Minnesota Traffic Crashes in 2016

OVERVIEW

This edition of *Minnesota Motor Vehicle Crash Facts* summarizes the crashes, deaths and injuries that occurred on Minnesota roadways during 2016. The information provided in this book will assist you in traveling our roadways safely.

The Department of Public Safety continually strives to improve the accuracy of the crash reporting statistics. Thanks to the work of dedicated staff members and partner agencies, a new crash reporting system has been developed in part to more accurately capture crash data. The new system modified the classifications and definitions of injury severity bringing the State of Minnesota in compliance with the Federal Standards. As a result the 2016 Crash Facts saw a spike in the number of serious injuries compared to previous years. Due to the change in injury severity definitions, direct comparisons to historical data cannot be made.

In 2016:

- 79,069 traffic crashes were reported to the Minnesota Department of Public Safety (DPS)
- 146,339 motor vehicles and 178,922 people were involved in these crashes
- 392 people died and 29,825 people were injured
- Estimated economic cost to Minnesota: $1,874,222,000

On an average day in 2016:

- 216 crashes
- 1 death and 81 injuries
- Average daily cost to Minnesota: $5,120,825

2016 known alcohol-related statistics:

- 4,240 crashes
- 121 deaths and 2,281 injuries
- Estimated economic cost to Minnesota: $285,573,400

Highlights from the 2016 *Crash Facts* edition

- **Traffic fatalities decrease**
  In 2016, Minnesota experienced a total of 392 traffic fatalities, a 4.6 percent decrease from the previous year. This reduction is encouraging as traffic fatalities in Minnesota have decreased sharply over the last decade. However, traffic fatalities in Minnesota remain at an unacceptable level - serving as a call-to-action for all motorists to buckle up, drive at safe speeds, pay attention and never drive impaired.

- **Safety belt use in Minnesota is 93 percent**
  An observational study in June, 2016 showed that belt use by front seat drivers and passengers was 93.2%. Seat belts save lives. All motor vehicle occupants are urged to buckle up–every seat and every ride.

- **The fatality rate in Minnesota per 100 million vehicle miles traveled (VMT) remains low**
  The VMT-based fatality rate for 2016 is 0.67, one of the lowest in the nation. The VMT fatality rate has shown dramatic improvement in the last several decades (it was 1.28 in 1997).

CRASH FACTS ORGANIZATION

Crash Facts has a wealth of statistical information about traffic crashes in Minnesota. Follow this basic user's guide to navigate the book.

Introduction
Beginning on page 1, you will find introductory information including the history, societal costs and general cause of crashes. You can use this information to find:

- How crash costs are estimated
- Contributing factors in crashes
- Historical analysis of traffic deaths over the last 35 to 40 years
- Licensed drivers by age (Table 2)
- Registered motor vehicles by category (Table 3)

Section I: All Crashes
Beginning on page 7, you will find the aggregate of all traffic crashes that occurred in Minnesota in 2016. Information provided includes:

- Historical information dating back to 1965 (Table 1.01)
- Factors contributing to crashes (Tables 1.09, 1.10 and 1.17)
- Holiday crashes, deaths and injuries (Table 1.28)

Section II: Alcohol-Related Crashes
Beginning on page 38, you will find data about impaired driving and traffic crashes. This section focuses on crashes involving alcohol and spells out answers to commonly-raised questions, including:

- Historical overview since 1990 (Table 2.02)
- DWI arrest statistics (Tables 2.03, 2.04 and 2.05)
- Persons killed and injured in alcohol-related crashes by age (Table 2.06)

Section III: Safety Equipment Use by Vehicle Occupants in Crashes
Beginning on page 55, you will find information on belt use by people in cars and trucks.

- This section includes a table showing observational seat belt use rates since 1986 (Table 3.01)

Section IV: Motorcycle Crashes
Beginning on page 64, you will find information on crashes involving motorcycles.

- Crashes involving all-terrain vehicles or mopeds are not included in this section

Section V: Truck Crashes
Beginning on page 73, you will find information on crashes that involved a heavy commercial vehicle.

- Crashes involving pickup trucks are not included in this section

Section VI: Pedestrian Crashes
Beginning on page 81, you will find information on motor-vehicle/pedestrian crashes.

- Crashes involving a pedestrian/train or pedestrian/bicycle are not included in this section

Section VII: Bicycle Crashes
Beginning on page 91, you will find information on motor-vehicle/bicycle crashes.

- Bicycle crashes not on public highways and roadways are not included in this section
- Bicycle crashes not involving a motor vehicle are not included in this section

Section VIII: School Bus Crashes
Beginning on page 96, you will find information pertaining to school bus crashes.

- This section focuses on crashes that involved a school bus as a "contact vehicle"
- Crashes where a school bus was indirectly involved are not included in this section (Note: this data collection began in 2003; please see narrative for discussion)

Section IX: Motor Vehicle/Train Crashes
Beginning on page 101, you will find information pertaining to train crashes.

- Crashes that do not involve a motor vehicle are not included in this section

Section X: Motor Vehicle Teen Crashes
Beginning on page 105, you will find information pertaining to teen-involved traffic crashes.
- This section focuses on drivers aged 15 through 19

Section XI: Motor Vehicle Senior Crashes
Beginning on page 110, you will find information pertaining to senior-involved traffic crashes.
- This section focuses on drivers aged 65 and older

Contents

Introduction

At the end of the 2016 calendar year, 4,155,059 people held Minnesota driver licenses and 5,225,020 motor vehicles were registered in the state. Vehicles traveled over 58 billion miles on public roadways. There were 76,069 traffic crashes; 392 people died and 29,825 people were injured in those crashes. This report provides a statistical summary of those crashes.

The purpose of *Crash Facts* is to provide summary statistical information about the crashes reported to the state each year. The term "crash" is used in preference to "accident." The latter term suggests there is a random, unavoidable quality about the events in question. In fact, the experience of the last three decades strongly demonstrates that advances in engineering and technology, coupled with changes in public policy and individual human behavior, can dramatically reduce the number and severity of traffic crashes.

Cost of traffic crashes

The use of motor vehicles for getting from one place to another results in significant costs to society. The National Safety Council reports that crashes (from all causes) are the leading cause of death among persons aged 1 to 24, the second leading cause of unintentional injury-related death for all ages combined and the fifth leading cause of death among all persons (*Injury Facts, 2016 Edition,* p. 14-15,18).

It is possible to estimate economic costs of traffic crashes, although the results can vary depending on definitions and estimating procedures. Many states use cost figures released by the National Safety Council, the most recent of which use 2016 data. Based upon those, the total economic loss from 2016 traffic crashes in Minnesota was $1,874,222,000, a figure that is calculated as follows:

Cost of Motor Vehicle Crashes in 2016:

392	deaths	@	$1,542,000	=	$604,464,000
1,992	serious injuries	@	$90,000	=	$179,280,000
11,097	minor injuries	@	$26,000	=	$288,522,000
16,736	possible injuries	@	$21,400	=	$358,150,400
105,668	PDO crashes[1]	@	$4,200	=	$443,805,600
Total:					$1,874,222,000

Factors affecting traffic crashes

A single crash may have many contributing factors. Cell phone use may lead to driver distraction, which together with wet, slippery pavement and high traffic congestion at an intersection causes a traffic crash.

In general, a handful of factors affect the majority of traffic crashes. These can be organized into logical groups, such as human behavior factors or vehicle safety factors. The following paragraphs outline some of the factors most frequently thought to affect crash incidence and severity.

Vehicle Safety Factors: Engineering and design standards for vehicle performance can help prevent crashes from occurring. When there is a crash, vehicles designed for safety can increase survivability. For example, the design of windshield glass and the location and durability of gas tanks can increase safety. The "passenger packaging" inside a vehicle can reduce injury severity through means such as padded dashboards and collapsible steering wheel columns. Passenger protection systems in vehicles (airbags, safety belts, etc.), if used, can eliminate injuries or reduce their severity.

[1] Beginning in 2015, PDO crashes were calculated by the National Safety Council on cost per vehicle. Before 2015, PDO crashes were calculated on cost per crash and included non-disabling injuries.

Behavior factors: For all crashes and fatal crashes, the driver behaviors police cite most often as contributing factors are, in order of frequency: failure to yield right of way, driving in a careless, negligent or erratic manner, and driver distraction. Reducing these behaviors would reduce crashes. Furthermore, when there is a crash, using seat belts will likely reduce injury severity.

Roadway characteristics: Limited access highways carry about a fifth of the traffic volume in Minnesota, yet account for only about a twelfth of fatal crashes. They are built to high roadway engineering standards and are very safe, relatively speaking. In general, roadway characteristics conducive to safety include wide lanes, clearly visible striping, flared guardrails, wide shoulders of good quality, shoulders and roadsides free of obstacles, well-located crash attenuation devices, well-planned use of traffic signals and effective communication to roadway users through clear and visible signage.

Environmental factors: Weather conditions affect crash incidence and severity. Clear, dry roads are conducive to high speeds; consequently, fatal crashes have a pronounced seasonal variation, peaking in the warm summer months and falling in the winter months. The total number of crashes is driven by the incidence of the less serious property damage crashes, which tend to have the opposite seasonal variation, peaking in the winter months.

Volume of traffic, or vehicle miles traveled (VMT), is a predictor of crash incidence. All other things being equal, as VMT increases, so will traffic crashes. The relationship may not be simple, however; after a point, increasing congestion leads to reduced speeds, changing the proportion of crashes that occur at different severity levels.

The quality and availability of emergency medical services might be classified as an environmental factor. The first hour after a traumatic episode, such as a traffic crash, has been called the "golden hour." Victims who receive emergency services within that time have markedly improved chances of survival.

The age structure of the population has a strong effect on crash incidence, although it is not generally thought about since demographic changes are so gradual. In Minnesota, about one in ten teenage drivers are involved in crashes each year. The involvement rate drops off for successive age groups. For example, it is about 1 in 14 for drivers in their 40s. The aging of the 'baby boom' generation, the largest cohort ever seen, has reduced crash incidence.

Historical perspective

In 1966, there were 53,041 traffic fatalities in the country, or 5.7 for every hundred million miles of travel. In Minnesota in 1968, there were 1,060 traffic fatalities, or 5.3 per hundred million miles of travel. Those were the worst years. Since then, both the rate and the number of fatalities have declined in a fairly steady pattern. In 2016, there were 37,461 traffic fatalities throughout the country and 392 in Minnesota. The respective fatality rates per hundred million miles of travel were 1.18 and 0.67. A dramatic benefit has been achieved.

The benefit is in large part the result of conscious decision-making on traffic safety issues. The National Highway Traffic Safety Administration (originally called the National Highway Safety Bureau) was established in the US Department of Transportation in 1967. Since then it has promoted and Congress has passed, legislation mandating the manufacture of safer cars. At the same time, the federal interstate highway system has expanded, contributing to a safer roadway environment.

Simultaneously there has been an effort to change human behavior factors. Minnesota was a leader among the states in the development of innovative drunk driving countermeasures. The Legislature made significant amendments to the DWI law in 1971, 1976, 1978, and in almost every year of the 1980s. It also passed the child passenger protection law in 1981 and the secondary seat belt law in 1986. In 2009 the law was updated to 'Primary.' It subsequently amended those laws, closing loopholes, broadening their scope and strengthening penalties. The benefits of action in these areas are clear. The graph shown in Figure 1 is one illustration. It shows a steady increase in the number of drivers and vehicles, but a steady decrease in the fatality rate per hundred million miles of travel.

Legislative requirement

Minnesota Motor Vehicle Crash Facts is produced annually by the Minnesota Department of Public Safety Office of Traffic Safety, in accordance with state law. Minnesota Statutes, Section 169.10, requires that traffic crashes be reported to the Department. Section 169.10 then requires the Department to "…tabulate all crash reports and

publish annually statistical information based thereon as to the number and circumstances of traffic crashes…"

Section 169.09 specifies that a driver involved in a crash that results in injury to or death of any person or total property damage of $1,000 or more must submit a report within ten days of the crash. The law enforcement officer who investigates the crash must also submit a report within ten days.
The minimum dollar amount for crashes involving only property damage has changed over the years. The first minimum was set at $50 in 1939. It was raised to $100 in 1965, to $300 on August 1, 1977 and then to $500 on August 1, 1981. The current minimum of $1,000 took effect August 1, 1994.

Crash Facts is divided into eleven sections. The first section presents information on the aggregate of all crashes reported to the state during the preceding calendar year. The remaining ten sections focus on specific areas of interest to policy makers and the public. Section II deals with alcohol-related crashes. Section III is about the use of safety equipment by occupants of vehicles required to be equipped with passenger protection systems, including child safety seats and safety belts. The following six sections focus on crashes that involved motorcycles (section IV), trucks (section V), pedestrians (section VI), bicycles (section VII), school buses (section VIII) and trains (section IX). Sections X and XI summarize info on crashes involving teen and senior drivers.

FIGURE 1

VEHICLES, DRIVERS AND FATALITY RATE, 1980 - 2016

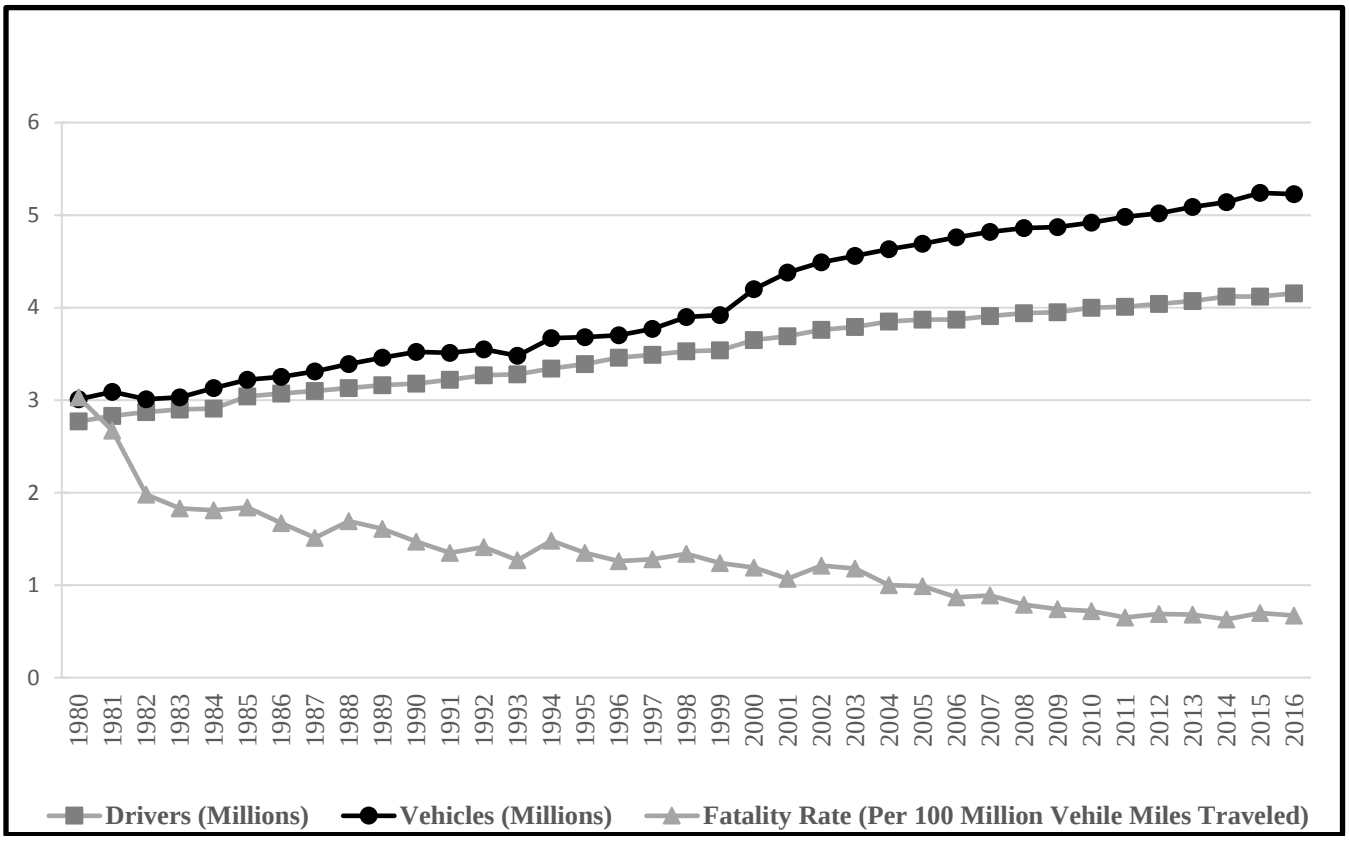

TABLE 1

MINNESOTA TRAFFIC FATALITIES, 1910 - 2016

Since 1961: Vehicle Miles Traveled (Billions) and Fatality Rates (Per 100 Million VMT)

YEAR (1)	Fatal-ities (2)	YEAR (3)	Fatal-ities (4)	YEAR (5)	Fatal-ities (6)	YEAR (7)	Fatal-ities (8)	Vehicle Miles (9)	Fatal Rate (10)	YEAR (11)	Fatal-ities (12)	Vehicle Miles (13)	Fatal Rate (14)	YEAR (15)	Fatal-ities (16)	Vehicle Miles (17)	Fatal Rate (18)
1910	23	**1929**	505	**1948**	552	**1961**	724	14.5	4.99	**1980**	863	28.5	3.03	**1999**	626	50.7	1.24
1911	26	**1930**	561	**1949**	540	**1962**	692	15.1	4.58	**1981**	763	28.6	2.67	**2000**	625	52.4	1.19
1912	39	**1931**	622	**1950**	532	**1963**	798	15.3	5.22	**1982**	581	29.2	1.98	**2001**	568	53.2	1.07
1913	46	**1932**	486	**1951**	610	**1964**	841	16.2	5.19	**1983**	558	30.5	1.83	**2002**	657	54.4	1.21
1914	88	**1933**	525	**1952**	534	**1965**	875	16.8	5.21	**1984**	584	32.2	1.81	**2003**	655	55.4	1.18
1915	85	**1934**	641	**1953**	637	**1966**	977	17.7	5.52	**1985**	610	33.1	1.84	**2004**	567	56.5	1.00
1916	143	**1935**	596	**1954**	639	**1967**	965	18.7	5.16	**1986**	572	34.2	1.67	**2005**	559	56.5	0.99
1917	161	**1936**	649	**1955**	577	**1968**	1,060	19.9	5.33	**1987**	530	35.1	1.51	**2006**	494	56.6	0.87
1918	183	**1937**	630	**1956**	637	**1969**	988	20.8	4.75	**1988**	615	36.4	1.69	**2007**	510	57.4	0.89
1919	171	**1938**	609	**1957**	684	**1970**	987	22.4	4.41	**1989**	605	37.6	1.61	**2008**	455	57.3	0.79
1920	178	**1939**	576	**1958**	708	**1971**	1,024	23.4	4.38	**1990**	568	38.8	1.47	**2009**	421	56.9	0.74
1921	216	**1940**	577	**1959**	662	**1972**	1,031	24.9	4.14	**1991**	531	39.3	1.35	**2010**	411	56.8	0.72
1922	260	**1941**	626	**1960**	724	**1973**	1,024	25.2	4.06	**1992**	581	41.3	1.41	**2011**	368	56.7	0.65
1923	328	**1942**	439			**1974**	852	24.6	3.46	**1993**	538	42.3	1.27	**2012**	395	57.0	0.69
1924	366	**1943**	274			**1975**	777	25.6	3.04	**1994**	644	43.4	1.48	**2013**	387	57.0	0.68
1925	361	**1944**	356			**1976**	809	27.0	3.00	**1995**	597	44.1	1.35	**2014**	361	57.0	0.63
1926	326	**1945**	449			**1977**	856	28.1	3.05	**1996**	576	45.9	1.26	**2015**	411	59.1	0.70
1927	369	**1946**	536			**1978**	980	28.8	3.40	**1997**	600	46.9	1.28	**2016**	392	58.9	0.67
1928	435	**1947**	572			**1979**	881	29.0	3.04	**1998**	650	48.5	1.34				

NOTE: VMT data provided by the Minnesota Department of Transportation.

FIGURE 2

MINNESOTA TRAFFIC FATALITIES, 1910 - 2016

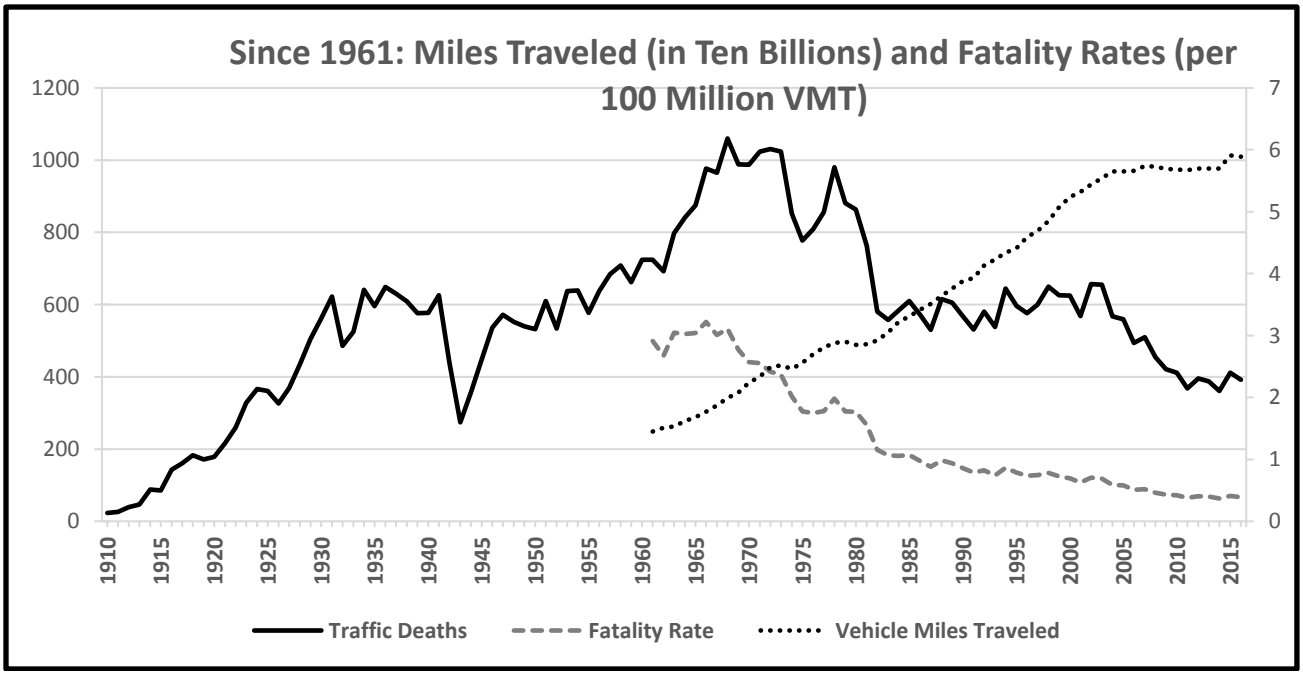

TABLE 2

DRIVER LICENSE* SUMMARY BY AGE, 2011 - 2016

Age	2011	2012	2013	2014	2015	2016
15	25,422	25,946	25,324	26,393	30,120	29,914
16	48,260	47,801	48,013	48,263	49,306	50,361
17	54,781	54,489	53,744	54,190	54,818	55,252
18	59,722	59,220	58,706	58,202	58,766	59,037
19	63,997	63,212	62,642	62,349	61,692	61,937
20	67,176	65,539	64,972	64,503	63,314	63,380
Under 21	319,358	316,207	313,401	313,900	318,016	319,881
15 – 19	252,182	250,668	248,429	249,397	254,702	256,501
20 – 24	343,942	341,891	340,074	338,753	329,936	328,000
25 – 29	358,738	356,653	358,005	362,329	355,329	356,350
30 – 34	351,489	359,718	365,091	370,093	367,609	368,123
35 – 39	306,985	312,377	320,919	331,734	339,167	351,947
40 – 44	336,514	330,720	321,868	315,800	305,492	303,481
45 – 49	365,193	351,004	340,791	335,127	333,063	330,930
50 – 54	392,410	392,344	390,177	383,567	370,824	358,021
55 – 59	350,359	358,458	365,577	373,526	377,221	380,474
60 – 64	293,833	301,734	311,683	321,611	328,227	335,072
65 – 69	213,587	226,107	237,444	252,369	264,586	274,887
70 – 74	155,347	164,699	172,320	178,905	181,902	193,645
75 – 79	116,871	119,643	123,927	127,476	131,549	136,115
80 – 84	90,620	90,268	90,333	91,175	91,681	93,293
85 & Older	79,683	82,434	82,608	84,666	86,814	88,220
Total	**4,007,753**	**4,038,718**	**4,069,246**	**4,116,528**	**4,118,102**	**4,155,059**

* This information is provided by the Department of Public Safety, Driver and Vehicle Services Division (DVS). Counts of licensed drivers include drivers who only hold learner's permits.

TABLE 3

MOTOR VEHICLE REGISTRATIONS, 2011 - 2016

Type of Vehicle*	2011	2012	2013	2014	2015	2016
Passenger Vehicles	3,579,033	3,621,291	3,630,245	3,595,037	3,589,800	3,541,188
Pickup Trucks	832,463	829,965	882,136	966,978	1,062,344	1,104,453
Commercial Trucks	216,532	220,623	225,201	229,580	235,475	237,849
Recreational Vehicles	33,070	32,511	31,349	30,763	30,993	30,045
Motorcycles	232,274	237,278	235,909	236,040	238,243	227,746
Motorized Bicycles	16,016	16,378	16,035	15,956	15,932	14,069
School Buses	6,951	7,120	7,220	7,463	7,709	7,858
Other Buses	5,161	5,105	5,188	5,281	5,341	5,427
Van Pool	226	210	159	159	162	148
Tax Exempt Vehicles	53,420	53,175	54,682	54,508	56,268	56,237
Motor Vehicle Subtotal	4,975,146	5,023,656	5,088,124	5,141,765	5,242,267	5,225,020
Other Registrations*						
Trailers	1,715,404	1,773,595	1,830,458	1,888,825	1,956,022	2,016,618
Classic Motor Vehicles	186,586	192,649	198,716	182,581	212,218	218,827
Classic Motorcycles	10,489	11,070	11,993	12,807	13,500	14,157
Other Subtotal	1,912,479	1,977,314	2,041,167	2,084,213	2,181,740	2,249,602
Total Registrations	**6,887,625**	**7,000,970**	**7,129,291**	**7,225,978**	**7,424,007**	**7,474,622**

* Information provided by Department of Public Safety, Driver and Vehicle Services Division.

Minnesota license plates on a vehicle signify that it has been registered with the state and that the owner has paid the registration fee. The vehicle classification used for registration purposes is similar, but not identical, to the vehicle classification (shown in Tables 1.11 and 1.12) police use in reporting crashes. Following are some notes on the registration categories shown above:

- Passenger Vehicles include cars, SUVs and Vans (except for a "Van Pool," which is a Van used exclusively for car pooling purposes).
- Pickup Trucks are rated three-fourths ton or less.
- Motorcycles have engines exceeding 50 cc, more than 2 brake horse power, and/or the capability of speeds greater than 30 mph on a flat surface; otherwise the vehicle is classified as a Motorized Bicycle (Moped).
- Tax exempt Vehicles are vehicles owned by city, county, or state offices. They have license plates but no registration fees are paid on them. (Police and fire department vehicles are tax exempt but are not included since they do not have state license plates and are not registered.)
- Trailers (such as utility trailers pulled by cars, or semi or twin trailers pulled by trucks) are pulled by motorized vehicles and do not themselves have motors.
- Classic Motor Vehicles and Classic Motorcycles must be at least 20 years old and cannot be used for normal transportation purposes. They can only be driven, for example, to car shows.

I. ALL CRASHES

Overview of Traffic Crashes in Minnesota
If a traffic crash in Minnesota meets certain criteria, the law states that data concerning that crash must be reported to the Department of Public Safety. In the recent past, over 70,000 traffic crashes each year have been reported. Reducing the number of traffic crashes remains a challenge each year for public safety officials. By the end of calendar year 2016:

- The population of Minnesota increased to 5.52 million
- Over 5 million motor vehicles were registered
- There were 4 million licensed drivers
- Over 58 *billion* miles were driven in Minnesota

As these numbers steadily increase, the citizens of Minnesota face an extreme challenge in reducing the number and severity of traffic crashes.

Crashes increase and fatalities decrease in 2016
There were 79,069 traffic crashes reported to the Department of Public Safety in 2016, an increase of 6% from 2015. There were 392 deaths on Minnesota roads, a 5% decrease from the previous year. However, our roads are relatively safe. Traffic deaths in Minnesota have decreased dramatically in the past decades. There are many factors for the continued improvement in traffic safety, but much can be credited to strengthened traffic safety laws, enhanced enforcement, education and outreach, engineering and emergency trauma care. These elements are all part of the state's *Toward Zero Deaths* (*TZD*) initiative — a multidisciplinary program addressing traffic issues at the local level.

Traffic Crashes in 2016
The following facts give an overall picture of 2016 traffic crashes. In addition to the 392 killed:

- 29,825 people were injured
- 1,992 of these were serious injuries
- 11,097 of these were minor injuries
- 16,736 of these were possible injuries

- 178,922 people were involved in crashes
- 146,339 motor vehicles were involved in crashes
- 798 crashes involved at least 1 bicyclist
- 1,151 crashes involved at least 1 pedestrian

- One-third of all crashes involved just one vehicle
- One in five fatalities were less than 25 years of age
- 65% of fatalities occurred in rural areas (< 5,000 population)
- 7,320 crashes were classified as "hit-and-run"
- The economic loss to Minnesota was over $1.8 billion

WHO was involved
Among drivers, young people and males are over-represented in traffic crashes in Minnesota. There are 4,155,059 licensed drivers in the state. People aged 15-24 make up 14% of the licensed drivers, yet they accounted for 24% of the crash-involved drivers. Drivers aged 20-24 are the worst from this perspective. In 2016, they represented just 8% of the licensed drivers, but 14% of all crash-involved drivers. By contrast drivers over 65 made up 19% of the driving population, but accounted for just 9% of the crash-involved drivers. Crash-involved drivers are also more likely to be males: 73% of drivers in fatal crashes were male; 57% of drivers in all crashes were male. However, although fatal crash-involved drivers are largely male, the number of female drivers involved in fatal crashes increased at a higher rate than males in 2016. One hundred fifty-three female drivers were involved in fatal crashes last year, which represents a 4% increase from the previous year.

Traffic crashes are a leading cause of death in young people. In the state last year, 111 people under age 30 died in crashes, representing 28% of all traffic deaths. As noted, the National Safety Council reports that crashes are the leading cause of death among persons aged 1 to 24.

Among people injured, young people especially pay the price. There were 11,917 people under age 30 who were injured, representing 40% of the total number of people injured.

WHY they happened
An officer at the scene will list zero, one or two contributing factors for each 'vehicle' involved in a crash. The 'cause' of a crash is sometimes not entirely clear as vehicular factors in a crash may be listed alongside human factors. However, vehicular factors are not cited as often as human factors.

About one-third of all crashes involve only one vehicle and about two-thirds involve two or more vehicles. Single-vehicle and multiple-vehicle crashes have different characteristics. In single-vehicle crashes, ran off the road and driving in a careless, reckless manner are the most frequent contributing factors. For drivers 15-19 years old, driver overcorrecting and oversteering were among the most frequently reported factors. In multiple-vehicle crashes, failure to yield right of way and following too closely are most frequently cited.

"Hit-and-run" crashes accounted for 7,320 (9%) of all crashes. Fatal hit and run crashes are few. Only 13 occurred in 2016; however, 11 (85%) of those involved pedestrians.

WHAT the conditions were

Victims of traffic crashes are mostly car, pickup, sport utility vehicle (SUV) or van occupants. Of the 392 traffic fatalities, 252 (64%) were from these 4 vehicle types. There were also 60 pedestrians, 54 motorcyclists and 7 bicyclists who died in traffic crashes. There were 7 deaths to ATV riders, 8 deaths involving commercial motor vehicles and 1 death involving farm equipment.

A collision with another vehicle is the leading crash type. About 50% of the fatal crashes and 67% of all crashes involve one vehicle colliding with another vehicle. In fatal and injury crashes, collisions with fixed objects and overturns are also common. For property damage crashes, the other leading crash types are collision with fixed object and collision with a parked motor vehicle.

Most crashes occur in good driving conditions. Over half of fatal crashes and over two-thirds of nonfatal crashes occurred during daylight hours. A majority of crashes occur in good weather conditions. Nearly two-thirds of all crashes occur during "clear" weather. Road surface conditions where crashes occurred were usually good. For fatal crashes, 75% were on dry roads, 11% were on wet roads and 10% were on snowy or icy roads.

WHERE they happened

Fatal crashes tend to occur on roads in rural areas that permit high speeds and do not have interstate-type safety designs. Last year, 226 (63%) fatal crashes occurred in rural areas, which are defined as having a population of less than 5,000 people. Additionally, 96 (27%) of all fatal crashes occurred on county state aid highways and 60 of those were in rural areas. Injury and property damage crashes are more common in urban areas. Over three-fourths happened inside cities of 5,000 or more population. The seven county metro area, with over half the state's population, accounted for only 34% of the fatal crashes, but 63% of all crashes.

WHEN they occurred

A fatal traffic crash is most likely to occur during the morning and afternoon rush-hour time periods (6:00-9:00 a.m. and 3:00-6:00 p.m.). This has changed since the early 1990s when most fatal crashes occurred at night during the time period of 10:00 p.m.-2:00 a.m. This phenomenon may be explained by the smarter deployment of law enforcement, increased seat belt usage and the public's awareness of the dangers of drinking and driving. As for total crashes, the six hour time period of 12:00-6:00 p.m. had the most. In that time frame, 44% of all crashes occurred. This has not changed over the years. Indeed, Figure 1.03 shows that the afternoon time period, when the most vehicles are on the road, is truly a dangerous time to be driving.

Fridays, Saturdays and Sundays accounted for 167 of the 357 fatal crashes (47%). Total crashes are more evenly distributed across days of the week, although Fridays had the most (17%) and Sundays had the least (11%).

As a general rule, harsh winter weather results in more traffic crashes; there are more 'fender-benders' during icy and snowy conditions. December of 2016 followed this axiom. Because of severe weather, December had the most crashes reported of any month (9,545). As a general rule, warmer weather produces more fatalities. However, in 2016 the month of October saw the highest number of fatal crashes (39) and fatalities (42). As mentioned earlier, factors other than the weather are also involved. These include speeding, drinking and driving, not wearing a seat belt and not paying attention while driving.

Can traffic crashes be prevented?

On average over the past decade, about 411 people have been killed and 31,000 injured every year on our roadways. Minnesota's traffic crashes are cause for concern. In a public health sense, epidemics that kill and injure fewer people are often attacked vigorously until they are no longer a threat to public safety.

The Department of Public Safety (DPS) uses the term "crash" instead of "accident." This is because a traffic crash can be predicted and prevented. Coupled with enforcement, education, engineering and emergency trauma solutions, changes in the behavior of all drivers will help attack the public threat of tragic roadway fatalities and injuries.

DPS implores the reader to spread the word: Driving is a privilege; aggressive driving is not. Buckle up. Drive at safe speeds. Pay attention. Never drive impaired.

TABLE 1.01

TRAFFIC SAFETY STATISTICS SUMMARY, 1965 - 2016

Year (a)	Total Crashes (b)	Persons Killed (c)	Persons Injured (d)	Licensed Drivers (million) (e)	Motor Vehicles (MV) (million) (f)	State Popu-lation (million) (g)	Vehicle Miles Traveled (VMT) (billion) (h)	Crash Rates Per 100,000 MV (i)	Crash Rates Per 100,000 Popu-lation (j)	Crash Rates Per 100 Mil VMT (k)	Fatality Rates Per 100,000 MV (l)	Fatality Rates Per 100,000 Popu-lation (m)	Fatality Rates Per100 Mil VMT (n)
1965	83,329	875	50,847	1.85	1.86	3.57	16.8	4,480	2,334	496	47.0	24.5	5.20
1970	99,404	987	38,538	2.05	2.24	3.80	22.4	4,438	2,616	444	44.1	26.0	4.40
1975	123,206	777	41,931	2.51	2.69	3.92	25.6	4,580	3,143	481	28.9	19.8	3.00
1980	103,612	863	45,227	2.77	3.01	4.08	28.5	3,446	2,546	364	28.7	21.2	3.03
1981	97,879	763	43,739	2.83	3.09	4.10	28.6	3,163	2,387	342	24.7	18.6	2.67
1982	89,443	581	38,692	2.87	3.01	4.13	29.2	2,972	2,181	304	19.3	14.2	1.98
1983	97,371	558	41,086	2.90	3.03	4.15	30.5	3,214	2,356	319	18.4	13.5	1.83
1984	93,741	584	41,808	2.91	3.13	4.16	32.2	2,995	2,262	291	18.7	14.1	1.81
1985	99,168	610	44,316	3.04	3.22	4.19	33.1	3,080	2,380	300	18.9	14.7	1.84
1986	95,460	572	42,130	3.07	3.25	4.21	34.2	2,937	2,266	279	17.6	13.6	1.67
1987	94,095	530	42,091	3.10	3.31	4.25	35.1	2,840	2,233	268	16.0	12.6	1.51
1988	102,094	615	44,415	3.13	3.39	4.31	36.4	3,012	2,371	280	18.1	14.3	1.69
1989	105,996	605	45,404	3.16	3.46	4.35	37.6	3,060	2,435	282	17.5	13.9	1.61
1990	99,236	568	44,634	3.18	3.52	4.38	38.8	2,817	2,268	256	16.1	13.0	1.47
1991	101,419	531	42,748	3.22	3.51	4.43	39.3	2,890	2,288	258	15.1	12.0	1.35
1992	96,808	581	43,249	3.27	3.55	4.48	41.3	2,730	2,161	235	16.4	13.0	1.41
1993	100,907	538	44,987	3.28	3.48	4.52	42.3	2,899	2,234	239	15.5	11.9	1.27
1994	99,701	644	46,403	3.34	3.67	4.57	43.4	2,720	2,183	230	17.6	14.1	1.48
1995	96,022	597	47,161	3.39	3.68	4.61	44.1	2,606	2,083	218	16.2	13.0	1.35
1996	105,332	576	48,963	3.46	3.70	4.66	45.9	2,845	2,261	230	15.6	12.4	1.26
1997	98,625	600	46,064	3.49	3.77	4.69	46.9	2,065	2,105	210	12.6	12.8	1.28
1998	92,926	650	45,115	3.53	3.90	4.74	48.5	2,380	1,962	192	16.6	13.7	1.34
1999	96,813	626	44,538	3.54	3.92	4.78	50.7	2,470	2,027	191	16.0	13.1	1.24
2000	103,591	625	44,740	3.65	4.20	4.92	52.4	2,469	2,106	198	14.9	12.7	1.19
2001	98,984	568	42,223	3.69	4.38	4.97	53.2	2,262	1,991	186	13.0	11.4	1.07
2002	94,969	657	40,677	3.76	4.49	5.02	54.4	2,115	1,892	175	14.6	13.1	1.21
2003	N/A	655	N/A	3.79	4.56	5.09	55.4	N/A	N/A	N/A	14.4	12.9	1.18
2004	91,274	567	40,073	3.85	4.63	5.14	56.5	1,971	1,774	162	12.2	11.0	1.00
2005	87,813	559	37,686	3.87	4.69	5.21	56.5	1,873	1,687	155	11.9	10.7	0.99
2006	78,745	494	35,025	3.87	4.76	5.23	56.6	1,654	1,505	139	10.4	9.4	0.87
2007	81,505	510	35,318	3.91	4.82	5.26	57.4	1,691	1,548	142	10.6	9.7	0.89
2008	79,095	455	33,379	3.94	4.86	5.29	57.3	1,628	1,494	138	9.4	8.6	0.79
2009	73,498	421	31,074	3.95	4.87	5.30	57.0	1,510	1,387	129	8.7	7.9	0.74
2010	74,073	411	31,176	4.00	4.92	5.30	56.8	1,507	1,397	130	8.4	7.5	0.72
2011	72,117	368	30,295	4.01	4.98	5.33	56.7	1,450	1,352	127	7.4	6.9	0.65
2012	69,236	395	29,314	4.04	5.02	5.37	57.0	1,378	1,290	122	7.9	7.4	0.69
2013	77,707	387	30,653	4.07	5.09	5.40	57.0	1,527	1,439	136	7.6	7.2	0.68
2014	78,396	361	29,439	4.12	5.14	5.42	57.0	1,525	1,446	138	7.0	6.7	0.63
2015	74,772	411	29,981	4.12	5.24	5.45	59.1	1,426	1,371	126	7.8	7.5	0.70
2016	79,069	392	29,825	4.16	5.23	5.52	58.9	1,903	1,432	134	9.4	7.1	0.67

(1) By State statute, information on traffic crashes must be reported to the Department of Public Safety if the crashes involve motor vehicles in transport on Minnesota roadways and have at least $1,000 in property damage, or a motor vehicle occupant, pedestrian, or bicyclist is injured or killed.

(2) The numbers shown for licensed drivers includes those who have only permits.

(3) Vehicle miles traveled are provided by Minnesota Department of Transportation.

(4) Numbers of licensed drivers and registered motor vehicles are provided by the Driver and Vehicle Services Division, Minnesota Department of Public Safety.

