20 | 12 | 6 | 2 | 3 | 1 | 1 |
| Arenac | 66 | 0 | 10 | 8 | 12 | 19 | 10 | 2 | 1 | 2 | 2 |
| Baraga | 21 | 1 | 0 | 3 | 7 | 7 | 2 | 1 | 0 | 0 | 0 |
| Barry | 138 | 2 | 14 | 15 | 43 | 40 | 11 | 5 | 2 | 0 | 6 |
| Bay | 359 | 1 | 46 | 54 | 111 | 87 | 34 | 11 | 4 | 1 | 10 |
| Benzie | 41 | 0 | 5 | 6 | 9 | 15 | 1 | 2 | 1 | 0 | 2 |
| Berrien | 326 | 1 | 32 | 55 | 98 | 52 | 27 | 17 | 8 | 2 | 34 |
| Branch | 80 | 0 | 8 | 16 | 22 | 23 | 3 | 1 | 3 | 0 | 4 |
| Calhoun | 344 | 1 | 28 | 43 | 109 | 93 | 42 | 7 | 8 | 1 | 12 |
| Cass | 137 | 0 | 8 | 14 | 32 | 39 | 7 | 2 | 1 | 1 | 33 |
| Charlevoix | 52 | 0 | 7 | 8 | 18 | 16 | 2 | 0 | 1 | 0 | 0 |
| Cheboygan | 71 | 1 | 3 | 10 | 23 | 17 | 7 | 4 | 4 | 0 | 2 |
| Chippewa | 105 | 0 | 13 | 22 | 24 | 16 | 14 | 2 | 2 | 2 | 10 |
| Clare | 64 | 0 | 6 | 9 | 20 | 16 | 5 | 4 | 0 | 1 | 3 |
| Clinton | 126 | 0 | 21 | 22 | 31 | 31 | 12 | 2 | 2 | 3 | 2 |
| Crawford | 39 | 0 | 5 | 4 | 8 | 12 | 6 | 2 | 1 | 0 | 1 |
| Delta | 85 | 0 | 13 | 15 | 18 | 18 | 7 | 4 | 3 | 2 | 5 |
| Dickinson | 62 | 0 | 7 | 6 | 15 | 17 | 5 | 2 | 3 | 0 | 7 |
| Eaton | 208 | 0 | 21 | 32 | 71 | 45 | 20 | 4 | 7 | 0 | 8 |
| Emmet | 60 | 0 | 8 | 7 | 15 | 15 | 8 | 1 | 1 | 0 | 5 |
| Genesee | 1,343 | 9 | 105 | 147 | 379 | 312 | 165 | 63 | 20 | 3 | 140 |
| Gladwin | 60 | 1 | 1 | 3 | 24 | 19 | 4 | 4 | 4 | 0 | 0 |
| Gogebic | 39 | 0 | 7 | 3 | 2 | 8 | 8 | 1 | 2 | 0 | 8 |
| Grand Traverse | 140 | 0 | 20 | 23 | 36 | 37 | 11 | 6 | 2 | 3 | 2 |
| Gratiot | 59 | 1 | 6 | 14 | 13 | 16 | 2 | 2 | 1 | 0 | 4 |
| Hillsdale | 74 | 0 | 10 | 19 | 18 | 13 | 7 | 4 | 1 | 0 | 2 |
| Houghton | 66 | 0 | 8 | 11 | 18 | 8 | 10 | 5 | 2 | 0 | 4 |
| Huron | 62 | 0 | 9 | 16 | 15 | 10 | 5 | 0 | 4 | 1 | 2 |
| Ingham | 566 | 1 | 57 | 90 | 167 | 129 | 59 | 16 | 9 | 7 | 31 |
| Ionia | 157 | 2 | 12 | 25 | 51 | 34 | 21 | 5 | 4 | 1 | 2 |
| Iosco | 80 | 1 | 6 | 8 | 22 | 18 | 16 | 5 | 3 | 1 | 0 |
| Iron | 44 | 0 | 7 | 4 | 11 | 13 | 3 | 0 | 2 | 0 | 4 |
| Isabella | 114 | 0 | 15 | 29 | 31 | 23 | 9 | 2 | 2 | 0 | 3 |
| Jackson | 399 | 1 | 37 | 70 | 114 | 105 | 38 | 10 | 9 | 2 | 13 |
| Kalamazoo | 437 | 1 | 53 | 54 | 157 | 82 | 45 | 20 | 9 | 3 | 13 |
| Kalkaska | 60 | 1 | 3 | 7 | 20 | 18 | 6 | 3 | 1 | 0 | 1 |
| Kent | 1,069 | 3 | 114 | 195 | 313 | 244 | 103 | 37 | 21 | 5 | 34 |
| Keweenaw | 8 | 0 | 1 | 2 | 1 | 2 | 0 | 1 | 0 | 0 | 1 |
| Lake | 31 | 0 | 0 | 4 | 6 | 8 | 8 | 3 | 1 | 0 | 1 |
| Lapeer | 189 | 2 | 16 | 19 | 62 | 48 | 24 | 10 | 1 | 2 | 5 |
| Leelanau | 37 | 1 | 4 | 12 | 7 | 6 | 2 | 1 | 0 | 1 | 3 |

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 | 194 | 0 | 30 | 23 | 57 | 45 | 12 | 6 | 1 | 1 | 19 |
| Livingston | 328 | 0 | 57 | 52 | 78 | 88 | 36 | 5 | 4 | 0 | 8 |
| Luce | 10 | 0 | 2 | 1 | 2 | 0 | 1 | 0 | 2 | 0 | 2 |
| Mackinac | 51 | 0 | 1 | 9 | 15 | 12 | 8 | 1 | 1 | 0 | 4 |
| Macomb | 1,540 | 4 | 145 | 188 | 495 | 380 | 185 | 64 | 35 | 5 | 39 |
| Manistee | 60 | 0 | 11 | 10 | 15 | 12 | 4 | 2 | 2 | 1 | 3 |
| Marquette | 135 | 1 | 16 | 29 | 33 | 26 | 12 | 6 | 4 | 0 | 8 |
| Mason | 53 | 0 | 9 | 8 | 12 | 16 | 5 | 1 | 0 | 0 | 2 |
| Mecosta | 119 | 0 | 29 | 19 | 34 | 19 | 9 | 3 | 4 | 0 | 2 |
| Menominee | 68 | 0 | 7 | 10 | 14 | 16 | 5 | 1 | 2 | 0 | 13 |
| Midland | 108 | 0 | 11 | 16 | 32 | 30 | 14 | 1 | 1 | 0 | 3 |
| Missaukee | 24 | 0 | 6 | 4 | 8 | 4 | 1 | 1 | 0 | 0 | 0 |
| Monroe | 355 | 1 | 45 | 42 | 87 | 75 | 24 | 10 | 6 | 0 | 65 |
| Montcalm | 189 | 0 | 26 | 26 | 66 | 38 | 22 | 4 | 3 | 0 | 4 |
| Montmorency | 24 | 0 | 2 | 3 | 10 | 4 | 1 | 2 | 1 | 0 | 1 |
| Muskegon | 287 | 1 | 24 | 41 | 66 | 73 | 46 | 22 | 7 | 5 | 2 |
| Newaygo | 127 | 0 | 9 | 15 | 46 | 35 | 14 | 4 | 2 | 0 | 2 |
| Oakland | 2,132 | 2 | 166 | 260 | 647 | 561 | 264 | 85 | 49 | 18 | 80 |
| Oceana | 86 | 2 | 13 | 5 | 29 | 18 | 10 | 1 | 1 | 1 | 6 |
| Ogemaw | 67 | 0 | 3 | 7 | 22 | 14 | 14 | 4 | 0 | 0 | 3 |
| Ontonagon | 30 | 0 | 5 | 5 | 7 | 5 | 1 | 1 | 1 | 0 | 5 |
| Osceola | 52 | 1 | 12 | 9 | 14 | 11 | 3 | 1 | 1 | 0 | 0 |
| Oscoda | 20 | 0 | 0 | 2 | 5 | 7 | 3 | 1 | 1 | 0 | 1 |
| Otsego | 50 | 0 | 9 | 4 | 13 | 10 | 6 | 4 | 1 | 0 | 3 |
| Ottawa | 315 | 3 | 46 | 48 | 105 | 58 | 24 | 11 | 2 | 2 | 16 |
| Presque Isle | 32 | 0 | 3 | 4 | 13 | 7 | 3 | 0 | 2 | 0 | 0 |
| Roscommon | 86 | 0 | 5 | 14 | 20 | 24 | 13 | 5 | 2 | 1 | 2 |
| Saginaw | 490 | 1 | 48 | 78 | 155 | 106 | 65 | 18 | 6 | 3 | 10 |
| St. Clair | 380 | 1 | 53 | 53 | 113 | 89 | 44 | 6 | 4 | 2 | 15 |
| St. Joseph | 155 | 0 | 10 | 23 | 47 | 23 | 13 | 6 | 4 | 2 | 27 |
| Sanilac | 95 | 0 | 15 | 18 | 25 | 19 | 13 | 4 | 0 | 0 | 1 |
| Schoolcraft | 36 | 0 | 5 | 7 | 11 | 6 | 4 | 3 | 0 | 0 | 0 |
| Shiawassee | 148 | 1 | 17 | 16 | 56 | 35 | 15 | 4 | 0 | 0 | 4 |
| Tuscola | 142 | 0 | 23 | 19 | 43 | 37 | 11 | 2 | 3 | 0 | 4 |
| Van Buren | 220 | 1 | 22 | 36 | 61 | 45 | 18 | 7 | 10 | 1 | 19 |
| Washtenaw | 528 | 0 | 50 | 79 | 169 | 127 | 51 | 24 | 8 | 0 | 20 |
| Wayne | 3,388 | 8 | 246 | 361 | 915 | 890 | 472 | 172 | 104 | 22 | 198 |
| Wexford | 95 | 0 | 12 | 13 | 37 | 15 | 12 | 0 | 2 | 0 | 4 |
| UNKNOWN | 7 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 1 |
| Totals | 20,139 | 60 | 1,994 | 2,737 | 5,882 | 4,832 | 2,268 | 782 | 436 | 114 | 1,034 |



MALE DRIVERS & INJURY SEVERITY IN CRASH

ALL CRASHES

MOST SEVERE OUTCOME IN CRASH

| AGE OF DRIVER IN CRASH | Male Drivers | | Fatal | | Injury | | | PDO |
|---------------------------|----------------|--------------|--------------|--------------|---------------|---------------|---------------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Under 1 year old | 204 | 0.1 | 0 | 0.0 | 8 | 14 | 25 | 157 |
| 1 - 3 years | 30 | 0.0 | 0 | 0.0 | 2 | 2 | 5 | 21 |
| 4 - 10 years | 89 | 0.0 | 0 | 0.0 | 11 | 13 | 15 | 50 |
| 11 - 15 years | 1,063 | 0.3 | 9 | 0.6 | 68 | 150 | 171 | 665 |
| 16 - 20 years | 59,968 | 15.2 | 177 | 12.4 | 1896 | 4349 | 9283 | 44263 |
| 21 - 24 years | 35,653 | 9.0 | 118 | 8.3 | 1128 | 2362 | 5320 | 26725 |
| 25 - 34 years | 85,137 | 21.6 | 332 | 23.2 | 2596 | 5105 | 12890 | 64214 |
| 35 - 44 years | 74,538 | 18.9 | 252 | 17.6 | 2089 | 4200 | 11407 | 56590 |
| 45 - 54 years | 50,175 | 12.7 | 162 | 11.3 | 1418 | 2837 | 7611 | 38147 |
| 55 - 64 years | 26,894 | 6.8 | 111 | 7.8 | 705 | 1382 | 4125 | 20571 |
| 65 - 74 years | 17,465 | 4.4 | 90 | 6.3 | 467 | 1043 | 2848 | 13017 |
| 75 years and over | 10,226 | 2.6 | 91 | 6.4 | 336 | 739 | 1727 | 7333 |
| Not Stated | 32,602 | 8.3 | 88 | 6.2 | 739 | 1523 | 4531 | 25721 |
| TOTAL | 394,044 | 100.0 | 1,430 | 100.0 | 11,463 | 23,719 | 59,958 | 297,474 |

The fatal crash involvement for male drivers is down 4.5 percent from 1996.

DRINKING DRIVER

MOST SEVERE OUTCOME IN CRASH

| AGE OF DRINKING DRIVER IN CRASH | Male Drivers | | Fatal | | Injury | | | PDO |
|------------------------------------|---------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Under 1 year old | 15 | 0.1 | 0 | 0.0 | 1 | 4 | 1 | 9 |
| 1 - 3 years | 4 | 0.0 | 0 | 0.0 | 1 | 1 | 1 | 1 |
| 4 - 10 years | 4 | 0.0 | 0 | 0.0 | 1 | 0 | 1 | 2 |
| 11 - 15 years | 23 | 0.1 | 1 | 0.3 | 3 | 2 | 3 | 14 |
| 16 - 20 years | 1,610 | 10.1 | 34 | 9.1 | 175 | 317 | 225 | 859 |
| 21 - 24 years | 2,259 | 14.2 | 51 | 13.7 | 257 | 399 | 312 | 1240 |
| 25 - 34 years | 4,575 | 28.8 | 130 | 34.9 | 554 | 776 | 712 | 2403 |
| 35 - 44 years | 3,632 | 22.8 | 75 | 20.2 | 389 | 586 | 649 | 1933 |
| 45 - 54 years | 1,858 | 11.7 | 35 | 9.4 | 164 | 314 | 335 | 1010 |
| 55 - 64 years | 657 | 4.1 | 15 | 4.0 | 56 | 95 | 136 | 355 |
| 65 - 74 years | 388 | 2.4 | 16 | 4.3 | 34 | 38 | 67 | 233 |
| 75 years and over | 100 | 0.6 | 3 | 0.8 | 5 | 9 | 21 | 62 |
| Not Stated | 776 | 4.9 | 12 | 3.2 | 63 | 109 | 134 | 458 |
| TOTAL | 15,901 | 100.0 | 372 | 100.0 | 1,703 | 2,650 | 2,597 | 8,579 |

The fatal crash involvement for male drinking drivers is up 4.5 percent from 1996.



**FEMALE DRIVERS &
INJURY SEVERITY IN CRASH**

ALL CRASHES

MOST SEVERE OUTCOME IN CRASH

| AGE OF DRIVER IN CRASH | Female Drivers | | Fatal | | Injury | | | PDO |
|---------------------------|----------------|--------------|------------|--------------|--------------|---------------|---------------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Under 1 year old | 135 | 0.0 | 0 | 0.0 | 2 | 7 | 20 | 106 |
| 1 - 3 years | 21 | 0.0 | 0 | 0.0 | 0 | 3 | 1 | 17 |
| 4 - 10 years | 54 | 0.0 | 0 | 0.0 | 3 | 10 | 11 | 30 |
| 11 - 15 years | 747 | 0.3 | 3 | 0.5 | 43 | 88 | 122 | 491 |
| 16 - 20 years | 42,945 | 15.8 | 85 | 14.7 | 1263 | 3167 | 8178 | 30252 |
| 21 - 24 years | 25,732 | 9.5 | 46 | 7.9 | 749 | 1587 | 4904 | 18446 |
| 25 - 34 years | 61,109 | 22.5 | 126 | 21.7 | 1661 | 3638 | 11386 | 44298 |
| 35 - 44 years | 55,714 | 20.5 | 89 | 15.3 | 1385 | 2997 | 10335 | 40908 |
| 45 - 54 years | 35,769 | 13.2 | 72 | 12.4 | 920 | 1896 | 6631 | 26250 |
| 55 - 64 years | 16,910 | 6.2 | 45 | 7.8 | 436 | 916 | 3138 | 12375 |
| 65 - 74 years | 11,151 | 4.1 | 43 | 7.4 | 328 | 664 | 1998 | 8118 |
| 75 years and over | 7,647 | 2.8 | 52 | 9.0 | 270 | 533 | 1385 | 5407 |
| Not Stated | 13,197 | 4.9 | 19 | 3.3 | 255 | 543 | 1960 | 10420 |
| TOTAL | 271,131 | 100.0 | 580 | 100.0 | 7,315 | 16,049 | 50,069 | 197,118 |

The fatal crash involvement for female drivers is down 8.5 percent from 1996.

DRINKING DRIVER

MOST SEVERE OUTCOME IN CRASH

| AGE OF DRINKING DRIVER IN CRASH | Female Drivers | | Fatal | | Injury | | | PDO |
|------------------------------------|----------------|--------------|-----------|--------------|------------|------------|------------|--------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Under 1 year old | 3 | 0.1 | 0 | 0.0 | 0 | 1 | 0 | 2 |
| 1 - 3 years | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| 4 - 10 years | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 |
| 11 - 15 years | 9 | 0.2 | 1 | 1.5 | 0 | 3 | 1 | 4 |
| 16 - 20 years | 354 | 9.2 | 7 | 10.4 | 28 | 63 | 62 | 194 |
| 21 - 24 years | 437 | 11.4 | 9 | 13.4 | 54 | 63 | 77 | 234 |
| 25 - 34 years | 1,224 | 31.9 | 23 | 34.3 | 133 | 214 | 220 | 634 |
| 35 - 44 years | 1,141 | 29.7 | 16 | 23.9 | 108 | 176 | 217 | 624 |
| 45 - 54 years | 375 | 9.8 | 3 | 4.5 | 36 | 46 | 78 | 212 |
| 55 - 64 years | 115 | 3.0 | 4 | 6.0 | 8 | 15 | 19 | 69 |
| 65 - 74 years | 45 | 1.2 | 3 | 4.5 | 5 | 4 | 5 | 28 |
| 75 years and over | 11 | 0.3 | 0 | 0.0 | 1 | 0 | 1 | 9 |
| Not Stated | 128 | 3.3 | 1 | 1.5 | 16 | 14 | 20 | 77 |
| TOTAL | 3,842 | 100.0 | 67 | 100.0 | 389 | 599 | 700 | 2,087 |

The fatal crash involvement for female drinking drivers is down 14.1 percent from 1996.

The tables on this page and the previous page exclude 396 drinking drivers of unknown gender.

FATAL CRASHES AND FATALITIES WITH DRINKING INVOLVEMENT BY COUNTY

| COUNTY | C R A S H E S | | | P E R S O N S | | |
|----------------|-------------------|-------------------|-------------|------------------|----------------|-------------|
| | All Fatal Crashes | HBD Fatal Crashes | Percent HBD | Total Fatalities | HBD Fatalities | Percent HBD |
| Alcona | 5 | 2 | 40.0 | 8 | 2 | 25.0 |
| Alger | 2 | 1 | 50.0 | 3 | 2 | 66.7 |
| Allegan | 18 | 6 | 33.3 | 21 | 7 | 33.3 |
| Alpena | 4 | 2 | 50.0 | 4 | 2 | 50.0 |
| Antrim | 5 | 3 | 60.0 | 5 | 3 | 60.0 |
| Arenac | 3 | 1 | 33.3 | 3 | 1 | 33.3 |
| Baraga | 4 | 0 | 0.0 | 7 | 0 | 0.0 |
| Barry | 9 | 3 | 33.3 | 11 | 4 | 36.4 |
| Bay | 19 | 7 | 36.8 | 22 | 8 | 36.4 |
| Benzie | 4 | 3 | 75.0 | 4 | 3 | 75.0 |
| Berrien | 26 | 11 | 42.3 | 28 | 12 | 42.9 |
| Branch | 8 | 2 | 25.0 | 8 | 2 | 25.0 |
| Calhoun | 21 | 2 | 9.5 | 24 | 2 | 8.3 |
| Cass | 11 | 5 | 45.5 | 11 | 5 | 45.5 |
| Charlevoix | 1 | 1 | 100.0 | 1 | 1 | 100.0 |
| Cheboygan | 10 | 2 | 20.0 | 14 | 2 | 14.3 |
| Chippewa | 2 | 1 | 50.0 | 2 | 1 | 50.0 |
| Clare | 12 | 4 | 33.3 | 16 | 5 | 31.3 |
| Clinton | 16 | 3 | 18.8 | 18 | 3 | 16.7 |
| Crawford | 4 | 0 | 0.0 | 4 | 0 | 0.0 |
| Delta | 6 | 0 | 0.0 | 6 | 0 | 0.0 |
| Dickinson | 8 | 6 | 75.0 | 10 | 7 | 70.0 |
| Eaton | 19 | 9 | 47.4 | 19 | 9 | 47.4 |
| Emmet | 9 | 1 | 11.1 | 11 | 1 | 9.1 |
| Genesee | 73 | 39 | 53.4 | 82 | 43 | 52.4 |
| Gladwin | 4 | 1 | 25.0 | 4 | 1 | 25.0 |
| Gogebic | 0 | 0 | 0.0 | 0 | 0 | 0.0 |
| Grand Traverse | 16 | 5 | 31.3 | 19 | 6 | 31.6 |
| Gratiot | 3 | 0 | 0.0 | 3 | 0 | 0.0 |
| Hillsdale | 9 | 2 | 22.2 | 9 | 2 | 22.2 |
| Houghton | 1 | 1 | 100.0 | 1 | 1 | 100.0 |
| Huron | 7 | 1 | 14.3 | 7 | 1 | 14.3 |
| Ingham | 15 | 4 | 26.7 | 15 | 4 | 26.7 |
| Ionia | 12 | 7 | 58.3 | 13 | 7 | 53.8 |
| Iosco | 4 | 0 | 0.0 | 4 | 0 | 0.0 |
| Iron | 4 | 1 | 25.0 | 4 | 1 | 25.0 |
| Isabella | 12 | 6 | 50.0 | 14 | 8 | 57.1 |
| Jackson | 34 | 7 | 20.6 | 47 | 8 | 17.0 |
| Kalamazoo | 20 | 13 | 65.0 | 22 | 14 | 63.6 |
| Kalkaska | 6 | 3 | 50.0 | 6 | 3 | 50.0 |
| Kent | 51 | 17 | 33.3 | 57 | 22 | 38.6 |
| Keweenaw | 1 | 1 | 100.0 | 1 | 1 | 100.0 |
| Lake | 6 | 1 | 16.7 | 6 | 1 | 16.7 |
| Lapeer | 18 | 9 | 50.0 | 19 | 10 | 52.6 |

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

| COUNTY | C R A S H E S | | | P E R S O N S | | |
|--------------|-------------------|-------------------|-------------|------------------|----------------|-------------|
| | All Fatal Crashes | HBD Fatal Crashes | Percent HBD | Total Fatalities | HBD Fatalities | Percent HBD |
| Leelanau | 2 | 0 | 0.0 | 3 | 0 | 0.0 |
| Lenawee | 23 | 7 | 30.4 | 29 | 10 | 34.5 |
| Livingston | 14 | 6 | 42.9 | 14 | 6 | 42.9 |
| Luce | 2 | 1 | 50.0 | 2 | 1 | 50.0 |
| Mackinac | 2 | 0 | 0.0 | 2 | 0 | 0.0 |
| Macomb | 57 | 25 | 43.9 | 58 | 26 | 44.8 |
| Manistee | 1 | 1 | 100.0 | 1 | 1 | 100.0 |
| Marquette | 9 | 6 | 66.7 | 12 | 6 | 50.0 |
| Mason | 4 | 1 | 25.0 | 5 | 2 | 40.0 |
| Mecosta | 14 | 6 | 42.9 | 19 | 8 | 42.1 |
| Menominee | 2 | 1 | 50.0 | 2 | 1 | 50.0 |
| Midland | 16 | 5 | 31.3 | 18 | 5 | 27.8 |
| Missaukee | 1 | 0 | 0.0 | 2 | 0 | 0.0 |
| Monroe | 28 | 11 | 39.3 | 29 | 12 | 41.4 |
| Montcalm | 17 | 9 | 52.9 | 20 | 12 | 60.0 |
| Montmorency | 0 | 0 | 0.0 | 0 | 0 | 0.0 |
| Muskegon | 22 | 8 | 36.4 | 23 | 9 | 39.1 |
| Newaygo | 20 | 5 | 25.0 | 23 | 6 | 26.1 |
| Oakland | 81 | 27 | 33.3 | 93 | 34 | 36.6 |
| Oceana | 6 | 3 | 50.0 | 6 | 3 | 50.0 |
| Ogemaw | 9 | 3 | 33.3 | 9 | 3 | 33.3 |
| Ontonagon | 1 | 1 | 100.0 | 1 | 1 | 100.0 |
| Osceola | 5 | 3 | 60.0 | 7 | 4 | 57.1 |
| Oscoda | 2 | 1 | 50.0 | 2 | 1 | 50.0 |
| Otsego | 4 | 2 | 50.0 | 4 | 2 | 50.0 |
| Ottawa | 25 | 8 | 32.0 | 27 | 9 | 33.3 |
| Presque Isle | 5 | 1 | 20.0 | 6 | 2 | 33.3 |
| Roscommon | 5 | 2 | 40.0 | 8 | 2 | 25.0 |
| Saginaw | 21 | 10 | 47.6 | 26 | 11 | 42.3 |
| St. Clair | 25 | 8 | 32.0 | 29 | 10 | 34.5 |
| St. Joseph | 16 | 5 | 31.3 | 21 | 8 | 38.1 |
| Sanilac | 11 | 3 | 27.3 | 12 | 3 | 25.0 |
| Schoolcraft | 1 | 0 | 0.0 | 1 | 0 | 0.0 |
| Shiawassee | 12 | 6 | 50.0 | 12 | 6 | 50.0 |
| Tuscola | 6 | 2 | 33.3 | 6 | 2 | 33.3 |
| Van Buren | 17 | 7 | 41.2 | 17 | 7 | 41.2 |
| Washtenaw | 36 | 13 | 36.1 | 39 | 14 | 35.9 |
| Wayne | 235 | 89 | 37.9 | 261 | 100 | 38.3 |
| Wexford | 4 | 2 | 50.0 | 4 | 2 | 50.0 |
| Totals | 1,283 | 481 | 37.5 | 1,446 | 544 | 37.6 |

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.

