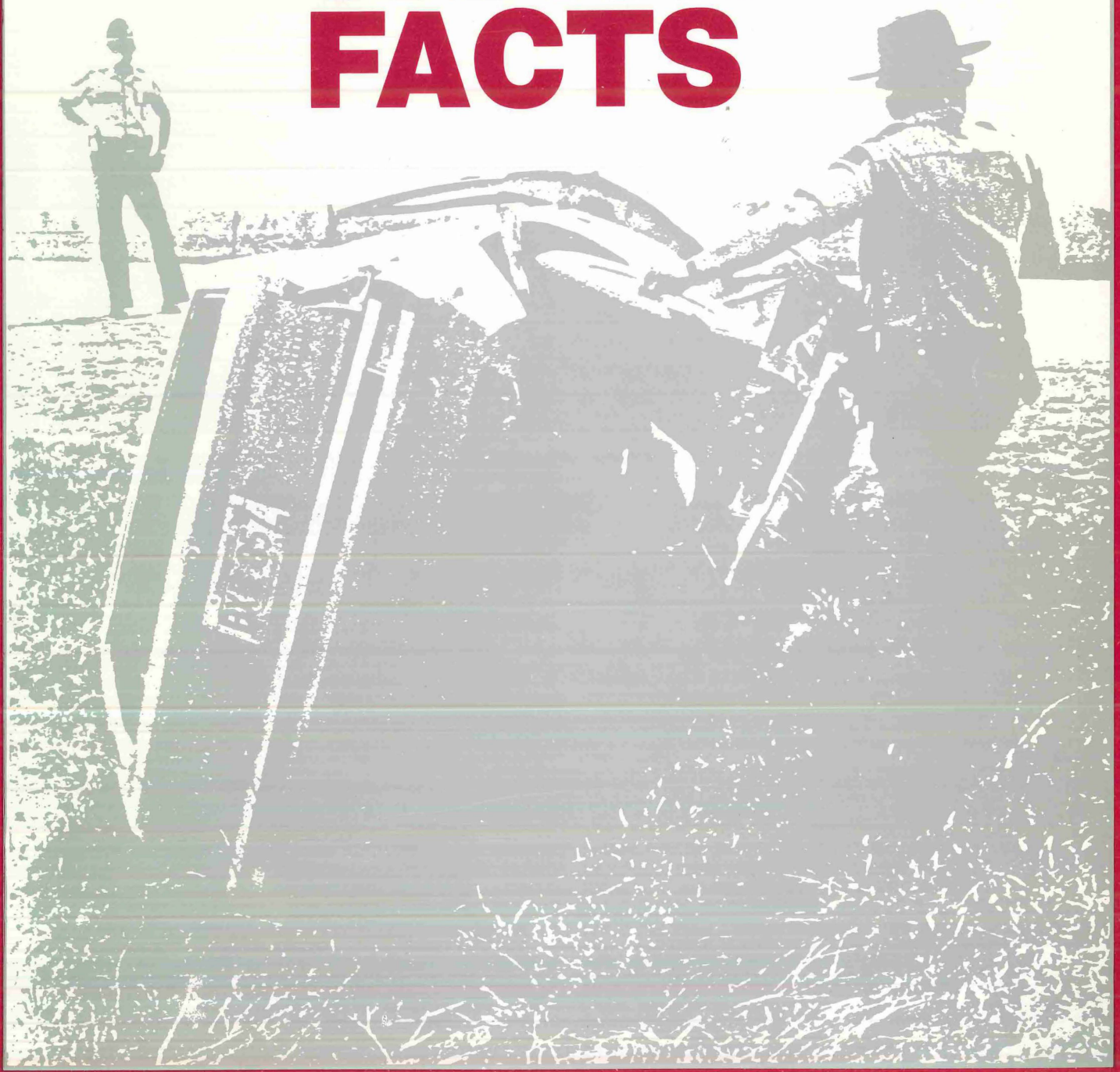
1986
Minnesota
MOTOR VEHICLE
CRASH FACTS



MINNESOTA

MOTOR VEHICLE CRASH FACTS

1986

An analysis of crashes occurring on Minnesota roadways based upon accident reports submitted by investigating police officers and drivers to the Minnesota Department of Public Safety

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DEFINITIONS

Motor Vehicle Accident/Crash - An accident that involves a motor vehicle in transport on a public traffic-way in Minnesota and results in injury, death, or at least $500.00 in property damage.

Fatal Accident/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 accident.

Severe or Incapacitating Injury - An injury (other than a fatal injury) that prevents the injured person from walking, driving or normally continuing the activities he or she was capable of performing before the injury occurred. Includes severe lacerations, broken or distorted limbs, skull fracture, crushed chest, internal injuries, unconsciousness, etc. Hospitalization is usually required.

Moderate or Non-Incapacitating injury - An injury (other than a fatal or severe injury) that is evident to the officer at the scene of the accident. Includes abrasions, minor lacerations, bleeding, etc. May require medical treatment, but hospitalization is usually not required.

Minor or Possible Injury - An injury (other than a fatal, severe, or moderate injury) that is reported by a person involved in the accident. Includes complaint of physical pain when no cause is evident, momentary unconsciousness, limping, nausea, hysteria, etc.

INTRODUCTION AND SUMMARY

Minnesota Motor Vehicle Crash Facts is produced by the Office of Traffic Safety, Minnesota Department of Public Safety, in accordance with Minnesota Statutes, Section 169.10. The information presented is derived from accident reports submitted by citizens and law enforcement agencies for motor vehicle crashes involving death, personal injury, or property damage of $500 or more. The minimum dollar amount for accidents involving only property damage has changed over the years. The first minimum was set at $50 in 1939. This remained in effect until 1965 when $100 became the minimum. In 1976, it was raised to $300 and the present minimum ($500) became effective in 1981.

In 1986, 572 people were killed and 42,310 were injured in 95,460 crashes throughout the state. Over 3.2 million vehicles traveled 34.2 billion miles on our state's roadways. Minnesota driver licenses were held by 3,066,245 persons in 1986. The total economic loss resulting from motor vehicle accidents in Minnesota was over $445,000,000. This figure is calculated from costs estimated for 1985 by the National Safety Council for fatalities, injuries, and property loss resulting from traffic crashes.

The total dollar value is determined as follows:

572	Deaths	@	$240,000=	$137,280,000
5,563	Severe Injuries	@	21,600=	120,160,800
16,289	Moderate Injuries	@	5,100=	83,073,900
20,278	Possible Injuries	@	1,300=	26,361,400
65,728	Property Damage Accidents	@	1,200=	78,873,600
			Total=	$445,749,700

These estimates are based on the calculable costs of wage loss, medical expenses, insurance costs, and property damage.

The purpose of Minnesota Motor Vehicle Crash Facts is to provide summary information about the traffic crashes which occur in Minnesota. The report is divided into nine parts. The first examines general information about crashes, vehicles, and drivers; the other sections review pedestrians, motorcycles, and other selected types of motor vehicle crashes. Due to changes in the way accident information is collected and analyzed, some of the results presented here may differ slightly from figures that will be available at a later date.

THE FOLLOWING SUMMARIZES SEVERAL CATEGORIES OF 1986 TRAFFIC CRASHES:

GENERAL INFORMATION

The fatality rate per hundred million vehicle miles traveled decreased to the lowest level ever recorded -- 1.67. This is a nine percent decrease from 1985 and an 18 percent decrease from the previous five-year average.

Total crashes decreased by eleven percent in 1986. However, a portion of this decrease was due to the fact that 1984 and 1985 figures included some parking lot accidents, which were not included in other years. A more valid comparison would be with 1983 or earlier when no parking lot accidents were included. The total of 95,460 crashes in 1986 was a two percent decrease from 1983 and a six percent decline from the five-year average between 1979 and 1983. Approximately 4,000 and 7,000 parking lot accidents were included in 1984 and 1985 figures, respectively.

ALCOHOL

In 1986, 49 percent of drivers killed had been drinking and 41 percent were over the legal limit. These figures are slightly higher than the all-time lows in 1985 of 47 and 37 percent. The percent of 16-to-20-year-old drivers killed who had been drinking dropped from 67 percent in 1985 to 50 percent in 1986. Despite this fact, 16-to-20-year-olds still represent the largest single age group of drivers killed and the largest number of drivers killed who had been drinking (see Table 2.09).

SEAT BELTS

Percent of restraint use approximately doubled in all non-fatal injury categories between 1985 and 1986. Overall, 22.5 percent of persons injured in 1986 crashes were wearing seat belts. Of persons killed, however, restraint use only increased from 8.8 percent in 1985 to 9.2 percent in 1986. According to the 1986 seat belt use observation study, safety restraint use in the general driving population increased from 20 percent before the law to 32 percent after the mandatory seat belt law became effective on August 1, 1986.

TRUCKS

Truck crashes made up seven percent of the total crashes in Minnesota, 18 percent of the fatalities, and six percent of the injuries. More than half of the fatalities were occupants of automobiles; in contrast, 13 percent were occupants of trucks. Truck crashes were three times more likely to result in a fatal injury than traffic crashes in general.

PEDESTRIANS

After a steady increase in pedestrian injuries in the past four years, 1986 showed a decrease of 14.5 percent from the previous year. The pedestrian fatality toll increased 8.5 percent over 1985 -- from 65 to 71 deaths. This figure has remained fairly constant over the last five years.

MOTORCYCLES

The 1986 figure of 2,152 motorcycle injuries is the lowest in the last ten years. And, the 66 motorcycle fatalities in 1986 represent the second lowest fatality figure in the last ten years. Seventy-three percent of the motorcyclists killed were not wearing helmets at the time of the accident, and sixty-four percent of the motorcycle drivers had been drinking.

MOTOR VEHICLE/TRAIN

Crashes dropped to an all time low of 116 in 1986. This total is a 13 percent decrease from 1985 and a 29 percent reduction from the average of the previous five years. Of the 12 fatalities in 1986, eight occurred in only two crashes.

GENERAL INFORMATION

Motor vehicle crash trends in Minnesota have followed a relatively steady downward course over the past ten years. As shown below, all traffic safety indicators have improved since 1977:

	1977	*1986*	*Change*
Fatalities	*856*	*572*	*- 33.2%*
Injuries	*45,200*	*42,130*	*- 6.8%*
Total Crashes	*119,754*	*95,460*	*- 20.3%*
Fatality rate per 100,000,000 VMT	*3.05*	*1.67*	*- 45.2%*

Although crashes and injuries have generally decreased over the past ten years, the number of registered motor vehicles, licensed drivers, and vehicle miles traveled have steadily increased. Combining the decreases in crashes, fatalities, and injuries with increases in the above mentioned categories markedly decreases crash and fatality rates as shown in Table 1.01 and Figure 1.01.

For a better understanding of Minnesota's 1986 traffic accidents as a whole, a breakdown of "who, what, where, and when" describing basic environmental and circumstantial factors follows:

<u>WHO was involved....</u>

Drivers of passenger vehicles and trucks constituted the highest number (270) and largest percentage (47 percent) of persons killed in traffic crashes. In order of involvement, the other categories were passengers of cars and trucks, pedestrians, motorcycle drivers and bicyclists.

* Seventy-one percent of all traffic fatalities were males. Males also accounted for 71 percent of car or truck driver fatalities, and 98 percent of motorcycle driver fatalities. Sixty-seven percent of all motorcycle passengers killed were females. Males and females were more evenly represented in car/truck passenger fatalities.

* The five-year age group with the highest number of fatalities and injuries in traffic crashes was 15 to 19 (19 percent) followed by 20 to 24 (16 percent).

* More people were killed in passenger cars than in any other vehicle type (56 percent). The next highest vehicle type in fatalities was motorcycles (12 percent).

* In 1986, 175,294 drivers were involved in traffic crashes; this translates into one out of every 18 licensed drivers. The age group of drivers with the greatest involvement in crashes was 16 to 20 (comprising 17.1 percent of drivers involved in crashes). Yet this age group represented only 9.4 percent of all licensed drivers. The other driver age group over-involved in crashes was 21 to 25.

* Younger drivers 16 to 20 were twice as likely to be involved in single-vehicle crashes as those over 35, especially in collisions with fixed objects and in overturns.

* The most frequently recorded contributing factor for drivers in crashes was driver inattention or distraction, followed by failure to yield right of way and illegal or unsafe speed. For drivers 66 and older, however, the most commonly cited factor was failure to yield right of way. This age category was cited significantly fewer times for illegal or unsafe speed than younger driver age groups. The 16 to 20 driver age group was cited the most often for improper driving (had the largest number of contributing factors).

WHAT the conditions were....

Most collisions occurring in 1986 were between two moving motor vehicles (66 percent); a collision with a fixed object was second with 11 percent; and third was a collision with a parked motor vehicle (nine percent). Fatality rates per thousand crashes show that a crash between a motor vehicle and a railroad train has the highest probability of fatality -- 103.4 fatalities per 1,000 crashes.

* In hit-and-run crashes, a collision with a parked motor vehicle was the most common type of crash.

* Although one might expect serious accidents to occur most often during inclement weather, the majority of accidents occurred on dry pavement during daylight and on clear days.

* The most frequently cited contributing factors in 1986 fatal crashes were physical impairment (17.2 percent), illegal or unsafe speed (15.7 percent), and driver inattention (14.9 percent). In personal injury and property damage crashes, driver inattention was at the top with approximately 25 percent and failure to yield right of way was second with 16 percent.

WHERE they happened....

* The road design most common in accidents was the two-lane two-way undivided highway; 42 percent of total crashes and 72 percent of fatal crashes occurred on this type of roadway.

* Trunk highways had more crashes than other types of roadways with 32.9 percent; however, local streets came in a close second with 31.5 percent.

* The traffic control device most frequently reported in accidents was a stop sign or a traffic signal. Each of these devices was present in 18 percent of the crashes; however, in 56 percent of accidents no traffic control device was present.

* More than twice as many total crashes and injury crashes occurred on urban roadways as on rural roadways; however, rural areas had the largest portion of fatal crashes (68 percent).

* The five counties which decreased their fatalities to at least five fewer than their own previous five-year averages were Dakota, St. Louis, Stearns, Washington, and Winona. The eight counties with no fatalities at all in 1986 were Big Stone, Clearwater, Cottonwood, Lake of the Woods, Mahnomen, Pope, Traverse, and Wilkin. Six counties had at least five more fatalities than their previous five-year averages. They were Dodge, Douglas, Pipestone, Scott, Sherburne and Wabasha

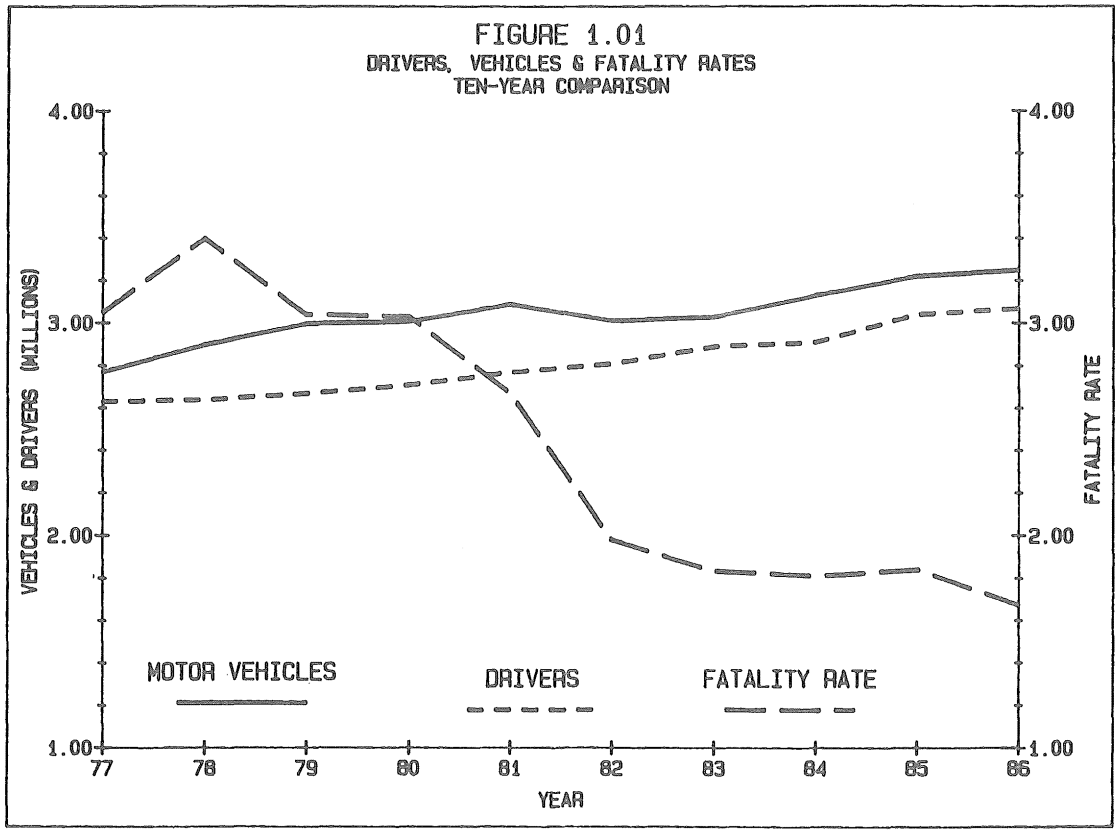
WHEN they occurred....

Traffic crashes typically occur more often during the winter months than other months. Even though this held true for 1986, the disparity between the seasons in the number of accidents was not as pronounced as in other years.

* In 1986, January had the highest number of crashes (9,623) followed by November (9,416). As ususal, fatal crashes were more prevalent in the warmer months. June had the greatest number of fatal crashes (65) followed by August and July. Injury crashes were also most common in these three months.

* Crashes were more likely to occur on Friday than on any other day of the week. Fatal crashes occurred most often on Saturday. The highest number of crashes overall occurred between 3:00 and 5:00 p.m. whereas the highest number of fatal crashes occurred between the hours of midnight and 2:00 a.m.

* The only fatality-free holiday period in 1986 was New Year's. Comparing 1986 with 1985 data, the number of crashes per hour during each holiday period decreased with the exception of Memorial Day. (A "per-hour" figure is used for comparison during holidays because of differences in the number of hours in a holiday period from year to year.) Fatal crashes per hour, however, increased from 1985 in each holiday period except New Year's and July Fourth. The highest number of fatalities (15) occurred during the Thanksgiving holiday which covered 102 hours. This fatality total was a 63 percent increase over the average of the previous four years.



Fatality Rate = Fatalities per hundred million vehicle miles traveled.

TABLE 1.01

CRASH, FATALITY AND INJURY RATES, 1977-1986

	1977	1978	1979	1980	1981	1982	1983	1984*	1985*	1986
Traffic Crashes	119,754	118,833	120,633	103,612	97,879	89,443	97,371	101,554	107,675	95,460
Traffic Fatalities	856	980	881	863	763	581	558	584	610	572
Traffic Injuries	45,200	50,332	49,604	45,227	43,739	38,692	41,086	42,654	45,205	42,130
Registered Motor Vehicles (Millions of Vehicles)	2.77	2.90	3.00	3.01	3.09	3.01	3.03	3.13	3.22	3.25
Licensed Drivers** (Millions of Drivers)	2.70	2.70	2.73	2.77	2.83	2.87	2.90	2.91	3.04	3.07
Vehicular Miles Traveled (Billions of Miles)	28.1	28.8	29.0	28.5	28.6	29.2	30.5	32.2	33.1	34.2
Fatality Rate Per Hundred Million Vehicle Miles Traveled	3.05	3.40	3.04	3.03	2.67	1.98	1.83	1.81	1.84	1.67
Fatality Rate Per 100,000 Registered Vehicles	30.9	33.8	29.3	28.7	24.7	19.3	18.4	18.7	18.9	17.6
Fatality Rate Per 100,000 Population	21.6	24.5	21.7	21.2	18.6	14.2	13.5	14.1	14.7	13.6
Crash Rate Per Hundred Million Vehicle Miles Traveled	426	412	417	364	342	304	319	315	325	279
Crash Rate Per 100,000 Registered Vehicles	4,323	4,100	4,018	3,446	3,163	2,972	3,214	3,244	3,330	2,937
Crash Rate Per 100,000 Population	3,032	2,965	2,971	2,546	2,387	2,181	2,356	2,450	2,584	2,266

* 1984 and 1985 included approximately 4,000 and 7,000 parking lot accidents, respectively; this type of accident was not included in other years.

** Permits included.

TABLE 1.02

TRAFFIC CRASH TRENDS
1981 - 1986

	1981	1982	1983	1984	1985	1986	1981-1985 Average	Record High
Total Crashes	97,879	89,443	97,371	101,554	107,675	95,460	98,788	123,106 (1975)
Injuries	43,739	38,692	41,086	42,654	45,205	42,130	42,275	50,332 (1978)
Total Fatalities	763	581	558	584	610	572	619	1,060 (1968)
Pedestrian	100	76	62	55	65	71	72	157 (1971)
Mv/Train	15	7	15	11	13	12	12	62 (1932)
Bicycle	9	12	14	15	10	12	12	24 (1977)
Motorcycle	85	70	66	62	77	66	72	121 (1980)
3-Wheel Vehicle	N.A.	2	9	4	1	9	4	9 (1983)
Snowmobile	3	1	4	9	3	5	4	N.A.
Motor Vehicle Occupants	558	415	398	430	441	390	448	N.A.
Fatality Rate*	2.67	1.98	1.83	1.81	1.84	1.67	2.03	23.6 (1934)
U.S. Fatality Rate*	3.29	2.89	2.70	2.68	2.58	2.48**	2.83	18.0 (1925)
Economic Loss (millions)	$398.0	$366.4	$393.3	$443.9	$480.9	$445.7	$416.5	$480.9

* Rate is based upon per 100 million vehicle miles of travel.

** Preliminary

N.A. = Not Available

TABLE 1.03

1986 FATALITIES BY TRAFFIC ROLE AND AGE

Traffic Role	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70 & Older	Unknown	Total
Car/Truck Driver	-	51	68	52	33	16	20	30	-	270
Car/Truck Passenger	11	35	31	11	6	6	6	15	1	122
Pedestrian	10	10	13	8	5	3	5	17	-	71
Bicyclist	2	8	-	-	-	2	-	-	-	12
Motorcycle Driver/ Passenger	-	10	32	13	3	4	-	-	4	66
All-Terrain Vehicle Driver/Passenger	-	9	-	-	-	-	-	-	-	9
Snowmobile Driver/Passenger	-	2	1	-	1	1	-	-	-	5
Other/Unknown	-	1	-	2	1	1	1	2	9	17
Total	23	126	145	86	49	33	32	64	14	572

TABLE 1.04

1986 FATALITIES BY TRAFFIC ROLE AND SEX

Traffic Role	Male	Female	Total
Car/Truck Driver	191 (70.7%)	79 (29.3%)	270
Car/Truck Passenger	69 (56.6%)	53 (43.4%)	122
Motorcycle Driver	55 (98.2%)	1 (1.8%)	56
Motorcycle Passenger	2 (33.3%)	4 (66.7%)	6
Pedestrian	46 (64.8%)	25 (35.2%)	71
Bicyclist	8 (66.7%)	4 (33.3%)	12
Moped Driver	2 (100.0%)	0	2
Snowmobile Driver	5 (100.0%)	0	5
All-Terrain Vehicle Driver	8 (100.0%)	0	8
Other Driver	6 (100.0%)	0	6
Other Passenger	1 (100.0%)	0	1
Unknown	10 (76.9%)	3 (23.1%)	13
Total	403 (70.5%)	169 (29.5%)	572

FIGURE 1.02

AGE GROUP AND SEX OF PERSONS KILLED AND INJURED IN 1986

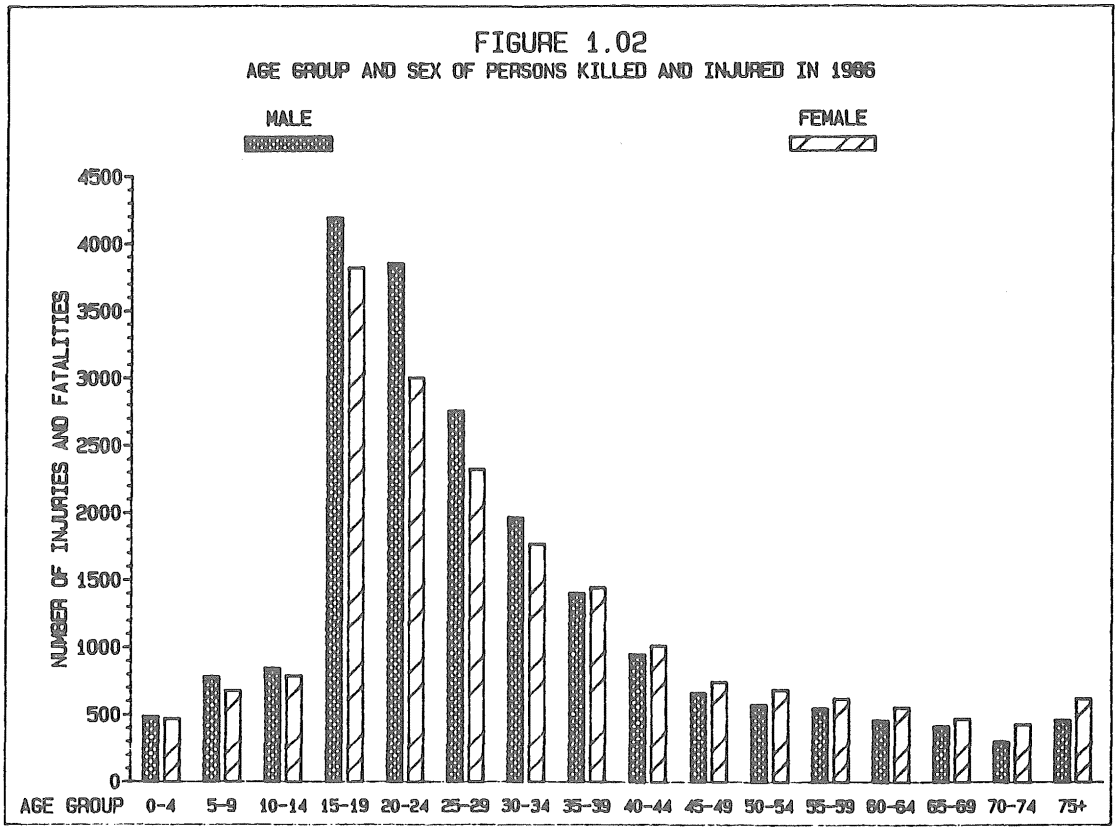


TABLE 1.05

AGE AND SEX OF PERSONS KILLED OR INJURED IN 1986 CRASHES

Age Group	Killed			Injured		
	Male	Female	Total	Male	Female	Total*
0- 4	6	4	10	480	467	949
5- 9	6	7	13	776	671	1,448
10-14	14	8	22	831	781	1,620
15-19	81	31	112	4,113	3,792	7,911
20-24	67	24	91	3,788	2,981	6,769
25-29	43	11	54	2,715	2,313	5,029
30-34	39	14	53	1,924	1,754	3,678
35-39	23	11	34	1,378	1,432	2,812
40-44	20	6	26	927	1,008	1,935
45-49	17	8	25	644	734	1,379
50-54	15	7	22	560	678	1,238
55-59	9	4	13	538	614	1,153
60-64	12	5	17	446	550	996
65-69	10	4	14	404	466	870
70-74	12	6	18	289	424	713
75 & Over	29	18	47	433	604	1,038
Not Stated	0	1	1	1,134	1,425	2,592
Total	403	169	572	21,380	20,694	42,130

* Many totals do not add across because sex or age was not always indicated on the accident report.