TABLE 1.02

TRAFFIC CRASH TRENDS* 2011-2016

	2011	2012	2013	2014	2015	2016*	Record High	
Fatal Crashes	**334**	**349**	**357**	**324**	**375**	**357**	**878**	**(1973)**
Injury Crashes	**21,662**	**20,972**	**21,960**	**21,257**	**21,516**	**21,734**	**33,686**	**(1978)**
Severe/Serious*	954	1,044	981	862	932	1,702	5,109	(1984)[1]
Moderate/Minor*	5,581	5,423	5,563	5,302	5,721	8,642	12,326	(1985)[1]
Minor/Possible*	15,127	14,505	15,416	15,093	14,863	11,390	18,578	(1996)[1]
PDO Crashes	**50,121**	**47,915**	**55,390**	**56,815**	**52,881**	**56,978**	**94,810**	**(1975)**
Total Crashes	**72,117**	**69,236**	**77,707**	**78,396**	**74,772**	**79,069**	**123,106**	**(1975)**
Total Injuries	**30,295**	**29,314**	**30,653**	**29,439**	**29,981**	**29,825**	**50,332**	**(1978)**
Severe/Serious*	1,159	1,268	1,216	1,044	1,127	1,992	6,573	(1984)[1]
Moderate/Minor*	7,110	6,902	7,109	6,712	7,251	11,097	17,670	(1985)[1]
Minor/Possible*	22,026	21,144	22,328	21,683	21,603	16,736	28,631	(1996)[1]
Total Fatalities	**368**	**395**	**387**	**361**	**411**	**392**	**1,060**	**(1968)**
Motor Vehicle Occupant	271	276	269	278	285	261	544	(2002)[1]
Motorcycle	42	55	60	46	61	54	121	(1980)
Pedestrian	40	40	35	17	41	60	157	(1971)
Bicycle	5	7	6	5	10	7	24	(1977)
All Terrain Vehicle	8	9	7	7	10	7	10	(2008)
Commercial Bus	0	1	2	4	1	0	9	(1984)
Farm Equipment	2	2	5	1	2	1	5	2013
Other Vehicle Type	0	5	3	3	1	2	9	2008
Minnesota Fatality Rate[2]	0.65	0.69	0.68	0.63	0.70	0.67	23.6	(1934)
U.S. Fatality Rate[2]	1.10	1.14	1.09	1.08	1.15	1.18	18.0	(1925)
Minnesota Economic Loss (millions)	$1,481	$1,514	$1,588	$1,604	$1.773	$1.874	$1,874	(2016)[3]

[1] The available records on which these categories "record highs" are based only go back to 1984.
[2] Rate is based on 100 million vehicle miles of travel.
[3] Economic cost estimates are based upon wage and productivity losses, medical expenses, administrative expenses, motor vehicle damage and employers' uninsured costs, among other factors.

*Note: Injury severity definitions changed in 2016 to align with national standard definitions. The new classifications are suspected serious injury, suspected minor injury, and possible injury. Due to this change, reported injuries at various classifications are not directly comparable to earlier years.

TABLE 1.03

2016 FATALITIES BY TRAFFIC ROLE, GENDER AND AGE

Type of Vehicle	Position in Vehicle	Gender	Age 0-9	Age 10-19	Age 20-29	Age 30-39	Age 40-49	Age 50-59	Age 60-69	Age 70+	Total
Car	Driver	Male	0	8	23	10	13	12	7	7	80
		Female	0	4	10	2	2	3	3	9	33
	Passenger	Male	1	0	2	1	0	0	0	3	7
		Female	0	3	3	5	2	1	0	9	23
Pickup	Driver	Male	0	0	5	5	7	6	4	5	32
		Female	0	0	0	0	1	0	0	1	2
	Passenger	Male	0	0	1	2	1	2	1	0	7
		Female	0	0	0	0	0	1	0	0	1
SUV	Driver	Male	0	1	4	1	1	3	5	6	21
		Female	0	0	0	3	5	4	3	5	20
	Passenger	Male	1	0	0	1	0	2	0	1	5
		Female	2	2	2	0	1	0	0	0	7
Van	Driver	Male	0	0	2	2	0	2	1	2	9
		Female	0	0	0	0	2	0	0	2	4
	Passenger	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	0	1	0	0	0	0	1
Truck	Driver	Male	0	0	0	1	1	1	2	0	5
		Female	0	0	0	0	0	0	0	0	0
	Passenger	Male	0	0	0	0	0	1	0	0	1
		Female	0	0	0	0	0	0	0	0	0
Motorcycle	Driver	Male	0	0	4	13	3	7	13	4	44
		Female	0	0	0	2	0	1	0	0	3
	Passenger	Male	0	0	0	0	0	0	0	0	0
		Female	0	0	2	1	2	1	1	0	7
Other Motor Vehicle	Driver	Male	1	2	3	1	2	0	0	1	10
		Female	0	0	0	0	0	0	0	0	0
	Passenger	Male	0	0	2	0	0	1	0	0	3
		Female	0	0	0	0	0	0	0	0	0
Bicyclist		Male	0	2	1	0	0	1	0	0	4
		Female	1	0	0	0	0	1	0	1	3
Pedestrian		Male	2	2	8	4	2	4	6	5	33
		Female	0	3	4	4	0	5	2	9	27
Total Fatalities		Male	5	15	55	41	30	42	39	34	261
		Female	3	12	21	18	15	17	9	36	131
		Total	**8**	**27**	**76**	**59**	**45**	**59**	**48**	**70**	**392**

Note: The vehicle types for the 13 fatalities in the 'Other Motor Vehicle' category consisted of: seven ATVs, one farm equipment vehicle, two mopeds, two fire department vehicles, and one heavy pickup truck not classified as a commercial motor vehicle.

TABLE 1.04

AGE AND GENDER OF PERSONS KILLED OR INJURED IN 2016 CRASHES

Age Group	Males Killed	Females Killed	Total Killed	Males Injured	Females Injured	Unknown Injured	Total Injured
00 - 03	1	1	2	164	161	9	334
04 - 10	6	3	9	449	442	18	909
11 - 14	2	1	3	294	316	12	622
Total < 15:	9	5	14	907	919	39	1,865
15	0	0	0	120	157	4	281
16	4	5	9	271	339	11	621
17	2	2	4	310	406	3	719
18	4	4	8	335	434	1	770
19	5	1	6	406	416	2	824
20	3	2	5	362	364	3	729
Total 15-20:	14	12	26	1,804	2,116	24	3,944
Total < 21:	23	17	40	2,711	3,035	63	5,809
00 - 04	1	1	2	222	225	11	458
05 - 09	4	2	6	317	314	14	645
10 - 14	4	2	6	368	380	14	762
15 - 19	11	10	21	1,442	1,752	21	3,215
20 - 24	27	14	41	1,775	1,848	12	3,635
25 - 29	28	7	35	1,534	1,654	14	3,202
30 - 34	20	10	30	1,288	1,408	8	2,704
35 - 39	21	8	29	1,061	1,229	7	2,297
40 - 44	14	7	21	881	1,061	6	1,948
45 - 49	16	8	24	927	1,104	9	2,040
50 - 54	22	8	30	978	1,047	4	2,029
55 - 59	20	9	29	967	989	4	1,960
60 - 64	20	5	25	649	775	5	1,429
65 - 69	19	4	23	491	583	0	1,074
70 - 74	14	8	22	365	400	2	767
75 - 79	4	9	13	224	274	3	501
80 - 84	7	7	14	175	196	2	373
85 +	9	12	21	144	148	1	293
Unk	0	0	0	153	176	164	493
Total:	**261**	**131**	**392**	**13,961**	**15,563**	**301**	**29,825**

See Figure 1.01 on page 15 for a graphical depiction of how many persons were killed and injured by age and gender groups.

TABLE 1.05

AGE AND GENDER OF DRIVERS IN 2016 CRASHES

Age Group	Male Drivers in Fatal Crashes	Female Drivers in Fatal Crashes	Driver Gender Not Stated in Fatal Crashes	Total in Fatal Crashes	Male Drivers in All Crashes	Female Drivers in All Crashes	Driver Gender is Not Stated in All Crashes	Total in All Crashes
<15	3	0	0	3	40	10	2	52
15	0	2	0	2	127	103	28	258
16	6	1	0	7	1,486	1,503	65	3,054
17	5	3	0	8	1,771	1,700	14	3,485
18	1	3	0	4	1,963	1,760	1	3,724
19	13	1	0	14	2,035	1,631	4	3,670
20	11	4	0	15	2,050	1,615	1	3,666
All <21	**39**	**14**	**0**	**53**	**9,472**	**8,322**	**115**	**17,909**
00 - 04	0	0	0	0	1	0	0	1
05 - 09	1	0	0	1	2	2	0	4
10 - 14	2	0	0	2	37	8	2	47
15 - 19	25	10	0	35	7,382	6,697	112	14,191
20 - 24	44	15	0	59	10,019	8,168	14	18,201
25 - 29	41	15	0	56	9,150	7,053	55	16,258
30 - 34	31	10	0	41	8,222	6,178	19	14,419
35 - 39	35	8	0	43	6,937	5,158	43	12,138
40 - 44	38	13	0	51	5,670	4,104	9	9,783
45 - 49	27	11	0	38	5,864	4,174	15	10,053
50 - 54	42	13	0	55	5,795	3,901	7	9,703
55 - 59	34	10	0	44	5,461	3,653	13	9,127
60 - 64	33	12	0	45	4,142	2,788	3	6,933
65 - 69	20	9	0	29	2,886	1,900	14	4,800
70 - 74	18	8	0	26	1,845	1,297	2	3,144
75 - 79	4	7	0	11	1,183	873	4	2,060
80 - 84	10	7	0	17	761	591	1	1,353
85+	9	5	0	14	606	450	3	1,059
Unk	0	0	0	0	52	15	116	183
Total	**414**	**153**	**0**	**567**	**76,015**	**57,010**	**432**	**133,457**

Most crashes involve more than one driver, causing the total number of drivers to exceed the total number of crashes. (Pedestrians and bicyclists are not counted in this table.)

TABLE 1.06

LICENSED VERSUS CRASH-INVOLVED DRIVERS BY AGE, 2016

Age Group	Percentage of All Licensed Drivers	Percentage of Drivers in Fatal Crashes	Percentage of Drivers in Injury Crashes	Percentage of Drivers in PDO Crashes	Percentage of Drivers in All Crashes
14 & Younger	0.0%	0.5%	0.1%	0.0%	0.0%
15	0.7%	0.4%	0.2%	0.2%	0.2%
16	1.2%	1.2%	2.1%	2.4%	2.3%
17	1.3%	1.4%	2.4%	2.7%	2.6%
18	1.4%	0.7%	2.7%	2.9%	2.8%
19	1.5%	2.5%	2.8%	2.7%	2.7%
20	1.5%	2.6%	2.7%	2.8%	2.7%
Total < 21	**7.7%**	**9.3%**	**12.8%**	**13.7%**	**13.4%**
15 - 19	6.2%	6.2%	10.1%	10.9%	10.6%
20 - 24	7.9%	10.4%	13.0%	13.9%	13.6%
25 - 29	8.6%	9.9%	11.9%	12.3%	12.2%
30 - 34	8.9%	7.2%	10.6%	10.9%	10.8%
35 - 39	8.5%	7.6%	8.9%	9.2%	9.1%
40 - 44	7.3%	9.0%	7.4%	7.3%	7.3%
45 - 49	8.0%	6.7%	7.8%	7.4%	7.5%
50 - 54	8.6%	9.7%	7.6%	7.1%	7.3%
55 - 59	9.2%	7.8%	7.2%	6.7%	6.8%
60 - 64	8.1%	7.9%	5.4%	5.1%	5.2%
65 - 69	6.6%	5.1%	3.8%	3.5%	3.6%
70 - 74	4.7%	4.6%	2.6%	2.2%	2.4%
75 - 79	3.3%	1.9%	1.6%	1.5%	1.5%
80 - 84	2.2%	3.0%	1.2%	0.9%	1.0%
85 & Older	2.1%	2.5%	0.9%	0.7%	0.8%
Age Not Stated	0.0%	0.0%	0.1%	0.2%	0.1%
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%
Total Number	4,155,086				

See Figure 1.02 on page 15 for a graphical depiction of crash-involved drivers compared to licensed drivers by age group.

FIGURE 1.01

AGE AND GENDER OF PERSONS KILLED OR INJURED, 2016

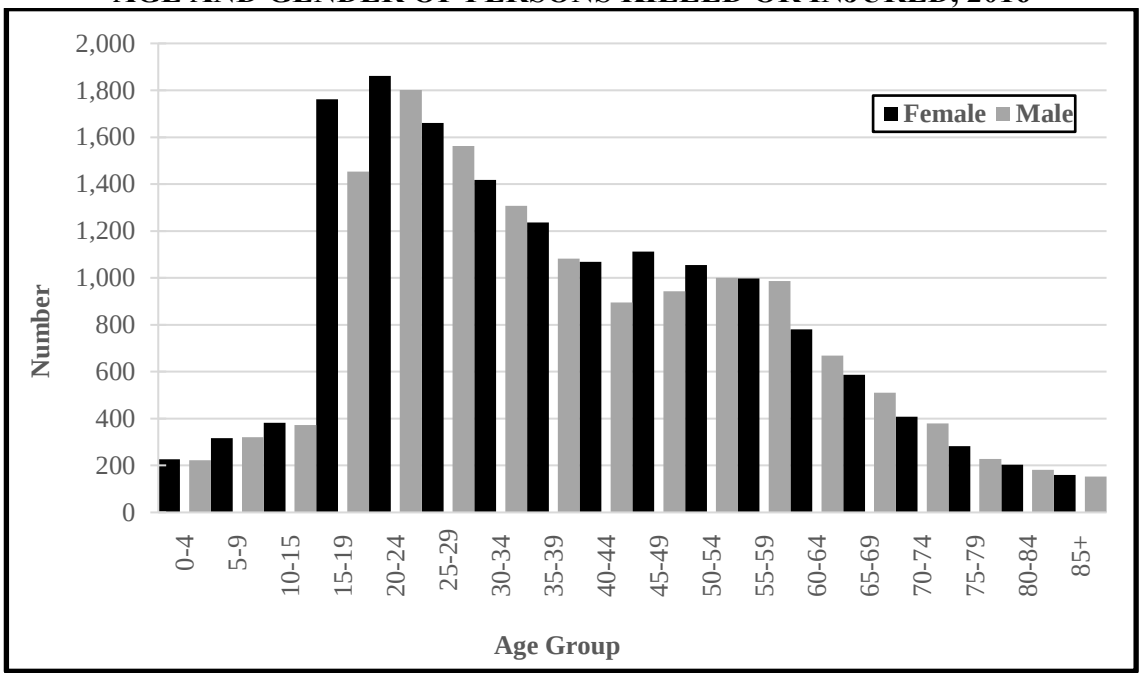

FIGURE 1.02

LICENSED VERSUS CRASH-INVOLVED DRIVERS BY AGE, 2016

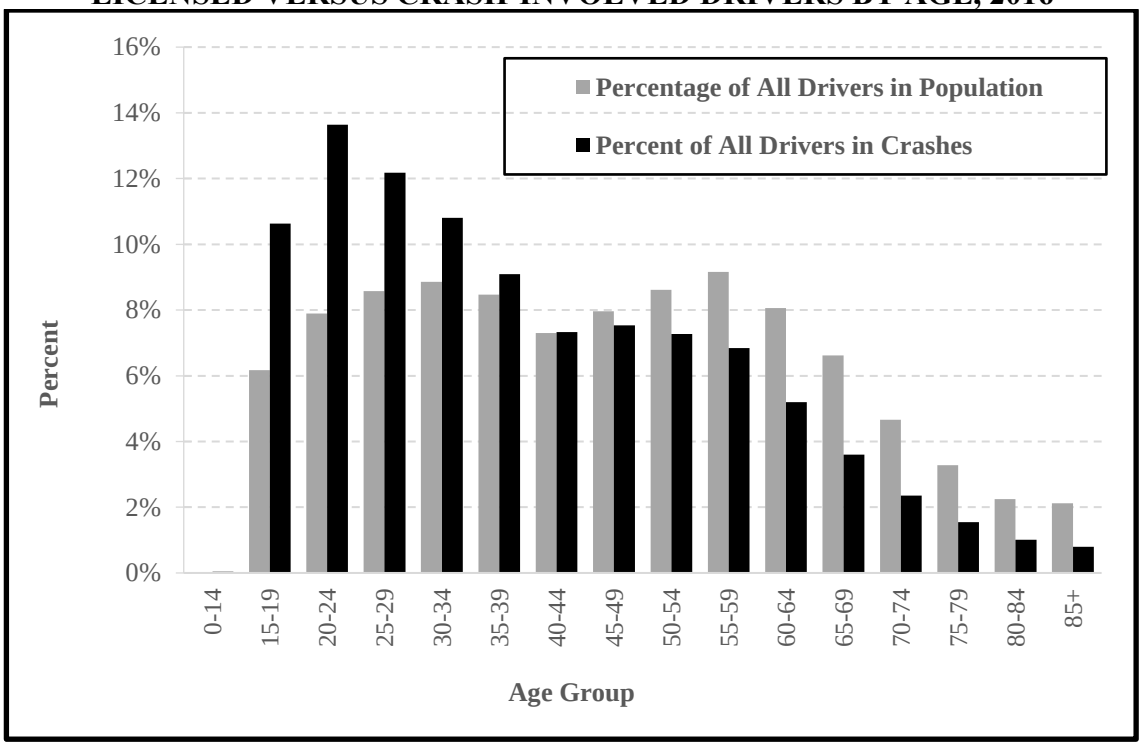

TABLE 1.07

PERCENTAGE OF DRIVERS IN 2016 CRASHES BY AGE AND FIRST HARMFUL EVENT*

First Harmful Event	Age Group 15-19	Age Group 20-24	Age Group 25-29	Age Group 30-34	Age Group 35-64	Age Group 65-79	Age Group 80+	All Ages
Collision With:								
Other Motor Vehicle	76.0%	78.4%	80.4%	82.6%	83.9%	84.0%	83.3%	81.9%
Parked Motor Vehicle	3.0%	3.1%	3.0%	2.6%	2.5%	2.9%	3.2%	2.6%
Bicycle	0.3%	0.4%	0.4%	0.5%	0.6%	0.7%	0.7%	0.5%
Pedestrian	0.5%	0.4%	0.5%	0.5%	0.7%	0.8%	1.0%	0.6%
Deer	0.5%	0.7%	0.8%	0.9%	1.3%	1.0%	0.6%	1.0%
Other Animal	0.2%	0.2%	0.2%	0.3%	0.4%	0.3%	0.2%	0.3%
Railroad Train	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Fixed Object	14.3%	12.6%	11.1%	9.1%	7.4%	7.5%	9.3%	9.7%
Object Set in Motion	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%
Non-Collision:								
Overturn	4.2%	2.9%	2.3%	2.2%	1.8%	1.5%	0.6%	2.3%
Other Non-Collision	0.9%	1.0%	1.0%	1.1%	1.1%	1.0%	0.8%	0.9%
Other or Unknown	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.0%
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Drivers	14,191	18,201	16,258	14,419	57,737	10,004	2,412	133,457

*Percentages are based on the number of crash-involved drivers in each age group (some driver ages are not available). Bicyclists and pedestrians are not counted as drivers in this table.

TABLE 1.08

DRIVER PHYSICAL CONDITION* IN 2016 CRASHES

Driver Physical Condition	In Fatal Crashes	In Injury Crashes	In PDO Crashes	In All Crashes
Normal	340	34,884	88,170	123,394
Had Been Drinking	47	1,368	2,027	3,442
Had Taken Illicit Drugs	12	231	215	458
Had Taken Medications	4	146	184	334
Emotional	2	179	189	370
Fatigued/Asleep	14	589	959	1,562
Physical Disability	2	72	98	172
Medical Issue	8	455	231	694
Other	7	309	540	856
Unknown	698	38,929	96,005	135,632
Total	**1,134**	**77,162**	**188,618**	**266,914**

* As noted by police officer on crash report. Due to a new crash reporting system in 2016, officers were allowed to enter up to two physical conditions for each driver so totals will not match total number of drivers. Pedestrians and bicyclists are excluded from this table.

TABLE 1.09

SINGLE-VEHICLE CRASHES: CONTRIBUTING FACTORS, BY PERCENT, WITHIN DRIVER AGE GROUPS, 2016

Contributing Factor	Age Group 15-19	Age Group 20-24	Age Group 25-29	Age Group 30-34	Age Group 35-64	Age Group 65-79	Age Group 80+	All Ages
Human Factors								
Run Off Road	10.7%	11.2%	10.9%	11.0%	11.5%	12.5%	13.1%	11.2%
Careless/Reckless Manner	10.9%	13.6%	13.8%	12.5%	10.0%	6.0%	5.0%	11.4%
Overcorrecting/Oversteering	11.5%	7.8%	7.3%	7.9%	6.9%	6.3%	7.6%	8.0%
Driver Speeding	8.7%	7.5%	7.7%	7.5%	5.5%	3.7%	2.9%	6.8%
Driver Swerved	5.9%	5.6%	5.5%	5.7%	5.7%	6.7%	4.5%	5.7%
Improper Lane Usage	4.5%	4.3%	4.6%	4.5%	4.4%	6.4%	8.9%	4.6%
Driver Distracted	3.9%	3.6%	3.4%	3.4%	3.1%	4.6%	3.1%	3.5%
Improper Turn/Merge	0.5%	0.6%	0.8%	0.8%	1.2%	1.5%	0.5%	0.9%
Traffic Signs/Road Markings	0.5%	0.6%	0.8%	0.8%	0.9%	1.3%	2.9%	0.8%
Vision Obscured	0.7%	0.4%	0.5%	0.5%	0.6%	1.2%	2.6%	0.6%
Ran Stop Sign/Ran Red Light	0.6%	0.6%	0.7%	0.5%	0.6%	0.8%	1.0%	0.6%
Following Too Closely	0.1%	0.4%	0.4%	0.4%	0.6%	0.2%	0.0%	0.4%
Work Zone	0.2%	0.2%	0.4%	0.1%	0.4%	0.5%	0.8%	0.3%
Improper Backing	0.2%	0.1%	0.3%	0.1%	0.4%	0.6%	1.0%	0.3%
Wrong Side or Wrong Way	0.1%	0.2%	0.4%	0.4%	0.3%	0.2%	2.9%	0.3%
Congestion Related	0.1%	0.4%	0.2%	0.4%	0.4%	0.5%	0.0%	0.3%
Improper Passing	0.3%	0.2%	0.2%	0.1%	0.1%	0.4%	0.3%	0.2%
Failure Yield Of Right of Way	0.1%	0.1%	0.0%	0.0%	0.1%	0.2%	0.3%	0.1%
Other Human Factor	7.6%	8.2%	8.7%	8.7%	10.3%	12.6%	16.8%	9.2%
Vehicular Factors								
Defective Brakes	1.4%	1.9%	1.7%	1.7%	1.6%	1.5%	1.0%	1.6%
Defective Mechanical System	0.7%	0.6%	0.7%	0.5%	0.8%	0.3%	0.0%	0.7%
Defective Equipment	0.2%	0.2%	0.2%	0.4%	0.3%	0.2%	0.0%	0.3%
Miscellaneous Factors								
Road Surface Conditions	25.0%	25.9%	25.4%	25.9%	27.5%	24.0%	18.1%	25.9%
Obstruction In Roadway	0.3%	0.4%	0.6%	0.4%	0.7%	0.6%	0.3%	0.5%
Other	5.6%	5.3%	4.7%	5.8%	6.0%	7.1%	6.3%	5.7%
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Contributing Factors Cited	4,644	4,944	3,680	2,717	8,602	1,315	381	26,353
Drivers for Whom There Was "No Clear Contributing Factor"	232	251	261	256	1,256	185	37	2,480
Total Number of Drivers	2,711	3,041	2,367	1,825	6,346	1,026	262	18,310

Percentages are based on all contributing factors cited within each age group (some driver ages are not available). Up to eight contributing factors may be associated with each driver. The percentages may not sum to 100% due to rounding. Contributing factors for bicyclists and pedestrians are excluded.

For contributing factors in multiple-vehicle crashes, see Table 1.10. For contributing factors in crashes at different levels of severity, see Table 1.17.

TABLE 1.10

MULTIPLE-VEHICLE CRASHES: CONTRIBUTING FACTORS, BY PERCENT, WITHIN DRIVER AGE GROUPS, 2016

Contributing Factor	Age Group 15-19	Age Group 20-24	Age Group 25-29	Age Group 30-34	Age Group 35-64	Age Group 65-79	Age Group 80 +	All Ages
Human Factors								
Failure to Yield Right of Way	13.7%	11.0%	10.5%	10.6%	12.1%	20.2%	29.8%	12.7%
Following Too Closely	13.8%	15.8%	14.4%	12.9%	11.7%	7.7%	5.2%	12.7%
Driver Distracted	9.3%	8.8%	7.9%	6.8%	5.8%	4.9%	2.9%	7.0%
Careless/ Reckless Manner	7.3%	8.5%	8.4%	7.8%	6.7%	4.8%	5.9%	7.3%
Congestion Backup Related	4.6%	6.0%	7.1%	7.5%	8.0%	5.8%	2.7%	6.8%
Improper Turn/Merge	3.4%	3.0%	2.9%	3.4%	3.4%	5.3%	6.7%	3.5%
Ran Red Light/Ran Stop Sign	3.1%	2.8%	3.4%	3.3%	3.0%	4.0%	5.5%	3.2%
Improper Lane Usage	2.2%	2.4%	2.4%	2.3%	2.5%	3.7%	4.4%	2.5%
Vision Obscured	2.3%	2.1%	2.1%	2.2%	2.3%	3.6%	3.4%	2.4%
Improper Pass/Pass on Shoulder	0.7%	0.6%	0.9%	0.9%	0.9%	0.8%	0.6%	2.1%
Driver Swerved	1.8%	1.7%	1.7%	1.8%	1.8%	1.0%	1.1%	1.7%
Driving Speeding	2.3%	2.3%	2.4%	1.9%	1.3%	0.7%	0.6%	1.7%
Work Zone	0.9%	1.2%	1.1%	1.4%	1.7%	2.1%	1.6%	1.4%
Disregard Other Traffic Signs	1.3%	1.4%	1.4%	1.5%	1.2%	2.1%	2.9%	1.4%
Improper Backing	0.6%	0.5%	0.5%	0.7%	0.9%	1.1%	0.8%	0.7%
Overcorrecting/Oversteering	1.1%	1.0%	0.9%	0.7%	0.6%	0.3%	0.4%	0.7%
Wrong Side or Wrong Way	0.3%	0.3%	0.5%	0.5%	0.4%	0.2%	0.5%	0.4%
Disregard Traffic Cntrl/Rd Mrkngs	0.3%	0.4%	0.4%	0.4%	0.5%	0.6%	0.5%	0.4%
Run Off Road	0.2%	0.3%	0.2%	0.3%	0.2%	0.1%	0.3%	0.2%
Other Human Factor	7.3%	7.0%	6.7%	6.6%	7.0%	7.4%	7.9%	7.0%
Vehicular Factors								
Defective Brakes	1.6%	1.4%	1.2%	0.9%	0.8%	0.7%	0.4%	1.1%
Defective Equipment	0.0%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%
Defective Mechanical System	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%
Other Vehicular Factor	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Miscellaneous Factors								
Road Surface Conditions	15.1%	15.8%	17.1%	19.7%	21.2%	16.9%	9.2%	18.3%
Obstruction in Roadway/Debris	0.2%	0.2%	0.4%	0.3%	0.3%	0.3%	0.1%	0.2%
Other	5.8%	5.2%	4.9%	5.0%	5.3%	5.0%	6.4%	5.3%
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total Contributing Factors Cited	10,770	12,551	10,159	8,428	31,002	5,604	1,696	80,341
Drivers for Whom There Was "No Clear Contributing Factor"	3,152	4,945	5,248	5,283	23,458	3,811	684	46,597
Total Number of Drivers	10,738	14,203	13,010	11,857	48,159	8,341	1,995	108,876

Percentages are based on all contributing factors cited within each age group (some driver ages are not available). Up to eight contributing factors may be associated with each driver. The percentages may not sum to 100% due to rounding. Contributing factors for bicyclists and pedestrians are excluded.

For contributing factors in single-vehicle crashes, see Table 1.09. For contributing factors in crashes at different levels of severity, see Table 1.17.

TABLE 1.11

PERSONS INVOLVED IN CRASHES BY TYPE OF VEHICLE OCCUPIED AND INJURY SEVERITY, 2016

Vehicle Type	Killed	Seriously Injured	Minorly Injured	Possibly Injured	Total Injured	Not Injured	Total Persons
Car	143	816	5,432	9,410	15,658	78,101	93,902
Pickup Truck	41	170	1,027	1,307	2,504	16,968	19,513
Sport Utility Vehicle	53	259	2,027	3,605	5,891	33,037	38,981
Van	14	44	577	1,095	1,716	9,499	11,229
Motor Home/Camper	0	2	5	2	9	119	128
Limousine	0	0	3	3	6	31	37
Taxi Cab	0	2	49	128	179	731	910
Police Vehicle	0	1	42	45	88	667	755
Fire Department Vehicle	2	6	2	5	13	90	105
School Bus	0	1	29	52	82	1,374	1,456
Other Bus	0	1	54	77	132	691	823
Ambulance	0	0	1	11	12	102	114
Military Vehicle	0	0	2	6	8	17	25
Snowmobile	0	4	2	2	8	6	14
All-Terrain Vehicle	7	24	27	10	61	29	97
Farm Tractor or Equipment	1	3	6	8	17	104	122
Motorcycle	54	323	627	203	1,153	214	1,421
Moped or Motor Scooter*	2	10	45	21	76	8	86
Hit and Run Vehicle	0	6	52	78	136	2,134	2,270
Other Working Vehicle	1	1	3	5	9	113	123
Single Truck (2-axle, 6 tire)	0	1	10	11	22	363	385
Single Truck (3 or more axles)	0	5	8	7	20	272	292
Single Truck with Trailer	1	0	24	12	36	614	651
Truck Tractor w/ No Trailer	0	0	0	0	0	45	45
Truck Tractor w/ Semi Trailer	3	9	44	39	92	1,753	1,848
Truck Tractor w/ Double Trailer	0	0	0	1	1	24	25
Truck Tractor w/ Triple Trailer	0	0	0	0	0	6	6
Other or Unknown Truck Type	2	0	7	4	11	278	291
Other Vehicle Type	0	8	19	23	50	506	556
Unknown Vehicle Type	1	5	23	15	43	642	686
Bicycle	7	86	439	230	755	45	807
Pedestrian	60	205	511	321	1,037	122	1,219
Total	**392**	**1,992**	**11,097**	**16,736**	**29,825**	**148,705**	**178,922**

* On the crash report form, police may show that a vehicle is a "motorcycle," a "moped/motor scooter." Since 1986, however, the law recognizes just two categories. If the vehicle has an engine capacity of more than 50 cc, has more than 2 brake horsepower, or is capable of speeds over 30 mph on a flat surface, it is classified as a motorcycle; otherwise, it is classified as a motorized bicycle.

TABLE 1.12

TYPES OF MOTOR VEHICLES IN 2016 CRASHES

Motor Vehicle Type*	Vehicles in Fatal Crashes	Vehicles in Injury Crashes	Vehicles in PDO Crashes	Vehicles in All Crashes
Car	221	21,180	55,161	76,562
Pickup Truck	100	4,260	11,722	16,082
Sport Utility Vehicle	94	8,478	21,120	29,692
Van	31	2,296	5,318	7,645
Motor Home/Camper	0	15	72	87
Limousine	0	8	24	32
Taxi	0	204	397	601
Police Vehicle	0	142	563	705
Fire Department Vehicle	1	9	44	54
School Bus	2	109	517	628
Other Bus	1	131	412	544
Ambulance	0	11	43	54
Military Vehicle	0	8	11	19
Snowmobile	0	9	4	13
All-Terrain Vehicle	7	49	12	68
Farm Equipment	2	38	65	105
Motorcycle	58	1,078	166	1,302
Moped/Motor Scooter**	2	75	9	86
Hit and Run Vehicle	15	955	6,413	7,383
Other Working Vehicle	1	23	97	121
Single Truck (2-axle, 6 tire)	2	79	277	358
Single Truck (3 or more axles)	4	72	210	286
Truck Pulling Trailer	7	127	460	594
Truck Tractor w/ no Trailer	0	5	36	41
Truck Tractor w/ Semi Trailer	29	399	1,350	1,778
Truck Tractor w/ Double Trailer	0	5	19	24
Truck Tractor w/ Triple Trailer	0	0	4	4
Truck > 10,000lbs, cannot classify	3	47	217	267
Other Vehicle Type	1	126	443	570
Unknown Vehicle Type	5	147	482	634
Total* **	**586**	**40,085**	**105,668**	**146,339**

* Snowmobiles and ATVs in crashes are not counted in this table unless the crash occurred on a public roadway.

** On the crash report form, police may show that a vehicle is a "motorcycle," or a "moped/motor scooter/motorbike." Since 1986, however, the law recognizes just two categories. If the vehicle has an engine capacity of more than 50 cc, has more than 2 brake horsepower, or is capable of speeds over 30 mph on a flat surface, it is classified as a motorcycle; otherwise, it is classified as a motorized bicycle. The term moped is short for motorized pedal cycle, which is the same as motorized bicycle. (Section 4 of this book now combines "motorcycle" and "motor scooter/motorbike").

*** Most crashes involve more than one vehicle, causing total vehicles to exceed total crashes. Bicyclists and pedestrians are excluded from this table.

TABLE 1.13
2016 CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured	Fatality Rate Per 1,000 Crashes
Collision With:							
Other Motor Vehicle	180	14,426	38,630	53,236	209	21,305	3.9
Parked Motor Vehicle	4	412	4,514	4,930	4	484	0.8
Bicycle	7	715	32	754	7	729	9.3
Pedestrian	56	883	18	957	58	937	60.6
Deer	1	205	1,089	1,295	1	250	0.8
Other Animal	1	71	343	415	1	78	2.4
Railroad Train	2	13	27	42	2	13	47.6
Object Set in Motion	0	19	64	83	0	27	0.0
Fixed Object	53	3,020	9,955	13,028	55	3,602	4.2
Unk Collision	0	8	42	50	0	11	0.0
Non-Collision:							
Overturn/Rollover	48	1,486	1,491	3,025	50	1,851	16.5
Submersion	0	11	59	70	0	12	0.0
Fire/Explosion	0	1	28	29	0	2	0.0
Other Non-Collision	5	464	686	1,155	5	524	4.3
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**	**5.0**

TABLE 1.14
2016 "HIT-AND-RUN" CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	0	628	3,608	4,236	0	791
Parked Motor Vehicle	0	31	1,966	1,997	0	37
Bicycle	1	75	4	80	1	77
Pedestrian	11	145	8	164	11	150
Deer	0	1	0	1	0	2
Other Animal	0	0	2	2	0	0
Railroad Train	0	0	1	1	0	0
Object Set in Motion	0	2	3	5	0	3
Fixed Object	0	40	726	766	0	57
Unknown Collision	0	1	20	21	0	2
Non-Collision:						
Overturn/Rollover	0	5	11	16	0	5
Submersion	0	0	0	0	0	0
Other Non-Collision	1	10	20	31	1	10
Total	**13**	**938**	**6,369**	**7,320**	**13**	**1,134**

TABLE 1.15

2016 CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Traffic Signal	28	5,497	12,031	17,556	21	7,271
Flashing Overhead Signal	0	25	70	95	0	25
Stop Sign	53	2,832	6,204	9,089	47	3,045
Yield Sign	4	325	1,062	1,391	2	376
Warning Sign	3	45	126	174	3	70
RR Crossing Device	1	25	83	109	1	34
Flagger, Police, Crossing Guard	0	15	41	56	0	17
School Zone Sign	0	15	13	28	0	30
Other Device	2	97	306	405	3	103
Not Applicable	249	12,377	36,175	48,800	244	16,877
Unknown	17	481	867	1,365	71	1,977
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.16

2016 CRASHES BY WEATHER CONDITION

Weather Condition	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Clear	213	13,880	33,878	47,971	231	19,085
Cloudy	93	4,823	12,759	17,675	106	6,725
Rain	21	1,283	3,187	4,491	23	1,697
Snow	12	1,092	4,624	5,728	13	1,430
Sleet/Hail/Freezing Rain	3	179	565	747	3	245
Fog/Smog/Smoke	4	108	232	344	4	173
Blowing Sand/Soil/Dirt	4	188	760	952	5	253
Severe Crosswinds	0	19	41	60	0	21
Other	3	33	90	126	3	50
Not Stated/Unknown	4	129	842	975	4	146
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.17

CONTRIBUTING FACTORS IN 2016 CRASHES

Contributing Factors	Factors Cited in Fatal Crashes		Factors Cited in Injury Crashes		Factors Cited in PDO Crashes	
	Number	Percent	Number	Percent	Number	Percent
Human Factors						
Careless/Negligent/Erratic Manner	60	7.5%	3,119	7.8%	5,991	6.5%
Improper Proper Lane	58	7.2%	964	2.4%	2,560	2.8%
Driver Distracted	49	6.1%	2,311	5.8%	4,654	5.0%
Failure to Yield Right-of-Way	46	5.7%	3,698	9.2%	7,110	7.7%
Non-motorist Error	40	5.0%	613	1.5%	19	0.0%
Driver Speeding	39	4.9%	1,150	2.9%	2,151	2.3%
Run Off Road	35	4.4%	1,156	2.9%	2,056	2.2%
Disregard Traffic Control Device	27	3.4%	1,197	3.0%	1,542	1.7%
Overcorrecting/Oversteering	27	3.4%	959	3.0%	1,847	2.0%
Wrong Side or Wrong Way	27	3.4%	184	0.5%	220	0.2%
Reckless/Aggressive Manner	13	1.6%	292	0.7%	383	0.4%
Swerved or Avoided	12	1.5%	809	2.0%	2,288	2.5%
Disregard Other Traffic Signs	11	1.4%	502	1.3%	806	0.9%
Improper Passing	6	0.8%	168	0.4%	475	0.5%
Disregard Other Road Markings	5	0.6%	71	0.2%	210	0.2%
Improper Turn/Merge	5	0.6%	595	1.5%	2,620	2.8%
Following Too Closely	4	0.5%	2,606	6.5%	7,729	8.4%
Vision Obscured	4	0.5%	676	1.7%	1,710	1.9%
Improper Backing	1	0.1%	53	0.1%	959	1.0%
Passing on Shoulder	0	0.0%	24	0.1%	74	0.1%
Other Human Factor	113	14.1%	5,636	14.1%	11,890	12.9%
Vehicular Factors						
Defective Equipment	7	0.9%	489	1.2%	1,314	1.4%
Other Vehicular Factor	85	10.6%	3,793	9.5%	9,127	9.9%
Miscellaneous Factors						
Road Surface Condition	74	9.2%	5,404	13.5%	16,790	18.2%
Oversize/Overweight Trucks	0	0.0%	8	0.0%	54	0.1%
Other Roadway Factor	55	6.9%	3,567	8.9%	7,938	8.6%
Total Percent		**100.0%**		**100.0%**		**100.0%**
Total Contributing Factors Cited	**803**		**40,044**		**92,517**	
Instances Where "No Clear Contributing Factor" Was Cited	**1,275**		**86,724**		**204,382**	
Total Number of Persons Involved	**642**		**40,549**		**94,955**	

Up to eight contributing factors may be associated with a vehicle, causing the number of factors cited to vary from the number of crashes, vehicles and persons affected by the factors. Bicyclists and pedestrians are considered as vehicles in this table and factors associated with them are included. For contributing factors by age of drivers, see tables 1.09 and 1.10.

TABLE 1.18

2016 CRASHES BY LIGHT CONDITION

Light Condition	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Daylight	184	15,143	38,495	53,822	200	20,917
Sunrise	9	533	1,363	1,905	11	694
Sunset	10	626	1,456	2,092	11	862
Dark/Street Lights On	58	3,688	10,830	14,576	64	5,033
Dark/No Street Lights	95	1,680	4,122	5,897	105	2,236
Other/Unknown	1	64	712	777	1	83
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.19

2016 CRASHES BY ROAD SURFACE CONDITION

Road Surface Condition	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Dry	268	15,911	37,688	53,867	295	22,085
Wet	40	2,882	7,554	10,476	44	3,905
Snow	18	1,254	5,758	7,030	19	1,593
Ice/Frost	16	1,315	4,755	6,086	18	1,761
Sand	1	9	13	23	0	0
Ruts/Holes/Bumps	0	5	9	14	0	0
Other	12	277	513	802	14	388
Unknown	2	81	688	771	2	93
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.20

2016 CRASHES BY ROAD DESIGN

Road Design	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
One Way Trafficway	4	1,218	3,802	5,024	3	1,508
Two-Way, Not Divided	234	10,419	25,748	36,401	226	13,452
Two-Way, Not Divided, Left Turn Lane	2	455	1,098	1,555	2	578
Two-Way, Divided, Unprotected Median	42	2,327	5,115	7,484	34	3,223
Two-Way, Divided, Median Barrier	52	6,101	18,083	24,235	47	8,273
Other	6	738	2,316	3,060	9	810
Unknown	17	476	816	1,309	71	1,981
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.21

2016 CRASHES BY DIAGRAM

Diagram	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Rear End	22	6,577	18,001	24,600	25	9,272
Sideswipe Passing	5	799	6,405	7,209	5	1,079
Angle	79	4,603	9,085	13,767	86	7,085
Head On	55	1,116	1,653	2,824	67	1,876
Sideswipe Opposing	9	426	1,212	1,647	12	628
Rear to Side	0	45	344	389	0	61
Rear to Rear	0	37	175	212	0	52
Other	12	791	1,599	2,402	17	1,206
Unknown	175	7,340	18,504	26,019	180	8,566
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.22

2016 CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
250,000 & Over	30	4,475	13,855	18,360	31	6,091
100,000-249,999	4	465	1,214	1,683	5	618
50,000 - 99,999	34	4,013	10,707	14,754	37	5,468
25,000 - 49,999	19	2,594	6,826	9,439	20	3,539
10,000 - 24,999	30	3,458	9,442	12,930	31	4,660
5,000 - 9,999	14	1,177	3,052	4,243	15	1,586
2,500 - 4,999	11	726	1,923	2,660	12	1,023
1,000 - 2,499	26	676	1,642	2,344	27	904
Under 1,000	189	4,150	8,317	12,656	214	5,936
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.23

2016 CRASHES BY TYPE OF ROADWAY

Type of Roadway	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Urban						
Interstate	17	2,091	6,872	8,980	18	2,857
US Trunk Hwy	11	1043	3,052	4,106	11	1,461
MN Trunk Hwy	22	1,838	4,724	6,584	24	2,582
County State Aid Hwy	36	3,525	8,119	11,680	41	4,859
County Road	3	249	527	779	3	343
Township Road	0	13	30	43	0	17
Municipal State Aid Hwy	21	3,569	9,253	12,843	21	4,838
Municipal Street	16	2,930	9,584	12,530	16	3,809
Other Road	5	924	2,935	3,864	5	1196
Urban Total	**131**	**16,182**	**45,096**	**61,409**	**139**	**21,962**
Rural						
Interstate	14	478	1,817	2,309	18	670
US Trunk Hwy	45	986	1,877	2,908	52	1,484
MN Trunk Hwy	71	1,306	2,353	3,730	80	1,977
County State Aid Hwy	60	1,571	2,915	4,546	62	2,161
County Road	9	294	548	851	12	392
Township Road	19	424	780	1,223	21	568
Municipal State Aid Hwy	2	8	44	54	2	10
Municipal Street	3	316	1,085	1,404	3	395
Other Road	3	169	463	635	3	206
Rural Total	**226**	**5,552**	**11,882**	**17,660**	**253**	**7,863**
All Roadways						
Interstate	31	2,569	8,689	11,289	36	3,527
US Trunk Hwy	56	2,029	4,929	7,014	63	2,945
MN Trunk Hwy	93	3,144	7,077	10,314	104	4,559
County State Aid Hwy	96	5,096	11,034	16,226	103	7,020
County Road	12	543	1,075	1,630	15	735
Township Road	19	437	810	1,266	21	585
Municipal State Aid Hwy	23	3,577	9,297	12,897	23	4,848
Municipal Street	19	3,246	10,669	13,934	19	4,204
Other Road	8	1,093	3,398	4,499	8	1,402
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

("Urban" refers to an area having a population of 5,000 or more; "rural" refers to an area of less than 5,000.)