MOST SEVERE OUTCOME IN HBD CRASH

| COUNTY | All HBD Crashes | Fatal | Injury | | | PDO |
|----------------|-----------------|-------|--------|-----|-----|-----|
| | | | A | B | C | |
| Alcona | 47 | 2 | 12 | 6 | 3 | 24 |
| Alger | 33 | 1 | 4 | 8 | 4 | 16 |
| Allegan | 287 | 6 | 43 | 53 | 36 | 149 |
| Alpena | 64 | 2 | 6 | 10 | 6 | 40 |
| Antrim | 62 | 3 | 7 | 12 | 8 | 32 |
| Arenac | 65 | 1 | 7 | 11 | 7 | 39 |
| Baraga | 21 | 0 | 3 | 6 | 1 | 11 |
| Barry | 137 | 3 | 20 | 31 | 19 | 64 |
| Bay | 358 | 7 | 35 | 67 | 45 | 204 |
| Benzie | 42 | 3 | 8 | 5 | 11 | 15 |
| Berrien | 327 | 11 | 30 | 60 | 60 | 166 |
| Branch | 81 | 2 | 11 | 12 | 11 | 45 |
| Calhoun | 344 | 2 | 37 | 55 | 48 | 202 |
| Cass | 138 | 5 | 24 | 23 | 10 | 76 |
| Charlevoix | 52 | 1 | 7 | 8 | 5 | 31 |
| Cheboygan | 71 | 2 | 4 | 17 | 17 | 31 |
| Chippewa | 102 | 1 | 17 | 16 | 7 | 61 |
| Clare | 64 | 4 | 5 | 11 | 14 | 30 |
| Clinton | 126 | 3 | 11 | 25 | 19 | 68 |
| Crawford | 38 | 0 | 12 | 3 | 0 | 23 |
| Delta | 85 | 0 | 11 | 13 | 13 | 48 |
| Dickinson | 61 | 6 | 7 | 10 | 9 | 29 |
| Eaton | 211 | 9 | 26 | 35 | 27 | 114 |
| Emmet | 61 | 1 | 7 | 10 | 8 | 35 |
| Genesee | 1,346 | 39 | 81 | 269 | 241 | 716 |
| Gladwin | 59 | 1 | 9 | 8 | 9 | 32 |
| Gogebic | 37 | 0 | 2 | 3 | 6 | 26 |
| Grand Traverse | 140 | 5 | 12 | 21 | 29 | 73 |
| Gratiot | 59 | 0 | 6 | 10 | 8 | 35 |
| Hillsdale | 73 | 2 | 11 | 14 | 14 | 32 |
| Houghton | 68 | 1 | 9 | 9 | 4 | 45 |
| Huron | 62 | 1 | 7 | 8 | 7 | 39 |
| Ingham | 574 | 4 | 71 | 87 | 98 | 314 |
| Ionia | 156 | 7 | 24 | 23 | 20 | 82 |
| Iosco | 82 | 0 | 8 | 15 | 13 | 46 |
| Iron | 44 | 1 | 7 | 7 | 4 | 25 |
| Isabella | 115 | 6 | 13 | 25 | 12 | 59 |
| Jackson | 398 | 7 | 36 | 65 | 79 | 211 |
| Kalamazoo | 433 | 13 | 48 | 80 | 55 | 237 |
| Kalkaska | 61 | 3 | 13 | 8 | 8 | 29 |
| Kent | 1,073 | 17 | 114 | 160 | 174 | 608 |
| Keweenaw | 8 | 1 | 0 | 1 | 0 | 6 |

MOST SEVERE OUTCOME IN HBD CRASHES BY COUNTY (continued)

MOST SEVERE OUTCOME IN HBD CRASH

| COUNTY | All HBD Crashes | Fatal | Injury | | | PDO |
|--------------|-----------------|-------|--------|-------|-------|--------|
| | | | A | B | C | |
| Lake | 30 | 1 | 4 | 5 | 5 | 15 |
| Lapeer | 186 | 9 | 28 | 32 | 28 | 89 |
| Leelanau | 36 | 0 | 5 | 7 | 3 | 21 |
| Lenawee | 195 | 7 | 16 | 33 | 32 | 107 |
| Livingston | 329 | 6 | 53 | 76 | 44 | 150 |
| Luce | 10 | 1 | 2 | 3 | 1 | 3 |
| Mackinac | 50 | 0 | 7 | 9 | 8 | 26 |
| Macomb | 1,557 | 25 | 145 | 243 | 309 | 835 |
| Manistee | 62 | 1 | 6 | 16 | 5 | 34 |
| Marquette | 137 | 6 | 16 | 27 | 16 | 72 |
| Mason | 53 | 1 | 6 | 8 | 9 | 29 |
| Mecosta | 118 | 6 | 11 | 28 | 9 | 64 |
| Menominee | 69 | 1 | 10 | 16 | 6 | 36 |
| Midland | 109 | 5 | 11 | 19 | 16 | 58 |
| Missaukee | 24 | 0 | 4 | 5 | 7 | 8 |
| Monroe | 351 | 11 | 37 | 67 | 45 | 191 |
| Montcalm | 187 | 9 | 26 | 33 | 17 | 102 |
| Montmorency | 24 | 0 | 2 | 4 | 1 | 17 |
| Muskegon | 283 | 8 | 35 | 55 | 42 | 143 |
| Newaygo | 125 | 5 | 22 | 19 | 18 | 61 |
| Oakland | 2,132 | 27 | 196 | 330 | 423 | 1156 |
| Oceana | 84 | 3 | 8 | 12 | 6 | 55 |
| Ogemaw | 65 | 3 | 8 | 11 | 12 | 31 |
| Ontonagon | 31 | 1 | 3 | 3 | 3 | 21 |
| Osceola | 52 | 3 | 5 | 7 | 6 | 31 |
| Oscoda | 20 | 1 | 2 | 3 | 3 | 11 |
| Otsego | 51 | 2 | 10 | 10 | 6 | 23 |
| Ottawa | 316 | 8 | 35 | 35 | 61 | 177 |
| Presque Isle | 30 | 1 | 6 | 7 | 2 | 14 |
| Roscommon | 86 | 2 | 10 | 9 | 8 | 57 |
| Saginaw | 499 | 10 | 74 | 79 | 65 | 271 |
| St. Clair | 378 | 8 | 53 | 55 | 52 | 210 |
| St. Joseph | 156 | 5 | 23 | 23 | 21 | 84 |
| Sanilac | 93 | 3 | 11 | 10 | 13 | 56 |
| Schoolcraft | 36 | 0 | 5 | 7 | 1 | 23 |
| Shiawassee | 146 | 6 | 15 | 34 | 24 | 67 |
| Tuscola | 141 | 2 | 14 | 25 | 12 | 88 |
| Van Buren | 220 | 7 | 27 | 36 | 38 | 112 |
| Washtenaw | 536 | 13 | 45 | 93 | 107 | 278 |
| Wayne | 3,419 | 89 | 322 | 517 | 701 | 1790 |
| Wexford | 93 | 2 | 11 | 10 | 21 | 49 |
| Unknown | 6 | 0 | 0 | 3 | 2 | 1 |
| Totals | 20,190 | 481 | 2,154 | 3,344 | 3,377 | 10,834 |

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

| COUNTY | 1997 Population Estimate | All Crashes | Fatal Crashes | HBD Crashes | HBD Fatal Crashes | HBD Fatal Crash Rate per 1,000 people | Rank |
|----------------|--------------------------------|----------------|------------------|----------------|----------------------|---|------|
| Keweenaw | 2,078 | 79 | 1 | 8 | 1 | 0.4812 | 1 |
| Dickinson | 27,062 | 1,523 | 8 | 61 | 6 | 0.2217 | 2 |
| Benzie | 14,290 | 669 | 4 | 42 | 3 | 0.2099 | 3 |
| Kalkaska | 15,451 | 867 | 6 | 61 | 3 | 0.1942 | 4 |
| Alcona | 10,980 | 989 | 5 | 47 | 2 | 0.1821 | 5 |
| Mecosta | 39,178 | 2,891 | 14 | 118 | 6 | 0.1531 | 6 |
| Luce | 6,584 | 329 | 2 | 10 | 1 | 0.1519 | 7 |
| Montcalm | 59,647 | 3,394 | 17 | 187 | 9 | 0.1509 | 8 |
| Ogemaw | 20,955 | 1,310 | 9 | 65 | 3 | 0.1432 | 9 |
| Antrim | 20,975 | 1,102 | 5 | 62 | 3 | 0.1430 | 10 |
| Clare | 29,011 | 1,666 | 12 | 64 | 4 | 0.1379 | 11 |
| Osceola | 22,028 | 1,662 | 5 | 52 | 3 | 0.1362 | 12 |
| Ontonagon | 8,117 | 572 | 1 | 31 | 1 | 0.1232 | 13 |
| Oceana | 24,599 | 1,252 | 6 | 84 | 3 | 0.1220 | 14 |
| Ionia | 61,112 | 2,878 | 12 | 156 | 7 | 0.1145 | 15 |
| Oscoda | 8,844 | 535 | 2 | 20 | 1 | 0.1131 | 16 |
| Newaygo | 45,059 | 2,218 | 20 | 125 | 5 | 0.1110 | 17 |
| Isabella | 57,623 | 2,904 | 12 | 115 | 6 | 0.1041 | 18 |
| Lapeer | 86,893 | 3,839 | 18 | 186 | 9 | 0.1036 | 19 |
| Alger | 9,958 | 471 | 2 | 33 | 1 | 0.1004 | 20 |
| Cass | 49,967 | 2,062 | 11 | 138 | 5 | 0.1001 | 21 |
| Lake | 10,153 | 657 | 6 | 30 | 1 | 0.0985 | 22 |
| Marquette | 61,792 | 2,765 | 9 | 137 | 6 | 0.0971 | 23 |
| Van Buren | 75,686 | 3,112 | 17 | 220 | 7 | 0.0925 | 24 |
| Otsego | 21,800 | 1,163 | 4 | 51 | 2 | 0.0917 | 25 |
| Eaton | 100,173 | 4,605 | 19 | 211 | 9 | 0.0898 | 26 |
| Genesee | 435,393 | 16,330 | 73 | 1,346 | 39 | 0.0896 | 27 |
| Roscommon | 23,174 | 1,279 | 5 | 86 | 2 | 0.0863 | 28 |
| Cheboygan | 23,535 | 1,132 | 10 | 71 | 2 | 0.0850 | 29 |
| Shiawassee | 72,236 | 2,640 | 12 | 146 | 6 | 0.0831 | 30 |
| St. Joseph | 61,234 | 2,607 | 16 | 156 | 5 | 0.0817 | 31 |
| Monroe | 142,301 | 4,969 | 28 | 351 | 11 | 0.0773 | 32 |
| Iron | 13,067 | 897 | 4 | 44 | 1 | 0.0765 | 33 |
| Lenawee | 97,998 | 3,809 | 23 | 195 | 7 | 0.0714 | 34 |
| Sanilac | 42,736 | 2,038 | 11 | 93 | 3 | 0.0702 | 35 |
| Presque Isle | 14,392 | 770 | 5 | 30 | 1 | 0.0695 | 36 |
| Wexford | 29,147 | 1,894 | 4 | 93 | 2 | 0.0686 | 37 |
| Berrien | 160,713 | 5,995 | 26 | 327 | 11 | 0.0684 | 38 |
| Grand Traverse | 73,161 | 3,746 | 16 | 140 | 5 | 0.0683 | 39 |
| Alpena | 30,638 | 1,429 | 4 | 64 | 2 | 0.0653 | 40 |
| Bay | 110,423 | 4,329 | 19 | 358 | 7 | 0.0634 | 41 |
| Midland | 81,248 | 3,232 | 16 | 109 | 5 | 0.0615 | 42 |
| Arenac | 16,411 | 1,108 | 3 | 65 | 1 | 0.0609 | 43 |
| Allegan | 100,585 | 4,064 | 18 | 287 | 6 | 0.0597 | 44 |
| Kalamazoo | 229,192 | 9,748 | 20 | 433 | 13 | 0.0567 | 45 |

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

| COUNTY | 1997 Population Estimate | All Crashes | Fatal Crashes | HBD Crashes | HBD Fatal Crashes | HBD Fatal Crash Rate per 1,000 people | Rank |
|---------------------|--------------------------------|----------------|------------------|----------------|----------------------|---|------|
| Barry | 53,533 | 2,598 | 9 | 137 | 3 | 0.0560 | 46 |
| St. Clair | 157,704 | 5,704 | 25 | 378 | 8 | 0.0507 | 47 |
| Muskegon | 165,882 | 6,180 | 22 | 283 | 8 | 0.0482 | 48 |
| Clinton | 63,087 | 2,890 | 16 | 126 | 3 | 0.0476 | 49 |
| Saginaw | 211,278 | 8,967 | 21 | 499 | 10 | 0.0473 | 50 |
| Branch | 43,628 | 2,239 | 8 | 81 | 2 | 0.0458 | 51 |
| Jackson | 155,346 | 7,439 | 34 | 398 | 7 | 0.0451 | 52 |
| Washtenaw | 299,503 | 12,671 | 36 | 536 | 13 | 0.0434 | 53 |
| Hillsdale | 46,240 | 2,347 | 9 | 73 | 2 | 0.0433 | 54 |
| Manistee | 23,179 | 1,155 | 1 | 62 | 1 | 0.0431 | 55 |
| Charlevoix | 23,630 | 1,299 | 1 | 52 | 1 | 0.0423 | 56 |
| Livingston | 141,914 | 5,758 | 14 | 329 | 6 | 0.0423 | 57 |
| Wayne | 2,127,087 | 92,962 | 235 | 3,419 | 89 | 0.0418 | 58 |
| Menominee | 24,443 | 1,743 | 2 | 69 | 1 | 0.0409 | 59 |
| Gladwin | 24,879 | 1,195 | 4 | 59 | 1 | 0.0402 | 60 |
| Ottawa | 220,403 | 7,968 | 25 | 316 | 8 | 0.0363 | 61 |
| Mason | 27,854 | 1,773 | 4 | 53 | 1 | 0.0359 | 62 |
| Emmet | 28,339 | 1,782 | 9 | 61 | 1 | 0.0353 | 63 |
| Tuscola | 58,087 | 2,349 | 6 | 141 | 2 | 0.0344 | 64 |
| Macomb | 783,451 | 28,245 | 57 | 1,557 | 25 | 0.0319 | 65 |
| Kent | 539,425 | 25,094 | 51 | 1,073 | 17 | 0.0315 | 66 |
| Huron | 35,270 | 2,074 | 7 | 62 | 1 | 0.0284 | 67 |
| Houghton | 35,810 | 1,320 | 1 | 68 | 1 | 0.0279 | 68 |
| Chippewa | 37,900 | 1,656 | 2 | 102 | 1 | 0.0264 | 69 |
| Oakland | 1,166,512 | 49,330 | 81 | 2,132 | 27 | 0.0231 | 70 |
| Calhoun | 141,821 | 7,142 | 21 | 344 | 2 | 0.0141 | 71 |
| Ingham | 284,089 | 12,930 | 15 | 574 | 4 | 0.0141 | 72 |
| Baraga | 8,448 | 493 | 4 | 21 | 0 | 0.0000 | 73 |
| Crawford | 13,880 | 870 | 4 | 38 | 0 | 0.0000 | 74 |
| Delta | 38,801 | 2,465 | 6 | 85 | 0 | 0.0000 | 75 |
| Gogebic | 17,439 | 645 | 0 | 37 | 0 | 0.0000 | 76 |
| Gratiot | 40,024 | 1,830 | 3 | 59 | 0 | 0.0000 | 77 |
| Iosco | 25,129 | 1,346 | 4 | 82 | 0 | 0.0000 | 78 |
| Leelanau | 18,755 | 714 | 2 | 36 | 0 | 0.0000 | 79 |
| Mackinac | 11,113 | 1,008 | 2 | 50 | 0 | 0.0000 | 80 |
| Missaukee | 13,682 | 815 | 1 | 24 | 0 | 0.0000 | 81 |
| Montmorency | 9,980 | 543 | 0 | 24 | 0 | 0.0000 | 82 |
| Schoolcraft | 8,748 | 603 | 1 | 36 | 0 | 0.0000 | 83 |
| Unknown | | 121 | 0 | 6 | 0 | | |
| State Totals | 9,773,892 | 425,793 | 1,283 | 20,190 | 481 | 0.04921 | |

ALCOHOL

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 | 47 | 2 | 21 | 24 | 0 | 6 | 5 | 36 | 2 | 28 |
| Alger | 33 | 1 | 16 | 16 | 0 | 1 | 7 | 25 | 2 | 21 |
| Allegan | 287 | 6 | 132 | 149 | 7 | 16 | 26 | 238 | 7 | 199 |
| Alpena | 64 | 2 | 22 | 40 | 0 | 8 | 9 | 47 | 2 | 36 |
| Antrim | 62 | 3 | 27 | 32 | 0 | 8 | 12 | 42 | 3 | 43 |
| Arenac | 65 | 1 | 25 | 39 | 3 | 11 | 2 | 49 | 1 | 44 |
| Baraga | 21 | 0 | 10 | 11 | 0 | 4 | 1 | 16 | 0 | 17 |
| Barry | 137 | 3 | 70 | 64 | 0 | 0 | 33 | 104 | 4 | 99 |
| Bay | 358 | 7 | 147 | 204 | 15 | 9 | 75 | 259 | 8 | 220 |
| Benzie | 42 | 3 | 24 | 15 | 0 | 6 | 5 | 31 | 3 | 36 |
| Berrien | 327 | 11 | 150 | 166 | 43 | 35 | 38 | 211 | 12 | 238 |
| Branch | 81 | 2 | 34 | 45 | 8 | 6 | 6 | 61 | 2 | 48 |
| Calhoun | 344 | 2 | 140 | 202 | 49 | 5 | 36 | 254 | 2 | 194 |
| Cass | 138 | 5 | 57 | 76 | 0 | 13 | 34 | 91 | 5 | 88 |
| Charlevoix | 52 | 1 | 20 | 31 | 0 | 6 | 11 | 35 | 1 | 35 |
| Cheboygan | 71 | 2 | 38 | 31 | 4 | 4 | 9 | 54 | 2 | 51 |
| Chippewa | 102 | 1 | 40 | 61 | 12 | 0 | 17 | 73 | 1 | 55 |
| Clare | 64 | 4 | 30 | 30 | 0 | 11 | 12 | 41 | 5 | 49 |
| Clinton | 126 | 3 | 55 | 68 | 13 | 14 | 4 | 95 | 3 | 76 |
| Crawford | 38 | 0 | 15 | 23 | 6 | 0 | 4 | 28 | 0 | 24 |
| Delta | 85 | 0 | 37 | 48 | 0 | 22 | 15 | 48 | 0 | 53 |
| Dickinson | 61 | 6 | 26 | 29 | 0 | 15 | 12 | 34 | 7 | 40 |
| Eaton | 211 | 9 | 88 | 114 | 24 | 8 | 49 | 130 | 9 | 142 |
| Emmet | 61 | 1 | 25 | 35 | 0 | 11 | 3 | 47 | 1 | 41 |
| Genesee | 1,346 | 39 | 591 | 716 | 121 | 30 | 194 | 1,001 | 43 | 894 |
| Gladwin | 59 | 1 | 26 | 32 | 0 | 0 | 13 | 46 | 1 | 42 |
| Gogebic | 37 | 0 | 11 | 26 | 0 | 14 | 1 | 22 | 0 | 14 |
| Grand Traverse | 140 | 5 | 62 | 73 | 0 | 28 | 13 | 99 | 6 | 105 |
| Gratiot | 59 | 0 | 24 | 35 | 0 | 17 | 7 | 35 | 0 | 30 |
| Hillsdale | 73 | 2 | 39 | 32 | 0 | 2 | 6 | 65 | 2 | 56 |
| Houghton | 68 | 1 | 22 | 45 | 0 | 15 | 10 | 43 | 1 | 29 |
| Huron | 62 | 1 | 22 | 39 | 0 | 0 | 16 | 46 | 1 | 30 |
| Ingham | 574 | 4 | 256 | 314 | 103 | 12 | 92 | 367 | 4 | 369 |
| Ionia | 156 | 7 | 67 | 82 | 17 | 0 | 31 | 108 | 7 | 107 |
| Iosco | 82 | 0 | 36 | 46 | 0 | 12 | 10 | 60 | 0 | 42 |
| Iron | 44 | 1 | 18 | 25 | 0 | 4 | 10 | 30 | 1 | 20 |
| Isabella | 115 | 6 | 50 | 59 | 0 | 13 | 14 | 88 | 8 | 88 |
| Jackson | 398 | 7 | 180 | 211 | 58 | 9 | 47 | 284 | 8 | 264 |
| Kalamazoo | 433 | 13 | 183 | 237 | 30 | 29 | 40 | 334 | 14 | 250 |
| Kalkaska | 61 | 3 | 29 | 29 | 0 | 8 | 8 | 45 | 3 | 57 |
| Kent | 1,073 | 17 | 448 | 608 | 52 | 93 | 130 | 798 | 22 | 672 |
| Keweenaw | 8 | 1 | 1 | 6 | 0 | 1 | 1 | 6 | 1 | 1 |
| Lake | 30 | 1 | 14 | 15 | 0 | 3 | 3 | 24 | 1 | 22 |
| Lapeer | 186 | 9 | 88 | 89 | 9 | 0 | 53 | 124 | 10 | 154 |
| Leelanau | 36 | 0 | 15 | 21 | 0 | 0 | 7 | 29 | 0 | 22 |
| Lenawee | 195 | 7 | 81 | 107 | 0 | 40 | 19 | 136 | 10 | 120 |

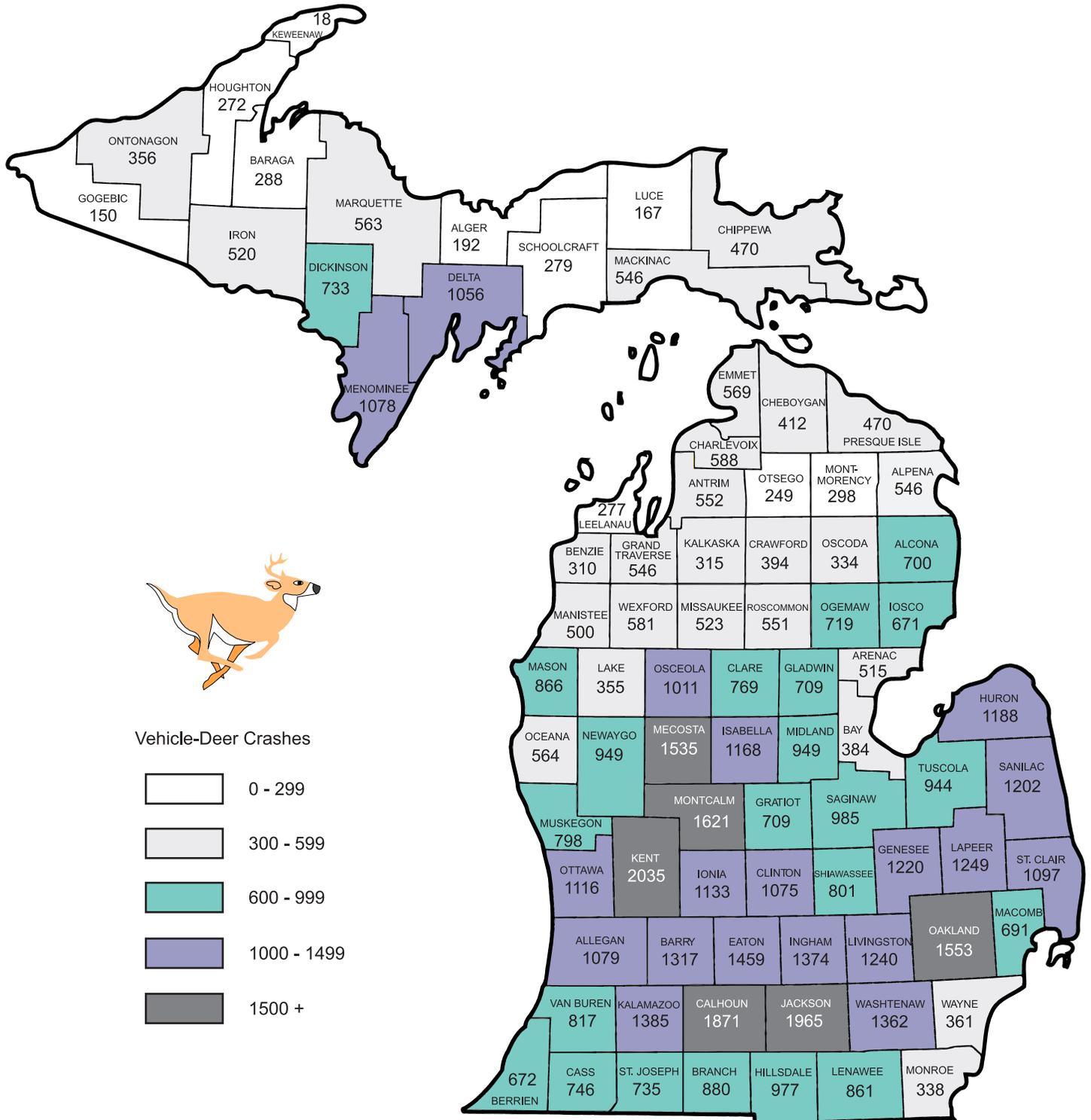
REPORTED STATEWIDE ALCOHOL INVOLVED TRAFFIC CRASHES BY COUNTY IN MICHIGAN (Continued)

| COUNTY | All | Fatal | Injury | Property Damage | Inter- state | US Route | State Route | Local Street | Persons Killed | Persons Injured |
|--------------|--------|-------|--------|--------------------|-----------------|-------------|----------------|-----------------|-------------------|--------------------|
| Livingston | 329 | 6 | 173 | 150 | 70 | 18 | 24 | 217 | 6 | 246 |
| Luce | 10 | 1 | 6 | 3 | 0 | 0 | 3 | 7 | 1 | 11 |
| Mackinac | 50 | 0 | 24 | 26 | 12 | 2 | 6 | 30 | 0 | 30 |
| Macomb | 1,557 | 25 | 697 | 835 | 123 | 0 | 411 | 1,023 | 26 | 1,065 |
| Manistee | 62 | 1 | 27 | 34 | 0 | 8 | 15 | 39 | 1 | 35 |
| Marquette | 137 | 6 | 59 | 72 | 0 | 31 | 12 | 94 | 6 | 79 |
| Mason | 53 | 1 | 23 | 29 | 0 | 13 | 3 | 37 | 2 | 34 |
| Mecosta | 118 | 6 | 48 | 64 | 0 | 21 | 14 | 83 | 8 | 79 |
| Menominee | 69 | 1 | 32 | 36 | 0 | 23 | 6 | 40 | 1 | 49 |
| Midland | 109 | 5 | 46 | 58 | 0 | 12 | 18 | 79 | 5 | 61 |
| Missaukee | 24 | 0 | 16 | 8 | 0 | 0 | 9 | 15 | 0 | 19 |
| Monroe | 351 | 11 | 149 | 191 | 32 | 42 | 33 | 244 | 12 | 232 |
| Montcalm | 187 | 9 | 76 | 102 | 0 | 8 | 46 | 133 | 12 | 117 |
| Montmorency | 24 | 0 | 7 | 17 | 0 | 0 | 5 | 19 | 0 | 9 |
| Muskegon | 283 | 8 | 132 | 143 | 1 | 45 | 26 | 211 | 9 | 202 |
| Newaygo | 125 | 5 | 59 | 61 | 0 | 0 | 22 | 103 | 6 | 84 |
| Oakland | 2,132 | 27 | 949 | 1,156 | 307 | 100 | 296 | 1,429 | 34 | 1,397 |
| Oceana | 84 | 3 | 26 | 55 | 0 | 11 | 7 | 66 | 3 | 41 |
| Ogemaw | 65 | 3 | 31 | 31 | 9 | 0 | 7 | 49 | 3 | 52 |
| Ontonagon | 31 | 1 | 9 | 21 | 0 | 3 | 8 | 20 | 1 | 11 |
| Osceola | 52 | 3 | 18 | 31 | 0 | 15 | 5 | 32 | 4 | 28 |
| Oscoda | 20 | 1 | 8 | 11 | 0 | 0 | 6 | 14 | 1 | 12 |
| Otsego | 51 | 2 | 26 | 23 | 14 | 0 | 6 | 31 | 2 | 39 |
| Ottawa | 316 | 8 | 131 | 177 | 15 | 39 | 24 | 238 | 9 | 205 |
| Presque Isle | 30 | 1 | 15 | 14 | 0 | 2 | 4 | 24 | 2 | 20 |
| Roscommon | 86 | 2 | 27 | 57 | 10 | 2 | 17 | 57 | 2 | 39 |
| Saginaw | 499 | 10 | 218 | 271 | 29 | 0 | 116 | 354 | 11 | 328 |
| St. Clair | 378 | 8 | 160 | 210 | 42 | 0 | 58 | 278 | 10 | 261 |
| St. Joseph | 156 | 5 | 67 | 84 | 0 | 26 | 19 | 111 | 8 | 109 |
| Sanilac | 93 | 3 | 34 | 56 | 0 | 0 | 29 | 64 | 3 | 49 |
| Schoolcraft | 36 | 0 | 13 | 23 | 1 | 1 | 3 | 31 | 0 | 15 |
| Shiawassee | 146 | 6 | 73 | 67 | 9 | 1 | 23 | 113 | 6 | 110 |
| Tuscola | 141 | 2 | 51 | 88 | 0 | 0 | 31 | 110 | 2 | 77 |
| Van Buren | 220 | 7 | 101 | 112 | 30 | 0 | 30 | 160 | 7 | 154 |
| Washtenaw | 536 | 13 | 245 | 278 | 57 | 68 | 29 | 382 | 14 | 355 |
| Wayne | 3,419 | 89 | 1,540 | 1,790 | 507 | 222 | 440 | 2,250 | 100 | 2,466 |
| Wexford | 93 | 2 | 42 | 49 | 0 | 18 | 18 | 57 | 2 | 70 |
| UNKNOWN | 6 | 0 | 5 | 1 | 0 | 0 | 0 | 6 | 0 | 6 |
| Totals | 20,190 | 481 | 8,875 | 10,834 | 1,842 | 1,280 | 2,979 | 14,089 | 544 | 13,461 |

MICHIGAN MOTOR VEHICLE-DEER INVOLVED/ASSOCIATED CRASHES

Michigan had 65,451 reported motor vehicle-deer crashes during 1997. 2,226 people were injured and 3 people were killed as a result of those collisions. 64.6 percent of the vehicles were passenger cars.

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 2,035 such crashes in 1997.