TABLE 1.06

PEOPLE KILLED AND INJURED IN VARIOUS VEHICLE TYPES

Vehicle Type	Fatalities	Severe Injuries	Moderate Injuries	Possible Injuries	Total
Passenger Car	322	3,379	11,350	15,779	30,830
Passenger Car & Trailer	0	5	21	32	58
Truck or Truck Tractor	4	42	169	221	436
Truck Tractor and Semi-Trailer	9	21	86	95	211
Truck With Other Trailer	0	4	17	19	40
Pickup Truck	60	444	1,586	1,762	3,852
Van	7	114	387	522	1,030
Motorcycle	66	657	1,070	425	2,218
Motorscooter/Motorbike	1	18	20	8	47
Moped	1	35	55	12	103
All Terrain Vehicle	9	47	38	13	107
School Bus	0	6	22	72	100
Bus	0	11	25	100	136
Motorhome/Camper	0	2	7	7	16
Snowmobile	5	25	21	13	64
Farm Equipment	3	10	15	12	40
Taxicab	0	3	16	41	60
Hit Run Vehicle	0	17	72	83	172
Police Vehicle	0	6	28	73	107
Fire Department Vehicle	0	3	0	0	3
Ambulance	0	1	4	4	9
Military Vehicle	0	0	3	5	8
Road Maintenance Vehicle	0	3	2	9	14
Bicyclist	12	243	673	393	1,321
Pedestrians	71	459	569	542	1,641
Other/Unknown	2	8	33	36	79
Total	572	5,563	16,289	20,278	42,702

TABLE 1.07

DRIVERS IN 1986 CRASHES BY PHYSICAL CONDITION*

Physical Condition	Number of Drivers
Normal	107,082
Under the Influence	4,838
Had Been Drinking	4,599
Had Been Using Drugs	89
Asleep	601
Fatigued	302
Ill	223
Handicapped	119
Other	732
Unknown	56,709
Total	175,294

*As noted by police officer on accident report.

TABLE 1.08

DRIVER LICENSE* SUMMARY BY AGE, 1977 - 1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
15 & Under	17,494	13,379	12,781	12,388	12,788	13,083	13,867	14,686	13,116	11,920
16 - 20	376,689	369,423	358,538	350,345	336,396	322,178	309,682	293,333	290,992	289,349
21 - 25	376,746	371,874	375,865	382,179	391,613	394,187	394,066	386,945	388,026	370,163
26 - 30	339,695	337,143	344,843	353,844	364,655	368,033	372,428	375,738	399,040	400,606
31 - 35	262,448	272,890	283,854	299,522	318,948	328,663	335,037	341,865	360,804	367,520
36 - 40	209,329	218,356	227,471	235,457	241,625	256,066	268,572	279,592	303,775	320,399
41 - 45	180,597	180,777	185,076	188,861	196,504	202,863	213,187	222,389	235,597	239,289
46 - 50	179,610	175,161	172,582	172,042	172,881	173,958	176,424	181,034	188,847	193,823
51 - 55	177,627	175,835	175,052	173,275	173,292	172,158	170,075	167,334	169,734	169,349
56 - 60	162,728	162,762	162,895	165,954	167,906	167,281	167,734	167,301	168,778	167,774
61 - 65	142,313	141,863	144,333	144,819	146,638	149,763	151,671	151,966	158,218	158,781
66 - 70	111,227	113,093	115,001	117,727	121,826	125,456	127,288	129,482	134,695	136,032
71 & Older	160,168	164,064	167,127	169,619	180,825	192,357	197,111	199,140	227,696	241,240
Total	2,696,671	2,696,620	2,725,418	2,766,032	2,825,897	2,866,046	2,897,142	2,910,805	3,039,318	3,066,245

* Includes Learner's Permits

TABLE 1.09

AGE AND SEX OF DRIVERS IN 1986 CRASHES*

Age Group	Drivers in Fatal Crashes				Drivers in All Crashes			
	Male	Female	Not Stated	Total	Male	Female	Not Stated	Total
15 & Under	12	1	0	13	402	179	0	581
16 - 20	120	33	0	153	19,135	10,879	13	30,027
21 - 25	89	27	0	116	17,190	9,809	23	27,022
26 - 30	93	15	0	108	13,607	7,821	20	21,448
31 - 35	56	23	0	79	10,320	6,378	19	16,717
36 - 40	43	14	0	57	7,759	5,021	12	12,792
41 - 45	38	6	0	44	5,641	3,390	4	9,035
46 - 50	31	12	0	43	4,132	2,374	2	6,508
51 - 55	22	7	0	29	3,631	1,977	9	5,617
56 - 60	14	2	0	16	3,483	1,641	8	5,132
61 - 65	19	4	0	23	2,900	1,397	2	4,299
66 - 70	9	3	0	12	2,194	1,172	6	3,372
71 & Over	36	16	0	52	4,437	2,246	20	6,703
Not Stated	2	0	27	29	5,722	2,786	17,533	26,041
Total	584	163	27	774	100,553	57,070	17,671	175,294

* Most crashes involve more than one driver. For that reason, the total number of drivers involved in crashes listed here will be greater than the total number of crashes. Pedestrians and bicyclists are not included.

TABLE 1.10

PERCENT OF DRIVERS IN AN AGE GROUP BY ACCIDENT TYPE - 1986

Accident Type	Drivers 16-20 (%)	Drivers 21-25 (%)	Drivers 26-30 (%)	Drivers 31-35 (%)	Drivers 36-65 (%)	Drivers 66 & Above (%)
Collision With:						
Other Motor Vehicle	75.5	79.5	81.1	82.9	84.6	87.2
Parked Motor Vehicle	4.5	3.3	3.2	2.7	2.4	4.3
Railroad Train	0.1	0.1	0.1	0.1	0.1	0.1
Bicyclist	0.7	0.7	0.8	0.9	0.9	0.9
Pedestrian	0.8	0.8	0.9	0.9	0.9	1.0
Animal	1.8	2.4	2.8	3.1	3.5	1.7
Fixed Object	10.2	8.0	6.8	5.5	4.3	3.4
Other Object	0.4	0.4	0.3	0.4	0.4	0.2
Non-Collision:						
Overturn	5.2	3.9	3.3	2.8	2.2	0.9
Fire/Explosion	0.0	0.1	0.0	0.1	0.1	0.0
Submersion	0.1	0.0	0.0	0.0	0.0	0.0
Other	0.7	0.8	0.7	0.6	0.6	0.3
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The percentages are based on the number of accident-involved drivers in each age group. Bicyclists and pedestrians are not included.

TABLE 1.11

LICENSED* VS. CRASH-INVOLVED DRIVERS BY AGE - 1986

Age Group	Percent of All Licensed Drivers	Percent of Drivers Involved In Fatal Crashes	Percent of Drivers in Injury Crashes	Percent of Drivers in Property Damage Crashes	Percent of Drivers in All Crashes
15 & Under	0.4	1.7	0.5	0.2	0.3
16 - 20	9.4	19.8	19.1	16.3	17.1
21 - 25	12.1	15.0	16.8	14.8	15.3
26 - 30	13.1	13.9	13.0	11.9	12.1
31 - 35	12.0	10.2	10.3	9.2	9.4
36 - 40	10.4	7.4	7.8	7.1	7.2
41 - 45	7.8	5.7	5.5	5.0	5.1
46 - 50	6.3	5.6	3.8	3.7	3.6
51 - 55	5.5	3.7	3.3	3.2	3.1
56 - 60	5.5	2.1	3.1	2.9	2.8
61 - 65	5.2	2.9	2.6	2.4	2.4
66 - 70	4.4	1.6	2.1	1.8	1.9
71 & Over	7.9	6.7	3.8	3.8	4.8
Not Stated	0.0	3.7	8.2	17.8	14.9
	100.0%	100.0%	100.0%	100.0%	100.0%

* Includes drivers with instruction permits.

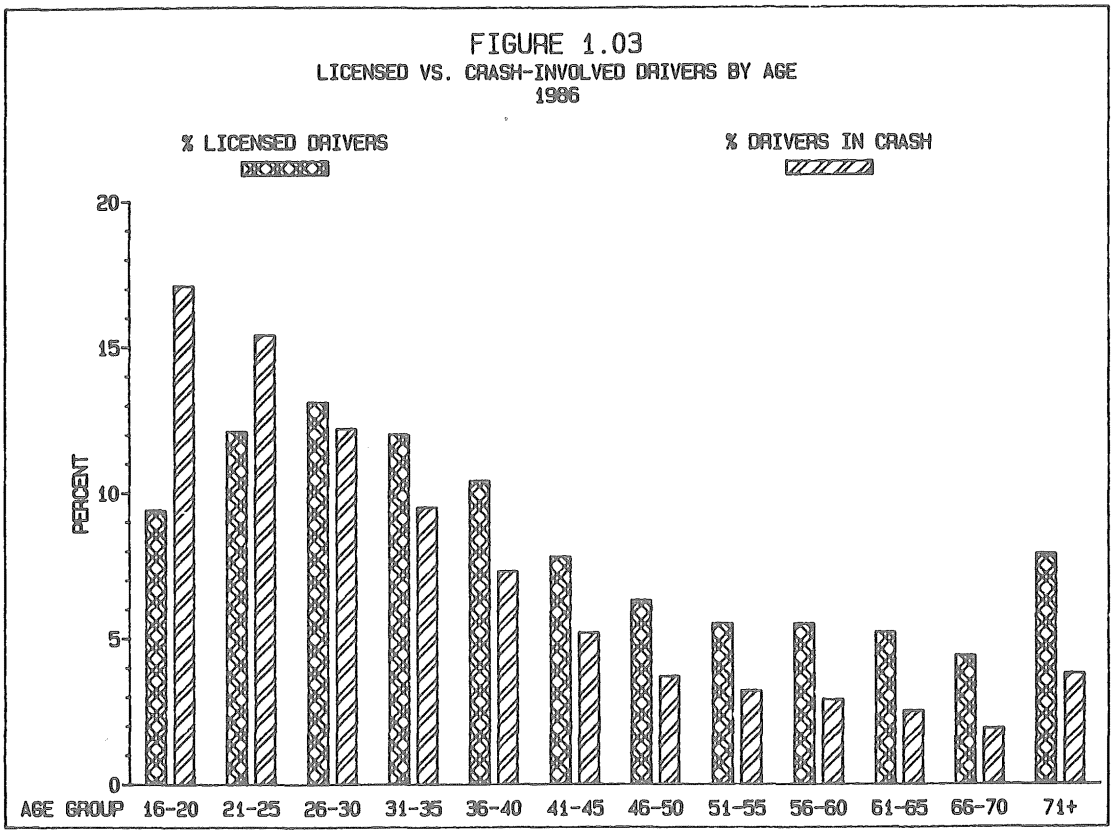


TABLE 1.12

CONTRIBUTING FACTORS CITED BY AGE GROUP OF DRIVER - 1986

Contributing Factor	Drivers 16-20 (%)	Drivers 21-25 (%)	Drivers 26-30 (%)	Drivers 31-35 (%)	Drivers 36-65 (%)	Drivers 66 & Above (%)
Driver Inattention/ Distraction	23.5	24.5	25.4	25.7	26.4	26.9
Failure to Yield Right of Way	14.0	13.4	13.9	14.9	19.1	31.2
Illegal/Unsafe Speed	14.9	14.8	13.0	11.9	8.8	3.4
Following Too Closely	5.4	6.5	6.3	6.4	5.2	2.7
Disregard for Traffic Control Device	3.2	4.4	3.8	3.7	4.1	5.5
Driving Left of Center-- Not Passing	1.7	1.9	1.6	1.9	1.5	1.3
Improper Passing/ Overtaking	1.7	1.9	2.1	1.8	1.7	1.7
Improper/Unsafe Lane Use	3.8	4.3	4.6	4.6	4.6	4.9
Improper Parking/ Starting/Stopping	0.9	1.0	1.1	1.2	1.6	1.9
Improper Turn	2.4	2.4	2.4	2.3	3.3	5.4
Unsafe Backing	1.2	1.1	1.4	1.3	1.7	1.9
No/Improper Signal	0.3	0.4	0.4	0.5	0.6	0.8
Impeding Traffic	0.3	0.4	0.4	0.5	0.4	0.3
Driver Inexperience	10.0	2.5	1.7	1.6	1.3	0.5
Physical Impairment	5.2	8.2	7.8	6.8	4.5	3.6
Vision Obscured	3.0	2.9	3.5	3.9	4.2	3.8
Defective Equipment	1.3	1.4	1.4	1.4	1.2	0.5
Weather	2.5	2.9	3.7	3.6	4.0	0.5
Other	4.6	5.2	5.5	5.9	5.8	3.1
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No Improper Driving	7,656	8,682	7,696	6,476	17,372	2,599
Total Number of Drivers	30,027	27,022	21,448	16,717	43,383	10,075

Percentages are based on all contributing factors cited within each age group. Bicyclists and pedestrians are excluded.

TABLE 1.13

1986 CRASHES AND INJURIES BY ACCIDENT TYPE*

Type of Crash	Total Crashes	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Killed	Total Injured	Fatality Rate Per 1,000 Crashes
Collision With:							
Another Motor Vehicle	62,672	207	18,551	43,914	251	28,782	4.0
Parked Motor Vehicle	8,463	10	855	7,598	11	1,097	1.3
Railroad Train	116	5	53	58	12	66	103.4
Bicyclist	1,364	12	1,285	67	12	1,338	8.8
Pedestrian	1,535	66	1,429	40	67	1,541	43.6
Animal	4,091	1	295	3,795	1	348	0.2
Fixed Object	10,610	108	3,570	6,932	117	4,655	11.0
Other Object	535	1	168	366	1	203	1.9
Non-Collision:							
Overturn	4,971	93	2,558	2,320	97	3,531	19.5
Fire/Explosion	114	0	12	102	0	13	0.0
Submersion	68	0	21	47	0	31	0.0
Other	921	3	429	489	3	525	3.3
Total	95,460	506	29,226	65,728	572	42,130	6.0

TABLE 1.14

1986 HIT AND RUN CRASHES AND INJURIES BY ACCIDENT TYPE*

Type of Crash	Total Crashes	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Killed	Total Injured
Collision With:						
Other Motor Vehicle	3,406	5	756	2,645	6	1,042
Parked Motor Vehicle	4,107	0	82	4,025	0	97
Railroad Train	2	0	1	1	0	1
Bicyclist	160	1	145	14	1	145
Pedestrian	186	6	174	6	6	182
Animal	8	0	0	8	0	0
Fixed Object	1,114	0	84	1,030	0	100
Other Object	32	0	3	29	0	3
Non-Collision:						
Overturn	65	2	25	38	3	34
Fire/Explosion	1	0	0	1	0	0
Other/Unknown	36	0	3	33	0	3
Total	9,117	14	1,273	7,830	16	1,607

* The type of crash is determined by the first harmful event.

TABLE 1.15

1986 CRASHES BY LIGHT CONDITION

Light Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
Daylight	234	18,241	39,429	57,904
Dawn/Dusk	25	1,993	4,718	6,736
Dark/Street Lights On	76	5,291	12,441	17,808
Dark/No Street Lights	166	3,455	6,812	10,433
Other/Unknown	5	246	2,328	2,579
Total	506	29,226	65,728	95,460

TABLE 1.16

1986 CRASHES BY WEATHER CONDITION

Weather Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
Clear	294	15,485	32,657	48,436
Cloudy	143	8,638	18,577	27,358
Rain	29	2,667	5,612	8,308
Snow	11	1,227	4,285	5,523
Sleet/Hail	0	91	501	592
Fog/Smog/Smoke	14	621	1,265	1,900
Blowing Sand/Dust	3	159	339	501
Severe Crosswinds	1	18	91	110
Other	1	42	163	206
Not Stated/Unknown	10	278	2,238	2,526
Total	506	29,226	65,728	95,460

TABLE 1.17

TYPES OF MOTOR VEHICLES IN 1986 CRASHES*

Motor Vehicle Type	Vehicles In Fatal Crashes	Vehicles In Personal Injury Crashes	Vehicles In Property Damage Crashes	Vehicles In All Crashes
Passenger Car	455	39,102	88,850	128,407
Passenger Car & Trailer	1	69	200	270
Truck or Truck Tractor	30	1,027	3,128	4,185
Truck Tractor and Semi-Trailer	51	623	1,943	2,617
Truck Tractor and Twin Trailer	1	8	21	30
Truck With Other Trailer	6	100	258	364
Pickup	110	5,619	13,486	19,215
Van	15	1,467	3,853	5,335
Motorcycle	63	1,919	371	2,353
Motorscooter/Motorbike	1	47	3	51
Motorized Bike/Moped	1	92	4	97
All Terrain Vehicle	9	93	10	112
School Bus	3	163	501	667
Bus	2	143	367	512
Motorhome/Camper	1	35	131	167
Snowmobile	5	49	18	72
Farm Tractor or Equipment	7	90	137	234
Taxicab	0	106	278	384
Hit-and-Run Vehicle	5	1,211	7,660	8,876
Police Vehicle	1	147	249	397
Fire Department Vehicle	0	8	35	43
Ambulance	0	15	33	48
Military Vehicle	0	11	8	19
Road Maintenance Vehicle	1	65	218	284
Other Public Owner Vehicle	3	101	359	463
Other Private Owner Vehicle	3	20	66	89
Other	0	3	0	3
Total	774	52,333	122,187	175,294

* Most crashes involve more than one vehicle. For that reason, the total number of vehicles involved in crashes and listed here is greater than the number of crashes.

TABLE 1.18

1986 CRASHES BY ROAD SURFACE CONDITION

Road Surface Condition	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
Dry	376	19,125	38,105	57,606
Wet	63	5,397	11,478	16,938
Snow/Slush	6	1,118	3,953	5,077
Ice or Packed Snow	43	2,955	9,750	12,748
Other	12	358	598	968
Not Stated/Unknown	6	273	1,844	2,123
Total	506	29,226	65,728	95,460

TABLE 1.19

1986 CRASHES BY ROAD DESIGN

Road Design	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
Freeway	45	1,778	5,079	6,902
Other Divided Highway	48	3,399	5,779	9,226
One-Way Street	2	835	1,385	2,222
4-6 Lanes Undivided-Two-Way	32	5,814	9,838	15,684
3 Lanes Undivided	4	200	346	550
2 Lanes Undivided-Two-Way	362	13,844	25,719	39,925
Alley/Driveway	4	202	690	896
Other	6	316	707	1,029
Not Stated/Unknown	3	2,838	16,185	19,026
Total	506	29,226	65,728	95,460

TABLE 1.20

APPARENT CONTRIBUTING FACTORS IN 1986 CRASHES

Apparent Contributing Factors	Crash Severity: Fatal Crashes	Crash Severity: Personal Injury Crashes	Crash Severity: Property Damage Crashes	Number of People* Affected by the Factor: Killed	Number of People* Affected by the Factor: Injured
Illegal/Unsafe Speed	15.7%	12.5%	11.9%	178	8,258
Driver Inattention/ Distraction	14.9	25.2	24.1	158	16,109
Physical Impairment	17.2	7.9	4.4	176	4,975
Failure to Yield Right of Way	11.3	15.7	15.8	137	10,653
Driving Left of Roadway Center--Not Passing	8.0	2.1	1.6	103	1,542
Pedestrian Violation/Error	5.7	1.8		60	825
Disregard For Traffic Control Device	4.2	5.1	3.3	53	3,562
Driver Inexperience	3.4	4.2	3.8	37	2,726
Improper/Unsafe Lane Use	2.9	3.3	6.2	34	2,042
Vision Obscured	2.5	3.2	3.4	26	1,996
Improper Passing/ Overtaking	1.2	1.3	2.3	15	895
Improper Parking/ Starting/Stopping	1.0	1.0	1.5	14	624
Improper Turn	1.3	1.9	3.4	13	1,243
Defective Equipment	1.6	0.8	1.0	18	527
Following Too Closely	0.3	5.3	5.4	4	3,508
Unsafe Backing	0.2	0.4	2.3	2	261
Impeding Traffic	0.4	0.3	0.4	4	210
No/Improper Signal	0.0	0.3	0.5	0	208
Other	8.1	7.7	8.8	90	4,793
Total*	100.0%	100.0%	100.0%		

* Many crashes have more than one contributing factor.

For Contributing Factors broken down by Driver Age, see Table 1.12.

TABLE 1.21

MOTOR VEHICLE REGISTRATIONS, 1982 - 1986

Type of Vehicle	1982	1983	1984	1985	1986
Passenger Cars	2,157,922	2,185,457	2,258,877	2,339,782	2,395,247
Pickup Trucks	464,801	469,116	490,087	500,744	501,646
Farm Trucks	50,303	45,147	42,502	38,196	36,064
Gross Weight Trucks	51,926	48,269	49,384	54,964	62,162
Urban Zone Trucks*	5,720	4,306	2,792	0	0
Commercial Zone Trucks	348	484	595	855	724
Minnesota Based Prorate Trucks	20,951	22,484	24,394	24,975	25,373
Recreational Vehicles	31,926	31,791	32,451	33,133	32,026
Motorcycles	159,345	155,502	153,851	151,449	141,261
Mopeds	14,725	14,516	13,633	13,034	12,047
School Buses	4,002	4,113	3,998	4,185	4,598
Buses	3,459	3,490	3,604	3,575	3,405
Van Pool**	0	0	137	180	209
Tax Exempt Vehicles***	48,732	49,811	51,525	53,510	35,741
Motor Vehicle Subtotal	3,014,160	3,034,486	3,127,830	3,218,582	3,250,503
Trailers	614,631	565,046	615,004	602,795	663,559
Collector's Items	30,569	35,048	39,981	45,269	50,702
Grand Total	3,659,360	3,634,580	3,782,815	3,866,646	3,964,764

* Urban zone trucks were reclassified in 1985 as either gross weight trucks or commercial zone trucks.

** Prior to 1984, van pools were registered either as passenger cars or buses, depending on the number of passengers they carried.

*** Prior to 1986 tax-exempt vehicles were registered once only and were retained in the registration file indefinitely. Since 1986, they have been required to be registered every two years, and are dropped from the file if not re-registered.

