# *Alberta*

# *Traffic Collision Statistics*

# *1998*

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# *1998 Overview*

- The number of **traffic collisions increased 6.8%** over the past year from 92365 collisions in 1997 to 98601 in 1998.
- The number of **traffic injuries increased 4.3%** over the past year from 23916 injuries in 1997 to 24935 in 1998.
- The number of **traffic fatalities in 1998 was 429, unchanged from** 1997.
- The number of people killed in collisions involving truck tractors has **decreased 33.7%** compared to 1997.
- **The highest number of casualty collisions** occurred in **December.**
- **Friday** was the most collision-prone day of the week. However, more fatal collisions occurred on Sunday.
- **The most collision-prone period of time was the afternoon rush-hour.**
- **Casualty rates** were highest for persons between the **ages of 15 and 24.**
- **Male drivers** between the **ages of 16 and 19** had the highest involvement rate of all drivers involved in casualty collisions.
- Following too closely, running off the road and left turn across path were the most frequently identified improper driver actions contributing to casualty collisions.
- **Fatal collisions** occurred most frequently in **rural areas,** whereas **injury and property damage collisions** occurred more frequently in **urban areas.**
- There was a **8.3% decrease** in the number of pedestrians killed and injured in traffic collisions in 1998 compared to 1997.
- **41.5% of pedestrians** involved in **fatal collisions had consumed alcohol prior to the collision** compared to **15.0% of pedestrians in injury collisions.**
- **22.6%** of drivers involved in fatal collisions **had consumed alcohol** prior to the crash compared to **5.9%** of drivers in injury collisions.
- Collision involved restraint users had a much lower injury rate (14.4%) than those not using restraints (36.1%).

# *Preface*

The purpose of this report is to provide an overview of the “who”, “what”, “when”, “where”, “why”, and “how” of traffic collisions which occurred in Alberta during 1998. Although the report is general in nature, it pays particular attention to casualty collisions, that is, those collisions which result in death or injury. Legislation in Alberta requires that a traffic collision which results in either death, injury or property damage to an apparent extent of $1000.00 or more, be reported immediately to an authorized peace officer. The officer completes a standardized collision report form which provides information on various aspects of the traffic collision. This report is based on the data collected from these report forms.

The collision report form is issued with standard instructions to every police service within Alberta, to be completed by the officer attending the scene of a motor vehicle collision or at a police station. Police priorities at the scene of a collision are to care for the injured, protect the motoring public and clear the roadway. Completion of the collision report form is a secondary, but necessary task.

After completion, the information on the collision report form is coded for input to computer files. The Alberta Collision Information System, which has been operational since 1978, undergoes several manual and computerized inspections each year in order to ensure maximum accuracy of the final data output. This collision information is used to make Alberta’s roads safer for all road users. Due to continuing police investigation, some numbers presented in this report may be subject to revision. It should also be noted that not all percentage columns will total 100 due to rounding error.

This report was produced based on collisions reported to Alberta Infrastructure by police, at the time of printing. The numbers presented in this report will not be updated. However, the patterns and trends detailed in this report represent an accurate description of Alberta’s traffic collision picture.

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# *Glossary*

**Alcohol Impaired** - In the judgement of the police officer, driving ability was impaired by alcohol consumption. Whether or not the subject was actually charged is not taken into consideration by the collision report form.

**Casualty Collision** - A vehicle collision which results in either a fatal or personal injury.

**Drinking Driver** - Refers to those drivers judged by the police officer as having been drinking prior to the collision or as being alcohol impaired at the time of the collision. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

**Fatality** - A fatality is the death of a person that occurs as a result of a motor vehicle collision within 30 days of the collision.

**Had Been Drinking** - In the judgement of the police officer, the driver had recently consumed alcohol but his driving ability was not obviously impaired.

**Major Injury** - Persons with injuries or complaint of pain that went to the hospital and were subsequently admitted even if for observation only.

**Minor Injury** - Persons with injuries or complaint of pain that went to the hospital, were treated in emergency (or refused treatment) and SENT HOME without ever being admitted to the hospital. (Also includes people who indicated that they intended to seek medical treatment).

**Motorcyclist** - Refers to drivers and passengers of motorcycles.

**Occupant Casualties** - Refers to people who were injured or killed as a result of a vehicle collision and were identified as being either a vehicle driver or passenger.

**Property Damage** - A vehicle collision which resulted in property damage exceeding $1000.00.

**Reportable Collision** - A vehicle collision which resulted in death, injury or property damage greater than $1000.00.

**Rural** - Any area outside of what is defined as **'Urban'.**

**Urban** - Any area within the corporate boundaries of a city, town, village or hamlet.

# *1998 Traffic Collision Summary*

## *Introduction*

During 1998, 98601 collisions were recorded on Alberta roadways. Property damage collisions (over $1000) represented 82.4% (81256) of this total while 17.2% (16987) were non-fatal injury collisions. Fatal collisions accounted for 0.4% (358) of the total reported collisions.

## *Five Year Trends*

The fatality rate, in terms of 10,000 population for 1998 remains the same as 1997 and stands at 1.5. The fatal collision rate is down at 1.2 from 1.3 last year.

Non-fatal injury collision rates and non-fatal injury rates have increased in 1998. In 1998, the non-fatal injury collision rate, in terms of 10,000 population, stands at 58.3.

In terms of 10,000 population, property damage and total collision rates are up, standing at 278.8 and 338.3, respectively.