TABLE 1.24

2016 COUNTY CRASH REPORT

County	2016 Fatal Crashes	2016 Injury Crashes	2016 PDO Crashes	2016 Total Crashes	2015 Total Crashes	2016 Number Killed	2015 Number Killed	2016 Number Injured	2015 Number Injured
Aitkin	6	66	111	183	174	6	6	90	80
Anoka	17	1,089	2,159	3,265	3,129	20	11	1,557	1,556
Becker	8	129	192	329	303	9	1	194	167
Beltrami	3	100	243	346	376	3	6	152	172
Benton	2	161	480	643	549	2	7	240	224
Big Stone	0	16	17	33	32	0	1	26	22
Blue Earth	5	288	641	934	1,174	6	12	392	415
Brown	0	77	195	272	231	0	2	107	107
Carlton	3	111	245	359	351	3	9	148	163
Carver	3	284	795	1,082	1,062	3	5	401	413
Cass	9	104	166	279	275	10	4	159	164
Chippewa	1	28	76	105	102	1	4	40	63
Chisago	5	207	445	657	580	6	4	315	256
Clay	1	160	459	620	653	1	3	220	291
Clearwater	2	15	11	28	41	2	2	18	21
Cook	0	21	49	70	79	0	0	33	37
Cottonwood	0	34	63	97	88	0	6	58	56
Crow Wing	8	297	500	805	822	8	5	413	428
Dakota	24	1,554	4,353	5,931	5,303	28	11	2,135	2,085
Dodge	1	48	109	158	192	1	2	60	82
Douglas	5	157	358	520	501	6	2	237	236
Faribault	3	35	85	123	132	4	4	48	63
Fillmore	3	49	100	152	176	3	2	64	84
Freeborn	4	129	290	423	448	4	2	172	158
Goodhue	4	191	579	774	702	4	8	243	293
Grant	0	19	65	84	73	0	0	23	32
Hennepin	43	6,517	17,031	23,591	22,796	45	33	8,829	9,063
Houston	0	39	76	115	160	0	5	45	47
Hubbard	4	56	110	170	152	5	3	83	86
Isanti	7	124	205	336	352	7	15	191	192
Itasca	3	169	348	520	457	3	6	238	227
Jackson	1	31	93	125	102	1	6	43	45
Kanabec	2	53	71	126	90	2	2	83	68
Kandiyohi	3	172	442	617	589	4	8	248	240

TABLE 1.24 CONTINUED

2016 COUNTY CRASH REPORT

County	2016 Fatal Crashes	2016 Injury Crashes	2016 PDO Crashes	2016 Total Crashes	2015 Total Crashes	2016 Number Killed	2015 Number Killed	2016 Number Injured	2015 Number Injured
Kittson	0	4	10	14	10	0	0	5	7
Koochiching	3	19	26	48	90	4	1	25	46
Lac qui Parle	0	13	19	32	31	0	2	21	18
Lake	1	43	89	133	104	1	3	55	55
Lake of the Woods	2	5	4	11	13	2	0	6	9
Le Sueur	4	70	175	249	318	4	6	103	157
Lincoln	0	16	19	35	45	0	0	25	14
Lyon	2	88	178	268	218	2	3	147	107
McLeod	1	140	245	386	375	1	4	191	170
Mahnomen	1	12	19	32	29	1	1	18	19
Marshall	3	10	19	32	33	3	1	15	19
Martin	1	65	176	242	211	1	1	85	76
Meeker	5	67	134	206	170	5	4	98	85
Mille Lacs	6	94	154	254	231	7	4	142	150
Morrison	5	81	161	247	248	6	9	110	145
Mower	2	99	296	397	378	2	2	139	161
Murray	2	12	25	39	54	2	1	22	20
Nicollet	2	109	288	399	427	2	2	135	151
Nobles	3	70	265	338	276	3	3	93	128
Norman	2	22	32	56	45	2	3	27	23
Olmsted	11	642	1,599	2,252	2,132	12	14	855	905
Otter Tail	2	206	483	691	617	2	9	258	274
Pennington	4	24	50	78	117	5	3	39	86
Pine	7	130	328	465	346	10	9	180	164
Pipestone	3	32	29	64	40	3	2	43	36
Polk	5	70	180	255	287	6	4	100	132
Pope	1	37	76	114	84	1	0	53	34
Ramsey	13	2,570	9,071	11,654	10,949	15	18	3,354	3,114
Red Lake	0	9	12	21	11	0	0	10	13
Redwood	2	48	95	145	108	3	2	76	65
Renville	1	47	114	162	134	1	2	63	92
Rice	6	212	486	704	572	6	5	320	285
Rock	2	34	85	121	102	3	0	43	40

TABLE 1.24 CONTINUED

2016 COUNTY CRASH REPORT

County	2016 Fatal Crashes	2016 Injury Crashes	2016 PDO Crashes	2016 Total Crashes	2015 Total Crashes	2016 Number Killed	2015 Number Killed	2016 Number Injured	2015 Number Injured
Roseau	1	24	24	49	48	1	0	36	43
St. Louis	18	734	2,512	3,264	2,857	19	16	991	888
Scott	8	431	914	1,353	1,313	8	7	616	643
Sherburne	5	311	813	1,129	962	5	11	441	402
Sibley	0	40	82	122	131	0	6	53	50
Stearns	5	763	2,191	2,959	2,368	5	12	1,057	969
Steele	3	96	409	508	497	5	4	132	174
Stevens	1	16	59	76	98	1	1	27	45
Swift	2	22	42	66	62	2	3	34	26
Todd	3	83	134	220	212	3	2	114	124
Traverse	0	6	12	18	35	0	0	6	10
Wabasha	4	65	123	192	180	4	3	97	82
Wadena	1	38	66	105	118	1	4	53	58
Waseca	1	41	143	185	157	1	1	53	73
Washington	13	801	1,931	2,745	2,630	13	12	1,076	1,034
Watonwan	0	31	73	104	103	0	1	34	47
Wilkin	0	30	84	114	111	0	0	40	32
Winona	3	122	222	347	508	5	1	171	225
Wright	7	419	994	1,420	1,263	7	8	590	587
Yellow Medicine	0	31	46	77	68	0	4	43	33
Minnesota Totals	**357**	**21,734**	**56,978**	**79,069**	**74,772**	**392**	**411**	**29,825**	**29,981**

TABLE 1.25

2016 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Persons Killed	Persons Injured
Afton	2	101	182	285	3	160
Albany	0	12	33	45	0	18
Albert Lea	1	72	249	322	1	91
Albertville	1	33	102	136	1	51
Alexandria	0	66	127	193	0	100
Andover	1	40	61	102	1	50
Annandale	0	5	9	14	0	5
Anoka	1	84	327	412	1	124
Apple Valley	0	164	422	586	0	212
Arden Hills	1	106	329	436	2	142
Austin	0	48	214	262	0	60
Barnesville	0	0	2	2	0	0
Baxter	1	70	129	200	1	95
Bayport	0	5	17	22	0	6
Becker	0	16	38	54	0	21
Belle Plain	1	14	33	48	1	23
Bemidji	0	32	94	126	0	44
Benson	1	5	22	28	1	7
Big Lake	0	16	46	62	0	26
Blaine	3	191	313	507	4	271
Bloomington	2	367	891	1,260	2	498
Blue Earth	0	7	32	39	0	9
Brainerd	0	73	157	230	0	96
Breckenridge	0	5	22	27	0	8
Brooklyn Center	2	292	528	822	2	418
Brooklyn Park	4	341	560	905	4	450
Buffalo	0	68	102	170	0	95
Burnsville	4	327	822	1,153	5	461
Byron	0	11	24	35	0	13
Caledonia	0	5	9	14	0	5
Cambridge	1	41	73	115	1	55
Cannon Falls	0	15	43	58	0	17
Carver	0	2	4	6	0	3
Centerville	0	2	4	6	0	2
Champlin	0	37	92	129	0	46
Chanhassen	0	78	222	300	0	106
Chaska	1	66	207	274	1	105
Chatfield	0	4	13	17	0	4
Chisago City	0	16	44	60	0	28
Chisholm	1	7	26	34	1	12
Circle Pines	0	9	22	31	0	12
Cloquet	0	35	64	99	0	46
Cohasset	0	7	15	22	0	8
Cokato	0	6	7	13	0	8
Cold Spring	0	4	29	33	0	5
Columbia Heights	0	63	107	170	0	84
Columbus	0	26	51	77	0	46
Coon Rapids	3	264	554	821	3	382
Corcoran	0	28	52	80	0	37

TABLE 1.25 CONTINUED

2016 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Persons Killed	Persons Injured
Cottage Grove	2	71	269	342	2	89
Crookston	0	12	59	71	0	17
Crystal	0	57	168	225	0	77
Dayton	1	16	50	67	1	23
Deephaven	0	5	12	17	0	5
Delano	0	15	29	44	0	22
Detroit Lakes	1	53	72	126	1	82
Dilworth	0	5	18	23	0	8
Dodge Center	0	3	8	11	0	3
Duluth	7	376	1,552	1,935	7	501
Eagan	2	258	721	981	3	373
Eagle Lake	0	3	7	10	0	3
East Bethel	1	27	18	46	1	36
E Grand Forks	0	17	54	71	0	19
Eden Prairie	0	189	557	746	0	245
Edina	1	173	506	680	1	237
Elko/New Market	1	0	3	4	1	1
Elk River	1	97	258	356	1	141
Ely	0	1	17	18	0	1
Eveleth	0	8	27	35	0	9
Fairmont	0	17	103	120	0	20
Falcon Heights	0	24	49	73	0	31
Faribault	1	92	178	271	1	147
Farmington	0	40	100	140	0	57
Fergus Falls	0	47	172	219	0	60
Foley	0	1	10	11	0	1
Forest Lake	3	86	211	300	3	127
Fridley	3	135	253	391	4	196
Glencoe	0	8	32	40	0	13
Glenwood	0	6	27	33	0	6
Golden Valley	0	153	403	556	0	197
Goodview	0	5	8	13	0	5
Grand Rapids	1	63	170	234	1	84
Granite Falls	0	5	17	22	0	6
Grant	1	11	21	33	1	16
Greenfield	0	12	24	36	0	19
Ham Lake	0	25	20	45	0	37
Hanover	0	7	14	21	0	11
Hastings	1	53	165	219	1	65
Hermantown	0	45	101	146	0	56
Hibbing	1	57	174	232	1	71
Hopkins	1	72	163	236	1	91
Hugo	0	29	57	86	0	36
Hutchinson	0	61	121	182	0	81
Independence	1	18	49	68	1	29

TABLE 1.25 CONTINUED

2016 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Persons Killed	Persons Injured
Intl Falls	1	7	7	15	1	8
Inver Grove Heights	3	110	350	463	3	158
Isanti	0	7	28	35	0	9
Jackson	0	2	21	23	0	2
Jordan	0	24	44	68	0	26
Kasson	0	12	38	50	0	13
La Crescent	0	7	15	22	0	9
Lake City	0	8	44	52	0	10
Lake Crystal	0	4	14	18	0	4
Lake Elmo	1	50	72	123	1	77
Lakeville	2	156	615	773	2	212
Le Center	0	2	4	6	0	5
Le Sueur	0	7	37	44	0	9
Lindstrom	0	6	40	46	0	7
Lino Lakes	1	63	178	242	1	86
Litchfield	0	13	42	55	0	16
Little Canada	0	82	235	317	0	101
Little Falls	0	12	37	49	0	15
Long Prairie	0	10	17	27	0	13
Lonsdale	0	2	6	8	0	5
Luverne	0	9	29	38	0	9
Mahtomedi	0	6	28	34	0	6
Mankato	0	195	437	632	0	261
Maple Grove	1	248	771	1,020	1	323
Maplewood	1	250	605	856	1	356
Marshall	1	50	108	159	1	77
Medina	0	10	73	83	0	14
Melrose	0	14	36	50	0	20
Mendota Heights	1	84	205	290	1	105
Milaca	0	8	16	24	0	9
Minneapolis	20	3,149	8,307	11,476	20	4,364
Minnetonka	3	188	368	559	3	242
Minnetrista	0	16	31	47	0	20
Montevideo	0	18	34	52	0	24
Montgomery	0	0	2	2	0	0
Monticello	1	46	156	203	1	63
Montrose	1	7	8	16	1	9
Moorhead	0	97	269	366	0	137
Moose Lake	0	1	4	5	0	5
Mora	0	20	29	49	0	32
Morris	0	4	47	51	0	5
Mound	0	14	37	51	0	15
Mounds View	0	61	160	221	0	79
Mountain Iron	0	12	29	41	0	17
New Brighton	0	92	321	413	0	110
New Hope	0	58	138	196	0	76
Newport	0	36	81	117	0	44
New Prague	0	9	13	22	0	11
New Ulm	0	41	111	152	0	58
North Branch	2	53	96	151	3	88

TABLE 1.25 CONTINUED

2016 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Persons Killed	Persons Injured
Northfield	0	30	62	92	0	37
N Mankato	0	31	90	121	0	37
North Oaks	0	4	11	15	0	5
North St Paul	0	27	58	85	0	36
Norwood	0	5	16	21	0	6
Nowthen	1	12	11	24	1	18
Oakdale	0	110	282	392	0	142
Oak Grove	0	18	17	35	0	28
Oak Park Heights	0	24	73	97	0	31
Orono	1	37	92	130	1	41
Otsego	0	30	97	127	0	42
Owatonna	1	56	245	302	1	80
Park Rapids	0	6	14	20	0	10
Perham	0	5	17	22	0	6
Pine City	0	8	22	30	0	9
Pine Island	0	12	14	26	0	23
Pipestone	0	6	10	16	0	6
Plainview	0	1	9	10	0	1
Plymouth	1	246	810	1,057	1	338
Princeton	0	3	13	16	0	6
Prior Lake	1	50	27	78	1	82
Proctor	0	8	30	38	0	10
Ramsey	1	50	127	178	1	71
Red Wing	0	59	275	334	0	78
Redwood Falls	0	8	34	42	0	11
Richfield	2	210	594	806	2	267
Robbinsdale	0	48	168	216	0	63
Rochester	4	465	1,214	1,683	5	618
Rockford	0	6	19	25	0	9
Rogers	1	93	248	342	1	125
Roseau	0	3	2	5	0	3
Rosemount	2	49	169	220	2	70
Roseville	1	244	735	980	1	334
Rush City	0	6	9	15	0	10
St Anthony	0	26	46	72	0	31
St Augusta	0	8	28	36	0	10
St Charles	0	5	12	17	0	8
St Cloud	1	458	1,215	1,674	1	644
St Francis	0	16	7	23	0	24
St James	0	3	26	29	0	4
St Joseph	0	7	43	50	0	11
St Louis Park	0	269	788	1,057	0	355
St Michael	0	37	116	153	0	56
St Paul	10	1,326	5,548	6,884	11	1,727
St Paul Park	0	13	35	48	0	14
St Peter	0	33	91	124	0	40
Sandstone	0	1	7	8	0	1
Sartell	1	39	149	189	1	57
Sauk Centre	0	12	38	50	0	14
Sauk Rapids	2	29	114	145	2	38

TABLE 1.25 CONTINUED

2016 CRASHES IN CITIES OF 2,500 OR MORE POPULATION

City	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Persons Killed	Persons Injured
Savage	1	73	221	295	1	95
Scandia	2	5	17	24	2	10
Shakopee	0	150	431	581	0	207
Shoreview	0	84	232	316	0	106
Shorewood	0	9	45	54	0	10
Sleepy Eye	0	10	27	37	0	18
South St Paul	2	82	221	305	2	108
Spring Lake Park	1	41	66	108	1	56
Staples	0	3	14	17	0	5
Stewartville	0	7	32	39	0	7
Stillwater	0	42	59	101	0	58
Thief River Falls	1	16	33	50	1	22
Two Harbors	0	6	34	40	0	9
Vadnais Heights	0	83	223	306	0	101
Victoria	1	16	56	73	1	26
Virginia	0	29	165	194	0	36
Wabasha	0	3	10	13	0	6
Waconia	0	19	55	74	0	24
Wadena	0	15	24	39	0	22
Waite Park	0	69	176	245	0	93
Waseca	1	16	51	68	1	24
Watertown	0	9	14	23	0	11
Wayzata	0	42	118	160	0	50
West St Paul	0	104	250	354	0	129
White Bear Lake	0	138	429	567	0	162
Willmar	0	91	290	381	0	112
Windom	0	12	31	43	0	21
Winona	1	35	20	56	1	51
Woodbury	1	223	498	722	1	296
Worthington	1	32	162	195	1	42
Wyoming	0	25	60	85	0	37
Zimmerman	0	23	54	77	0	37
Zumbrota	0	3	21	24	0	4

TABLE 1.26

2016 CRASHES BY TIME AND DAY

Hour Beginning	All Days Total	All Days Fatal	Sun. Total	Sun. Fatal	Mon. Total	Mon. Fatal	Tues. Total	Tues. Fatal	Wed. Total	Wed. Fatal	Thurs. Total	Thurs. Fatal	Fri. Total	Fri. Fatal	Sat. Total	Sat. Fatal
Midnight	1,383	11	287	2	176	0	166	1	161	0	139	0	203	2	251	6
1 am	980	11	230	2	114	2	102	0	109	3	71	1	146	2	208	1
2 am	1,018	14	270	2	97	1	83	3	92	2	102	1	117	1	257	4
3 am	754	6	165	1	69	1	65	0	72	0	72	0	121	2	190	2
4 am	660	5	133	1	81	1	78	0	77	0	65	0	89	1	137	2
5 am	1,099	17	132	1	184	4	168	6	145	2	140	0	157	4	173	0
6 am	2,394	17	209	1	414	1	399	2	398	2	389	3	342	5	243	3
7 am	4,925	20	241	3	815	1	1,020	3	933	5	850	3	771	1	295	4
8 am	4,495	9	269	0	733	2	889	2	751	1	739	0	724	3	390	1
9 am	3,399	10	341	3	510	1	545	1	507	1	510	0	552	3	434	1
10 am	3,252	11	393	1	465	1	446	2	412	0	427	5	571	0	538	2
11 am	3,864	12	502	1	494	2	550	2	525	1	506	2	643	1	644	3
Noon	4,538	14	556	2	559	1	662	4	610	1	617	1	880	4	654	1
1 pm	4,405	10	569	2	580	2	580	3	583	1	578	0	813	0	702	2
2 pm	5,202	13	554	2	677	2	777	2	794	2	731	2	994	2	675	1
3 pm	6,432	28	541	7	933	3	1,076	3	982	5	946	2	1,270	3	684	5
4 pm	6,981	28	555	3	1,039	4	1,128	5	1,174	1	1,140	5	1,266	5	679	5
5 pm	7,096	28	564	3	1,059	6	1,168	5	1,243	7	1,237	1	1,209	3	616	3
6 pm	4,719	20	520	6	672	3	748	1	731	5	703	2	786	2	559	1
7 pm	3,131	19	413	1	423	2	441	2	434	2	418	5	540	3	462	4
8 pm	2,620	19	343	4	329	3	363	1	392	3	346	4	435	2	412	2
9 pm	2,385	12	302	2	317	0	330	0	327	1	330	3	393	4	386	2
10 pm	1,849	12	221	0	226	2	241	0	237	3	258	2	336	2	330	3
11 pm	1,488	11	180	1	160	2	185	4	152	0	188	1	291	2	332	1
Total	**79,069**	**357**	**8,490**	**51**	**11,126**	**47**	**12,210**	**52**	**11,841**	**48**	**11,502**	**43**	**13,649**	**57**	**10,251**	**59**

FIGURE 1.03

TOTAL CRASHES VS FATAL CRASHES, BY TIME, 2016

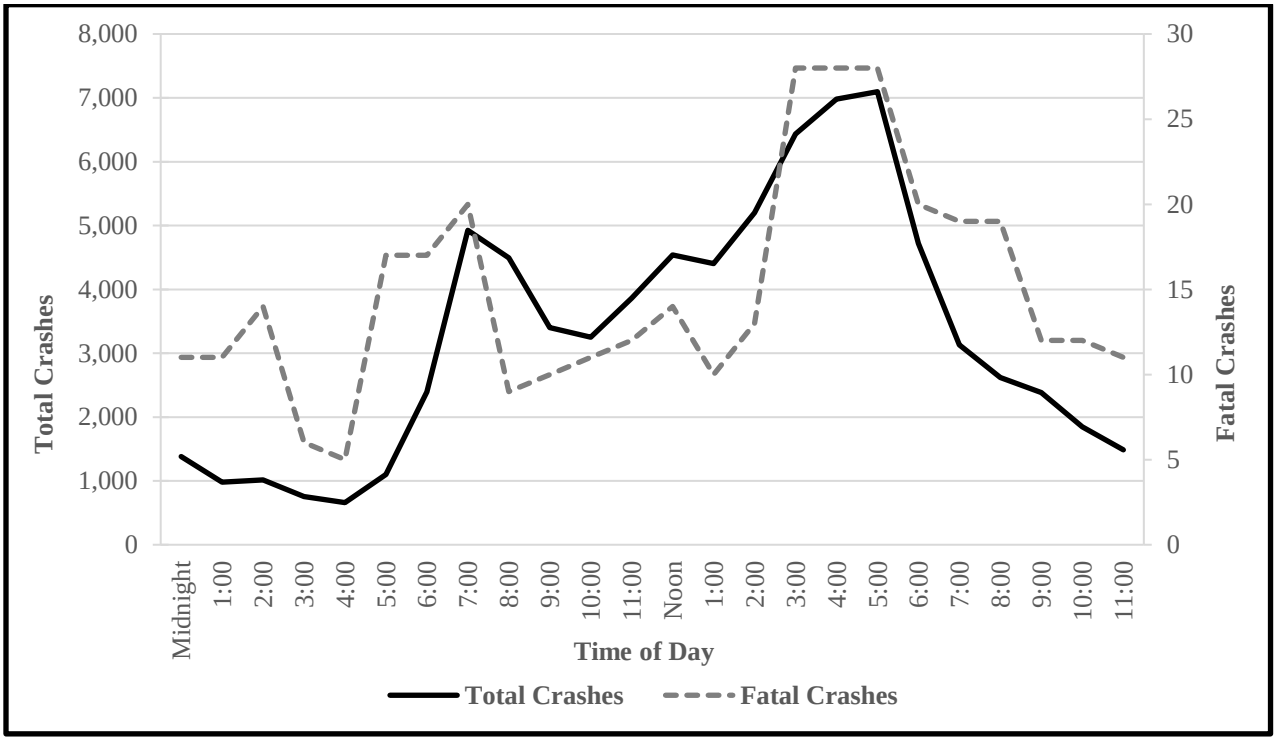

TABLE 1.27

2016 CRASHES, FATALITIES AND INJURIES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
January	23	1,638	5,418	7,079	26	2,226
February	22	1,523	4,727	6,272	26	2,084
March	25	1,552	3,921	5,498	26	2,171
April	27	1,540	3,740	5,307	29	2,103
May	28	1,863	4,217	6,108	30	2,514
June	34	2,005	4,452	6,491	36	2,728
July	32	1,982	4,110	6,124	37	2,742
August	30	1,984	4,473	6,487	34	2,790
September	33	1,846	4,351	6,230	35	2,552
October	39	1,922	4,704	6,665	42	2,674
November	35	1,903	5,325	7,263	37	2,617
December	29	1,976	7,540	9,545	34	2,624
Total	**357**	**21,734**	**56,978**	**79,069**	**392**	**29,825**

TABLE 1.28

HOLIDAY CRASH SUMMARY, 2011 - 2016

Holiday Period	Year	Hours*	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Memorial Day	2011	84	0	136	269	405	0	198
(In 2016, the holiday	2012	84	3	170	286	459	4	239
period was	2013	84	5	113	259	377	5	157
6PM Fri, May 27 –	2014	84	4	163	267	434	4	240
6AM Tues, May 31)	2015	84	4	150	341	495	4	218
	2016	84	6	139	306	451	6	184
July 4th	2011	84	5	176	277	458	7	261
(In 2016, the holiday	2012	36	0	85	88	173	0	127
period was	2013	108	6	224	337	567	7	335
6PM Fri, July 1 –	2014	84	6	155	287	448	7	212
6AM Tues, July 5)	2015	84	1	186	284	471	1	266
	2016	84	5	179	312	496	6	268
Labor Day	2011	84	6	139	213	358	6	210
(In 2016, the holiday	2012	84	5	149	247	401	6	225
period was	2013	84	4	160	256	420	4	232
6PM Fri, Sept 2 –	2014	84	3	143	256	402	3	195
6AM Tues, Sept 6)	2015	84	5	169	290	464	6	294
	2016	84	4	155	314	473	4	253
Thanksgiving	2011	108	3	162	335	500	3	234
(In 2016, the holiday	2012	108	1	191	603	795	1	269
period was	2013	108	3	197	376	576	3	301
6PM Wed Nov 23 –	2014	108	3	169	578	750	3	246
6AM Mon, Nov 28)	2015	108	5	200	515	720	5	285
	2016	108	3	214	521	738	4	305
Christmas	2011	84	3	126	210	339	3	187
(In 2016, the holiday	2012	108	1	115	446	562	1	180
period was	2013	36	0	72	317	389	0	104
6PM Fri, Dec 23 –	2014	108	7	222	762	991	9	326
6AM Tues, Dec 27)	2015	84	1	139	461	601	4	210
	2016	84	4	118	504	626	4	179
New Year's	2011/12	84	4	154	485	643	5	213
(In 2016, the	2012/13	108	5	167	492	664	7	242
holiday period was	2013/14	36	0	63	185	248	0	79
6PM Fri, Dec 30 -	2014/15	108	3	179	530	712	3	260
6AM Mon, Jan 3,	2015/16	84	2	63	224	289	2	119
2017)	2016/17	84	3	177	728	908	3	241

*Holiday period hours vary depending on the day of the week on which the holiday falls. The reporting dates match NHTSA's holiday reporting guidelines.

II: ALCOHOL-RELATED CRASHES

BACKGROUND AND DEFINITIONS

Impaired driving incidents

As used here, an "impaired driving incident" is one where there was an arrest for driving while under the influence of alcohol or drugs and a violation from that incident was subsequently entered on the person's driving record. In prior years, tables in this section reported "DWI Arrests." "DWI" is an older term that usually connotes intoxication by alcohol. "Impaired driving" is a broader and thus more descriptive term and it conforms better to current Minnesota law. Law enforcement agencies and courts report violations to Driver Licensing Services, making driver license records the most complete centralized source of data for statistics on impaired driving. Additionally, since it is almost impossible for a person, once arrested, to evade all of the criminal charges and administrative actions the laws call for, the number of impaired driving incidents on record is almost the same as the number of arrests.

Alcohol-related crashes

While the term "impaired driving" covers many possible types of impairment, the term "alcohol-related" is restrictive: *only* alcohol-related crashes are counted. For example, if a driver tests positive for cocaine, but negative for alcohol, the crash will not be counted in this section. A crash is classified as "alcohol-related" if any driver, pedestrian, or bicyclist is shown by a chemical test to be positive for alcohol. Thus, alcohol at the *.01-or-higher* level makes the crash alcohol-related. In the absence of test data, if the officer reports that he or she believes the person had been drinking, or was under the influence, the crash is also classified as alcohol-related. Once a crash is so classified, no matter whether it was a driver, pedestrian, or bicyclist that was drinking, then every fatality and injury in the crash is classified as alcohol-related.

Drunk driving-related crashes

The term "drunk driving-related" is a more restrictive term than "alcohol-related." A crash is classified as "drunk driving-related" if a motor vehicle driver in a fatal crash tested positive for alcohol at the .08% level or above. Pedestrians, bicyclists and officer perception are not included. Once a crash is so classified, every fatality in the crash is classified as drunk-driving related.

Officers' reported perceptions are conservative

Officers are conservative in reporting drinking and driving. Officer cautiousness is less a factor in fatal crashes because every effort is made to obtain alcohol test results. For less severe crashes, though, the officer's judgment is all that is available. Therefore, alcohol-related non-fatal crashes are almost certain to be considerably underestimated.

Important caveats to the definition

Not all alcohol-related traffic fatalities are due to driving while intoxicated. If a drinking pedestrian or bicyclist is in a crash and then he or she (or anyone in the crash) dies, the death is an alcohol-related traffic death. For example, in 2016, 15 drinking pedestrians in separate incidents died after colliding with a vehicle driven by a non-drinking driver. Additionally, the definition given above makes an assumption that the person drinking caused, or contributed significantly to the crash. Experts who study fatal traffic crashes in detail confirm that this is almost always true, but it is important to recognize that the assumption is not invariably true. There will be exceptions to the rule. Sometimes a crash is alcohol-related, but is not classified as such due to inadequate data. For example, a drunk driver may die in a fiery crash and the body may be incinerated. In this case, there may be no evidence remaining that the crash involved alcohol. Or a driver may die and lose all his or her blood from wounds received in the crash, which likewise prevents alcohol tests from being performed.

"Known" versus "estimated" alcohol-related deaths.

Testing drivers for alcohol is the key to accurately classifying crashes. Minnesota is much better at testing than most states. Because many drivers are still not tested, the National Highway Traffic Safety Administration (NHTSA) developed a sophisticated statistical procedure that estimates how many fatalities really were alcohol-related. The idea that a computerized statistical procedure can accurately make such estimates initially invites skepticism. However, NHTSA developed the procedure with the greatest care over many years. Tests of the procedure, performed by having it make estimates for datasets from which critical data was removed and then comparing the estimates against the true parameters (putting back in the data that has been removed), show that the procedure is accurate to within about plus or minus one percentage point. Tables 2.02 and 2.08 show alcohol-related fatalities for Minnesota using the two procedures (NHTSA's estimating procedure and the state's procedure based on known data). NHTSA's estimate of the true percentage of alcohol-related fatalities is always higher than, but very close to, the state's numbers. The reason the two numbers are so close is that Minnesota does a good job of collecting test results on drivers, pedestrians and bicyclists in fatal crashes.

Alcohol-related crashes in Minnesota 2016
Drinking and driving remains a serious problem in Minnesota and across the nation. For 2016, the National Safety Council has made a conservative estimate of $286 million as the cost of alcohol-related crashes in Minnesota. Predictably, there is a strong positive relationship between alcohol use and crash severity. That is, as crash severity increases, alcohol is more likely to have been a factor in the crash. In 2016, 5% of possible injuries, 9% of minor injuries, 21% of serious injuries and 31% of deaths were alcohol-related, including 19% of deaths that were drunk driving-related. In all, 121 known people died, which represents a 12% decrease from 2015 when 137 known people died. 2,281 known people were injured in crashes classified as alcohol-related which is a 4% increase from 2015. (NHTSA estimates will be higher).

Impaired driving incidents (DWIs) decrease
In 2016, there were 23,392 impaired driving incidents in Minnesota. This number represents an 8% decrease from the previous year.

Males and young people
When gender was stated, males made up 72% of the DWI offenders last year, however, females are making up a growing percentage of arrests. In 2016, they accounted for 28% of the offenders. (10 years ago, they were 25% of the offenders.) Impaired driving is especially a problem among young adults. A person can legally buy alcohol at age 21 (raised from 19 in 1986) and drinking and driving too often follows that. Last year, 21-to-34 year-olds committed 51% of the DWI incidents on record. Drivers under age 21 accounted for 5%.

Drinking drivers themselves pay the price
Young people may have better reflexes than their elders, but as drivers they take more risks and have less experience than older people. They pay a clear price for this. Drivers aged 15-34 accounted for 21% of all traffic deaths and for fully 29% of the alcohol-related deaths. It is also the drinkers themselves who are more likely to pay the price for their dangerous behavior. In 2016, 97 (80%) of the 121 people who died in alcohol-related crashes were themselves the people whose drinking behavior was a main factor which lead to the crash to be classified as alcohol-related. In short, drinking drivers, pedestrians and bicyclists mostly kill and injure themselves. The remaining 24 people who died in the alcohol crashes were non-drinking drivers, pedestrians, or bicyclists, or were drinking or non-drinking vehicle passengers.

When the crashes occur: weekends, late night
Most alcohol-related crashes occur on Fridays, Saturdays and Sundays. Combined, these three days accounted for 41% of all traffic crashes, but 58% of the alcohol-related crashes. The late night hours 9 p.m.-3 a.m. accounted for 12% of all crashes, but 43% of the alcohol-related crashes. In addition, 29 (26%) of all fatal alcohol-related crashes occurred on county state aid highways.

Fatal alcohol crashes usually involve just one vehicle
Of the 113 alcohol-related fatal crashes in 2016, 82 (73%) involved just one motor vehicle in transport. Of the 113 alcohol-related fatal crashes: 21 involved a single vehicle colliding with a fixed object and 29 involved a single vehicle losing control and overturning.

Test results for killed drivers
Minnesota is consistently at or near the top among the states in the proportion of drivers in fatal crashes who are tested for alcohol. Also, NHTSA developed a procedure (explained on page 38) that compensates for missing data. In 2016, there were 263 motor vehicle drivers who were killed. (Note that this total does not include pedestrians or bicyclists). Of the 263 killed drivers, the Department of Public Safety was able to obtain alcohol test results for 209 (79%). Of the 209 tested, 139 (67%) tested negative, 12 (6%) tested between .01 and .07, 2 (1%) tested between .08 and .09 and 56 (27%) tested .10 or greater.

Majority of alcohol-related fatalities test above the legal limit
The 121 alcohol-related fatalities in 2016 consisted of 64 car or truck drivers, 10 car or truck passengers, 13 motorcycle drivers, 2 motorcycle passengers, 3 ATV drivers, 27 pedestrians, 1 bicyclists and 1 other vehicle. Of the 121, the Department of Public Safety was able to obtain alcohol test results for 111. Of these, 80 (72%) had a result above the legal limit of .08.

Success story in Minnesota
In reality, the percentage of alcohol-related traffic fatalities in Minnesota has steadily decreased in the past half-century. In the 1960's, around 60% of all traffic deaths per year were alcohol-related. Today, this percentage hovers around 32%. This is a great success story for Minnesota and the nation as a whole. It is also proof that as drivers change their behavior less tragedy occurs on our roadways.

TABLE 2.01

OVERVIEW OF TRAFFIC SAFETY AND ALCOHOL STATISTICS, 1997 - 2016

Year	Total Deaths	DWI Arrests	Deaths 'Any' Alcohol	% of Total Deaths	Deaths .08% + Alcohol	% of Total Deaths	Deaths Drunk Driving (.08%+ Alcohol)	% of Total Deaths
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1997	600	31,380	178	30%	151	25%	142	24%
1998	650	32,425	273	42%	222	34%	206	32%
1999	626	34,564	195	31%	156	25%	147	24%
2000	625	35,017	245	39%	212	34%	203	33%
2001	568	33,543	211	37%	167	29%	157	28%
2002	657	33,161	239	36%	185	28%	174	27%
2003	655	32,353	255	39%	205	31%	196	30%
2004	567	34,356	177	31%	155	27%	143	25%
2005	559	37,074	197	35%	164	29%	150	27%
2006	494	42,002	166	34%	141	29%	134	27%
2007	510	38,763	190	37%	170	33%	164	32%
2008	455	35,864	163	36%	137	30%	129	28%
2009	421	32,994	141	34%	112	27%	101	24%
2010	411	30,088	131	32%	121	29%	112	27%
2011	368	29,483	136	37%	111	30%	103	28%
2012	395	28,656	131	33%	104	26%	95	24%
2013	387	26,026	117	30%	95	25%	81	21%
2014	361	25,399	111	31%	91	25%	88	24%
2015	411	25,336	137	33%	107	26%	95	23%
2016	392	23,392	121	31%	90	23%	73	19%

Note: Column (4) lists the number of alcohol-related deaths resulting from fatal crashes where at least one driver, pedestrian or bicyclist was suspected to be drinking or tested positive for alcohol at the .01% level or above. Column (6) lists the number of impaired-related deaths resulting from fatal crashes where at least one driver, pedestrian or bicyclist tested positive for alcohol at the .08% level or above. Column (8) lists the number of drunk driving-related deaths resulting from fatal crashes where at least one driver tested positive for alcohol at the .08% level or above.

TABLE 2.02

ALCOHOL-RELATED FATAL CRASH SUMMARY, 1990 - 2016

	Alcohol Test Results on Killed Drivers											All Traffic Fatalities				
	Drivers Killed			Results on Drivers Tested									Alcohol-Related Fatalities			
		Tested for Alcohol		Negative for Alcohol		.01 to .07 Alcohol		.08 to .09 Alcohol		.10 or Higher Alcohol			Known*		Estimated**	
Year	Total	N	% of Total	N	% of Tested	N	% of Tested	N	% of Tested	N	% of Tested	Total	N	% of Total	N	% of Total
1990	334	260	78	129	50	19	7	4	2	108	41	568	235	41	258	46
1991	327	242	74	135	56	20	8	2	1	85	35	531	212	40	233	44
1992	344	237	69	135	57	9	3	6	2	89	38	581	229	39	240	41
1993	355	283	80	174	61	14	5	5	2	90	32	538	196	36	216	40
1994	377	303	80	183	60	16	5	7	3	97	32	644	226	35	250	39
1995	383	343	90	198	58	22	7	8	2	115	34	597	246	41	269	45
1996	359	314	87	209	67	16	5	6	2	83	26	576	205	36	222	38
1997	384	345	90	226	66	15	5	4	1	100	29	600	178	30	197	33
1998	406	369	91	218	59	23	6	6	2	122	33	650	273	42	285	44
1999	426	370	87	254	69	9	2	7	2	100	27	626	195	31	206	33
2000	403	375	93	226	60	16	4	6	2	127	34	625	245	39	258	41
2001	361	322	89	198	62	17	5	6	2	101	31	568	211	37	226	40
2002	430	365	85	223	61	21	6	3	1	118	32	657	239	36	255	39
2003	435	376	86	219	58	18	5	5	1	134	36	655	255	39	267	41
2004	389	337	87	219	65	11	3	4	1	103	31	567	177	31	184	32
2005	379	348	92	213	61	17	5	5	1	113	33	559	197	35	201	36
2006	346	321	93	207	64	15	5	5	2	94	29	494	166	34	183	37
2007	381	336	88	207	62	15	4	7	2	107	32	510	190	37	198	39
2008	316	286	90	176	62	15	5	6	2	89	31	455	163	36	168	38
2009	266	236	89	160	68	13	5	4	2	59	25	421	141	34	152	36
2010	270	237	88	156	66	6	3	2	1	73	31	411	131	32	146	36
2011	243	220	91	137	62	11	5	6	3	66	30	368	136	37	146	40
2012	262	206	79	130	63	5	2	2	1	69	34	395	131	33	148	37

	Alcohol Test Results on Killed Drivers											All Traffic Fatalities				
	Drivers Killed			Results on Drivers Tested									Drunk Driving-Related Fatalities**			
		Tested for Alcohol		Negative for Alcohol		.01 to .07 Alcohol		.08 to .09 Alcohol		.10 or Higher Alcohol			Known*		Estimated**	
Year	Total	N	% of Total	N	% of Tested	N	% of Tested	N	% of Tested	N	% of Tested	Total	N	% of Total	N	% of Total
2013	259	219	85	151	69	10	5	3	1	55	25	387	81	21	114	29
2014	248	200	81	129	65	8	4	3	2	60	30	361	88	24	121	33
2015	289	239	83	139	58	22	9	6	3	72	30	411	95	23	115	28
2016	263	209	79	139	67	12	6	2	1	56	27	392	73	19	93	24

* For explanation of the difference between "known" and "estimated" alcohol-related fatalities, see page 38.

** NHTSA recently improved its method of estimating the true percentage of alcohol-related fatalities for each year. The above table reflects these changes back to the year 1990. Starting in 2013, NHTSA began estimating the true percentage of based on impaired-related fatalities and excluding pedestrians and bicyclists.