TABLE 1.22

1986 CRASHES BY TYPE OF ROADWAY

Type of Roadway	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
Interstate	34	1,534	5,072	6,640
Trunk Highway	204	10,209	21,017	31,430
County State Aid Highway	155	7,883	14,482	22,520
County Road	20	839	1,266	2,125
Township Road	33	769	1,044	1,846
Local Street	60	7,854	22,140	30,054
Other Road	0	138	707	845
Total	506	29,226	65,728	95,460

TABLE 1.23

1986 CRASHES BY TRAFFIC CONTROL DEVICE

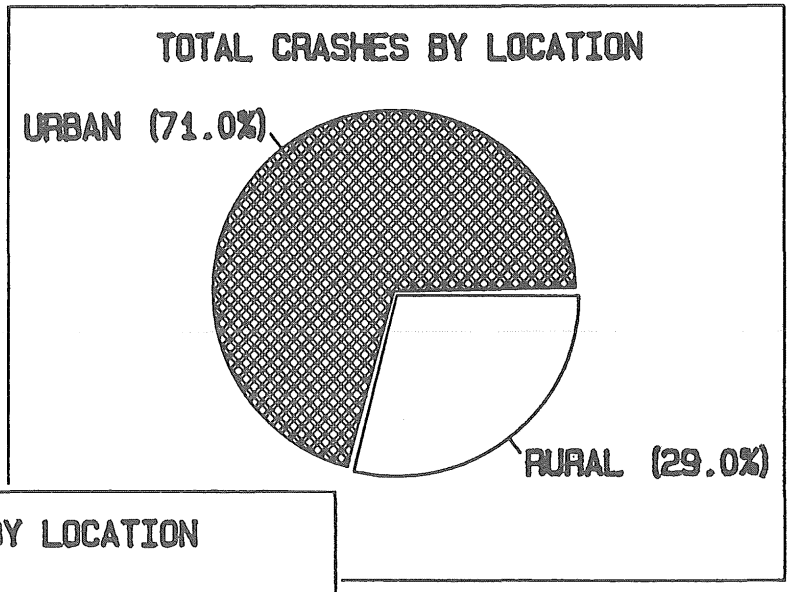
Traffic Control Device	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
None	325	15,269	37,592	53,186
Traffic Signal	25	6,039	10,995	17,059
Overhead Flashers	3	104	170	277
Stop Sign-All Approaches	4	474	1,367	1,845
Other Stop Sign	80	5,258	10,061	15,399
Yield Sign	17	586	1,114	1,717
Flagman, Officer, or School Patrol	1	52	77	130
School Bus Stop Arm	0	23	34	57
School Zone Sign	0	14	12	26
RR Crossing Gate	0	15	43	58
RR Flashing Lights	1	26	32	59
RR Crossing Stop Sign	0	10	19	29
RR Other	3	39	47	89
No Pass Zone	18	348	427	793
Other	13	321	509	843
Unknown	16	648	3,229	3,893
Total	506	29,226	65,728	95,460

TABLE 1.24

LOCATION OF 1986 CRASHES BY POPULATION

Population of City or Township	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	All Crashes
100,000 & Over	46	6,883	17,729	24,658
50,000- 99,999	9	1,606	3,836	5,451
25,000- 49,999	40	5,422	11,734	17,196
10,000- 24,999	32	3,983	9,387	13,402
5,000- 9,999	37	2,108	4,925	7,070
2,500- 4,999	25	1,013	2,395	3,433
1,000- 2,499	7	554	1,346	1,907
Under 1,000	274	6,028	10,249	16,551
Unknown	36	1,629	4,127	5,792
Total	506	29,226	65,728	95,460

FIGURE 1.04



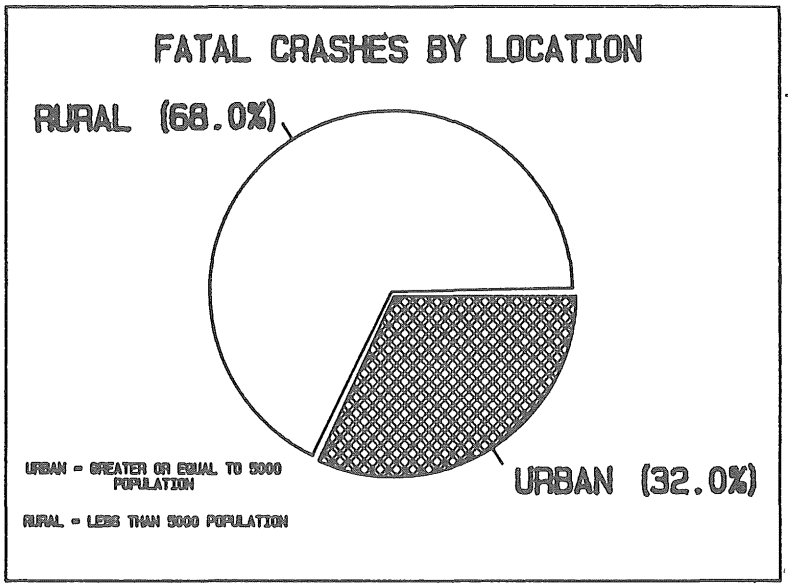


FIGURE 1.05

COUNTY CRASH MAP
Minnesotans Killed/Injured in 1986

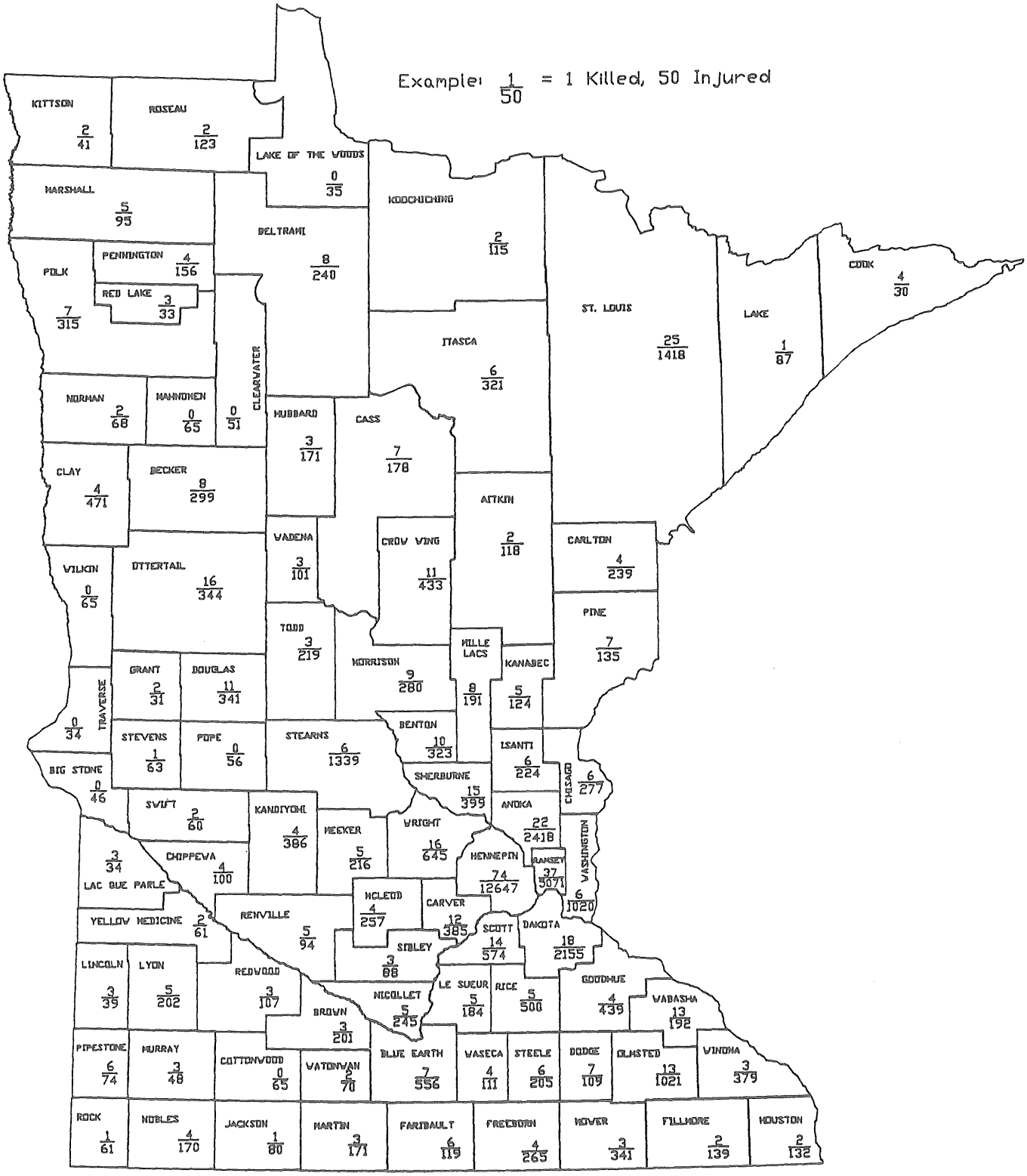


TABLE 1.25

1986 COUNTY CRASH REPORT

County	1986 Crashes				Average Crashes 1981-1985	Number Killed 1986	Average Killed 1981-1985	Number Injured 1986	Average Injured 1981-1985
	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes					
Aitkin	2	78	133	213	237	2	4	118	122
Anoka	21	1,583	2,954	4,558	4,292	22	21	2,418	2,231
Becker	8	194	271	473	460	8	7	299	279
Beltrami	6	164	374	544	588	8	6	240	283
Benton	6	206	393	605	620	10	6	323	307
Big Stone	0	35	64	99	109	0	3	46	52
Blue Earth	7	403	1,042	1,452	1,535	7	7	556	574
Brown	3	141	327	471	564	3	4	201	243
Carlton	4	160	276	440	461	4	4	239	197
Carver	9	271	622	902	865	12	8	385	424
Cass	7	126	202	335	349	7	9	178	197
Chippewa	2	70	130	202	231	4	7	100	109
Chisago	6	182	429	617	550	6	7	277	256
Clay	4	306	833	1,143	1,183	4	6	471	426
Clearwater	0	38	49	87	103	0	3	51	65
Cook	3	21	95	119	116	4	1	30	50
Cottonwood	0	46	108	154	192	0	3	65	83
Crow Wing	9	293	648	950	1,034	11	14	433	450
Dakota	17	1,483	3,388	4,888	4,773	18	25	2,155	2,226
Dodge	6	72	158	236	239	7	2	109	122
Douglas	8	228	438	674	674	11	6	341	305
Faribault	5	78	122	205	243	6	4	119	99
Fillmore	2	106	193	301	329	2	4	139	170
Freeborn	4	190	428	622	768	4	6	265	334
Goodhue	3	299	568	870	913	4	8	439	416
Grant	2	24	58	84	91	2	2	31	46
Hennepin	68	9,096	20,409	29,573	30,175	74	77	12,647	12,595
Houston	2	94	172	268	297	2	4	132	152
Hubbard	3	103	167	273	246	3	5	171	144
Isanti	5	142	303	450	399	6	4	224	222
Itasca	5	219	338	562	657	6	10	321	355
Jackson	1	53	130	184	216	1	2	80	86
Kanabec	5	74	119	198	181	5	2	124	82
Kandiyohi	3	258	463	724	1,001	4	6	386	422
Kittson	2	21	52	75	71	2	2	41	38
Koochiching	2	70	134	206	247	2	3	115	144
Lac Qui Parle	3	20	60	83	140	3	3	34	54
Lake	1	68	146	215	214	1	3	87	92
Lake of The Woods	0	23	32	55	54	0	1	35	29
LeSueur	5	135	293	433	483	5	3	184	215
Lincoln	3	23	54	80	104	3	2	39	51
Lyon	5	129	204	338	379	5	5	202	203

TABLE 1.25 CONT'D

1986 COUNTY CRASH REPORT

County	1986 Crashes: Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Average Crashes 1981-1985	Number Killed 1986	Average Killed 1981-1985	Number Injured 1986	Average Injured 1981-1985
Mcleod	4	183	462	649	691	4	7	257	283
Mahnomen	0	37	38	75	65	0	2	65	38
Marshall	4	66	79	149	131	5	2	95	79
Martin	3	108	209	320	423	3	4	171	193
Meeker	4	123	219	346	389	5	6	216	163
Mille Lacs	7	117	222	346	335	8	6	191	166
Morrison	6	186	337	529	582	9	8	280	306
Mower	3	234	470	707	778	3	6	341	323
Murray	3	32	58	93	133	3	4	48	57
Nicollet	5	162	341	508	519	5	5	245	216
Nobles	3	112	239	354	442	4	3	170	149
Norman	2	31	65	98	98	2	3	68	46
Olmsted	11	705	1,470	2,186	2,370	13	14	1,021	1,016
OtterTail	14	230	461	705	799	16	12	344	400
Pennington	4	109	147	260	263	4	3	156	137
Pine	7	88	232	327	314	7	8	135	151
Pipestone	2	53	106	161	187	6	1	74	60
Polk	6	193	370	569	621	7	5	315	274
Pope	0	37	88	125	156	0	3	56	64
Ramsey	36	3,748	11,140	14,924	15,366	37	39	5,071	5,348
Red Lake	1	22	38	61	72	3	2	33	32
Redwood	3	75	139	217	246	3	2	107	110
Renville	5	63	143	211	261	5	5	94	131
Rice	4	357	646	1,007	1,020	5	7	500	445
Rock	1	47	130	178	203	1	2	61	67
Roseau	2	68	139	209	150	2	3	123	75
St. Louis	22	977	2,198	3,197	3,552	25	34	1,418	1,486
Scott	14	385	935	1,334	1,180	14	7	574	561
Sherburne	12	241	373	626	602	15	8	399	337
Sibley	3	64	167	234	225	3	2	88	120
Stearns	5	874	1,720	2,599	2,777	6	23	1,339	1,162
Steele	6	146	423	575	592	6	3	205	235
Stevens	1	45	93	139	178	1	1	63	65
Swift	2	38	92	132	159	2	1	60	67
Todd	3	123	216	342	378	3	6	219	202
Traverse	0	16	25	41	57	0	1	34	31
Wabasha	8	124	235	367	402	13	6	192	183
Wadena	3	67	166	236	256	3	2	101	115
Waseca	4	90	211	305	328	4	4	111	150
Washington	6	687	1,731	2,424	2,287	6	16	1,020	1,074
Watonwan	2	50	123	175	202	2	1	70	85
Wilkin	0	45	96	141	171	0	3	65	81
Winona	2	282	741	1,025	1,131	3	9	379	396
Wright	14	419	719	1,152	1,132	16	18	645	556
Yellow Medicine	2	42	97	141	178	2	4	61	90
Total	506	29,226	65,728	95,460	98,788	572	619	42,130	42,275

TABLE 1.26

1986 CRASHES BY CITY*

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Number Killed	Number Injured
Albert Lea	0	111	257	368	0	157
Alexandria	1	109	242	352	1	153
Andover	2	51	99	152	2	73
Anoka	0	157	339	496	0	236
Apple Valley	1	154	307	462	1	229
Arden Hills	2	71	229	302	2	92
Austin	2	134	285	421	2	192
Bemidji	1	74	249	324	1	88
Blaine	6	297	450	753	6	463
Bloomington	4	753	1,823	2,580	4	1,010
Brainerd	0	115	326	441	0	176
Brooklyn Center	6	326	585	917	6	456
Brooklyn Park	1	342	552	895	1	513
Burnsville	2	305	723	1,030	3	461
Champlin	1	76	136	213	1	109
Chanhassen	3	74	164	241	3	104
Chaska	1	64	142	207	1	84
Chisholm	1	12	28	41	1	13
Cloquet	0	52	134	186	0	69
Columbia Heights	0	134	248	382	0	181
Coon Rapids	3	291	575	869	3	425
Cottage Grove	0	68	195	263	0	102
Crookston	0	51	92	143	0	93
Crystal	1	139	269	409	2	196
Detroit Lakes	0	66	103	169	0	82
Duluth	3	434	1,085	1,522	3	631
Eagan	1	167	417	585	1	234
East Bethel	0	23	59	82	0	36
East Grand Forks	1	40	146	187	1	49
Eden Prairie	5	193	544	742	6	258
Edina	1	320	616	937	1	447
Elk River	1	67	116	184	1	99
Eveleth	0	12	60	72	0	17
Fairmont	2	62	144	208	2	93
Falcon Heights	1	46	97	144	1	62
Faribault	0	156	258	414	0	222
Fergus Falls	1	57	162	220	1	85
Fridley	2	306	579	887	2	467
Golden Valley	2	268	625	895	3	363
Grand Rapids	0	49	136	185	0	68
Ham Lake	3	79	105	187	3	146
Hastings	0	98	229	327	0	137
Hibbing	0	110	248	358	0	153
Hopkins	1	120	299	420	1	161
Hutchinson	0	60	211	271	0	78
International Falls	0	17	61	78	0	28
Inver Grove Heights	1	117	230	348	1	180
Lake Elmo	1	25	70	96	1	41
Litchfield	1	27	65	93	1	44
Little Canada	1	106	202	399	1	147
Little Falls	1	44	136	181	1	61
Mankato	2	270	726	998	2	352

* Cities of at least 5,000 population.

TABLE 1.26 CONT'D.

1986 CRASHES BY CITY*

City	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Number Killed	Number Injured
Maple Grove	0	82	251	333	0	110
Maplewood	4	236	574	814	4	336
Marshall	0	56	72	128	0	85
Mendota Heights	0	72	198	270	0	103
Minneapolis	27	4,435	10,226	14,688	27	6,112
Minnetonka	2	358	603	963	2	484
Montevideo	1	33	70	104	1	42
Moorhead	1	181	642	824	1	267
Morris	0	24	65	89	0	35
Mounds View	0	53	134	187	0	66
New Brighton	2	66	260	328	2	85
New Hope	1	96	197	294	1	124
New Ulm	0	82	177	259	0	111
Northfield	0	62	117	179	0	91
North Mankato	0	52	102	154	0	74
North St. Paul	0	72	177	249	0	105
Oakdale	1	39	131	171	1	51
Orono	0	59	129	188	0	80
Owatonna	1	81	262	344	1	112
Plymouth	2	216	611	829	2	314
Prior Lake	2	66	120	188	2	95
Ramsey	3	46	90	139	3	82
Red Wing	1	124	239	364	1	171
Redwood Falls	0	14	51	65	0	16
Richfield	1	320	724	1,045	1	468
Robbinsdale	1	123	256	380	1	172
Rochester	2	425	976	1,403	2	578
Rosemount	2	47	129	178	2	68
Roseville	4	215	681	900	5	292
St. Cloud	1	537	1,080	1,618	1	778
St. Louis Park	0	334	759	1,093	0	451
St. Paul	19	2,488	7,822	10,329	19	3,297
St. Peter	0	41	88	129	0	55
Sauk Rapids	1	42	74	117	1	57
Shakopee	0	109	301	410	0	157
Shoreview	0	79	179	258	0	121
South St. Paul	1	96	260	357	1	123
Spring Lake Park	0	43	132	175	0	62
Stillwater	0	69	210	279	0	89
Thief River Falls	1	84	110	195	1	115
Vadnais Heights	1	67	158	226	1	94
Virginia	0	62	199	261	0	89
Waseca	1	34	99	134	1	40
West St. Paul	0	145	317	462	0	216
White Bear Lake	1	161	357	519	1	221
Willmar	1	121	280	402	1	168
Winona	0	169	451	620	0	226
Woodbury	1	86	225	312	1	122
Worthington	1	54	155	210	1	85

* Cities of at least 5,000 population.

TABLE 1.27

1986 CRASHES, INJURIES AND FATALITIES BY MONTH

	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Injuries
January	25	2,404	7,194	9,623	31	3,514
February	18	2,082	6,248	8,348	19	2,946
March	25	1,877	4,535	6,437	29	2,733
April	31	2,100	4,031	6,162	31	3,041
May	44	2,613	4,776	7,433	53	3,776
June	65	2,808	4,748	7,621	78	4,018
July	54	2,855	4,843	7,752	67	4,196
August	63	2,846	5,232	8,141	69	4,100
September	52	2,621	5,326	7,999	58	3,673
October	43	2,446	5,798	8,287	44	3,516
November	52	2,317	7,047	9,416	56	3,299
December	34	2,257	5,950	8,241	37	3,318
Total	506	29,226	65,728	95,460	572	42,130

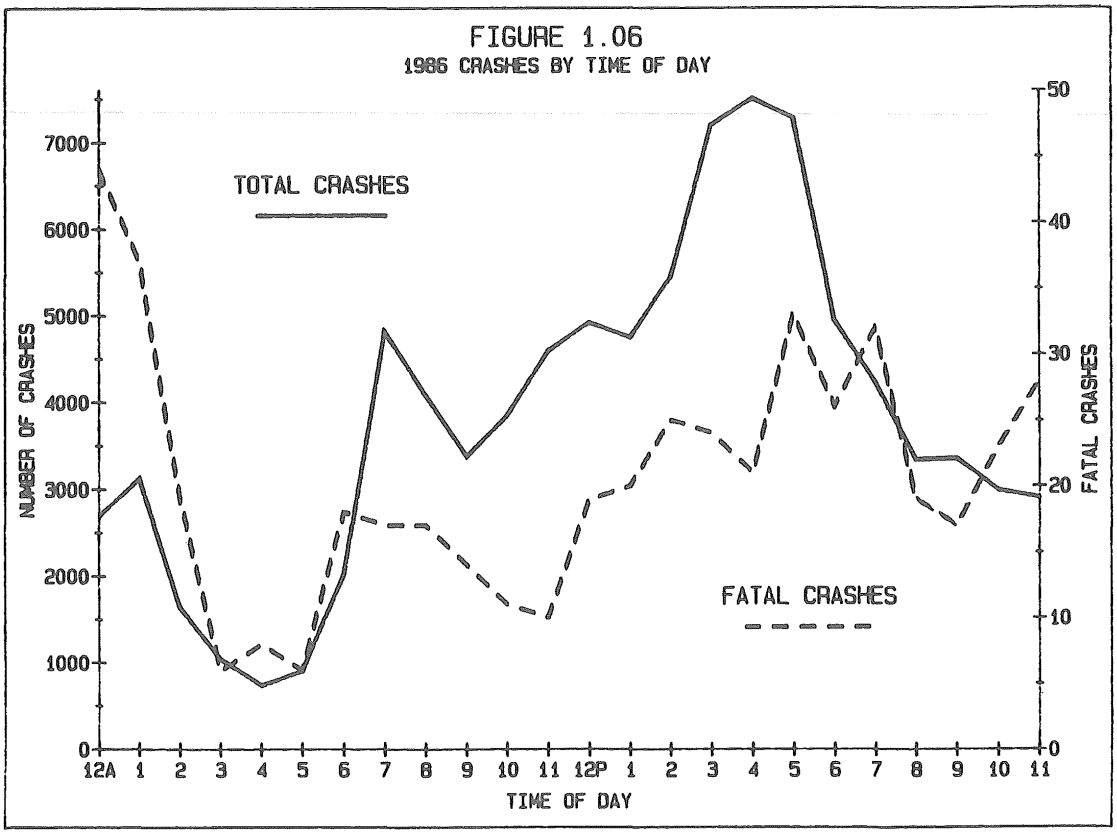


TABLE 1.28

1986 CRASHES BY TIME OF DAY AND DAY OF WEEK

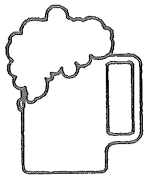
Hour Beginning	Total Crashes	Fatal Crashes	Monday All	Monday Fatal	Tuesday All	Tuesday Fatal	Wednesday All	Wednesday Fatal	Thursday All	Thursday Fatal	Friday All	Friday Fatal	Saturday All	Saturday Fatal	Sunday All	Sunday Fatal
Midnight-1	2,692	44	243	7	228	4	263	2	299	7	325	4	743	9	591	11
1:00-2:00	3,128	37	163	2	274	7	257	3	336	3	366	1	941	12	791	9
2:00-3:00	1,641	19	90	0	120	2	137	1	183	2	194	1	504	4	413	9
3:00-4:00	1,043	6	74	0	89	0	83	1	102	1	122	2	319	2	254	0
4:00	735	8	64	0	66	1	84	0	59	0	94	1	191	2	177	4
5:00	911	6	141	1	108	1	126	0	107	0	116	1	176	1	137	2
6:00	2,020	18	364	4	361	3	316	1	350	4	313	0	170	1	146	5
7:00	4,823	17	846	1	952	4	897	4	927	2	856	2	218	3	127	1
8:00	4,082	17	681	1	713	1	699	4	781	3	709	2	327	3	172	3
9:00	3,373	14	530	1	541	1	505	2	515	2	535	5	481	1	266	2
10:00	3,853	11	546	0	548	2	534	2	565	3	632	0	666	2	362	2
11:00	4,598	10	597	4	614	0	660	1	675	3	800	1	819	1	433	0
Noon	4,928	19	636	3	606	6	712	3	726	2	866	3	844	2	538	0
1:00	4,745	20	639	4	667	5	563	3	716	2	826	4	820	2	514	0
2:00	5,454	25	744	3	814	8	687	2	868	4	1,047	4	765	3	529	1
3:00	7,206	24	989	3	1,177	5	1,076	0	1,176	5	1,408	1	794	5	586	5
4:00	7,510	21	1,134	2	1,255	3	1,176	5	1,198	1	1,403	3	768	3	576	4
5:00	7,278	33	1,058	6	1,231	5	1,113	4	1,181	8	1,382	1	722	4	588	5
6:00	4,945	26	597	4	772	2	690	4	699	1	948	4	710	6	529	5
7:00	4,227	32	524	6	601	1	571	4	577	5	823	4	649	9	482	3
8:00	3,336	19	375	0	442	2	457	7	484	4	627	2	584	2	367	2
9:00	3,357	17	372	1	446	0	460	4	482	2	677	4	555	3	365	3
10:00	2,990	23	300	4	323	5	424	3	451	2	655	5	544	4	293	0
11:00	2,903	28	253	5	290	1	311	2	346	4	775	9	647	4	281	3
Unknown	3,682	12	464	0	486	0	480	1	545	3	655	0	637	3	415	5
Total	95,460	506	12,424	62	13,724	69	13,281	63	14,351	73	17,154	64	14,594	91	9,932	84

TABLE 1.29

HOLIDAY CRASH SUMMARY, 1982-1986

	Year	Hours*	Total Crashes	Fatal Crashes	Personal Injury Crashes	Fatalities	Injuries
New Year's	1982	54	640	0	159	0	281
(For 1987, the holiday	1983	54	577	1	160	1	244
period was 6 p.m.	1984	78	931	1	194	1	317
Wed., Dec. 31, 1986 to	1985	30	446	1	112	1	169
midnight Thurs.,	1986	30	249	3	70	3	112
Jan. 1, 1987)	1987	30	199	0	56	0	84
Memorial Day	1982	78	548	6	215	6	333
(For 1986, the holiday	1983	78	826	9	304	11	488
period was 6 p.m. Fri.,	1984	78	696	7	246	7	383
May 23, 1986-midnight	1985	78	715	5	281	5	395
Mon. May 26, 1986)	1986	78	855	9	285	11	421
July 4th	1982	78	606	12	242	14	389
(For 1986 the holiday	1983	78	750	5	293	5	494
period was 6 pm Thurs.,	1984	30	328	2	140	2	213
July 3, 1986-midnight	1985	30	353	5	136	5	211
Sun., July 6, 1986)	1986	78	751	4	278	5	469
Labor Day	1982	78	667	7	237	8	381
(For 1986, the holiday	1983	78	793	5	299	5	437
period was 6 p.m. Fri.,	1984	78	748	5	274	5	451
Aug. 29, 1986-midnight	1985	78	814	6	279	7	419
Mon., Sept. 1, 1986)	1986	78	800	8	280	8	446
Thanksgiving	1982	102	1,035	10	289	11	456
(For 1986, the holiday	1983	102	1,350	5	290	6	443
period was 6 p.m. Wed.,	1984	102	1,491	9	440	12	667
Nov. 26, 1986-midnight	1985	102	2,054	8	461	8	461
Sun., Nov. 30, 1986)	1986	102	838	13	192	15	323
Christmas	1982	54	471	1	112	1	177
(For 1986, the holiday	1983	78	1,435	3	313	3	483
period was 6 p.m. Wed.,	1984	30	174	1	52	1	78
Dec. 24, 1986-midnight	1985	30	178	0	45	0	66
Thurs., Dec. 25, 1986)	1986	30	130	3	35	3	48

* The number of hours for a holiday period varies depending on what day of the week the holiday falls.