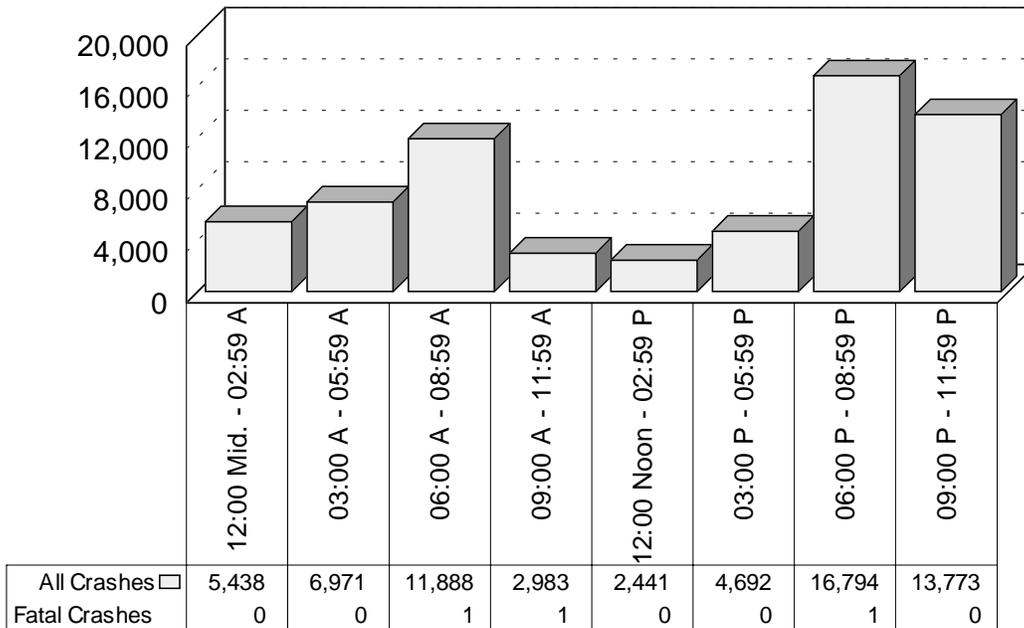


LIGHT CONDITION AND TIME OF DAY IN MOTOR VEHICLE-DEER CRASHES

| LIGHT CONDITION | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|------------------|---------------|--------------|---------------|--------------|----------------|------------|--------------|---------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Daylight | 12,742 | 19.5 | 2 | 66.7 | 49 | 211 | 325 | 12,155 |
| Dawn | 5,257 | 8.0 | 0 | 0.0 | 6 | 31 | 83 | 5,137 |
| Dusk | 3,400 | 5.2 | 0 | 0.0 | 8 | 36 | 45 | 3,311 |
| Dark - Lighted | 1,978 | 3.0 | 0 | 0.0 | 2 | 11 | 28 | 1,937 |
| Dark - Unlighted | 41,447 | 63.3 | 1 | 33.3 | 80 | 298 | 677 | 40,391 |
| Other/Unknown | 627 | 1.0 | 0 | 0.0 | 0 | 2 | 7 | 618 |
| Totals | 65,451 | 100.0 | 3 | 100.0 | 145 | 589 | 1,165 | 63,549 |

Two of the three fatal deer crashes in Michigan in 1997 occurred in daylight conditions. All motor vehicle-deer involved/associated crashes peaked during the 6:00 - 8:59 PM time period. There was 1 fatal deer crash during this time period.

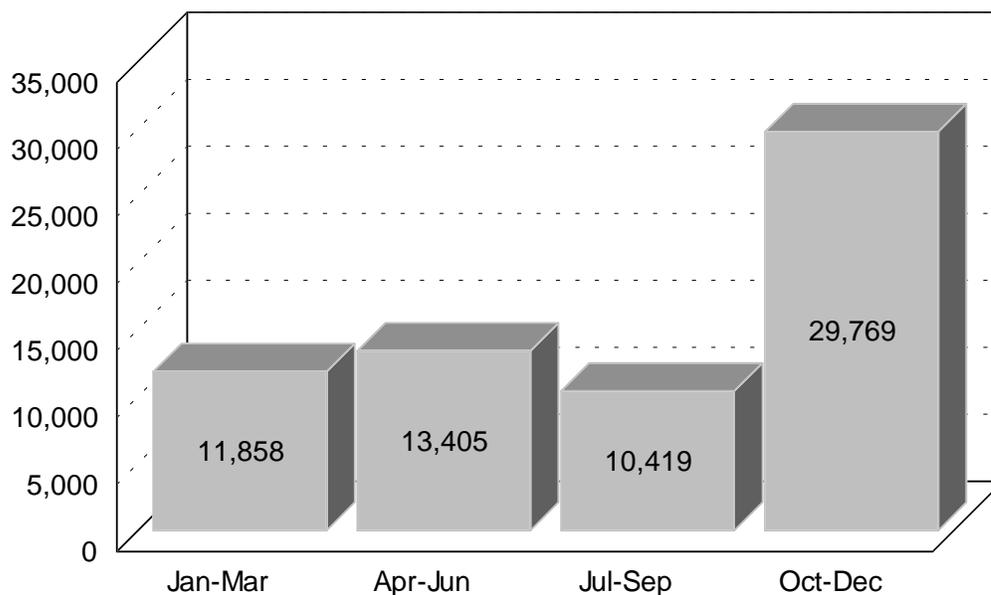
Time and Severity of All Motor Vehicle-Deer Crashes



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 | 4,321 | 6.6 | 0 | 0.0 | 3 | 12 | 49 | 4,257 |
| February | 3,584 | 5.5 | 0 | 0.0 | 2 | 12 | 46 | 3,524 |
| March | 3,953 | 6.0 | 0 | 0.0 | 3 | 12 | 53 | 3,885 |
| April | 4,075 | 6.2 | 0 | 0.0 | 9 | 22 | 77 | 3,967 |
| May | 4,404 | 6.7 | 0 | 0.0 | 14 | 49 | 107 | 4,234 |
| June | 4,926 | 7.5 | 0 | 0.0 | 26 | 67 | 121 | 4,712 |
| July | 3,705 | 5.7 | 0 | 0.0 | 16 | 65 | 86 | 3,538 |
| August | 2,805 | 4.3 | 2 | 66.7 | 15 | 54 | 65 | 2,669 |
| September | 3,909 | 6.0 | 0 | 0.0 | 15 | 53 | 71 | 3,770 |
| October | 9,533 | 14.6 | 0 | 0.0 | 17 | 100 | 171 | 9,245 |
| November | 12,499 | 19.1 | 1 | 33.3 | 18 | 93 | 206 | 12,181 |
| December | 7,737 | 11.8 | 0 | 0.0 | 7 | 50 | 113 | 7,567 |
| Totals | 65,451 | 100.0 | 3 | 100.0 | 145 | 589 | 1,165 | 63,549 |

All Motor Vehicle-Deer Crashes



Crashes involving deer occurred most frequently during the second quarter (20.5%) and the fourth quarter (45.5%) of the year for a total of 66 percent of all reported motor vehicle-deer collisions.



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 | 700 | 0 | 13 | 687 | 0 | 122 | 158 | 420 | 0 | 15 |
| Alger | 192 | 0 | 7 | 185 | 0 | 17 | 88 | 87 | 0 | 8 |
| Allegan | 1,079 | 0 | 35 | 1,044 | 72 | 67 | 197 | 743 | 0 | 41 |
| Alpena | 546 | 0 | 5 | 541 | 0 | 84 | 118 | 344 | 0 | 5 |
| Antrim | 552 | 0 | 11 | 541 | 0 | 101 | 136 | 315 | 0 | 15 |
| Arenac | 515 | 0 | 18 | 497 | 48 | 121 | 32 | 314 | 0 | 20 |
| Baraga | 288 | 0 | 6 | 282 | 0 | 109 | 54 | 125 | 0 | 7 |
| Barry | 1,317 | 0 | 41 | 1,276 | 0 | 0 | 465 | 852 | 0 | 47 |
| Bay | 384 | 0 | 17 | 367 | 17 | 20 | 69 | 278 | 0 | 24 |
| Benzie | 310 | 0 | 6 | 304 | 0 | 78 | 49 | 183 | 0 | 7 |
| Berrien | 672 | 0 | 23 | 649 | 113 | 100 | 60 | 399 | 0 | 25 |
| Branch | 880 | 0 | 34 | 846 | 97 | 90 | 41 | 652 | 0 | 38 |
| Calhoun | 1,871 | 0 | 46 | 1,825 | 244 | 0 | 311 | 1,316 | 0 | 56 |
| Cass | 746 | 0 | 23 | 723 | 0 | 51 | 234 | 461 | 0 | 25 |
| Charlevoix | 588 | 0 | 12 | 576 | 0 | 170 | 116 | 302 | 0 | 18 |
| Cheboygan | 412 | 0 | 13 | 399 | 54 | 33 | 100 | 225 | 0 | 15 |
| Chippewa | 470 | 0 | 17 | 453 | 47 | 0 | 196 | 227 | 0 | 20 |
| Clare | 769 | 0 | 17 | 752 | 0 | 166 | 148 | 455 | 0 | 24 |
| Clinton | 1,075 | 0 | 22 | 1,053 | 125 | 142 | 73 | 735 | 0 | 24 |
| Crawford | 394 | 0 | 7 | 387 | 46 | 9 | 128 | 211 | 0 | 7 |
| Delta | 1,056 | 0 | 19 | 1,037 | 0 | 284 | 169 | 603 | 0 | 22 |
| Dickinson | 733 | 0 | 8 | 725 | 0 | 203 | 228 | 302 | 0 | 12 |
| Eaton | 1,459 | 0 | 33 | 1,426 | 169 | 45 | 382 | 863 | 0 | 38 |
| Emmet | 569 | 0 | 14 | 555 | 4 | 129 | 69 | 367 | 0 | 16 |
| Genesee | 1,220 | 0 | 42 | 1,178 | 119 | 31 | 156 | 914 | 0 | 47 |
| Gladwin | 709 | 0 | 17 | 692 | 0 | 0 | 262 | 447 | 0 | 21 |
| Gogebic | 150 | 0 | 8 | 142 | 0 | 87 | 14 | 49 | 0 | 10 |
| Grand Traverse | 546 | 0 | 8 | 538 | 0 | 50 | 100 | 396 | 0 | 12 |
| Gratiot | 709 | 1 | 13 | 695 | 0 | 121 | 135 | 453 | 1 | 15 |
| Hillsdale | 977 | 0 | 33 | 944 | 0 | 86 | 193 | 698 | 0 | 38 |
| Houghton | 272 | 0 | 5 | 267 | 0 | 78 | 75 | 119 | 0 | 5 |
| Huron | 1,188 | 0 | 23 | 1,165 | 0 | 0 | 438 | 750 | 0 | 25 |
| Ingham | 1,374 | 0 | 34 | 1,340 | 131 | 100 | 191 | 952 | 0 | 40 |
| Ionia | 1,133 | 0 | 33 | 1,100 | 90 | 0 | 274 | 769 | 0 | 35 |
| Iosco | 671 | 0 | 15 | 656 | 0 | 102 | 209 | 360 | 0 | 19 |
| Iron | 520 | 0 | 12 | 508 | 0 | 157 | 147 | 216 | 0 | 14 |
| Isabella | 1,168 | 0 | 29 | 1,139 | 0 | 127 | 112 | 929 | 0 | 32 |
| Jackson | 1,965 | 0 | 50 | 1,915 | 119 | 151 | 313 | 1,382 | 0 | 59 |
| Kalamazoo | 1,385 | 0 | 38 | 1,347 | 55 | 113 | 118 | 1,099 | 0 | 40 |
| Kalkaska | 315 | 0 | 8 | 307 | 0 | 31 | 89 | 195 | 0 | 8 |
| Kent | 2,035 | 0 | 61 | 1,974 | 126 | 91 | 353 | 1,465 | 0 | 69 |
| Keweenaw | 18 | 0 | 1 | 17 | 0 | 6 | 1 | 11 | 0 | 1 |
| Lake | 355 | 0 | 6 | 349 | 0 | 69 | 49 | 237 | 0 | 7 |
| Lapeer | 1,249 | 0 | 34 | 1,215 | 84 | 0 | 239 | 926 | 0 | 37 |
| Leelanau | 277 | 0 | 4 | 273 | 0 | 0 | 107 | 170 | 0 | 6 |
| Lenawee | 861 | 0 | 28 | 833 | 0 | 173 | 186 | 502 | 0 | 31 |

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 | 1,240 | 0 | 47 | 1,193 | 122 | 68 | 150 | 900 | 0 | 56 |
| Luce | 167 | 0 | 5 | 162 | 0 | 0 | 90 | 77 | 0 | 5 |
| Mackinac | 546 | 0 | 19 | 527 | 96 | 113 | 168 | 169 | 0 | 19 |
| Macomb | 691 | 0 | 29 | 662 | 28 | 0 | 127 | 536 | 0 | 35 |
| Manistee | 500 | 0 | 7 | 493 | 0 | 106 | 121 | 273 | 0 | 7 |
| Marquette | 563 | 0 | 22 | 541 | 0 | 141 | 109 | 313 | 0 | 25 |
| Mason | 866 | 0 | 27 | 839 | 0 | 290 | 12 | 564 | 0 | 35 |
| Mecosta | 1,535 | 0 | 30 | 1,505 | 0 | 260 | 267 | 1,008 | 0 | 40 |
| Menominee | 1,078 | 0 | 37 | 1,041 | 0 | 350 | 106 | 622 | 0 | 51 |
| Midland | 949 | 0 | 28 | 921 | 0 | 80 | 81 | 788 | 0 | 31 |
| Missaukee | 523 | 0 | 12 | 511 | 0 | 0 | 179 | 344 | 0 | 14 |
| Monroe | 338 | 0 | 15 | 323 | 21 | 83 | 13 | 221 | 0 | 17 |
| Montcalm | 1,621 | 0 | 44 | 1,577 | 0 | 31 | 454 | 1,136 | 0 | 59 |
| Montmorency | 298 | 0 | 4 | 294 | 0 | 0 | 117 | 181 | 0 | 4 |
| Muskegon | 798 | 0 | 19 | 779 | 15 | 99 | 68 | 616 | 0 | 27 |
| Newaygo | 949 | 0 | 23 | 926 | 0 | 0 | 264 | 685 | 0 | 26 |
| Oakland | 1,553 | 0 | 75 | 1,478 | 144 | 10 | 178 | 1,221 | 0 | 86 |
| Oceana | 564 | 0 | 21 | 543 | 0 | 152 | 47 | 365 | 0 | 26 |
| Ogemaw | 719 | 0 | 27 | 692 | 71 | 0 | 199 | 449 | 0 | 30 |
| Ontonagon | 356 | 0 | 10 | 346 | 0 | 98 | 156 | 102 | 0 | 12 |
| Osceola | 1,011 | 0 | 24 | 987 | 0 | 263 | 162 | 586 | 0 | 30 |
| Oscoda | 334 | 0 | 7 | 327 | 0 | 0 | 110 | 224 | 0 | 8 |
| Otsego | 249 | 0 | 15 | 234 | 44 | 0 | 38 | 167 | 0 | 21 |
| Ottawa | 1,116 | 0 | 29 | 1,087 | 102 | 52 | 100 | 862 | 0 | 32 |
| Presque Isle | 470 | 0 | 10 | 460 | 0 | 103 | 129 | 238 | 0 | 10 |
| Roscommon | 551 | 0 | 15 | 536 | 73 | 42 | 89 | 347 | 0 | 17 |
| Saginaw | 985 | 0 | 37 | 948 | 66 | 0 | 255 | 664 | 0 | 45 |
| St. Clair | 1,097 | 1 | 43 | 1,053 | 117 | 0 | 194 | 786 | 1 | 50 |
| St. Joseph | 735 | 0 | 22 | 713 | 0 | 113 | 117 | 505 | 0 | 26 |
| Sanilac | 1,202 | 0 | 34 | 1,168 | 0 | 0 | 384 | 818 | 0 | 40 |
| Schoolcraft | 279 | 0 | 8 | 271 | 1 | 84 | 74 | 120 | 0 | 9 |
| Shiawassee | 801 | 0 | 33 | 768 | 86 | 0 | 156 | 559 | 0 | 41 |
| Tuscola | 944 | 0 | 33 | 911 | 0 | 0 | 308 | 636 | 0 | 35 |
| Van Buren | 817 | 1 | 41 | 775 | 85 | 0 | 188 | 544 | 1 | 47 |
| Washtenaw | 1,362 | 0 | 61 | 1,301 | 86 | 104 | 115 | 1,057 | 0 | 65 |
| Wayne | 361 | 0 | 22 | 339 | 43 | 14 | 39 | 265 | 0 | 30 |
| Wexford | 581 | 0 | 15 | 566 | 0 | 82 | 233 | 266 | 0 | 15 |
| UNKNOWN | 28 | 0 | 0 | 28 | 0 | 0 | 0 | 28 | 0 | 0 |
| Totals | 65,451 | 3 | 1,899 | 63,549 | 2,960 | 6,452 | 12,979 | 43,060 | 3 | 2,226 |

DEER

The Michigan Deer Crash Coalition [10] offers this advice to drivers:

- 1) *Stay aware, alert, awake, and sober.*
- 2) *Wear your seatbelts.*
- 3) *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.*
- 4) *Drive at moderate speeds through posted deer areas at all times of the day and night.*
- 5) *Deliberately look for deer and if you see them, slow down.*
- 6) *Don't rely on deer whistles or high-beam headlights to deter deer. Drive cautiously at all times.*
- 7) *When possible, adjust travel time during peak evening crash periods, especially in October, November and December.*
- 8) *Striking the deer is frequently the safest action to take. Motorists making evasive maneuvers may be involved in a more serious crash.*
- 9) *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.*



1997

1997

1997

1997

Crash

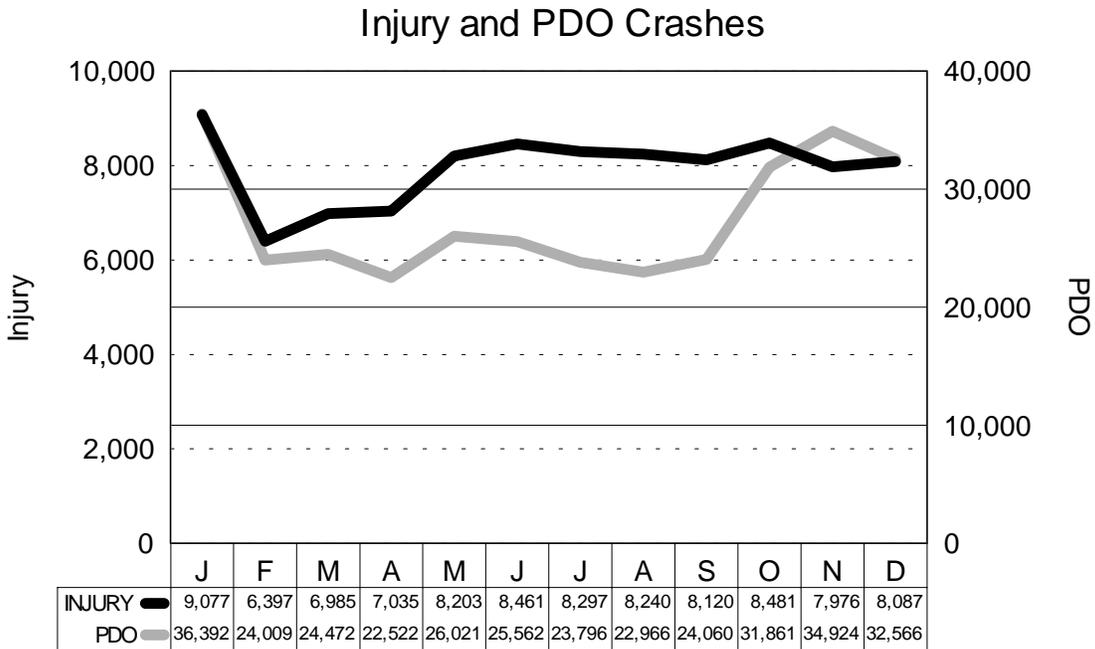
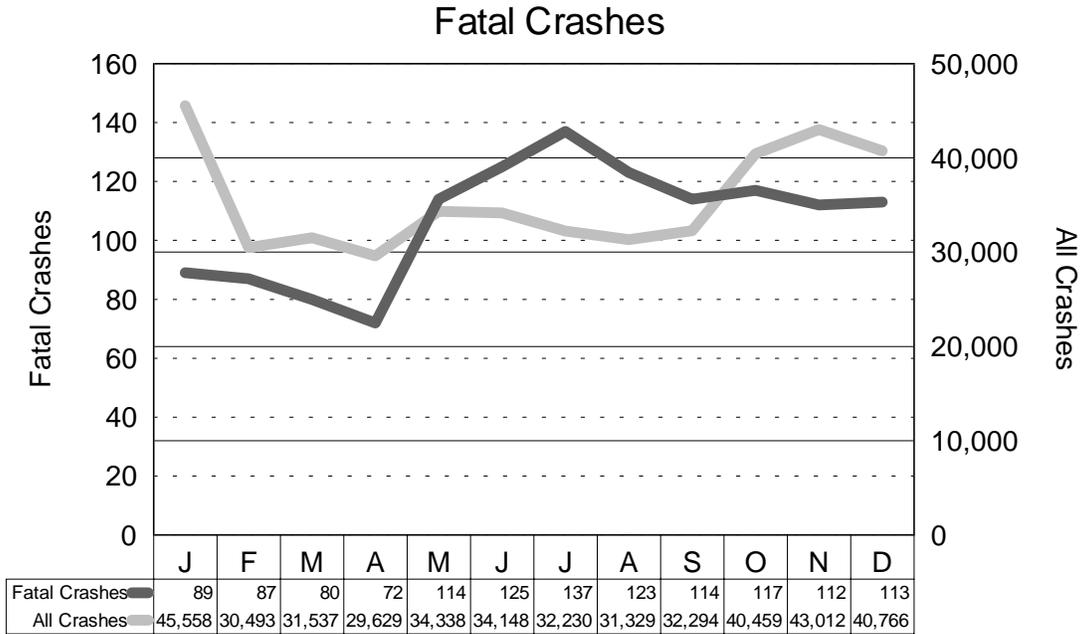
1997

1997

1997

1997

ALL CRASHES INJURY SEVERITY BY MONTH

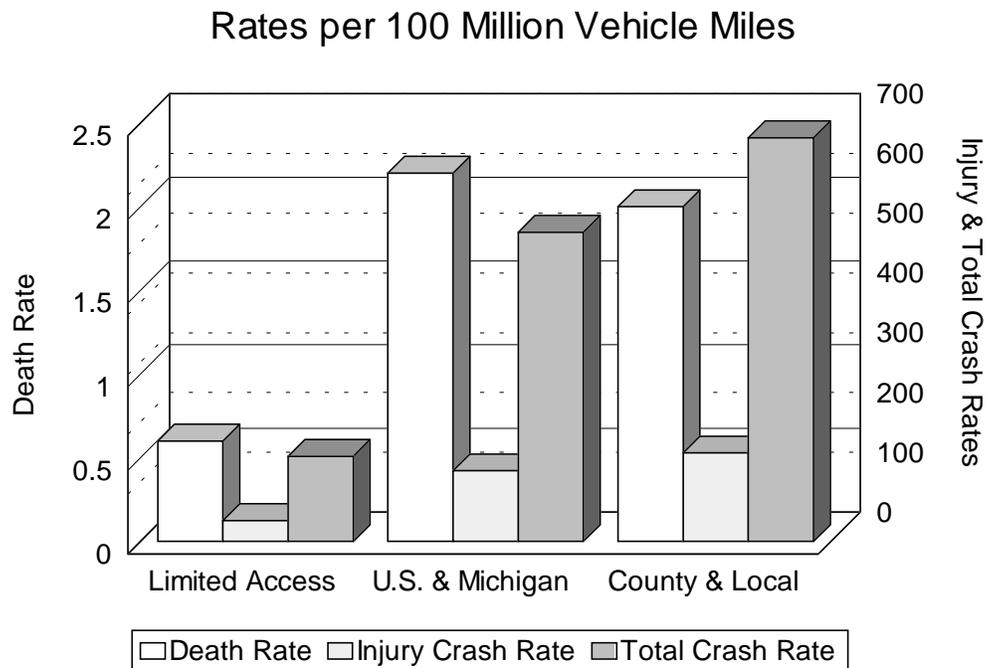


The charts on this page show that the months of April through September are peak months in terms of the ratio of the number of crashes involving death or injury to the number of noninjury crashes. That is, if a person was in a motor vehicle crash during one of these months there was a higher chance of 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 limited access highways. 1997 estimated mileage figures were provided by the Michigan Department of Transportation [11].

| STATEWIDE | Estimated Mileage (Billions) | All Crashes | Injury Crashes | Deaths | Total Crash Rate | Injury Crash Rate | Death Rate |
|-------------------------|------------------------------|-------------|----------------|--------|------------------|-------------------|------------|
| Limited Access Roadways | 26.9 | 38,310 | 9,422 | 161 | 142.4 | 35.0 | 0.6 |
| U.S. & Michigan Roads | 21.0 | 108,606 | 24,829 | 461 | 517.2 | 118.2 | 2.2 |
| County & City Roads | 41.3 | 278,877 | 61,108 | 824 | 675.2 | 148.0 | 2.0 |
| Totals | 89.2 | 425,793 | 95,359 | 1,446 | 477.3 | 106.9 | 1.6 |



CRASH TYPE

| CRASH TYPE | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|-----------------------------|----------------|--------------|---------------|--------------|----------------|---------------|---------------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Single Vehicle | 128,617 | 30.2 | 558 | 43.5 | 3,816 | 7,954 | 10,354 | 105,935 |
| Head On | 8,789 | 2.1 | 186 | 14.5 | 839 | 1,035 | 1,401 | 5,328 |
| Head On - Left Turn | 13,069 | 3.1 | 36 | 2.8 | 766 | 1,633 | 3,002 | 7,632 |
| Angle | 87,419 | 20.5 | 350 | 27.3 | 3,167 | 6,751 | 15,224 | 61,927 |
| Rear End | 102,009 | 24.0 | 76 | 5.9 | 1,541 | 4,050 | 21,966 | 74,376 |
| Rear End - Left Turn | 4,783 | 1.1 | 6 | 0.5 | 116 | 279 | 992 | 3,390 |
| Rear End - Right Turn | 3,278 | 0.8 | 1 | 0.1 | 21 | 84 | 504 | 2,668 |
| Sideswipe - Same Direction | 35,875 | 8.4 | 13 | 1.0 | 337 | 751 | 2,469 | 32,305 |
| Sideswipe - Opposite Direct | 12,537 | 2.9 | 15 | 1.2 | 177 | 406 | 991 | 10,948 |
| Other | 23,809 | 5.6 | 40 | 3.1 | 659 | 1,081 | 1,979 | 20,050 |
| Unknown | 5,608 | 1.3 | 2 | 0.2 | 121 | 231 | 662 | 4,592 |
| Totals | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

Single Vehicle, Head On, and Angle crash types produce the highest number of fatal crashes (85.3%). Single Vehicle crashes include rollovers, which are particularly deadly crash types. Rear End - Turning and Sideswipe crashes produce the lowest number of fatal crashes (2.8%).

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 | 366,313 | 86.0 | 903 | 70.4 | 8,644 | 18,363 | 51,661 | 286,742 |
| Median | 2,756 | 0.6 | 23 | 1.8 | 135 | 275 | 477 | 1,846 |
| Shoulder | 16,906 | 4.0 | 74 | 5.8 | 680 | 1,465 | 2,035 | 12,652 |
| Outside of Shoulder/Curb | 31,364 | 7.4 | 252 | 19.6 | 1,764 | 3,502 | 4,366 | 21,480 |
| Gore | 723 | 0.2 | 8 | 0.6 | 41 | 83 | 110 | 481 |
| Other/Unknown | 7,731 | 1.8 | 23 | 1.8 | 296 | 567 | 895 | 5,950 |
| Totals | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

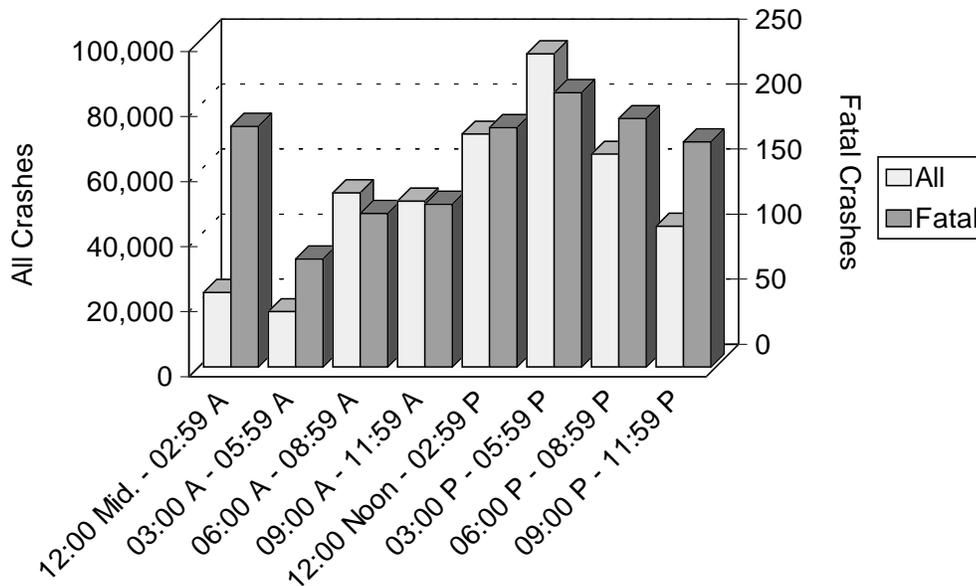
Crashes that happen outside of the normal driving lanes are overrepresented in the fatal count. Only 7.4 percent of crashes occur outside the shoulder of the road, but these crashes account for 19.6 percent of the fatal crashes.