TABLE 2.03

IMPAIRED DRIVING INCIDENTS ("DWIs") BY GENDER AND BY AREA OF STATE WHERE ARREST WAS MADE, 1997 - 2016

		Male		Female		Not Stated		Area: Metro		Area: Non-Metro	
Year	Total	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1997	31,380	24,116	76.9%	5,833	18.6%	1,431	4.6%	16,145	51.4%	15,235	48.6%
1998	32,425	24,650	76.0%	6,151	19.0%	1,624	5.0%	16,716	51.6%	15,709	48.4%
1999	34,564	26,117	75.6%	6,549	18.9%	1,898	5.5%	17,133	49.6%	17,431	50.4%
2000	35,017	26,080	74.5%	6,845	19.5%	2,092	6.0%	16,816	48.0%	18,201	52.0%
2001	33,543	24,848	74.1%	6,599	19.7%	2,096	6.2%	16,349	48.7%	17,194	51.3%
2002	33,161	24,290	73.2%	6,656	20.1%	2,215	6.7%	16,210	48.9%	16,951	51.1%
2003	32,353	23,474	72.6%	6,629	20.5%	2,250	7.0%	16,039	49.6%	16,314	50.4%
2004	34,356	24,691	71.9%	7,317	21.3%	2,348	6.8%	16,775	48.8%	17,581	51.2%
2005	37,074	26,367	71.1%	8,167	22.0%	2,540	6.9%	17,874	48.2%	19,200	51.8%
2006	42,002	29,396	70.0%	9,479	22.6%	3,127	7.4%	20,531	48.9%	21,471	51.1%
2007	38,763	26,904	69.4%	8,988	23.2%	2,871	7.4%	18,797	48.5%	19,966	51.5%
2008	35,864	24,652	68.7%	8,600	24.0%	2,612	7.3%	17,823	49.7%	18,041	50.3%
2009	32,994	22,633	68.6%	8,069	24.5%	2,292	6.9%	16,348	49.5%	16,646	50.5%
2010	30,088	20,421	67.9%	7,555	25.1%	2,112	7.0%	15,208	50.5%	14,880	49.5%
2011	29,483	20,310	68.9%	7,428	25.2%	1,745	5.9%	14,956	50.7%	14,527	49.3%
2012	28,656	19,443	67.8%	7,298	25.5%	1,915	6.7%	14,763	51.5%	13,893	48.5%
2013	26,026	17,558	67.5%	6,639	25.5%	1,829	7.0%	13,434	51.6%	12,592	48.4%
2014	25,399	17,162	67.6%	6,287	24.8%	1,950	7.7%	13,283	52.3%	12,116	47.7%
2015	25,336	16,736	66.1%	6,478	25.6%	2,122	8.4%	13,088	51.7%	12,248	48.3%
2016	23,392	15,186	64.9%	5,948	25.4%	2,258	9.7%	12,049	51.5%	11,343	48.5%

***** Note: The table above creates the impression that the proportion of violators with gender "not stated" is increasing over time. This is *not* so. If a person arrested for impaired driving does not have a Minnesota driver's license, then a record is created, but the new record does *not* show the person's gender. As years pass, many of these violators do eventually get a Minnesota driver's license, which does record gender. Thus, as time passes, the gender of more and more past violators becomes known. The table above merely uses current information that was not available at the time of the original violation.

TABLE 2.04

IMPAIRED DRIVING INCIDENTS ("DWIs") FOR SELECTED AGE GROUPS, 1997 – 2016

Year	Total	Age 0-14	Age 15	Age 16	Age 17	Age 18	Age 19	Age 20	Total < 21	Age 21-34	Age 35-49	Age 50+
1997	31,380	4	18	106	278	639	768	895	2,708	15,729	10,440	2,503
1998	32,425	2	18	105	301	679	892	930	2,927	15,838	11,113	2,547
1999	34,564	4	18	116	289	744	1,003	1047	3,221	17,111	11,478	2,754
2000	35,017	4	10	127	327	711	991	1,119	3,289	17,328	11,547	2,853
2001	33,543	1	16	123	277	645	925	1,046	3,033	16,885	10,825	2,800
2002	33,161	7	12	124	308	661	862	1,097	3,071	16,707	10,432	2,951
2003	32,353	3	21	118	281	697	920	1,078	3,118	16,601	9,764	2,870
2004	34,356	3	13	108	302	685	903	1,019	3,033	17,903	10,224	3,195
2005	37,074	5	16	122	344	710	1,037	1,238	3,472	19,620	10,605	3,377
2006	42,002	4	24	138	391	870	1,291	1,351	4,069	22,555	11,521	3,856
2007	38,763	4	11	126	327	720	1,066	1,217	3,471	20,588	10,770	3,934
2008	35,864	4	15	105	269	638	885	1,048	2,964	19,010	9,890	4,000
2009	32,994	5	7	75	197	536	805	911	2,536	17,294	9,252	3,911
2010	30,088	4	9	57	142	434	676	814	2,136	15,806	8,186	3,960
2011	29,483	2	6	56	160	377	591	758	1,950	15,591	7,896	4,046
2012	28,656	4	10	44	114	341	630	674	1,817	15,237	7,576	4,026
2013	26,026	1	10	42	104	289	443	618	1,507	13,807	6,868	3,844
2014	25,399	0	5	24	105	267	401	540	1,342	13,074	6,887	4,096
2015	25,336	0	4	29	88	275	412	504	1,312	13,015	6,853	4,153
2016	23,392	1	4	28	86	228	367	449	1,163	12,026	6,322	3,881

FIGURE 2.01

PERCENT OF IMPAIRED DRIVING INCIDENTS ("DWIs") COMMITTED BY OFFENDERS IN FOUR AGE GROUPS, 1997 – 2016

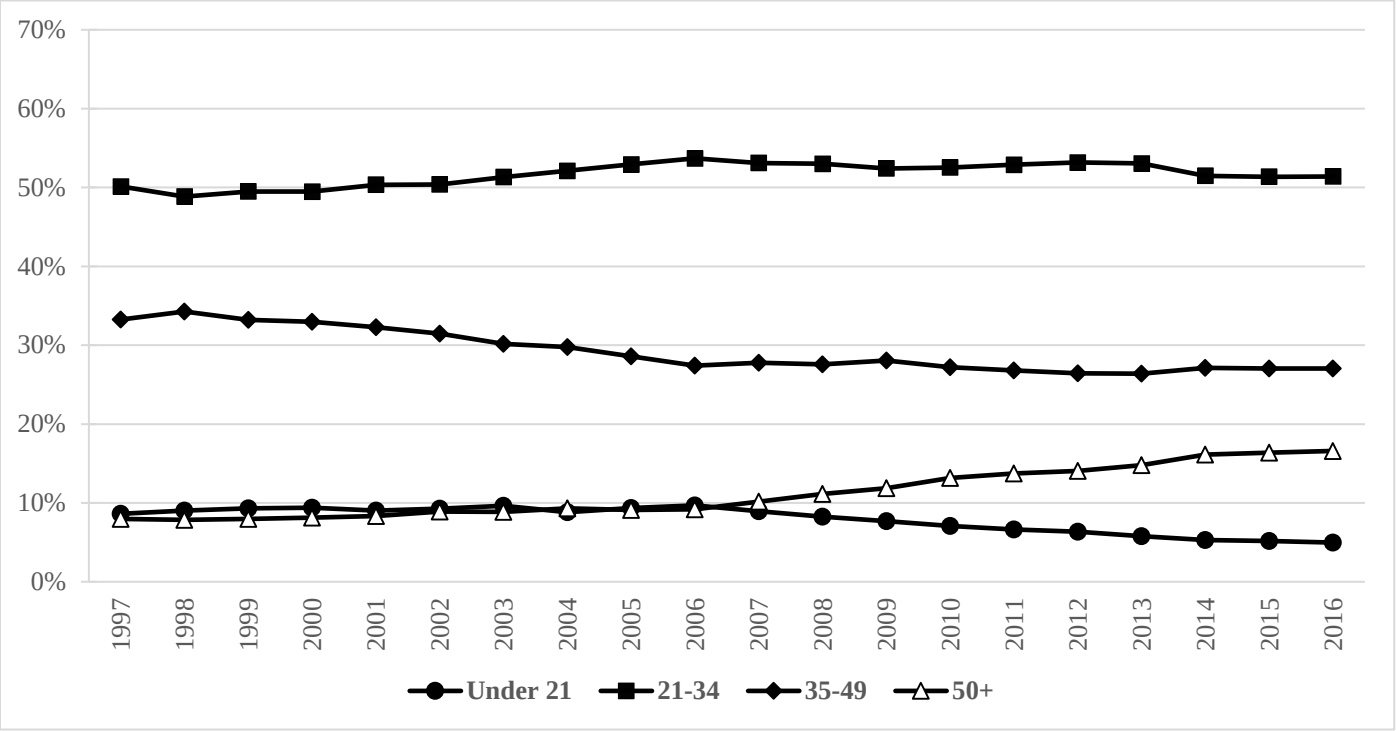

TABLE 2.05

IMPAIRED DRIVING INCIDENTS ("DWIs") BY AGE-GROUP, 1997 - 2016

Year of Incident	Age 0-14	Age 15-19	Age 20-24	Age 25-29	Age 30-34	Age 35-39	Age 40-44	Age 45-49	Age 50-54	Age 55-59	Age 60-64	Age 65-69	Age 70-74	Age 75-79	Age 80-84	Age 85+	Total
1997	4	1,809	5,824	5,718	5,082	4,968	3,361	2,111	1,172	620	341	207	97	50	14	2	31,380
1998	2	1,995	6,261	5,595	4,912	5,222	3,629	2,262	1,155	677	340	195	103	57	18	2	32,425
1999	4	2,170	7,396	5,849	4,913	5,255	3,851	2,372	1,331	672	403	192	96	45	12	3	34,564
2000	4	2,166	7,780	5,842	4,825	5,122	3,943	2,482	1,400	696	372	194	119	54	18	0	35,017
2001	1	1,986	7,917	5,451	4,563	4,450	3,910	2,465	1,457	651	339	192	100	43	14	4	33,543
2002	7	1,967	8,150	5,282	4,372	4,059	3,876	2,497	1,456	752	358	197	105	60	18	5	33,161
2003	3	2,037	8,248	5,419	4,012	3,643	3,652	2,469	1,382	753	384	188	96	47	19	1	32,353
2004	3	2,011	8,740	5,922	4,260	3,666	3,845	2,713	1,653	791	425	166	92	38	27	3	34,356
2005	5	2,229	9,633	6,843	4,382	3,801	3,866	2,938	1,675	923	411	215	92	46	10	5	37,074
2006	4	2,714	11,058	8,070	4,778	4,159	4,026	3,336	1,984	1,029	449	226	109	37	18	4	42,002
2007	4	2,250	9,906	7,406	4,493	3,959	3,638	3,173	1,919	1,101	492	262	94	51	13	2	38,763
2008	4	1,912	8,621	6,907	4,530	3,600	3,282	3,008	1,947	1,104	555	229	101	46	12	6	35,864
2009	5	1,620	7,634	6,442	4,129	3,386	2,971	2,895	1,899	1,063	539	233	120	37	13	7	32,994
2010	4	1,318	6,852	5,800	3,968	2,932	2,678	2,576	1,927	1,091	545	237	99	41	18	2	30,088
2011	2	1,190	6,550	5,867	3,932	2,805	2,686	2,405	1,920	1,083	617	232	121	46	22	5	29,483
2012	4	1,139	6,453	5,477	3,981	2,656	2,689	2,231	1,843	1,097	612	276	137	39	16	6	28,656
2013	1	888	5,528	5,077	3,820	2,625	2,270	1,973	1,794	1,058	565	249	109	42	23	4	26,026
2014	0	802	5,137	4,859	3,618	2,727	2,284	1,876	1,799	1,178	615	318	115	53	15	3	25,399
2015	0	808	4,980	4,948	3,591	2,830	2,142	1,881	1,818	1,231	618	291	121	51	19	4	25,336
2016	1	713	4,388	4,709	3,378	2,651	1,880	1,791	1,571	1,166	638	303	127	56	15	5	23,392

TABLE 2.06

AGE OF PERSONS KILLED AND INJURED IN ALL CRASHES AND IN ALCOHOL-RELATED CRASHES, 2016

Age Group	Killed	Alcohol Related[1]	Serious Injuries	Alcohol Related[2]	Minor Injuries	Alcohol Related[2]	Possible Injuries	Alcohol Related[2]	Total Injured	Alcohol Related[2]
00 - 04	2	1	17	1	111	6	330	11	458	18
05 - 09	6	1	29	3	220	17	396	11	645	31
10 - 14	6	0	46	1	307	18	409	10	762	29
15	0	0	20	1	132	3	129	2	281	6
16	9	2	31	5	272	8	318	9	621	22
17	2	1	41	6	298	12	380	14	719	32
18	4	1	55	3	326	24	389	5	770	32
19	6	1	51	12	316	27	457	28	824	67
20	5	0	43	5	293	36	393	20	729	61
< 21:	**40**	**7**	**333**	**37**	**2,275**	**151**	**3,201**	**110**	**5,809**	**298**
00 - 14	14	2	92	5	638	41	1,135	32	1,865	78
15 - 19	21	5	198	27	1,344	74	1,673	58	3,215	159
20 - 24	41	19	265	79	1,420	203	1,950	161	3,635	443
25 - 29	35	18	242	75	1,183	166	1,777	123	3,202	364
30 - 34	30	11	176	52	1,009	143	1,519	90	2,704	285
35 - 39	29	13	145	38	847	79	1,305	71	2,297	188
40 - 44	21	6	114	27	668	69	1,166	70	1,948	166
45 - 49	24	12	147	35	710	53	1,183	55	2,040	143
50 - 54	30	11	160	27	709	61	1,160	59	2,029	147
55 - 59	29	8	141	28	690	38	1,129	41	1,960	107
60 - 64	25	4	93	7	544	34	792	23	1,429	64
65 - 69	23	5	64	3	414	23	596	18	1,074	44
70 - 74	22	4	58	6	317	12	392	6	767	24
75 - 79	13	0	30	3	201	8	270	8	501	19
80 - 84	14	1	26	1	155	6	192	8	373	15
85 +	21	2	20	1	137	5	136	3	293	9
Unk	0	0	21	3	111	5	361	18	493	26
Total	**392**	**121**	**1,992**	**417**	**11,097**	**1,020**	**16,736**	**844**	**29,825**	**2,281**

1 Based on alcohol test results plus officer's perception of possible alcohol involvement as noted on crash report.

2 Based only on officer's perception of possible alcohol involvement as noted on crash report.

Note As shown, there were 121 alcohol-related traffic fatalities in the year 2016. Twenty-seven of those deaths were pedestrians and twenty of them were drinking. Seven of the motor vehicle drivers involved were drinking. One bicyclist was also among the alcohol related fatalities in 2016. That bicyclists had been drinking. It was a hit & run crash so the driver was unavailable for alcohol testing.

TABLE 2.07

2016 ALCOHOL-RELATED FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TRAFFIC ROLE

Traffic Role	Killed	Tested	.00	.01 - .07	.08 - .09	.10 +
Car or Truck Driver	64	61	6	7	1	47
Car or Truck Passenger	10	6	3	0	0	3
Motorcycle Driver	13	13	2	3	1	7
Motorcycle Passenger	2	1	0	1	0	0
ATV Driver	3	3	0	1	0	2
Pedestrian	27	25	5	2	0	18
Bicyclist	1	1	0	0	0	1
Other Vehicle	1	1	0	1	0	0
Total	**121**	**111**	**16**	**15**	**2**	**78**

TABLE 2.08

PERCENT OF DEATHS, INJURIES and PROPERTY DAMAGE CRASHES DETERMINED TO BE ALCOHOL-RELATED, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Deaths* (Known)	37%	36%	33%	32%	37%	33%	30%	31%	33%	31%
(Estimated)**	39%	38%	36%	36%	40%	37%	24%	33%	35%	30%
Injuries***	9%	9%	8%	8%	8%	9%	8%	7%	7%	8%
PDO Crashes******	4%	4%	4%	4%	4%	4%	4%	3%	4%	4%

* Based on alcohol test results plus officer's perception of possible alcohol involvement as noted on crash report.

**Beginning in 2013, estimations are based on impaired-related fatalities and excluding pedestrians and bicyclists.

*** Based on officer's perception of possible alcohol involvement as noted on crash report.

**** Based only on police officer's perception of possible alcohol involvement. (PDO = Property Damage Only).

TABLE 2.09

FIRST HARMFUL EVENT IN ALCOHOL-RELATED FATAL CRASHES AND ALL FATAL CRASHES, 2016

First Harmful Event	Number of All Fatal Crashes	% of Fatal Crashes	Number of Alcohol-Related Fatal Crashes	% of Alcohol-Related Fatal Crashes
Collison with:				
Another Motor Vehicle	180	50.4%	31	27.4%
Parked Motor Vehicle	4	1.1%	2	1.8%
Fixed Object	53	14.8%	20	17.7%
Pedestrian	56	15.7%	27	23.9%
Train	2	0.6%	0	0.0%
Bicyclist	7	2.0%	1	0.9%
Deer/Other Animal	2	0.6%	0	0.0%
Other Collision Type	0	0.0%	0	0.0%
Non-Collision:				
Overturn/Rollover	48	13.4%	29	25.7%
Other Collision Type	5	1.4%	3	2.7%
Total	**357**	**100.0%**	**113**	**100.0%**

TABLE 2.10

TEST RESULTS OF DRIVERS KILLED, 2007 - 2016

Year	Killed	Tested	.00	.01 - .07	.08 - .09	.10 +
2007	381	336	207 (62%)	15 (4%)	7 (2%)	107 (32%)
2008	316	286	176 (62%)	15 (5%)	6 (2%)	89 (31%)
2009	266	236	160 (68%)	13 (6%)	4 (2%)	59 (25%)
2010	270	237	156 (66%)	6 (3%)	2 (1%)	73 (31%)
2011	243	220	137 (62%)	11 (5%)	6 (3%)	66 (30%)
2012	262	206	130 (63%)	5 (2%)	2 (1%)	69 (33%)
2013	259	219	151 (69%)	10 (5%)	3 (1%)	55 (25%)
2014	248	200	129 (65%)	8 (4%)	3 (2%)	60 (30%)
2015	289	239	139 (58%)	22 (9%)	6 (3%)	72 (30%)
2016	263	209	139 (67%)	12 (6%)	2 (1%)	56 (27%)

Percentages based on drivers tested.

TABLE 2.11

DRIVERS KILLED WHO TESTED .01 OR HIGHER, 2007 - 2016
("Any Alcohol")

Year	Total	Male	Female	Occurred Between Midnight - 3 AM	Under Legal Age
2007	129	110 (85%)	19 (15%)	28 (22%)	11 (9%)
2008	110	91 (83%)	19 (17%)	31 (28%)	9 (8%)
2009	76	63 (83%)	13 (17%)	12 (16%)	7 (9%)
2010	81	63 (78%)	18 (22%)	12 (15%)	7 (9%)
2011	83	70 (84%)	13 (16%)	24 (29%)	9 (11%)
2012	76	66 (87%)	10 (13%)	13 (17%)	6 (8%)
2013	68	59 (87%)	9 (13%)	20 (29%)	3 (4%)
2014	71	63 (89%)	8 (11%)	15 (21%)	3 (4%)
2015	100	88 (88%)	12 (12%)	15 (15%)	4 (4%)
2016	70	65 (93%)	5 (7%)	16 (23%)	1 (1%)

TABLE 2.12

DRIVERS KILLED WHO TESTED OVER THE LEGAL LIMIT, 2007 - 2016
(The legal limit in Minnesota was lowered to .08 in mid-2005)

Year	Total	Male	Female	Occurred Between Midnight - 3 AM	Under Legal Age
2007	114	98 (86%)	16 (14%)	27 (24%)	10 (9%)
2008	95	81 (85%)	14 (15%)	31 (33%)	8 (8%)
2009	63	53 (84%)	10 (16%)	11 (17%)	6 (10%)
2010	75	58 (77%)	17 (23%)	12 (16%)	6 (8%)
2011	72	62 (86%)	10 (14%)	21 (29%)	8 (11%)
2012	71	62 (87%)	9 (13%)	12 (17%)	6 (8%)
2013	58	49 (84%)	9 (16%)	18 (31%)	2 (3%)
2014	63	56 (89%)	7 (11%)	14 (22%)	2 (3%)
2015	78	71 (91%)	7 (9%)	15 (19%)	3 (4%)
2016	58	55 (95%)	3 (5%)	16 (28%)	1 (2%)

FIGURE 2.02

KILLED DRIVERS TESTED FOR ALCOHOL: 1980 - 2016
Percent Over .01 Alcohol Level and Percent Over Legal Limit
(The legal limit in Minnesota was lowered to .08 in 2005)

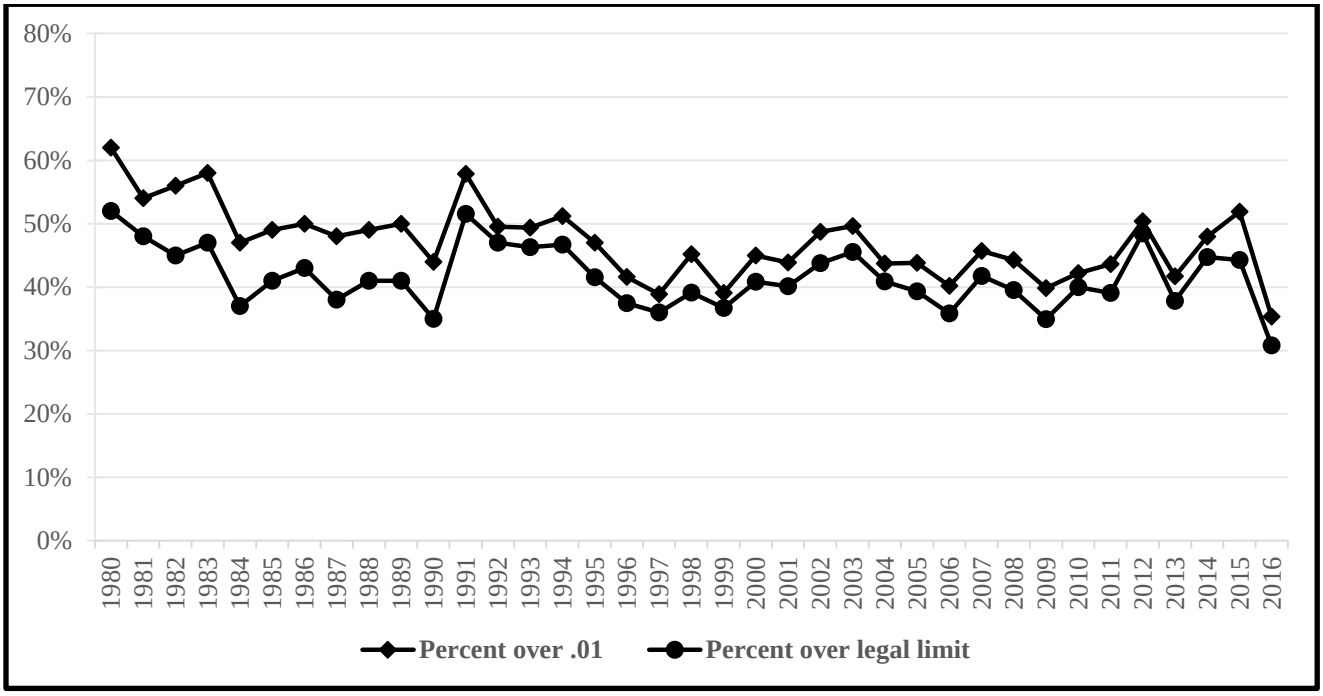

FIGURE 2.03

PERCENT OF DRIVERS KILLED WHO HAD BEEN DRINKING, BY AGE, 2016

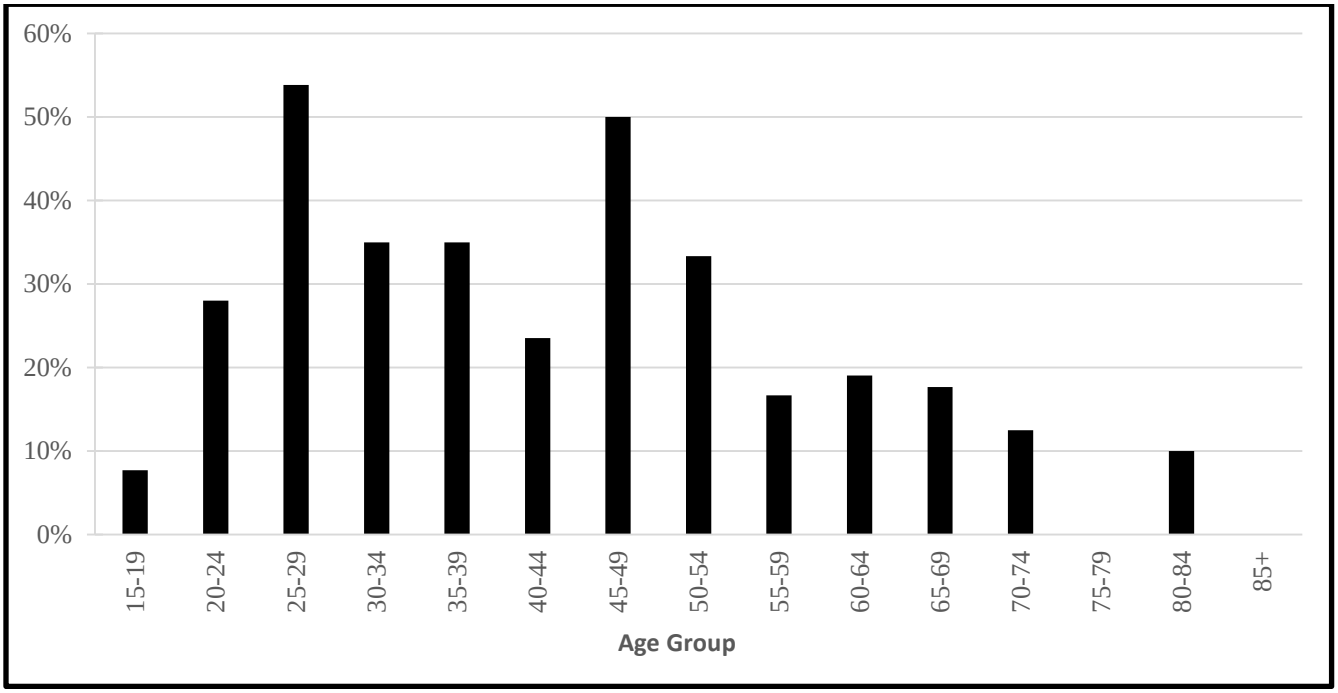

TABLE 2.13

2016 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

			Alcohol Concentration								Alcohol Concentration						
			.00		.01 - .07		.08 - .09		.10+								
Age	Killed	Tested	number	percent	number	percent	number	percent	number	percent	.00	.01-.04	.05-.09	.10-.14	.15-.19	.20-.24	.25+
00 – 14	3	1	1		0		0		0		1	0	0	0	0	0	0
15	0	0	0		0		0		0		0	0	0	0	0	0	0
16	5	4	4		0		0		0		4	0	0	1	0	0	0
17	1	1	1		0		0		0		1	0	0	0	0	0	0
18	2	2	2		0		0		0		2	0	0	0	0	0	0
19	5	3	2		0		1		1		2	1	0	1	0	0	0
20	4	3	3		0		0		0		3	0	0	0	0	0	0
< 21	**20**	**14**	**13**		**0**		**0**		**1**		**13**	**1**	**0**	**2**	**0**	**0**	**0**
00 - 14	3	1	1	100%	0	0.0%	0	0.0%	0	0.0%	0	0	0	0	0	0	0
15 - 19	13	10	9	90.0%	0	0.0%	0	0.0%	1	10.0%	14	0	0	0	1	0	0
20 - 24	25	23	16	69.5%	1	4.3%	0	0.0%	6	26.1%	17	0	1	1	1	1	3
25 - 29	26	21	7	33.2%	0	0.0%	0	0.0%	14	66.6%	9	0	0	3	3	5	3
30 - 34	20	15	8	53.3%	0	0.0%	0	0.0%	7	4.7%	11	0	0	0	5	2	0
35 - 39	20	18	11	61.1%	2	11.1%	0	0.0%	5	27.8%	6	0	2	1	1	2	1
40 - 44	17	12	8	66.7%	1	8.0%	0	0.0%	3	25.0%	6	0	1	1	2	0	0
45 - 49	20	19	9	47.3%	1	5.0%	0	0.0%	9	47.3%	7	1	0	2	3	2	2
50 - 54	21	19	12	63.1%	3	15.8%	0	0.0%	4	21.0%	14	2	1	1	2	1	0
55 - 59	18	16	13	81.3%	0	0.0%	0	0.0%	3	18.8%	12	0	0	0	2	1	0
60 - 64	21	17	13	76.5%	0	0.0%	2	11.8%	2	11.8%	7	0	2	1	1	0	0
65 - 69	17	12	9	75.0%	1	8.3%	0	0.0%	2	16.7%	12	1	0	0	2	0	0
70 - 74	16	11	9	81.8%	2	18.2%	0	0.0%	0	0.0%	8	1	1	0	0	0	0
75 - 79	5	2	2	100.%	0	0.0%	0	0.0%	0	0.0%	6	0	0	0	0	0	0
80 - 84	10	6	5	83.3%	1	16.7%	0	0.0%	0	0.0%	3	0	1	0	0	0	0
85+	11	7	7	100%	0	0.0%	0	0.0%	0	0.0%	7	0	0	0	0	0	0
Total	**263**	**209**	**139**	**66.5%**	**12**	**5.7%**	**2**	**0.1%**	**56**	**26.8%**	**139**	**5**	**9**	**10**	**23**	**14**	**9**

NOTE: Percentages, based on drivers tested, may not add to 100.0% due to rounding.

TABLE 2.14

2016 ALCOHOL-RELATED CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
January	8	115	254	377	8	178
February	5	110	208	323	6	155
March	7	150	197	354	7	199
April	7	130	174	311	8	167
May	14	163	185	362	15	216
June	6	141	181	328	6	185
July	12	168	173	353	12	229
August	13	163	196	372	15	224
September	12	143	201	356	12	191
October	15	165	215	395	16	230
November	7	118	197	322	7	151
December	7	121	259	387	9	156
Total	**113**	**1,687**	**2,440**	**4,240**	**121**	**2,281**

TABLE 2.15

2016 ALCOHOL-RELATED CRASHES BY ROADWAY TYPE

Roadway Type	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Interstate	12	145	292	449	14	199
US Trunk Hwy	12	135	170	317	12	195
MN Trunk Hwy	32	226	300	558	36	351
County State Aid Hwy	29	441	463	933	30	587
County Road	3	51	52	106	4	68
Township Road	7	67	69	143	7	84
Municipal State Aid Hwy	9	220	360	589	9	292
Municipal Street	6	280	539	825	6	359
Other Road	3	122	195	320	3	146
Total	**113**	**1,687**	**2,440**	**4,240**	**121**	**2,281**

FIGURE 2.04

2016 ALCOHOL-RELATED CRASHES BY TIME OF DAY

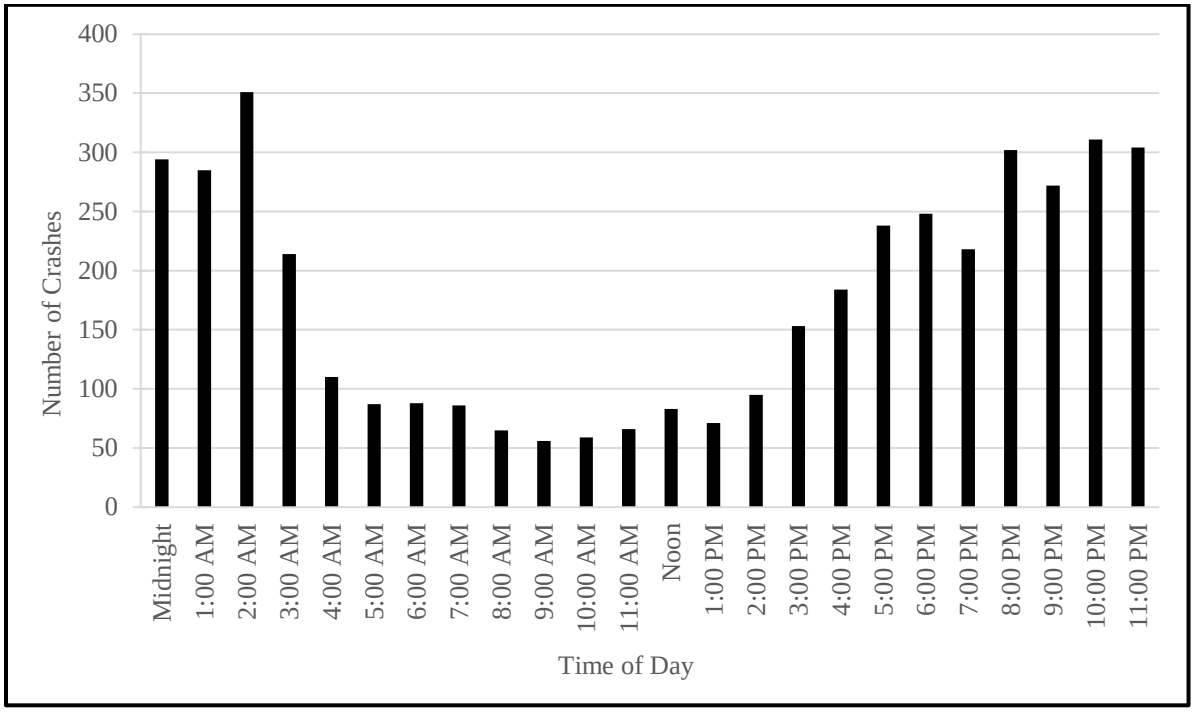

FIGURE 2.05

2016 ALCOHOL-RELATED CRASHES BY DAY OF WEEK

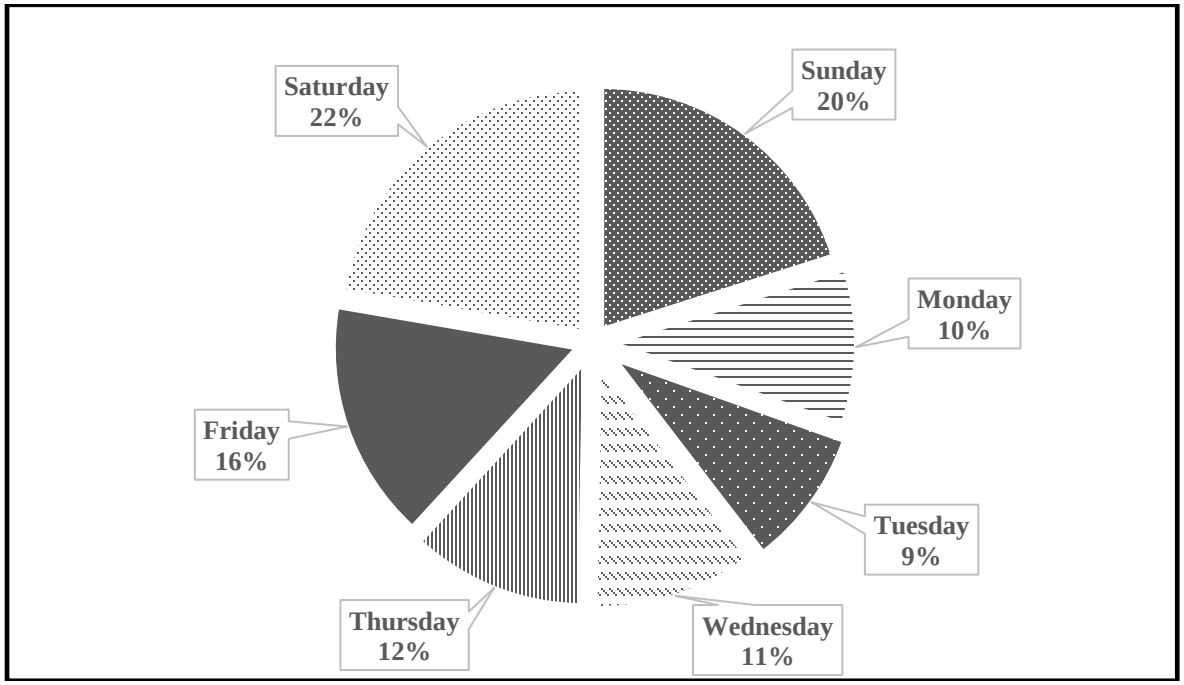

TABLE 2.16

2016 ALCOHOL-RELATED CRASHES BY TIME OF DAY AND DAY OF WEEK

Hour Beginning	Sunday	Monday	Tuesday	Wednes-day	Thurs-day	Friday	Saturday	Total Crashes	Total Killed	Total Injured
Midnight	71	33	26	23	25	49	67	294	9	144
1:00 AM	76	27	21	24	26	41	70	285	7	152
2:00 AM	107	34	18	18	28	47	99	351	11	184
3:00 AM	58	16	7	16	25	30	62	214	4	96
4:00 AM	46	5	7	4	3	16	29	110	4	63
5:00 AM	23	4	9	7	4	9	31	87	4	32
6:00 AM	26	3	10	10	3	10	26	88	5	47
7:00 AM	12	14	11	9	8	13	19	86	7	50
8:00 AM	11	6	8	9	10	7	14	65	0	37
9:00 AM	18	7	4	7	3	5	12	56	0	28
10:00 AM	13	11	4	3	8	8	12	59	2	31
11:00 AM	10	7	8	9	5	11	16	66	0	33
Noon	16	5	13	13	5	18	13	83	0	32
1:00 PM	15	10	6	10	6	13	11	71	1	39
2:00 PM	16	11	14	14	11	13	16	95	2	54
3:00 PM	32	17	23	24	17	21	19	153	3	81
4:00 PM	30	23	16	23	27	30	35	184	3	114
5:00 PM	36	33	22	24	44	48	31	238	7	124
6:00 PM	48	24	23	28	32	44	49	248	7	142
7:00 PM	35	27	15	22	39	32	48	218	6	153
8:00 PM	45	30	39	41	36	47	64	302	13	167
9:00 PM	31	26	26	40	38	57	54	272	7	133
10:00 PM	43	35	24	42	46	51	70	311	11	187
11:00 PM	29	30	34	39	40	54	78	304	8	158
Total	**847**	**438**	**388**	**459**	**489**	**674**	**945**	**4,240**	**121**	**2,281**

TABLE 2.17

2016 DRUNK DRIVING-RELATED FATAL CRASHES BY MONTH

Month	Fatal Crashes	Killed
January	5	5
February	1	1
March	5	5
April	5	6
May	10	11
June	3	3
July	9	9
August	9	9
September	6	6
October	11	12
November	3	3
December	3	3
Total	**70**	**73**

TABLE 2.18

2016 DRUNK DRIVING-RELATED FATAL CRASHES BY ROADWAY TYPE

Roadway Type	Fatal Crashes	Killed
Urban Interstate	2	2
Rural Interstate	2	2
Urban US Trunk Hwy	2	2
Rural US Trunk Hwy	5	5
Urban MN Trunk Hwy	4	5
Rural MN Trunk Hwy	16	16
County State Aid Hwy	21	22
County Road	3	4
Township Road	6	6
Municipal State Aid Hwy	5	5
Municipal Street	2	2
Other	2	2
Total	**70**	**73**

FIGURE 2.06

2016 DRUNK DRIVING-RELATED FATAL CRASHES BY TIME OF DAY

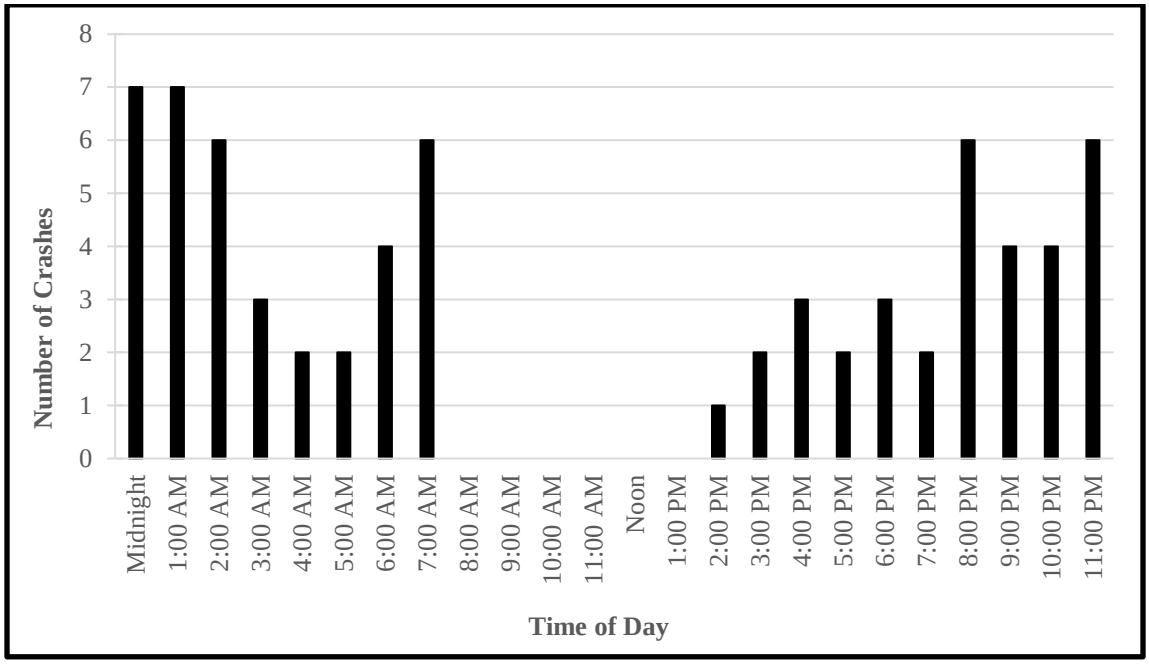

FIGURE 2.07

2016 DRUNK DRIVING-RELATED FATAL CRASHES BY DAY OF WEEK

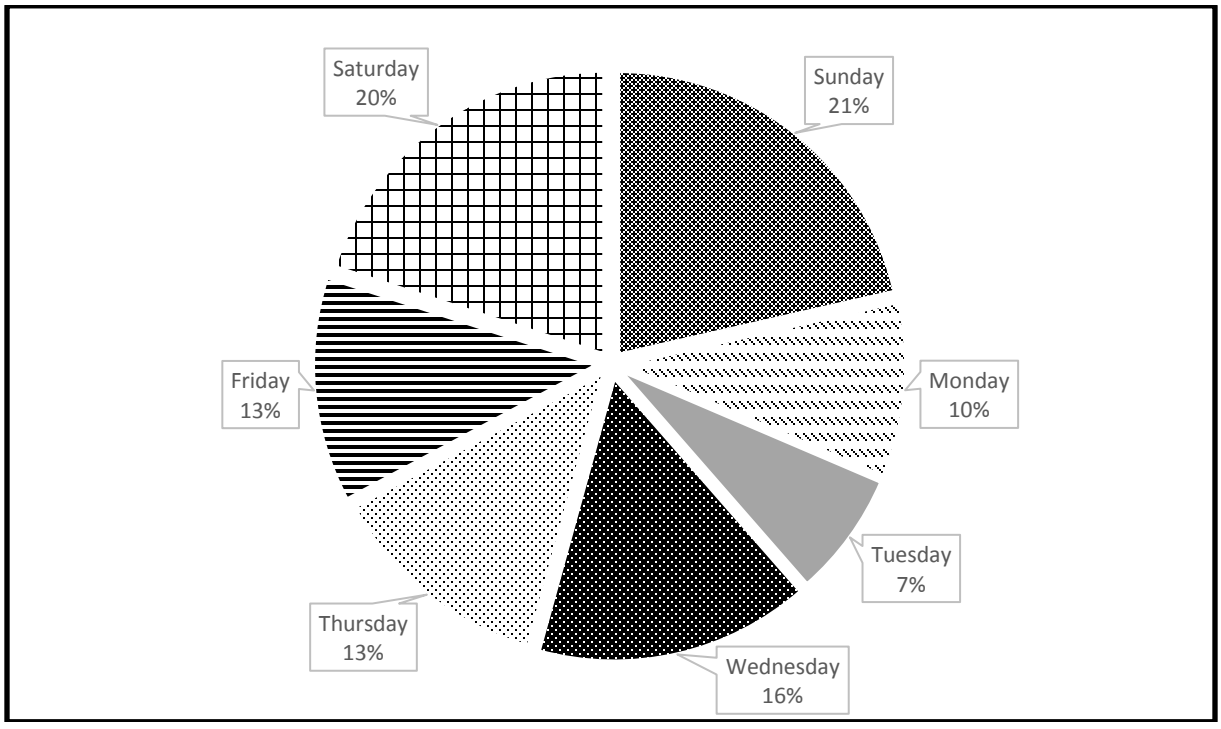

TABLE 2.19

DRUNK DRIVING-RELATED FATALITES AND ALCOHOL-RELATED INJURIES BY SEX AND PERSON TYPE, 2016

	Females Killed	Males Killed	Total Killed	Females Serious Injuries	Males Serious Injuries	Females Minor Injuries	Males Minor Injuries	Females Possible Injuries	Males Possible Injuries	Total Injuries
Driver	5	59	64	60	219	223	511	223	380	1,620
Passenger	3	3	6	42	48	112	108	95	102	524
Pedestrian	1	2	3	11	25	13	31	7	20	111
Bicyclist	0	0	0	1	8	0	11	1	3	26
Total	**9**	**64**	**73**	**114**	**300**	**348**	**661**	**326**	**505**	**2,281**

Note: Gender was not reported for 27 persons injured, causing the "Total" to be 27 greater than the sum of the "serious," "minor," and "possible" injury columns.