ALCOHOL-RELATED CRASHES

In March 1986, Minnesota became the 39th state to enact a law making it illegal for persons under the age of 21 to consume alcohol. The law took effect on September 1, 1986. Persons who had reached their nineteenth birthday before then were deemed 21 for purposes of the law.

There are currently two ways of measuring alcohol involvement in Minnesota motor vehicle accidents. One is by the police officer's indication of the driver's physical condition. If "under the influence" or "had been drinking" are marked on the traffic accident report, the accident is considered alcohol-related. This is the measure which is used to count alcohol-related injuries (Table 2.04). With the second resource of alcohol concentration test results, the number of alcohol-related fatalities are calculated (also Table 2.04). Because alcohol information on fatalities is derived from both the police report and the alcohol test result, the percentage of alcohol-related fatalities is more accurate than the percentage of alcohol-related injuries or crashes.

* In 1986, 49 percent of drivers killed had been drinking and 41 percent were over the legal limit. These figures are slightly higher than the all-time lows in 1985 of 47 and 37 percent.

* One of the most noticeable changes in 1986 was in the percent of 16-to-20-year-old drivers killed who had been drinking. Between 1985 and 1986, there was a 17 percentage point drop in this age category -- from 67 percent to 50 percent. Despite this fact, 16-to-20-year-olds still represent the largest single age group of drivers killed and the largest number of drivers killed who had been drinking (see Table 2.09).

* The majority of people that were either killed or injured in alcohol-related crashes in 1986 were between 15 and 29 years of age.

* Ninety-three percent of drivers killed and 87 percent of pedestrians killed between 9:00 p.m. and midnight had been drinking.

* The percentage of pedestrians killed who had been drinking rose significantly to 57 percent in 1986 after a dramatic drop to 41 percent in 1985. The percentage who were drunk rose from 27 percent in 1985 to 55 percent in 1986.

* All six of the 1986 pedestrians killed between the ages of 36 and 40 had been drinking and all were over the legal limit of .10 alcohol content.

TABLE 2.01

DRINKING DRIVER SUMMARY - 1977-1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Drunken Driving Arrests	16,976	18,078	18,092	22,788	27,034	28,048	32,155	36,638	35,383	36,390
Alcohol-Related Driver License Revocations	17,741	24,357	24,966	30,481	32,043	36,024	41,311	43,502	40,807	42,586
For Conviction of DWI Charge	NA	15,512	14,797	17,406	19,009	9,400	5,462	5,334	4,652	6,038
Administrative Revocations For Refusing Test	NA	3,344	3,427	3,863	4,427	8,456	11,155	11,413	9,219	8,468
For Failing Test (.10 or higher)	NA	5,501	6,742	9,212	8,607	18,168	24,694	26,755	26,936	28,080
Drivers Killed	476	576	523	519	437	321	345	383	372	347
Tested (died within 4 hours)	58%	66%	63%	65%	66%	72%	75%	83%	79%	81%
Positive (had been drinking)	60%	63%	58%	69%	62%	54%	56%	58%	47%	49%
Drunk (.10 or higher)	54%	51%	45%	58%	52%	48%	45%	47%	37%	41%

TABLE 2.02

DWI ARRESTS BY AGE 1982-1986*

Age	1982	1983	1984	1985	1986
Under 15	4	7	6	8	8
15	13	21	21	24	27
16	202	169	185	171	254
17	503	546	500	446	546
18	1,327	1,284	1,342	1,109	1,151
19	1,789	1,983	2,166	1,864	1,813
20	1,840	2,040	2,370	2,035	2,002
21	1,682	2,028	2,377	2,053	2,070
22	1,683	1,931	2,269	2,170	2,115
23	1,504	1,883	2,202	2,024	2,040
24	1,504	1,682	2,002	2,007	2,006
25-29	5,229	6,299	7,511	7,618	8,295
30-34	3,450	3,948	4,720	4,933	5,002
35-39	2,273	2,701	3,013	3,200	3,316
40-44	1,589	1,796	2,078	2,062	2,098
45-49	1,119	1,239	1,394	1,292	1,274
50-54	849	975	916	911	857
55-59	688	738	704	686	631
60-64	412	471	443	395	397
65 & over	388	414	419	375	448
TOTAL	28,048	32,155	36,638	35,383	36,390

TABLE 2.03

DWI ARRESTS BY SEX*

Age	1982	1983	1984	1985	1986
Male	24,264	27,521	31,327	30,135	30,836
Female	3,784	4,634	5,311	5,248	5,554

* Totals do not include St. Paul.

TABLE 2.04

AGE OF PERSONS KILLED AND INJURED IN 1986 ALCOHOL-RELATED CRASHES

Age	Killed*	Injured**
0 - 4	3	81
5 - 9	1	80
10 - 14	4	109
15 - 19	62	1,583
20 - 24	56	1,814
25 - 29	37	1,194
30 - 34	31	718
35 - 39	20	455
40 - 44	14	248
45 - 49	11	146
50 - 54	7	143
55 - 59	5	109
60 - 64	3	96
65 - 69	2	44
70 - 74	4	46
75 & Older	3	50
Not Stated	1	381
Total	264	7,297

* Includes alcohol test information as well as officer's perception of alcohol noted on accident report.

** Includes only police officer's perception of alcohol noted on accident report.

TABLE 2.05

PERCENT ALCOHOL-RELATED

	Minnesota		United States	
	1984	1985	1984	1985
Deaths	52%	43%	53%	51%*
Injuries	19%	16%	N/A	15%**
Property Damage Crashes	7%	6%	N/A	N/A

* Fatal Accident Reporting System (FARS) data.

** National Accident Sampling System (NASS) data.

FIGURE 2.01
ALCOHOL RELATED CRASHES - BY TIME OF DAY

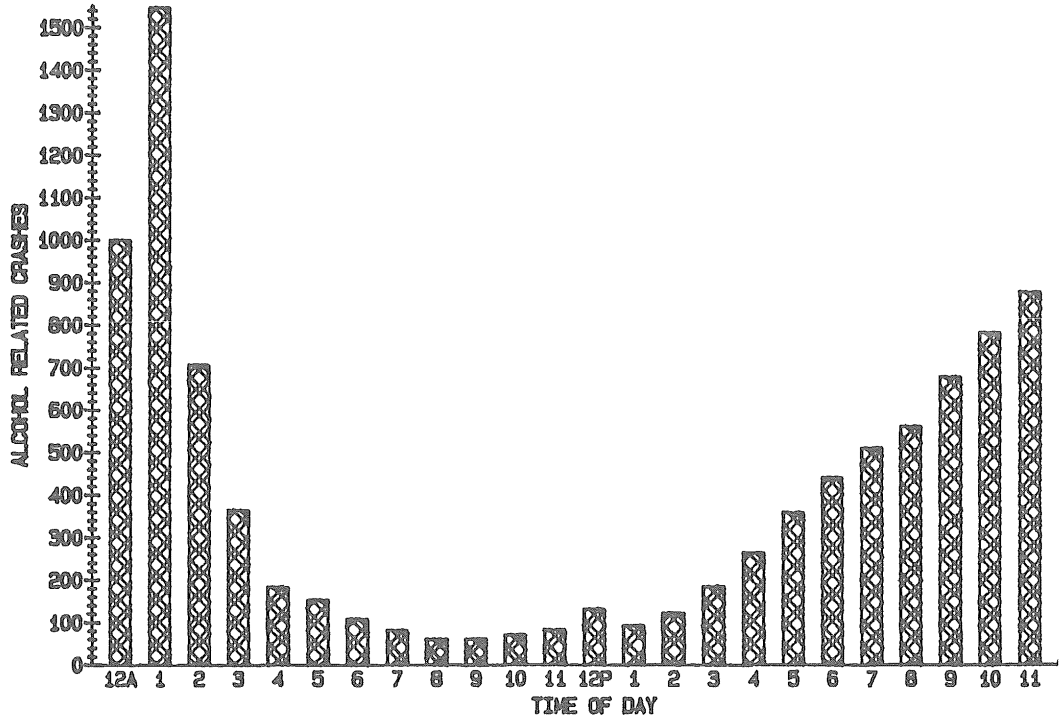


FIGURE 2.02
ALCOHOL RELATED CRASHES BY DAY OF WEEK

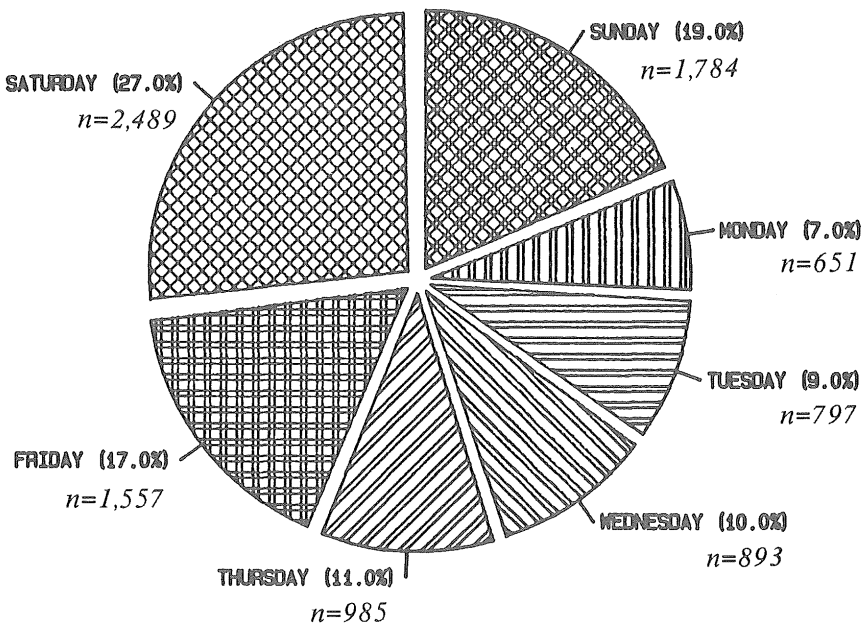


TABLE 2.06

ALCOHOL-RELATED FATAL CRASHES BY FIRST HARMFUL EVENT, 1986

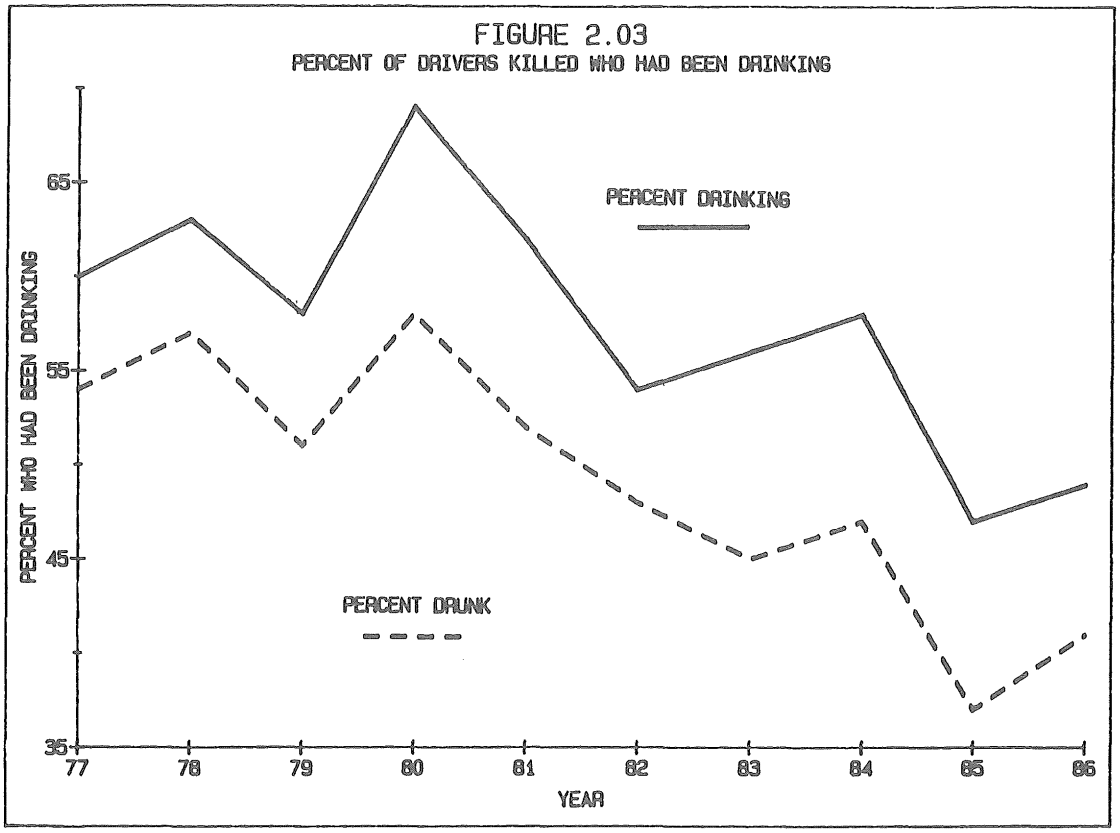
	Fatal Crashes	
	Controller* Had Been Drinking	Total
Collision with:		
Other Motor Vehicle	66 (30%)	217 (100%)
Railroad Train	0	5 (100%)
Bicyclist	2 (17%)	12 (100%)
Pedestrian	32 (49%)	66 (100%)
Animal	0	1 (100%)
Fixed Object	73 (68%)	108 (100%)
Other Object	0	1 (100%)
Non-Collision:		
Overturn	64 (69%)	93 (100%)
Submersion	0	0 (100%)
Other	1 (33%)	3 (100%)
Total	238 (47%)	506 (100%)**

* A person who was in a position of control during the accident such as driver, pedestrian or bicyclist.

TABLE 2.07

1986 FATALITIES' LEVEL OF INTOXICATION BY TRAFFIC ROLE

Fatality Type	Total Killed	Total Tested	Total Drinking (.01 or more)	Total Drunk (.10 or more)
Driver	270	221	100	85
Passenger	122	61	34	20
Motorcycle Driver	56	46	30	25
Motorcycle Passenger	6	4	3	3
Pedestrian	71	49	28	27
Bicyclist	12	5	0	0
Moped Driver	2	2	1	1
All-Terrain Vehicle Driver	8	6	2	1
Other Driver	11	6	5	2
Other Passenger	1	0	0	0
Other/Unknown	13	8	6	5
Total	572	408	209	169



DRINKING DRIVER FATALITY SUMMARY 1977-1986

TABLE 2.08A

DRIVERS KILLED WHO HAD BEEN DRINKING

	Killed	Tested	Drinking* (.01 or more)	Drunk* (.10 or more)
1977	476	276	166	149
1978	576	381	241	218
1979	523	329	190	168
1980	519	337	232	195
1981	437	288	178	150
1982	321	232	126	112
1983	345	258	145	117
1984	383	318	185	149
1985	372	295	139	108
1986	347	281	138	114

* Percentages are based on those tested.

TABLE 2.08B

DRIVERS KILLED WHO TESTED .01 OR HIGHER

	Male	Female	Total	Occurred Between Midnight - 3 am	Under Legal Age
1977	148	18	166	48 (29%)	19 (11%)
1978	222	19	241	78 (32%)	32 (13%)
1979	169	21	190	57 (30%)	27 (14%)
1980	211	21	232	68 (29%)	23 (10%)
1981	162	16	178	61 (34%)	17 (10%)
1982	116	10	126	41 (33%)	9 (7%)
1983	129	16	145	38 (26%)	13 (9%)
1984	163	22	185	63 (34%)	17 (9%)
1985	116	23	139	60 (43%)	14 (10%)
1986	117	21	138	50 (36%)	16 (12%)*

TABLE 2.08C

DRIVERS KILLED WHO TESTED .10 OR HIGHER

	Male	Female	Total	Occurred Between Midnight - 3 am	Under Legal Age
1977	135	14	149	48 (32%)	13 (9%)
1978	198	20	218	82 (38%)	21 (10%)
1979	149	19	168	68 (40%)	19 (11%)
1980	179	16	195	68 (35%)	17 (9%)
1981	138	12	150	81 (54%)	15 (10%)
1982	102	10	112	41 (37%)	7 (6%)
1983	105	12	117	38 (32%)	8 (7%)
1984	132	17	149	50 (34%)	12 (8%)
1985	90	18	108	49 (45%)	6 (6%)
1986	100	14	114	42 (37%)	12 (11%)*

* On September 1, 1986, the drinking age was raised from 19 to 21.

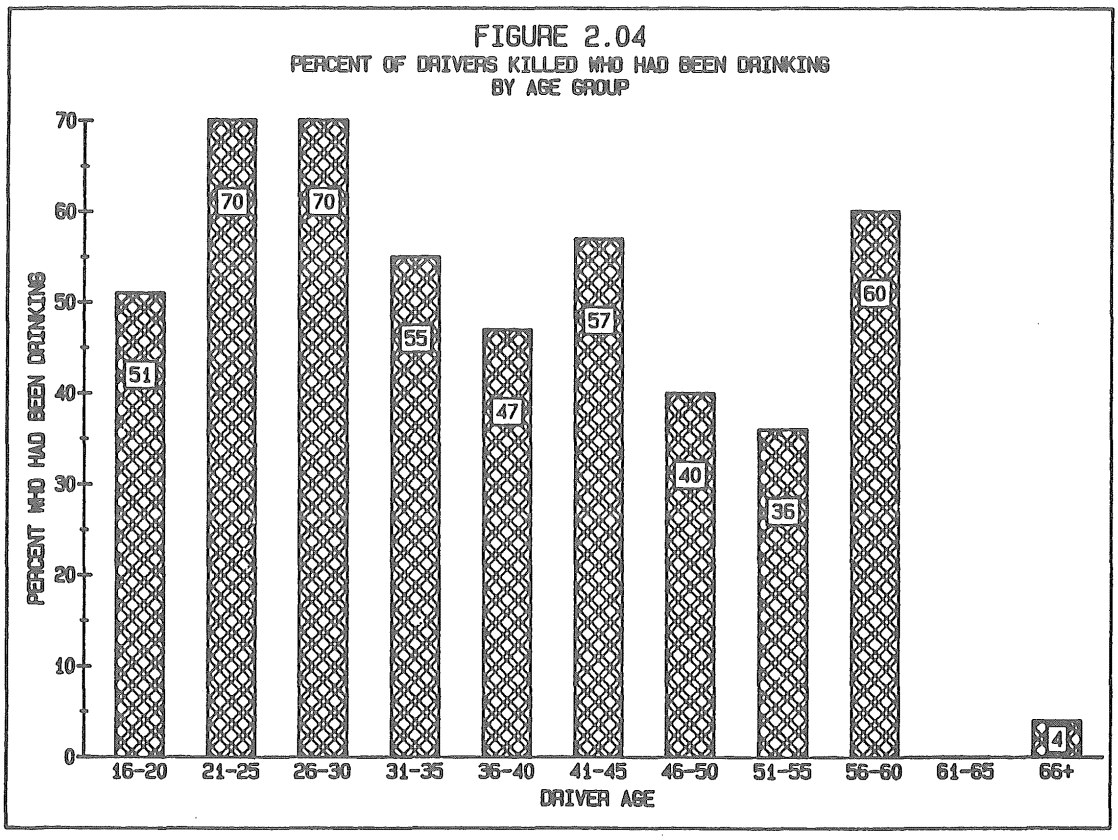


TABLE 2.09

1986 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

Age	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
15 & Below	8	4	0	0					
16	9	7	1	1			1		
17	14	11	7	5	1	1	2	3	
18	17	17	8	6	1	1	3	3	
19	22	19	11	7	1	3	1	5	1
20	22	20	10	7	1	2		6	1
16 - 20	84	74	37 (50%)	26 (35%)	4	7	7	17	2
21 - 25	49	40	28 (70%)	22 (55%)	1	5	8	10	4
26 - 30	44	37	26 (70%)	24 (65%)		2	3	17	4
31 - 35	33	29	16 (55%)	16 (55%)			3	9	4
36 - 40	23	19	9 (47%)	7 (37%)		2	1	6	
41 - 45	17	14	8 (57%)	8 (57%)			2	4	2
46 - 50	18	15	6 (40%)	3 (20%)	1	2		1	2
51 - 55	14	11	4 (36%)	4 (36%)				4	
56 - 60	5	5	3 (60%)	3 (60%)				3	
61 - 65	16	8	0	0					
66 & Above	36	25	1 (4%)	1 (4%)					1
Unknown	0	0	0	0					
Total	347	277	138 (49%)	114 (41%)	6	18	24	71	19

TABLE 2.10

1986 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY MONTH

Month	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
January	15	12	6 (50%)	5 (42%)	0	1	0	4	1
February	11	10	3 (30%)	3 (30%)	0	0	0	2	1
March	16	14	7 (50%)	6 (43%)	0	1	2	4	0
April	20	15	6 (40%)	5 (33%)	1	0	1	2	2
May	30	25	16 (64%)	14 (56%)	0	2	3	9	2
June	49	40	21 (53%)	17 (43%)	0	4	8	8	1
July	41	35	20 (57%)	14 (40%)	2	4	6	6	2
August	35	23	11 (48%)	9 (39%)	2	0	1	6	2
September	34	30	13 (43%)	11 (37%)	0	2	1	9	1
October	29	26	13 (50%)	12 (46%)	0	1	2	6	4
November	41	31	15 (48%)	12 (39%)	1	2	0	10	2
December	26	20	7 (35%)	6 (30%)	0	1	0	5	1
Total	347	281	138 (49%)	114 (41%)	6	18	24	71	19

TABLE 2.11

1986 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY ROAD TYPE

Road Type	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
Interstate	21	17	6 (35%)	5 (29%)	0	1	0	3	2
Trunk Highway	142	117	46 (39%)	35 (30%)	2	9	6	24	5
County Road	128	106	57 (54%)	49 (46%)	3	5	13	26	10
Township Road	22	15	9 (60%)	7 (47%)	0	2	2	5	0
Local Street	34	26	20 (77%)	18 (69%)	1	1	3	13	2
Total	347	281	138 (49%)	114 (41%)	6	18	24	71	19

TABLE 2.12

1986 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TIME OF DAY

Time of Day	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
Midnight-2:59 AM	64	59	50 (85%)	42 (71%)	3	5	6	29	7
3:00 AM-5:59 AM	14	13	9 (69%)	7 (54%)	0	2	0	7	0
6:00 AM-8:59 AM	42	35	7 (20%)	6 (17%)	0	1	4	0	2
9:00 AM-11:59 AM	25	17	2 (12%)	2 (12%)	0	0	0	2	0
Noon-2:59 PM	46	37	4 (11%)	2 (5%)	0	2	1	0	1
3:00 PM-5:59 PM	57	39	8 (21%)	5 (13%)	1	2	1	2	2
6:00 PM-8:59 PM	59	45	25 (56%)	21 (47%)	1	3	4	15	2
9:00 PM-11:59 PM	32	28	26 (93%)	22 (79%)	1	3	6	12	4
Unknown	8	8	7 (88%)	7 (88%)	0	0	2	4	1
Total	347	281	138 (49%)	114 (41%)	6	18	24	71	19

TABLE 2.13

1986 DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY DAY OF WEEK

Day of Week	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
Sunday	57	46	33 (72%)	28 (61%)	0	5	4	19	5
Monday	48	37	12 (32%)	10 (27%)	1	1	0	6	4
Tuesday	50	41	11 (27%)	9 (22%)	1	1	3	4	2
Wednesday	48	39	16 (41%)	11 (28%)	1	4	3	7	1
Thursday	45	34	16 (47%)	13 (38%)	2	1	6	6	1
Friday	43	34	20 (59%)	18 (53%)	1	1	5	10	3
Saturday	56	50	30 (60%)	25 (50%)	0	5	3	19	3
Total	347	281	138 (49%)	114 (41%)	6	18	24	71	19

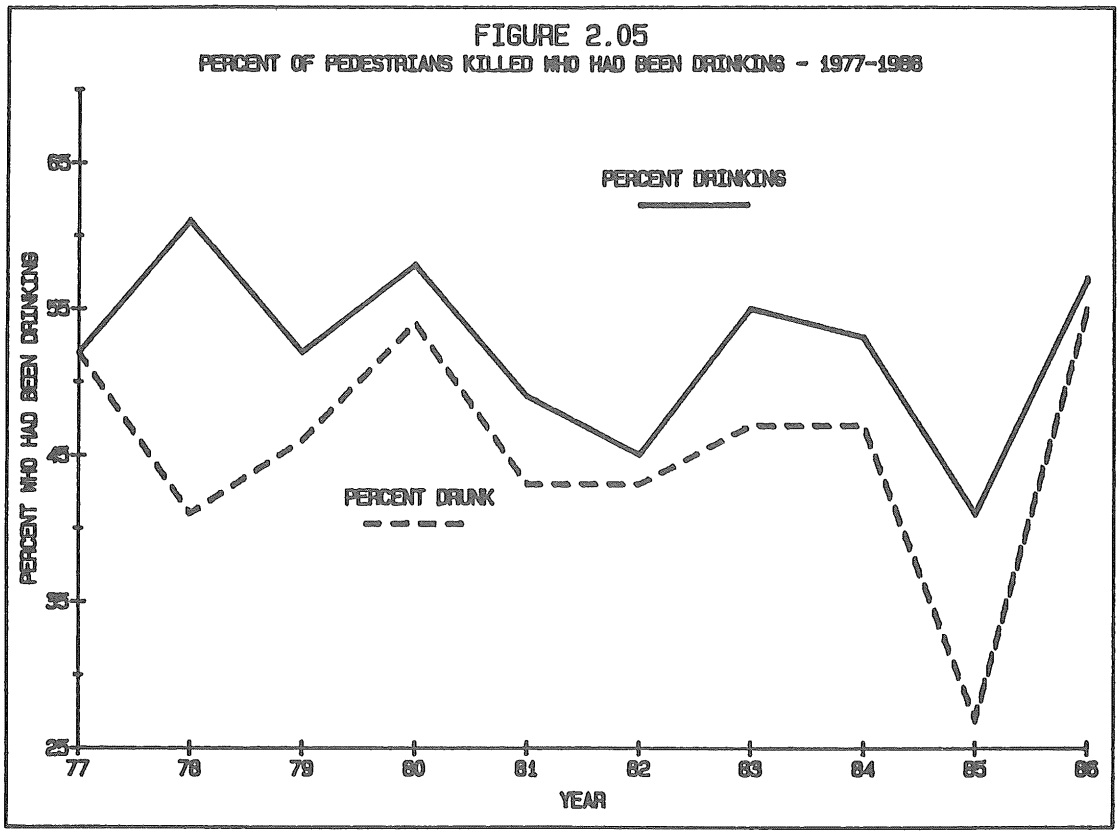


TABLE 2.14

DRINKING PEDESTRIAN FATALITY SUMMARY 1977-1986

	Killed	Tested	Drinking* (.01 or more)	Drunk* (.10 or more)
1977	140	62	32 (52%)	32 (52%)
1978	115	54	33 (61%)	22 (41%)
1979	117	56	29 (52%)	26 (46%)
1980	114	48	28 (58%)	26 (54%)
1981	100	53	26 (49%)	23 (43%)
1982	76	40	18 (45%)	17 (43%)
1983	62	38	21 (55%)	18 (47%)
1984	55	38	20 (53%)	18 (47%)
1985	65	37	15 (41%)	10 (27%)
1986	71	49	28 (57%)	27 (55%)

* Percentages are based on those tested.