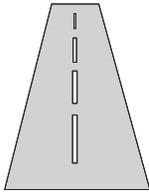
TIME AND SEVERITY

| 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. | 22,920 | 5.4 | 185 | 14.4 | 1,079 | 1,909 | 2,411 | 17,336 |
| 03:00 a.m. - 05:59 a.m. | 16,999 | 4.0 | 83 | 6.5 | 516 | 1,009 | 1,430 | 13,961 |
| 06:00 a.m. - 08:59 a.m. | 53,565 | 12.6 | 118 | 9.2 | 1,207 | 2,361 | 7,010 | 42,869 |
| 09:00 a.m. - 11:59 a.m. | 51,005 | 12.0 | 125 | 9.7 | 1,301 | 2,741 | 7,875 | 38,963 |
| 12:00 noon - 02:59 p.m. | 71,611 | 16.8 | 184 | 14.3 | 1,854 | 4,225 | 11,931 | 53,417 |
| 03:00 p.m. - 05:59 p.m. | 96,288 | 22.6 | 211 | 16.4 | 2,426 | 5,688 | 15,520 | 72,443 |
| 06:00 p.m. - 08:59 p.m. | 65,436 | 15.4 | 191 | 14.9 | 1,757 | 3,564 | 8,107 | 51,817 |
| 09:00 p.m. - 11:59 p.m. | 43,310 | 10.2 | 173 | 13.5 | 1,331 | 2,596 | 4,800 | 34,410 |
| Unknown | 4,659 | 1.1 | 13 | 1.0 | 89 | 162 | 460 | 3,935 |
| Total | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

Time and Severity



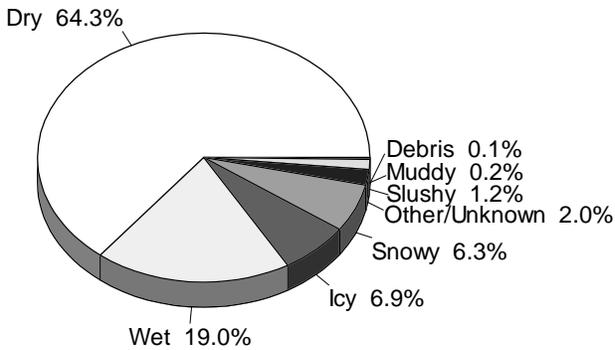
Crash frequencies peak in the late afternoon, then drop off steadily until 6:00 AM (the morning rush hour). Fatal crash frequencies rise with the frequency of other crashes, but continue at a high rate well into the early morning hours. There are proportionally more fatal crashes during the midnight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



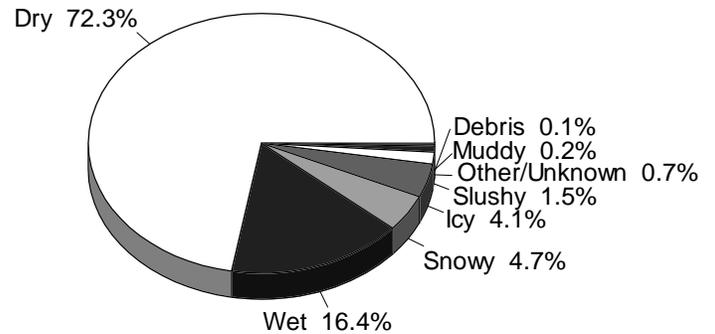
ROAD CONDITION

| ROAD SURFACE CONDITION | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|---------------------------|-------------|---------------|---------------|---------------|----------------|--------|--------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Dry | 273,945 | 64.3 | 928 | 72.3 | 7,882 | 16,453 | 37,357 | 211,325 |
| Wet | 80,849 | 19.0 | 210 | 16.4 | 2,094 | 4,512 | 13,494 | 60,539 |
| Icy | 29,572 | 6.9 | 53 | 4.1 | 711 | 1,422 | 4,017 | 23,369 |
| Snowy | 26,682 | 6.3 | 60 | 4.7 | 508 | 1,078 | 2,931 | 22,105 |
| Muddy | 766 | 0.2 | 3 | 0.2 | 22 | 68 | 97 | 576 |
| Slushy | 5,280 | 1.2 | 19 | 1.5 | 140 | 355 | 764 | 4,002 |
| Debris | 257 | 0.1 | 1 | 0.1 | 12 | 27 | 37 | 180 |
| Other/Unknown | 8,442 | 2.0 | 9 | 0.7 | 191 | 340 | 847 | 7,055 |
| Totals | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

ALL CRASHES



FATAL CRASHES



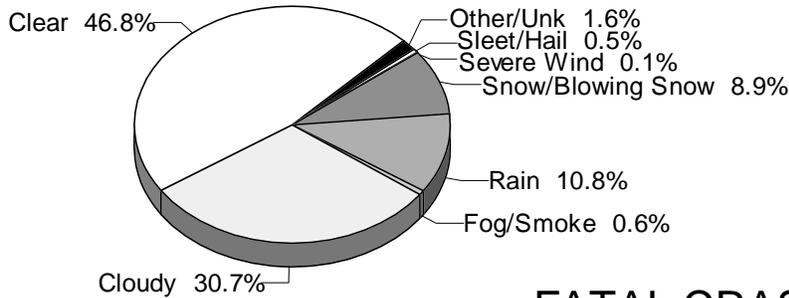
Most crashes (64.3%) and most fatal crashes (72.3%) occur on dry roads. This indicates that Michigan drivers do a good job of adjusting their driving behavior for bad road conditions.



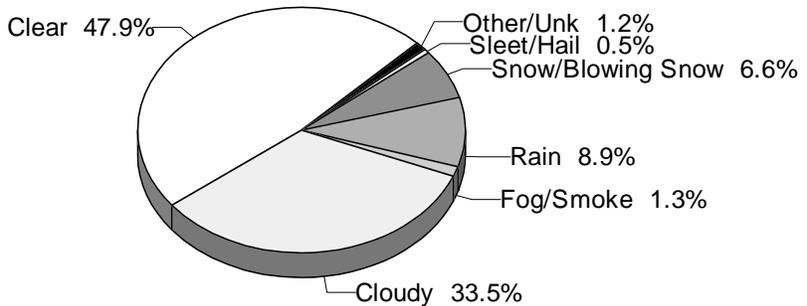
WEATHER CONDITION

| WEATHER CONDITION | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|----------------------|----------------|---------------|---------------|---------------|----------------|---------------|---------------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Clear | 199,272 | 46.8 | 615 | 47.9 | 5,840 | 11,925 | 26,957 | 153,935 |
| Cloudy | 130,808 | 30.7 | 430 | 33.5 | 3,430 | 7,437 | 18,576 | 100,935 |
| Fog/Smoke | 2,606 | 0.6 | 17 | 1.3 | 104 | 158 | 262 | 2,065 |
| Rain | 45,838 | 10.8 | 114 | 8.9 | 1,192 | 2,664 | 7,960 | 33,908 |
| Snow/Blowing Snow | 38,027 | 8.9 | 85 | 6.6 | 807 | 1,756 | 4,827 | 30,552 |
| Severe Wind | 317 | 0.1 | 0 | 0.0 | 16 | 16 | 38 | 247 |
| Sleet/Hail | 2,112 | 0.5 | 7 | 0.5 | 63 | 126 | 336 | 1,580 |
| Other/Unknown | 6,813 | 1.6 | 15 | 1.2 | 108 | 173 | 588 | 5,929 |
| Totals | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

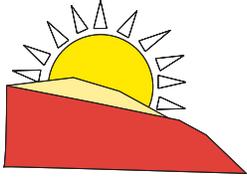
ALL CRASHES



FATAL CRASHES



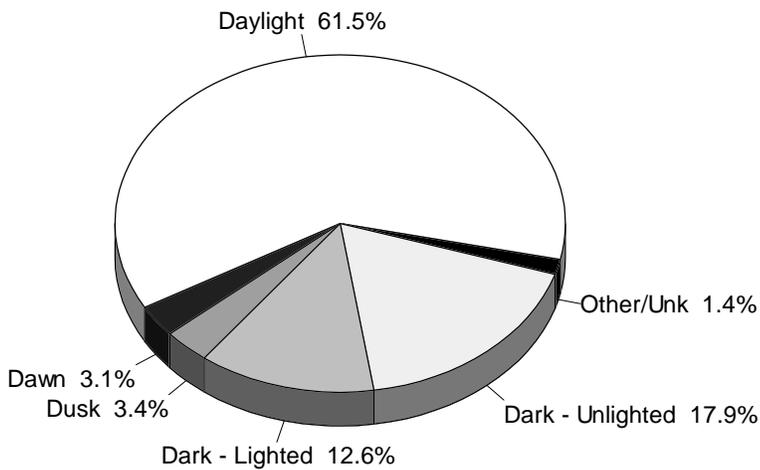
The majority of all crashes occur in good weather (46.8%) as do the majority of fatal crashes (47.9%).



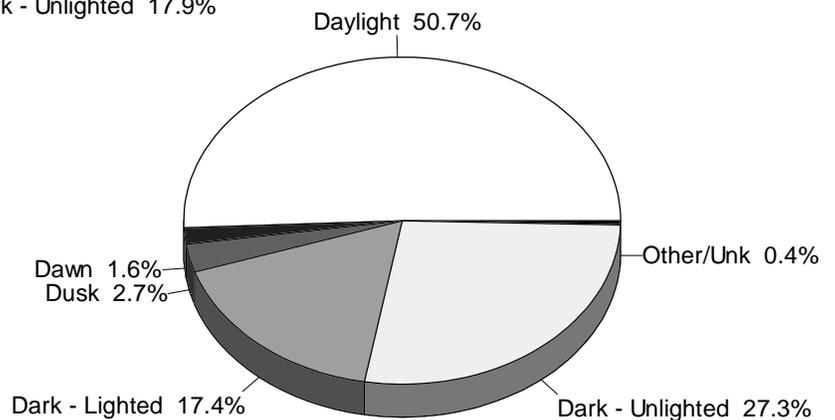
LIGHT CONDITION

| LIGHT CONDITION | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|------------------|-------------|------------|---------------|------------|----------------|--------|--------|-------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Daylight | 261,949 | 61.5 | 650 | 50.7 | 7,047 | 15,520 | 42,352 | 196,380 |
| Dawn | 13,372 | 3.1 | 20 | 1.6 | 264 | 505 | 1,322 | 11,261 |
| Dusk | 14,471 | 3.4 | 35 | 2.7 | 342 | 733 | 1,767 | 11,594 |
| Dark - Lighted | 53,547 | 12.6 | 223 | 17.4 | 1,983 | 3,779 | 8,175 | 39,387 |
| Dark - Unlighted | 76,354 | 17.9 | 350 | 27.3 | 1,838 | 3,558 | 5,366 | 65,242 |
| Other/Unknown | 6,100 | 1.4 | 5 | 0.4 | 86 | 160 | 562 | 5,287 |
| Totals | 425,793 | 100.0 | 1,283 | 100.0 | 11,560 | 24,255 | 59,544 | 329,151 |

ALL CRASHES



FATAL CRASHES



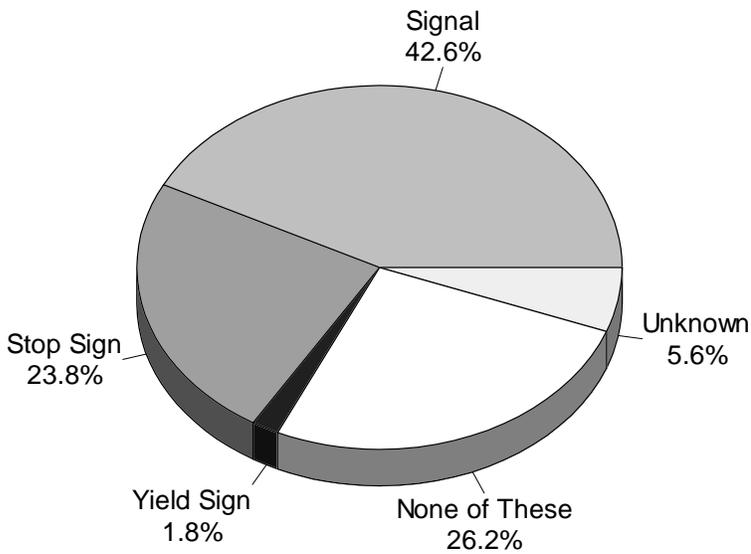
The majority (61.5%) of all crashes happen during daylight hours. Dark conditions create the greatest hazard, as they are overrepresented in fatal crashes. Areas without street lights have the highest fatality rate.



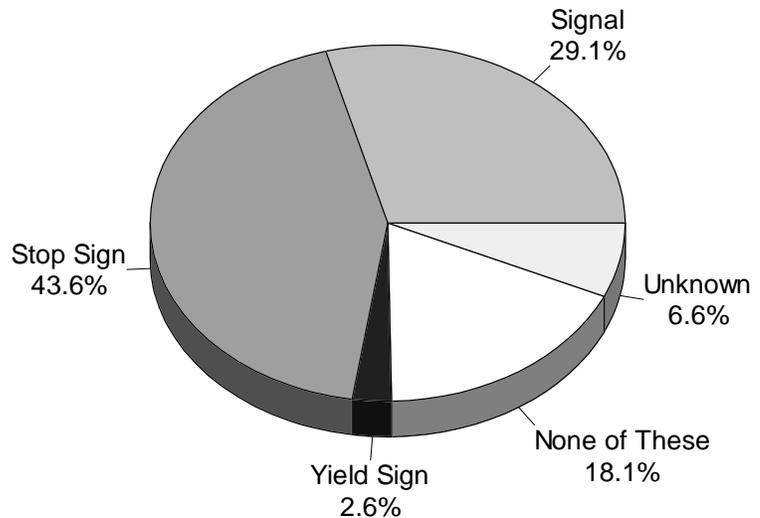
INTERSECTION CRASHES BY TRAFFIC CONTROL TYPE

| TRAFFIC CONTROL TYPE | All Crashes | | Fatal Crashes | | Injury Crashes | | | PDO Crashes |
|----------------------|----------------|--------------|---------------|--------------|----------------|---------------|---------------|----------------|
| | Number | % of Total | Number | % of Fatal | A | B | C | |
| Signal | 64,273 | 42.6 | 114 | 29.1 | 1,875 | 4,271 | 13,236 | 44,777 |
| Stop Sign | 35,861 | 23.8 | 171 | 43.6 | 1,343 | 2,797 | 6,420 | 25,130 |
| Yield Sign | 2,785 | 1.8 | 10 | 2.6 | 86 | 199 | 571 | 1,919 |
| None of These | 39,515 | 26.2 | 71 | 18.1 | 1,112 | 2,432 | 6,521 | 29,379 |
| Unknown | 8,462 | 5.6 | 26 | 6.6 | 244 | 436 | 1,308 | 6,448 |
| Totals | 150,896 | 100.0 | 392 | 100.0 | 4,660 | 10,135 | 28,056 | 107,653 |

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 Total | Number | % of Fatal | A | B | C | |
| Construction/Maintenance | | | | | | | | |
| Activity - On Road | | | | | | | | |
| Lane Closed | 2,873 | 43.3 | 6 | 40.0 | 57 | 127 | 484 | 2,199 |
| Lane Open | 881 | 13.3 | 1 | 6.7 | 28 | 47 | 153 | 652 |
| Unk Lane Closure | 173 | 2.6 | 1 | 6.7 | 4 | 3 | 25 | 140 |
| Activity - Off Road | | | | | | | | |
| Lane Closed | 302 | 4.5 | 1 | 6.7 | 6 | 12 | 57 | 226 |
| Lane Open | 581 | 8.8 | 0 | 0.0 | 14 | 31 | 95 | 441 |
| Unk Lane Closure | 40 | 0.6 | 0 | 0.0 | 2 | 0 | 6 | 32 |
| Activity - None | | | | | | | | |
| Lane Closed | 798 | 12.0 | 3 | 20.0 | 27 | 47 | 167 | 554 |
| Lane Open | 574 | 8.6 | 3 | 20.0 | 16 | 50 | 78 | 427 |
| Unk Lane Closure | 53 | 0.8 | 0 | 0.0 | 0 | 2 | 12 | 39 |
| Activity - Unknown | | | | | | | | |
| Lane Closed | 144 | 2.2 | 0 | 0.0 | 2 | 7 | 18 | 117 |
| Lane Open | 56 | 0.8 | 0 | 0.0 | 0 | 3 | 10 | 43 |
| Unk Lane Closure | 163 | 2.5 | 0 | 0.0 | 6 | 7 | 25 | 125 |
| Sub-Total | 6,638 | 100.0 | 15 | 100.0 | 162 | 336 | 1,130 | 4,995 |
| Utility | | | | | | | | |
| Activity - On Road | | | | | | | | |
| Lane Closed | 118 | 28.7 | 2 | 100.0 | 1 | 7 | 22 | 86 |
| Lane Open | 88 | 21.4 | 0 | 0.0 | 6 | 8 | 12 | 62 |
| Unk Lane Closure | 4 | 1.0 | 0 | 0.0 | 0 | 1 | 0 | 3 |
| Activity - Off Road | | | | | | | | |
| Lane Closed | 37 | 9.0 | 0 | 0.0 | 1 | 2 | 10 | 24 |
| Lane Open | 63 | 15.3 | 0 | 0.0 | 3 | 7 | 8 | 45 |
| Unk Lane Closure | 3 | 0.7 | 0 | 0.0 | 0 | 0 | 1 | 2 |
| Activity - None | | | | | | | | |
| Lane Closed | 13 | 3.2 | 0 | 0.0 | 0 | 2 | 5 | 6 |
| Lane Open | 16 | 3.9 | 0 | 0.0 | 0 | 1 | 3 | 12 |
| Unk Lane Closure | 4 | 1.0 | 0 | 0.0 | 0 | 0 | 2 | 2 |
| Activity - Unknown | | | | | | | | |
| Lane Closed | 4 | 1.0 | 0 | 0.0 | 0 | 1 | 0 | 3 |
| Lane Open | 5 | 1.2 | 0 | 0.0 | 0 | 0 | 1 | 4 |
| Unk Lane Closure | 56 | 13.6 | 0 | 0.0 | 2 | 1 | 8 | 45 |
| Sub-Total | 411 | 100.0 | 2 | 100.0 | 13 | 30 | 72 | 294 |
| Total | 7,049 | | 17 | | 175 | 366 | 1,202 | 5,289 |

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 | 989 | 5 | 87 | 897 | 0 | 163 | 204 | 622 | 8 | 131 |
| Alger | 471 | 2 | 99 | 370 | 0 | 22 | 202 | 247 | 3 | 142 |
| Allegan | 4,064 | 18 | 840 | 3,206 | 294 | 342 | 841 | 2,587 | 21 | 1,231 |
| Alpena | 1,429 | 4 | 223 | 1,202 | 0 | 309 | 229 | 891 | 4 | 313 |
| Antrim | 1,102 | 5 | 150 | 947 | 0 | 194 | 223 | 685 | 5 | 246 |
| Arenac | 1,108 | 3 | 190 | 915 | 157 | 276 | 80 | 595 | 3 | 284 |
| Baraga | 493 | 4 | 51 | 438 | 0 | 175 | 64 | 254 | 7 | 80 |
| Barry | 2,598 | 9 | 415 | 2,174 | 0 | 0 | 850 | 1,748 | 11 | 600 |
| Bay | 4,329 | 19 | 1,141 | 3,169 | 208 | 165 | 1,211 | 2,745 | 22 | 1,683 |
| Benzie | 669 | 4 | 117 | 548 | 0 | 191 | 89 | 389 | 4 | 173 |
| Berrien | 5,995 | 26 | 1,411 | 4,558 | 1,017 | 780 | 709 | 3,489 | 28 | 2,114 |
| Branch | 2,239 | 8 | 391 | 1,840 | 231 | 507 | 77 | 1,424 | 8 | 549 |
| Calhoun | 7,142 | 21 | 1,273 | 5,848 | 1,406 | 73 | 944 | 4,719 | 24 | 1,833 |
| Cass | 2,062 | 11 | 379 | 1,672 | 3 | 173 | 586 | 1,300 | 11 | 574 |
| Charlevoix | 1,299 | 1 | 176 | 1,122 | 0 | 364 | 229 | 706 | 1 | 259 |
| Cheboygan | 1,132 | 10 | 248 | 874 | 200 | 73 | 238 | 621 | 14 | 401 |
| Chippewa | 1,656 | 2 | 304 | 1,350 | 408 | 0 | 352 | 896 | 2 | 427 |
| Clare | 1,666 | 12 | 272 | 1,382 | 0 | 443 | 295 | 928 | 16 | 426 |
| Clinton | 2,890 | 16 | 508 | 2,366 | 391 | 572 | 174 | 1,753 | 18 | 730 |
| Crawford | 870 | 4 | 140 | 726 | 228 | 21 | 192 | 429 | 4 | 202 |
| Delta | 2,465 | 6 | 371 | 2,088 | 0 | 637 | 343 | 1,485 | 6 | 520 |
| Dickinson | 1,523 | 8 | 231 | 1,284 | 0 | 508 | 386 | 629 | 10 | 329 |
| Eaton | 4,605 | 19 | 889 | 3,697 | 659 | 176 | 1,323 | 2,447 | 19 | 1,316 |
| Emmet | 1,782 | 9 | 278 | 1,495 | 23 | 599 | 173 | 987 | 11 | 389 |
| Genesee | 16,330 | 73 | 4,557 | 11,700 | 1,955 | 439 | 2,422 | 11,514 | 82 | 6,751 |
| Gladwin | 1,195 | 4 | 163 | 1,028 | 0 | 0 | 463 | 732 | 4 | 233 |
| Gogebic | 645 | 0 | 117 | 528 | 0 | 301 | 30 | 314 | 0 | 156 |
| Grand Traverse | 3,746 | 16 | 717 | 3,013 | 0 | 982 | 392 | 2,372 | 19 | 1,071 |
| Gratiot | 1,830 | 3 | 286 | 1,541 | 0 | 478 | 330 | 1,022 | 3 | 419 |
| Hillsdale | 2,347 | 9 | 397 | 1,941 | 0 | 232 | 599 | 1,516 | 9 | 570 |
| Houghton | 1,320 | 1 | 222 | 1,097 | 0 | 428 | 288 | 604 | 1 | 310 |
| Huron | 2,074 | 7 | 291 | 1,776 | 0 | 0 | 859 | 1,215 | 7 | 421 |
| Ingham | 12,930 | 15 | 2824 | 10,091 | 1,908 | 424 | 2,419 | 8,179 | 15 | 3,866 |
| Ionia | 2,878 | 12 | 481 | 2,385 | 313 | 0 | 820 | 1,745 | 13 | 682 |
| Iosco | 1,346 | 4 | 184 | 1,158 | 0 | 303 | 319 | 724 | 4 | 260 |
| Iron | 897 | 4 | 104 | 789 | 0 | 206 | 242 | 449 | 4 | 135 |
| Isabella | 2,904 | 12 | 512 | 2,380 | 0 | 541 | 307 | 2,056 | 14 | 760 |
| Jackson | 7,439 | 34 | 1,435 | 5,970 | 1,044 | 374 | 1,143 | 4,878 | 47 | 2,119 |
| Kalamazoo | 9,748 | 20 | 1,967 | 7,761 | 805 | 671 | 1,202 | 7,070 | 22 | 2,683 |
| Kalkaska | 867 | 6 | 193 | 668 | 0 | 159 | 188 | 520 | 6 | 292 |
| Kent | 25,094 | 51 | 5,577 | 19,466 | 1,649 | 2,014 | 4,580 | 16,851 | 57 | 7,874 |
| Keweenaw | 79 | 1 | 13 | 65 | 0 | 22 | 7 | 50 | 1 | 13 |
| Lake | 657 | 6 | 103 | 548 | 0 | 116 | 104 | 437 | 6 | 155 |
| Lapeer | 3,839 | 18 | 750 | 3,071 | 247 | 0 | 1,202 | 2,390 | 19 | 1,147 |
| Leelanau | 714 | 2 | 108 | 604 | 0 | 0 | 273 | 441 | 3 | 162 |
| Lenawee | 3,809 | 23 | 812 | 2,974 | 0 | 887 | 733 | 2,189 | 29 | 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 | 5,758 | 14 | 1,306 | 4,438 | 1,201 | 413 | 711 | 3,433 | 14 | 1,872 |
| Luce | 329 | 2 | 53 | 274 | 0 | 0 | 166 | 163 | 2 | 76 |
| Mackinac | 1,008 | 2 | 142 | 864 | 243 | 210 | 211 | 344 | 2 | 202 |
| Macomb | 28,245 | 57 | 7,325 | 20,863 | 1,788 | 0 | 7,480 | 18,977 | 58 | 10,434 |
| Manistee | 1,155 | 1 | 184 | 970 | 0 | 286 | 190 | 679 | 1 | 259 |
| Marquette | 2,765 | 9 | 493 | 2,263 | 0 | 766 | 299 | 1,700 | 12 | 685 |
| Mason | 1,773 | 4 | 274 | 1,495 | 0 | 696 | 26 | 1,051 | 5 | 428 |
| Mecosta | 2,891 | 14 | 423 | 2,454 | 0 | 747 | 482 | 1,662 | 19 | 646 |
| Menominee | 1,743 | 2 | 234 | 1,507 | 0 | 604 | 142 | 997 | 2 | 345 |
| Midland | 3,232 | 16 | 590 | 2,626 | 0 | 413 | 446 | 2,373 | 18 | 853 |
| Missaukee | 815 | 1 | 104 | 710 | 0 | 0 | 292 | 523 | 2 | 150 |
| Monroe | 4,969 | 28 | 1,265 | 3,676 | 463 | 926 | 733 | 2,847 | 29 | 1,859 |
| Montcalm | 3,394 | 17 | 580 | 2,797 | 0 | 109 | 1,133 | 2,152 | 20 | 883 |
| Montmorency | 543 | 0 | 78 | 465 | 0 | 0 | 167 | 376 | 0 | 119 |
| Muskegon | 6,180 | 22 | 1,451 | 4,707 | 57 | 1,034 | 751 | 4,338 | 23 | 2,048 |
| Newaygo | 2,218 | 20 | 380 | 1,818 | 0 | 0 | 728 | 1,490 | 23 | 567 |
| Oakland | 49,330 | 81 | 12,333 | 36,916 | 6,421 | 2,953 | 7,276 | 32,680 | 93 | 17,207 |
| Oceana | 1,252 | 6 | 217 | 1,029 | 0 | 317 | 95 | 840 | 6 | 329 |
| Ogemaw | 1,310 | 9 | 198 | 1,103 | 231 | 0 | 317 | 762 | 9 | 293 |
| Ontonagon | 572 | 1 | 68 | 503 | 0 | 122 | 232 | 218 | 1 | 89 |
| Osceola | 1,662 | 5 | 187 | 1,470 | 0 | 471 | 215 | 976 | 7 | 275 |
| Oscoda | 535 | 2 | 59 | 474 | 0 | 0 | 173 | 362 | 2 | 84 |
| Otsego | 1,163 | 4 | 262 | 897 | 268 | 1 | 264 | 630 | 4 | 358 |
| Ottawa | 7,968 | 25 | 1,759 | 6,184 | 421 | 1,122 | 713 | 5,712 | 27 | 2,539 |
| Presque Isle | 770 | 5 | 87 | 678 | 0 | 172 | 202 | 396 | 6 | 110 |
| Roscommon | 1,279 | 5 | 232 | 1,042 | 197 | 101 | 264 | 717 | 8 | 355 |
| Saginaw | 8,967 | 21 | 2,083 | 6,863 | 591 | 0 | 2,679 | 5,697 | 26 | 2,998 |
| St. Clair | 5,704 | 25 | 1,330 | 4,349 | 746 | 0 | 1,127 | 3,831 | 29 | 1,997 |
| St. Joseph | 2,607 | 16 | 526 | 2,065 | 0 | 614 | 400 | 1,593 | 21 | 785 |
| Sanilac | 2,038 | 11 | 287 | 1,740 | 1 | 0 | 729 | 1,308 | 12 | 399 |
| Schoolcraft | 603 | 1 | 79 | 523 | 4 | 142 | 138 | 319 | 1 | 110 |
| Shiawassee | 2,640 | 12 | 632 | 1,996 | 233 | 2 | 729 | 1,676 | 12 | 909 |
| Tuscola | 2,349 | 6 | 446 | 1,897 | 0 | 0 | 826 | 1,523 | 6 | 647 |
| Van Buren | 3,112 | 17 | 699 | 2,396 | 545 | 0 | 636 | 1,931 | 17 | 1,052 |
| Washtenaw | 12,671 | 36 | 2,949 | 9,686 | 1,535 | 1,662 | 1,012 | 8,462 | 39 | 4,145 |
| Wayne | 92,962 | 235 | 23,687 | 69,040 | 10,219 | 5,796 | 11,570 | 65,377 | 261 | 34,706 |
| Wexford | 1,894 | 4 | 328 | 1,562 | 0 | 566 | 531 | 797 | 4 | 466 |
| UNKNOWN | 121 | 0 | 32 | 89 | 0 | 0 | 0 | 121 | 0 | 51 |
| Totals | 425,793 | 1,283 | 95,359 | 329,151 | 38,310 | 35,585 | 73,021 | 278,877 | 1,446 | 137,548 |