III: SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS IN 2016 CRASHES

A brief history of restraint legislation

Studies estimate that using safety restraint devices reduces the risk of death and serious injury by 40% to 60%. In view of this, the Minnesota Legislature enacted laws mandating safety equipment use. The Child Passenger Protection Act took effect in 1982 and was amended in 1983 and 1987. It requires children under the age of four to be properly restrained in a federally approved child car seat. The state's safety belt law went into effect in 1986 and was amended in 1988 and 1991. The law requires all front seat occupants (and children ages four through ten, regardless of seating position) to be restrained. The 1986 belt law was 'Secondary' in nature. Thus, an officer could not issue a citation for non-belt use unless there was another moving violation. In 2009 the law was updated to 'Primary'. In addition, children aged four through seven must now be properly restrained in a 'booster seat'.

Tables in this section focus on restraint use by people in crashes who were occupants of motor vehicles normally equipped with seat belts. The data pose one problem in that restraint use was reported as "unknown" for 16% of the persons killed and 10% of the persons injured in 2016.

Restraint use responds to legislation

Observational surveys of safety belt use conducted annually at random sites around Minnesota show that legislation affects safety belt wearing behavior, thus, saving lives and preventing injuries. In June 1986, before the first safety belt law took effect, 20% of front seat vehicle occupants used belts. The usage rate jumped to 33% after the 1986 law took effect; to 47% after a $10 fine was added in 1988; and to 55% after the fine was increased to $25 in 1991. In 1993 the fine for a child safety seat violation was raised to $50 which also helped increase the overall seat belt usage rate. Minnesota's 'Primary' seat belt law took effect on June 9, 2009. In June 2016, the observational seat belt study revealed a 93.2% usage rate.

Occupant fatalities and injuries in 2016

In 2016, 261 motor vehicle occupants were killed in traffic crashes, an 8% decrease from the previous year. Only 7% of Minnesotans do not use a seat belt, yet those who were known to be unbelted represent 30% (79) of the motor vehicle occupants killed in 2016. This over-representation of unbelted occupants among those killed clearly demonstrates the increased risk of death when seat belts are not used. The number of vehicle occupants injured (26,282) decreased 1% from 2015. These figures actually reveal a beneficial trend that started in the mid-1980s. Specifically, fatalities and severe or serious injuries have been "trading off" with lesser injuries. They are steadily declining due to the seat belt legislation of the mid-1980s. In 1987, 4,176 motor vehicle occupants suffered severe injuries. In 2016, serious injuries decreased to 1,317. This is encouraging news. By definition, possible and minor injuries do not produce long-term and severe suffering, while serious injuries often cause such suffering, including consequences such as permanent brain damage and dismemberment.

Regional differences/Township roads

Among the motor vehicle occupants that were killed or injured in the Northwest region of Minnesota, only 76% were known to be using a restraint. This is the lowest rate of use of any region. The Southwest region was the second lowest: 79%. Concerning types of roadway, 'Township Roads' had the lowest percentage of seat belt use (69%).

Ejection update: always wear your seat belt

Of the 261 occupants killed in 2016, 18% (47) were ejected or partially ejected from the vehicles they were riding in. And, 74% of these ejected fatalities were not wearing a seat belt.

Airbag deployment update

In 2016, airbag deployment was reported 20,658 times when the occupant was also wearing a seat belt. Fifty-nine percent of these incidents resulted in no apparent injury. Airbags deployed 645 times when occupants were not wearing seat belts. Only 31% of these cases resulted in no apparent injury. The message is clear, always wear your seat belt.

TABLE 3.01

PERCENT OF FRONT SEAT OCCUPANTS WEARING SAFETY BELTS, BY DATE OF OBSERVATION STUDY

		Area of State		Class of Roadway	
Date of Survey	**Overall**	**Metro**	**Non-Metro**	**Major Roads**	**Local Roads**
August 1986	33%	43%	26%	35%	31%
August 1987	32%	40%	28%	35%	29%
August 1988	47%	51%	45%	48%	46%
August 1989	44%	52%	40%	44%	45%
August 1990	47%	54%	42%	49%	46%
August 1991	53%	62%	47%	53%	52%
August 1992	51%	62%	46%	55%	48%
August 1993	55%	59%	52%	57%	53%
August 1994*	57%	58%	54%	65%	54%
August 1995	65%	68%	56%	68%	64%
August 1996	64%	67%	58%	68%	62%
August 1997	65%	67%	59%	69%	63%
August 1998	64%	67%	56%	68%	63%
August 1999	72%	73%	68%	72%	68%
August 2000	73%	74%	69%	75%	71%
August 2001	74%	75%	72%	75%	69%
August 2002	80%	83%	72%	81%	76%

		Vehicle Type				Gender	
Date of Survey	**Overall**	**Car**	**SUV**	**Van**	**Pickup**	**Male**	**Female**
August 2003	79.4%	82%	79%	83%	69%	76%	83%
August 2004	82.1%	83%	87%	87%	71%	78%	88%
August 2005	83.9%	86%	87%	83%	75%	80%	89%
August 2006	83.3%	83%	87%	88%	76%	79%	88%
August 2007**	87.8%	89%	90%	90%	81%	84%	92%
August 2008	86.7%	88%	92%	88%	76%	83%	92%
August 2009	90.2%	91%	91%	95%	84%	89%	92%
August 2010	92.3%	94%	94%	95%	83%	89%	96%
August 2011	92.7%	94%	92%	96%	88%	90%	95%
August 2012	93.6%	94%	96%	93%	87%	92%	96%
August 2013	94.8%	96%	97%	97%	87%	93%	98%
August 2014	94.7%	97%	97%	97%	85%	93%	97%
August 2015	94.0%	94%	98%	94%	90%	92%	97%
August 2016	93.2%	95%	95%	93%	84%	90%	97%

*A new survey design was initiated in August 1994. In 2003 the survey was completely redesigned and collected more information on vehicle occupants.

** The 2007 observational study was conducted after the 35W bridge collapse.

TABLE 3.02

MOTOR VEHICLE OCCUPANTS KILLED OR INJURED BY EJECTION STATUS AND INJURY SEVERITY, 2016

	Killed		Serious Injury		Minor Injury		Possible Injury		Total Killed or Injured	
Ejection Status	**Number**	**Row %**	**Number**	**Row %**	**Number**	**Row %**	**Number**	**Row %**	**Number**	**Total %**
Not Ejected	208	0.8%	1,150	4.5%	9,063	35.1%	15,397	59.6%	25,818	100%
Partly Ejected	11	14.3%	20	26.0%	27	35.1%	19	24.7%	77	100%
Ejected	36	20.2%	83	46.6%	47	26.4%	12	6.7%	178	100%
Not Stated	6	1.3%	64	13.6%	138	29.4%	262	55.7%	470	100%
Total	**261**	**1.0%**	**1,317**	**5.0%**	**9,275**	**34.9%**	**15,690**	**59.1%**	**26,543**	**100%**

TABLE 3.03

MOTOR VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE AND INJURY SEVERITY, 2016

Age Group	**Killed**	**Serious Injury**	**Minor Injury**	**Possible Injury**	**Total Injuries**
00 - 04	2	6	96	322	424
05 - 09	2	15	158	358	531
10 - 14	1	12	196	336	544
15 - 19	17	150	1,161	1,584	2,895
20 - 24	27	197	1,203	1,833	3,233
25 - 29	27	176	985	1,681	2,842
30 - 34	20	129	850	1,420	2,399
35 - 39	14	102	723	1,237	2,062
40 - 44	17	80	580	1,096	1,756
45 - 49	19	86	586	1,118	1,790
50 - 54	22	84	570	1,076	1,730
55 - 59	16	75	547	1,052	1,674
60 - 64	14	59	449	742	1,250
65 - 69	12	37	346	572	955
70 - 74	15	41	279	373	693
75 - 79	9	20	188	258	466
80 - 84	14	23	145	188	356
85 & Older	13	13	128	129	270
Not Stated	0	12	85	315	412
Total	**261**	**1,317**	**9,275**	**15,690**	**26,282**

FIGURE 3.01

SAFETY EQUIPMENT USE AMONG MOTOR VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE, 2016

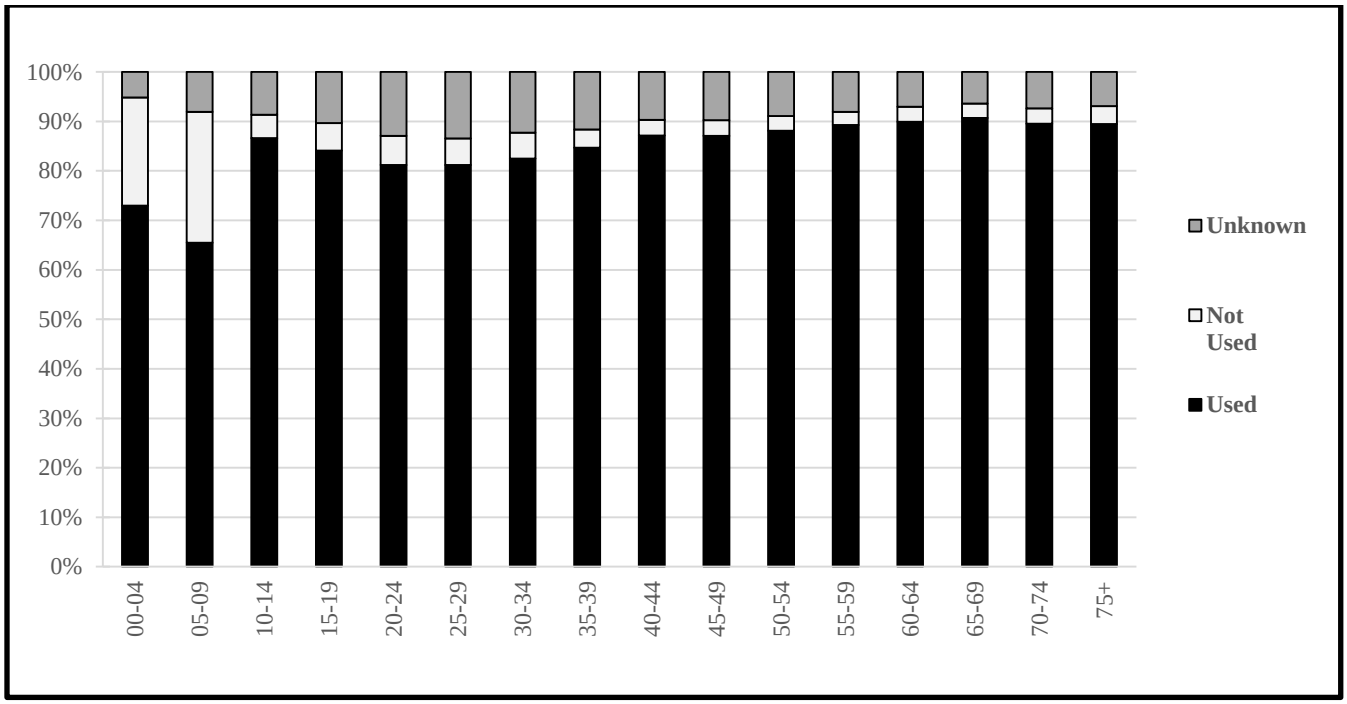

TABLE 3.04

SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS, BY GENDER AND INJURY SEVERITY, 2016

	Females Killed	Males Killed	Total Killed	Females Serious Injuries	Males Serious Injuries	Females Minor Injuries	Males Minor Injuries	Females Possible Injuries	Males Possible Injuries	Total Injuries
Used	64	76	140	378	440	4,256	3,459	8,066	5,584	22,333
Not Used	16	63	79	80	162	236	282	240	233	1,244
Unknown	11	31	42	80	172	434	566	735	667	2,705
Total	**91**	**170**	**261**	**538**	**774**	**4,926**	**4,307**	**9,041**	**6,484**	**26,282**

Note: Gender was not reported for 212 persons injured (mostly those with minor injuries), causing the "Total" to be 212 greater than the sum of the "serious," "minor," and "possible" injury columns.

TABLE 3.05

SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE AND INJURY SEVERITY, 2016

Age Group	Restraint Use	Killed N	Killed %	Serious Injuries N	Serious Injuries %	Minor Injuries N	Minor Injuries %	Possible Injuries N	Possible Injuries %	Total Injured N	Total Injured %
00 - 03 Years	Used	1	50.0%	3	100.0%	43	71.7%	190	77.2%	236	76.4%
	Not Used	1	50.0%	0	0.0%	14	23.3%	49	19.9%	63	20.4%
	Unknown	0	0.0%	0	0.0%	3	5.0%	7	2.8%	10	3.2%
	Subtotal	2	100.0%	3	100.0%	60	100.0%	246	100.0%	309	100.0%
04 - 07 Years	Used	0	0.0%	4	40.0%	57	51.8%	156	54.0%	217	53.1%
	Not Used	1	100.0%	3	30.0%	39	35.5%	112	38.8%	154	37.7%
	Unknown	0	0.0%	3	30.0%	14	12.7%	21	7.3%	38	9.3%
	Subtotal	1	100.0%	10	100.0%	110	100.0%	289	100.0%	409	100.0%
Total 00 - 07 Years	Used	1	33.3%	7	53.8%	100	58.8%	346	64.7%	453	63.1%
	Not Used	2	66.7%	3	23.1%	53	31.2%	161	30.1%	217	30.2%
	Unknown	0	0.0%	3	23.1%	17	10.0%	28	5.2%	48	6.7%
	Subtotal	3	100.0%	13	100.0%	170	100.0%	535	100.0%	718	100.0%
00 - 04 Years	Used	1	50.0%	4	66.7%	66	68.8%	240	74.5%	310	73.1%
	Not Used	1	50.0%	0	0.0%	23	24.0%	69	21.4%	92	21.7%
	Unknown	0	0.0%	2	33.3%	7	7.3%	13	4.0%	22	5.2%
	Subtotal	2	100.0%	6	100.0%	96	100.0%	322	100.0%	424	100.0%
05 - 09 Years	Used	0	0.0%	8	53.3%	108	68.4%	233	65.1%	349	65.7%
	Not Used	2	100.0%	6	40.0%	35	22.2%	98	27.4%	139	26.2%
	Unknown	0	0.0%	1	6.7%	15	9.5%	27	7.5%	43	8.1%
	Subtotal	2	100.0%	15	100.0%	158	100.0%	358	100.0%	531	100.0%
10 - 14 Years	Used	1	100.0%	9	75.0%	159	81.1%	303	90.2%	471	86.6%
	Not Used	0	0.0%	3	25.0%	16	8.2%	7	2.1%	26	4.8%
	Unknown	0	0.0%	0	0.0%	21	10.7%	26	7.7%	47	8.6%
	Subtotal	1	100.0%	12	100.0%	196	100.0%	336	100.0%	544	100.0%
15 - 19 Years	Used	9	52.9%	83	55.3%	977	84.2%	1,380	87.1%	2,440	84.3%
	Not Used	4	23.5%	30	20.0%	70	6.0%	58	3.7%	158	5.5%
	Unknown	4	23.5%	37	24.7%	114	9.8%	146	9.2%	297	10.3%
	Subtotal	17	100.0%	150	100.0%	1,161	100.0%	1,584	100.0%	2,895	100.0%
20 - 24 Years	Used	12	44.4%	105	53.3%	952	79.1%	1,577	86.0%	2,634	81.5%
	Not Used	9	33.3%	51	25.9%	82	6.8%	51	2.8%	184	5.7%
	Unknown	6	22.2%	41	20.8%	169	14.0%	205	11.2%	415	12.8%
	Subtotal	27	100.0%	197	100.0%	1,203	100.0%	1,833	100.0%	3,233	100.0%
25 - 29 Years	Used	11	40.7%	94	53.4%	783	79.5%	1,441	85.7%	2,318	81.6%
	Not Used	13	48.1%	37	21.0%	61	6.2%	43	2.6%	141	5.0%
	Unknown	3	11.1%	45	25.6%	141	14.3%	197	11.7%	383	13.5%
	Subtotal	27	100.0%	176	100.0%	985	100.0%	1,681	100.0%	2,842	100.0%
30 - 34 Years	Used	9	45.0%	64	49.6%	683	80.4%	1,240	87.3%	1,987	82.8%
	Not Used	9	45.0%	29	22.5%	53	6.2%	35	2.5%	117	4.9%
	Unknown	2	10.0%	36	27.9%	114	13.4%	145	10.2%	295	12.3%
	Subtotal	20	100.0%	129	100.0%	850	100.0%	1,420	100.0%	2,399	100.0%
35 - 39 Years	Used	6	42.9%	67	65.7%	601	83.1%	1,084	87.6%	1,752	85.0%
	Not Used	5	35.7%	14	13.7%	37	5.1%	21	1.7%	72	3.5%
	Unknown	3	21.4%	21	20.6%	85	11.8%	132	10.7%	238	11.5%
	Subtotal	14	100.0%	102	100.0%	723	100.0%	1,237	100.0%	2,062	100.0%

TABLE 3.05 CONTINUED

SAFETY EQUIPMENT USE BY VEHICLE OCCUPANTS KILLED OR INJURED, BY AGE AND INJURY SEVERITY, 2016

Age Group	Restraint Use	Killed N	Killed %	Serious Injuries N	Serious Injuries %	Minor Injuries N	Minor Injuries %	Possible Injuries N	Possible Injuries %	Total Injured N	Total Injured %
40 - 44 Years	Used	8	47.1%	49	61.3%	488	84.1%	1,000	91.2%	1,537	87.5%
	Not Used	4	23.5%	15	18.8%	21	3.6%	16	1.5%	52	3.0%
	Unknown	5	29.4%	16	20.0%	71	12.2%	80	7.3%	167	9.5%
	Subtotal	17	100.0%	80	100.0%	580	100.0%	1,096	100.0%	1,756	100.0%
45 - 49 Years	Used	9	47.4%	58	67.4%	502	85.7%	1,006	90.0%	1,566	87.5%
	Not Used	5	26.3%	16	18.6%	25	4.3%	12	1.1%	53	3.0%
	Unknown	5	26.3%	12	14.0%	59	10.1%	100	8.9%	171	9.6%
	Subtotal	19	100.0%	86	100.0%	586	100.0%	1,118	100.0%	1,790	100.0%
50 - 54 Years	Used	13	59.1%	58	69.0%	502	88.1%	971	90.2%	1,531	88.5%
	Not Used	7	31.8%	11	13.1%	17	3.0%	17	1.6%	45	2.6%
	Unknown	2	9.1%	15	17.9%	51	8.9%	88	8.2%	154	8.9%
	Subtotal	22	100.0%	84	100.0%	570	100.0%	1,076	100.0%	1,730	100.0%
55 - 59 Years	Used	6	37.5%	62	82.7%	483	88.3%	958	91.1%	1,503	89.8%
	Not Used	7	43.8%	7	9.3%	20	3.7%	11	1.0%	38	2.3%
	Unknown	3	18.8%	6	8.0%	44	8.0%	83	7.9%	133	7.9%
	Subtotal	16	100.0%	75	100.0%	547	100.0%	1,052	100.0%	1,674	100.0%
60 - 64 Years	Used	8	57.1%	43	72.9%	395	88.0%	691	93.1%	1,129	90.3%
	Not Used	4	28.6%	10	16.9%	19	4.2%	5	0.7%	34	2.7%
	Unknown	2	14.3%	6	10.2%	35	7.8%	46	6.2%	87	7.0%
	Subtotal	14	100.0%	59	100.0%	449	100.0%	742	100.0%	1,250	100.0%
65 - 69 Years	Used	7	58.3%	30	81.1%	312	90.2%	528	92.3%	870	91.1%
	Not Used	3	25.0%	2	5.4%	12	3.5%	11	1.9%	25	2.6%
	Unknown	2	16.7%	5	13.5%	22	6.4%	33	5.8%	60	6.3%
	Subtotal	12	100.0%	37	100.0%	346	100.0%	572	100.0%	955	100.0%
70 - 74 Years	Used	9	60.0%	34	82.9%	251	90.0%	340	91.2%	625	90.2%
	Not Used	3	20.0%	4	9.8%	9	3.2%	6	1.6%	19	2.7%
	Unknown	3	20.0%	3	7.3%	19	6.8%	27	7.2%	49	7.1%
	Subtotal	15	100.0%	41	100.0%	279	100.0%	373	100.0%	693	100.0%
75 & Older	Used	31	86.1%	46	82.1%	412	89.4%	520	90.4%	978	89.6%
	Not Used	3	8.3%	7	12.5%	18	3.9%	13	2.3%	38	3.5%
	Unknown	2	5.6%	3	5.4%	31	6.7%	42	7.3%	76	7.0%
	Subtotal	36	100.0%	56	100.0%	461	100.0%	575	100.0%	1,092	100.0%
Age Not Stated	Used	0	0%	7	58.3%	71	83.5%	255	81.0%	333	80.8%
	Not Used	0	0%	0	0.0%	1	1.2%	10	3.2%	11	2.7%
	Unknown	0	0%	5	41.7%	13	15.3%	50	15.9%	68	16.5%
	Subtotal	0	100.0%	12	100.0%	85	100.0%	315	100.0%	412	100.0%
All Ages	**Used**	140	53.6%	821	62.3%	7,745	83.5%	13,767	87.7%	22,333	85.0%
	Not Used	79	30.3%	242	18.4%	519	5.6%	483	3.1%	1,244	4.7%
	Unknown	42	16.1%	254	19.3%	1,011	10.9%	1,440	9.2%	2,705	10.3%
	Total	**261**	**100.0%**	**1,317**	**100.0%**	**9,275**	**100.0%**	**15,690**	**100.0%**	**26,282**	**100.0%**

Percentages may not sum to 100.0% due to rounding. Persons aged 0 through 3 and 4 through 7 years old are categorized separately because Minnesota law makes special provisions for these age groups.

TABLE 3.06

PERCENT OF KILLED OR INJURED MOTOR VEHICLE OCCUPANTS WHO USED SAFETY EQUIPMENT, BY INJURY SEVERITY AND YEAR, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Killed										
Used	41.4%	45.2%	42.4%	48.5%	46.5%	46.7%	53.9%	54.7%	53.7%	53.7%
Not Used	48.9%	46.2%	43.7%	41.0%	44.3%	42.0%	34.9%	38.1%	31.9%	30.3%
Unknown	9.8%	8.6%	13.9%	10.5%	9.2%	11.2%	11.2%	7.2%	14.4%	16.1%
Injured										
Serious Injuries										
Used	52.2%	51.4%	55.2%	58.3%	59.2%	57.8%	57.2%	60.8%	57.3%	62.3%
Not Used	31.6%	29.8%	27.9%	27.2%	29.0%	25.8%	28.0%	21.6%	23.6%	18.3%
Unknown	16.2%	18.8%	16.9%	14.5%	11.8%	16.3%	14.8%	17.7%	19.1%	19.3%
Minor Injuries										
Used	71.6%	72.4%	74.6%	79.1%	79.1%	79.4%	81.0%	81.7%	79.5%	83.5%
Not Used	15.4%	14.8%	12.8%	10.8%	10.4%	10.1%	9.7%	8.3%	8.5%	5.6%
Unknown	13.0%	12.8%	12.6%	10.1%	10.5%	10.6%	9.3%	10.0%	12.1%	10.9%
Possible Injuries										
Used	81.6%	81.8%	83.0%	84.7%	85.4%	85.1%	85.8%	86.0%	84.8%	87.7%
Not Used	7.6%	7.4%	6.5%	5.5%	5.1%	5.1%	4.1%	4.0%	4.0%	3.1%
Unknown	10.8%	10.8%	10.4%	9.8%	9.5%	9.9%	10.1%	10.0%	11.2%	9.2%
Total Injured										
Used	78.0%	78.5%	80.1%	82.7%	83.3%	82.9%	83.9%	84.3%	82.9%	84.7%
Not Used	10.4%	10.0%	8.7%	7.3%	7.0%	6.8%	6.1%	5.4%	5.5%	5.0%
Unknown	11.6%	11.6%	11.2%	10.0%	9.7%	10.2%	10.0%	10.3%	11.6%	10.3%

TABLE 3.07

SAFETY EQUIPMENT USE BY MOTOR VEHICLE OCCUPANTS KILLED OR INJURED, BY ROADWAY TYPE, 2016

	Used		Not Used		Unknown		Total	
Roadway Type	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Interstate	3,183	92.0%	141	4.1%	135	3.9%	3,459	100.0%
US Trunk Hwy	2,509	89.1%	179	6.4%	128	4.5%	2,816	100.0%
MN Trunk Hwy	3,728	87.7%	247	5.8%	277	6.5%	4,252	100.0%
CSAH	5,235	83.3%	315	5.0%	735	11.7%	6,285	100.0%
County Road	554	83.1%	40	6.0%	73	10.9%	667	100.0%
Township Road	364	69.2%	77	14.6%	85	16.2%	526	100.0%
MSAH	3,274	81.6%	137	3.4%	599	14.9%	4,010	100.0%
Municipal Street	2,578	77.9%	130	3.9%	600	18.1%	3,308	100.0%
Other Road	1,048	85.9%	57	4.7%	115	9.4%	1,220	100.0%
Total	**22,473**	**84.7%**	**1,323**	**5.0%**	**2,747**	**10.3%**	**26,543**	**100.0%**

CSAH = County State Aid Highway. MSAH = Municipal State Aid Highway

TABLE 3.08

SAFETY EQUIPMENT USE BY MOTOR VEHICLE OCCUPANTS KILLED OR INJURED, BY REGION OF THE STATE*, 2016

EMS Region	Percent Used	Percent Not Used	Percent Unknown	Number of People
Metropolitan	84.6%	3.5%	11.9%	15,805
Central	87.9%	5.5%	6.6%	3,749
Northeast	85.1%	7.4%	7.4%	1,453
Northwest	76.3%	11.4%	12.3%	481
South Central	81.9%	6.6%	11.5%	879
Southeast	87.4%	5.8%	6.8%	2,004
Southwest	79.7%	10.5%	9.9%	1,214
West Central	79.9%	10.1%	10.0%	958
Statewide	**84.7%**	**5.0%**	**5.0%**	**26,543**

*The regions of the state are shown in the map below.

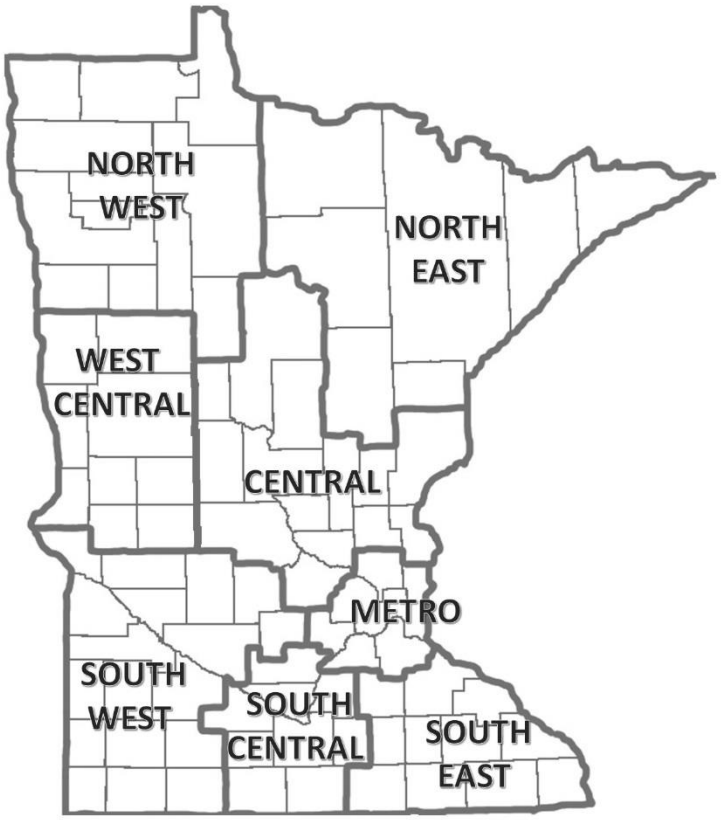

TABLE 3.09

AIRBAG DEPLOYMENTS, 2009 – 2016*

Year	Injury Severity	Airbag Deployed Belt Used	Airbag Deployed Belt Not Used	Deployment Not Indicated Belt Used	Deployment Not Indicated Belt Not Used	Belt Use Unknown	Total
2009	Killed	73	57	55	75	42	302
	Severe Injury	251	96	255	160	155	917
	Moderate Injury	1,767	271	3,023	553	809	6,423
	Minor Injury	4,076	272	12,702	1,045	2,111	20,206
	No Apparent Injury	7,318	270	98,055	3,308	31,781	140,732
	Total	13,485	966	114,090	5,141	34,898	168,580
2010	Killed	95	46	53	79	32	305
	Severe Injury	248	76	240	152	121	837
	Moderate Injury	1,807	176	3,096	492	624	6,195
	Minor Injury	4,241	226	13,347	917	2,027	20,758
	No Apparent Injury	7,620	210	101,735	3,055	30,979	143,599
	Total	14,011	734	118,471	4,695	33,783	171,694
2011	Killed	83	51	43	69	25	271
	Severe Injury	268	100	203	131	94	796
	Moderate Injury	1,763	190	2,855	416	613	5,837
	Minor Injury	4,332	234	12,978	799	1,915	20,258
	No Apparent Injury	7,860	243	99,608	2,716	28,078	138,505
	Total	14,306	818	115,687	4,131	30,725	165,667
2012	Killed	80	50	49	66	31	276
	Severe Injury	297	91	202	132	141	863
	Moderate Injury	1,869	201	2,581	364	592	5,607
	Minor Injury	4,637	256	11,761	721	1,904	19,279
	No Apparent Injury	8,093	229	94,519	2,390	27,092	132,323
	Total	14,976	827	109,112	3,673	29,760	158,348
2013	Killed	92	39	53	55	30	269
	Severe Injury	287	100	213	145	129	874
	Moderate Injury	2,003	189	2,774	382	548	5,896
	Minor Injury	4,988	228	12,680	624	2,072	20,592
	No Apparent Injury	9,075	226	106,392	2,586	30,084	148,363
	Total	16,445	782	122,112	3,792	32,863	175,994
2014	Killed	109	48	43	58	20	278
	Severe Injury	261	77	190	83	131	742
	Moderate Injury	1,958	161	2,575	298	558	5,550
	Minor Injury	4,935	219	12,279	579	2,013	20,025
	No Apparent Injury	9,351	263	108,546	2,507	30,738	151,405
	Total	16,614	768	123,633	3,525	33,460	178,000
2015	Killed	106	47	47	44	41	285
	Severe Injury	274	77	153	99	142	745
	Moderate Injury	2,296	189	2,437	314	719	5,955
	Minor Injury	5,298	218	11,566	573	2,228	19,883
	No Apparent Injury	10,178	277	101,132	2,299	30,236	144,122
	Total	18,152	808	115,335	3,329	33,366	170,990
2016*	Killed	103	38	37	41	42	261
	Serious Injury	537	118	284	124	254	1,317
	Minor Injury	3,690	176	4,055	343	1,011	9,275
	Possible Injury	4,095	110	9,672	373	1,440	15,690
	No Apparent Injury	12,233	203	111,995	2,004	16,777	143,212
	Total	20,658	645	126,043	2,885	19,524	169,755

Note: "Belt use" is used as a shorthand term for safety restraint use. Safety restraint devices are normally lap and shoulder belts, but they can also be child safety seats or booster seats. *New injury definitions were introduced in 2016 to align with national standard definitions. Direct comparisons cannot be made.

IV: MOTORCYCLE CRASHES

2016 motorcycle crash summary
In the past decade many middle-aged people have returned to motorcycling. By the end of the calendar year 2015, the number of licensed motorcycle operators in Minnesota had reached the highest level in history. As a result, motorcyclist crash involvement remains very worrisome to traffic safety officials. In 2016, there were 1,260 crashes that involved at least one motorcycle. This represents a 7% decrease from the previous year.

Motorcyclist fatalities in 2016 decreased 11% from 2015 (from 61 to 54). Of the 54 killed, 47 were drivers and 7 were passengers. Injuries to motorcyclists decreased 6% as well (from 1,232 to 1,153). Fifty-four percent of all motorcyclists killed or injured in 2016 were people aged 40 and over.

Alcohol use among drivers remains high
State law requires that drivers who die in traffic crashes be tested for blood alcohol level. In 2016, 47 motorcycle drivers were killed and 38 of them were tested. Eleven (29%) of the 38 drivers tested positive for alcohol and 8 of the 38 (21%) tested at .08% or greater.

Greater crash severity
When a motorcycle is involved in a traffic crash, the chances for a fatality are greatly increased. In fact, 4.3 out of every 100 motorcycle crashes in 2016 was a fatal crash. For all crashes in Minnesota, only 0.5 out of every 100 crashes is a fatal crash.

Helmet use
Minnesota does not have a mandatory helmet use law for motorcyclists 18 or older. Laws may be debated, but the benefits helmets offer are clear; they protect the head in the event of a crash. In 2016, only fifteen (28%) of the 54 motorcycle riders killed were known to be wearing a helmet. Of the 1,153 motorcyclists injured, only 529 (46%) were known to be wearing a helmet.

Operator training is essential
In addition to the newly endorsed younger drivers each year, a large number of middle-aged people are returning to motorcycling. Motorcycle and motorized bicycle registrations have increased over the past decade. The crash data indicates the importance of proper operator training. In 2016, 13% of motorcycle operators that were involved in a fatal crash did not have a valid endorsement to drive a motorcycle. Further training is needed for a large segment of the motorcycle driver population.

Males are most often victims
The motorcycle crash experience in Minnesota remains largely a male one. In 2016, 44 of the 54 motorcyclists killed and 966 of the 1,153 injured were male. Males account for 84% of all motorcyclists killed or injured.

Contributing factors for motorcyclists
In 2016, 659 (52%) motorcycle crashes were single-vehicle crashes. In these crashes, the factors that reporting officers list most often are careless/negligent/erratic driving (11%), run off road (11%) and driver speeding (8%). Road surface conditions are important for safe motorcycle operation. Factors such as road surface condition, ruts/holes/bumps, debris and obstructions in the roadway accounted for 9% of the factors attributed to motorcyclists in single vehicle crashes.

Contributing factors for the other drivers
In motorcycle crashes that involve another vehicle, the reporting officers associate 58% of the contributing factors with the other driver and 42% with the motorcyclist. For the other drivers, failure to yield right of way (33%) and driving in a careless/negligent/erratic manner (9%) are listed most frequently. This demonstrates the need for continuing programming to help motor vehicle drivers and motorcyclists share the road safely.

TABLE 4.01

MOTORCYCLE CRASH SUMMARY, 1982 - 2016

Year	Motorcycle Crashes				Killed		Injured				Mcy Deaths per 10,000 Reg. Mcy	Fatal Crash Rate Per 100 Crashes	
	Fatal	Injury	PDO	Total	Mcy	Other	Mcy	Other	Licensed Operators	Registered Motorcycles		For Mcy	For All Crashes
1982	72	2,115	331	2,518	70	6	2,381	189	264,134	159,345	4.4	2.9	0.6
1983	70	2,377	364	2,811	73	0	2,678	191	252,808	155,502	4.7	2.5	0.5
1984	59	2,302	407	2,768	62	1	2,590	207	256,836	153,851	4.0	2.2	0.5
1985	75	2,238	435	2,748	77	1	2,500	204	272,317	151,449	5.1	2.7	0.5
1986	63	1,891	364	2,318	66	0	2,152	142	282,087	141,261	4.7	2.7	0.5
1987	51	1,692	378	2,121	51	3	1,853	145	288,424	134,590	3.8	2.4	0.5
1988	57	1,628	284	1,969	58	4	1,817	126	293,347	128,956	4.5	2.9	0.5
1989	37	1,463	248	1,748	37	0	1,617	104	290,000	123,308	3.0	2.1	0.5
1990	46	1,446	243	1,735	50	2	1,605	126	292,074	120,081	4.2	2.7	0.5
1991	38	1,198	225	1,461	40	0	1,357	104	296,624	117,492	3.4	2.6	0.5
1992	29	1,133	199	1,361	28	3	1,288	60	290,722	116,124	2.4	2.1	0.5
1993	33	1,022	190	1,245	34	3	1,151	104	291,756	114,548	3.0	2.7	0.5
1994	41	1,151	189	1,381	43	0	1,324	66	293,164	113,337	3.8	3.0	0.6
1995	32	941	153	1,126	35	2	1,063	76	295,849	113,981	3.1	2.8	0.5
1996	39	934	158	1,131	42	0	1,046	71	297,102	112,551	3.7	3.4	0.5
1997	23	821	127	971	24	1	916	65	298,863	113,443	2.1	2.4	0.5
1998	41	883	141	1,065	40	1	987	69	301,992	118,275	3.4	3.8	0.6
1999	30	867	127	1,024	29	2	991	64	307,009	122,676	2.4	2.9	0.6
2000	34	935	166	1,135	35	1	1,039	45	311,825	132,352	2.6	3.0	0.5
2001	41	997	175	1,213	42	1	1,094	54	317,421	142,882	2.9	3.4	0.5
2002	47	943	178	1,168	47	0	1,071	46	327,604	149,360	3.1	4.0	0.6
2003	58	NA	NA	NA	62	1	NA	NA	335,862	161,793	3.8	NA	NA
2004	50	1,112	182	1,344	50	1	1,251	67	346,169	174,195	2.9	3.7	0.6
2005	61	1,201	169	1,431	59	4	1,319	72	353,460	185,087	3.2	4.3	0.6
2006	70	1,279	147	1,496	70	0	1,413	79	360,143	197,735	3.5	4.7	0.6
2007	60	1,368	195	1,623	61	0	1,498	67	369,623	209,591	2.9	3.7	0.6
2008	71	1,350	212	1,633	72	0	1,505	62	380,232	224,625	3.2	4.3	0.5
2009	47	1,089	193	1,329	53	0	1,200	53	387,159	226,675	2.3	3.5	0.5
2010	44	1,168	165	1,377	45	2	1,296	58	394,083	229,912	2.0	3.2	0.5
2011	43	1,130	136	1,309	42	2	1,248	45	398,092	232,274	1.8	3.3	0.5
2012	51	1,320	192	1,563	55	0	1,454	68	404,967	237,278	2.3	3.3	0.5
2013	59	1,047	160	1,266	60	2	1,143	52	409,943	235,909	2.5	4.7	0.5
2014	44	1,005	152	1,201	46	1	1,117	44	414,346	236,040	1.9	3.7	0.4
2015	58	1,103	191	1,352	61	1	1,232	81	414,782	238,243	2.6	4.3	0.5
2016	54	1,042	164	1,260	54	6	1,153	78	416,967	227,746	2.4	4.3	0.5
Record High* (year)	112 (1980)	2,728 (1980)	537 (1976)	3,308 (1980)	121 (1980)	9 (1975)	3,359 (1980)	207 (1984)	416,967 (2016)	238,243 (2015)	7.7 (1980)	4.7 (2013)	0.8 (1970)

Notes: The acronym PDO stands for "property damage only" — a crash in which no one is killed or injured. The abbreviation Mcy stands for "motorcyclists" or for "motorcycle." The record high shown is for the period of time back to year 1970. For registered classic motorcycles, see Table 3 on page 6.