TABLE 2.15

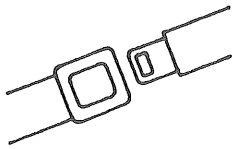
1986 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)
15 & Below	13	3	1	1
16 - 20	7	7	4	4
21 - 25	8	6	3	3
26 - 30	6	5	3	3
31 - 35	3	3	3	3
36 - 40	6	6	6	6
41 - 45	2	2	2	2
46 - 50	2	2	1	1
51 - 55	1	1	0	0
56 - 60	2	2	2	2
61 - 65	3	2	1	0
66 & Above	18	10	2	2
Unknown	0	0	0	0
Total	71	49	28	27

TABLE 2.16

1986 PEDESTRIAN FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY TIME OF DAY

	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)
12AM-2:59AM	9	9	8	8
3-5:59 AM	3	3	0	0
6-8:59 AM	6	4	0	0
9-11:59 AM	6	4	1	1
12PM-2:59PM	6	3	0	0
3-5:59 PM	11	5	3	3
6-8:59 PM	12	6	3	3
9-11:59 PM	17	15	13	12
Unknown	1	0	0	0
Total	71	49	28	27



SAFETY RESTRAINT INFORMATION

In 1986, the Minnesota legislature passed a law requiring all passengers in the front seat and all passengers under 11 in the back seat to wear safety belts. Until the new law became effective on August 1, 1986, only children under four were required to be safely restrained; this had been required since August, 1983. The year of the new law, 1986, showed a substantial increase in the percentage of persons wearing safety restraints -- both by persons injured in accidents and by the general driving population.

The biggest change occurred in the percent of persons injured who were wearing safety restraints. In the year between 1985 and 1986 percentages of severely and moderately injured persons wearing seat belts doubled. In the minor injury category the percentage went from 14 to 26 percent. Between 1982 and 1986, the percent of injured persons restrained increased from 5.4 percent to 22.9 percent. Restraint use among people fatally injured in Minnesota traffic accidents increased from five percent in 1982 to nine percent in 1986. However, there was less than a one percent increase in this category since 1985.

* The age group with the highest percentage restrained in 1986 was the 0-4 age category. This was the only group where the number restrained exceeded the number unrestrained. The lowest percentage of restraint use is shown in the 15-19 age category.

* Only three children under age four who were occupants of motor vehicles were killed in 1986. Of these three, only one was safely restrained. Forty-nine percent of children under four who were injured were safely restrained.

* Comparing seat belt use by regions, the metropolitan area of the Twin Cities had the highest percent of restraint use among persons killed or injured (25.6 percent). The lowest percent of seat belt use was in the West Central region with 12.9 percent. Overall, 22.7 percent of Minnesotans injured or killed last year were buckled up.

* Due to increased reporting of restraint use in crashes -- note the decrease in "unknowns" in Table 3.01 -- a more accurate picture of restraint use can be drawn now than in the past.

* The peak hour of the day for restraint use among persons killed or injured was between five and six p.m. However, the percentage of people restrained at various hours appears to remain relatively constant.

* According to the 1986 Minnesota seat belt observation study, seat belt use among front seat occupants increased from 20 percent in June prior to the law to 33 percent immediately after the law. This percentage dropped slightly to 32 percent in November three months after the law went into effect.

TABLE 3.01

RESTRAINT USE OF MOTOR VEHICLE OCCUPANTS*

	1982	1983	1984	1985	1986
Fatalities					
Restrained	17	20	25	39	37
Unrestrained	222	299	278	313	280
Unknown	101	79	127	89	85
Severe Injuries					
Restrained	131	323	272	383	680
Unrestrained	1,684	2,311	2,190	2,754	2,321
Unknown	1,704	N/A**	N/A	1,432	1,008
Moderate Injuries					
Restrained	593	1,061	1,051	1,564	2,834
Unrestrained	5,219	6,848	6,388	8,615	7,282
Unknown	5,537	N/A	N/A	4,462	3,503
Minor Injuries					
Restrained	826	1,381	1,483	2,719	4,731
Unrestrained	5,087	6,223	5,877	8,692	7,192
Unknown	7,674	N/A	N/A	7,630	6,508

* Includes child restraints and seat belts.

** Not Available.

FIGURE 3.01
1986 RESTRAINT USE OF KILLED AND INJURED PERSONS
BY TIME OF DAY

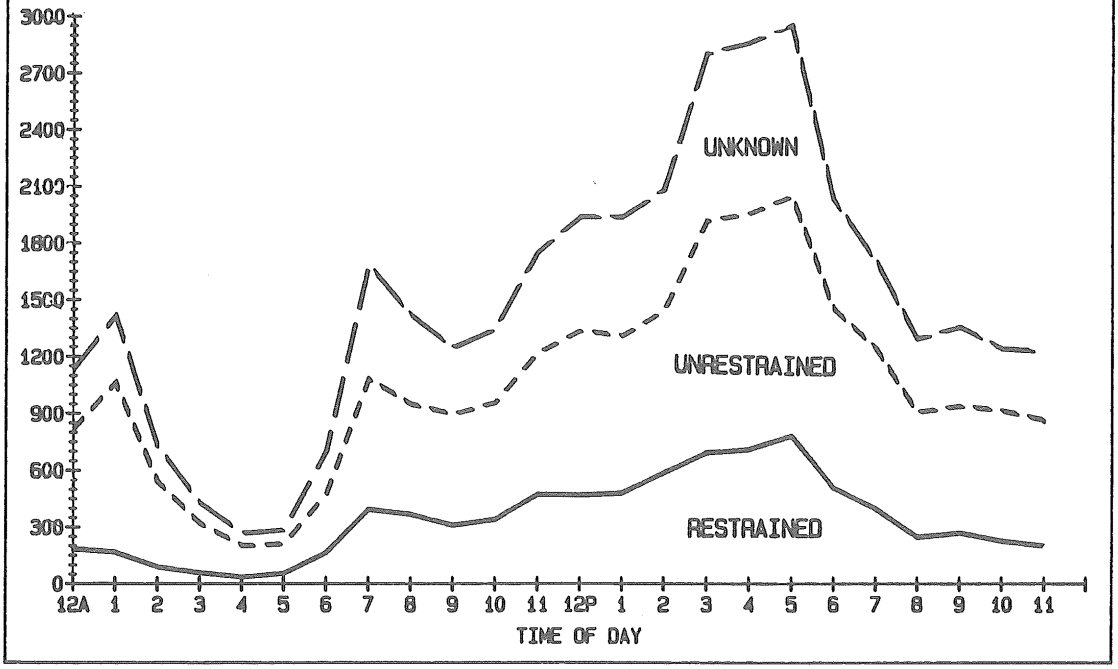


TABLE 3.02

1986 RESTRAINT USE OF CHILDREN INJURED AND KILLED UNDER AGE 4*

	Children Restrained	Children Unrestrained	Unknown	Total
Less Than One Year Old				
Fatalities	1	1	0	2
Injuries	30	6	14	50
One Year Old				
Fatalities	0	0	0	0
Injuries	90	27	23	140
Two Years Old				
Fatalities	0	0	0	0
Injuries	74	56	38	168
Three Years Old				
Fatalities	0	0	1	1
Injuries	87	86	41	214
TOTAL				
Fatalities	1	1	1	3
Injuries	281	175	116	572

* Includes child restraints and seat belts.

FIGURE 3.02

1986 RESTRAINT USE OF KILLED AND INJURED PERSONS BY AGE GROUP

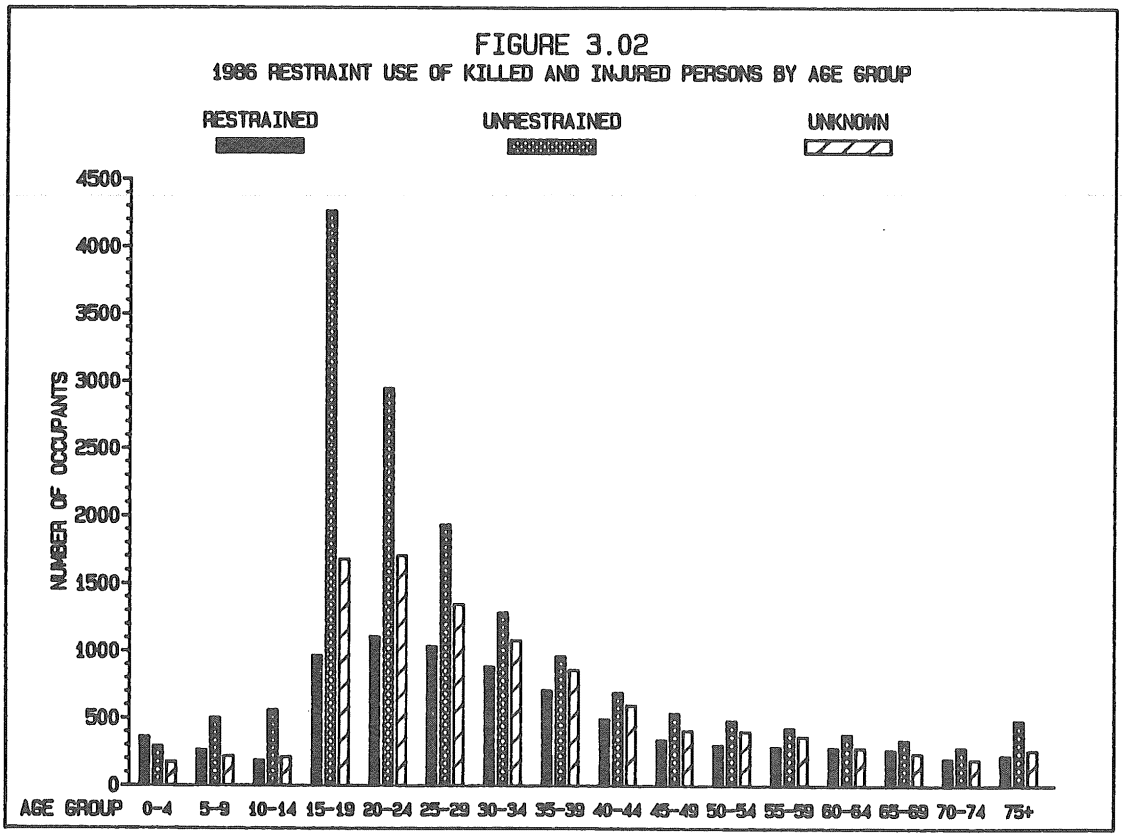
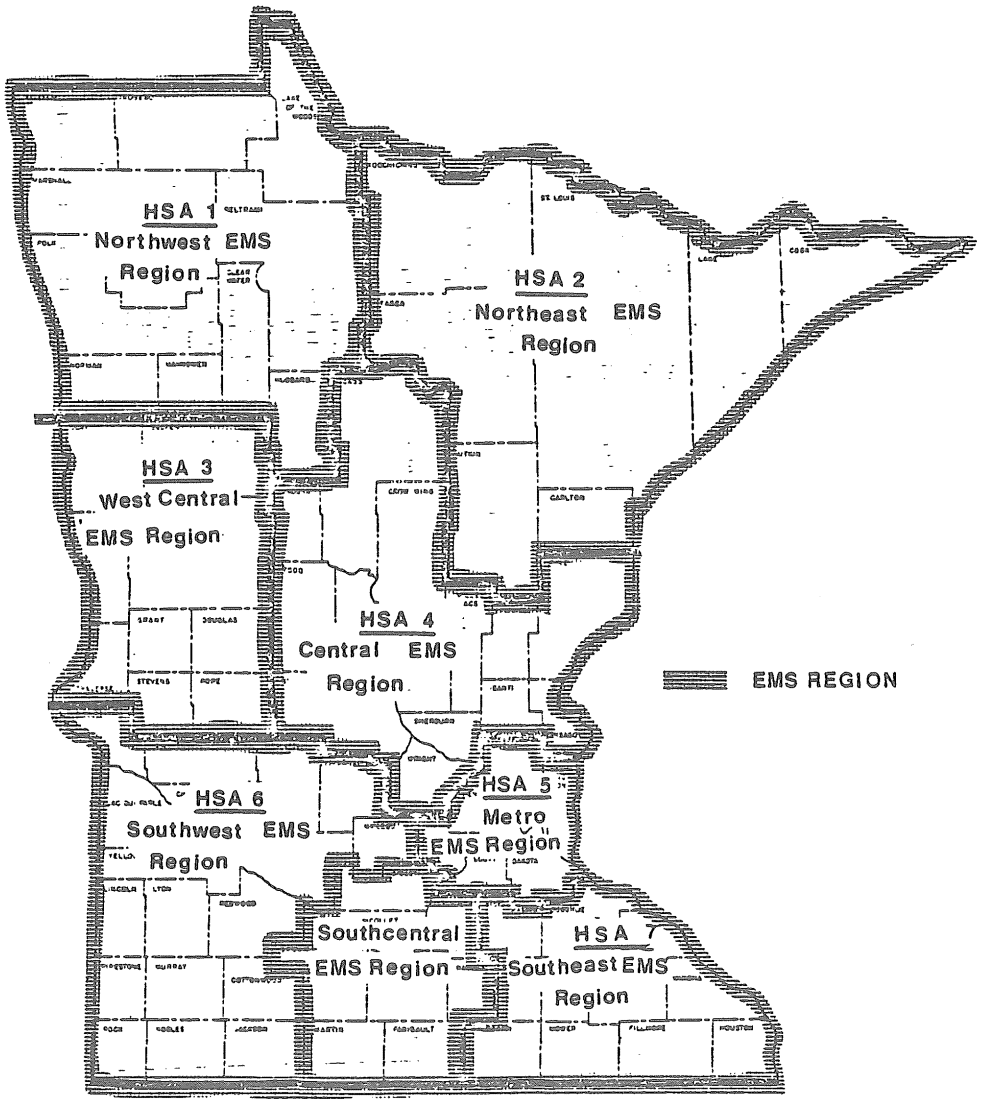


TABLE 3.03

RESTRAINT USE OF KILLED AND INJURED PERSONS BY REGION*

Region	Percent Used	Percent Unused	Percent Unknown	Number of People
Metropolitan	25.6	39.3	35.1	20,630
Central	22.1	55.9	22.0	4,367
Northeast	20.8	55.2	24.0	1,974
Northwest	13.9	57.5	28.5	1,291
South Central	17.9	59.2	22.9	1,533
Southeast	20.7	53.6	25.7	3,228
Southwest	16.2	60.5	23.3	1,891
West Central	12.9	58.4	28.7	1,547
Statewide	22.7	46.8	30.5	36,461

* Region as defined by Emergency Medical System

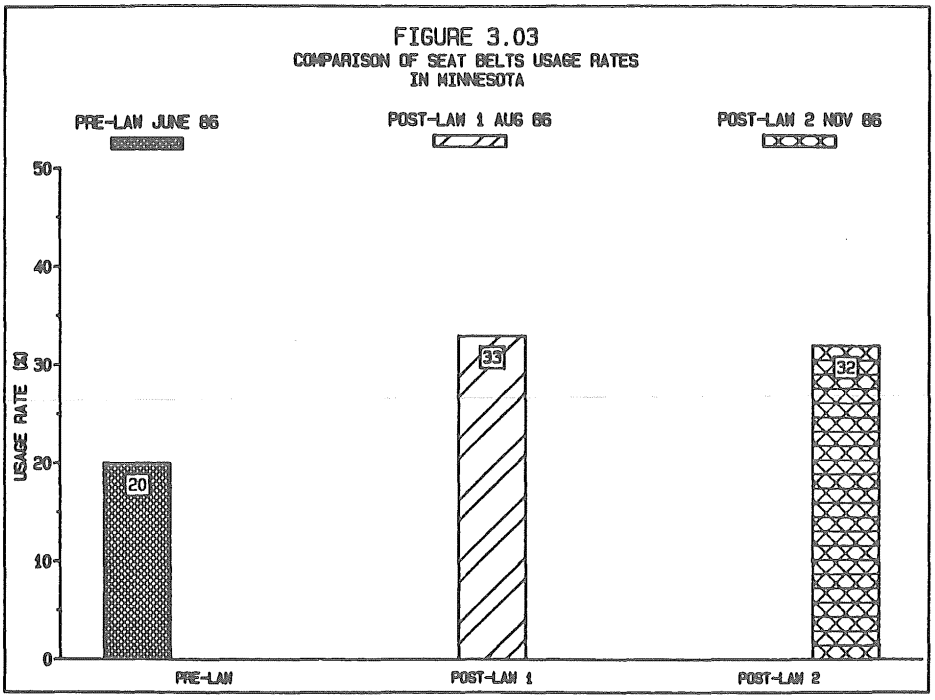


1986 SEAT BELT USE OBSERVATIONS

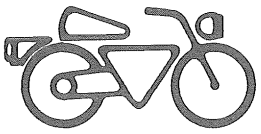
In 1986, the year Minnesota's seat belt law became effective, the state began federally sponsored studies observing the use of seat belts in various locations throughout the state. Because of differences in methodology between earlier studies and the 1986 studies, only figures from the three federally sponsored studies in 1986 are shown here.

*The three periods of observations were:

Pre-Law:	June 1986
Immediately Post-Law:	August 1986
Second Post-Law:	November 1986



* The usage rate is not a simple ratio of the number of persons observed belted to the total number of people observed. It is, instead, the ratio of estimated time on the road that front seat occupants are using safety belts to the total estimated time on the road for these occupants.



MOTORCYCLE CRASHES

Total motorcycle-involved crashes in Minnesota have decreased from a ten-year high of 3,308 in 1980 to a low of 2,318 in 1986 -- a 30 percent decline. Crashes in 1986 also decreased 16 percent from 1985 and 17 percent from the previous five-year average.

The figure of 66 motorcycle fatalities in 1986 was the second lowest in the last ten years. (1984 had 62.) Motorcycle fatality figures have remained fairly steady the past five years with an average of 70 between 1982 and 1986. During the five years prior to 1982 the average was 103 deaths.

Since 1980 the number of motorcyclists injured has decreased fairly steadily with a slight rise in 1983. The 1986 figure of 2,152 motorcycle injuries is the lowest in the last ten years. It is a 14 percent decrease from 1985, a 17 percent decrease from the previous five-year average, and a 36 percent decrease from the ten-year high in 1980 of 3,359 injuries.

* The percent of drinking motorcycle drivers who are killed is consistently higher than that of other motor vehicle drivers. Sixty-four percent of motorcycle drivers killed had been drinking in 1986, compared to 49 percent of all drivers. Fifty-three percent of motorcycle drivers killed were drunk (over the legal limit of .10) compared to 41 percent of other drivers killed.

* Helmet use over the past three years has vacillated. The percent of fatalities who had been wearing helmets decreased from 31 percent of the total in 1984 to 21 percent in 1985 and back up to 27 percent in 1986. Some of this fluctuation may be due to the percentage of unknown cases reported each year.

* Collisions between motorcycles and other motor vehicles made up 43 percent of the fatal motorcycle crashes; thirty percent of the fatal crashes were collisions with fixed objects, and 25 percent were overturns. Of injury and property damage single-vehicle motorcycle crashes, the most common type was an overturn.

* The age group with the highest number of both fatally injured and non-fatally injured motorcyclists was 20-24. The surrounding age groups -- 15-19 and 25-29 -- were the next most frequently injured. Female motorcyclists made up only eight percent of the fatalities and 13 percent of the injuries.

* The most frequently cited contributing factor in 1986 motorcycle crashes was illegal or unsafe speed, accounting for 23.5 percent of the factors cited for motorcycle drivers. This compares with the most frequently cited factor for other drivers which was failure to yield right of way, accounting for 34.1 percent of the factors cited.

* There were 35 crashes in which two motorcycles were involved. Twenty-eight were injury crashes and seven were property damage crashes only. None were fatal.

TABLE 4.01

MOTORCYCLE CRASH SUMMARY, 1977-1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Total Accidents	2,718	2,827	2,872	3,308	3,063	2,518	2,811	2,768	2,748	2,318
Fatal Accidents	88	103	95	112	92	72	70	59	75	63
Personal Injury Accidents	2,120	2,345	2,391	2,728	2,516	2,115	2,377	2,302	2,238	1,891
Persons Killed:										
Motorcyclists	94	106	97	121	96	70	73	62	77	66
Non-Motorcyclists/Unknown	0	1	1	1	0	6	0	1	1	0
Persons Injured:										
Motorcyclists	2,522	2,860	2,833	3,359	2,874	2,381	2,678	2,590	2,500	2,152
Non-Motorcyclists/Unknown	42	47	71	34	196	189	191	207	204	142
Licensed Operators	172,223	184,545	201,075	222,330	238,926	246,134	252,808	256,836	272,317	282,087
Registered Motorcycles	151,763	151,016	156,552	157,815	166,151	159,345	155,502	153,851	151,449	141,261
Rates:										
Fatal Motorcycle Crashes Per 100 Motorcycle Crashes	3.2	3.6	3.3	3.4	3.0	2.9	2.5	2.1	2.7	2.7
Fatal Crashes Per 100 Crashes (All Vehicles)	0.6	0.7	0.7	0.7	0.7	0.6	0.5	0.5	0.5	0.5
Motorcyclist Fatalities Per 10,000 Motorcycle Registrations	6.2	7.0	6.2	7.7	5.8	4.5	4.7	4.0	5.1	4.7
Motorcyclist Injuries Per 10,000 Motorcycle Registrations	166.2	189.4	181.0	212.8	173.0	149.4	172.2	165.5	165.1	152.3
Total Motorcycle Crashes Per 10,000 Motorcycle Registrations	179.1	187.2	183.5	209.6	184.4	158.0	180.8	179.9	181.4	164.1

Helmet Law May 1, 1968

Helmet Law Repeal April 17, 1977

1983 and 1984 injury figures include some all-terrain vehicles. Fatality figures do not.