1997

1997

1997

1997

1997

1997

1997

1997

**Vehicle/
Driver**



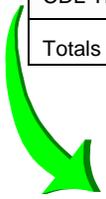
VEHICLE TYPE CRASH INVOLVEMENT



MOST SEVERE OUTCOME IN CRASH

MOST SEVERE OUTCOME IN VEHICLE

| Vehicle Types | Motor Vehicles | | Fatal Crash | | Injury | PDO | Fatality in Veh | | Injury | No Injury |
|---------------------------------|----------------|--------------|--------------|--------------|----------------|----------------|-----------------|--------------|----------------|----------------|
| | Number | % of Total | Number | % of Total | | | Number | % of Total | | |
| Passenger Car and Station Wagon | 515,608 | 69.7 | 1348 | 63.4 | 129,405 | 384,855 | 821 | 73.2 | 83,775 | 431,012 |
| Van and Motorhome | 56,281 | 7.6 | 153 | 7.2 | 13,588 | 42,540 | 62 | 5.5 | 7,403 | 48,816 |
| Pickup | 105,040 | 14.2 | 329 | 15.5 | 22,414 | 82,297 | 129 | 11.5 | 11,721 | 93,190 |
| Small Truck (under 10,000 lbs.) | 12,035 | 1.6 | 26 | 1.2 | 2,642 | 9,367 | 11 | 1.0 | 1,381 | 10,643 |
| Cycle | 2,465 | 0.3 | 63 | 3.0 | 1,828 | 574 | 59 | 5.3 | 1,801 | 605 |
| Moped | 246 | 0.0 | 3 | 0.1 | 174 | 69 | 3 | 0.3 | 166 | 77 |
| Go Cart | 16 | 0.0 | 1 | 0.0 | 10 | 5 | 1 | 0.1 | 8 | 7 |
| Snowmobile | 476 | 0.1 | 16 | 0.8 | 306 | 154 | 15 | 1.3 | 273 | 188 |
| Off Road Vehicle | 177 | 0.0 | 5 | 0.2 | 129 | 43 | 5 | 0.4 | 116 | 56 |
| Other | 1,878 | 0.3 | 12 | 0.6 | 409 | 1,457 | 5 | 0.4 | 152 | 1,721 |
| Uncoded | 24,634 | 3.3 | 23 | 1.1 | 2,841 | 21,770 | 5 | 0.4 | 705 | 23,924 |
| CDL Truck/Bus (breakdown below) | 20,682 | 2.8 | 147 | 6.9 | 4,294 | 16,241 | 5 | 0.4 | 1,048 | 19,629 |
| Totals | 739,538 | 100.0 | 2,126 | 100.0 | 178,040 | 559,372 | 1,121 | 100.0 | 108,549 | 629,868 |



CDL Truck/Bus Sub-category Types

| Sub-category Types | Motor Vehicles | | Fatal Crash | | Injury | PDO | Fatality in Veh | | Injury | No Injury |
|-----------------------------|----------------|--------------|-------------|--------------|--------------|---------------|-----------------|--------------|--------------|---------------|
| | Number | % of Total | Number | % of Total | | | Number | % of Total | | |
| Uncoded Truck | 2,804 | 13.6 | 14 | 9.5 | 525 | 2,265 | 1 | 20.0 | 112 | 2,691 |
| Commercial Vehicle: Group A | 9,856 | 47.7 | 93 | 63.3 | 2,074 | 7,689 | 3 | 60.0 | 425 | 9,428 |
| Commercial Vehicle: Group B | 4,501 | 21.8 | 23 | 15.6 | 969 | 3509 | 1 | 20.0 | 315 | 4,185 |
| Commercial Vehicle: Group C | 577 | 2.8 | 4 | 2.7 | 140 | 433 | 0 | 0.0 | 55 | 522 |
| Other Truck | 1,149 | 5.6 | 6 | 4.1 | 258 | 885 | 0 | 0.0 | 62 | 1,087 |
| Unknown Truck | 1,795 | 8.7 | 7 | 4.8 | 328 | 1,460 | 0 | 0.0 | 79 | 1,716 |
| Totals | 20,682 | 100.0 | 147 | 100.0 | 4,294 | 16,241 | 5 | 100.0 | 1,048 | 19,629 |

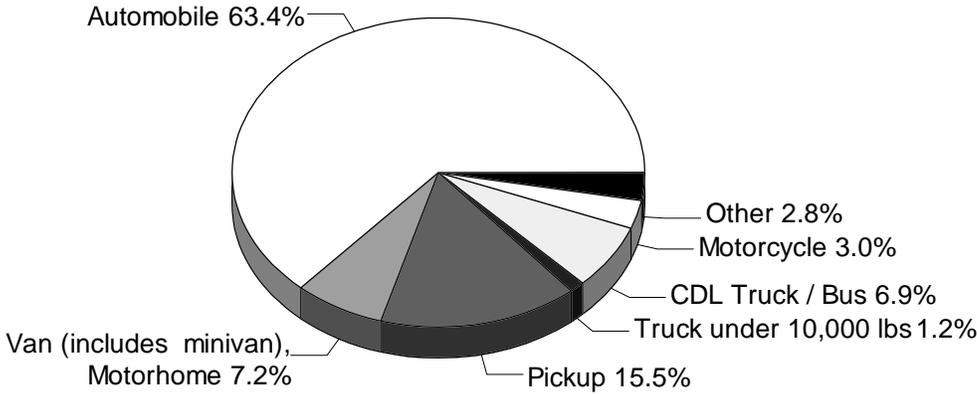
Group "A" is any vehicle that is towing a vehicle or trailer that has a gross vehicle weight rating (GVWR) over 10,000 lbs.

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.

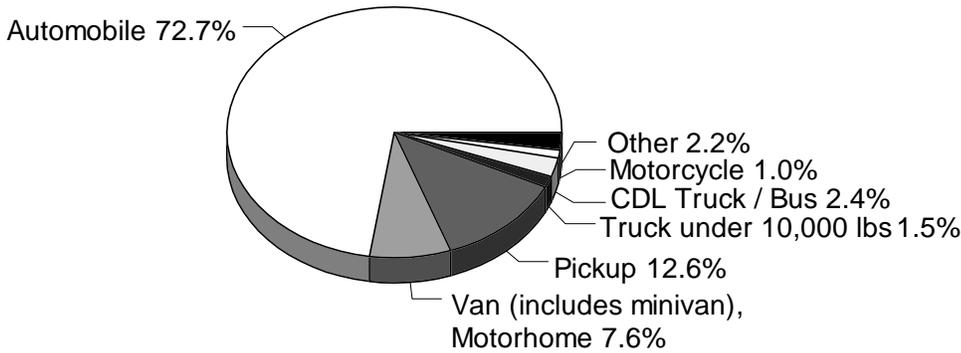
VEHICLE TYPES IN CRASHES BY CRASH SEVERITY

FATAL



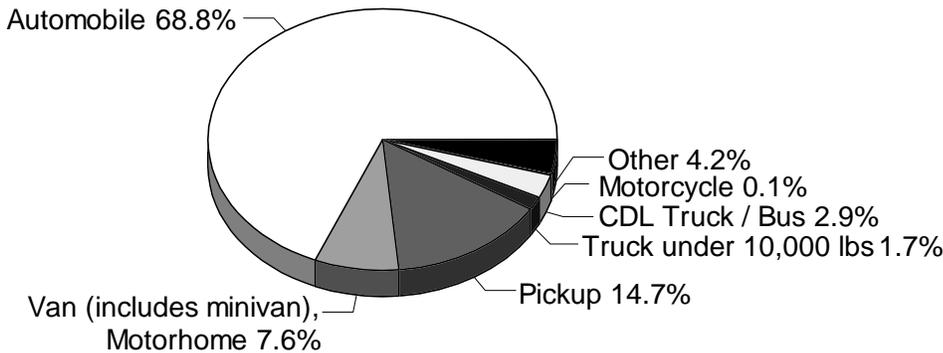
The top chart shows that 4 out of 5 vehicles involved in fatal crashes are automobiles or pickups. Van, Motorhome, the vehicle type that includes the popular minivan, has a fatal crash involvement of 7.2 percent.

INJURY



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.

PROPERTY DAMAGE ONLY



ACTION PRIOR TO CRASH

MOST SEVERE OUTCOME IN CRASH

| DRIVER ACTION | All Vehicles | | Fatal | Injury | | | PDO |
|-------------------------------|----------------|--------------|--------------|---------------|---------------|----------------|----------------|
| | Number | % of Total | | A | B | C | |
| Going straight ahead | 374,254 | 50.6 | 1,550 | 12,360 | 24,460 | 57,231 | 278,653 |
| Turning left | 56,455 | 7.6 | 102 | 1,960 | 4,396 | 9,832 | 40,165 |
| Turning right | 20,764 | 2.8 | 6 | 329 | 822 | 2,414 | 17,193 |
| Stopped on roadway | 72,102 | 9.7 | 58 | 1,265 | 3,409 | 17,154 | 50,216 |
| In prior crash | 1,235 | 0.2 | 5 | 48 | 71 | 255 | 856 |
| Changing lanes | 17,143 | 2.3 | 36 | 259 | 628 | 1,737 | 14,483 |
| Backing | 18,707 | 2.5 | 7 | 80 | 254 | 748 | 17,618 |
| Slowing/stopping on roadway | 61,071 | 8.3 | 51 | 794 | 2,287 | 12,922 | 45,017 |
| Slowing/stopping other | 873 | 0.1 | 2 | 12 | 52 | 142 | 665 |
| Starting up on roadway | 13,218 | 1.8 | 39 | 360 | 823 | 2,320 | 9,676 |
| Starting up other | 456 | 0.1 | 2 | 25 | 31 | 69 | 329 |
| Entering parking | 1,033 | 0.1 | 1 | 14 | 36 | 87 | 895 |
| Leaving parking | 3,106 | 0.4 | 1 | 48 | 107 | 363 | 2,587 |
| Entering roadway | 11,308 | 1.5 | 28 | 300 | 689 | 1,723 | 8,568 |
| Leaving roadway | 1,562 | 0.2 | 21 | 97 | 173 | 186 | 1,085 |
| Making U-turn | 1,878 | 0.3 | 5 | 69 | 120 | 298 | 1,386 |
| Overtaking or passing | 6,716 | 0.9 | 29 | 238 | 361 | 774 | 5,314 |
| Avoiding object | 2,044 | 0.3 | 7 | 93 | 161 | 304 | 1,479 |
| Avoiding pedestrian | 198 | 0.0 | 3 | 31 | 25 | 31 | 108 |
| Avoiding vehicle (front/back) | 6,243 | 0.8 | 34 | 219 | 463 | 1,109 | 4,418 |
| Avoiding vehicle (angle) | 2,724 | 0.4 | 18 | 87 | 200 | 443 | 1,976 |
| Driverless moving | 628 | 0.1 | 2 | 19 | 19 | 44 | 544 |
| Parked | 31,702 | 4.3 | 52 | 460 | 908 | 1,460 | 28,822 |
| Crossing at intersection | 86 | 0.0 | 0 | 7 | 9 | 25 | 45 |
| Crossing not at intersection | 65 | 0.0 | 1 | 11 | 14 | 18 | 21 |
| Getting on/off vehicle | 14 | 0.0 | 0 | 3 | 2 | 3 | 6 |
| In roadway with traffic | 17 | 0.0 | 0 | 1 | 1 | 4 | 11 |
| In roadway against traffic | 13 | 0.0 | 0 | 0 | 1 | 4 | 8 |
| Standing or lying in roadway | 9 | 0.0 | 0 | 0 | 2 | 2 | 5 |
| Pushing/working on vehicle | 11 | 0.0 | 0 | 3 | 0 | 3 | 5 |
| Other working in roadway | 5 | 0.0 | 0 | 1 | 0 | 1 | 3 |
| Playing in roadway | 6 | 0.0 | 0 | 1 | 0 | 2 | 3 |
| In roadway other reason | 21 | 0.0 | 0 | 1 | 5 | 2 | 13 |
| Not in roadway | 14 | 0.0 | 0 | 1 | 4 | 5 | 4 |
| Other | 636 | 0.1 | 6 | 34 | 46 | 85 | 465 |
| Unknown | 33,221 | 4.5 | 60 | 726 | 1,465 | 4,240 | 26,730 |
| TOTAL | 739,538 | 100.0 | 2,126 | 19,956 | 42,044 | 116,040 | 559,372 |

ACTION PRIOR TO CRASH (continued)

MOTORCYCLIST – INJURY SEVERITY

| MOTORCYCLIST ACTION | All Motorcycles | | All Motorcyclists | | Fatal | Injury | | | No Injury |
|-------------------------------|-----------------|--------------|-------------------|--------------|-----------|------------|------------|------------|------------|
| | Number | % of Total | Number | % of Total | | A | B | C | |
| Going straight ahead | 1,587 | 64.4 | 1,842 | 65.0 | 48 | 471 | 605 | 384 | 291 |
| Turning left | 132 | 5.4 | 149 | 5.3 | 0 | 30 | 46 | 38 | 30 |
| Turning right | 89 | 3.6 | 101 | 3.6 | 0 | 14 | 33 | 23 | 30 |
| Stopped on roadway | 90 | 3.7 | 95 | 3.4 | 1 | 8 | 10 | 18 | 58 |
| In prior crash | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Changing lanes | 39 | 1.6 | 45 | 1.6 | 0 | 9 | 18 | 6 | 8 |
| Backing | 7 | 0.3 | 10 | 0.4 | 0 | 0 | 5 | 3 | 2 |
| Slowing/stopping on roadway | 113 | 4.6 | 123 | 4.3 | 3 | 22 | 26 | 33 | 39 |
| Slowing/stopping other | 1 | 0.0 | 2 | 0.1 | 0 | 0 | 0 | 2 | 0 |
| Starting up on roadway | 29 | 1.2 | 33 | 1.2 | 0 | 4 | 11 | 7 | 11 |
| Starting up other | 5 | 0.2 | 5 | 0.2 | 0 | 2 | 0 | 0 | 1 |
| Entering parking | 1 | 0.0 | 1 | 0.0 | 0 | 0 | 0 | 1 | 0 |
| Leaving parking | 4 | 0.2 | 4 | 0.1 | 0 | 0 | 1 | 0 | 3 |
| Entering roadway | 23 | 0.9 | 34 | 1.2 | 0 | 7 | 8 | 6 | 10 |
| Leaving roadway | 11 | 0.4 | 11 | 0.4 | 2 | 0 | 3 | 3 | 2 |
| Making U-turn | 10 | 0.4 | 12 | 0.4 | 1 | 3 | 3 | 2 | 2 |
| Overtaking or passing | 60 | 2.4 | 64 | 2.3 | 4 | 15 | 11 | 16 | 13 |
| Avoiding object | 24 | 1.0 | 26 | 0.9 | 0 | 4 | 5 | 6 | 10 |
| Avoiding pedestrian | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Avoiding vehicle (front/back) | 62 | 2.5 | 66 | 2.3 | 1 | 7 | 23 | 16 | 19 |
| Avoiding vehicle (angle) | 37 | 1.5 | 41 | 1.4 | 1 | 5 | 17 | 12 | 5 |
| Driverless moving | 2 | 0.1 | 2 | 0.1 | 0 | 1 | 0 | 0 | 0 |
| Parked | 30 | 1.2 | 30 | 1.1 | 0 | 0 | 0 | 0 | 8 |
| Crossing at intersection | 1 | 0.0 | 6 | 0.2 | 0 | 2 | 1 | 3 | 0 |
| Crossing not at intersection | 0 | 0.0 | 4 | 0.1 | 0 | 1 | 1 | 1 | 1 |
| 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 | 0 | 0 | 0 | 1 | 0 |
| In roadway against traffic | 1 | 0.0 | 6 | 0.2 | 0 | 0 | 2 | 3 | 1 |
| Standing or lying in roadway | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Pushing/working on vehicle | 0 | 0.0 | 1 | 0.0 | 0 | 0 | 0 | 0 | 1 |
| Other working in roadway | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Playing in roadway | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| In roadway other reason | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Not in roadway | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Other | 6 | 0.2 | 7 | 0.2 | 1 | 0 | 5 | 1 | 0 |
| Unknown | 101 | 4.1 | 114 | 4.0 | 1 | 22 | 36 | 21 | 21 |
| TOTAL | 2,465 | 100.0 | 2,835* | 100.0 | 63 | 627 | 870 | 606 | 566 |

* Includes 103 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 Total | | A | B | C | |
| Going straight ahead | 1,579 | 53.9 | 15 | 173 | 554 | 541 | 228 |
| Turning left | 88 | 3.0 | 0 | 17 | 34 | 25 | 7 |
| Turning right | 41 | 1.4 | 0 | 7 | 10 | 14 | 9 |
| Stopped on roadway | 23 | 0.8 | 1 | 1 | 9 | 7 | 4 |
| In prior crash | 1 | 0.0 | 0 | 0 | 1 | 0 | 0 |
| Changing lanes | 36 | 1.2 | 0 | 4 | 12 | 13 | 7 |
| Backing | 4 | 0.1 | 0 | 0 | 2 | 1 | 1 |
| Slowing/stopping on roadway | 5 | 0.2 | 0 | 1 | 1 | 1 | 2 |
| Slowing/stopping other | 8 | 0.3 | 0 | 1 | 2 | 5 | 0 |
| Starting up on roadway | 22 | 0.8 | 0 | 2 | 6 | 8 | 6 |
| Starting up other | 2 | 0.1 | 0 | 0 | 0 | 1 | 1 |
| Entering parking | 3 | 0.1 | 0 | 0 | 2 | 0 | 0 |
| Leaving parking | 7 | 0.2 | 0 | 2 | 3 | 1 | 1 |
| Entering roadway | 204 | 7.0 | 5 | 40 | 71 | 66 | 17 |
| Leaving roadway | 4 | 0.1 | 0 | 0 | 3 | 1 | 0 |
| Making U-turn | 9 | 0.3 | 1 | 1 | 2 | 3 | 2 |
| Overtaking or passing | 4 | 0.1 | 0 | 1 | 2 | 0 | 0 |
| Avoiding object | 2 | 0.1 | 0 | 0 | 0 | 1 | 1 |
| Avoiding pedestrian | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Avoiding vehicle (front/back) | 9 | 0.3 | 1 | 1 | 2 | 3 | 2 |
| Avoiding vehicle (angle) | 10 | 0.3 | 1 | 3 | 2 | 3 | 1 |
| Driverless moving | 2 | 0.1 | 0 | 2 | 0 | 0 | 0 |
| Parked | 3 | 0.1 | 0 | 0 | 1 | 0 | 1 |
| Crossing at intersection | 340 | 11.6 | 0 | 36 | 112 | 128 | 55 |
| Crossing not at intersection | 149 | 5.1 | 2 | 27 | 65 | 37 | 15 |
| Getting on/off vehicle | 1 | 0.0 | 0 | 0 | 1 | 0 | 0 |
| In roadway with traffic | 32 | 1.1 | 0 | 3 | 15 | 12 | 2 |
| In roadway against traffic | 50 | 1.7 | 2 | 10 | 15 | 16 | 6 |
| Standing or lying in roadway | 1 | 0.0 | 0 | 0 | 0 | 1 | 0 |
| Pushing/working on vehicle | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Other working in roadway | 1 | 0.0 | 0 | 1 | 0 | 0 | 0 |
| Playing in roadway | 13 | 0.4 | 0 | 2 | 5 | 6 | 0 |
| In roadway other reason | 22 | 0.8 | 0 | 4 | 8 | 8 | 1 |
| Not in roadway | 26 | 0.9 | 0 | 2 | 7 | 9 | 6 |
| Other | 70 | 2.4 | 1 | 4 | 30 | 17 | 12 |
| Unknown | 158 | 5.4 | 0 | 15 | 64 | 38 | 19 |
| TOTAL | 2,929* | 100.0 | 29 | 360 | 1,041 | 966 | 406 |

* Includes 127 bicyclists with unknown injury severity

ACTION PRIOR TO CRASH (continued)

PEDESTRIAN - INJURY SEVERITY

| PEDESTRIAN ACTION | All Pedestrians | | Fatal | Injury | | | No Injury |
|-------------------------------|-----------------|--------------|------------|------------|--------------|--------------|------------|
| | Number | % of Total | | A | B | C | |
| Going straight ahead | 170 | 4.5 | 3 | 34 | 41 | 60 | 22 |
| Turning left | 31 | 0.8 | 2 | 8 | 5 | 11 | 5 |
| Turning right | 12 | 0.3 | 1 | 3 | 2 | 3 | 2 |
| Stopped on roadway | 13 | 0.3 | 0 | 4 | 6 | 2 | 0 |
| In prior crash | 9 | 0.2 | 2 | 1 | 3 | 2 | 0 |
| Changing lanes | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Backing | 1 | 0.0 | 0 | 0 | 1 | 0 | 0 |
| Slowing/stopping on roadway | 2 | 0.1 | 0 | 1 | 0 | 0 | 1 |
| Slowing/stopping other | 2 | 0.1 | 0 | 0 | 0 | 2 | 0 |
| Starting up on roadway | 1 | 0.0 | 0 | 1 | 0 | 0 | 0 |
| Starting up other | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Entering parking | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Leaving parking | 3 | 0.1 | 0 | 0 | 1 | 2 | 0 |
| Entering roadway | 31 | 0.8 | 1 | 6 | 13 | 5 | 2 |
| Leaving roadway | 4 | 0.1 | 0 | 3 | 1 | 0 | 0 |
| Making U-turn | 1 | 0.0 | 0 | 0 | 0 | 1 | 0 |
| Overtaking or passing | 3 | 0.1 | 0 | 0 | 1 | 1 | 1 |
| Avoiding object | 1 | 0.0 | 0 | 0 | 1 | 0 | 0 |
| Avoiding pedestrian | 1 | 0.0 | 0 | 0 | 1 | 0 | 0 |
| Avoiding vehicle (front/back) | 4 | 0.1 | 0 | 2 | 2 | 0 | 0 |
| Avoiding vehicle (angle) | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Driverless moving | 2 | 0.1 | 0 | 1 | 0 | 0 | 1 |
| Parked | 17 | 0.5 | 0 | 4 | 1 | 2 | 7 |
| Crossing at intersection | 819 | 21.8 | 14 | 173 | 236 | 321 | 42 |
| Crossing not at intersection | 1,135 | 30.3 | 72 | 299 | 387 | 286 | 38 |
| Getting on/off vehicle | 72 | 1.9 | 1 | 20 | 18 | 28 | 2 |
| In roadway with traffic | 182 | 4.9 | 19 | 39 | 52 | 49 | 15 |
| In roadway against traffic | 57 | 1.5 | 4 | 10 | 17 | 14 | 10 |
| Standing or lying in roadway | 150 | 4.0 | 13 | 43 | 42 | 38 | 9 |
| Pushing/working on vehicle | 47 | 1.3 | 3 | 15 | 9 | 16 | 3 |
| Other working in roadway | 42 | 1.1 | 1 | 5 | 6 | 27 | 3 |
| Playing in roadway | 91 | 2.4 | 3 | 24 | 26 | 33 | 1 |
| In roadway other reason | 194 | 5.2 | 7 | 44 | 64 | 66 | 9 |
| Not in roadway | 186 | 5.0 | 10 | 53 | 53 | 65 | 3 |
| Other | 124 | 3.3 | 1 | 26 | 42 | 45 | 6 |
| Unknown | 342 | 9.1 | 10 | 87 | 88 | 94 | 19 |
| TOTAL | 3,749* | 100.0 | 167 | 906 | 1,119 | 1,173 | 201 |

* Includes 183 pedestrians with unknown injury severity

MOST HARMFUL EVENT

MOST SEVERE OUTCOME IN CRASH

| NONCOLLISION | Motor Vehicles | | Fatal | Injury | | | PDO |
|-----------------------|----------------|------------|-------|--------|-------|-------|--------|
| | Number | % of Total | | A | B | C | |
| Loss of control | 6,481 | 0.9 | 6 | 202 | 446 | 1,052 | 4,775 |
| Cross center/median | 1,260 | 0.2 | 1 | 52 | 85 | 152 | 970 |
| Ran off road left | 1,070 | 0.1 | 0 | 30 | 75 | 143 | 822 |
| Ran off road right | 1,574 | 0.2 | 3 | 50 | 106 | 249 | 1,166 |
| Re-enter road | 232 | 0.0 | 1 | 15 | 16 | 47 | 153 |
| Overturn | 9,080 | 1.2 | 109 | 854 | 1,674 | 2,007 | 4,436 |
| Separation of units | 3,196 | 0.4 | 6 | 74 | 171 | 586 | 2,359 |
| Fire/explosion | 989 | 0.1 | 7 | 23 | 33 | 96 | 830 |
| Immersion | 126 | 0.0 | 4 | 9 | 14 | 17 | 82 |
| Jackknife | 434 | 0.1 | 2 | 4 | 11 | 42 | 375 |
| Downhill runaway | 91 | 0.0 | 0 | 3 | 5 | 13 | 70 |
| Cargo loss/shift | 795 | 0.1 | 0 | 5 | 10 | 37 | 743 |
| Individual fell off | 431 | 0.1 | 13 | 118 | 152 | 72 | 76 |
| Other noncollision | 2,171 | 0.3 | 1 | 60 | 124 | 233 | 1,753 |
| NONCOLLISION Subtotal | 27,930 | 3.8 | 153 | 1,499 | 2,922 | 4,746 | 18,610 |

MOST SEVERE OUTCOME IN CRASH

| HAD A COLLISION WITH NONFIXED OBJECT | Motor Vehicles | | Fatal | Injury | | | PDO |
|---|----------------|------------|-------|--------|--------|--------|---------|
| | Number | % of Total | | A | B | C | |
| Pedestrian | 3,019 | 0.4 | 160 | 754 | 894 | 897 | 314 |
| Pedalcycle | 2,658 | 0.4 | 29 | 308 | 888 | 863 | 570 |
| Motor vehicle in transport | 500,835 | 67.7 | 1,389 | 12,989 | 28,408 | 90,970 | 367,079 |
| Parked motor vehicle | 21,493 | 2.9 | 20 | 274 | 537 | 1,004 | 19,658 |
| Railway train | 184 | 0.0 | 9 | 29 | 18 | 16 | 112 |
| Animal | 61,417 | 8.3 | 4 | 88 | 414 | 891 | 60,020 |
| Other nonfixed objects | 6,281 | 0.8 | 7 | 95 | 183 | 432 | 5,564 |
| COLLISION NONFIXED Subtotal | 595,887 | 80.6 | 1,618 | 14,537 | 31,342 | 95,073 | 453,317 |

MOST HARMFUL EVENT (continued)

MOST SEVERE OUTCOME IN CRASH

| HAD A COLLISION WITH FIXED OBJECT | Motor Vehicles | | Fatal | Injury | | | PDO |
|--------------------------------------|----------------|------------|------------|--------------|--------------|--------------|---------------|
| | Number | % of Total | | A | B | C | |
| Bridge/pier/abutment | 802 | 0.1 | 15 | 38 | 74 | 129 | 546 |
| Bridge parapet end | 499 | 0.1 | 1 | 6 | 29 | 42 | 421 |
| Bridge rail | 556 | 0.1 | 1 | 18 | 49 | 95 | 393 |
| Guardrail face | 3,202 | 0.4 | 7 | 84 | 213 | 409 | 2,489 |
| Guardrail end | 502 | 0.1 | 3 | 37 | 82 | 67 | 313 |
| Median barrier | 3,090 | 0.4 | 6 | 115 | 358 | 724 | 1,887 |
| Highway traffic sign post | 2,704 | 0.4 | 1 | 19 | 58 | 130 | 2,496 |
| Signal post | 327 | 0.0 | 0 | 10 | 13 | 20 | 284 |
| Luminaire/light support | 682 | 0.1 | 3 | 38 | 76 | 80 | 485 |
| Utility pole | 3,932 | 0.5 | 28 | 225 | 562 | 652 | 2,465 |
| Other pole | 1,229 | 0.2 | 4 | 50 | 64 | 126 | 985 |
| Culvert | 748 | 0.1 | 9 | 56 | 110 | 108 | 465 |
| Curb | 2,040 | 0.3 | 3 | 46 | 90 | 186 | 1,715 |
| Ditch | 7,539 | 1.0 | 25 | 304 | 755 | 1,138 | 5,317 |
| Embankment | 2,023 | 0.3 | 9 | 104 | 251 | 324 | 1,335 |
| Fence | 1,649 | 0.2 | 1 | 27 | 56 | 119 | 1,446 |
| Mailbox | 2,401 | 0.3 | 1 | 15 | 50 | 103 | 2,232 |
| Tree | 10,758 | 1.5 | 159 | 964 | 1,586 | 1,665 | 6,384 |
| Rail crossing signal | 125 | 0.0 | 0 | 3 | 6 | 5 | 111 |
| Building | 1,059 | 0.1 | 11 | 69 | 128 | 157 | 694 |
| Traffic island | 68 | 0.0 | 0 | 1 | 6 | 4 | 57 |
| Fire hydrant | 610 | 0.1 | 2 | 11 | 47 | 72 | 478 |
| Impact attenuator | 55 | 0.0 | 0 | 4 | 12 | 10 | 29 |
| Other fixed object | 3,713 | 0.5 | 12 | 131 | 280 | 363 | 2,927 |
| COLLISION FIXED Subtotal | 50,313 | 6.8 | 301 | 2,375 | 4,955 | 6,728 | 35,954 |