TABLE 4.02

2016 MOTORCYCLE CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Motor-cyclists Killed	Motor-cyclists Injured
Collision With:						
Other Motor Vehicle	34	452	115	601	36	507
Parked Vehicle	0	9	20	29	0	9
Bicyclist	0	1	1	2	0	1
Pedestrian	2	3	0	5	0	2
Deer	0	67	4	71	0	79
Other Animal	1	27	1	29	1	30
Object Set in Motion	0	3	0	3	0	3
Fixed Object	5	136	7	148	5	149
Non-Collision:						
Overturn/Rollover	9	145	3	157	9	162
Fire/Explosion	0	0	0	0	0	0
Other / Unknown	3	199	13	215	3	211
Total	**54**	**1,042**	**164**	**1,260**	**54**	**1,153**

TABLE 4.03

2016 MOTORCYCLE CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Motor-cyclists Killed	Motor-cyclists Injured
250,000 and Over	6	137	52	195	6	149
100,000 - 249,999	1	17	4	22	2	17
50,000 - 99,999	7	141	23	171	7	143
25,000 - 49,999	2	78	15	95	2	81
10,000 - 24,999	6	187	24	217	7	202
5,000 - 9,999	2	58	5	65	2	61
2,500 - 4,999	2	49	6	57	1	58
1,000 - 2,499	3	42	2	47	3	51
Under 1,000	25	333	33	391	24	391
Total	**54**	**1,042**	**164**	**1,260**	**54**	**1,153**

TABLE 4.04

2016 MOTORCYCLE CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Motor-cyclists Killed	Motor-cyclists Injured
January	0	0	0	0	0	0
February	0	7	0	7	0	7
March	1	26	2	29	2	27
April	5	72	13	90	5	80
May	3	131	22	156	3	147
June	13	205	26	244	13	218
July	8	186	31	225	9	217
August	6	166	25	197	6	186
September	11	116	18	145	10	128
October	4	88	14	106	4	93
November	3	45	13	61	2	50
December	0	0	0	0	0	0
Total	**54**	**1,042**	**164**	**1,260**	**54**	**1,153**

FIGURE 4.01

2016 MOTORCYCLE CRASHES BY TIME OF DAY

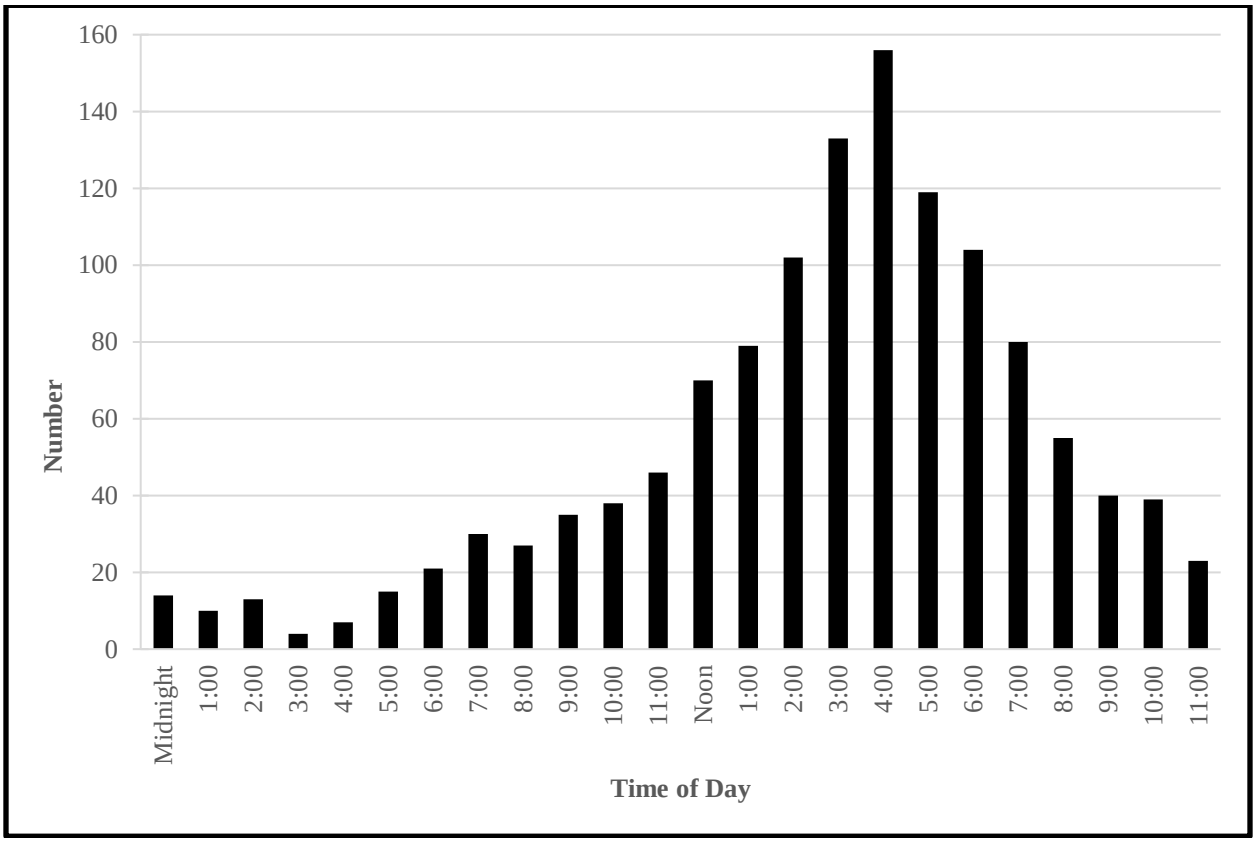

TABLE 4.05

2016 MOTORCYCLE CRASHES BY TIME AND DAY

Hour	Crashes		Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
Beginning	Total	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal
12 am	14	1	4	0	2	0	2	0	0	0	1	0	1	0	4	1
1:00	10	0	3	0	0	0	0	0	0	0	1	0	2	0	4	0
2:00	13	2	4	1	2	1	3	0	0	0	1	0	2	0	1	0
3:00	4	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0
4:00	7	1	1	0	1	0	1	0	1	0	0	0	2	1	1	0
5:00	15	0	0	0	3	0	2	0	1	0	2	0	5	0	2	0
6:00	21	1	1	0	4	0	4	1	5	0	4	0	2	0	1	0
7:00	30	2	0	0	3	0	2	0	6	0	9	0	7	1	3	1
8:00	27	0	1	0	2	0	5	0	4	0	5	0	6	0	4	0
9:00	35	1	10	1	1	0	1	0	3	0	2	0	7	0	11	0
10:00	38	2	7	0	3	0	9	0	1	0	5	2	3	0	10	0
11:00	46	0	15	0	4	0	6	0	3	0	5	0	1	0	12	0
Noon	70	3	18	0	9	1	5	0	7	1	3	0	12	0	16	1
1:00	79	0	16	0	9	0	6	0	9	0	8	0	15	0	16	0
2:00	102	4	28	2	8	1	11	0	13	0	6	0	15	0	21	1
3:00	133	13	33	4	10	2	15	1	10	1	14	1	23	1	28	3
4:00	156	6	39	0	17	0	20	1	11	0	17	2	18	1	34	2
5:00	119	4	22	2	10	0	12	0	12	1	12	0	18	0	33	1
6:00	104	4	24	0	15	1	7	1	16	1	10	0	14	0	18	1
7:00	80	0	13	0	12	0	3	0	9	0	11	0	16	0	16	0
8:00	55	6	9	0	8	1	3	1	6	2	8	1	13	1	8	0
9:00	40	1	3	0	5	0	7	0	7	0	9	0	6	1	3	0
10:00	39	2	4	0	5	0	3	0	3	0	6	1	5	1	13	0
11:00	23	1	2	0	5	1	2	0	1	0	2	0	7	0	4	0
Total	**1,260**	**54**	**259**	**10**	**138**	**8**	**129**	**5**	**128**	**6**	**141**	**7**	**202**	**7**	**263**	**11**

TABLE 4.06

MOTORCYCLISTS KILLED OR INJURED BY AGE AND GENDER, 2016

				Injured											
	Killed			Serious			Minor			Possible			Total Injured		
Age Group	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**
00 - 04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05 - 09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 - 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 - 19	0	0	0	8	3	11	23	3	26	6	1	7	37	7	44
20 - 24	2	1	3	32	4	36	79	6	85	22	1	23	133	11	144
25 - 29	2	1	3	29	5	34	72	8	80	17	7	24	118	20	138
30 - 34	4	2	6	22	2	24	53	11	64	21	2	23	96	15	111
35 - 39	9	1	10	17	5	22	41	12	53	12	3	15	70	20	90
40 - 44	2	1	3	19	2	21	24	6	30	14	2	16	57	10	67
45 - 49	1	1	2	27	10	37	47	15	62	16	3	19	90	28	118
50 - 54	3	0	3	36	20	56	52	17	69	17	8	25	105	45	150
55 - 59	4	2	6	31	5	36	65	10	75	24	3	27	120	18	138
60 - 64	7	0	7	18	3	21	35	6	41	11	1	12	64	10	74
65 - 69	6	1	7	16	0	16	21	1	22	7	0	7	44	1	45
70 & Older	4	0	4	8	1	9	18	1	19	5	0	5	31	2	33
Not Stated	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1
Total	**44**	**10**	**54**	**263**	**60**	**323**	**531**	**96**	**627**	**172**	**31**	**203**	**966**	**187**	**1,153**

FIGURE 4.02

MOTORCYCLISTS KILLED OR INJURED BY AGE AND GENDER, 2016

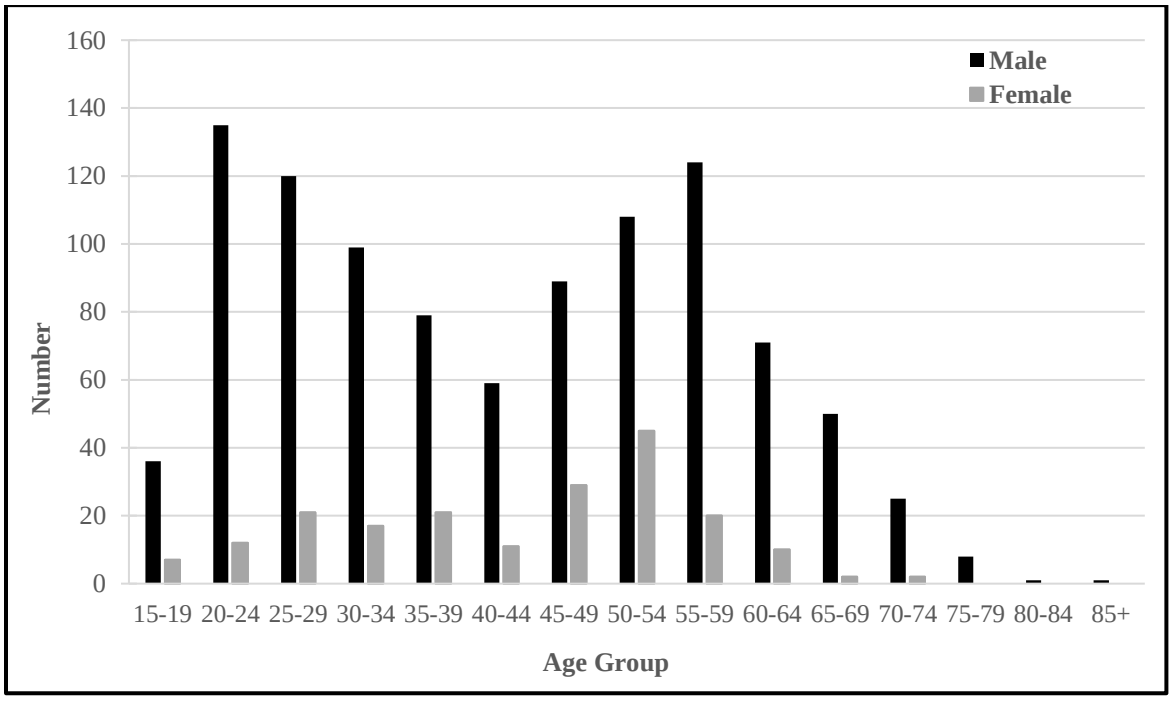

TABLE 4.07

HELMET USE BY MOTORCYCLISTS KILLED OR INJURED, 2007 - 2016

		Helmet Used		Helmet Not Used		Unknown Helmet Use		Total	
	Year	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Killed	2007	11	18.0%	45	73.8%	5	8.2%	61	100.0%
	2008	12	16.7%	53	73.6%	7	9.7%	72	100.0%
	2009	11	20.8%	37	69.8%	5	9.4%	53	100.0%
	2010	12	26.7%	26	57.8%	7	15.6%	45	100.0%
	2011	13	31.0%	23	54.8%	6	14.3%	42	100.0%
	2012	11	20.0%	38	69.1%	6	10.9%	55	100.0%
	2013	14	23.3%	34	56.7%	12	20.0%	60	100.0%
	2014	9	19.6%	28	60.9%	9	19.6%	46	100.0%
	2015	17	27.9%	37	60.7%	7	11.5%	61	100.0%
	2016	15	27.8%	35	64.8%	4	7.4%	54	100.0%

		Helmet Used		Helmet Not Used		Unknown Helmet Use		Total	
	Year	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Injured	2007	554	37.0%	520	34.7%	424	28.3%	1,498	100.0%
	2008	539	35.8%	569	37.8%	397	26.4%	1,505	100.0%
	2009	452	37.7%	432	36.0%	316	26.3%	1,200	100.0%
	2010	483	37.3%	468	36.1%	345	26.6%	1,296	100.0%
	2011	488	39.1%	447	35.8%	313	25.1%	1,248	100.0%
	2012	523	36.0%	549	37.8%	382	26.3%	1,454	100.0%
	2013	389	34.0%	424	37.1%	330	28.9%	1,143	100.0%
	2014	423	37.9%	369	33.0%	325	29.1%	1,117	100.0%
	2015	480	39.0%	417	33.9%	335	27.2%	1,232	100.0%
	2016	529	45.9%	577	50.0%	47	2.9%	1,153	100.0%

TABLE 4.08

ENDORSEMENT STATUS OF MOTORCYCLE OPERATORS INVOLVED IN FATAL CRASHES, 2007 - 2016

	Valid Endorsement		Permit Only		Canceled, Suspended, Revoked		No Endorsement*		Total** for Year	
Year	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
2007	49	81.7%	0	0.0%	4	6.7%	5	8.3%	60	100.0%
2008	57	79.2%	0	0.0%	5	6.9%	8	11.1%	72	100.0%
2009	39	29.6%	0	0.0%	1	2.0%	8	16.3%	49	100.0%
2010	38	77.6%	0	0.0%	5	10.2%	5	10.2%	49	100.0%
2011	38	84.4%	0	0.0%	3	6.7%	4	8.9%	45	100.0%
2012	41	78.8%	0	0.0%	0	0.0%	10	19.2%	52	100.0%
2013	41	69.5%	0	0.0%	0	0.0%	10	16.9%	59	100.0%
2014	37	77.1%	2	4.2%	1	2.1%	5	10.4%	45	100.0%
2015	47	75.8%	5	8.1%	3	4.8%	6	14.5%	62	100.0%
2016	44	73.3%	1	1.7%	5	8.3%	8	13.3%	60	100.0%

* A valid endorsement means that the driver's license has been "endorsed" to permit operation of a motorcycle.
** Rows may not add to total due to the unknown status of some motorcycle operators. In addition, totals can include non-motorcyclists killed in motorcycle-related crashes.

TABLE 4.09

ALCOHOL USE BY KILLED MOTORCYCLE DRIVERS, 2007 - 2016

			Alcohol Concentration							
Year	Killed	Tested	(.00)		(.01 - .07)		(.08 - .09)		(.10 or more)	
2007	58	52	34	(65%)	3	(6%)	1	(2%)	14	(27%)
2008	65	59	31	(53%)	3	(5%)	2	(3%)	23	(39%)
2009	45	42	25	(60%)	6	(14%)	2	(5%)	9	(21%)
2010	42	40	25	(63%)	1	(2%)	1	(2%)	13	(32%)
2011	34	29	21	(72%)	2	(7%)	1	(3%)	5	(17%)
2012	47	38	26	(68%)	2	(5%)	1	(3%)	9	(24%)
2013	53	43	27	(63%)	2	(5%)	2	(5%)	12	(28%)
2014	41	35	25	(71%)	3	(9%)	0	(0%)	7	(20%)
2015	61	47	25	(53%)	9	(19%)	0	(0%)	13	(28%)
2016	47	38	27	(71%)	3	(8%)	1	(3%)	7	(18%)

Percentages are based on those motorcycle drivers tested.

TABLE 4.10

2016 MOTORCYCLE DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

			Alcohol Concentration									
Age	Killed	Tested	.01-.07	.08-.09	.10+	.00	.01-.04	.05-.09	.10-.14	.15-.19	.20-.24	.25 and Over
14 & Younger	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0
20	1	1	0	0	0	1	0	0	0	0	0	0
Under 21	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
14 & Younger	0	0	0	0	0	0	0	0	0	0	0	0
15 - 19	0	0	0	0	0	0	0	0	0	0	0	0
20 - 24	2	2	0	0	0	2	0	0	0	0	0	0
25 - 29	2	2	0	0	1	1	0	0	1	0	0	0
30 - 34	5	5	0	0	1	4	0	0	0	1	0	0
35 - 39	10	8	2	0	2	4	0	2	0	1	1	2
40 - 44	2	2	1	0	0	1	0	1	0	0	0	0
45 - 49	1	1	0	0	0	1	0	0	0	0	0	0
50 - 54	3	2	0	0	1	1	0	0	1	0	0	1
55 - 59	5	4	0	0	0	4	0	0	0	0	0	1
60 & Older	17	12	0	1	2	9	0	1	0	2	0	5
Total	**47**	**38**	**3**	**1**	**7**	**27**	**0**	**4**	**2**	**4**	**1**	**9**

TABLE 4.11

CONTRIBUTING FACTORS IN 2016 MOTORCYCLE CRASHES

	Single Vehicle Crashes		*Multi-Vehicle Crashes*			
	Attributed to MC Drivers		**Attributed to MC Driver**		**Attributed to Other Drivers**	
Contributing Factors	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Human Factors:						
Careless/Negligent/Erratic Driving	80	11.2%	40	11.2%	44	9.1%
Run Off Road	76	10.6%	5	1.4%	0	0.0%
Driver Speeding	60	8.4%	27	7.6%	1	0.2%
Overcorrecting/Oversteering	46	6.4%	4	1.1%	1	0.2%
Driver Swerved	42	5.9%	21	5.9%	4	0.8%
Improper Lane Use	36	5.0%	16	4.5%	10	2.1%
Failure to Yield Right of Way	27	3.8%	16	4.5%	160	33.1%
Reckless/Aggressive Driving	17	2.4%	10	2.8%	6	1.2%
Following Too Closely	15	2.1%	39	10.9%	23	4.8%
Improper Turn/Merge	13	1.8%	7	2.0%	24	5.0%
Driver Distracted	12	1.7%	20	5.6%	29	6.0%
Congestion Backup - Other	11	1.5%	14	3.9%	20	4.1%
Improper Passing	8	1.1%	17	4.8%	0	0.0%
Work Zone	7	1.0%	8	2.2%	10	2.1%
Vision Obscured	6	0.8%	7	2.0%	25	5.2%
Disregard Traffic Signs	4	0.6%	3	0.8%	4	0.8%
Congestion Backup - Lone Incident	3	0.4%	4	1.1%	9	1.9%
Non-Motorist, No Improper Action	3	0.4%	0	0.0%	0	0.0%
Ran Stop Sign	3	0.4%	3	0.8%	4	0.8%
Improper Backing	3	0.4%	0	0.0%	3	0.6%
Failure to Obey Signs/Signals/Officer	2	0.3%	0	0.0%	1	0.2%
Disregard Other Road Markings	2	0.3%	2	0.6%	3	0.6%
Other Human Factor	74	10.2%	50	14.1%	54	11.1%
Vehicular Factors:						
Defective Brakes	7	1.0%	1	0.3%	1	0.2%
Defective Tire	7	1.0%	2	0.6%	1	0.2%
Other Vehicular Factor	8	1.1%	3	1.1%	1	0.2%
Miscellaneous Factors:						
Road Surface Conditions	41	5.7%	13	3.6%	12	2.5%
Shoulders (Low, Soft, High)	10	1.4%	0	0.0%	0	0.0%
Ruts, Holes, Bumps	9	1.3%	0	0.0%	0	0.0%
Debris	8	1.1%	4	1.1%	1	0.2%
Obstruction in Roadway	5	0.7%	2	0.6%	0	0.0%
Other Factor	69	9.7%	19	5.3%	32	6.6%
Total Contributing Factors Cited	**714**	**100.0%**	**357**	**100.0%**	**483**	**100.0%**
Vehicles - "No Clear Cont. Factor"	**203**		**328**		**228**	
Total Number of Persons Involved	**718**		**644**		**603**	

Up to eight contributing factors may be associated with each driver. This may result in the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited, and may not sum to 100% due to rounding.

V. TRUCK CRASHES

This section summarizes data on crashes involving trucks, also known as commercial motor vehicles (CMVs). A crash is defined as 'truck-involved' when one or more of the vehicles involved in the crash is designated as a CMV on the police crash report, with one of the following configurations: (1) two-axle, six-tire single unit truck, (2) three-or-more-axle single unit truck, (3) single-unit truck with trailer, (4) truck tractor with no trailer, (5) truck tractor with semi-trailer, (6) truck tractor with double trailers, (7) truck tractor with triple trailers, (8) heavy truck of other or unknown type, (9) single unit pickup >10,000 GVWR or (10) a vehicle placarded for hazardous materials. A crash involving any of these vehicles is classified as a truck crash. Light pickup trucks, vans and buses are not counted as trucks in this section.

Truck crashes decrease
In 2016, there were 4,169 truck-involved traffic crashes reported to the Department of Public Safety. This represents a 1% decrease from the previous year. There were 50 fatal truck crashes, killing a total of 59 people. In addition, there were 1,229 people injured in truck-related crashes.

Fatalities and injuries are mostly in other vehicles
In two-vehicle collisions, heavier vehicles have the clear safety advantage. Only 3 of the 48 people killed in truck-involved multiple vehicle crashes were in trucks. The other 45 deaths included one farm vehicle, three motorcyclists, 41 persons in cars, SUVs, pickups, or vans. Of the 1,004 people injured, only 98 (10%) were truck occupants.

Contributing factors in truck crashes
Table 5.03 in this Section reveals that contributing factors listed by officers are very similar for truck and non-truck drivers. Just over half (51%) of contributing factors were attributed to the truck driver, and 49% to the non-truck driver. Of all contributing factors reported for truck crashes, 19% were related to road surface conditions (20% of factors attributed to truck drivers, and 19% attributed to non-truck drivers). Drivers of trucks were most frequently cited for following too closely (7%). The most commonly cited factor for non-truck drivers was failure to yield right of way (10%).

Truck crashes are workday occurrences
Truck crashes are strongly tied to the workday. In 2016, only 403 (10%) of truck crashes occurred on either a Saturday or Sunday. And, Figure 5.01 in this Section reveals that a vast majority of truck crashes occur during daytime work hours.

Driving conditions
Driving conditions can vary from day to day in Minnesota, but most truck crashes occurred on dry roads in clear weather. However, 28% of the fatal crashes and 29% of the injury crashes occurred on road surfaces reported to be wet, or to be covered with snow or slush, or with ice or packed snow.

Crash severity increases in rural areas
For this report, "rural" is defined as an area that has a population of less than 5,000. Probably because high speeds are more often possible in the rural open countryside, crashes there are more severe. Seventy-two percent of truck-related fatal and 45% of truck-related injury crashes occurred in the rural areas of Minnesota.

TABLE 5.01

TRUCK CRASH SUMMARY, 2007 – 2016*

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Crashes	**4,631**	**4,344**	**3,653**	**4,181**	**4,025**	**3,789**	**4,741**	**5,023**	**4,226**	**4,169**
Fatal Crashes	71	64	47	77	48	50	62	57	57	50
Persons Killed	90	74	58	93	51	56	67	63	62	59
Injury Crashes	1,144	1,056	889	1,005	916	870	1,042	1,047	982	920
Severe/Serious*	83	72	68	71	59	70	55	61	58	90
Moderate/Minor*	334	295	288	270	265	273	315	321	307	407
Minor/Possible*	727	689	533	664	592	527	672	665	617	423
Persons Injured	1,745	1,425	1,162	1,385	1,219	1,178	1,425	1,387	1,316	1,229
Severe/Serious*	130	89	88	90	70	86	80	76	75	116
Moderate/Minor*	508	388	359	358	323	355	419	409	379	515
Minor/Possible*	1,107	948	715	937	826	737	926	902	862	598
PDO Crashes	3,416	3,224	2,717	3,099	3,061	2,869	3,637	3,919	3,187	3,199

*Note: Injury severity definitions changed in 2016 to serious, minor, and possible. Due to this change, reported injuries at various classifications are not directly comparable to earlier years.

TABLE 5.02

PERSONS KILLED OR INJURED IN 2016 TRUCK CRASHES BY VEHICLE OCCUPIED

Vehicle Type	Killed	Serious Injuries	Minor Injuries	Possible Injuries	Total Injuries
Car	21	46	184	274	504
Pickup Truck	10	11	50	48	109
SUV	9	20	81	116	217
Van	2	7	40	39	86
Pedestrian	6	7	10	4	21
Bicycle	0	1	5	2	8
Motorcycle	3	2	12	2	16
ATV	0	0	0	1	1
Snowmobile	0	0	0	0	0
Ambulance	0	0	1	0	1
Police/Fire Vehicle	0	0	2	1	3
Working Vehicle	1	1	1	1	3
Military Vehicle	0	0	2	1	3
Farm Equipment	1	1	3	6	10
Taxicab	0	0	0	2	2
School Bus	0	0	0	0	0
Bus-Non School	0	0	1	7	8
Motorhome/RV	0	2	2	1	5
Hit and Run	0	0	1	3	4
Single Unit Truck, Two-Axle, Six-Tire	0	1	10	11	22
Single Unit Truck, Three or More Axle	0	5	8	7	20
Single Unit Truck with Trailer	1	0	24	12	36
Truck Tractor with Semi Trailer	3	9	44	39	92
Truck Tractor with Double Trailer	0	0	0	1	1
Truck >10,000 lbs, cannot classify	2	0	7	4	11
Other	0	0	5	3	8
Unknown Vehicle Type	0	3	22	13	38
Total	**59**	**116**	**515**	**598**	**1,229**

TABLE 5.03

CONTRIBUTING FACTORS IN 2016 TRUCK CRASHES

Contributing Factors	Attributed to Truck Vehicles		Attributed to Non-Truck Vehicles	
	Number	Percent	Number	Percent
Human Factors				
Following Too Closely	285	7.3%	217	5.7%
Failure to Yield Right of Way	231	5.9%	373	9.8%
Improper Turn/Merge	223	5.7%	224	5.9%
Careless/Negligent/Erratic Manner	195	5.0%	287	7.6%
Improper Lane Usage	178	4.6%	270	7.1%
Driver Distracted	159	4.1%	192	5.1%
Run Off Road	136	3.5%	21	0.6%
Driver Vision Obscured	125	3.2%	44	1.2%
Driver Swerved	115	3.0%	93	2.5%
Improper Backing	110	2.8%	12	0.3%
Work Zone	101	2.6%	104	2.7%
Driver Speeding	82	2.1%	103	2.7%
Congestion Backup - Other	70	1.8%	88	2.3%
Overcorrecting/Oversteering	65	1.7%	89	2.4%
Ran Stop Sign/Ran Red Light	57	1.5%	89	2.4%
Congestion Backup Lone Incident	50	1.3%	57	1.5%
Disregard Other Traffic Signs	38	1.0%	45	1.2%
Congestion Backup Due to Prior Crash	30	0.8%	51	1.3%
Improper Passing/Passing on Shoulder	30	0.7%	124	3.3%
Disregard Road Markings	15	0.4%	22	0.6%
Reckless/Aggressive Manner	10	0.3%	16	0.4%
Wrong Side or Wrong Way	7	0.2%	38	1.0%
Traffic Control Device Inoperative/Missing	3	0.1%	4	0.1%
HOV/HOT/MnPass/Carpool/Toll Lane	1	0.0%	1	0.0%
Other Human Factor	382	9.8%	319	8.4%
Vehicular Factors				
Defective Brakes	67	1.7%	21	0.6%
Truck Coupling/Trailer Hitch/Wheels	26	0.6%	6	0.2%
Defective Susp/Steering/Power Trn/Body	15	0.4%	4	0.1%
Miscellaneous Factors				
Road Surface Conditions	788	20.3%	702	18.5%
Oversize/Overweight Trucks	43	1.1%	4	0.1%
Shoulders (Low/Soft/High)	25	0.6%	8	0.2%
Ruts, Holes, Bumps/Debris/Obstruction	14	0.4%	18	0.5%
Other	215	5.5%	141	3.7%
Total Contributing Factors Cited	**3,891**	**100.0%**	**3,787**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**1,591**		**1,231**	
Total Number Persons Involved	**4,222**		**3,353**	

Up to eight contributing factors may be associated with each vehicle. This may result in the sum of the factors cited to differ from the number of vehicles. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. Bicyclists and pedestrians are included in the "non-truck vehicles" columns in this table.

TABLE 5.04

AGE OF TRUCK DRIVERS IN 2016 CRASHES

Driver Age	Truck or Truck Tractor	Truck with Semi-Trailer	Truck with Twin Trailer	Truck with Other Trailer	Total
14 & younger	1	0	0	0	1
15 - 19	27	2	0	8	37
20 - 24	127	71	0	32	230
25 - 29	168	153	3	52	376
30 - 34	175	182	4	73	434
35 - 39	199	181	0	56	436
40 - 44	157	164	3	70	394
45 - 49	208	236	3	77	524
50 - 54	204	249	5	81	539
55 - 59	208	259	4	97	568
60 - 64	134	204	1	50	389
65 & Older	86	136	1	58	281
Not Stated	2	2	0	1	5
Total*	**1,696**	**1,839**	**24**	**655**	**4,214**

* There were 4,255 trucks involved in 2016 crashes. Table 5.04 tabulates the ages of drivers for the 4,214 trucks where it was possible to identify a driver.

TABLE 5.05

DRIVERS IN 2016 TRUCK CRASHES BY PHYSICAL CONDITION*

	Truck Drivers		Other Drivers	
Physical Condition	**Number**	**Percent**	**Number**	**Percent**
Apparently Normal	4,092	94.6%	3,202	91.3%
Physical Disability	1	0.0%	6	0.2%
Medical Issue	15	0.3%	19	0.5%
Emotional	4	0.1%	8	0.2%
Asleep or Fatigued	36	0.8%	52	1.5%
Had Been Drinking Alcohol	10	0.2%	43	1.2%
Had Been Taking Illicit Drugs	0	0.0%	12	0.3%
Had Been Taking Medications	2	0.0%	10	0.3%
Other	17	0.4%	18	0.5%
Unknown	148	3.4%	136	3.9%
Total **	**4,325**	**100.0%**	**3,506**	**100.0%**

* As noted by police officer on crash report.

** There were 4,255 trucks involved in 2016 crashes. This table tabulates the apparent physical condition of drivers for the 4,214 trucks where it was possible to identify a driver. Officers have the opportunity to document one or two physical condition factors for drivers, so total counts may be greater than the number of drivers.

TABLE 5.06

2016 TRUCK CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	40	726	2,294	3,060	48	1,004
Parked Motor Vehicle	2	16	203	221	2	24
Bicycle	0	8	1	9	0	8
Pedestrian	5	14	0	19	6	16
Deer	0	0	6	6	0	0
Other Animal	0	1	11	12	0	1
Railroad Train	1	1	4	6	1	1
Set in Motion by MV	0	6	13	19	0	11
Fixed Object	2	49	440	491	2	62
Non-Collision:						
Overturn/Rollover	0	85	112	197	0	86
Submersion	0	0	3	3	0	0
Fire/Explosion	0	0	3	3	0	0
Other Non-Collision	0	14	109	123	0	16
Total	**50**	**920**	**3,199**	**4,169**	**59**	**1,229**

TABLE 5.07

2016 TRUCK CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
January	4	67	255	326	4	85
February	2	69	253	324	2	92
March	2	59	186	247	2	87
April	1	58	204	263	1	74
May	2	67	255	324	2	79
June	5	66	265	336	6	90
July	4	99	257	360	6	135
August	5	89	310	404	5	113
September	6	90	258	354	8	118
October	8	89	286	383	9	119
November	5	78	304	387	7	108
December	6	89	366	461	7	129
Total	**50**	**920**	**3,199**	**4,169**	**59**	**1,229**

TABLE 5.08

2016 TRUCK CRASHES BY TIME AND DAY

Time of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Midnight - 2:59 AM	9	15	17	14	18	18	14	105
3:00 - 5:59 AM	16	24	26	19	20	24	15	144
6:00 - 8:59 AM	30	133	162	174	141	153	32	825
9:00 - 11:59 AM	24	168	167	167	181	178	50	935
Noon - 2:59 PM	30	159	162	146	174	175	51	897
3:00 - 5:59 PM	31	136	140	160	145	157	29	798
6:00 - 8:59 PM	20	46	58	65	47	51	19	306
9:00 - 11:59 PM	19	33	27	23	19	24	14	159
Total	**179**	**714**	**759**	**768**	**745**	**780**	**224**	**4,169**

FIGURE 5.01

2016 TRUCK CRASHES BY TIME OF DAY

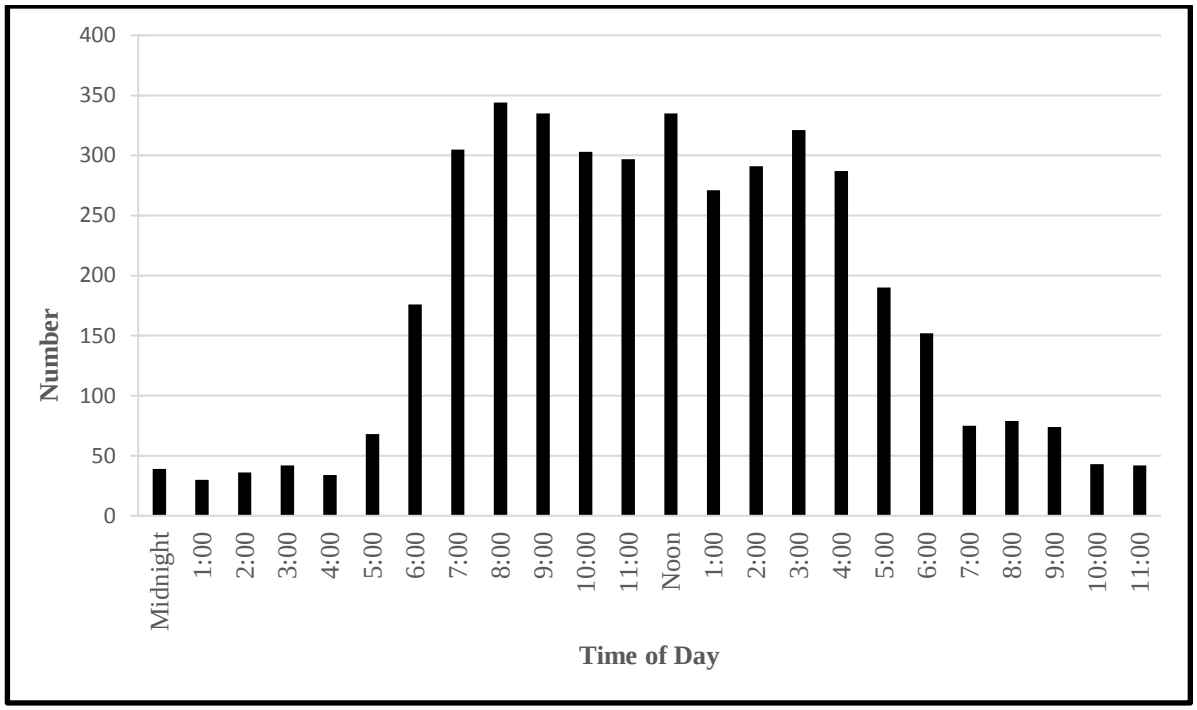

TABLE 5.09

2016 TRUCK CRASHES BY ROAD SURFACE CONDITION

Road Surface Condition	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Dry	35	645	2,198	2,878	41	868
Wet	6	130	389	525	8	168
Snow	2	63	265	330	2	75
Slush	2	7	47	56	3	9
Ice/Frost	4	63	252	319	4	96
Water Standing/Moving	0	2	2	4	0	2
Mud, Dirt, Gravel	1	7	21	29	1	8
Debris	0	0	1	1	0	0
Sand	0	0	2	2	0	0
Ruts, Holes, Bumps	0	0	2	2	0	0
Other	0	0	6	6	0	0
Unknown	0	3	14	17	0	3
Total	**50**	**920**	**3,199**	**4,169**	**59**	**1,229**

TABLE 5.10

2016 TRUCK CRASHES BY WEATHER CONDITIONS CITED*

Weather Condition	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Clear	29	542	1,866	2,437	35	731
Cloudy	18	245	872	1,135	20	328
Rain	2	66	214	282	4	86
Snow	3	73	273	349	4	93
Sleet/Hail	0	21	39	60	0	25
Fog/Smog/Smoke	0	11	18	29	0	20
Blowing Sand/Soil/Dirt	1	35	156	192	1	39
Severe Crosswinds	2	15	43	60	2	20
Other Weather	1	12	34	47	1	13
Unknown	2	8	41	51	2	9
Total	**58**	**1,028**	**3,556**	**4,642**	**69**	**1,364**

*Officers may report up to two weather conditions so the totals will be greater than number of crashes, injuries, and fatalities.

TABLE 5.11

2016 TRUCK CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
250,000 & Over	2	111	556	669	0	0
100,000 - 249,999	0	11	40	51	0	0
50,000 - 99,999	5	138	534	677	0	0
25,000 - 49,999	2	83	371	456	0	0
10,000 - 24,999	4	109	456	569	0	0
5,000 - 9,999	1	51	158	210	0	0
2,500 - 4,999	1	38	158	197	0	0
1,000 - 2,499	7	44	149	200	7	54
Under 1,000	28	335	777	1,140	52	1,175
Total	**50**	**920**	**3,199**	**4,169**	**59**	**1,229**

TABLE 5.12

2016 TRUCK CRASHES BY TYPE OF ROADWAY

Roadway Type	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Interstate	7	219	838	1,064	9	284
US Trunk Hwy	11	168	402	581	12	246
MN Trunk Hwy	12	184	461	657	15	256
County State Aid Hwy	11	162	457	630	12	208
County Road	2	11	53	66	3	12
Township Road	3	24	48	75	4	31
Municipal State Aid Hwy	3	61	343	407	3	80
Municipal Street	1	50	395	446	1	65
Other Road	0	41	202	243	0	47
Total	**50**	**920**	**3,199**	**4,169**	**59**	**1,229**

VI: PEDESTRIAN CRASHES

This section deals with motor vehicle crashes that injure or kill pedestrians. Prior to 1984, a crash was defined as a pedestrian crash only if the pedestrian was the first "object" struck by a motor vehicle. Since 1984, a pedestrian crash is defined as any crash where a pedestrian is struck and injured or killed.

Pedestrian crashes increase
In 2016, there were 1,072 crashes in which at least one pedestrian was injured or killed by a motor vehicle. This represents an 18 percent increase from the previous year. Pedestrian crashes were at their highest level since 1991 when 61 pedestrians were killed on Minnesota roads.

Deaths and injuries increase
In 2016, 60 pedestrians were killed, 19 more than in 2015. In addition, 1,037 pedestrians were injured, a 15 percent increase from the previous year. Slightly over five percent of all pedestrian crashes resulted in a death, compared to one-half of 1% of all traffic crashes resulting in a death.

Males at greater risk
In 2016, persons less than 25 years of age accounted for 25% of the pedestrians killed and 39% of pedestrians injured. Male pedestrians were more likely than females to be killed. Males accounted for 55% of all pedestrian fatalities and 45% of all pedestrian injuries.

Urban/rural areas and time of day
In 2016, 89% of pedestrian crashes occurred in urban areas (defined as areas with populations over 5,000). About one-third (32%) of pedestrian crashes occurred during the weekday rush hour driving time periods - the rush hour driving time period is defined as Monday through Friday 6:00-9:00 a.m. and 3:00-6:00 p.m. One out of every four (27%) pedestrian fatal crashes occurred during the late night hours 9:00 p.m.-3:00 a.m.

Prior actions of vehicles
Over half (51%) of all motor vehicles involved in pedestrian injury crashes and 69% involved in fatal pedestrian crashes in 2016 were moving forward on the roadway prior to the crash. One-third (30%) of all motor vehicles involved in pedestrian crashes were making a right or left turn.

Prior actions of pedestrians
Fifty percent of pedestrians killed and 65% of pedestrians injured were walking across traffic in the roadway.

Contributing factors
Darting/dashing into the roadway was the most frequently cited contributing factor for pedestrians (20%). For motor vehicle drivers, failure to yield right of way was reported most prevalent (17%). Of all contributing factors reported, 42% were attributed to pedestrians, and 58% attributed to motor vehicle drivers.