TABLE 4.02

1986 MOTORCYCLE CRASHES BY ACCIDENT TYPE

Accident Type	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes
Collision With:				
Other Motor Vehicle	27	973	210	1,210
Parked Motor Vehicle	1	29	59	89
Railroad Train	0	3	0	3
Bicyclist	0	20	2	22
Pedestrian	0	17	1	18
Animal	0	71	8	79
Fixed Object	19	227	26	272
Other Object	0	31	3	34
Non-Collision:				
Overturn	16	420	43	479
Fire/Explosion	0	3	1	4
Submersion	0	1	0	1
Other/Unknown	0	96	11	107
Total	63	1,891	364	2,318

TABLE 4.03

1986 MOTORCYCLE CRASHES BY CITY POPULATION

Population of City or Township	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes
100,000 and Over	8	387	106	501
50,000 - 99,999	1	85	15	101
25,000 - 49,999	7	318	59	384
10,000 - 24,999	5	279	44	328
5,000 - 9,999	12	148	26	186
2,500 - 4,999	4	69	23	96
1,000 - 2,499	0	50	10	60
Under 1,000	26	443	61	530
Unknown	0	112	20	132
Total	63	1,891	364	2,318

TABLE 4.04

1986 MOTORCYCLE CRASHES BY MONTH

Month	Fatal Crashes	Fatalities	Personal Injury Crashes	Personal Injuries	Property Damage Crashes	Total Crashes
January	0	0	3	3	1	4
February	0	0	2	2	0	2
March	0	0	43	48	7	50
April	2	2	159	177	22	183
May	9	10	311	357	52	372
June	18	19	361	410	67	446
July	14	15	371	435	70	455
August	5	5	329	371	65	399
September	7	7	190	214	44	241
October	8	8	106	118	30	144
November	0	0	13	14	6	19
December	0	0	3	3	0	3
Total	63	66	1,891	2,152	364	2,318

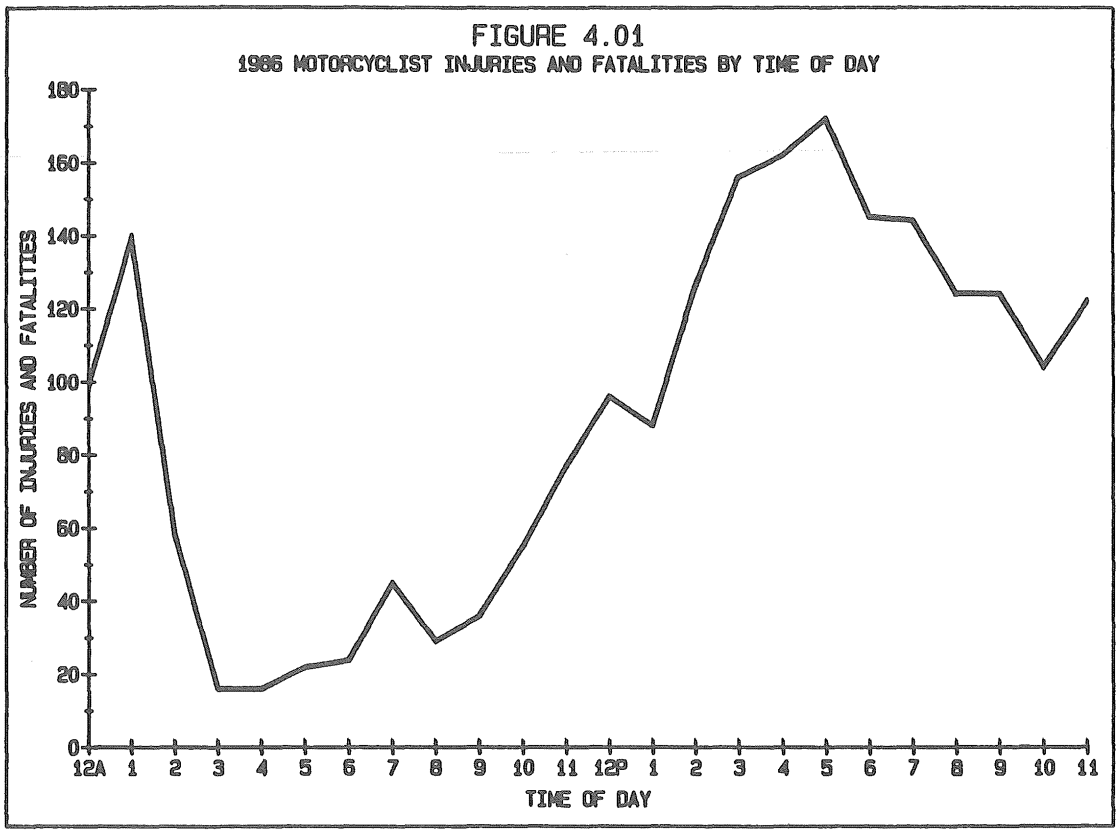


TABLE 4.05

1986 MOTORCYCLE CRASHES BY TIME AND DAY

Hour Beginning	Total Crashes	Fatal Crashes	Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
			All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal	All	Fatal
Midnight	93	8	18	0	10	3	6	1	10	1	12	1	14	0	23	2
1:00	125	8	27	2	1	0	15	3	9	1	15	1	17	0	41	1
2:00	53	4	15	1	2	0	3	0	5	0	5	0	5	1	18	2
3:00	20	0	4	0	1	0	1	0	1	0	3	0	5	0	5	0
4:00	15	2	3	1	2	0	1	0	0	0	0	0	4	0	5	1
5:00	19	1	3	0	3	0	2	0	4	0	1	0	4	0	2	1
6:00	26	2	2	0	4	0	5	1	3	0	7	1	5	0	0	0
7:00	54	1	3	0	12	0	8	1	10	0	12	0	6	0	3	0
8:00	34	3	3	2	2	0	3	0	8	0	8	1	6	0	4	0
9:00	40	1	5	0	9	0	3	0	3	0	3	0	7	1	10	0
10:00	64	1	8	0	5	0	13	1	8	0	6	0	7	0	17	0
11:00	93	0	11	0	8	0	12	0	8	0	12	0	17	0	25	0
Noon	107	2	16	0	15	1	13	0	11	0	11	0	19	1	22	0
1:00	94	3	11	0	12	0	11	0	14	2	14	0	14	0	18	1
2:00	131	1	27	0	15	0	18	1	12	0	18	0	14	0	27	0
3:00	162	0	21	0	18	0	27	0	23	0	22	0	24	0	27	0
4:00	178	2	29	0	28	0	28	0	20	1	20	0	24	0	29	1
5:00	195	1	28	1	24	0	25	0	25	0	18	0	34	0	41	0
6:00	153	4	20	1	13	1	35	1	18	0	20	0	21	1	26	0
7:00	134	4	26	0	18	0	17	0	11	1	16	0	21	1	25	2
8:00	122	5	18	1	15	0	12	0	16	3	23	0	19	1	19	0
9:00	121	5	18	1	16	1	15	0	18	1	15	0	17	2	22	0
10:00	113	2	13	0	13	0	15	0	14	1	26	1	13	0	19	0
11:00	124	2	14	1	8	0	12	0	11	0	15	0	31	1	33	0
Not Stated	48	1	12	0	4	0	5	0	3	0	6	0	9	0	9	1
Total	2,318	63	355	11	258	6	305	9	265	11	308	5	357	9	470	12

TABLE 4.06

1986 MOTORCYCLIST INJURIES AND FATALITIES BY AGE AND SEX

Age Group	Killed			Severe Injury			Moderate Injury			Possible Injury		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0- 4	0	0	0	1	0	1	0	2	2	0	1	1
5- 9	0	0	0	0	0	0	2	0	2	0	0	0
10-14	1	0	1	6	1	7	12	4	16	5	1	6
15-19	11	1	12	97	20	117	208	32	240	69	14	83
20-24	20	1	21	186	27	213	305	34	339	114	14	128
25-29	11	0	11	122	17	139	174	23	197	72	9	81
30-34	8	0	8	71	9	80	102	7	109	40	7	47
35-39	3	2	5	32	6	38	63	5	68	14	4	18
40-44	3	0	3	20	1	21	28	2	30	14	4	18
45-49	0	0	0	5	4	9	15	2	17	6	2	8
50-54	1	1	2	2	1	3	6	0	6	5	0	5
55-59	2	0	2	4	2	6	10	0	10	2	1	3
60-64	0	0	0	4	1	5	1	1	2	0	0	0
65-69	0	0	0	2	0	2	2	0	2	0	0	0
70-74	0	0	0	1	0	1	0	0	0	0	0	0
75 & over	1	0	1	1	0	1	0	0	0	0	0	0
Not Stated	0	0	0	10	4	14	20	10	30	18	8	27
Total	61	5	66	564	93	657	948	122	1,070	359	65	425

FIGURE 4.02
1986 MOTORCYCLIST INJURIES AND FATALITIES
BY AGE AND SEX

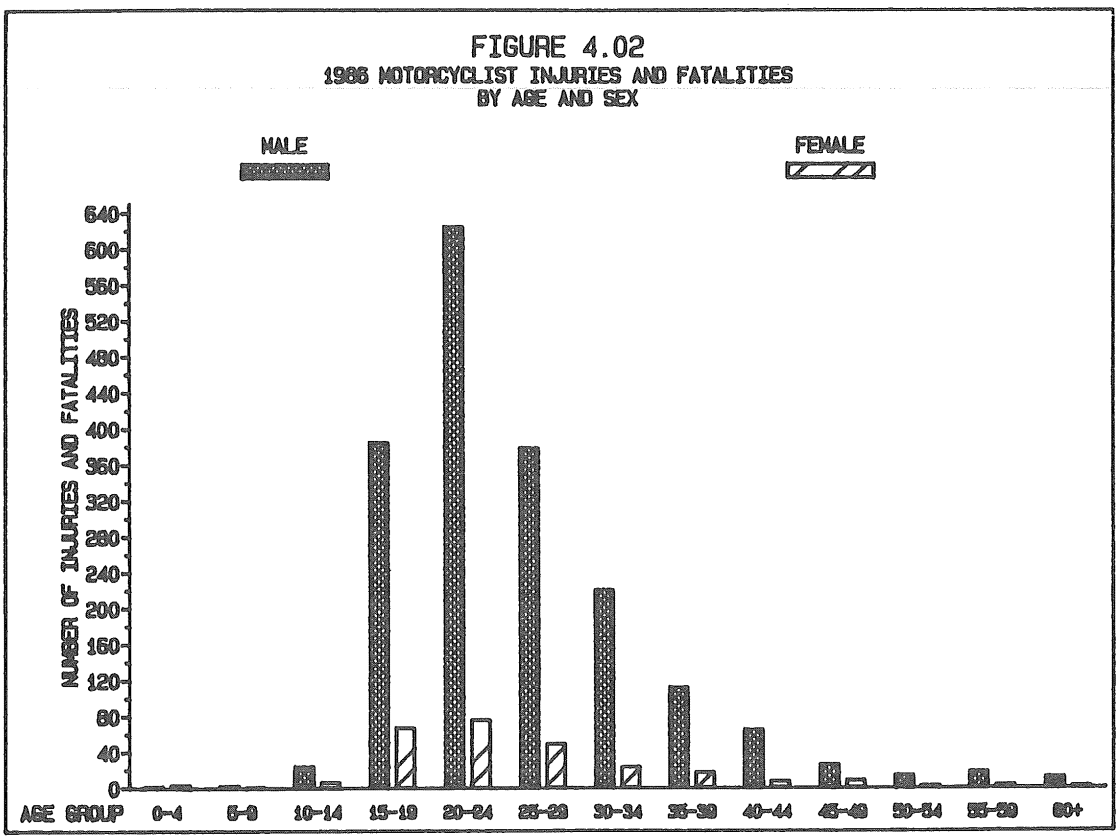


TABLE 4.07

HELMET USE BY MOTORCYCLISTS KILLED AND INJURED (1984-1986)

Helmet Use	Fatalities			Injuries		
	1984	1985	1986	1984	1985	1986
Used	19 (31%)	16 (21%)	18 (27%)	686 (26%)	N/A*	720 (33%)
Not Used	32 (51%)	61 (79%)	42 (64%)	846 (33%)	N/A	1,096 (51%)
Unknown	11 (18%)	0	6 (9%)	1,058 (41%)	N/A	336 (16%)
Total	62	77	66	2,590		2,152

* Helmet use information not available for 1985 injuries.

TABLE 4.08

1986 MOTORCYCLE DRIVER FATALITIES' LEVEL OF ALCOHOL CONCENTRATION BY AGE

Age	Killed	Tested	Drinking (.01 or more)	Drunk (.10 or more)	Blood Alcohol Concentration .01-.04	.05-.09	.10-.14	.15-.24	.25 & Over
15 & Below	1	0	N/A**	N/A					
16	0	N/A	N/A	N/A					
17	0	N/A	N/A	N/A					
18	2	2	2	1	1			1	
19	5	3	2	2				2	
20	6	6	1	0		1			
16 - 20	13	11	5 (46%)	3 (27%)	1	1		3	
21 - 25	17	13	10 (77%)	8 (62%)	1	1	5	2	1
26 - 30	11	8	5 (56%)	5 (56%)				5	
31 - 35	5	5	3 (60%)	3 (60%)			2	1	
36 - 40	3	3	3 (100%)	2 (67%)		1	1	1	
41 - 45	3	3	3 (100%)	3 (100%)			2		1
46 - 50	1	1	0	N/A					
51 - 55	0	N/A	N/A	N/A					
56 - 60	2	2	1 (50%)	1 (50%)				1	
Total	56	46	30 (65%)	25 (54%)	2	3	10	13	2

** N/A - Not Applicable.

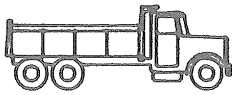
TABLE 4.09

CONTRIBUTING FACTORS IN 1986 MOTORCYCLE CRASHES

Contributing Factors	Attributed to Motorcycle Drivers Number	Percent	Attributed to Other Drivers* Number	Percent
Illegal/Unsafe Speed	510	(23.5%)	38	(2.9%)
Driver Inattention/ Distraction	431	(19.9)	328	(24.7)
Physical Impairment	305	(14.0)	37	(2.8)
Driver Inexperience	199	(9.2)	34	(2.6)
Failure to Yield Right of Way	101	(4.7)	453	(34.1)
Improper Passing/ Overtaking	89	(4.1)	18	(1.4)
Following Too Closely	88	(4.1)	29	(2.2)
Improper/Unsafe Lane Use	75	(3.5)	78	(5.9)
Disregard For Traffic Control Device	49	(2.3)	43	(3.2)
Skidding	46	(2.1)	4	(0.3)
Driving Left of Roadway Center--Not Passing	37	(1.7)	21	(1.6)
Vision Obscured	37	(1.7)	49	(3.7)
Improper Turn	28	(1.3)	82	(6.2)
Defective Equipment	26	(1.2)	8	(0.6)
Improper Parking/ Starting/Stopping	12	(0.6)	19	(1.4)
Impeding Traffic	5	(0.2)	2	(0.2)
No/Improper Signal	3	(0.1)	13	(1.0)
Unsafe Backing	1		18	(1.4)
Pedestrian Violation/Error	0		12	(0.9)
Other Violation	129	(5.9)	41	(3.1)
Total**	2,171	(100.0%)	1,327	(100.0%)
No Improper Driving	949		533	
Total Number Drivers	2,353		1,475	

* Includes pedestrians.

** More than one contributing factor may be attributed to a single driver.

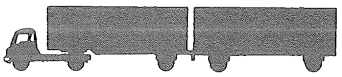


TRUCK CRASHES

In this section, four types of truck configurations were analyzed in traffic crashes:

Truck or truck tractor 

Truck with semi-trailer 

Truck with twin trailer 

Truck with other trailer 

These categories do not include pickup trucks or vans; however, they may include other small trucks used for various purposes. Currently, it is impossible to isolate different truck sizes within the "truck or truck tractor" category.

In 1986, total truck crashes decreased by 18 percent. Although injury crashes and total injuries decreased by approximately 16 percent, fatal crashes and fatalities dropped only slightly. Part of the decrease in crashes may be attributed to parking lot crashes being excluded from the figures. Truck crashes were three times more likely to result in a fatal injury than traffic crashes in general.

* More than half of the persons injured in truck crashes (56 percent) were occupants of automobiles, whereas 29 percent were truck occupants. The remaining 15 percent were bicyclists, pedestrians, or occupants of other vehicles.

* Of all truck drivers, more were in the 26 to 30 age category (17 percent) than in any of the other five-year age categories.

* Driver inattention was the most frequently cited contributing factor for both truck drivers and other drivers -- approximately 24 percent each. The second most frequent factor for truck drivers was illegal or unsafe speed (11 percent); for other drivers, failure to yield was second, with 13 percent. Defective brakes were cited nine times more frequently for truck drivers than for other drivers; defective tires five times more often.

* More truck crashes occurred between nine a.m. and noon than in any other three-hour period (21.4 percent). Noon to 3:00 p.m. followed closely with 21 percent of the crashes. This contrasts with the overall motor vehicle crash picture, where the largest number of crashes occurred between 3:00 p.m. and 6:00 p.m.

* Sixty-six percent of the fatal crashes occurred in rural areas with populations under 1,000. Large urban areas with populations over 100,000 had the largest percentage of truck crashes overall (28 percent).

* State trunk highways had the highest number of crashes (22 percent) followed by county state-aid roads with 21 percent. However, more fatal crashes occurred on US trunk highways than any other type of roadway.

TABLE 5.01

TRUCK CRASHES 1985 - 1986

	1985	1986
Total Crashes	8,473	6,908
Fatal Crashes	86	85
Fatalities	101	100
Injury Crashes	1,963	1,674
Injuries	2,832	2,371

TABLE 5.02

PERSONS INJURED OR KILLED IN 1986 TRUCK CRASHES BY VEHICLE OCCUPIED

Vehicle Type	Fatalities	Severe Injuries	Moderate Injuries	Minor Injuries	Total Injuries*
Automobile	53	213	450	665	1,328
Automobile with Trailer	0	0	0	2	2
Truck or Truck Tractor	4	42	169	221	432
Truck with Semi-Trailer	9	21	86	95	202
Truck with Twin Trailer	0	0	3	1	4
Truck with Other Trailer	0	4	17	19	40
Pickup Truck	14	29	70	90	189
Van	3	9	18	25	52
Motorcycle	8	11	9	7	27
School Bus	0	0	7	2	9
Moped	0	1	2	0	3
All Terrain Vehicle	1	0	0	0	0
Other Bus	0	0	1	5	6
Farm Equipment	1	4	0	0	4
Taxicab	0	0	0	1	1
Hit Run Vehicle	0	1	3	1	5
Police Vehicle	0	0	0	3	3
Other Public Owned Vehicle	0	0	2	4	6
Other Privately Owned Vehicle	0	0	1	0	1
Bicyclist	3	2	6	9	17
Pedestrian	4	9	14	11	34
Other	0	1	1	4	6
Total	100	347	859	1,165	2,371

* Total injuries does not include fatalities.

TABLE 5.03

CONTRIBUTING FACTORS IN 1986 TRUCK CRASHES

Contributing Factors	Attributed to Truck Driver		Attributed to Other Driver	
Driver Inattention	1,125	(23.2%)	836	(24.1%)
Illegal/Unsafe Speed	545	(11.2%)	367	(10.6%)
Failure to Yield	436	(9.0%)	454	(13.1%)
Improper Lane Use	322	(6.6%)	292	(8.4%)
Following Too Closely	306	(6.3%)	176	(5.1%)
Improper Turn	233	(4.8%)	121	(3.5%)
Vision Obscured	206	(4.3%)	104	(3.0%)
Weather	180	(3.7%)	159	(4.6%)
Unsafe Backing	173	(3.6%)	28	(0.8%)
Disregard for Traffic Control Device	154	(3.2%)	109	(3.1%)
Defective Brakes	151	(3.1%)	17	(0.5%)
Driver Inexperience	122	(2.5%)	82	(2.4%)
Improper Passing	109	(2.2%)	162	(4.7%)
Physical Impairment	108	(2.2%)	155	(4.5%)
Skidding	86	(1.8%)	88	(2.5%)
Driving Left of Center	67	(1.4%)	96	(2.7%)
Other Human Factor	65	(1.3%)	48	(1.4%)
Improper Parking	64	(1.3%)	61	(1.8%)
Oversize or Overweight	46	(0.9%)	3	(0.1%)
Defective Tire	44	(0.9%)	9	(0.3%)
Improper or No Signal	38	(0.8%)	24	(0.7%)
Defective Lights	37	(0.8%)	13	(0.4%)
Impeding Traffic	31	(0.6%)	18	(0.5%)
Road Defect	16	(0.3%)	7	(0.2%)
Pedestrian Violation	0	(0.0%)	13	(0.4%)
Other	183	(3.8%)	27	(0.8%)
Total*	4,847	(100.0%)	3,469	(100.0%)
No Improper Driving	2,042		2,097	
Total Number of Drivers	7,196		6,288	

* More than one contributing factor may be attributed to a driver.

TABLE 5.04

TRUCK DRIVERS IN 1986 CRASHES BY AGE

Driver Age	Total	Truck or Truck Tractor	Truck With Semi-Trailer	Truck With Twin Trailer	Truck With Other Trailer
15 & Below	4	3	1	0	0
16 - 20	460	375	47	1	37
21 - 25	1,094	725	294	2	73
26 - 30	1,195	671	469	2	53
31 - 35	929	512	384	5	28
36 - 40	678	352	290	5	31
41 - 45	580	253	300	7	20
46 - 50	450	200	231	3	16
51 - 55	383	192	163	3	25
56 - 60	301	168	118	1	14
61 - 65	172	103	60	0	9
66 - 70	50	36	10	0	4
71 - 98	96	78	12	0	6
Not Stated	804	517	238	1	48
Total	7,196	4,185	2,617	30	364

TABLE 5.05

DRIVERS IN 1986 TRUCK CRASHES BY PHYSICAL CONDITION*

Physical Condition	Truck Driver	Other Driver
Normal	4,907	3,956
Under the Influence	51	99
Had Been Drinking	57	80
Had Been Using Drugs	1	1
Asleep	28	15
Fatigued	23	5
Ill	5	9
Handicapped	2	5
Other	12	23
Unknown	2,110	2,095
Total	7,196	6,288

* As noted by police officer on accident report.

TABLE 5.06

NUMBER OF TRUCKS IN 1986 TRUCK CRASHES BY ACCIDENT TYPE

Accident Type	Truck or Truck Tractor	Truck With Semi-Trailer	Truck With Twin Trailer	Truck With Other Trailer	Total
Collision With:					
Other Motor Vehicle	3,279	1,841	12	229	5,361
Parked Motor Vehicle	326	129	1	38	494
Railroad Train	8	5	0	0	13
Bicyclist	12	4	0	3	19
Pedestrian	16	11	0	2	29
Animal	49	36	0	3	88
Fixed Object	193	284	6	28	511
Other Object	31	40	1	6	78
Non-Collision:					
Overturn	221	126	7	37	391
Fire Explosion	6	5	0	1	12
Submersion	0	2	0	0	2
Other	44	134	3	17	198
Total	4,185	2,617	30	364	7,196

TABLE 5.07

1986 TRUCK CRASHES BY ROAD CONDITION

Road Surface Condition	Fatal Crashes	Severe Injury Crashes	Moderate Injury Crashes	Minor Injury Crashes	Property Damage Crashes	Total Crashes
Dry	66	188	387	489	3,163	4,293
Wet	7	38	126	146	744	1,061
Snow or Slush	1	7	28	37	311	384
Ice or Snow Packed	11	27	65	104	748	955
Other	0	5	4	9	45	63
Unknown	0	1	5	8	138	152
Total	85	266	615	793	5,149	6,908

TABLE 5.08

1986 TRUCK CRASHES BY TIME OF DAY

Time Period	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight - 2:59 AM	268	34	24	38	40	41	36	55
3:00 - 5:59 AM	178	13	15	34	29	26	35	26
6:00 - 8:59 AM	1,003	22	173	216	164	195	186	47
9:00 - 11:59 AM	1,475	36	264	280	248	274	258	115
Noon - 2:59 PM	1,455	56	221	244	232	307	278	117
3:00 - 5:59 PM	1,450	65	225	284	258	275	270	73
6:00 - 8:59 PM	553	31	88	91	80	89	120	54
9:00 - 11:59 PM	344	23	39	56	54	54	73	45
Unknown	182	8	24	43	33	29	30	15
Total	6908	288	1073	1286	1138	1290	1286	547

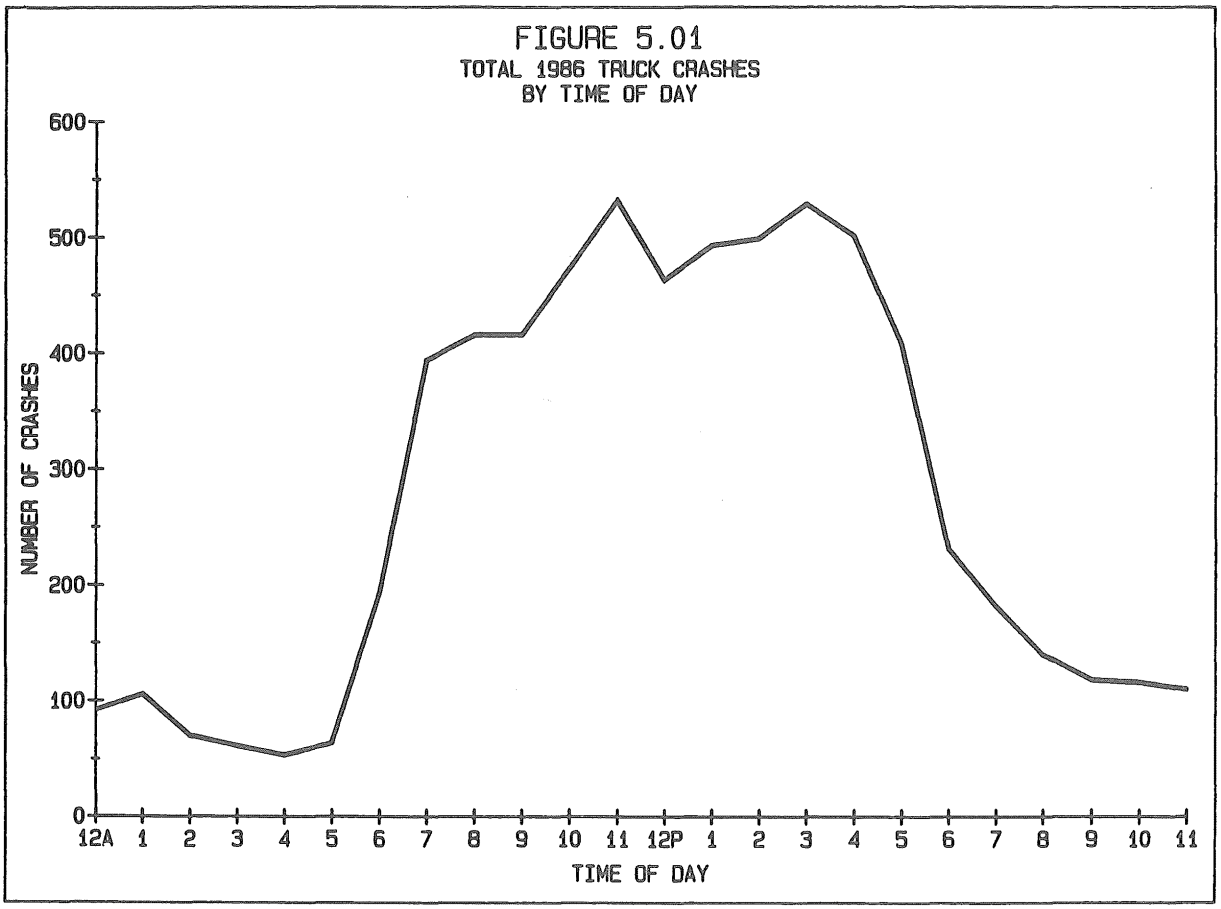


TABLE 5.09

1986 TRUCK CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Injuries
January	6	174	660	840	9	259
February	4	142	538	684	4	197
March	2	103	362	467	2	139
April	5	92	342	439	5	126
May	7	141	389	537	7	213
June	9	151	421	581	11	220
July	7	156	401	564	9	227
August	20	160	415	595	21	241
September	11	156	418	585	15	207
October	5	164	462	631	5	235
November	7	121	456	584	10	152
December	2	114	285	401	2	155
Total	85	1,674	5,149	6,908	100	2,371