MOST SEVERE OUTCOME IN CRASH

| | Motor Vehicles | | Fatal | Injury | | | PDO |
|---------------------------------|----------------|--------------|--------------|---------------|---------------|----------------|----------------|
| | Number | % of Total | | A | B | C | |
| Unknown Event | 65,408 | 8.8 | 54 | 1,545 | 2,825 | 9,493 | 51,491 |
| TOTAL MOST HARMFUL EVENT | 739,538 | 100.0 | 2,126 | 19,956 | 42,044 | 116,040 | 559,372 |

VEHICLE DEFECTS IN CRASH INVOLVEMENT

MOST SEVERE OUTCOME IN CRASH

| VEHICLE DEFECTS | Motor Vehicles | | Fatal | Injury | | | PDO |
|-------------------|----------------|--------------|--------------|---------------|---------------|----------------|----------------|
| | Number | % of Total | | A | B | C | |
| Brakes | 2,050 | 0.3 | 2 | 62 | 139 | 401 | 1,446 |
| Lights/reflectors | 464 | 0.1 | 0 | 22 | 26 | 58 | 358 |
| Steering | 252 | 0.0 | 0 | 5 | 24 | 45 | 178 |
| Tires/wheels | 785 | 0.1 | 6 | 36 | 75 | 113 | 555 |
| Windows | 155 | 0.0 | 0 | 9 | 12 | 29 | 105 |
| Other | 1,410 | 0.2 | 2 | 58 | 78 | 167 | 1,105 |
| Unknown/None | 734,422 | 99.3 | 2,116 | 19,764 | 41,690 | 115,227 | 555,625 |
| TOTAL | 739,538 | 100.0 | 2,126 | 19,956 | 42,044 | 116,040 | 559,372 |

DRIVER HAZARDOUS ACTION

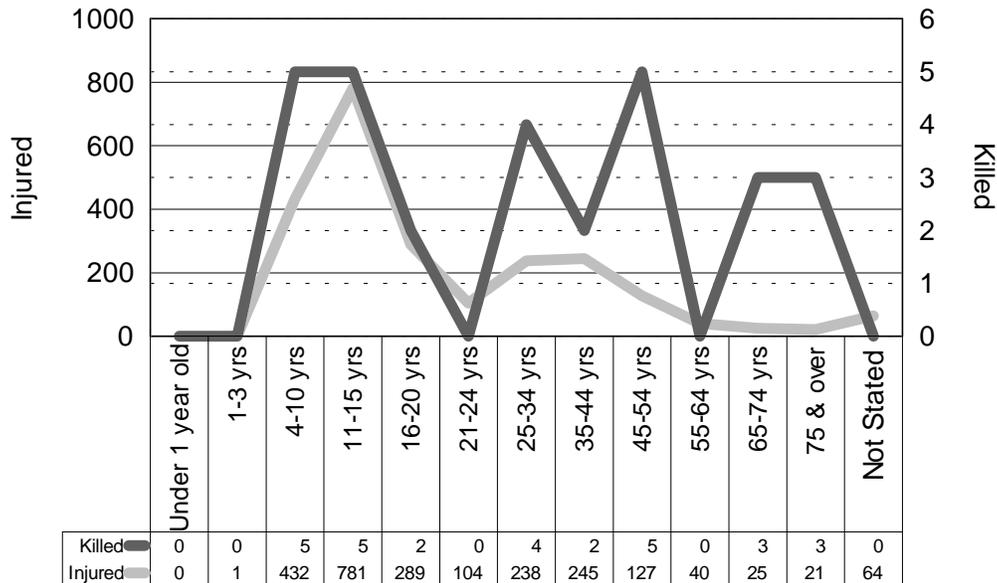
MOST SEVERE OUTCOME IN CRASH

| HAZARDOUS ACTION | All Vehicles | | Fatal | Injury | | | PDO |
|--|----------------|--------------|--------------|---------------|---------------|----------------|----------------|
| | Number | % of Total | | A | B | C | |
| None | 373,266 | 50.5 | 882 | 8,861 | 18,858 | 56,222 | 288,443 |
| Speed too fast | 43,671 | 5.9 | 305 | 2,199 | 4,186 | 7,021 | 29,960 |
| Speed too slow | 1,250 | 0.2 | 8 | 31 | 76 | 263 | 872 |
| Failed to yield | 66,252 | 9.0 | 192 | 2,396 | 5,483 | 12,103 | 46,078 |
| Disregard traffic control | 17,314 | 2.3 | 129 | 1,120 | 2,039 | 4,014 | 10,012 |
| Drove wrong way | 595 | 0.1 | 12 | 35 | 49 | 92 | 407 |
| Drove left of center | 4,646 | 0.6 | 109 | 413 | 536 | 641 | 2,947 |
| Improper passing | 5,536 | 0.7 | 16 | 110 | 224 | 566 | 4,620 |
| Improper lane use | 16,210 | 2.2 | 22 | 201 | 483 | 1,424 | 14,080 |
| Improper turn | 9,891 | 1.3 | 5 | 218 | 456 | 1,262 | 7,950 |
| Improper/no signal | 1,062 | 0.1 | 0 | 12 | 52 | 106 | 892 |
| Improper backing | 14,072 | 1.9 | 2 | 27 | 118 | 423 | 13,502 |
| Unable to stop in assured clear distance | 96,401 | 13.0 | 67 | 1,499 | 4,148 | 21,107 | 69,580 |
| Other | 38,751 | 5.2 | 197 | 1,723 | 3,382 | 5,299 | 28,150 |
| Unknown | 50,621 | 6.8 | 180 | 1,111 | 1,954 | 5,497 | 41,879 |
| TOTAL | 739,538 | 100.0 | 2,126 | 19,956 | 42,044 | 116,040 | 559,372 |



MICHIGAN BICYCLE CRASHES

1997 Bicycle Crash Information



In 1997, there were 2,929 bicyclists involved in motor vehicles crashes, with 29 bicyclists killed and 2,367 injured. The number of bicyclists killed represents a 9.4 percent decrease from 1996.

Children under 16 years of age accounted for 10 (34.5%) of the bicycle deaths in 1997.

BICYCLE HELMET USE AND INJURY SEVERITY

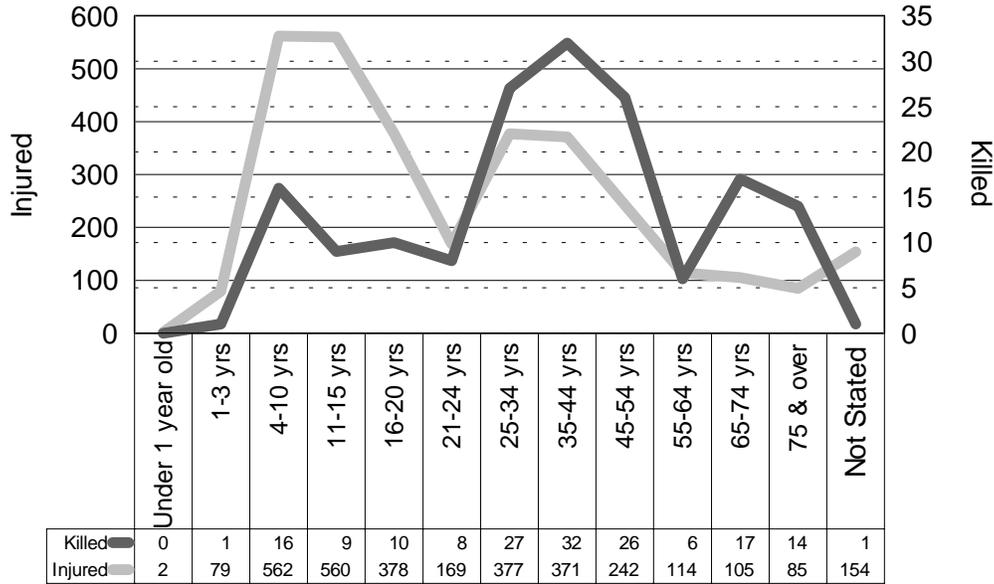
| HELMET USE | Fatality | Injury | | | No Injury |
|---------------|-----------|------------|--------------|------------|------------|
| | | A | B | C | |
| Worn | 4 | 16 | 47 | 31 | 15 |
| Not Worn | 14 | 130 | 340 | 300 | 102 |
| Unknown | 11 | 214 | 654 | 635 | 289 |
| TOTALS | 29 | 360 | 1,041 | 966 | 406 |

The National Center for Statistics and Analysis of the National Highway Traffic Safety Administration cites a study by the Centers for Disease Control [12] 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

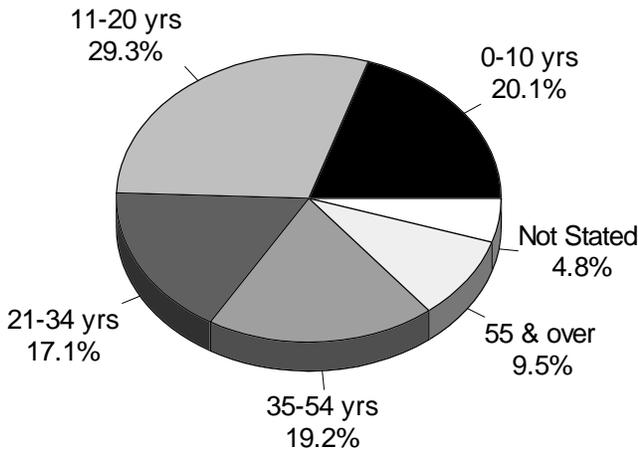
1997 Pedestrian Crash Information



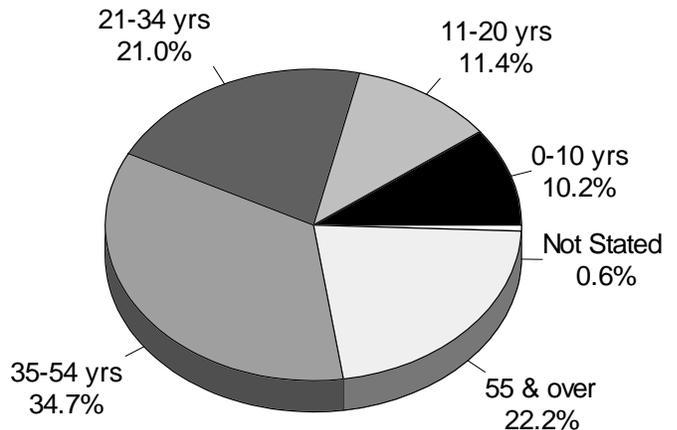
In 1997, there were 3,749 pedestrians involved in motor vehicles crashes, with 167 pedestrians killed and 3,198 injured. The number killed represents a 13.0 percent decrease in fatalities from 1996.

Children under 16 years of age accounted for 26 (15.6%) of the pedestrian deaths in 1997. Adults over the age of 54 accounted for 37 (22.2%) of the pedestrian deaths in 1997.

Pedestrians Injured



Pedestrians Killed





MICHIGAN SNOWMOBILE ON ROADWAY CRASHES

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

| NONCOLLISION | Snowmobiles | | Fatal | Injury | | | PDO |
|-----------------------|-------------|------------|-------|--------|----|----|-----|
| | Number | % of Total | | A | B | C | |
| Loss of control | 10 | 2.1 | 0 | 6 | 2 | 0 | 2 |
| Cross center/median | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Ran off road left | 1 | 0.2 | 0 | 0 | 0 | 0 | 1 |
| Ran off road right | 2 | 0.4 | 0 | 1 | 0 | 1 | 0 |
| Re-enter road | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Overturn | 28 | 5.9 | 0 | 8 | 10 | 5 | 5 |
| Separation of units | 2 | 0.4 | 0 | 0 | 0 | 0 | 2 |
| Fire/explosion | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Immersion | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Jackknife | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Downhill runaway | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Cargo loss/shift | 1 | 0.2 | 0 | 0 | 0 | 0 | 1 |
| Individual fell off | 32 | 6.7 | 0 | 11 | 12 | 9 | 0 |
| Other noncollision | 4 | 0.8 | 0 | 0 | 2 | 1 | 1 |
| NONCOLLISION Subtotal | 80 | 16.8 | 0 | 26 | 26 | 16 | 12 |

MOST SEVERE OUTCOME IN CRASH

| HAD A COLLISION WITH NONFIXED OBJECT | Snowmobiles | | Fatal | Injury | | | PDO |
|---|-------------|------------|-------|--------|----|----|-----|
| | Number | % of Total | | A | B | C | |
| Pedestrian | 4 | 0.8 | 0 | 2 | 1 | 1 | 0 |
| Pedalcycle | 1 | 0.2 | 0 | 0 | 0 | 1 | 0 |
| Motor vehicle in transport | 201 | 42.2 | 9 | 53 | 22 | 41 | 76 |
| Parked motor vehicle | 21 | 4.4 | 1 | 7 | 1 | 4 | 8 |
| Railway train | 1 | 0.2 | 0 | 0 | 0 | 0 | 1 |
| Animal | 17 | 3.6 | 0 | 2 | 0 | 3 | 12 |
| Other nonfixed objects | 6 | 1.3 | 0 | 2 | 2 | 1 | 1 |
| COLLISION NONFIXED Subtotal | 251 | 52.7 | 10 | 66 | 26 | 51 | 98 |



MICHIGAN SNOWMOBILE ON ROADWAY CRASHES (continued)

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

| HAD A COLLISION WITH FIXED OBJECT | Snowmobiles | | Fatal | Injury | | | PDO |
|--------------------------------------|-------------|--------------|-----------|------------|-----------|-----------|------------|
| | Number | % of Total | | A | B | C | |
| Bridge/pier/abutment | 2 | 0.4 | 0 | 1 | 0 | 1 | 0 |
| Bridge parapet end | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Bridge rail | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Guardrail face | 1 | 0.2 | 0 | 0 | 0 | 1 | 0 |
| Guardrail end | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Median barrier | 1 | 0.2 | 0 | 1 | 0 | 0 | 0 |
| Highway traffic sign post | 4 | 0.8 | 0 | 3 | 0 | 0 | 1 |
| Signal post | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Luminaire/light support | 1 | 0.2 | 0 | 0 | 0 | 0 | 1 |
| Utility pole | 4 | 0.8 | 0 | 1 | 0 | 1 | 2 |
| Other pole | 3 | 0.6 | 0 | 0 | 0 | 0 | 3 |
| Culvert | 5 | 1.1 | 0 | 0 | 1 | 3 | 1 |
| Curb | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Ditch | 4 | 0.8 | 0 | 2 | 0 | 0 | 2 |
| Embankment | 10 | 2.1 | 0 | 3 | 6 | 0 | 1 |
| Fence | 3 | 0.6 | 0 | 0 | 1 | 0 | 2 |
| Mailbox | 3 | 0.6 | 0 | 0 | 2 | 0 | 1 |
| Tree | 50 | 10.5 | 5 | 20 | 9 | 7 | 9 |
| Rail crossing signal | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Building | 2 | 0.4 | 0 | 0 | 1 | 0 | 1 |
| Traffic island | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Fire hydrant | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Impact attenuator | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Other fixed object | 19 | 4.0 | 1 | 6 | 3 | 1 | 8 |
| COLLISION FIXED Subtotal | 112 | 23.5 | 6 | 37 | 23 | 14 | 32 |
| Unknown Event | 33 | 6.9 | 0 | 10 | 6 | 5 | 12 |
| TOTAL MOST HARMFUL EVENT | 476 | 100.0 | 16 | 139 | 81 | 86 | 154 |

A total of 476 snowmobiles were reported in crashes on Michigan roadways during 1997. Of these snowmobiles, 16 were involved in fatal crashes with 15 of their drivers and 1 passenger killed.



MICHIGAN ORV/ATV ON ROADWAY CRASHES

Most Harmful Event

MOST SEVERE OUTCOME IN CRASH

| NONCOLLISION | ORV/ATV | | Fatal | Injury | | | PDO |
|---|------------|--------------|----------|-----------|-----------|-----------|-----------|
| | Number | % of Total | | A | B | C | |
| Loss of control | 5 | 2.8 | 0 | 1 | 3 | 1 | 0 |
| Ran off road left | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Overturn | 29 | 16.4 | 1 | 11 | 13 | 3 | 1 |
| Separation of Unit | 1 | 0.6 | 0 | 0 | 0 | 1 | 0 |
| Individual fell off | 12 | 6.8 | 0 | 5 | 6 | 1 | 0 |
| Other noncollision | 4 | 2.3 | 0 | 1 | 2 | 0 | 1 |
| NONCOLLISION Subtotal | 51 | 28.8 | 1 | 18 | 24 | 6 | 2 |
| HAD A COLLISION WITH NONFIXED OBJECT | | | | | | | |
| Pedestrian | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Pedalcycle | 1 | 0.6 | 0 | 0 | 0 | 1 | 0 |
| Motor vehicle in transport | 67 | 37.9 | 0 | 13 | 12 | 13 | 29 |
| Parked motor vehicle | 5 | 2.8 | 0 | 2 | 0 | 0 | 3 |
| Animal | 4 | 2.3 | 0 | 0 | 0 | 0 | 4 |
| Other nonfixed objects | 2 | 1.1 | 0 | 0 | 0 | 1 | 1 |
| COLLISION NONFIXED Subtotal | 79 | 44.6 | 0 | 15 | 12 | 15 | 37 |
| HAD A COLLISION WITH FIXED OBJECT | | | | | | | |
| Bridge rail | 1 | 0.6 | 0 | 0 | 1 | 0 | 0 |
| Guardrail face | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Traffic sign post | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Luminaire support | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Utility pole | 2 | 1.1 | 1 | 0 | 0 | 1 | 0 |
| Culvert | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Ditch | 6 | 3.4 | 1 | 1 | 1 | 1 | 2 |
| Embankment | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Mailbox | 2 | 1.1 | 0 | 0 | 2 | 0 | 0 |
| Tree | 17 | 9.6 | 2 | 8 | 3 | 4 | 0 |
| Building | 1 | 0.6 | 0 | 0 | 1 | 0 | 0 |
| Other fixed object | 7 | 4.0 | 0 | 2 | 3 | 2 | 0 |
| COLLISION FIXED Subtotal | 36 | 20.3 | 4 | 11 | 11 | 8 | 2 |
| Unknown Event | 11 | 6.2 | 0 | 2 | 4 | 3 | 2 |
| TOTAL MOST HARMFUL EVENT | 177 | 100.0 | 5 | 46 | 51 | 32 | 43 |

A total of 177 Off Road Vehicles/All Terrain Vehicles were reported in crashes on Michigan roadways during 1997. Of these ORV/ATVs, 5 were involved in fatal crashes and 5 of their operators were killed.

MICHIGAN SNOWMOBILE ON ROADWAY CRASHES

MOST SEVERE OUTCOME IN CRASH

| Driver Hazardous Action | All Snowmobiles | | Fatal | Injury | | | PDO |
|--|-----------------|--------------|-----------|------------|-----------|-----------|------------|
| | Number | % of Total | | A | B | C | |
| None | 125 | 26.3 | 4 | 28 | 21 | 21 | 51 |
| Speed too fast | 126 | 26.5 | 4 | 53 | 24 | 23 | 22 |
| Speed too slow | 2 | 0.4 | 0 | 0 | 2 | 0 | 0 |
| Failed to yield | 63 | 13.2 | 1 | 14 | 5 | 10 | 33 |
| Disregard traffic control | 5 | 1.1 | 0 | 3 | 0 | 0 | 2 |
| Drove wrong way | 3 | 0.6 | 1 | 1 | 1 | 0 | 0 |
| Drove left of center | 9 | 1.9 | 1 | 3 | 0 | 2 | 3 |
| Improper passing | 3 | 0.6 | 0 | 0 | 0 | 2 | 1 |
| Improper lane use | 4 | 0.8 | 0 | 0 | 1 | 2 | 1 |
| Improper turn | 4 | 0.8 | 0 | 1 | 0 | 2 | 1 |
| Improper/no signal | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Improper backing | 2 | 0.4 | 0 | 0 | 0 | 0 | 2 |
| Unable to stop in assured clear distance | 36 | 7.6 | 1 | 12 | 9 | 4 | 10 |
| Other | 63 | 13.2 | 4 | 14 | 14 | 13 | 18 |
| Unknown | 31 | 6.5 | 0 | 10 | 4 | 7 | 10 |
| TOTAL | 476 | 100.0 | 16 | 139 | 81 | 86 | 154 |

MICHIGAN ORV/ATV ON ROADWAY CRASHES

MOST SEVERE OUTCOME IN CRASH

| Driver Hazardous Action | All ORV/ATVs | | Fatal | Injury | | | PDO |
|--|--------------|--------------|----------|-----------|-----------|-----------|-----------|
| | Number | % of Total | | A | B | C | |
| None | 39 | 22.0 | 0 | 8 | 8 | 11 | 12 |
| Speed too fast | 37 | 20.9 | 3 | 13 | 10 | 9 | 2 |
| Speed too slow | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Failed to yield | 20 | 11.3 | 0 | 6 | 4 | 4 | 6 |
| Disregard traffic control | 2 | 1.1 | 0 | 0 | 2 | 0 | 0 |
| Drove wrong way | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Drove left of center | 2 | 1.1 | 0 | 1 | 0 | 0 | 1 |
| Improper passing | 1 | 0.6 | 0 | 0 | 0 | 1 | 0 |
| Improper lane use | 4 | 2.3 | 0 | 1 | 0 | 0 | 3 |
| Improper turn | 2 | 1.1 | 0 | 1 | 0 | 0 | 1 |
| Improper/no signal | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Improper backing | 2 | 1.1 | 0 | 0 | 0 | 0 | 2 |
| Unable to stop in assured clear distance | 8 | 4.5 | 0 | 2 | 1 | 1 | 4 |
| Other | 47 | 26.6 | 0 | 10 | 21 | 6 | 10 |
| Unknown | 13 | 7.3 | 2 | 4 | 5 | 0 | 2 |
| TOTAL | 177 | 100.0 | 5 | 46 | 51 | 32 | 43 |



MICHIGAN FARM EQUIPMENT CRASHES

A total of 251 crashes involving farm equipment were reported on Michigan roadways during 1997. Of these crashes, 2 were fatal crashes with 1 driver and 1 passenger of the farm equipment killed.



MICHIGAN VEHICLE - TRAIN CRASHES

A total of 124 crashes involving trains were reported in Michigan during 1997. The National Highway Traffic Safety Administration's 1997 Fatal Accident Reporting System [13] reported 11 fatal train crashes in Michigan, and 14 persons killed as a result of those collisions.

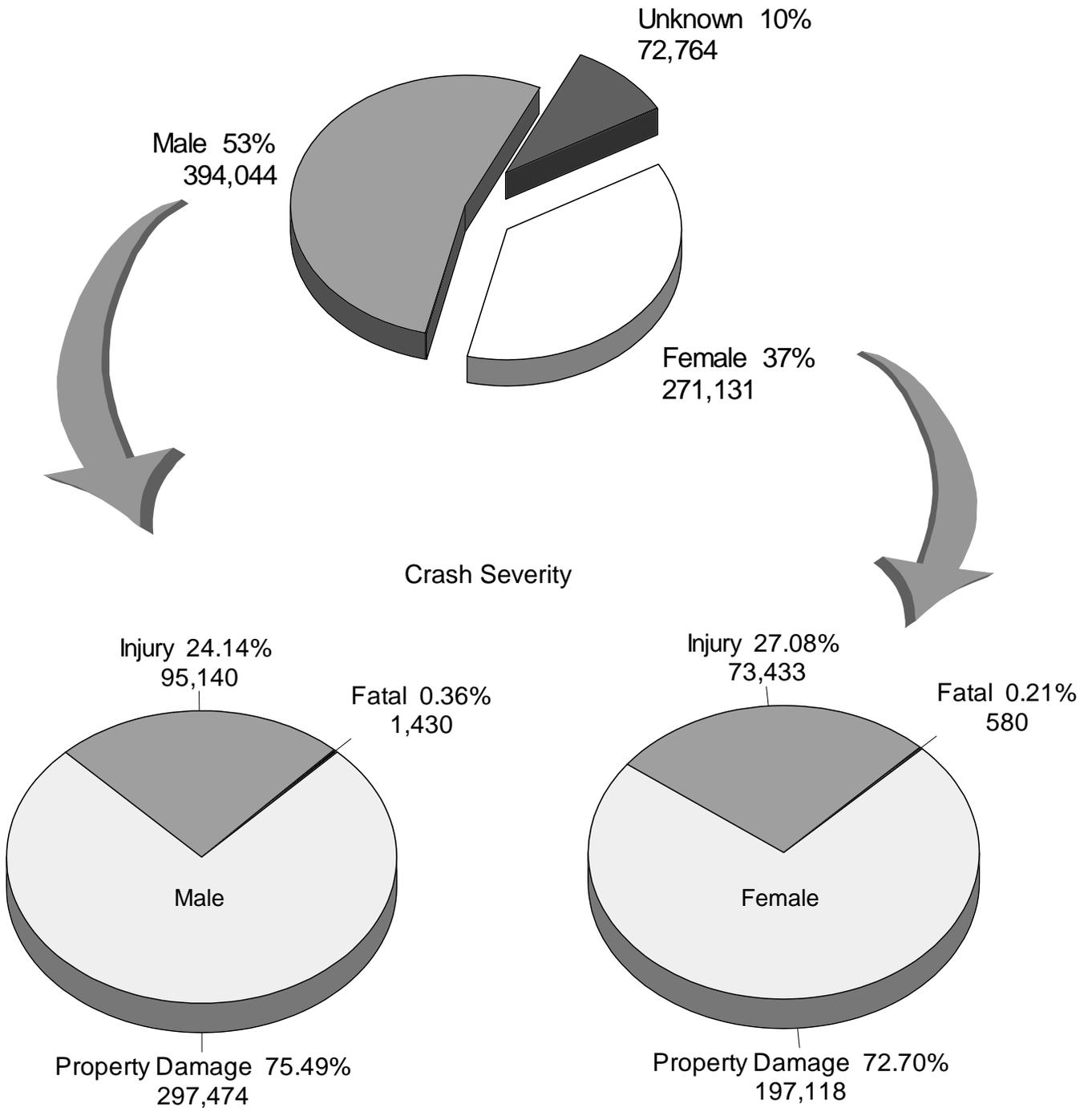


MOTORCYCLE AND MOTOR SCOOTER DATA

| MOTORCYCLE & MOTOR SCOOTER DATA | 1996 | 1997 | % Change |
|---|---------------|---------------|----------|
| Registrations | 128,335.0 | 136,030.0 | 6.0 |
| Crashes | 2,468.0 | 2,465.0 | -0.1 |
| Deaths | 62.0 | 63.0 | 1.6 |
| Persons Injured | 2,200.0 | 2,103.0 | -4.4 |
| Death Rate based on 10,000 cycle registrations | 4.8 | 4.6 | -4.2 |
| Estimated Mileage based on 3,000 miles per cycle | 385,005,000.0 | 408,090,000.0 | 6.0 |
| Death Rate based on deaths per 100 million vehicle miles traveled | 16.1 | 15.4 | -4.3 |

Motorcycles were involved in 0.58 percent of all traffic crashes in Michigan in 1997. Injuries were proportionately more severe to motorcyclists than to persons in motor vehicles. The 1997 death rate for motorcyclists was 15.4 per 100 million vehicle miles traveled compared to the overall 1.6 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 1997 chart was processed with numbers for all drivers (vehicle level).