TABLE 6.01

PEDESTRIAN CRASH SUMMARY, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pedestrian Crashes	957	860	883	808	857	878	868	818	911	1,072
Pedestrians Killed	33	25	41	36	40	40	35	17	41	60
Pedestrians Injured	975	867	880	824	859	874	867	837	904	1,037

TABLE 6.02

PEDESTRIAN CRASHES BY ROUTE SYSTEM, 2007 - 2016

Route System	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Interstate	7	7	12	8	19	10	10	12	18	9
US Trunk Hwy	51	52	35	35	36	42	41	34	31	35
MN Trunk Hwy	92	92	101	82	75	82	87	79	86	73
CSAH	294	259	272	253	278	280	267	260	231	208
County Road	11	4	4	8	5	4	6	2	4	11
Township Road	8	5	1	1	4	4	3	6	2	14
Local Road	470	437	441	413	423	447	443	411	531	668
Other	22	4	13	4	15	6	11	12	7	54
Unknown	2	0	4	4	2	3	0	2	1	0
Total	**957**	**860**	**883**	**808**	**857**	**878**	**868**	**818**	**911**	**1,072**

TABLE 6.03

PEDESTRIANS KILLED OR INJURED BY AGE AND GENDER, 2016

	Killed			Serious Injuries			Minor Injuries			Possible Injuries			Total Injuries		
Age Group	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total**	**M**	**F**	**Total***
00 - 04	0	0	0	4	6	10	6	6	12	1	4	5	11	16	27
05 - 09	2	0	2	7	4	12	21	8	29	9	9	18	37	21	59
10 - 14	0	1	1	6	9	15	23	16	39	12	14	26	41	39	80
15 - 19	2	2	4	11	12	23	22	35	57	22	17	39	55	64	119
20 - 24	4	4	8	12	7	20	43	24	67	17	12	29	72	43	116
25 - 29	4	0	4	10	4	14	22	13	36	13	11	24	45	28	74
30 - 34	1	2	3	3	6	9	23	16	39	16	14	30	42	36	78
35 - 39	3	2	5	7	7	14	16	16	32	8	10	18	31	33	64
40 - 44	0	0	0	4	4	8	10	17	28	9	9	18	23	30	54
45 - 49	2	0	2	8	5	13	14	15	29	11	6	17	33	26	59
50 - 54	2	1	3	2	6	8	14	11	25	11	9	20	27	26	53
55 - 59	2	4	6	10	8	18	15	14	29	15	7	22	40	29	69
60 - 64	2	2	4	7	4	11	9	16	25	9	6	15	25	26	51
65 - 69	4	0	4	2	3	5	13	13	26	10	2	12	25	18	43
70 - 74	1	2	3	3	2	5	4	10	14	5	5	10	12	17	29
75 - 79	2	2	4	2	5	7	2	3	5	1	3	4	5	11	16
80 - 84	0	0	0	1	2	3	4	3	7	2	2	4	7	7	14
85 & Older	2	5	7	3	1	4	5	2	7	2	3	5	10	6	16
Unknown	0	0	0	3	0	6	1	1	5	2	1	5	6	2	16
Total	**33**	**27**	**60**	**105**	**95**	**205**	**267**	**239**	**511**	**175**	**144**	**321**	**547**	**478**	**1,037**

* Within column categories, where rows do not add across, gender was not stated on crash report.

FIGURE 6.01

PEDESTRIAN FATALITIES BY AGE GROUP, 2007 - 2016 COMBINED

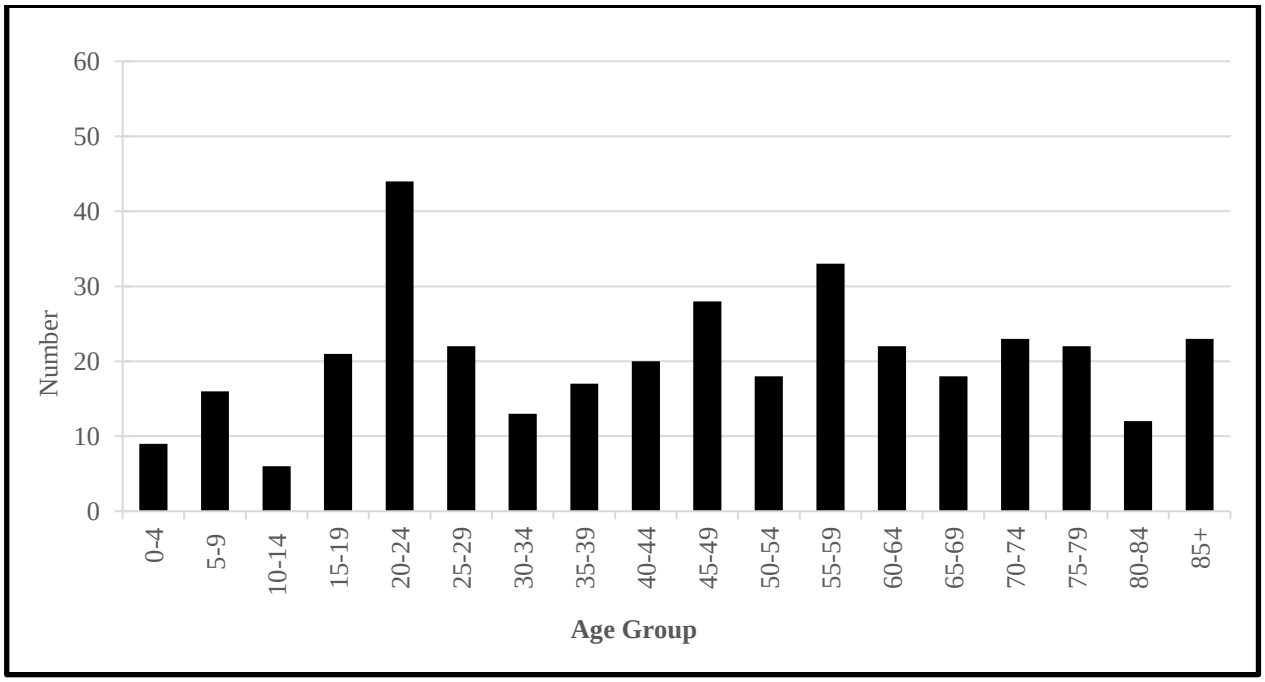

FIGURE 6.02

PEDESTRIANS KILLED OR INJURED BY AGE AND GENDER, 2016

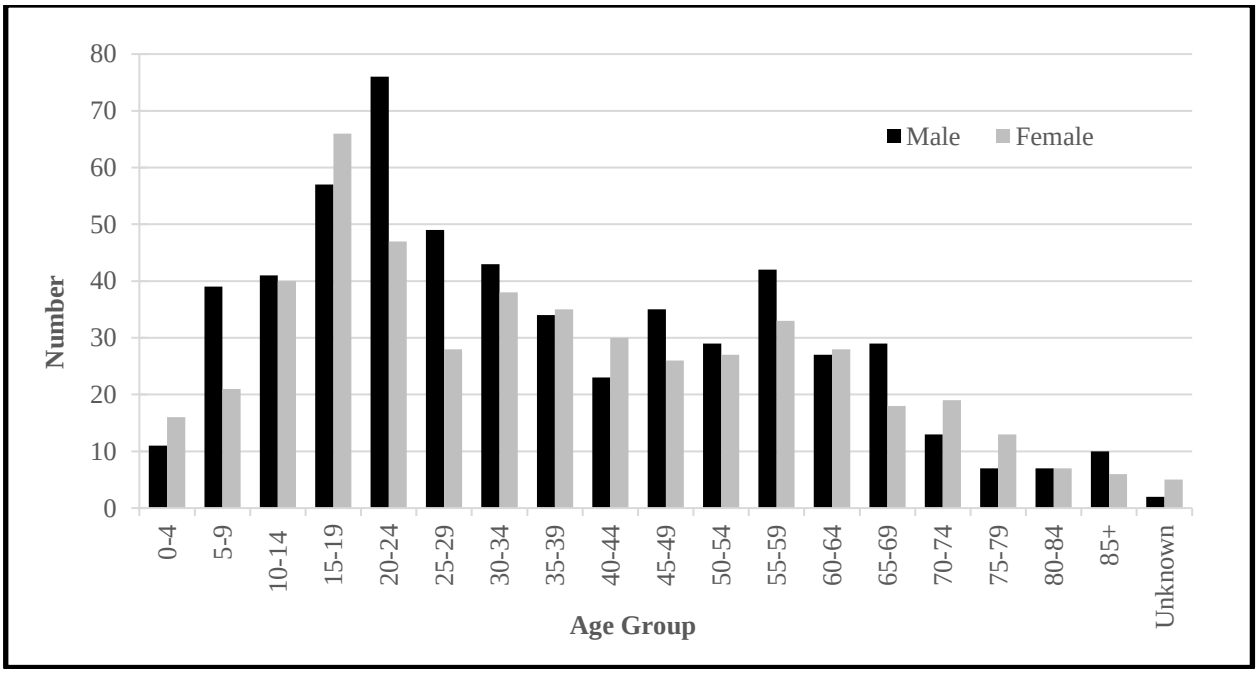

TABLE 6.04

2016 PEDESTRIAN CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Total Crashes	Killed	Injured
January	1	67	68	1	67
February	5	64	69	5	65
March	6	74	80	6	83
April	3	70	73	3	71
May	5	71	76	5	71
June	4	88	92	4	89
July	3	81	84	3	86
August	4	90	94	4	92
September	5	102	107	6	103
October	12	105	117	12	108
November	7	124	131	7	123
December	4	77	81	4	79
Total	**59**	**1,013**	**1,072**	**60**	**1,037**

TABLE 6.05

2016 PEDESTRIAN CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	Total Crashes	Pedestrians Killed	Pedestrians Injured
250,000 and Over	13	497	510	13	505
100,000 - 249,999	1	13	14	1	13
50,000 - 99,999	12	139	151	12	150
25,000 - 49,999	5	91	96	5	95
10,000 - 24,999	7	138	145	7	140
5,000 - 9,999	3	33	36	3	34
2,500 - 4,999	2	34	36	2	34
1,000 - 2,499	2	12	14	2	11
Under 1,000	14	56	70	15	55
Total	**59**	**1,013**	**1,072**	**60**	**1,037**

TABLE 6.06

2016 PEDESTRIAN CRASHES BY TIME AND DAY

Time of Day	Fatal Crashes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Mid - 2:59 AM	7	18	2	8	4	9	4	10	55
3:00 - 5:59 AM	8	6	3	4	4	3	6	3	29
6:00 - 8:59 AM	8	2	26	25	17	30	19	8	127
9:00 - 11:59 AM	2	8	12	19	18	17	18	15	107
Noon - 2:59 PM	5	15	28	29	17	25	24	16	154
3:00 - 5:59 PM	10	22	52	45	34	44	48	22	267
6:00 - 8:59 PM	10	16	32	34	43	27	34	22	208
9:00 - 11:59 PM	9	18	8	18	16	23	24	18	125
Total	**59**	**105**	**163**	**182**	**153**	**178**	**177**	**114**	**1,072**

FIGURE 6.03

2016 PEDESTRIAN CRASHES BY TIME OF DAY

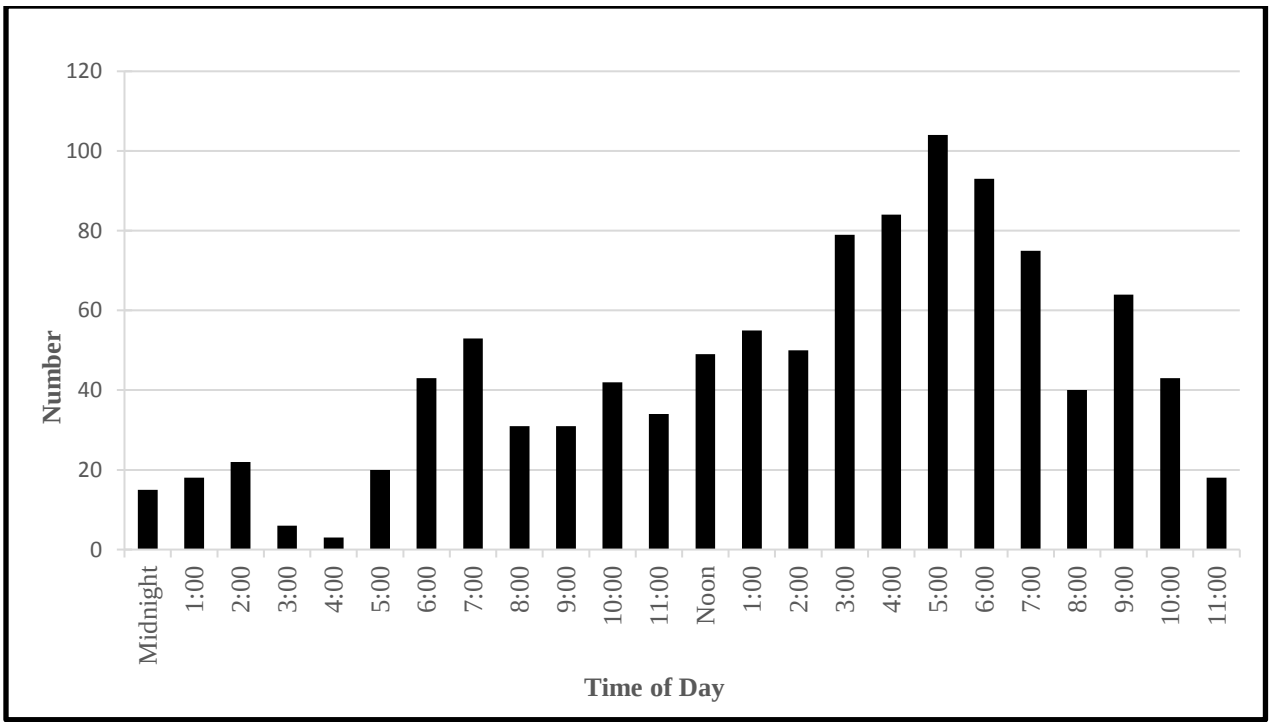

TABLE 6.07

PRIOR ACTION OF VEHICLES IN 2016 PEDESTRIAN CRASHES

Action	Vehicles in Fatal Crashes	Vehicles in Injury Crashes	Vehicles in All Crashes
Entering/Leaving Parked Position	2	45	47
Moving Forward	47	543	590
Turning Right	1	93	94
Turning Left	7	243	250
Making a U Turn	0	2	2
Slowing	0	14	14
Swerved/Attempt to Avoid Object	3	14	17
Changing Lanes	0	2	2
Overtaking/Passing	0	6	6
Entering Traffic Lane	0	5	5
Negotiating a Curve	0	3	3
Backing	1	52	53
Vehicle Stopped/Stalled in Roadway	2	23	25
Other	0	5	5
Unknown	5	36	41
Total*	**68**	**1,086**	**1,154**

* The number of vehicles in total crashes exceeds the number of crashes because some crashes involved more than one vehicle.

TABLE 6.08

PRIOR ACTION OF PEDESTRIANS KILLED OR INJURED IN 2016

Action	Number Pedestrians Killed	Percent Pedestrians Killed	Number Pedestrians Injured	Percent Pedestrians Injured
Walking Across Traffic/Roadway	30	50.0%	670	64.6%
Standing/Stopped	4	6.7%	62	6.0%
Walking With Traffic	4	6.7%	76	7.3%
Walking Against Traffic	2	3.3%	28	2.7%
Walking on Sidewalk	2	3.3%	36	3.5%
In Roadway (Working, Playing, etc.)	7	11.7%	59	5.7%
Adjacent to Roadway (Shoulder, Median, etc.)	4	6.7%	13	1.3%
Going to or From School	0	0.0%	3	0.3%
Going to or From School Bus	1	1.7%	4	0.4%
Working in Traffic/Roadway	0	0.0%	12	1.2%
Going to or From Public Transit	0	0.0%	5	0.5%
Other Pedestrian Action	0	0.0%	50	4.8%
Unknown	6	10.0%	19	1.8%
Total*	**60**	**100.0%**	**1,037**	**100.0%**

* Percent totals may not sum to 100% due to rounding.

TABLE 6.09

CONTRIBUTING FACTORS IN 2016 PEDESTRIAN CRASHES

Contributing Factors	Number Attributed to Pedestrians	Percent Attributed to Pedestrians	Number Attributed to Motor Vehicle Drivers	Percent Attributed to Motor Vehicle Drivers
Human Factors				
Dart/Dash	149	20.3%	0	0.0%
In Roadway Improperly/Disabled Veh	94	12.8%	0	0.0%
Failure to Obey Traffic Signs/Offcr	75	10.2%	9	0.9%
Not Visible	60	8.2%	0	0.0%
Failure to Yield Right of Way	57	7.8%	169	16.8%
Inattention/Distraction	27	3.7%	0	0.0%
Congestion Backup Related	14	1.9%	12	1.2%
Wrong Way Riding/Walking	11	1.5%	0	0.0%
Enter/Exit Parked/Standing Vehicle	8	1.1%	0	0.0%
Improper Turn/Merge	6	0.8%	15	1.5%
Improper Passing	4	0.5%	10	1.0%
Driver Distracted	4	0.5%	75	7.5%
Traffic Control Device Issue	1	0.1%	1	0.1%
Operated Vehicle Careless/Reckless	1	0.1%	105	10.5%
Following Too Closely	0	0.0%	8	0.8%
Improper Backing	0	0.0%	20	2.0%
Vision Obscured	0	0.0%	110	11.0%
Run Off Road	0	0.0%	10	1.0%
Ran Red Light/Ran Stop Sign	0	0.0%	12	1.2%
Wrong Side or Wrong Way	0	0.0%	1	0.1%
Improper Lane Usage	0	0.0%	10	1.0%
Driver Swerved	0	0.0%	17	1.7%
Overcorrecting/Oversteering	0	0.0%	9	0.9%
Passing on Shoulder	0	0.0%	1	0.1%
Driver Speeding	0	0.0%	2	0.2%
Other Human Factors	89	12.1%	148	14.8%
Vehicular Factors				
Defective Brakes	0	0.0%	4	0.4%
Truck Coupling/Trailer Hitch	0	0.0%	4	0.4%
Miscellaneous Factors				
Road Surface Conditions/Shoulders	106	14.5%	118	11.8%
Other/Unknown	27	3.7%	124	12.4%
Total Contributing Factors Cited	**733**	**100.0%**	**1,003**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**434**		**395**	
Total Number of Persons Involved	**1,219**		**1,338**	

Up to eight contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding.

TABLE 6.10

PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION, 2007 - 2016

			Alcohol Concentration*			
Year	**Killed**	**Tested**	**(.00)**	**(.01 - .07)**	**(.08 - .09)**	**(.10 or more)**
2007	33	18	9 (50%)	1 (6%)	0 (0%)	8 (44%)
2008	25	20	11 (55%)	0 (0%)	0 (0%)	9 (45%)
2009	41	33	22 (67%)	0 (0%)	1 (3%)	10 (30%)
2010	36	29	19 (66%)	0 (0%)	0 (0%)	10 (34%)
2011	40	33	21 (64%)	3 (9%)	0 (0%)	9 (27%)
2012	40	22	16 (73%)	0 (0%)	0 (0%)	6 (27%)
2013	35	31	15 (48%)	3 (10%)	0 (0%)	13 (42%)
2014	17	10	6 (60%)	0 (0%)	0 (0%)	4 (40%)
2015	41	30	20 (67%)	0 (0%)	0 (0%)	10 (33%)
2016	60	49	29 (59%)	2 (4%)	0 (0%)	18 (37%)

* The percentage figures shown are based on the number of fatally injured pedestrians who were tested for alcohol concentration. (The law requires testing of all drivers and pedestrians, 16 years of age or older, who die within four hours as a result of a motor vehicle crash.)

TABLE 6.11

2016 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

			Alcohol Concentration			
Age Group	**Killed**	**Tested**	**(.00)**	**(.01 - .07)**	**(.08 - .09)**	**(.10 or more)**
< 15	3	0	0	0	0	0
15 - 19	4	4	3	0	0	1
20 - 24	8	6	1	0	0	5
25 - 29	4	4	1	1	0	2
30 - 34	3	2	1	0	0	1
35 - 39	5	5	2	1	0	2
40 - 44	0	0	0	0	0	0
45 - 49	2	2	1	0	0	1
50 - 54	3	3	1	0	0	2
55 - 59	6	6	3	0	0	3
60 - 64	4	3	3	0	0	0
65 - 69	4	4	3	0	0	1
70 - 74	3	2	2	0	0	0
75 - 79	4	3	3	0	0	0
80 - 84	0	0	0	0	0	0
85 & Older	7	5	5	0	0	0
Total	**60**	**49**	**29**	**2**	**0**	**18**

TABLE 6.12

2016 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TIME OF DAY

			Alcohol Concentration			
Time of Day	**Killed**	**Tested**	**(.00)**	**(.01 - .07)**	**(.08 - .09)**	**(.10 or more)**
Mid - 2:59 AM	7	7	1	0	0	6
3:00 - 5:59 AM	8	7	3	1	0	3
6:00 - 8:59 AM	9	6	6	0	0	0
9:00 - 11:59 AM	2	2	1	0	0	1
Noon - 2:59 PM	5	4	3	0	0	1
3:00 - 5:59 PM	10	9	8	0	0	1
6:00 - 8:59 PM	10	5	2	0	0	3
9:00 - 11:59 PM	9	9	5	1	0	3
Total	**60**	**49**	**29**	**2**	**0**	**18**

VII: BICYCLE CRASHES

Bicycles are subject to the same traffic laws as motor vehicles, but bicycle crashes are reported to the Minnesota Department of Public Safety only if they involve collision with a motor vehicle. Therefore, this section represents only a portion of the total number of bicycle crashes.

Bicycle crashes increase
In 2016, there was an 11% decrease in bicycle crashes from the previous year - there were 798 bicycle crashes in 2016, compared to 898 bicycle crashes in 2015.

Fatalities and injuries increase
In 2016, 755 bicyclists were injured compared to 873 injured bicyclists in 2015, a 14% decrease. Bicyclist fatalities reduced from 10 in 2015 to 7 in 2016.

Warm weather
Bicycle crashes are mostly a warm weather occurrence. However, in 2016, one of the seven bicyclist fatalities occurred in March. The other six occurred in the summer months of June, July, and August.

Time of day and day of week
Seventy-five percent of bicycle crashes occurred during the weekdays of Monday thru Friday. Of these weekday crashes, 31% occurred during the afternoon rush hours 3:00pm-6:00pm. These same hours represented the largest proportion of weekend bicycle crashes at 25%.

Big cities
Generally, traffic crashes involving a bicycle and a motor vehicle tend to occur in areas with larger populations. Over nine out of ten (94%) bicycle crashes and 71% of fatal bicycle crashes occurred in cities where the population was over 5,000 people.

Males injured most often
Males were nearly three times more likely than females to be injured in a bicycle crash. In 2016, 542 male bicyclists (72%) were injured compared with 163 female bicyclists (22%).

Age
Of the 755 bicyclists injured in 2016, over two in five (43%) were less than 25 years of age.

Prior action of bicyclists
Nearly half (46%) of bicyclists in all crashes were cycling across traffic before the crash. Twenty-three percent of bicyclists were cycling with traffic prior to the crash. Only 6% of all crash involved bicyclists were riding against traffic.

Contributing factors
Failure to obey traffic signs/signals was reported as the most common contributing factor for bicyclists (21%). Failure to yield right of way was the second most frequently cited contributing factor for bicyclists (19%). For other drivers, failure to yield right of way was listed most at 29%. Obscured vision (12%) was listed the second most often for other drivers. Nearly half (49%) of all contributing factors cited were attributed to bicyclists.

TABLE 7.01

BICYCLE CRASH SUMMARY, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bicycle Crashes	1,020	981	957	898	963	920	862	776	898	798
Bicyclists Killed	4	13	10	9	5	7	6	5	10	7
Bicyclists Injured	979	942	963	882	937	875	822	755	873	755

TABLE 7.02

2016 BICYCLE CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
January	0	17	1	18	0	17
February	0	14	0	14	0	14
March	1	26	2	29	1	27
April	0	47	1	48	0	48
May	0	98	7	105	0	100
June	1	111	6	118	1	111
July	2	90	5	97	2	91
August	3	124	3	130	3	123
September	0	92	4	96	0	92
October	0	67	3	70	0	66
November	0	54	6	60	0	55
December	0	11	2	13	0	11
Total	**7**	**751**	**40**	**798**	**7**	**755**

FIGURE 7.01

2016 BICYCLE CRASHES BY TIME OF DAY

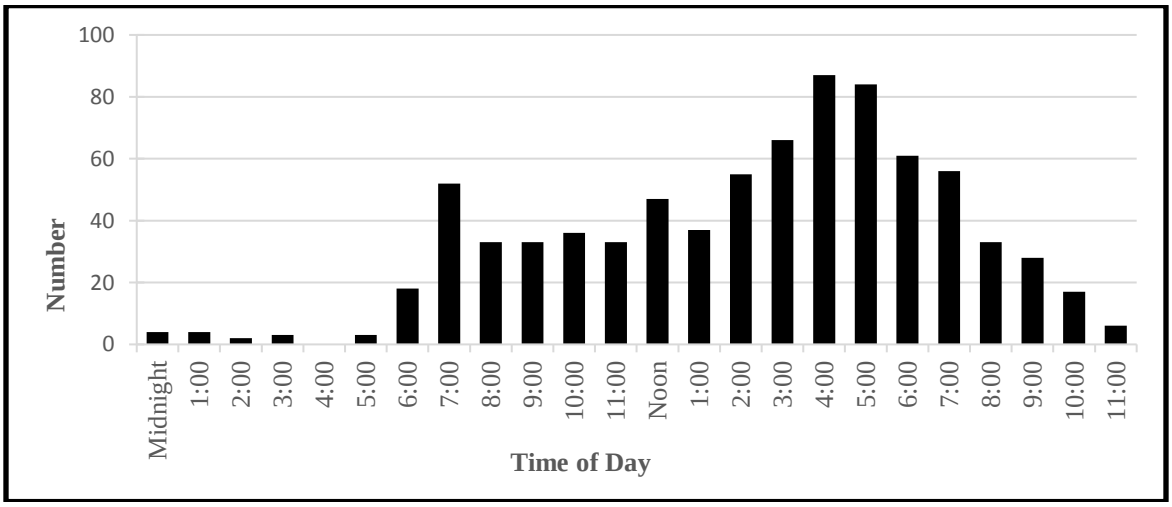

TABLE 7.03
2016 BICYCLE CRASHES BY TIME AND DAY

Time of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Mid - 2:59 AM	4	1	0	1	0	2	2	10
3:00 - 5:59 AM	0	0	1	1	1	2	1	6
6:00 - 8:59 AM	6	18	20	22	20	10	7	103
9:00 - 11:59 AM	13	15	12	12	12	18	20	102
Noon - 2:59 PM	20	21	11	18	20	28	21	139
3:00 - 5:59 PM	22	29	40	41	29	49	27	237
6:00 - 8:59 PM	17	30	20	14	19	25	25	150
9:00 - 11:59 PM	9	9	10	5	9	3	6	51
Total	**91**	**123**	**114**	**114**	**110**	**137**	**109**	**798**

TABLE 7.04
2016 BICYCLE CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Bicyclists Killed	Bicyclists Injured
250,000 and Over	1	308	22	331	1	310
100,000 - 249,999	1	20	3	24	1	21
50,000 - 99,999	0	118	3	121	0	117
25,000 - 49,999	0	93	2	95	0	95
10,000 - 24,999	1	120	8	129	1	121
5,000 - 9,999	2	46	1	49	2	46
2,500 - 4,999	0	15	0	15	0	15
1,000 - 2,499	0	14	1	15	0	13
Under 1,000	2	17	0	19	2	17
Total	**7**	**751**	**40**	**798**	**7**	**755**

FIGURE 7.02
BICYCLISTS KILLED OR INJURED BY AGE AND GENDER, 2016

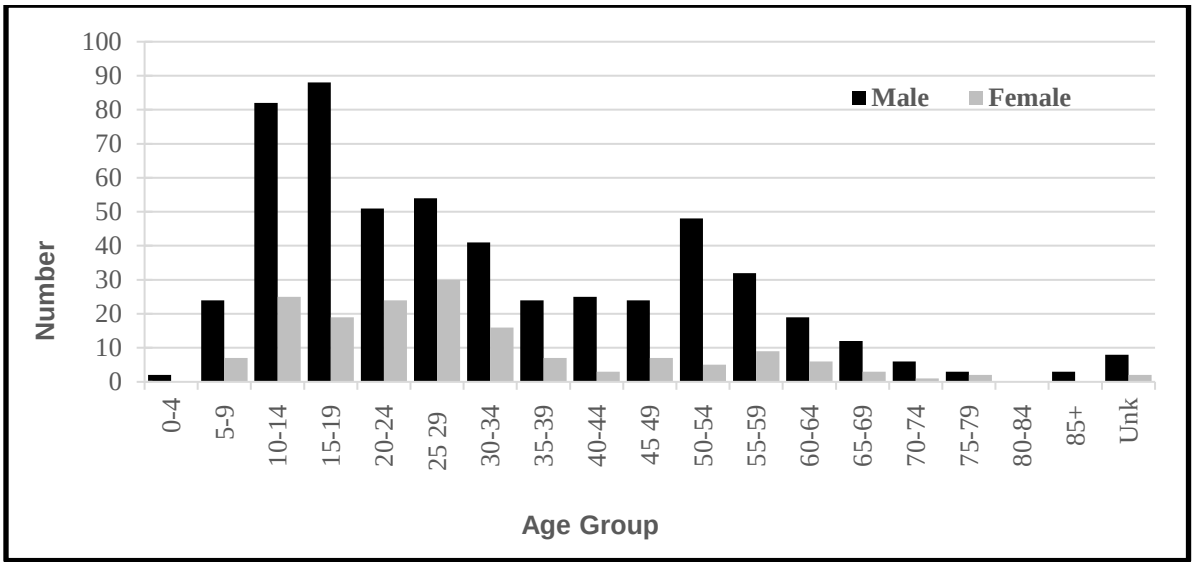

TABLE 7.05

BICYCLISTS KILLED OR INJURED BY AGE AND GENDER, 2016

	Killed			Serious Injuries			Minor Injuries			Possible Injuries			Total Injuries		
Age Group	**M**	**F**	**Total***	**M**	**F**	**Total***	**M**	**F**	**Total***	**M**	**F**	**Total***	**M**	**F**	**Total***
00 - 04	0	0	0	1	0	1	1	0	1	0	0	0	2	0	2
05 - 09	0	1	1	1	0	1	18	3	21	5	3	8	24	6	30
10 - 14	2	0	2	10	7	17	47	10	58	23	8	31	80	25	106
15 - 19	0	0	0	6	1	7	64	13	77	18	5	25	88	19	109
20 - 24	1	0	1	5	1	6	26	15	44	19	8	28	50	24	78
25 - 29	0	0	0	5	5	10	31	18	51	18	7	25	54	30	86
30 - 34	0	0	0	7	2	10	23	7	30	11	7	20	41	16	60
35 - 39	0	0	0	2	0	2	16	4	22	6	3	9	24	7	33
40 - 44	0	0	0	1	1	2	11	0	13	13	2	16	25	3	31
45 - 49	0	0	0	5	1	6	13	4	20	6	2	8	24	7	34
50 - 54	1	1	2	4	0	4	28	2	32	15	2	18	47	4	54
55 - 59	0	0	0	6	1	8	17	4	21	9	4	14	32	9	43
60 - 64	0	0	0	0	0	1	9	5	16	10	1	11	19	6	28
65 - 69	0	0	0	3	1	4	7	1	8	2	1	3	12	3	15
70 - 74	0	1	1	1	0	1	5	0	6	0	0	1	6	0	8
75 & Older	0	0	0	2	1	3	2	0	4	2	1	3	6	2	10
Not Stated	0	0	0	1	0	3	4	1	15	3	1	10	8	2	28
Total	**4**	**3**	**7**	**60**	**21**	**86**	**322**	**87**	**439**	**160**	**55**	**230**	**542**	**163**	**755**

* Within columns, where numbers do not add across to total, gender was not stated on the crash report.

TABLE 7.06

PRIOR ACTION OF BICYCLISTS INVOLVED IN 2016 CRASHES

Action	**Bicyclists in Fatal Crashes**	**Bicyclists in Injury Crashes**	**Bicyclists in PDO Crashes**	**Bicyclists in All Crashes***
Cycling Across Traffic	4	347	19	370
Cycling with Traffic	1	165	16	182
Cycling Against Traffic	0	45	0	45
Cycling on Sidewalk	0	105	4	109
Standing/Stopped	0	6	0	6
In Roadway - Other	1	31	2	34
Adjacent to Roadway	0	13	0	13
Other/Unknown	1	43	4	48
Total	**7**	**755**	**45**	**807**

* The total number of bicyclist actions may exceed the number of bicycle crashes because some crashes involved more than one bicycle.

TABLE 7.07

CONTRIBUTING FACTORS IN 2016 BICYCLE CRASHES

Contributing Factors	Number Attributed to Bicyclists	Percent Attributed to Bicyclists	Number Attributed to Motor Vehicle Drivers	Percent Attributed to Motor Vehicle Drivers
Human Factors				
Failure to Obey Traffic Signs/Signals/Officer	102	21.4%	12	2.4%
Failure to Yield Right of Way	88	18.5%	145	29.4%
Dart/Dash	60	12.6%	0	0.0%
Wrong Way Riding or Walking	35	7.4%	3	0.6%
Not Visible	28	5.9%	0	0.0%
Distraction/Inattention	16	3.4%	36	7.3%
In Roadway Improperly	11	2.3%	0	0.0%
Improper Turn/Merge	9	1.9%	15	3.0%
Improper Passing	6	1.3%	2	0.4%
Congestion Backup Lone Incident	3	0.6%	4	0.8%
Congestion Backup - Other	3	0.6%	4	0.8%
Entering/Exiting Parked/Standing Vehicle	2	0.4%	0	0.0%
Congestion Backup Due to Prior Crash	1	0.2%	1	0.2%
Following Too Closely	0	0.0%	5	1.0%
Vision Obscured	0	0.0%	61	12.4%
Ran Red Light/Ran Stop Sign	0	0.0%	13	2.6%
Failed to Keep in Proper Lane	0	0.0%	1	0.2%
Careless/Negligent/Erratic Manner	0	0.0%	24	4.9%
Driver Swerved	0	0.0%	1	0.2%
Driver Speeding	0	0.0%	5	1.0%
Other Human Factors	64	13.4%	68	13.8%
Vehicular Factors				
Defective Brakes	0	0.0%	1	0.2%
Miscellaneous Factors				
Road Surface Condition	27	5.7%	29	5.9%
Shoulders (Low/Soft/High)	5	1.1%	7	1.4%
Obstruction in Roadway	2	0.4%	5	1.0%
Other	14	2.9%	51	10.3%
Total Contributing Factors Cited	**476**	**100.0%**	**493**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**301**		**348**	
Total Number of Persons Involved	**812**		**914**	

Up to eight contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers or bicyclists. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding.

VIII: SCHOOL BUS CRASHES

As a general rule, school bus travel is very safe. The school bus is a large and heavy vehicle that provides good protection for its occupants. However, since buses can carry many passengers, serious crashes could potentially cause many injuries.

Crashes included in this section are those in which at least one school bus was physically involved. Note that in some cases, a crash could be seen as involving a school bus (albeit indirectly), yet not be counted as a school bus crash. One such case would be a crash in which a person gets off the bus, crosses a street and is struck by another vehicle. Such a case could be called an indirect school bus crash.

Indirect bus crashes
Crashes where a school bus was indirectly involved are also tracked in the crash reporting system. In 2016, there were 96 crashes resulting in 52 injuries in which a school bus was indirectly involved.

Number of crashes decrease
In 2016, school bus crashes decreased by 10%. There were 623 traffic crashes directly involving at least one school bus, compared to 690 crashes in 2015.

Two fatalities in 2016
In 2016, there were two fatal school bus crashes resulting in two deaths. These fatalities were drivers from other motor vehicles involved in the crash.

Morning and afternoon rush hours
Not surprisingly, 71% of school bus crashes occurred during the time periods of 6-9 a.m. and 3-6 p.m. Crashes occurring between the hours of 9 a.m. and 3 p.m. comprised 25% of school bus crashes. Over nine out of ten (92%) of school bus crashes occurred during school year months September through May.

Contributing factors
In 2016, there were 623 traffic crashes where at least one school bus was involved. In all there were 631 school buses directly involved in these crashes. For over half (59%) of the school bus drivers, officer reports showed there was "no clear contributing factor." The two contributing factors cited most often in school bus crashes were failure to yield the right of way (10%) and driver distraction (9%). The third most frequently cited contributing factor was improper backing (7%). The most commonly cited contributing factors attributed to drivers of other vehicles in school bus crashes was failure to yield right of way (8%), following too closely (8%) and driving in a careless, negligent, erratic manner or reckless, aggressive manner (7%). Road surface conditions for either the school bus driver or other vehicle driver were attributed to 32% of the total contributing factors officers cited.

TABLE 8.01

SCHOOL BUS CRASH SUMMARY, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Crashes	680	663	670	611	615	553	732	806	690	623
Fatal Crashes	7	1	4	4	1	4	3	1	1	2
Persons Killed	8	4	4	4	1	7	3	1	1	2
Injury Crashes	126	107	144	116	112	113	132	117	142	107
Persons Injured	243	188	233	215	214	211	237	238	234	181
Property Damage Crashes	547	555	522	491	502	436	597	688	547	514
School Buses Directly Involved	690	670	675	615	621	554	736	820	700	631

TABLE 8.02

2016 SCHOOL BUS CRASHES BY TIME OF DAY

Time of Day	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Midnight - 2:59 AM	0	1	5	6	0	1
3:00 - 5:59 AM	1	1	3	5	1	2
6:00 - 8:59 AM	0	45	192	237	0	86
9:00 - 11:59 AM	0	12	68	80	0	15
Noon - 2:59 PM	0	11	67	78	0	14
3:00 - 5:59 PM	1	35	168	204	1	61
6:00 - 8:59 PM	0	1	10	11	0	1
9:00 - 11:59 PM	0	1	1	2	0	1
Total	**2**	**107**	**514**	**623**	**2**	**181**

TABLE 8.03

2016 SCHOOL BUS CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
January	0	14	62	76	0	21
February	0	17	71	88	0	36
March	0	7	43	50	0	7
April	0	7	39	46	0	11
May	0	10	48	58	0	14
June	0	0	22	22	0	0
July	0	2	11	13	0	8
August	0	3	15	18	0	7
September	0	10	61	71	0	14
October	2	10	44	56	2	23
November	0	11	42	53	0	17
December	0	16	56	72	0	23
Total	**2**	**107**	**514**	**623**	**2**	**181**

TABLE 8.04

AGE AND GENDER OF PERSONS INJURED IN 2016 SCHOOL BUS CRASHES

Age Group	In Bus	Pedestrian	In Other Vehicle	Male	Female	Total*
00 - 04	0	0	1	1	0	1
05 - 09	14	1	2	5	10	17
10 - 14	23	2	1	12	9	26
15 - 19	5	1	16	14	8	22
20 - 24	1	0	5	2	4	6
25 - 29	1	0	3	3	1	4
30 - 34	3	0	6	5	4	9
35 - 39	3	0	13	4	12	16
40 - 44	1	0	9	5	5	10
45 - 49	3	0	9	5	7	12
50 - 54	2	0	3	4	1	5
55 - 59	4	0	6	3	7	10
60 - 64	4	2	3	5	4	9
65 & Older	4	1	15	11	8	20
Unknown	14	0	0	8	5	14
Total	**82**	**7**	**92**	**87**	**85**	**181**

*There were nine cases where the gender of the person was not reported on the crash report.

TABLE 8.05

PERSONS KILLED OR INJURED IN 2016 SCHOOL BUS CRASHES BY POPULATION OF AREA

Population of City or Township	Killed	Serious Injuries	Minor Injuries	Possible Injuries	Total
250,000 and Over	0	4	20	29	53
100,000 - 249,999	0	0	3	1	4
50,000 - 99,999	0	1	1	17	19
25,000 - 49,999	0	1	5	11	17
10,000 - 24,999	0	1	9	19	29
5,000 - 9,999	0	0	3	6	9
2,500 - 4,999	0	0	10	2	12
1,000 - 2,499	0	0	1	1	2
Under 1,000	2	1	17	18	36
Total	**2**	**8**	**69**	**104**	**181**

TABLE 8.06

2016 SCHOOL BUS CRASHES BY FIRST HARMFUL EVENT

First Harmful Event	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Collision With:						
Other Motor Vehicle	2	89	420	511	2	161
Parked Motor Vehicle	0	7	70	77	0	9
Bicycle	0	1	0	1	0	1
Pedestrian	0	6	0	6	0	6
Deer	0	0	0	0	0	0
Other Animal	0	0	1	1	0	0
Fixed Object	0	2	20	22	0	2
Overturn/Rollover	0	1	2	3	0	1
Other/Unknown	0	1	1	2	0	1
Total	**2**	**107**	**514**	**623**	**2**	**181**

TABLE 8.07

2016 SCHOOL BUS CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Traffic Control Signal	0	28	101	129	0	38
Overhead Flashers	0	0	1	1	0	0
Stop Sign	0	19	119	138	0	34
Yield Sign	0	1	9	10	0	1
Warning Sign	0	0	1	1	0	0
School Zone Sign/School Bus Flashing	0	3	6	9	0	12
Rail Road Crossing	0	2	11	13	0	2
Other	1	0	2	3	1	0
Not Applicable	1	50	260	311	1	85
Unknown	0	4	4	8	0	9
Total	**2**	**107**	**514**	**623**	**2**	**181**

TABLE 8.08

CONTRIBUTING FACTORS IN 2016 SCHOOL BUS CRASHES

Contributing Factors	Number Attributed to School Bus Drivers	Percent Attributed to School Bus Drivers	Number Attributed to Drivers of Other Vehicles	Percent Attributed to Drivers of Other Vehicles
Human Factors				
Failure to Yield Right of Way	96	9.5%	58	8.4%
Driver Distracted	92	9.1%	42	6.1%
Improper Backing	71	7.1%	13	1.9%
Improper Turn/Merge	57	5.7%	15	2.2%
Careless/Negligent/Erratic Manner	44	4.4%	45	6.5%
Following Too Closely	32	3.2%	55	8.0%
Vision Obscured	26	2.6%	15	2.2%
Improper Lane Usage	19	1.9%	27	3.9%
Congestion Backup Related	11	1.1%	13	1.9%
Driver Swerved	10	1.0%	19	2.7%
Ran Red Light	8	0.8%	14	2.0%
Overcorrecting/Oversteering	8	0.8%	4	0.6%
Work Zone	7	0.7%	5	0.7%
Improper Passing	7	0.7%	5	0.7%
Driver Speeding	4	0.4%	13	1.9%
Disregard Road Marking/Traffic Sign	3	0.3%	5	0.7%
Wrong Side or Wrong Way	3	0.3%	4	0.6%
Ran Stop Sign	2	0.2%	5	0.7%
Dart/Dash	0	0.0%	2	0.3%
Not Visible	0	0.0%	1	0.1%
Run Off Road	0	0.0%	2	0.3%
Other Human Factor	44	4.4%	66	9.6%
Vehicular Factors				
Defective Brakes	2	0.2%	18	2.6%
Miscellaneous Factors				
Road Surface Conditions	363	36.0%	177	25.6%
Shoulders (Low/Soft/High)	6	0.6%	3	0.4%
Other	92	9.1%	65	9.4%
Total Contributing Factors Cited	**1,007**	**100.0%**	**691**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**374**		**240**	
Total Number of Drivers Involved	**628**		**547**	

Up to eight contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. Bicyclists and pedestrians are included as other drivers in this table.