TABLE 5.10

1986 TRUCK CRASHES BY WEATHER CONDITION

Weather Condition	Fatal Crashes	Severe Injury Crashes	Moderate Injury Crashes	Minor Injury Crashes	Property Damage Crashes	Total Crashes
Clear	49	147	314	416	2,690	3,616
Cloudy	25	74	172	211	1,341	1,823
Rain	4	19	64	71	357	515
Snow	3	9	33	51	383	479
Sleet, Hail, or Freezing Rain	0	1	1	2	36	40
Fog, Smog, or Smoke	3	11	19	19	94	146
Blowing Sand, Dust, or Snow	0	4	6	9	53	72
Severe Cross Winds	0	0	0	1	14	15
Other	0	0	1	2	11	14
Unknown	1	1	5	11	170	188
Total	85	266	615	793	5,149	6,908

TABLE 5.11

1986 TRUCK CRASHES BY CITY POPULATION

Population of City or Town	Fatal Crashes	Severe Injury Crashes	Moderate Injury Crashes	Minor Injury Crashes	Property Damage Crashes	Total Crashes
100,000 & Over	5	56	130	210	1,504	1,905
50,000 - 99,999	1	8	31	42	288	370
25,000 - 49,999	6	47	104	151	865	1,173
10,000 - 24,999	5	31	73	96	722	927
5,000 - 9,999	8	12	46	51	339	456
2,500 - 4,999	2	10	22	31	259	324
1,000 - 2,499	2	5	9	22	140	178
Under 1,000	56	97	200	190	1,032	1,575
Total	85	266	615	793	5,149	6,908

TABLE 5.12

1986 TRUCK CRASHES BY TYPE OF ROADWAY

Roadway Type	Fatal Crashes	Severe Injury Crashes	Moderate Injury Crashes	Minor Injury Crashes	Property Damage Crashes	Total Crashes
Interstate	8	8	78	113	756	963
US Trunk	30	56	123	167	852	1,228
State Trunk	24	76	132	195	1,115	1,542
County State-Aid	15	62	146	166	1,047	1,436
Municipal State-Aid	1	29	61	88	683	862
County Road	2	7	13	11	65	98
Township Road	3	6	18	11	61	99
Municipal Street	2	21	42	39	530	634
Other Road	0	1	2	3	40	46
Total	85	266	615	793	5,149	6,908

PEDESTRIAN CRASHES

For purposes related to state and national accident records, a "pedestrian crash" is currently defined as an incident in which a pedestrian is struck by a motor vehicle. Prior to 1984 such incidents were included as official pedestrian crashes only when the first "object" struck was a pedestrian.

Pedestrian fatalities in Minnesota have decreased from 140 in 1977 to about half that figure (71) in 1986. During the past five years, however, this category has remained fairly constant with an average of 66. Prior to 1982 the average was 117 deaths.

After a steady increase in pedestrian injuries in the past four years, 1986 showed a decrease of 14.5 percent from the previous year. The injury total of 1,570 represents a 4.7 percent decrease from the previous five-year average.

The pedestrian fatality rate per 1,000 crashes in the past five years was lowest in 1984 and 1985 with an increase from 35 to 44 in 1986. However this is partially due to the fact that non-fatal parking lot accidents were included in 1984 and 1985 figures, but not in other years.

* A pedestrian study done by this office in 1986 pointed out that all age groups of pedestrian fatalities had decreases in the last ten years except the eighty-five to eighty-nine-year-olds. This older age group showed an increase of 44 percent. The age group with the largest number of pedestrian fatalities in the last ten years combined was the fifteen-to-nineteen-year-old category.

* The highest number of pedestrian-involved crashes in 1986 occurred in November, although the numbers did not vary significantly from month to month. November had 159 crashes and February, the lowest month, had 105. February and July tied for the fewest pedestrian fatalities (2), and January had the most (10).

* The age groups with the most pedestrians killed in 1986 were 15-19, 20-24, and 80-84, each with seven fatalities. The age group with the greatest number of severe injuries was five-to-nine-year-olds. Sixty-five percent of the fatalities were males. Males and females were more evenly divided in the severe injury category than in fatalities.

* As in past years, rural areas had the greatest number of pedestrian fatal crashes while large cities with over 100,000 had the greatest number of injury crashes.

* In most pedestrian-involved crashes, the vehicle involved was going straight. The most common pedestrian action prior to the accident was crossing the road where there was no crosswalk or signal. However, the pedestrian was crossing with a signal in fourteen percent of the pedestrian injuries and fatalities.

* More pedestrian fatal crashes occurred between 11:00 p.m. and midnight than any other hour of the day. And, of total pedestrian-involved crashes, more occurred between 4:00 p.m. and 5:00 p.m. than any other hour. Friday had more crashes than any other day.

TABLE 6.01

PEDESTRIAN CRASHES, INJURIES, FATALITIES, 1977-1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Pedestrian Crashes*	**	1,731	1,700	1,629	1,648	1,374	1,516	1,690	1,845	1,610
Pedestrians Injured	**	1,723	1,678	1,636	1,658	1,438	1,625	1,682	1,837	1,570
Pedestrians Killed	140	115	117	114	100	76	62	55	65	71

*A "Pedestrian Crash" is an incident in which a pedestrian is struck by a motor vehicle. Prior to 1984, such an incident was defined as a crash only when the first 'object' struck was a pedestrian.

**Pedestrian crash and injury information is not available for 1977.

FIGURE 6.01

PEDESTRIAN FATALITIES BY AGE GROUP
1976 - 1985 COMBINED

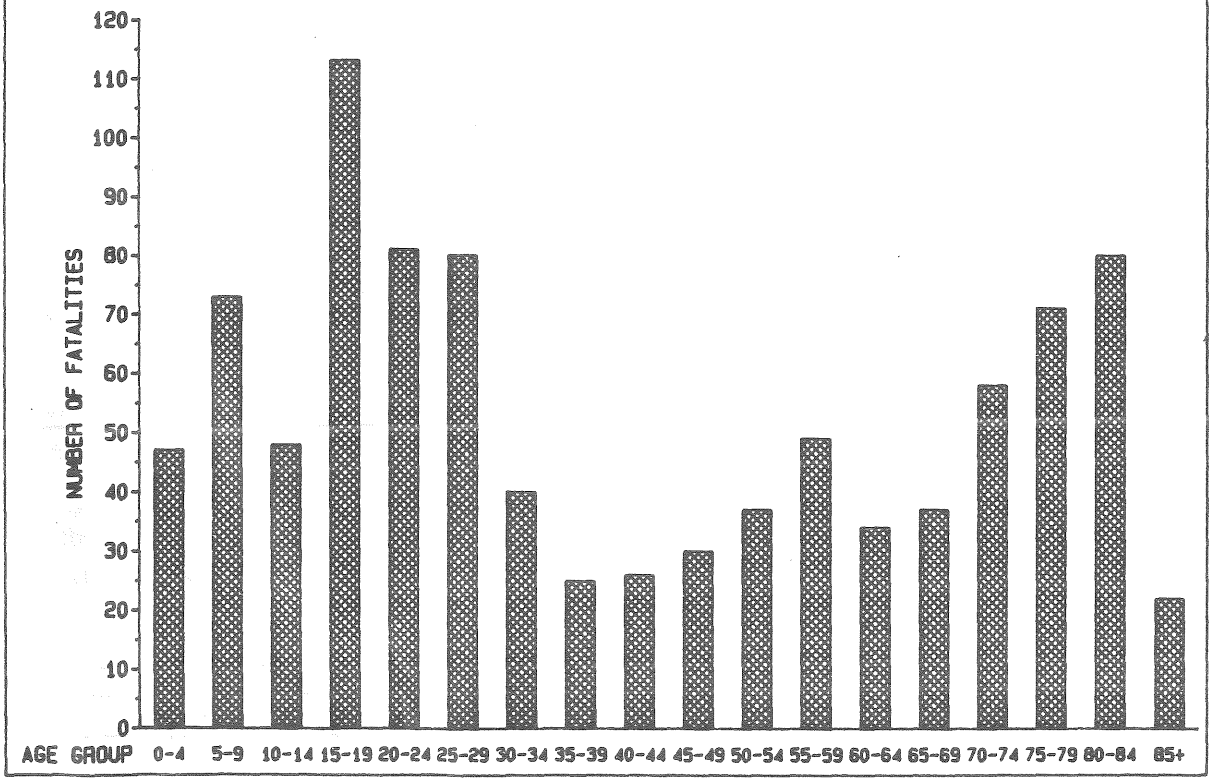


TABLE 6.02

AGE AND SEX OF PEDESTRIANS BY INJURY SEVERITY

Age Group	Killed			Severe Injury			Moderate Injury			Possible Injury		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0- 4	2	2	4	17	14	31	22	13	35	23	12	35
5- 9	2	4	6	36	22	58	49	35	84	43	16	59
10-14	0	3	3	26	14	40	32	34	66	37	25	63*
15-19	4	3	7	23	22	45	37	41	78	41	27	69*
20-24	5	2	7	27	27	54	32	27	59	26	23	49
25-29	5	1	6	17	18	35	33	18	51	21	12	33
30-34	1	1	2	24	17	41	22	12	34	18	12	30
35-39	5	1	6	10	8	18	11	13	24	20	10	30
40-44	2	1	3	9	6	15	13	5	18	10	8	18
45-49	2	0	2	5	6	11	8	4	12	7	6	13
50-54	1	0	1	6	2	8	8	4	12	6	2	8
55-59	1	1	2	4	7	11	5	7	12	8	12	20
60-64	3	0	3	3	8	11	10	10	20	5	6	11
65-69	1	1	2	3	3	6	4	4	8	4	7	11
70-74	3	1	4	7	9	16	4	10	14	3	5	8
75-79	2	2	4	5	12	17	5	9	14	2	6	8
80-84	5	2	7	2	13	15	6	5	11	0	8	8
85 & Over	2	0	2	4	5	9	3	2	5	1	1	2
Not Stated	0	0	0	10	8	18	5	7	12	41	22	67*
Total	46	25	71	238	221	459	309	260	569	316	220	542*

* Where columns do not add across, sex was not stated on accident report.

FIGURE 6.02

1986 PEDESTRIAN INJURIES AND FATALITIES BY AGE AND SEX

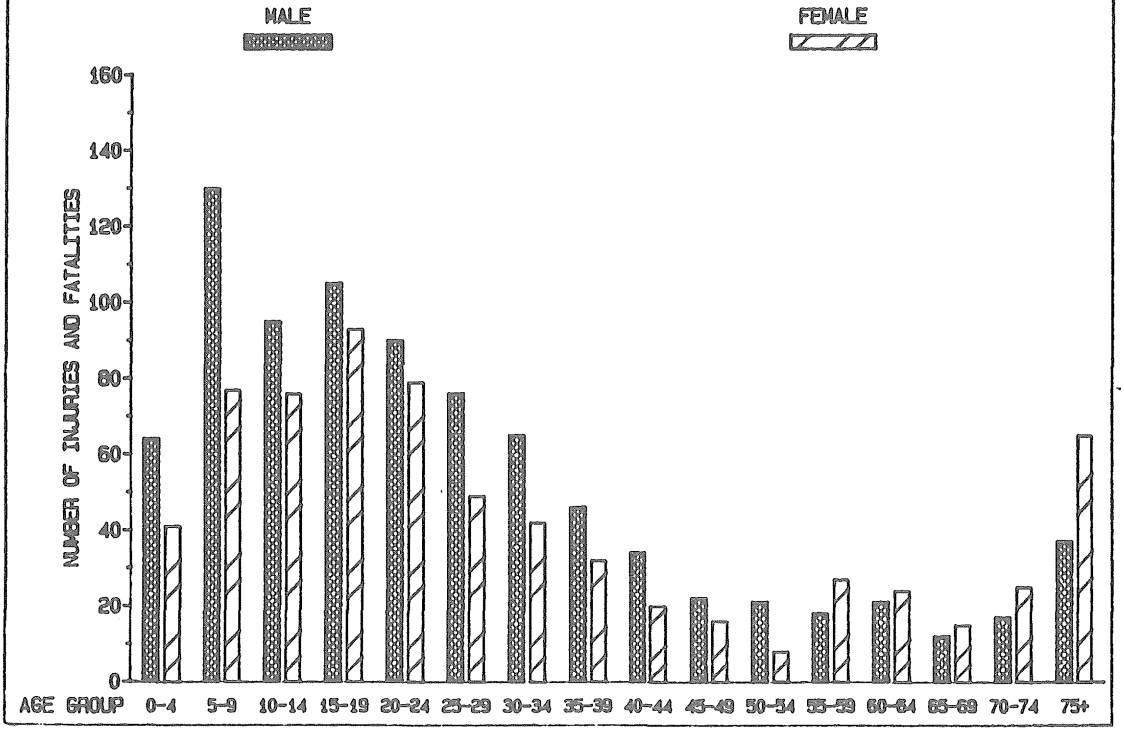


TABLE 6.03

1986 PEDESTRIAN CRASHES BY MONTH

Month	Fatal Crashes	Fatalities	Injury Crashes	Injuries	Total Crashes
January	9	10	133	142	142
February	2	2	103	113	105
March	6	6	107	112	113
April	4	4	133	139	138
May	8	8	130	136	142
June	7	7	136	137	146
July	2	2	113	115	118
August	7	7	96	104	109
September	9	9	137	145	155
October	7	7	137	139	150
November	4	4	150	161	159
December	5	5	123	127	133
Total	70	71	1,498	1,570	1,610

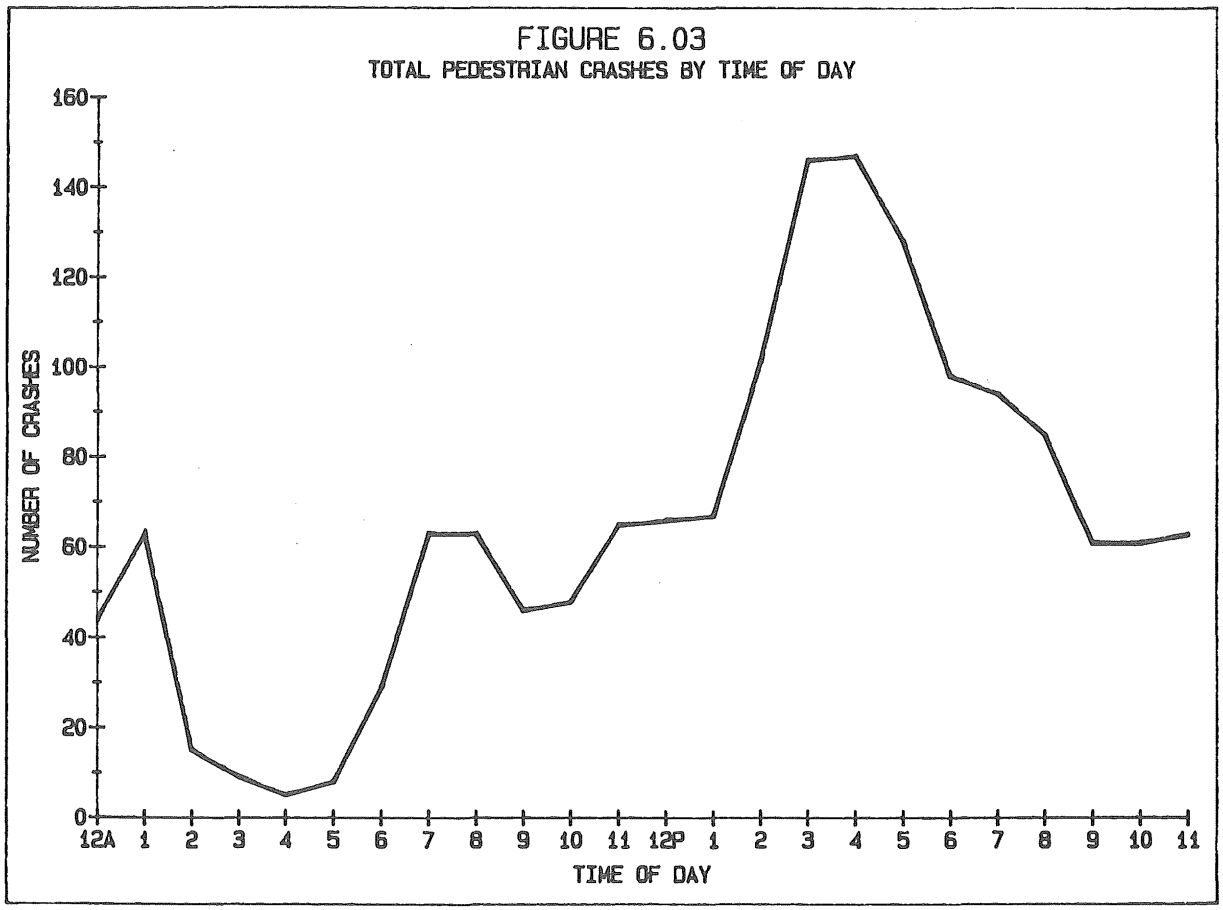


TABLE 6.04

1986 PEDESTRIAN CRASHES BY TIME AND DAY

Hour Beginning	Total Crashes	Fatal Crashes	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight	44	4	15	6	3	3	6	1	10
1:00 am	63	4	17	3	3	3	9	4	24
2:00 am	15	0	4	0	1	4	0	1	5
3:00 am	9	2	2	0	1	1	1	3	1
4:00 am	5	0	0	1	0	1	0	1	2
5:00 am	8	1	1	1	2	2	1	0	1
6:00 am	29	1	1	5	12	3	5	3	0
7:00 am	63	2	2	10	7	22	7	12	3
8:00 am	63	3	2	5	14	16	10	13	3
9:00 am	46	2	2	6	10	9	6	7	6
10:00 am	48	1	2	7	11	7	4	10	7
11:00 am	65	2	4	9	11	12	4	12	13
Noon	66	3	6	9	11	13	6	5	16
1:00 pm	67	1	11	4	13	3	15	11	10
2:00 pm	101	3	8	17	21	13	16	16	10
3:00 pm	146	2	9	17	25	21	32	26	16
4:00 pm	147	4	7	24	26	20	33	23	14
5:00 pm	128	5	12	24	18	18	20	21	15
6:00 pm	98	4	13	10	10	20	15	14	16
7:00 pm	94	7	9	11	14	16	14	13	17
8:00 pm	85	0	7	8	11	13	13	16	17
9:00 pm	61	3	6	5	5	7	4	20	14
10:00 pm	61	7	2	6	9	7	6	15	16
11:00 pm	63	8	9	2	6	7	6	15	18
Unknown	35	1	3	7	4	7	3	8	3
Total	1,610	70	154	197	248	248	236	270	257

TABLE 6.05

1986 PEDESTRIAN CRASHES BY CITY POPULATION

Population of City or Township	Fatal Crashes	Personal Injury Crashes	Total Crashes
100,000 and Over	20	694	739
50,000 - 99,999	2	84	86
25,000 - 49,999	8	180	194
10,000 - 24,999	7	171	182
5,000 - 9,999	2	90	94
2,500 - 4,999	3	43	46
1,000 - 2,499	2	35	38
Under 1,000	22	95	120
Unknown	4	106	111
Total	70	1,498	1,610

TABLE 6.06

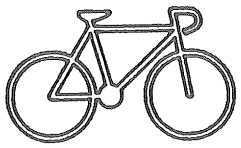
VEHICLE MOVEMENT IN 1986 PEDESTRIAN CRASHES

Vehicle Movement	Fatal Crashes	Personal Injury Crashes	Total Crashes
Vehicle Going Straight	53	1,019	1,100
Vehicle Turning Left	2	133	141
Vehicle Turning Right	1	103	108
Vehicle Backing	2	48	51
All Others	11	186	200
Not Stated	1	9	10
Total	70	1,498	1,610

TABLE 6.07

PRIOR ACTION OF PEDESTRIANS KILLED AND INJURED IN 1986

Action	Number Killed	Number Injured
Crossing With Signal	3 (4.2%)	230 (14.6%)
Crossing Against Signal	3 (4.3%)	124 (7.9%)
Crossing In Crosswalk No Signal	5 (7.0%)	78 (5.0%)
Crossing No Crosswalk No Signal	18 (25.4%)	360 (22.9%)
Walking In Road With Traffic	7 (9.9%)	88 (5.6%)
Walking In Road Against Traffic	2 (2.8%)	72 (4.6%)
Standing In Road	7 (9.9%)	80 (5.1%)
Emerging From Front/Behind Parked Car	2 (2.8%)	107 (6.8%)
Child Getting On/Off School Bus	2 (2.8%)	7 (0.4%)
Getting On/Off Vehicle	0	9 (0.6%)
Pushing/Working On Vehicle	2 (2.8%)	11 (0.7%)
Working In Road	0	14 (0.9%)
Playing In Road	0	24 (1.5%)
Not In Road	3 (4.2%)	37 (2.4%)
Other Pedestrian Action	15 (21.1%)	329 (21.0%)
Unknown	2 (2.8%)	0
Total	71 (100%)	1,570 (100%)



BICYCLE CRASHES

The reporting of bicycle crashes is less consistent and reliable than the reporting of other traffic accidents. This is partly due to confusion surrounding the definitions of "bicycle" and "bicycle crash". The bicycle is considered a "vehicle" under Minnesota traffic law, and is therefore subject to all traffic laws governing motor vehicles. But bicycle crashes are not counted as traffic or motor vehicle crashes (for official state or national accident records purposes) unless a motor vehicle is involved. To further confuse the issue, a bike/motor vehicle collision occurring prior to 1984 was considered an official motor vehicle accident only when the bicyclist was the first "object" struck by the motor vehicle.

In the past ten years, bicyclist fatalities have decreased significantly, from 24 in 1977 to a low of 10 in 1981 and 1985. The 12 fatalities in 1986 represent both an increase over the fatalities in 1985 and a decrease from the average of the previous five years. Although total crashes (1,367) and injuries (1,309) decreased slightly in 1986, this was not a significant improvement since these categories were at a ten-year high in 1985. Certainly, the higher number of crashes in recent years can be partly attributed to an increase in bicycle riding. The contributions of other factors such as an increase in hazards facing bicyclists and more complete reporting of bicycle accidents are not possible to determine.

* As in 1985, all of the fatal bicycle crashes occurred in areas with populations under 50,000 and 50 percent occurred in rural areas with populations less than 1,000. The highest percentage of injury crashes, 36 percent, occurred in large urban areas with populations greater than 100,000.

* As in past years, the great majority of bicyclists killed or injured were males. The ten-to-14-year-old age category had the highest number of both fatalities and injuries, followed by the 15-to-19-year-old category.

* The most frequently cited contributing factor in bicycle crashes was driver inattention by both the bicycle driver and the motor vehicle driver. Improper or unsafe lane use and disregard for traffic control device were cited four times more often for bicyclists than for motor vehicle drivers.

* Thirty-five percent of the bicyclists injured were riding with the flow of traffic at the time of the accident. Another large fraction, 26 percent, were attempting to ride across the road; this bicyclist action was responsible for more fatalities than any other.

* Monday had the highest number of crashes (231) followed by Thursday (228). This contrasts with many other types of accidents where weekend days show the highest crash involvement. The hours of 4 and 5 p.m. had the highest number of crashes.

* Ninety-two percent of all bicyclist fatalities occurred in June, July, and August, and 68 percent of all injuries from May through August. The highest number of crashes occurred in June.

TABLE 7.01

BICYCLE CRASHES, INJURIES, FATALITIES, 1977-1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Bicycle Crashes	*	1,154	1,067	1,276	1,255	1,130	1,220	1,282	1,375	1,367
Bicyclists Injured	*	1,105	993	1,295	1,213	1,105	1,194	1,258	1,342	1,309
Bicyclists Killed	24	23	14	19	10	12	14	15	10	12

* Bicyclist injury and crash information is not available for 1977.