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 | 1,098 | 3 | 105 | 65 | 245 | 238 | 180 | 105 | 78 | 26 | 53 |
| Alger | 616 | 6 | 81 | 51 | 103 | 126 | 81 | 44 | 28 | 17 | 79 |
| Allegan | 5,937 | 31 | 998 | 558 | 1,296 | 1,159 | 688 | 364 | 202 | 147 | 494 |
| Alpena | 2,075 | 7 | 389 | 146 | 331 | 400 | 254 | 174 | 133 | 83 | 158 |
| Antrim | 1,402 | 4 | 207 | 122 | 276 | 276 | 195 | 108 | 70 | 41 | 103 |
| Arenac | 1,405 | 5 | 219 | 102 | 273 | 303 | 200 | 125 | 70 | 40 | 68 |
| Baraga | 612 | 4 | 70 | 49 | 122 | 123 | 90 | 44 | 30 | 19 | 61 |
| Barry | 3,301 | 18 | 544 | 263 | 735 | 663 | 461 | 262 | 125 | 67 | 163 |
| Bay | 7,394 | 27 | 1,296 | 643 | 1,337 | 1,311 | 861 | 459 | 341 | 263 | 856 |
| Benzie | 860 | 4 | 116 | 65 | 163 | 195 | 118 | 63 | 43 | 25 | 68 |
| Berrien | 9,864 | 41 | 1,412 | 742 | 1,772 | 1,572 | 1,111 | 659 | 452 | 290 | 1,813 |
| Branch | 3,119 | 11 | 518 | 276 | 591 | 574 | 388 | 193 | 124 | 89 | 355 |
| Calhoun | 11,030 | 53 | 1,645 | 908 | 2,126 | 2,019 | 1,331 | 710 | 519 | 311 | 1,408 |
| Cass | 2,764 | 15 | 386 | 200 | 513 | 485 | 298 | 180 | 94 | 55 | 538 |
| Charlevoix | 1,782 | 9 | 282 | 114 | 323 | 402 | 216 | 134 | 87 | 48 | 167 |
| Cheboygan | 1,449 | 7 | 213 | 112 | 270 | 294 | 184 | 107 | 82 | 41 | 139 |
| Chippewa | 2,394 | 6 | 354 | 228 | 454 | 414 | 268 | 146 | 94 | 60 | 370 |
| Clare | 2,196 | 6 | 332 | 172 | 447 | 469 | 301 | 186 | 117 | 63 | 103 |
| Clinton | 4,123 | 15 | 655 | 366 | 816 | 833 | 586 | 281 | 161 | 100 | 310 |
| Crawford | 1,114 | 4 | 135 | 75 | 223 | 236 | 177 | 83 | 52 | 26 | 103 |
| Delta | 3,546 | 11 | 560 | 248 | 573 | 656 | 470 | 247 | 204 | 138 | 439 |
| Dickinson | 2,146 | 4 | 277 | 92 | 332 | 409 | 269 | 135 | 111 | 99 | 418 |
| Eaton | 7,024 | 20 | 1,246 | 591 | 1,412 | 1,339 | 980 | 479 | 264 | 158 | 535 |
| Emmet | 2,695 | 7 | 422 | 186 | 545 | 536 | 362 | 199 | 113 | 74 | 251 |
| Genesee | 29,140 | 138 | 4,547 | 2,487 | 5,805 | 5,322 | 3,605 | 1,840 | 1,233 | 719 | 3,444 |
| Gladwin | 1,439 | 7 | 216 | 98 | 331 | 303 | 200 | 132 | 71 | 41 | 40 |
| Gogebic | 1,049 | 3 | 157 | 45 | 125 | 140 | 98 | 53 | 62 | 58 | 308 |
| Grand Traverse | 6,468 | 16 | 1,145 | 487 | 1,238 | 1,295 | 870 | 442 | 280 | 193 | 502 |
| Gratiot | 2,501 | 11 | 413 | 253 | 494 | 460 | 323 | 187 | 111 | 92 | 157 |
| Hillsdale | 3,164 | 9 | 545 | 296 | 642 | 562 | 394 | 219 | 104 | 98 | 295 |
| Houghton | 2,136 | 3 | 354 | 217 | 347 | 332 | 245 | 148 | 99 | 75 | 316 |
| Huron | 2,597 | 6 | 471 | 194 | 502 | 489 | 358 | 197 | 138 | 105 | 137 |
| Ingham | 23,426 | 75 | 3,738 | 2,889 | 4,840 | 4,106 | 2,818 | 1,300 | 731 | 488 | 2,441 |
| Ionia | 3,889 | 18 | 670 | 396 | 853 | 774 | 514 | 238 | 118 | 96 | 212 |
| Iosco | 1,746 | 3 | 267 | 130 | 341 | 336 | 245 | 159 | 91 | 78 | 96 |
| Iron | 1,107 | 3 | 130 | 64 | 146 | 199 | 153 | 95 | 86 | 46 | 185 |
| Isabella | 4,056 | 16 | 728 | 544 | 785 | 722 | 463 | 280 | 158 | 83 | 277 |
| Jackson | 11,588 | 40 | 1,897 | 907 | 2,355 | 2,151 | 1,447 | 749 | 465 | 359 | 1,218 |
| Kalamazoo | 17,061 | 74 | 2,724 | 1,910 | 3,527 | 2,969 | 2,066 | 984 | 646 | 440 | 1,721 |
| Kalkaska | 1,170 | 2 | 181 | 97 | 240 | 237 | 172 | 82 | 52 | 35 | 72 |
| Kent | 46,687 | 192 | 7,335 | 4,845 | 10,386 | 8,686 | 5,263 | 2,507 | 1,546 | 1,067 | 4,860 |
| Keweenaw | 102 | 0 | 14 | 13 | 18 | 16 | 8 | 5 | 6 | 5 | 17 |
| Lake | 799 | 5 | 79 | 47 | 164 | 176 | 132 | 79 | 42 | 27 | 48 |
| Lapeer | 5,587 | 30 | 1,008 | 458 | 1,247 | 1,201 | 726 | 350 | 172 | 90 | 305 |
| Leelanau | 952 | 4 | 132 | 82 | 156 | 198 | 125 | 81 | 45 | 22 | 107 |

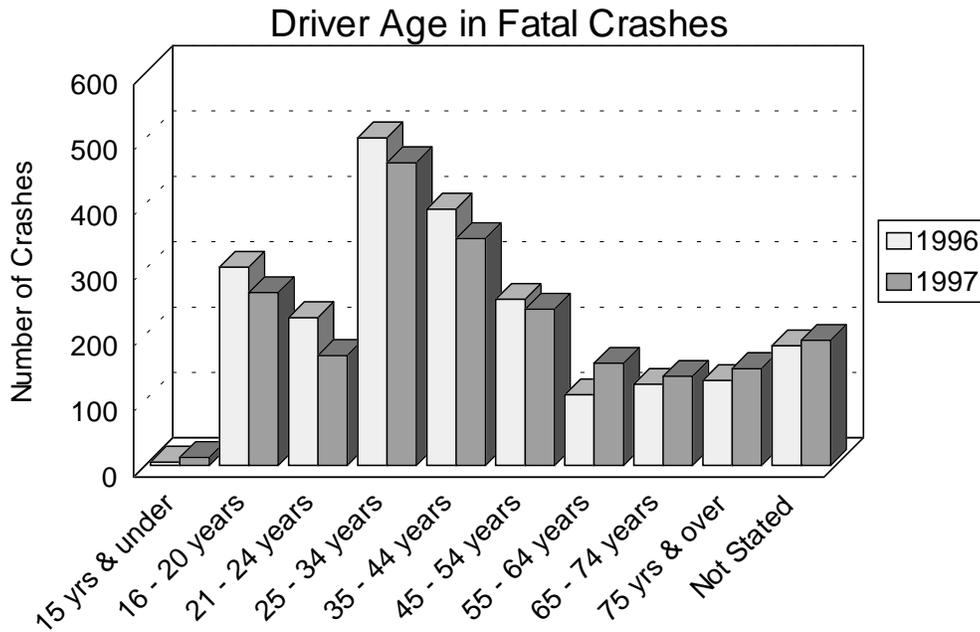
REPORTED AGE OF DRIVERS INVOLVED IN ALL CRASHES (continued)

| 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 | 5,996 | 19 | 1,151 | 467 | 1,074 | 962 | 778 | 403 | 250 | 218 | 674 |
| Livingston | 9,113 | 36 | 1,756 | 740 | 1,914 | 1,927 | 1,157 | 539 | 272 | 155 | 617 |
| Luce | 407 | 4 | 60 | 34 | 77 | 83 | 46 | 34 | 10 | 17 | 42 |
| Mackinac | 1,217 | 1 | 138 | 89 | 208 | 266 | 182 | 111 | 58 | 26 | 138 |
| Macomb | 55,462 | 134 | 8,284 | 4,675 | 11,825 | 10,145 | 6,391 | 3,497 | 2,463 | 1,580 | 6,468 |
| Manistee | 1,523 | 9 | 208 | 102 | 309 | 318 | 213 | 117 | 77 | 63 | 107 |
| Marquette | 4,475 | 16 | 806 | 383 | 711 | 776 | 541 | 226 | 190 | 110 | 716 |
| Mason | 2,395 | 12 | 400 | 187 | 421 | 478 | 336 | 184 | 118 | 71 | 188 |
| Mecosta | 3,755 | 16 | 704 | 483 | 707 | 640 | 476 | 273 | 155 | 89 | 212 |
| Menominee | 2,229 | 7 | 315 | 116 | 341 | 426 | 256 | 140 | 101 | 69 | 458 |
| Midland | 4,982 | 14 | 926 | 426 | 1,023 | 958 | 683 | 342 | 197 | 122 | 291 |
| Missaukee | 958 | 1 | 154 | 79 | 185 | 202 | 126 | 89 | 48 | 23 | 51 |
| Monroe | 8,359 | 37 | 1,466 | 589 | 1,411 | 1,392 | 862 | 449 | 287 | 191 | 1,675 |
| Montcalm | 4,427 | 27 | 795 | 402 | 945 | 856 | 572 | 294 | 190 | 119 | 227 |
| Montmorency | 660 | 6 | 88 | 54 | 138 | 128 | 98 | 60 | 43 | 20 | 25 |
| Muskegon | 10,522 | 33 | 1,868 | 946 | 2,115 | 1,924 | 1,314 | 679 | 504 | 352 | 787 |
| Newaygo | 2,902 | 17 | 511 | 227 | 624 | 611 | 384 | 222 | 123 | 80 | 103 |
| Oakland | 96,291 | 277 | 12,971 | 8,047 | 21,936 | 19,542 | 12,481 | 5,925 | 3,629 | 2,221 | 9,262 |
| Oceana | 1,560 | 6 | 253 | 114 | 334 | 312 | 205 | 119 | 52 | 30 | 135 |
| Ogemaw | 1,602 | 4 | 213 | 126 | 312 | 368 | 245 | 150 | 82 | 33 | 69 |
| Ontonagon | 682 | 3 | 76 | 43 | 90 | 130 | 89 | 62 | 46 | 16 | 127 |
| Osceola | 1,993 | 8 | 260 | 173 | 464 | 412 | 255 | 172 | 83 | 44 | 122 |
| Oscoda | 617 | 2 | 68 | 32 | 125 | 143 | 107 | 63 | 38 | 15 | 24 |
| Otsego | 1,706 | 2 | 316 | 134 | 327 | 339 | 228 | 106 | 79 | 42 | 133 |
| Ottawa | 13,801 | 53 | 2,803 | 1,399 | 2,905 | 2,558 | 1,520 | 787 | 472 | 355 | 949 |
| Presque Isle | 930 | 0 | 150 | 92 | 159 | 146 | 121 | 101 | 69 | 33 | 59 |
| Roscommon | 1,657 | 7 | 242 | 122 | 296 | 353 | 235 | 135 | 115 | 63 | 89 |
| Saginaw | 15,379 | 45 | 2,469 | 1,340 | 3,021 | 2,852 | 1,918 | 1,097 | 725 | 466 | 1,446 |
| St. Clair | 9,306 | 32 | 1,806 | 817 | 1,790 | 1,609 | 1,104 | 514 | 354 | 277 | 1,003 |
| St. Joseph | 3,855 | 14 | 662 | 327 | 714 | 636 | 418 | 283 | 157 | 83 | 561 |
| Sanilac | 2,477 | 9 | 434 | 202 | 511 | 514 | 330 | 184 | 132 | 65 | 96 |
| Schoolcraft | 773 | 3 | 91 | 60 | 142 | 132 | 93 | 61 | 54 | 24 | 113 |
| Shiawassee | 3,879 | 21 | 725 | 335 | 776 | 733 | 487 | 243 | 166 | 113 | 280 |
| Tuscola | 3,157 | 14 | 562 | 259 | 664 | 648 | 419 | 227 | 130 | 85 | 149 |
| Van Buren | 4,477 | 18 | 718 | 394 | 826 | 792 | 560 | 297 | 184 | 121 | 567 |
| Washtenaw | 22,427 | 59 | 3,143 | 2,346 | 4,831 | 4,017 | 2,843 | 1,117 | 676 | 388 | 3,007 |
| Wayne | 182,281 | 432 | 17,085 | 12,923 | 33,860 | 27,595 | 18,502 | 9,369 | 6,718 | 3,792 | 52,005 |
| Wexford | 2,907 | 9 | 451 | 207 | 573 | 562 | 395 | 196 | 137 | 78 | 299 |
| UNKNOWN | 190 | 0 | 20 | 8 | 42 | 42 | 24 | 6 | 7 | 3 | 38 |
| Totals | 737,939 | 2,380 | 104,361 | 62,332 | 148,546 | 132,233 | 87,288 | 44,487 | 29,041 | 18,149 | 109,122 |

DRIVER AGE

| AGE OF DRIVERS IN FATAL CRASHES | 1996 | 1997 | % Change | % 1997 Fatal Crash Involvement | Percent Active Driving Population* |
|------------------------------------|--------------|--------------|-------------|--------------------------------------|--|
| 15 years and under | 5 | 12 | 140.0 | 0.6 | 1.5 |
| 16 - 20 years | 303 | 264 | -12.9 | 12.4 | 8.5 |
| 21 - 24 years | 226 | 168 | -25.7 | 7.9 | 7.0 |
| 25 - 34 years | 501 | 463 | -7.6 | 21.8 | 20.2 |
| 35 - 44 years | 392 | 347 | -11.5 | 16.3 | 21.8 |
| 45 - 54 years | 254 | 239 | -5.9 | 11.3 | 17.1 |
| 55 - 64 years | 108 | 156 | 44.4 | 7.3 | 10.6 |
| 65 - 74 years | 124 | 136 | 9.7 | 6.4 | 8.2 |
| 75 years and over | 130 | 148 | 13.8 | 7.0 | 5.1 |
| Not Stated | 183 | 191 | 4.4 | 9.0 | --- |
| TOTALS | 2,226 | 2,124 | -4.6 | 100.0 | 100.0 |

* Figures courtesy of the Michigan Department of State [14]



REGISTRATION TRANSACTIONS
(Includes Original, Renewal, Correction, and Replacements)
Registration data courtesy of the Michigan Department of State [15]

| COUNTY | VEHICLE | | | | | | OTHER | | |
|----------------|-----------|------------|---------|------------|--------------|---------------|------------|------------|-------|
| | Passenger | Commercial | Trailer | Motorcycle | Total Plates | Total Revenue | Watercraft | Snowmobile | Moped |
| Alcona | 7,017 | 3,625 | 2,641 | 155 | 13,438 | \$ 694,733.50 | 2,534 | 828 | 70 |
| Alger | 4,950 | 3,006 | 1,585 | 196 | 9,737 | 483,939.15 | 1,714 | 1,411 | 15 |
| Allegan | 57,687 | 24,600 | 15,475 | 1,591 | 99,353 | 5,748,036.71 | 10,752 | 2,771 | 287 |
| Alpen | 18,545 | 10,217 | 6,140 | 480 | 35,382 | 2,801,505.08 | 4,521 | 2,109 | 47 |
| Antrim | 13,468 | 5,832 | 4,206 | 372 | 23,878 | 1,304,949.21 | 4,854 | 1,708 | 53 |
| Arenac | 9,752 | 4,953 | 3,314 | 270 | 18,289 | 1,001,774.08 | 3,761 | 1,273 | 42 |
| Baraga | 3,945 | 2,471 | 1,197 | 126 | 7,739 | 418,330.22 | 1,044 | 685 | 10 |
| Barry | 31,576 | 14,027 | 9,340 | 1,011 | 55,954 | 2,908,838.98 | 8,676 | 1,448 | 97 |
| Bay | 70,541 | 23,153 | 18,177 | 1,649 | 113,520 | 6,540,021.49 | 10,156 | 4,630 | 262 |
| Benzie | 9,501 | 4,136 | 2,977 | 258 | 16,872 | 838,298.77 | 3,696 | 1,120 | 31 |
| Berrien | 102,781 | 32,096 | 17,998 | 2,474 | 155,349 | 8,795,240.44 | 13,557 | 2,551 | 486 |
| Branch | 23,872 | 11,406 | 6,905 | 658 | 42,841 | 2,444,734.85 | 6,135 | 727 | 148 |
| Calhoun | 87,247 | 26,781 | 15,201 | 2,083 | 131,312 | 7,331,684.48 | 10,161 | 1,414 | 371 |
| Cass | 28,474 | 12,592 | 7,456 | 855 | 49,377 | 2,654,513.80 | 8,375 | 1,764 | 147 |
| Charlevoix | 15,813 | 6,991 | 4,601 | 507 | 27,912 | 1,560,355.77 | 4,652 | 2,168 | 53 |
| Cheboygan | 14,757 | 7,491 | 4,831 | 418 | 27,497 | 1,530,159.35 | 5,088 | 2,812 | 88 |
| Chippewa | 17,588 | 9,089 | 5,586 | 444 | 32,707 | 1,794,370.38 | 4,532 | 3,794 | 78 |
| Clare | 17,406 | 8,683 | 5,716 | 469 | 32,274 | 1,722,630.97 | 4,389 | 1,691 | 61 |
| Clinton | 37,603 | 14,947 | 10,527 | 939 | 64,016 | 3,653,197.34 | 6,152 | 2,167 | 196 |
| Crawford | 7,094 | 3,627 | 2,506 | 218 | 13,445 | 713,603.24 | 2,690 | 1,239 | 26 |
| Delta | 23,464 | 12,092 | 7,804 | 648 | 44,008 | 2,383,656.06 | 4,801 | 2,872 | 118 |
| Dickinson | 16,214 | 8,254 | 5,252 | 557 | 30,277 | 1,722,009.77 | 3,415 | 1,830 | 141 |
| Eaton | 61,563 | 20,966 | 13,479 | 1,636 | 97,644 | 6,782,416.78 | 8,297 | 1,951 | 208 |
| Emmet | 19,724 | 8,023 | 5,076 | 509 | 33,332 | 1,957,046.37 | 4,983 | 2,352 | 95 |
| Genesee | 274,791 | 75,544 | 44,676 | 6,267 | 401,278 | 23,727,159.05 | 32,081 | 10,032 | 570 |
| Gladwin | 14,856 | 7,527 | 5,039 | 439 | 27,861 | 1,466,643.33 | 4,745 | 1,596 | 69 |
| Gogebic | 9,206 | 4,753 | 2,243 | 240 | 16,442 | 844,006.80 | 2,379 | 1,439 | 42 |
| Grand Traverse | 51,605 | 17,365 | 13,203 | 1,248 | 83,421 | 4,961,611.57 | 12,286 | 4,161 | 148 |

REGISTRATION TRANSACTIONS (continued)

| COUNTY | VEHICLE | | | | | | OTHER | | |
|------------|-----------|------------|---------|------------|--------------|---------------|------------|------------|-------|
| | Passenger | Commercial | Trailer | Motorcycle | Total Plates | Total Revenue | Watercraft | Snowmobile | Moped |
| Gratiot | 22,900 | 10,235 | 7,161 | 593 | 40,889 | 2,264,190.59 | 3,452 | 1,292 | 99 |
| Hillsdale | 25,381 | 12,489 | 6,701 | 743 | 45,314 | 2,471,915.02 | 4,768 | 776 | 112 |
| Houghton | 17,925 | 7,465 | 3,562 | 510 | 29,462 | 1,592,375.95 | 3,511 | 2,189 | 70 |
| Huron | 23,029 | 11,561 | 6,714 | 513 | 41,817 | 2,526,347.49 | 3,395 | 2,393 | 191 |
| Ingham | 176,729 | 41,481 | 22,276 | 3,524 | 244,010 | 14,568,948.59 | 15,709 | 3,238 | 563 |
| Ionia | 31,946 | 13,898 | 8,305 | 857 | 55,006 | 2,939,207.26 | 5,039 | 1,267 | 162 |
| Iosco | 17,034 | 7,853 | 5,681 | 408 | 30,976 | 1,670,972.04 | 5,114 | 1,455 | 107 |
| Iron | 7,429 | 4,226 | 2,376 | 243 | 14,274 | 735,175.05 | 2,381 | 986 | 44 |
| Isabella | 27,504 | 12,087 | 7,350 | 699 | 47,640 | 3,143,672.70 | 4,396 | 1,437 | 77 |
| Jackson | 92,422 | 32,929 | 19,398 | 2,622 | 147,371 | 8,525,244.89 | 15,347 | 2,712 | 359 |
| Kalamazoo | 147,920 | 36,920 | 23,271 | 3,496 | 211,607 | 12,802,555.25 | 18,535 | 2,573 | 502 |
| Kalkaska | 8,765 | 5,634 | 3,549 | 290 | 18,238 | 1,359,097.13 | 2,532 | 1,509 | 29 |
| Kent | 355,157 | 98,427 | 69,978 | 7,336 | 530,898 | 36,071,955.08 | 44,425 | 8,481 | 1,093 |
| Keweenaw | 1,097 | 496 | 248 | 21 | 1,862 | 94,250.79 | 356 | 127 | 5 |
| Lake | 5,538 | 3,061 | 1,840 | 163 | 10,602 | 530,081.34 | 2,163 | 750 | 26 |
| Lapeer | 49,509 | 22,808 | 12,564 | 1,728 | 86,609 | 5,087,182.27 | 6,810 | 3,178 | 111 |
| Leelanau | 12,558 | 4,757 | 3,928 | 310 | 21,553 | 1,195,191.99 | 5,036 | 1,287 | 72 |
| Lenawee | 57,703 | 23,231 | 12,864 | 1,757 | 95,555 | 5,348,944.11 | 8,844 | 2,604 | 326 |
| Livingston | 91,048 | 31,761 | 20,714 | 2,995 | 146,518 | 9,584,898.74 | 16,385 | 4,567 | 171 |
| Luce | 3,163 | 2,137 | 1,486 | 61 | 6,847 | 400,789.19 | 1,304 | 1,006 | 15 |
| Mackinac | 6,426 | 3,680 | 2,246 | 141 | 12,493 | 676,492.75 | 2,955 | 1,983 | 30 |
| Macomb | 535,337 | 121,553 | 59,947 | 10,637 | 727,474 | 47,814,509.18 | 48,402 | 13,521 | 1,201 |
| Manistee | 14,386 | 6,689 | 4,563 | 410 | 26,048 | 1,400,839.51 | 3,650 | 1,111 | 79 |
| Marquette | 35,682 | 15,787 | 8,381 | 1,130 | 60,980 | 3,336,688.83 | 6,730 | 4,066 | 126 |
| Mason | 16,823 | 7,384 | 4,860 | 484 | 29,551 | 1,624,486.69 | 4,114 | 1,072 | 94 |
| Mecosta | 19,800 | 8,894 | 5,711 | 540 | 34,945 | 1,874,433.75 | 4,756 | 1,241 | 52 |
| Menominee | 13,503 | 6,604 | 4,476 | 421 | 25,004 | 1,350,548.88 | 2,735 | 1,301 | 304 |
| Midland | 54,629 | 16,303 | 13,461 | 1,429 | 85,822 | 4,750,968.05 | 9,096 | 2,237 | 173 |
| Missaukee | 7,109 | 4,485 | 2,879 | 223 | 14,696 | 820,283.76 | 2,037 | 1,105 | 29 |

REGISTRATION TRANSACTIONS (continued)

| COUNTY | VEHICLE | | | | | | OTHER | | |
|----------------|-----------|------------|-----------|------------|--------------|------------------|------------|------------|--------|
| | Passenger | Commercial | Trailer | Motorcycle | Total Plates | Total Revenue | Watercraft | Snowmobile | Moped |
| Monroe | 86,799 | 33,414 | 17,307 | 2,725 | 140,245 | 8,376,086.04 | 10,709 | 3,772 | 411 |
| Montcalm | 32,393 | 15,255 | 9,635 | 838 | 58,121 | 3,145,560.07 | 6,861 | 1,649 | 175 |
| Montmorency | 5,714 | 3,553 | 2,335 | 135 | 11,737 | 673,120.29 | 2,213 | 1,200 | 11 |
| Muskegon | 102,848 | 31,264 | 21,685 | 3,068 | 158,865 | 8,419,276.44 | 14,895 | 3,525 | 527 |
| Newaygo | 25,546 | 11,995 | 8,190 | 738 | 46,469 | 2,369,055.48 | 6,517 | 1,969 | 109 |
| Oakland | 841,667 | 161,675 | 89,302 | 16,648 | 1,109,292 | 78,713,069.59 | 80,618 | 19,142 | 1,538 |
| Oceana | 15,018 | 7,475 | 3,839 | 430 | 26,762 | 1,428,663.35 | 2,854 | 1,280 | 97 |
| Ogemaw | 12,164 | 6,604 | 4,374 | 387 | 23,529 | 1,288,429.53 | 3,317 | 1,458 | 41 |
| Ontonagon | 4,593 | 2,808 | 1,526 | 129 | 9,056 | 467,957.02 | 1,072 | 1,264 | 14 |
| Osceola | 12,370 | 6,853 | 3,827 | 292 | 23,342 | 1,309,935.21 | 2,560 | 1,274 | 29 |
| Oscoda | 5,235 | 2,931 | 1,773 | 159 | 10,098 | 517,961.37 | 1,872 | 882 | 8 |
| Otsego | 13,250 | 6,705 | 4,210 | 370 | 24,535 | 1,599,047.32 | 2,970 | 2,385 | 32 |
| Ottawa | 136,231 | 40,052 | 33,487 | 3,292 | 213,062 | 12,904,635.58 | 22,659 | 5,062 | 793 |
| Presque Isle | 8,760 | 5,144 | 3,097 | 221 | 17,222 | 933,308.82 | 2,937 | 1,389 | 39 |
| Roscommon | 15,961 | 6,729 | 5,367 | 375 | 28,432 | 1,523,917.64 | 6,282 | 3,147 | 158 |
| Saginaw | 134,366 | 37,225 | 27,064 | 2,526 | 201,181 | 11,938,285.13 | 16,291 | 6,263 | 375 |
| St. Clair | 99,200 | 36,036 | 18,973 | 2,767 | 156,976 | 9,133,746.93 | 14,258 | 4,563 | 322 |
| St. Joseph | 35,989 | 15,109 | 9,179 | 1,321 | 61,598 | 3,285,181.29 | 8,325 | 815 | 201 |
| Sanilac | 25,283 | 12,719 | 6,504 | 734 | 45,240 | 2,637,232.45 | 2,222 | 1,584 | 71 |
| Schoolcraft | 4,670 | 2,914 | 1,863 | 123 | 9,570 | 528,915.82 | 1,786 | 1,196 | 31 |
| Shiawassee | 43,658 | 18,413 | 11,295 | 1,300 | 74,666 | 4,272,596.09 | 5,896 | 2,528 | 196 |
| Tuscola | 34,264 | 16,845 | 10,442 | 1,096 | 62,647 | 3,400,330.26 | 4,736 | 2,874 | 136 |
| Van Buren | 42,891 | 17,571 | 9,425 | 1,223 | 71,110 | 3,804,274.19 | 8,078 | 1,701 | 200 |
| Washtenaw | 188,947 | 40,855 | 19,854 | 4,094 | 253,750 | 15,943,469.74 | 14,881 | 3,249 | 488 |
| Wayne | 1,270,237 | 235,084 | 99,597 | 19,222 | 1,624,140 | 109,068,327.80 | 70,303 | 13,521 | 2,241 |
| Wexford | 18,024 | 7,813 | 5,295 | 497 | 31,629 | 1,738,757.88 | 4,460 | 2,041 | 70 |
| Non-Resident | 52,926 | 20,648 | 12,417 | 319 | 86,310 | 29,225,229.03 | 36,424 | 4,354 | 116 |
| Unknown County | | | | | | | 394 | 56 | 14 |
| Totals | 6,198,496 | 1,762,771 | 1,031,503 | 136,030 | 9,128,800 | \$593,994,084.77 | 800,793 | 230,150 | 18,624 |