IX: MOTOR VEHICLE/TRAIN CRASHES

Each crash reported in this section involves a motor vehicle and a train. Train collisions with pedestrians or bicyclists are not counted as traffic crashes in this publication.

Statewide, one-half of one percent of all motor vehicle crashes result in a fatality. Generally, motor-vehicle/train crashes are few in number, but they are more likely to be serious. In 2016, there were two motor vehicle/train crashes that resulted in a fatality, representing 5% of all motor-vehicle/train crashes in Minnesota.

Number of train crashes decreased in 2016
In the past decade, the number of motor-vehicle/train crashes in Minnesota has been declining. In 2016, there were 42 vehicle/train crashes, 6 fewer crashes than were reported in the previous year.

Fatalities and injuries decrease
Both fatalities and injuries in motor vehicle/train crashes decreased. Two people were killed in 2016 compared with three in 2015. Thirteen people were injured in 2016 compared with 19 in 2015.

Railroad crossings with flashing lights or gates
Railroad crossings without some type of flashing lights or gates are dangerous. One fatality occurred at a railroad crossing without flashing lights or gates. Ten crashes occurred where there was a railroad crossing gate present.

Many crashes occurred in rural areas
Motor vehicle crashes involving a train occurred in rural areas, defined as an area with a population of less than 5,000. In 2016, 14 of the 42 total crashes and one of the two fatalities occurred in rural areas.

Contributing factors
For motor vehicle drivers involved in train crashes, disregard of traffic signs (18%), running a red light (11%), improper turns (9%) and driving vehicle in a careless, negligent or erratic manner (9%) were the four contributing factors listed most often by officers.

TABLE 9.01

MOTOR VEHICLE / TRAIN CRASH SUMMARY, 2007 - 2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Crashes	56	40	37	33	48	25	51	63	48	42
Fatal Crashes	2	3	4	1	4	3	5	6	2	2
Persons Killed	2	4	5	1	4	3	5	8	3	2
Injury Crashes	16	17	11	17	16	12	17	25	15	13
Persons Injured	20	20	15	21	18	15	20	33	19	13
Property Damage Crashes	38	20	22	15	28	10	29	32	31	27

TABLE 9.02

2016 MOTOR VEHICLE / TRAIN CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	PDO Crashes	Total	Killed	Injured
January	0	1	1	2	0	1
February	0	0	2	2	0	0
March	0	1	6	7	0	1
April	0	0	0	0	0	0
May	0	2	2	4	0	1
June	0	1	2	3	0	0
July	1	1	5	7	1	1
August	0	2	3	5	0	2
September	0	2	1	3	0	2
October	0	2	1	3	0	2
November	1	1	1	3	1	3
December	0	0	3	3	0	0
Total	**2**	**13**	**27**	**42**	**2**	**13**

TABLE 9.03

2016 MOTOR VEHICLE / TRAIN CRASHES BY TIME AND DAY

Time of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Midnight - 2:59 AM	0	0	0	0	0	0	0	0
3:00 - 5:59 AM	1	0	0	0	0	0	1	2
6:00 - 8:59 AM	0	0	1	2	1	1	0	5
9:00 - 11:59 AM	1	1	1	5	0	0	2	10
Noon - 2:59 PM	3	1	2	1	1	0	1	9
3:00 - 5:59 PM	0	1	2	2	2	3	0	10
6:00 - 8:59 PM	0	1	1	1	1	1	0	5
9:00 - 11:59 PM	0	0	0	0	0	0	1	1
Total	**5**	**4**	**7**	**11**	**5**	**5**	**5**	**42**

TABLE 9.04

2016 MOTOR VEHICLE / TRAIN CRASHES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
Traffic Control Signal	0	6	12	18	0	4
Stop Sign	0	2	4	6	0	2
Yield Sign	0	0	1	1	0	0
Warning Sign	0	0	1	1	0	0
Rail Road Crossing	1	2	7	10	1	4
Not Applicable	1	3	2	6	1	3
Total	**2**	**13**	**27**	**42**	**2**	**13**

TABLE 9.05

2016 MOTOR VEHICLE / TRAIN CRASHES AGE OF PERSONS KILLED OR INJURED

Age Group	Killed	Serious Injuries	Minor Injuries	Possible Injuries	Total Injuries
00 - 04	0	0	0	0	0
05 - 09	0	0	0	0	0
10 - 14	0	0	0	0	0
15 - 19	0	0	0	0	0
20 - 24	0	1	1	0	2
25 - 29	1	1	2	0	3
30 - 34	0	0	1	1	2
35 - 39	0	0	0	0	0
40 - 44	0	0	1	0	1
45 - 49	0	1	0	0	1
50 - 54	0	0	0	0	0
55 - 59	0	0	1	1	2
60 - 64	0	0	0	0	0
65 - 69	1	0	0	1	1
70 - 74	0	0	0	0	0
75 - 79	0	0	0	0	0
80 & Older	0	1	0	0	1
Total	**2**	**4**	**6**	**3**	**13**

TABLE 9.06

2016 MOTOR VEHICLE / TRAIN CRASHES BY POPULATION OF AREA

Population of City or Township	Fatal Crashes	Injury Crashes	PDO Crashes	Total Crashes	Killed	Injured
250,000 and Over	0	5	14	19	0	3
100,000 - 249,999	0	0	0	0	0	0
50,000 - 99,999	0	1	3	4	0	1
25,000 - 49,999	0	0	2	2	0	0
10,000 - 24,999	1	1	1	3	1	3
5,000 - 9,999	0	0	0	0	0	0
2,500 - 4,999	0	1	1	2	0	1
1,000 - 2,499	1	1	0	2	1	1
Under 1,000	0	4	6	10	0	4
Total	**2**	**13**	**27**	**42**	**2**	**13**

TABLE 9.07

2016 MOTOR VEHICLE / TRAIN CRASHES
MOTOR VEHICLE DRIVER CONTRIBUTING FACTORS

Contributing Factors	Number	Percent
Human Factors		
Disregard Other Traffic Signs	10	17.9%
Ran Red Light	6	10.7%
Improper Turn/Merge	5	8.9%
Careless/Negligent/Erratic Manner	5	8.9%
Ran Stop Sign	4	7.1%
Failure to Yield Right of Way	3	5.4%
Vision Obscured	3	5.4%
Disregard Other Road Makings	2	3.6%
Improper Lane Usage	2	3.6%
Driver Distracted	2	3.6%
Wrong Side or Wrong Way	1	1.8%
Driver Speeding	1	1.8%
Other Human Factor	1	1.8%
Miscellaneous Factors		
Road Surface Conditions	4	7.1%
Other	7	12.5%
Total Contributing Factors Cited	**56**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**3**	
Total Number of Drivers Involved	**41**	

Up to eight contributing factors may be attributed to a single driver. This may cause the sum of the factors cited to differ from the number of drivers. Percentages are based on all contributing factors cited. They may not sum to 100 due to rounding. No contributing factors are cited for train operators.

X: CRASHES INVOLVING TEEN DRIVERS

Minnesota teen drivers continue to be overrepresented in traffic crashes due to driver inexperience, distractions, speeding/risk-taking and seat belt non-use. The greatest crash risk occurs during the first months of independent driving. The good news is that progress has been made. Laws such as no cell phone use, no texting, primary seat belt and nighttime and passenger limitations have helped reduce teen traffic deaths and injuries.

Parents play a vital role in developing safe teen drivers. Teens need to gain experience in a variety of road types and environments — day, night, city, rural, rain, snow — while supervised by an experienced licensed driver. Even after a teen is licensed, they continue to need training and monitoring. Programming is available through driver educators to assist parents in learning more about graduated driver licensing, as well as tips for helping their teens become safer drivers.

Teen involvement in traffic crashes
This Section provides a short summary regarding teen drivers (ages 15-19) who were involved in crashes. However, more information concerning teens can be found in other Sections of this Crash Facts report:

- Table 1.04: Age/Gender of teens killed or injured
- Table 1.05: Age/Gender of teen drivers involved
- Table 1.06: Licensed vs. Crash involved drivers
- Table 1.07: Teen driver crash type
- Table 1.09: Single-vehicle crash contributing factors
- Table 1.10: Multi-vehicle crash contributing factors
- Table 2.03: DWI's issued to underage drivers
- Table 2.05: Alcohol related teens killed or injured
- Table 2.12: Teen driver alcohol concentration
- Table 3.03: Teen vehicle occupants killed or injured
- Table 3.05: Teen occupant seat belt use
- Table 4.06: Teen motorcyclists killed or injured
- Table 6.03: Teen pedestrians killed or injured
- Table 7.05: Teen bicyclists killed or injured
- Table 8.04: Teen school bus riders killed or injured

Teen crash involvement is decreasing
Table 10.01 indicates that the numbers of teen-involved traffic crashes have been decreasing since 2010. The definition of a teen-involved crash used here is any crash with at least one teen driver (ages 15-19) of any motor vehicle involved (no teen pedestrians or bicyclists are included). In 2010, 18% of all traffic crashes in Minnesota were teen-related. In 2016, that percentage dropped to 17%.

Teen (ages 13-19) fatalities and injuries have also decreased. In 2010, 11% of all traffic fatalities in Minnesota were teens. In 2016, that percentage has dropped to 6%. In 2010, 14% of all traffic injuries in Minnesota were teens. In 2016, that percentage dropped to 12%.

Rate per licensed teen driver decreasing
Table 10.02 indicates that the number of teen motor vehicle occupant (MVO) drivers (ages 15-19) who were involved in crashes is also decreasing. Only teens that were driving vehicles normally equipped with seat belts are counted in this table. In 2010, 55.8 teen MVO drivers were involved in crashes for every 1,000 licensed teen drivers. In 2016, that rate dropped slightly to 54.5.

Colder weather
Teen involved crashes are rather evenly distributed throughout the year; however, there is an uptick during the colder months. In 2016, one out of every four (29%) teen-involved crashes occurred during the months of January, November and December.

Afternoons are dangerous
As can be seen from Table 10.05 and Figure 10.01, a large number of teen-involved crashes happen during the afternoon period of 2:00 - 6:00 p.m. During that four-hour time period in 2016, 37% of all teen-involved crashes occurred. On the other hand, less than 5% of all teen involved crashes occurred during the five-hour nighttime period of 12:00 a.m. - 5:00 a.m.

Contributing factors
For teen drivers of vehicles who were involved in crashes, failure to yield the right of way was listed most often (12%) by officers at the scene. Next was following too closely (12%). For the 'other' motor vehicle drivers involved, failure to yield the right of way was listed most often (22%), next was following too closely (16%). In teen-involved crashes, 79% of the contributing factors are attributed to the teenaged driver.

TABLE 10.01

TEEN CRASH SUMMARY, 2010 - 2016

Category	2010	2011	2012	2013	2014	2015	2016
Crashes with at least one Teen (15-19) Driver*	13,611	12,139	11,804	12,384	12,247	12,268	13,236
All Traffic Crashes in Minnesota	74,073	72,117	69,236	77,707	78,396	74,772	79,069
-Teen (15-19) Driver* Crash %	18.4%	16.8%	17.0%	15.9%	15.6%	16.4%	16.6%
Teen (13-19) Traffic Fatalities	47	39	40	33	21	31	23
All Traffic Fatalities in Minnesota	411	368	395	387	361	411	392
-Teen (13-19) Fatality %	11.4%	10.6%	10.1%	8.5%	5.8%	7.5%	5.8%
Teen (13-19) Traffic Injuries	4,391	3,921	3,844	3,662	3,417	3,600	3,571
All Traffic Injuries in Minnesota	31,176	30,295	29,314	30,653	29,439	29,981	29,825
-Teen (13-19) Injury %	14.1%	12.9%	13.1%	11.9%	11.6%	12.0%	11.9%

*Driver of any motor vehicle.

TABLE 10.02

TEEN 'MOTOR VEHICLE OCCUPANT' DRIVER CRASH INVOLVEMENT, 2010 - 2016

Age of Teen MVO* Driver	2010	2011	2012	2013	2014	2015	2016
Age 15 MVO* Drivers involved in Crashes	187	181	156	152	172	218	240
Age 15 Licensed Drivers**	28,020	25,422	25,946	25,324	26,393	30,120	29,914
-Rate per 1,000 Licensed Drivers:	6.7	7.1	6.0	6.0	6.5	7.2	8.0
Age 16 MVO* Drivers involved in Crashes	2,897	2,567	2,645	2,772	2,669	2,780	3,025
Age 16 Licensed Drivers**	49,634	48,260	47,801	48,013	48,263	49,306	50,361
-Rate per 1,000 Licensed Drivers:	58.4	53.2	55.3	57.7	55.3	56.4	60.1
Age 17 MVO* Drivers involved in Crashes	3,580	3,251	3,205	3,268	3,327	3,273	3,444
Age 17 Licensed Drivers**	55,885	54,781	54,489	53,744	54,190	54,818	55,252
-Rate per 1,000 Licensed Drivers:	64.1	59.3	58.8	60.8	61.4	59.7	62.3
Age 18 MVO* Drivers involved in Crashes	4,014	3,504	3,364	3,430	3,389	3,506	3,666
Age 18 Licensed Drivers**	61,526	59,722	59,220	58,706	58,202	58,766	59,037
-Rate per 1,000 Licensed Drivers:	65.2	58.7	56.8	58.4	58.2	59.7	62.1
Age 19 MVO* Drivers involved in Crashes	3,900	3,450	3,261	3,532	3,424	3,312	3,592
Age 19 Licensed Drivers**	66,272	63,997	63,212	62,642	62,349	61,692	61,937
-Rate per 1,000 Licensed Drivers:	58.8	53.9	51.6	56.4	54.9	53.7	58.0
All 15-19 MVO* Drivers involved in Crashes	14,578	12,953	12,631	13,154	12,981	13,089	13,967
All 15-19 Licensed Drivers**	261,337	252,182	250,668	248,429	249,397	254,702	256,501
-Rate per 1,000 Licensed Drivers:	55.8	51.4	50.4	52.9	52.0	51.4	54.5

*MVO = Motor Vehicle Occupant. Only teen drivers in vehicles equipped with Seat-Belts are included in Table 10.02.

**Licensed Driver totals include Permits.

TABLE 10.03

2016 TEEN-INVOLVED CRASHES* BY MONTH

(*Crashes involving at least one Teen Driver (15-19) of any vehicle)

Month	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
January	5	11	104	155	971	1,246
February	0	8	81	143	769	1,001
March	1	9	114	149	672	945
April	2	17	128	134	606	887
May	1	28	134	189	730	1,082
June	1	27	164	186	818	1,196
July	3	22	158	178	753	1,114
August	3	25	115	166	754	1,063
September	4	12	123	173	696	1,008
October	3	23	104	177	791	1,098
November	8	22	119	172	816	1,137
December	3	16	122	170	1,148	1,459
Total	**34**	**220**	**1,466**	**1,992**	**9,524**	**13,236**

TABLE 10.04

2016 TEEN-INVOLVED CRASHES* BY DAY OF WEEK

(*Crashes involving at least one Teen Driver (15-19) of any vehicle)

Day	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
Sunday	6	35	216	186	998	1,441
Monday	1	34	201	272	1,289	1,797
Tuesday	4	28	219	301	1,447	1,999
Wednesday	4	32	192	312	1,409	1,949
Thursday	4	28	188	294	1,350	1,864
Friday	7	29	249	373	1,749	2,407
Saturday	8	34	201	254	1,282	1,779
Total	**34**	**220**	**1,466**	**1,992**	**9,524**	**13,236**

TABLE 10.05
2016 TEEN-INVOLVED CRASHES* BY TIME OF DAY
(*Crashes involving at least one Teen Driver (15-19) of any vehicle)

Time of Day	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
Midnight	2	4	35	17	154	212
1:00	0	6	17	13	83	119
2:00	1	8	19	10	65	103
3:00	0	2	15	8	57	82
4:00	0	2	12	6	51	71
5:00	1	4	8	14	50	77
6:00	2	3	19	34	138	196
7:00	1	10	92	130	716	949
8:00	0	5	76	78	501	660
9:00	1	7	35	48	285	376
10:00	0	6	37	61	306	410
11:00	1	6	30	104	395	536
Noon	2	4	79	88	533	706
1:00	0	8	85	103	450	646
2:00	3	7	118	170	673	971
3:00	4	24	158	218	1,003	1,407
4:00	5	15	129	213	882	1,244
5:00	2	23	150	188	893	1,256
6:00	2	16	82	136	668	904
7:00	2	14	57	94	426	593
8:00	2	11	72	85	381	551
9:00	2	17	58	75	356	508
10:00	1	10	47	62	262	382
11:00	0	8	36	37	196	277
Total	**34**	**220**	**1,466**	**1,992**	**9,524**	**13,236**

FIGURE 10.01
TOTAL TEEN-INVOLVED CRASHES, BY TIME, 2016

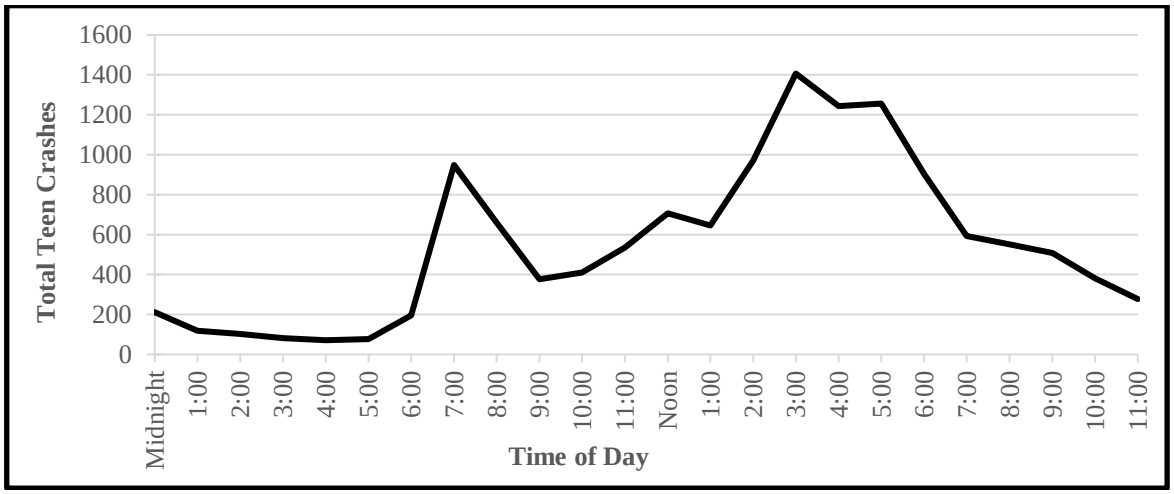

TABLE 10.06

CONTRIBUTING FACTORS IN 2016 TEEN-INVOLVED CRASHES

Contributing Factors	Number Attributed to Teen Drivers*	Percent Attributed to Teen Drivers*	Number Attributed to Other Vehicle Drivers*	Percent Attributed to Other Vehicle Drivers*
Human Factors				
Failure to Yield Right of Way	1,517	12.0%	734	21.6%
Following Too Closely	1,497	11.9%	536	15.8%
Careless/Negligent/Erratic/Reckless/Aggressive	1,439	11.4%	298	8.8%
Driver Distracted/Inattentive	1,287	10.2%	244	7.2%
Overcorrecting/Oversteering	680	5.4%	32	0.9%
Driver Speeding	676	5.4%	59	1.7%
Run Off Road	530	4.2%	13	0.4%
Improper Lane Usage	500	4.0%	100	2.9%
Driver Swerved	496	3.9%	89	2.6%
Improper Turn/Merge	395	3.1%	146	4.3%
Ran Red Light/Ran Stop Sign	368	2.9%	133	3.9%
Vision Obscured	326	2.6%	117	3.4%
Disregard Traffic Sign/Road Markings	198	1.6%	89	2.6%
Improper Backing	116	0.9%	26	0.8%
Improper Passing	92	0.7%	37	1.1%
Wrong Side/Wrong Way	40	0.3%	24	0.7%
Passing on Shoulder	5	0.0%	8	0.2%
Failure To Obey Traffic Signs/Signal/Officer	0	0.0%	6	0.2%
Dart/Dash	0	0.0%	15	0.4%
In Road Improperly/Disabled Vehicle	0	0.0%	13	0.4%
Not Visible	0	0.0%	5	0.1%
Other Human Factor	1,226	9.7%	368	10.8%
Vehicular Factors				
Defective Brakes	242	1.9%	43	1.3%
Defective Steering/Power Train/Suspension	49	0.4%	1	0.0%
Defective Wheels/Wipers/Mirrors	13	0.1%	1	0.0%
Other Vehicular Factor	10	0.0%	1	0.0%
Miscellaneous Factors				
Other	860	6.8%	257	7.6%
Total Contributing Factors Cited	**12,562**	**100.0%**	**3,395**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**4,561**		**7,488**	
Total Number of Drivers Involved	**14,191**		**10,606**	

*The term 'Drivers' refers to a driver of any motor vehicle. Contributing factor data for the 'Other Vehicle Drivers' includes pedestrians and bicyclists. Pedestrians and bicyclists are not included in the 'Teen Driver' data.

Up to eight contributing factors may be attributed to each vehicle, pedestrian, or bicyclist involved in a crash. This may cause the sum of the factors cited to differ from the number of drivers, pedestrians, or bicyclists. Percentages are based on all contributing factors listed. They may not sum to 100 due to rounding.

XI: CRASHES INVOLVING SENIOR DRIVERS

Between 2000 and 2030, the population of Minnesotans aged 65 and older will increase to over 24 percent of the total population.

Age alone does not determine a person's ability to drive safely; each of us ages differently. There are safe and unsafe drivers at every age. National research suggests that crash rates for older drivers are actually decreasing due to better health, vehicles with helpful technologies, more driving experience and safer roadways. As people get older, their driving schedules change due to retirement, different activities and fewer required trips. Older drivers generally drive fewer miles than younger ones. In addition, many older drivers self-regulate by avoiding driving at night or on particularly challenging roadways. While the average driver is older than in the past, this has not caused the large increase in crashes and deaths on our roadways that was initially predicted.

Senior involvement in traffic crashes
This Section provides a short summary regarding senior drivers (ages 65 and above) who were involved in crashes. However, more information concerning seniors can be found in other Sections of this Crash Facts report:

- Table 1.04: Age/Gender of seniors killed or injured
- Table 1.05: Age/Gender of senior drivers involved
- Table 1.06: Licensed vs. Crash involved drivers
- Table 1.07: Senior driver crash type
- Table 1.09: Single-vehicle crash contributing factors
- Table 1.10: Multi-vehicle crash contributing factors
- Table 2.05: Alcohol related seniors killed or injured
- Table 2.12: Senior driver alcohol concentration
- Table 3.03: Senior vehicle occupants killed or injured
- Table 3.05: Senior occupant seat belt use
- Table 4.06: Senior motorcyclists killed or injured
- Table 6.03: Senior pedestrians killed or injured
- Table 7.05: Senior bicyclists killed or injured

Senior crash involvement remains steady
Table 11.01 indicates that the number of senior-involved traffic crashes is increasing. The definition of a senior-involved crash used here is any crash with at least one senior driver (ages 65 and above) of any motor vehicle (no senior pedestrians or bicyclists used). In 2010, 13% of all traffic crashes in Minnesota were senior-related. In 2016, that percentage was 15%. As the senior population in Minnesota increases, senior traffic fatalities are expected to increase. In 2010, 18% of all traffic fatalities in Minnesota were seniors. In 2016, that percentage has risen to 24%.

Senior (ages 65 and older) injuries have also increased. In 2010, 8% of all traffic injuries in Minnesota were seniors. In 2016, that percentage rose to 10%.

MVO rate per licensed senior driver also steady
Table 11.02 indicates that the number of senior motor vehicle occupant (MVO) drivers who were involved in crashes increased from 2015. Only seniors that were driving vehicles normally equipped with seat belts are counted in this table. In 2010, 15.9 senior MVO drivers were involved in crashes for every 1,000 licensed senior drivers. In 2016, that rate dropped to 15.3.

Cold Weather
Senior-involved crashes are rather evenly distributed throughout the year; however, there is the expected uptick during the colder months. In 2016, one out of every four (27%) senior involved crashes occurred during the months of January, November and December.

Afternoons are dangerous
As can be seen from Table 11.05 and Figure 11.01, a large number of senior involved crashes happen during the afternoon period of noon - 5:00 p.m. During that five-hour time-period in 2016, 47% of all senior involved crashes occurred. On the other hand, 1% of all senior involved crashes occurred during the five-hour nighttime period of 12:00 a.m. - 5:00 a.m.

Contributing factors
For senior drivers of any vehicle who were involved in crashes, failure to yield right of way was listed most often (23%) by officers at the scene. Next was driving in a careless/negligent/erratic or reckless/aggressive manner (7%). For the other motor vehicle drivers involved, following too closely was listed most often (16%), next was failure to yield right of way (16%) and driver distraction/inattention (11%).

TABLE 11.01

SENIOR CRASH SUMMARY, 2010 - 2016

Category	2010	2011	2012	2013	2014	2015	2016
Crashes with at least one Senior (65+) Driver*	9,657	9,511	9,687	10,630	11,162	11,184	11,662
All Traffic Crashes in Minnesota	74,073	72,117	69,236	77,707	78,396	74,772	79,069
-Senior (65+) Driver* Crash %	13.0%	13.2%	14.0%	13.7%	14.2%	15.0%	14.7%
Senior (65+) Traffic Fatalities	72	76	81	86	82	99	93
All Traffic Fatalities in Minnesota	411	368	395	387	361	411	392
-Senior (65+) Fatality %	17.5%	20.7%	20.5%	22.2%	22.7%	24.1%	24.0%
Senior (65+) Traffic Injuries	2,523	2,496	2,654	2,712	2,698	2,883	3,008
All Traffic Injuries in Minnesota	31,176	30,295	29,314	30,653	29,439	29,981	29,825
-Senior (65+) Injury %	8.1%	8.2%	9.1%	8.8%	9.1%	9.6%	10.1%

*Driver of any motor vehicle.

TABLE 11.02

SENIOR 'MOTOR VEHICLE OCCUPANT' DRIVER CRASH INVOLVEMENT, 2010 - 2016

Age of Senior MVO* Driver	2010	2011	2012	2013	2014	2015	2016
Age 65-69 MVO* Drivers involved in Crashes	3,511	3,451	3,630	3,980	4,447	4,439	4,601
Age 65-69 Licensed Drivers	198,777	213,587	226,107	237,444	252,369	264,586	274,887
-Rate per 1,000 Licensed Drivers:	17.7	16.2	16.1	16.8	17.6	16.8	16.7
Age 70-74 MVO* Drivers involved in Crashes	2,326	2,332	2,311	2,616	2,777	2,821	3,024
Age 70-74 Licensed Drivers	149,002	155,347	164,699	172,320	178,905	181,902	193,645
-Rate per 1,000 Licensed Drivers:	15.6	15.0	14.0	15.2	15.5	15.5	15.6
Age 75-79 MVO* Drivers involved in Crashes	1,791	1,743	1,744	1,912	1,972	1,885	2,013
Age 75-79 Licensed Drivers	114,320	116,871	119,643	123,927	127,476	131,549	136,115
-Rate per 1,000 Licensed Drivers:	15.7	14.9	14.6	15.4	15.5	14.3	14.8
Age 80-84 MVO* Drivers involved in Crashes	1,382	1,327	1,392	1,382	1,320	1,294	1,341
Age 80-84 Licensed Drivers	88,821	90,620	90,268	90,333	91,175	91,681	93,293
-Rate per 1,000 Licensed Drivers:	15.6	14.6	15.4	15.3	14.5	14.1	14.4
Age 85+ MVO* Drivers involved in Crashes	967	955	955	1,069	997	1,027	1,044
Age 85+ Licensed Drivers	74,678	79,683	82,434	82,608	84,666	86,814	88,220
-Rate per 1,000 Licensed Drivers:	12.9	12.0	11.6	12.9	11.8	11.8	11.8
All 65+ MVO* Drivers involved in Crashes	9,977	9,808	10,032	10,959	11,513	11,466	12,023
All 65+ Licensed Drivers	625,598	656,108	683,151	706,632	734,591	756,532	786,160
-Rate per 1,000 Licensed Drivers:	15.9	14.9	14.7	15.5	15.7	15.2	15.3

*MVO = Motor Vehicle Occupant.
Only senior drivers in vehicles equipped with seatbelts are included in Table 11.02.

TABLE 11.03

2016 SENIOR-INVOLVED CRASHES* BY MONTH

(*Crashes involving at least one Senior Driver (65+) of any vehicle)

Month	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
January	7	13	88	125	619	852
February	4	12	97	122	546	781
March	5	20	85	121	492	723
April	3	16	94	147	520	780
May	5	18	143	167	608	941
June	13	30	160	162	685	1,050
July	8	33	156	165	654	1,016
August	6	35	155	197	704	1,097
September	7	22	117	168	696	1,010
October	11	18	139	167	723	1,058
November	9	23	122	169	762	1,085
December	9	12	128	184	936	1,269
Total	**87**	**252**	**1,484**	**1,894**	**7,945**	**11,662**

TABLE 11.04

2016 SENIOR-INVOLVED CRASHES* BY DAY OF WEEK

(*Crashes involving at least one Senior Driver (65+) of any vehicle)

Day	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
Sunday	9	35	166	162	671	1,043
Monday	10	31	225	277	1,131	1,674
Tuesday	22	45	211	324	1,273	1,875
Wednesday	16	21	227	281	1,310	1,855
Thursday	14	38	232	285	1,238	1,807
Friday	8	38	264	345	1,401	2,056
Saturday	8	44	159	220	921	1,352
Total	**87**	**252**	**1,484**	**1,894**	**7,945**	**11,662**

TABLE 11.05

2016 SENIOR-INVOLVED CRASHES* BY TIME OF DAY

(*Crashes involving at least one Senior Driver (65+) of any vehicle)

Time of Day	Fatal Crashes	Serious Injury Crashes	Minor Injury Crashes	Possible Injury Crashes	PDO Crashes	Total Crashes
Midnight	0	0	7	4	32	43
1:00	0	1	3	2	24	30
2:00	0	0	3	2	16	21
3:00	0	0	3	0	15	18
4:00	0	0	3	4	17	24
5:00	2	2	4	8	40	56
6:00	3	6	26	35	104	174
7:00	3	3	59	68	309	442
8:00	1	13	82	96	369	561
9:00	4	10	86	107	504	711
10:00	8	14	83	116	568	789
11:00	8	21	105	145	659	938
Noon	6	22	112	158	704	1,002
1:00	6	23	133	167	679	1,008
2:00	4	24	146	207	723	1,104
3:00	13	32	159	187	832	1,223
4:00	7	25	149	184	726	1,091
5:00	10	18	101	166	624	919
6:00	6	14	78	104	417	619
7:00	1	8	37	49	224	319
8:00	1	7	49	36	145	238
9:00	2	4	30	31	121	188
10:00	1	3	16	13	57	90
11:00	1	2	10	5	36	54
Total	**87**	**252**	**1,484**	**1,894**	**7,945**	**11,662**

FIGURE 11.01

TOTAL SENIOR-INVOLVED CRASHES, BY TIME, 2016

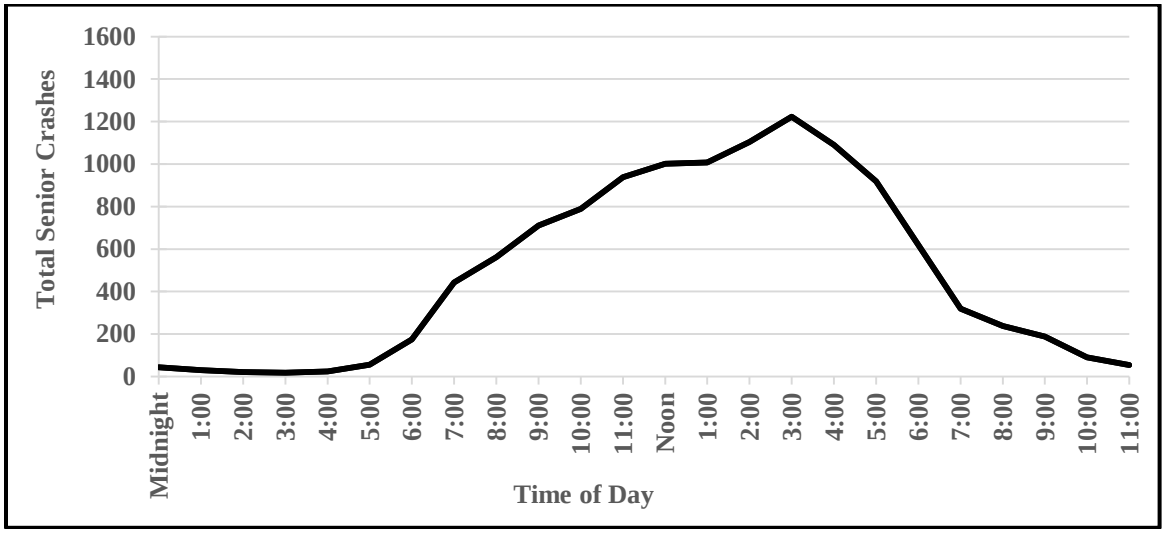

TABLE 11.06

CONTRIBUTING FACTORS IN 2016 SENIOR-INVOLVED CRASHES

Contributing Factors	Number Attributed to Senior Drivers*	Percent Attributed to Senior Drivers*	Number Attributed to Other Vehicle Drivers*	Percent Attributed to Other Vehicle Drivers*
Human Factors				
Failure to Yield Right of Way	1,719	23.1%	883	16.2%
Careless/Negligent/Erratic/Reckless/Aggressive	533	7.2%	546	10.0%
Following Too Closely	524	7.0%	894	16.4%
Improper Turn/Merge	467	6.3%	197	3.6%
Improper Lane Usage	437	5.9%	187	3.4%
Driver Distracted/Inattention	430	5.8%	569	10.5%
Ran Red Light/Ran Stop Sign	337	4.5%	287	5.3%
Vision Obscured	336	4.5%	190	3.5%
Run off Road	236	3.2%	9	0.2%
Fail to Obey Traffic Sign/Signal/Ofcr/Road Mrkngs	229	3.1%	130	2.4%
Driver Swerved	197	2.6%	135	2.5%
Overcorrecting/Oversteering	146	2.0%	52	1.0%
Improper Backing	143	1.9%	67	1.2%
Driver Speeding	119	1.6%	146	2.7%
Improper Passing	57	0.8%	55	1.0%
Wrong Side or Wrong Way	40	0.5%	35	0.6%
Passing on Shoulder	8	0.1%	8	0.1%
Dart/Dash	0	0.0%	23	0.4%
In Roadway Improperly	0	0.0%	12	0.2%
Entering/Exiting Parked/Standing Vehicle	0	0.0%	3	0.1%
Not Visible	0	0.0%	8	0.1%
Other Human Factor	885	11.9%	549	10.1%
Vehicular Factors				
Defective Brakes	74	1.0%	91	1.7%
Defective Wheels/Wipers/Mirrors	4	0.1%	6	0.1%
Defective Steering/Power Train/Suspension	6	0.1%	5	0.1%
Other Vehicular Factor	13	0.3%	6	0.1%
Miscellaneous Factors				
Other	505	6.8%	344	6.3%
Total Contributing Factors Cited	**7,445**	**100.0%**	**5,437**	**100.0%**
Vehicles for Which There Was "No Clear Contributing Factor"	**6,029**		**5,884**	
Total Number of Drivers Involved	**12,416**		**10,681**	

*The term 'Drivers' refers to a driver of any motor vehicle. Contributing factor data for the 'Other Vehicle Drivers' includes pedestrians and bicyclists. Pedestrians and bicyclists are not included in the 'Senior Driver' data.

Up to eight contributing factors may be attributed to each vehicle, pedestrian, or bicyclist involved in a crash. This may cause the sum of the factors cited to differ from the number of drivers, pedestrians, or bicyclists. Percentages are based on all contributing factors listed. They may not sum to 100 due to rounding.

DEFINITIONS

Accident — See motor vehicle crash.

Alcohol Concentration — The level of alcohol in a person's body as measured by blood, breath or urine.

Alcohol-Related Fatal Crash — A crash that results in one or more deaths and in which the investigating officer suspected alcohol involvement or in which the results of an alcohol concentration test were positive for any driver, pedestrian or bicyclist involved in the crash.

Alcohol-Related Fatality — A death resulting from an alcohol-related crash.

Alcohol-Related Injury Crash — A non-fatal crash in which one or more persons are injured and in which the investigating officer suspected alcohol involvement for any driver, pedestrian or bicyclist involved in the crash. (Since only the officer's perception is used in this definition, alcohol-related injury crashes and injuries are probably underestimated.)

Alcohol-Related Injury — A non-fatal injury resulting from an alcohol-related crash.

Alcohol-Related Property Damage Crash — A crash in which no one is killed or injured and the investigating officer suspected alcohol involvement for any driver, pedestrian or bicyclist involved in the crash.

Bicycle Crash — A motor vehicle crash involving one or more bicycles.

Child Safety Seats — Safety devices designed to fit in motor vehicles that keep children securely in place. The seats are required by law for children less than four years of age.

Crash — See motor vehicle crash.

Driver — The occupant of a motor vehicle who is in actual physical control of the vehicle in transit or, for an out-of-control vehicle, the occupant who was in control before control was lost.

Economic Loss — An approximation of the costs associated with crashes, based upon current National Safety Council estimates of the loss to society for each fatality, injury and property damage crash.

Fatal Crash — A motor vehicle crash on a public traffic-way in which at least one person dies unintentionally as a result of the crash. The death must occur within 30 days of the crash.

First Harmful Event — The first event during a crash that caused injury or property damage.

Injury Severity

Fatal Injury — An injury that results in an unintentional death within 30 days of the crash.

Suspected Serious Injury — Any injury, other than a fatal injury, preventing the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred.

Suspected Minor Injury — Any injury not incapacitating but evident to observers at the scene of the crash in which the injury occurred.

Possible Injury — Any injury reported or claimed that is not a fatal injury, incapacitating injury or non-incapacitating injury.

Motorcycle — A two-wheeled or three-wheeled motor vehicle having one or more riding saddles and having an engine of more than 50 cc, more than 2 brake horsepower, or the capability of speeds over 30 mph on a flat surface. Otherwise, it is classified as a motorized bicycle or motor scooter/motorbike.

Motorcycle Crash — A motor vehicle crash involving one or more motorcycles.

Motor Vehicle — A self-propelled vehicle, including attached trailers and semi trailers designed for use with such vehicles.

Motor Vehicle Crash — A crash that involves a motor vehicle in transport on a public traffic-way in Minnesota and results in injury, death or at least $1,000.00 in property damage.

Occupant — Any person who is in or on a vehicle, including the driver, passenger and persons riding on the outside of the vehicle.

Occupant Restraints — Protective devices used in motor vehicles to keep the driver and passengers in their seats and prevent them from being ejected from the motor vehicle in a crash. Restraint devices include lap belts, lap/shoulder harness combinations, air bags and child safety seats.

Passenger — Any occupant of a motor vehicle other than the driver.

Pedestrian — Any person not in or on a motor vehicle or other vehicle (e.g., a bicycle).

Pedestrian Crash — A motor vehicle crash involving one or more pedestrians.

Restraint Usage — An occupant's use of available vehicle restraints including lap belt, lap/shoulder combination harness or child safety seats.

Rural — Having a population of fewer than 5,000.

School Bus Crash — A crash involving one or more school buses. The school bus must collide with another vehicle, or pedestrian or object, for the crash to be classified as a school bus crash.

Trafficway — Any land way open to the public as a matter of right or custom for moving persons or property from one place to another.

Train/Motor Vehicle Crash — A motor vehicle crash involving a motor vehicle in transport and a railway train. Presently, the only crashes classified as train crashes are those in which the first harmful event is collision with a train.

Truck Crash — A motor vehicle crash involving one or more vehicles of the following types: (1) 2-axle, 6-tire single unit truck or step van, (2) 3-or-more-axle single unit truck, (3) single-unit truck with trailer, (4) truck tractor with no trailer, (5) truck tractor with semi-trailer, (6) truck tractor with double trailers, (7) truck tractor with triple trailers, (8) heavy truck of other or unknown type. Pickup trucks and vans are not counted as trucks.

Urban — Having a population of 5,000 or more.