TABLE 7.02

1986 BICYCLISTS AND CRASHES BY MONTH

Month	Fatal Crashes	Injury Crashes	Property Damage Crashes	All Crashes	Fatalities	Personal Injuries
January	0	2	0	2	0	3
February	0	5	1	6	0	5
March	0	51	1	52	0	50
April	0	98	3	101	0	99
May	0	171	8	179	0	174
June	4	266	12	282	4	269
July	1	232	11	244	1	234
August	6	214	10	230	6	219
September	0	135	10	145	0	138
October	1	83	6	90	1	85
November	0	21	1	22	0	20
December	0	13	1	14	0	13
Total	12	1,291	64	1,367	12	1,309

TABLE 7.03

1986 BICYCLE CRASHES BY TIME AND DAY

Hour Beginning	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight	13	4	0	2	0	1	2	4
1:00 AM	19	2	1	1	2	1	5	7
2:00 AM	2	1	1	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0
4:00 AM	3	0	0	0	0	1	0	2
5:00 AM	6	0	1	1	1	2	0	1
6:00 AM	6	0	0	3	1	1	0	1
7:00 AM	38	0	11	3	7	8	7	2
8:00 AM	23	0	5	6	4	5	3	0
9:00 AM	30	2	3	9	2	3	8	3
10:00 AM	40	4	4	8	4	10	5	5
11:00 AM	54	2	11	7	10	8	8	8
Noon	68	9	14	9	10	7	11	8
1:00 PM	68	8	10	12	9	12	13	4
2:00 PM	105	12	21	14	7	20	15	16
3:00 PM	147	16	26	29	20	27	18	11
4:00 PM	175	12	42	24	25	25	31	16
5:00 PM	172	21	22	38	22	30	16	23
6:00 PM	118	12	19	19	24	20	12	12
7:00 PM	96	11	15	15	16	17	13	9
8:00 PM	74	6	14	12	15	10	7	10
9:00 PM	48	3	4	10	11	12	5	3
10:00 PM	17	1	3	2	1	2	5	3
11:00 PM	17	1	1	1	2	3	3	6
Unknown	28	5	3	1	3	3	13	0
Total	1,367	132	231	226	196	228	200	154

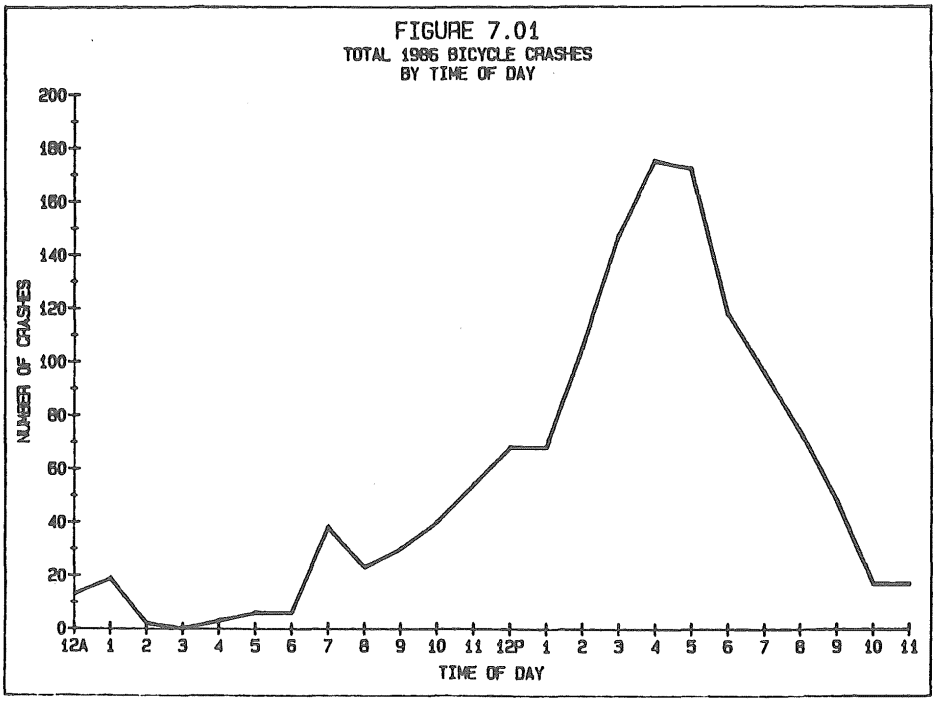


TABLE 7.04

AGE AND SEX OF BICYCLISTS BY INJURY SEVERITY IN 1986

Age Group	Killed			Severe Injury			Moderate Injury			Possible Injury		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0- 4	0	0	0	3	0	3	7	3	10	3	3	6
5- 9	2	0	2	33	17	50	85	22	107	48	15	63
10-14	3	2	5	46	27	73	125	81	206	78	29	107
15-19	2	1	3	24	16	40	96	45	141	58	21	79
20-24	0	0	0	13	10	23	48	29	77	29	12	41
25-29	0	0	0	13	7	20	35	12	47	29	8	37
30-34	0	0	0	18	2	20	13	10	23	8	5	13
35-39	0	0	0	1	1	2	12	5	17	9	3	12
40-44	0	0	0	2	2	4	10	1	11	3	1	4
45-49	0	0	0	0	0	0	3	1	4	2	0	2
50-54	1	0	1	1	0	1	1	0	1	1	1	2
55-59	0	1	1	0	0	0	0	2	2	0	0	0
60-64	0	0	0	1	1	2	1	0	1	0	2	2
65-69	0	0	0	0	0	0	3	1	4	0	0	0
70-74	0	0	0	0	0	0	1	0	1	1	0	1
75 & over	0	0	0	0	1	1	0	0	0	2	1	3
Not Stated	0	0	0	4	0	4	13	7	21*	12	7	21*
Total	8	4	12	159	84	243	453	219	673	283	108	393

* Where columns do not add across, the sex was not stated on the accident report.

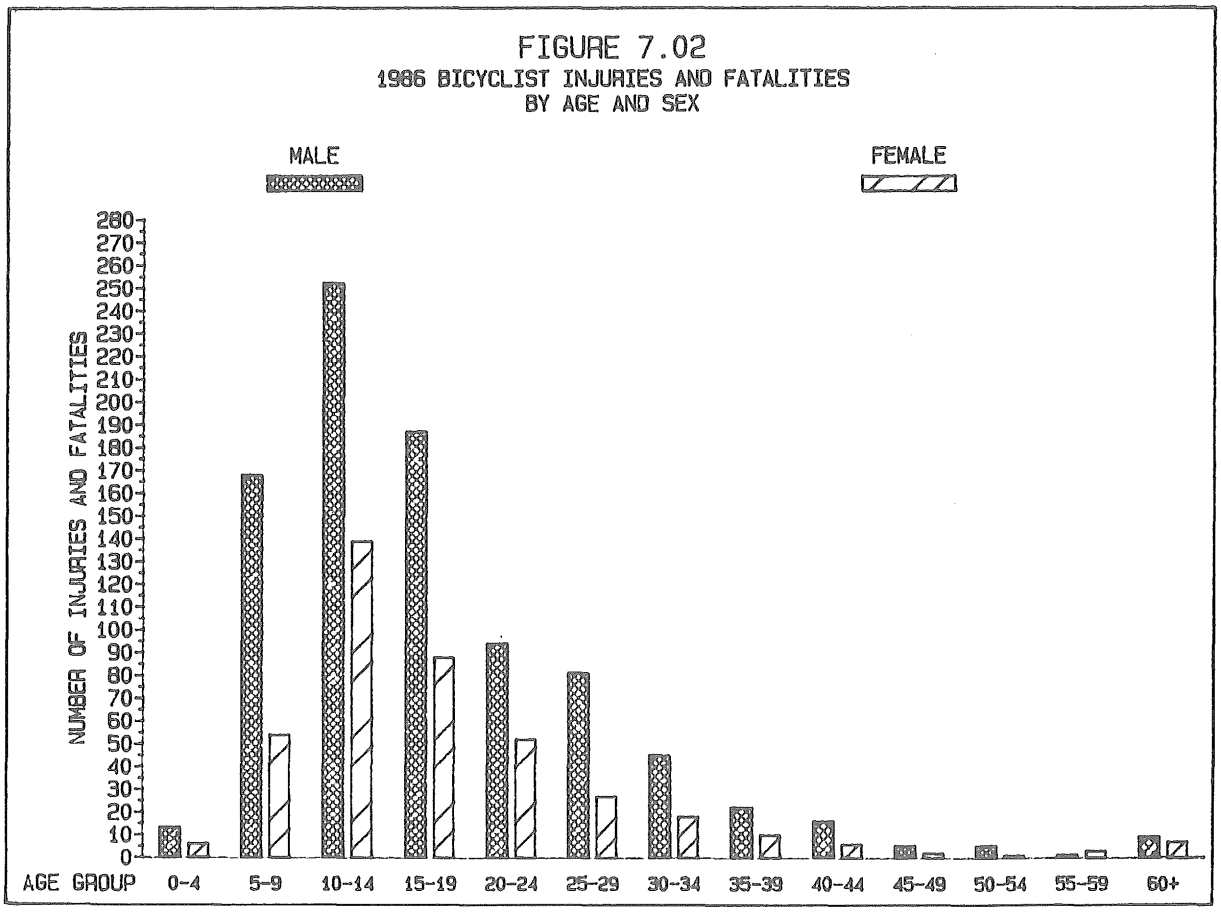


TABLE 7.05

CONTRIBUTING FACTORS IN 1986 BICYCLE CRASHES

Contributing Factors	Attributed to Bicycle Drivers		Attributed to Motor Vehicle Drivers	
	Number	Percent	Number	Percent
Driver Inattention/ Distraction	355	(27.8)	348	(36.9)
Failure to Yield Right of Way	196	(15.3)	232	(24.6)
Improper/Unsafe Lane Use	131	(10.3)	28	(3.0)
Disregard For Traffic Control Device	122	(9.6)	29	(3.1)
Driver Inexperience	116	(9.1)	18	(1.9)
Driving Left of Roadway Center--Not Passing	41	(3.2)	8	(0.8)
Defective Equipment	37	(2.9)	0	(0.0)
Vision Obscured	35	(2.7)	103	(10.9)
Improper Turn	31	(2.4)	29	(3.1)
Illegal/Unsafe Speed	29	(2.3)	44	(4.7)
Improper Passing/ Overtaking	19	(1.5)	15	(1.6)
Physical Impairment	14	(1.1)	20	(2.1)
Following Too Closely	10	(0.8)	6	(0.6)
Improper Parking/ Starting/Stopping	6	(0.5)	12	(1.3)
Impeding Traffic	5	(0.4)	0	(0.0)
No/Improper Signal	5	(0.4)	4	(0.4)
Unsafe Backing	1	(0.1)	9	(1.0)
Other Human Factor	91	(7.1)	16	(1.7)
Other Violation	33	(2.6)	21	(2.2)
Total	1,277	(100.0%)	942	(100.0%)
No Improper Driving	291		615	
Total Number of Drivers	1,382		1,384	

* More than one contributing factor may be attributed to a driver.

TABLE 7.06

PRIOR ACTION OF BICYCLE DRIVERS INVOLVED IN 1986 CRASHES

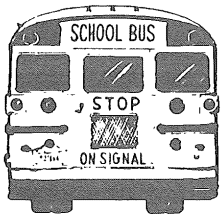
Action In:	Fatal Crashes	Injury Crashes	Property Damage Crashes	All* Crashes
Riding With Traffic	3	462	21	486
Riding Against Traffic	1	132	3	136
Making Left Turn	0	62	2	64
Making Right Turn	2	31	2	35
Making U Turn	0	7	3	10
Riding Across Road	4	346	9	359
Slowing, Starting, Stopping	0	21	0	21
Other/Unknown	2	247	24	273
Total	12	1,308	64	1,384

* The total number of bicycle driver actions exceeds the number of bicycle crashes because more than one bicycle may be involved in a crash.

TABLE 7.07

1986 BICYCLE CRASHES BY CITY POPULATION

Population of City or Township	Fatal Crashes	Severe Injury Crashes	Moderate Injury Crashes	Possible Injury Crashes	Property Damage Crashes	All Crashes
100,000 and Over	0	76	231	179	27	513
50,000 - 99,999	0	8	39	21	3	71
25,000 - 49,999	2	55	137	49	12	255
10,000 - 24,999	1	42	105	42	9	199
5,000 - 9,999	1	20	48	26	5	100
2,500 - 4,999	2	7	23	20	2	54
1,000 - 2,499	0	1	11	11	0	23
Under 1,000	6	14	31	17	2	70
Unknown	0	17	38	23	4	82
Total	12	240	663	388	64	1,367



SCHOOL BUS CRASHES

Total school bus crashes dropped to the lowest level in the past ten years, from a high of 852 crashes in 1979 to a low of 662 in 1986. The 662 crashes represent an eight percent reduction from the total in 1985 and a five percent reduction from the average of the previous five years. Part of the decrease in school bus crashes may be attributed to parking lot crashes being excluded from 1986 figures.

Fatal school bus crashes have remained very low in Minnesota during the past ten years, with a high of seven in 1983, and a low of one in 1980. In 1986 there were three fatal school bus crashes resulting in three fatalities. Two of the fatalities were pedestrians who had just exited the school bus and one was an occupant of a vehicle that had collided with the bus.

The number of school bus crash injuries (265) was also the lowest in at least five years. Thirty-seven percent of the injuries occurred on the school bus, 58 percent in other vehicles, and five percent were pedestrians.

* Five-to-nine-year-olds represented the largest age group of those injured on the bus, followed by 10-to-14-year-olds. All three of the fatalities in 1986 were females, two of whom were in the 5-to-9-year-old age category.

* The highest number of injuries occurred in urban areas with populations over 100,000. In contrast, two of the three fatalities occurred in rural areas with populations less than 1,000.

* All of the fatal crashes and 49 percent of the injury crashes occurred where no traffic control device was present. Where such a device existed in injury crashes, it was most commonly a traffic signal or a stop sign.

* The most frequently cited contributing factor in school bus crashes was driver inattention by both the school bus driver and the other vehicle driver. Second most frequently cited factor for school bus operators was failure to yield right of way; for other drivers, it was illegal or unsafe speed. The drivers of other vehicles were cited more often for improper driving than were the school bus drivers.

* As expected, the greatest number of school bus crashes occurred during the time period before and after school -- 34 percent occurred between 6:00 a.m. and 9:00 a.m., and 29 percent occurred between 3:00 p.m. and 6:00 p.m.

* All fatal crashes in 1986 occurred during the first four months of the year. January had the highest number of crashes; February, however, had the highest number of injuries.

TABLE 8.01

SCHOOL BUS CRASHES, 1977 - 1986

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Total Crashes	*	698	852	672	681	729	687	675	723	662
Fatal Crashes	*	2	6	1	2	2	7	3	4	3
Fatalities	3	2	6	1	2	2	8	3	4	3
Injury Crashes	*	166	184	171	155	160	161	176	191	160
Injuries	*	*	*	*	*	282	321	340	366	265
School Buses Involved in Crashes	724	708	866	678	692	737	694	686	729	667

* Not Available.

TABLE 8.02

AGE AND SEX OF PERSONS KILLED & INJURED IN 1986 SCHOOL BUS CRASHES

Age	Total	In Bus	Pedestrian	In Other Vehicle	Male	Female
0- 4	9	0	1	8	5	4
5- 9	45**	33	4**	8	19	25**
10-14	35	24	4	7	11	18
15-19	41	3	1	37	21	20
20-24	22	4	0	18	9	13
25-29	20	4	0	16	9	11
30-34	17	1	0	16	3	14
35-39	13	4	0	9	3	10
40-44	8	0	1	7	2	6
45-54	15*	2	0	13*	8	7*
55-64	6	2	0	4	2	4
65 & Over	8	0	1	7	5	3
Unknown	29	23	0	6	15	14
Total	268***	100	12	156	112	149

Each category includes both injuries and fatalities. The number of asterisks denotes the number of fatalities within a category.

TABLE 8.03

PERSONS INJURED OR KILLED IN 1986 SCHOOL BUS CRASHES BY CITY POPULATION

Population of City or Township	Fatalities	Severe Injuries	Moderate Injuries	Minor Injuries	Injuries & Fatalities
100,000 and Over	0	15	25	35	75
50,000 - 99,999	0	0	5	4	9
25,000 - 49,999	1	5	5	24	35
10,000 - 24,999	0	3	9	27	39
5,000 - 9,999	0	2	2	3	7
2,500 - 4,999	0	0	5	3	8
1,000 - 2,499	0	0	3	9	12
Under 1,000	2	5	17	16	40
Unknown	0	5	10	28	43
Total	3	35	81	149	268

TABLE 8.04

1986 SCHOOL BUS CRASHES BY ACCIDENT TYPE

Accident Type	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes
Collision With:				
Other Motor Vehicle	1	128	423	552
Parked Motor Vehicle	0	7	57	64
Bicyclist	0	4	0	4
Pedestrian	2	10	0	12
Animal	0	0	3	3
Fixed Object	0	1	11	12
Other Object	0	1	1	2
Noncollision:				
Overturn	0	4	2	6
Other	0	5	2	7
Total	3	160	499	662

TABLE 8.05

1986 SCHOOL BUS CRASHES BY TIME OF DAY

Time of Day	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes
Midnight - 2:59 AM	0	1	7	8
3:00 AM - 5:59 AM	0	0	1	1
6:00 AM - 8:59 AM	1	55	171	227
9:00 AM - 11:59 AM	0	15	60	75
Noon - 2:59 PM	0	30	95	125
3:00 PM - 5:59 PM	2	53	140	195
6:00 PM - 8:59 PM	0	1	11	12
9:00 PM - 11:59 PM	0	0	3	3
Unknown	0	5	11	16
Total	3	160	499	662

TABLE 8.06

1986 SCHOOL BUS CRASHES AND INJURIES BY MONTH

Month	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Personal Injuries
January	1	21	95	117	1	33
February	0	26	81	107	0	46
March	1	13	56	70	1	22
April	1	15	33	49	1	21
May	0	12	31	43	0	16
June	0	8	15	23	0	16
July	0	2	3	5	0	2
August	0	1	4	5	0	1
September	0	9	28	37	0	10
October	0	19	41	60	0	28
November	0	17	51	68	0	27
December	0	17	61	78	0	43
Total	3	160	499	662	3	265

TABLE 8.07

CONTRIBUTING FACTORS IN 1986 SCHOOL BUS CRASHES

Contributing Factors	Attributed to School Bus Drivers		Attributed to Drivers of Other Vehicles*	
	Number	Percent	Number	Percent
Driver Inattention	87	(23.9)	114	(22.5)
Failure to Yield Right of Way	56	(15.4)	67	(13.2)
Illegal or Unsafe Speed	30	(8.2)	68	(13.4)
Improper Lane Use	23	(6.3)	21	(4.1)
Improper Turn	19	(5.2)	7	(1.4)
Unsafe Backing	19	(5.2)	4	(0.8)
Vision Obscured	19	(5.2)	10	(2.0)
Driver Inexperience	18	(4.9)	33	(6.5)
Weather	17	(4.7)	25	(4.9)
Following Too Closely	13	(3.6)	37	(7.3)
Skidding	13	(3.6)	28	(5.5)
Disregard for Traffic Control Device	9	(2.5)	19	(3.7)
Improper Passing	9	(2.5)	10	(2.0)
Left of Center	8	(2.2)	13	(2.6)
Defective Brakes	5	(1.4)	9	(1.8)
Improper Parking	5	(1.4)	10	(2.0)
Other Human Factor	5	(1.4)	7	(1.4)
Road Defect	4	(1.0)	3	(0.6)
Impeding Traffic	1	(0.3)	1	(0.2)
Improper or No Signal	0	(0.0)	4	(0.8)
Pedestrian Violation	0	(0.0)	10	(2.0)
Physical Impairment	0	(0.0)	3	(0.6)
Other	4	(1.0)	4	(0.8)
Total**	364	(100%)	507	(100%)
No Improper Driving	253		194	
Total Number of Drivers	667		689	

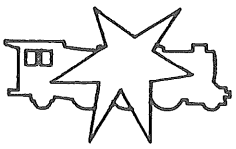
* Includes pedestrians.

** More than one contributing factor may be attributed to a driver.

TABLE 8.08

1986 SCHOOL BUS CRASHES AND INJURIES BY TRAFFIC CONTROL DEVICE

Traffic Control Device	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Personal Injuries
None	3	78	249	330	3	140
Traffic Signal	0	35	89	124	0	53
Stop Sign - All Approaches	0	2	14	16	0	2
Other Stop Sign	0	27	93	120	0	45
Yield Sign	0	2	10	12	0	2
School Bus Stop Arm	0	8	9	17	0	13
RR Xing Device	0	5	6	11	0	6
No Passing Zone	0	1	2	3	0	1
Other	0	0	3	3	0	0
Unknown	0	2	24	26	0	3
Total	3	160	499	662	3	265



MOTOR VEHICLE/TRAIN CRASHES

The number of motor vehicle/train crashes has decreased steadily in recent years. Crashes dropped to an all-time low of 116 in 1986. This total is a 13 percent decrease from 1985 and a 29 percent reduction from the average of the previous five years.

Fatal crashes dropped from a five-year high of 11 in 1983 to a low of five in 1986. The number of fatalities, however, has not shown such a significant decline. Of the 12 fatalities in 1986, eight occurred in only two crashes.

A motor vehicle/train crash is much more likely to result in injury or death than a collision between two motor vehicles. In 1986 the ratio of fatalities to crashes was 1 to 10; this contrasts to the ratio for all traffic crashes of 1 to 167. The ratio of motor vehicle/train injuries to crashes is 1 to 1.8 compared to the ratio of 1 to 2.3 for all traffic crashes.

* The 20 to 29 age category had more injuries than any other age group (33 percent of the injuries), and the 10 to 19 age category had the highest number of fatalities (42 percent).

* Driver inattention was the most frequently cited contributing factor in motor vehicle/train crashes, representing 35 percent of the factors cited. Failure to yield was the second most frequently cited factor, with 19 percent of the total. Eighty-eight percent of the motor vehicle drivers were cited for an improper or illegal action.

* The traffic control device which was present most frequently in motor vehicle/train crashes was the standard railroad sign without flashing lights, crossing gate, or stop sign. This category was coded in 31 percent of the crashes. Second most frequently cited traffic control device was railroad flashing lights, which was present in 22 percent of the crashes.

* More crashes occurred between noon and 3:00 p.m. (21 percent) than in any other three hour time period.

TABLE 9.01

MOTOR VEHICLE/TRAIN CRASHES, 1982 - 1986

	1982	1983	1984	1985	1986
Total Crashes	164	174	149	134	116
Fatal Crashes	5	11	7	8	5
Fatalities	7	15	11	13	12
Injury Crashes	73	69	56	63	53
Injuries	92	85	73	87	66
Property Damage Crashes	86	94	86	63	58

TABLE 9.02

AGE OF PERSONS KILLED AND INJURED IN 1986
MOTOR VEHICLE/TRAIN CRASHES

Age Group	Fatalities	Severe Injuries	Moderate Injuries	Minor Injuries	Total Injuries*
0- 9	1	1	0	1	2
10-19	5	4	5	6	15
20-29	0	5	11	6	22
30-39	1	3	4	3	10
40-49	1	3	2	1	6
50-59	1	1	1	0	2
60-69	1	1	0	1	2
70 & Over	2	2	2	2	6
Not Stated	0	0	0	1	1
Total	12	20	25	21	66

* Total injuries does not include fatalities.

TABLE 9.03

1986 MOTOR VEHICLE/TRAIN CRASHES BY MONTH

Month	Fatal Crashes	Personal Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Personal Injuries
January	0	5	9	14	0	6
February	0	3	10	13	0	3
March	1	3	2	6	1	5
April	0	4	2	6	0	4
May	0	3	2	5	0	3
June	0	2	4	6	0	7
July	2	9	3	14	6	10
August	1	7	4	12	4	8
September	1	3	4	8	1	3
October	0	7	7	14	0	7
November	0	4	5	9	0	6
December	0	3	6	9	0	4
Total	5	53	58	116	12	66

TABLE 9.04

1986 MOTOR VEHICLE/TRAIN CRASHES BY TIME AND DAY

	Total	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Midnight-2:59 AM	11	3	0	0	1	4	2	1
3:00- 5:59 AM	5	0	1	0	0	1	0	3
6:00- 8:59 AM	10	0	1	2	1	1	3	2
9:00-11:59 AM	19	2	3	2	3	3	3	3
Noon- 2:59 PM	24	1	6	1	2	7	3	4
3:00- 5:59 PM	21	1	4	3	2	4	3	4
6:00- 8:59 PM	16	0	2	4	1	5	3	1
9:00-11:59 PM	10	2	1	2	1	1	1	2
Total	116	9	18	14	11	26	18	20

TABLE 9.05

CONTRIBUTING FACTORS IN 1986 MOTOR VEHICLE/TRAIN CRASHES*

Contributing Factor	Number	Percent
Driver Inattention	55	35.3
Failure to Yield	30	19.2
Disregard for Traffic Control Device	28	17.9
Physical Impairment	8	5.1
Illegal/Unsafe Speed	8	5.1
Vision Obscured	5	3.2
Driver Inexperience	4	2.6
Skidding	4	2.6
Weather	3	1.9
Defective Brakes	3	1.9
Improper Parking	2	1.3
Following Too Closely	2	1.3
Improper Lane Use	1	0.6
Road Defect	1	0.6
Other	2	1.3
Total	156	100.0%
No Improper Driving	14	
Number of Drivers	118	

* Factors are cited only for motor vehicle drivers, not for train operators.

TABLE 9.06

1986 MOTOR VEHICLE/TRAIN CRASHES BY TRAFFIC CONTROL DEVICE PRESENT

Traffic Control Device	Number	Percent
Standard Crossing Sign	36	31.0
RR Flashing Lights	25	21.6
RR Crossing Stop Sign	13	11.2
Stop Sign	9	7.8
RR Crossing Gate	8	6.9
Flagman, Officer or School Patrol	1	0.9
Other	4	3.4
None	19	16.4
Unknown	1	0.9
Total	116	100.0%

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