1997

1997

1997

1997

1997

1997

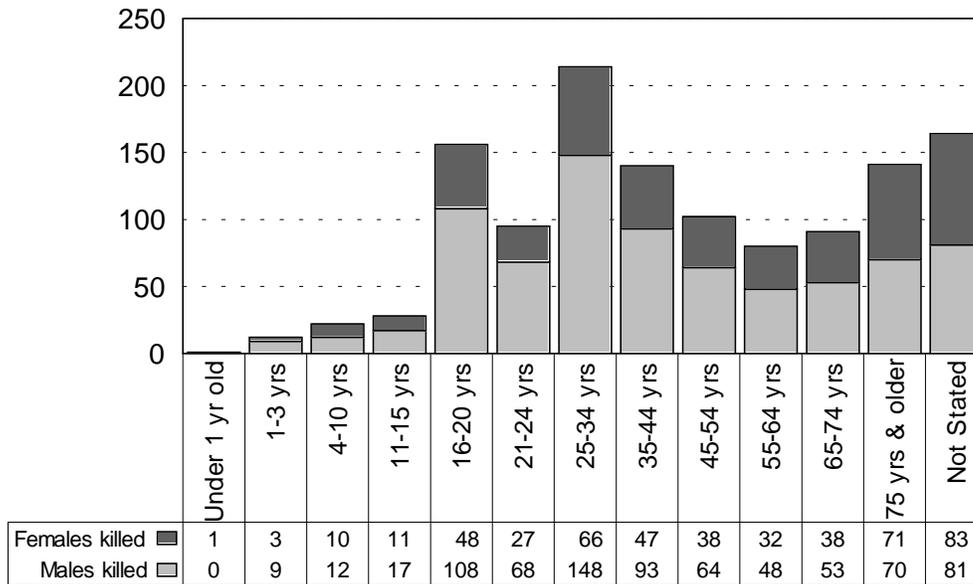
1997

1997

**Occupant/
Person**

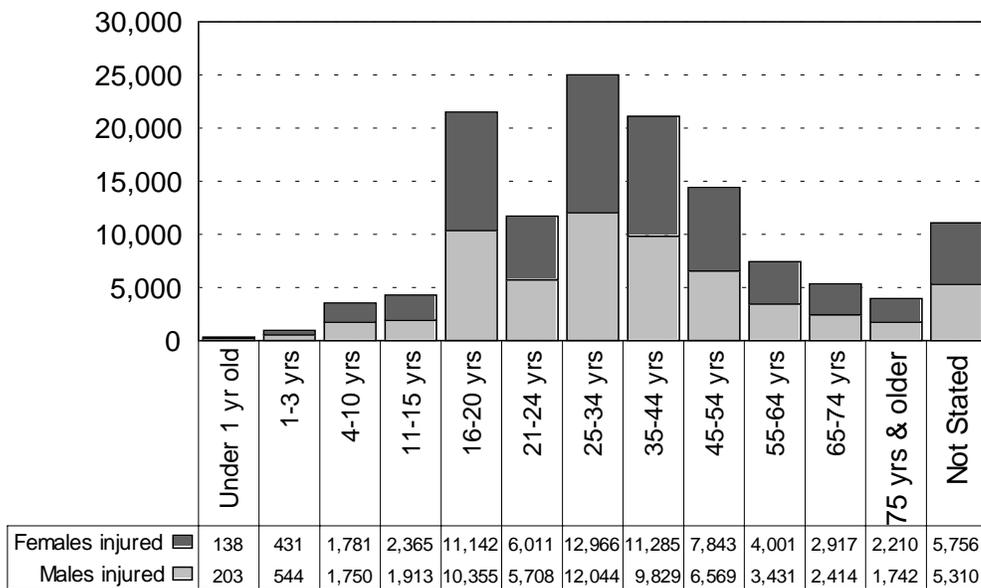
AGE AND GENDER OF OCCUPANTS KILLED & INJURED IN MOTOR VEHICLE CRASHES

Occupants Killed



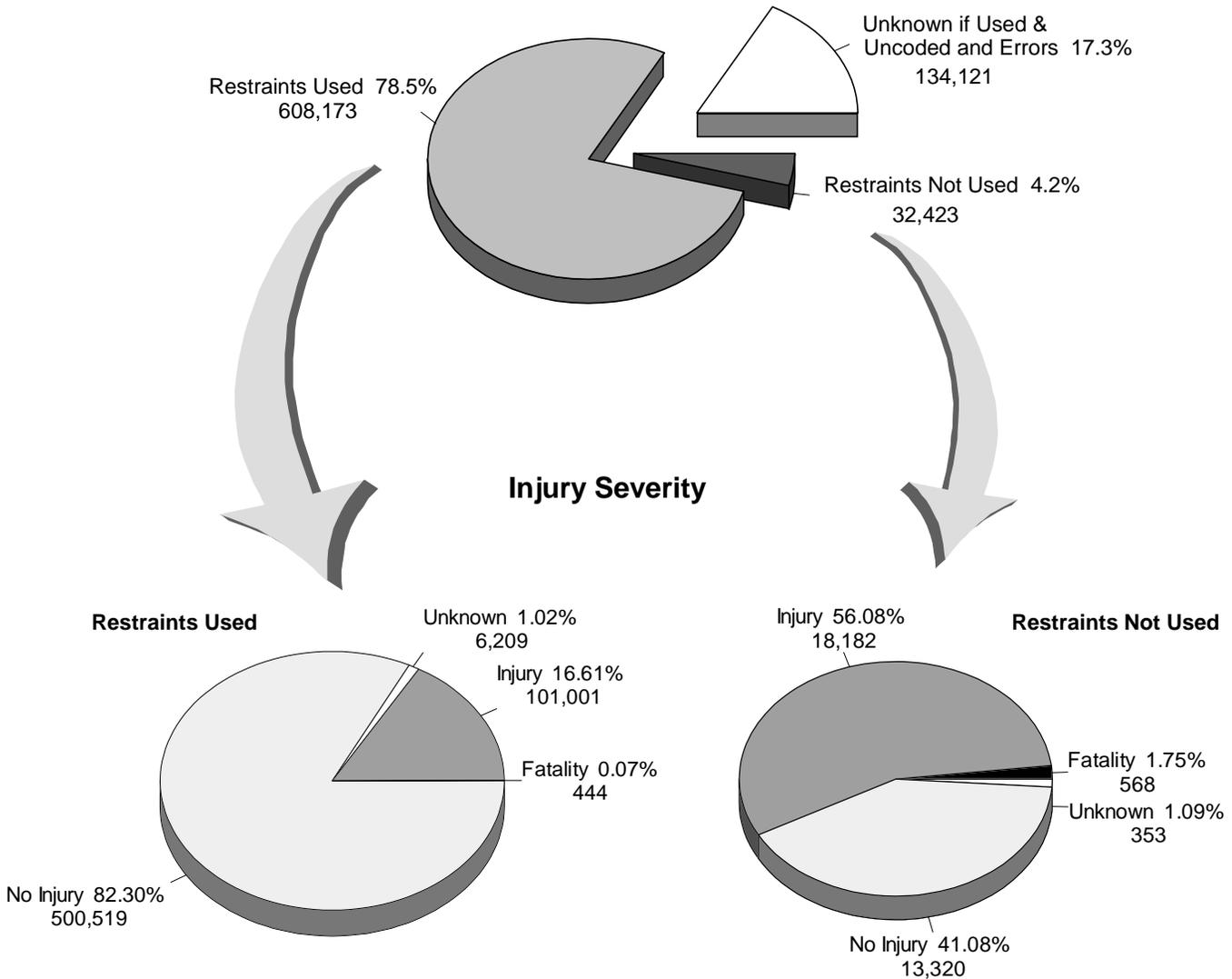
The majority (61.9%) of occupants killed in traffic crashes in 1997 were male.

Occupants Injured



The majority (52.7%) of occupants injured in traffic crashes in 1997 were female.

REPORTED OCCUPANT RESTRAINT USAGE FOR ALL DRIVERS AND INJURED PASSENGERS

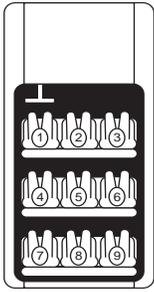


Restraint use by motorists is measured two ways: by what motorists **REPORT** to police at the scene of a traffic crash (reported usage), and by **DIRECT OBSERVATION** studies where motorists are totally unaware of the presence of researchers (observed usage). As expected, reported usage is routinely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

Of the 774,717 drivers and injured passengers involved in crashes, 608,173 (78.5%) were **REPORTED** to be using occupant restraints.

However, a **DIRECT OBSERVATION** study by the University of Michigan Transportation Research Institute [16] estimated overall safety belt use was 70.1 percent for passenger cars, 69.5 percent for sport-utility vehicles, 68.7 percent for vans, and 56.6 percent for pickup trucks in 1997.

Occupants in crashes were twenty-five 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 | 575,125 | 95.7 | 285 | 5,538 | 14,737 | 54,585 | 499,980 |
| Center Front | 713 | 0.1 | 2 | 52 | 155 | 474 | 30 |
| Right Front | 19,101 | 3.2 | 124 | 1,557 | 3,864 | 13,330 | 226 |
| Left Rear | 2,178 | 0.4 | 8 | 124 | 502 | 1,408 | 136 |
| Center Rear | 579 | 0.1 | 3 | 56 | 136 | 373 | 11 |
| Right Rear | 2,344 | 0.4 | 12 | 143 | 499 | 1,686 | 4 |
| Left Rear Third Seat | 309 | 0.1 | 1 | 24 | 63 | 202 | 19 |
| Center Rear Third Seat | 114 | 0.0 | 0 | 13 | 34 | 64 | 3 |
| Right Rear Third Seat | 359 | 0.1 | 0 | 34 | 68 | 249 | 8 |
| Unknown | 117 | 0.0 | 0 | 5 | 14 | 46 | 52 |
| TOTAL | 600,939* | 100.0 | 435 | 7,546 | 20,072 | 72,417 | 500,469 |

* 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 146-147.

* This total does not include 6,209 occupants with unknown injury severity.

| Seating Position | Belts Not Used* | | Fatal | Injury | | | PDO |
|------------------------|-----------------|--------------|------------|--------------|--------------|--------------|---------------|
| | Number | % of Total | | A | B | C | |
| Left Front | 23,036 | 72.4 | 381 | 2,391 | 3,675 | 3,880 | 12,709 |
| Center Front | 328 | 1.0 | 3 | 76 | 97 | 131 | 21 |
| Right Front | 4,419 | 13.9 | 107 | 918 | 1,638 | 1,702 | 54 |
| Left Rear | 1,372 | 4.3 | 11 | 161 | 319 | 517 | 364 |
| Center Rear | 459 | 1.4 | 7 | 102 | 150 | 192 | 8 |
| Right Rear | 1,159 | 3.6 | 25 | 174 | 354 | 606 | 0 |
| Left Rear Third Seat | 159 | 0.5 | 4 | 29 | 41 | 84 | 1 |
| Center Rear Third Seat | 113 | 0.4 | 0 | 28 | 27 | 58 | 0 |
| Right Rear Third Seat | 206 | 0.6 | 6 | 34 | 62 | 95 | 9 |
| Unknown | 579 | 1.8 | 19 | 67 | 144 | 283 | 66 |
| TOTAL | 31,830* | 100.0 | 563 | 3,980 | 6,507 | 7,548 | 13,232 |

* 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 146-147.

* This total does not include 352 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 | 37 | 12.8 | 0 | 2 | 7 | 28 | 0 |
| No Belts Used | 11 | 3.8 | 0 | 4 | 4 | 3 | 0 |
| CRD Used | 221 | 76.2 | 1 | 11 | 40 | 169 | 0 |
| CRD Not Used | 14 | 4.8 | 0 | 1 | 4 | 9 | 0 |
| Restraint Failed | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Restraint Use Unknown | 5 | 1.7 | 0 | 2 | 1 | 2 | 0 |
| Uncoded & Errors | 2 | 0.7 | 0 | 0 | 0 | 2 | 0 |
| TOTAL | 290 | 100.0 | 1 | 20 | 56 | 213 | 0 |

*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 | 130 | 51.0 | 2 | 14 | 46 | 68 | 0 |
| No Belts Used | 31 | 12.2 | 0 | 7 | 7 | 16 | 1 |
| CRD Used | 63 | 24.7 | 0 | 3 | 22 | 38 | 0 |
| CRD Not Used | 25 | 9.8 | 1 | 2 | 11 | 9 | 2 |
| Restraint Failed | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Restraint Use Unknown | 5 | 2.0 | 0 | 3 | 2 | 0 | 0 |
| Uncoded & Errors | 1 | 0.4 | 0 | 0 | 1 | 0 | 0 |
| TOTAL | 255 | 100.0 | 3 | 29 | 89 | 131 | 3 |

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 | 241 | 33.6 | 2 | 14 | 73 | 152 | 0 |
| No Belts Used | 68 | 9.5 | 2 | 7 | 24 | 35 | 0 |
| CRD Used | 351 | 49.0 | 4 | 16 | 108 | 223 | 0 |
| CRD Not Used | 26 | 3.6 | 0 | 5 | 7 | 14 | 0 |
| Restraint Failed | 0 | 0.0 | 0 | 0 | 0 | 0 | 0 |
| Restraint Use Unknown | 11 | 1.5 | 1 | 3 | 5 | 2 | 0 |
| Uncoded & Errors | 20 | 2.8 | 0 | 2 | 9 | 9 | 0 |
| TOTAL | 717 | 100.0 | 9 | 47 | 226 | 437 | 0 |

*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 | 5,163 | 71.7 | 16 | 352 | 1,297 | 3,495 | 3 |
| No Belts Used | 1,612 | 22.4 | 22 | 277 | 555 | 756 | 2 |
| CRD Used | 95 | 1.3 | 1 | 4 | 23 | 67 | 0 |
| CRD Not Used | 38 | 0.5 | 3 | 6 | 12 | 17 | 0 |
| Restraint Failed | 4 | 0.1 | 0 | 0 | 3 | 1 | 0 |
| Restraint Use Unknown | 173 | 2.4 | 0 | 29 | 68 | 76 | 0 |
| Uncoded & Errors | 118 | 1.6 | 1 | 16 | 37 | 64 | 0 |
| TOTAL | 7,203 | 100.0 | 43 | 684 | 1,995 | 4,476 | 5 |

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

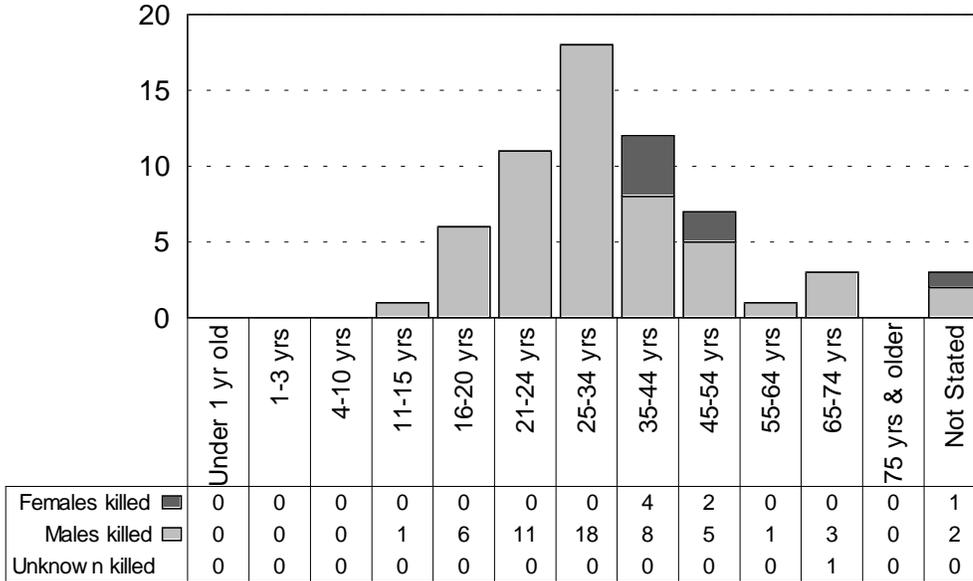
In a pilot study of Child Restraint Device (CRD) use and misuse in Michigan [17] at the University of Michigan Transportation Research Institute, researchers discovered at least some degree of improper CRD use in 88.5 percent of case studies.

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.

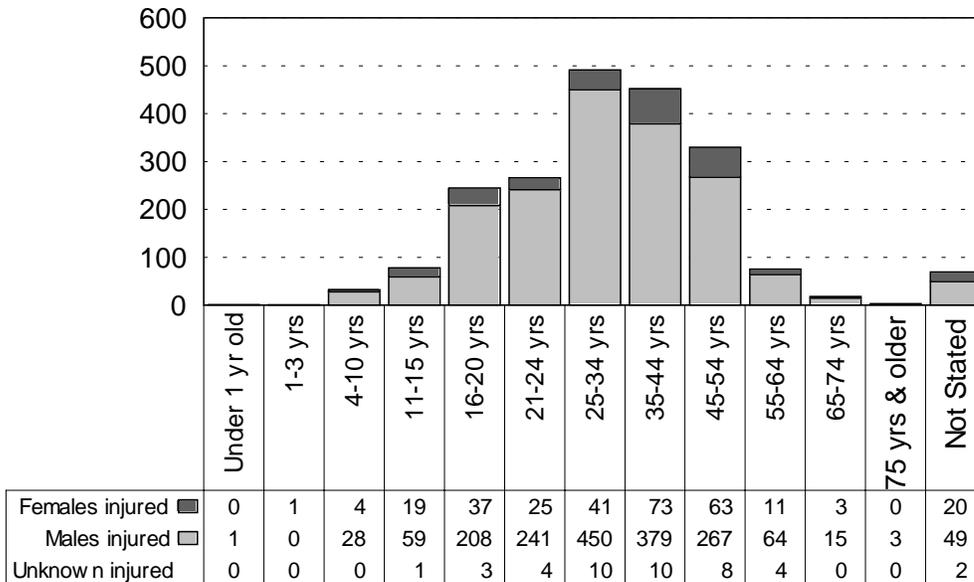
AGE AND GENDER OF MOTORCYCLISTS KILLED & INJURED IN MOTOR VEHICLE CRASHES

Motorcyclists Killed



87.3 percent of the motorcyclists killed in traffic crashes in 1997 were male.
 In comparison, 63.5 percent of all persons killed in crashes were male.

Motorcyclists Injured



83.9 percent of the motorcyclists injured in traffic crashes in 1997 were male.
 In comparison, 48.2 percent of all persons injured in crashes were male.

MOTORCYCLE HELMET USE AND INJURY SEVERITY

| Helmet Worn Age of Motorcyclist | Fatality | Injury | | | No Injury |
|------------------------------------|-----------|------------|------------|------------|------------|
| | | A | B | C | |
| 3 years and under | 0 | 0 | 1 | 0 | 1 |
| 4 - 10 years | 0 | 3 | 5 | 4 | 1 |
| 11 - 15 years | 0 | 10 | 17 | 8 | 1 |
| 16 - 20 years | 3 | 43 | 78 | 39 | 37 |
| 21 - 24 years | 8 | 51 | 68 | 64 | 50 |
| 25 - 34 years | 11 | 83 | 139 | 108 | 66 |
| 35 - 44 years | 5 | 103 | 133 | 87 | 79 |
| 45 - 54 years | 5 | 74 | 116 | 56 | 61 |
| 55 - 64 years | 0 | 26 | 25 | 12 | 15 |
| 65 - 74 years | 2 | 5 | 3 | 3 | 1 |
| 75 years and over | 0 | 0 | 0 | 1 | 1 |
| Not Stated | 1 | 4 | 4 | 3 | 0 |
| Subtotal | 35 | 402 | 589 | 385 | 313 |



Drivers killed 32
Passengers killed 3

| Helmet Not Worn Age of Motorcyclist | Fatality | Injury | | | No Injury |
|--|----------|-----------|-----------|-----------|-----------|
| | | A | B | C | |
| 3 years and under | 0 | 0 | 0 | 0 | 0 |
| 4 - 10 years | 0 | 2 | 3 | 3 | 0 |
| 11 - 15 years | 0 | 6 | 7 | 6 | 1 |
| 16 - 20 years | 1 | 8 | 9 | 1 | 4 |
| 21 - 24 years | 2 | 7 | 5 | 3 | 1 |
| 25 - 34 years | 0 | 5 | 5 | 2 | 2 |
| 35 - 44 years | 1 | 4 | 6 | 1 | 3 |
| 45 - 54 years | 1 | 1 | 1 | 1 | 0 |
| 55 - 64 years | 0 | 0 | 2 | 0 | 0 |
| 65 - 74 years | 2 | 0 | 2 | 1 | 0 |
| 75 years and over | 0 | 0 | 0 | 0 | 0 |
| Not Stated | 0 | 1 | 0 | 0 | 1 |
| Subtotal | 7 | 34 | 40 | 18 | 12 |



Drivers killed 5
Passengers killed 2

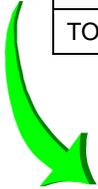
| Helmet Use Unknown Age of Motorcyclist | Fatality | Injury | | | No Injury |
|---|-----------|------------|------------|------------|------------|
| | | A | B | C | |
| 3 years and under | 0 | 1 | 0 | 0 | 1 |
| 4 - 10 years | 0 | 1 | 7 | 4 | 2 |
| 11 - 15 years | 1 | 3 | 9 | 13 | 6 |
| 16 - 20 years | 2 | 17 | 26 | 27 | 20 |
| 21 - 24 years | 1 | 17 | 28 | 27 | 32 |
| 25 - 34 years | 7 | 60 | 55 | 44 | 56 |
| 35 - 44 years | 6 | 39 | 53 | 36 | 45 |
| 45 - 54 years | 1 | 28 | 36 | 25 | 34 |
| 55 - 64 years | 1 | 3 | 4 | 7 | 7 |
| 65 - 74 years | 0 | 2 | 1 | 1 | 5 |
| 75 years and over | 0 | 1 | 1 | 0 | 0 |
| Not Stated | 2 | 19 | 21 | 19 | 33 |
| Subtotal | 21 | 191 | 241 | 203 | 241 |
| TOTAL | 63 | 627 | 870 | 606 | 566 |

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 | 918 | 10,130 | 22,594 | 68,196 | 101,838 | 77.2 |
| Van (Minivan) and Motorhome | 68 | 881 | 2,060 | 6,501 | 9,510 | 7.2 |
| Pickup | 148 | 1,600 | 3,650 | 8,416 | 13,814 | 10.5 |
| Small Truck (under 10,000 lbs.) | 12 | 191 | 411 | 1,117 | 1,731 | 1.3 |
| Cycle | 60 | 606 | 824 | 571 | 2,061 | 1.6 |
| Moped | 3 | 39 | 89 | 54 | 185 | 0.1 |
| Go Cart | 1 | 5 | 2 | 3 | 11 | 0.0 |
| Snowmobile | 16 | 128 | 76 | 91 | 311 | 0.2 |
| Off Road Vehicle | 5 | 47 | 54 | 30 | 136 | 0.1 |
| Other | 5 | 37 | 40 | 101 | 183 | 0.1 |
| Uncoded | 5 | 106 | 147 | 556 | 814 | 0.6 |
| CDL Truck/Bus (breakdown below) | 5 | 120 | 262 | 923 | 1,310 | 1.0 |
| TOTAL | 1,246 | 13,890 | 30,209 | 86,559 | 131,904 | 100.0 |



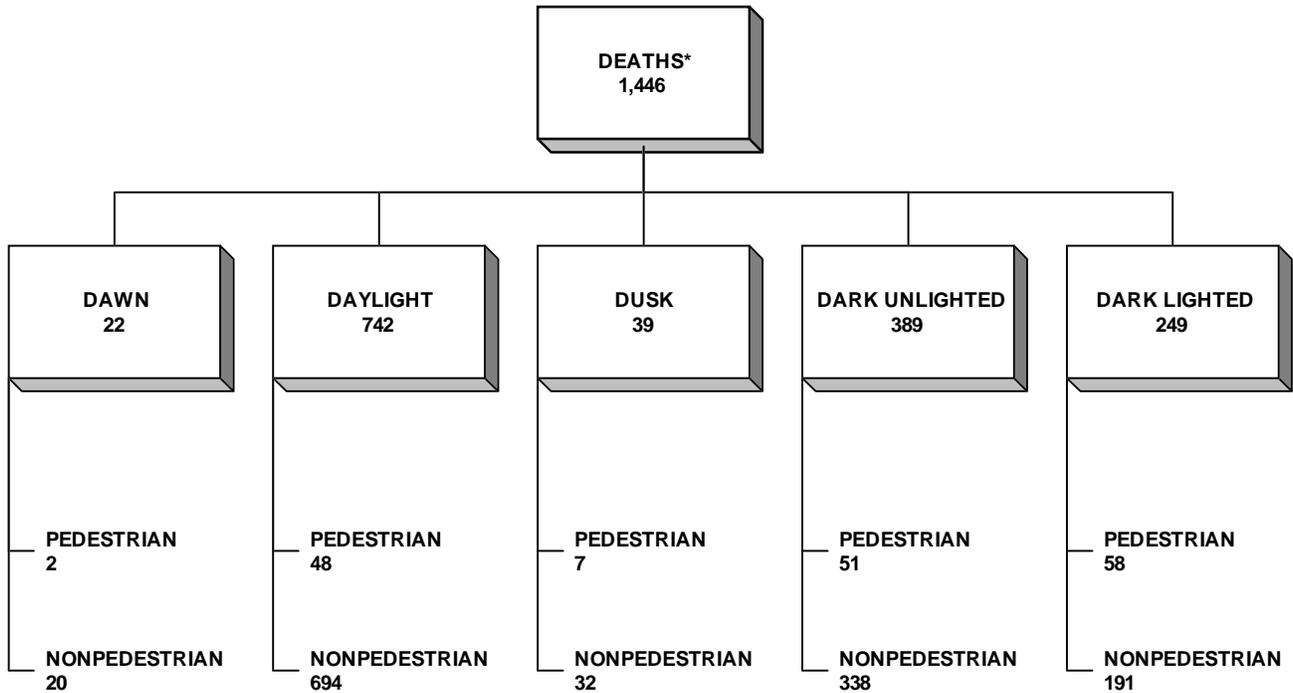
| CDL Truck/Bus Sub-category Types | Killed | A Injured | B Injured | C Injured | Total KABC | % of All Crash Involved KABC Occupants |
|----------------------------------|----------|------------|------------|------------|--------------|--|
| Uncoded Truck | 1 | 15 | 19 | 94 | 129 | 9.8 |
| Commercial Vehicle: Group A | 3 | 47 | 111 | 279 | 440 | 33.6 |
| Commercial Vehicle: Group B | 1 | 35 | 80 | 380 | 496 | 37.9 |
| Commercial Vehicle: Group C | 0 | 8 | 19 | 56 | 83 | 6.3 |
| Other Truck | 0 | 8 | 19 | 51 | 78 | 6.0 |
| Unknown Truck | 0 | 7 | 14 | 63 | 84 | 6.4 |
| TOTAL | 5 | 120 | 262 | 923 | 1,310 | 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.

PRINCIPAL CLASSES OF MOTOR VEHICLE DEATHS



Of the 1,446 motor vehicle deaths in Michigan in 1997, almost half occurred in daylight crashes. Nonpedestrians (mostly occupants of motor vehicles) accounted for 88.5 percent of the deaths. *5 of the 1,446 cases were lost due to unknown lighting conditions (1 pedestrian, 4 nonpedestrians).



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**County/
Communities**

1997 Michigan Traffic Crash Facts for County/Communities

This year we have divided the *1997 Michigan Traffic Crash Facts* into two volumes. Volume one provides statewide statistical information on Historical, Special Focus (Age, Alcohol, and Deer), Crash, Vehicle/Driver and Occupant/Person. Volume two is titled *1997 Michigan Traffic Crash Facts for County/Communities*. This volume provides crash statistics for Michigan counties and communities. Although some of this information was previously provided, the section has been significantly expanded to provide quick access to more local information.

To receive a copy *1997 Michigan Traffic Crash Facts for County/Communities* please contact:

Michigan Department of State Police
Office of Highway Safety Planning
Phone: (517) 333-5325.

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Websites:

www.ohsp.msp.state.mi.us Michigan Traffic Crash Facts

www.dot.state.wi.us Wisconsin Traffic Crash Facts

www.dps.state.mn.us Minnesota Traffic Crash Facts

www.nsc.org National Safety Council Accident Facts

www.nhtsa.dot.gov Fatality Analysis Reporting Systems

www.mdot.state.mi.us Michigan Department of Transportation

www.sos.state.mi.us Michigan Department of State

www.mdch.state.mi.us Michigan Department of Community Health

www.state.mi.us/dmb/dir Michigan Department of Management and Budget (MDMB)

www.state.mi.us/dmb/mic MDMB Michigan Information Center

www.umtri.umich.edu University of Michigan Transportation Research Institute

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.

**SPECIAL NOTE: Pages 1-154 are contained in the Michigan 1997 Traffic Crash Facts book
 Pages 155-276 are contained in the Michigan 1997 Traffic Crash Facts for County/Communities book**

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