## *Provincial Comparisons*

In order to get a clear picture of Alberta's traffic injuries in comparison to other provinces, rates rather than absolute numbers are utilized. In this instance, rates per 10,000 population were examined.

Alberta and PEI recorded the same fatality rate in terms of 10,000 population. Alberta recorded the highest injury rate, followed by Manitoba and British Columbia.

## *Table 1.1*

**Alberta Traffic Collisions**

**1994 - 1998**

| **Severity of Collision** | **1998** | **1997** | **1996** | **1995** | **1994** |
|---|---|---|---|---|---|
| Fatal Collisions | 358 | 357 | 299 | 328 | 352 |
| Non-Fatal Injury Collisions | 16987 | 16231 | 14988 | 13958 | 13691 |
| Property Damage Collisions | 81256 | 75777 | 78545 | 70934 | 70597 |
| **Total Reportable Collisions** | **98601** | **92365** | **93832** | **85220** | **84640** |
| Number Killed | 429 | 429 | 349 | 403 | 395 |
| Number Injured | 24935 | 23916 | 22268 | 20866 | 20169 |
| **Total Number of Casualties** | **25364** | **24345** | **22617** | **21269** | **20564** |

## *Observations*

In 1998, the overall number of collisions increased 6.8% when compared to 1997. In 1998, injury collisions increased 4.7% and fatal crashes increased by one collision. The number of fatalities is unchanged from 1997 to 1998, and the number of injuries increased by 4.3%. In terms of the past five years, overall collisions were lowest in 1994 and highest in 1998.

## *Table 1.2*

**Traffic Collision Rates**

**1994 - 1998**

| Severity of Collision | Rate Per 10,000 Population* | | | | | Rate Per 10,000 Licensed Drivers* | | | | | Rate Per 10,000 Registered Vehicles* | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1998** | **1997** | **1996** | **1995** | **1994** | **1998** | **1997** | **1996** | **1995** | **1994** | **1998** | **1997** | **1996** | **1995** | **1994** |
| Fatal Collisions | 1.2 | 1.3 | 1.1 | 1.2 | 1.3 | 1.7 | 1.7 | 1.5 | 1.6 | 1.8 | 1.7 | 1.7 | 1.5 | 1.7 | 1.8 |
| Number Killed | 1.5 | 1.5 | 1.3 | 1.5 | 1.5 | 2.0 | 2.1 | 1.7 | 2.0 | 2.0 | 2.0 | 2.1 | 1.8 | 2.0 | 2.0 |
| Non-Fatal Injury Collisions | 58.3 | 57.0 | 53.9 | 50.8 | 50.4 | 80.0 | 78.5 | 74.2 | 69.9 | 69.6 | 79.7 | 78.7 | 75.2 | 70.7 | 69.8 |
| Number Injured | 85.5 | 84.0 | 80.1 | 75.9 | 74.3 | 117.5 | 115.7 | 110.2 | 104.5 | 102.6 | 117.0 | 115.9 | 111.7 | 105.7 | 102.8 |
| Property Damage Only Collisions | 278.8 | 266.2 | 282.4 | 258.1 | 259.9 | 382.9 | 366.4 | 388.8 | 355.4 | 359.1 | 381.2 | 367.3 | 394.1 | 359.5 | 359.8 |
| **Total Reportable Collisions** | **338.3** | **324.4** | **337.4** | **310.1** | **311.6** | **464.6** | **446.7** | **464.5** | **427.0** | **430.5** | **462.5** | **447.8** | **470.9** | **432.0** | **431.4** |

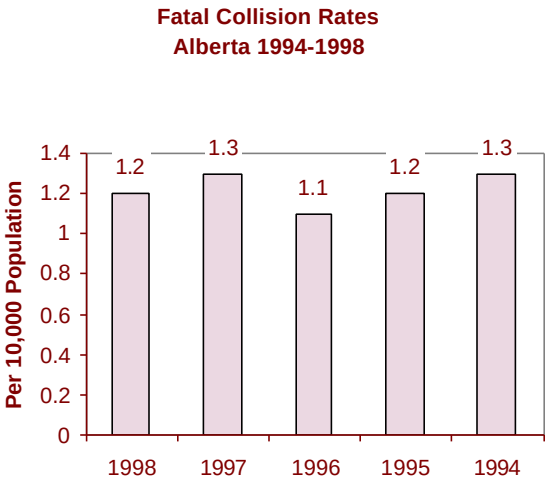
## *Observations*

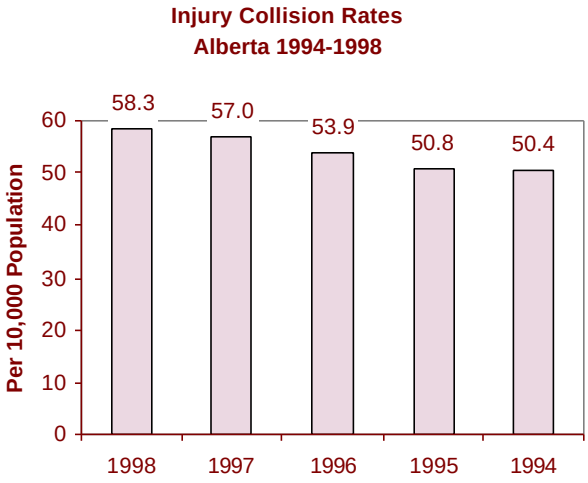
In terms of population, the fatal collision rate decreased and the fatality rate remained the same as 1997. In terms of licensed drivers, and registered vehicles for 1998, these rates decreased from 1997.

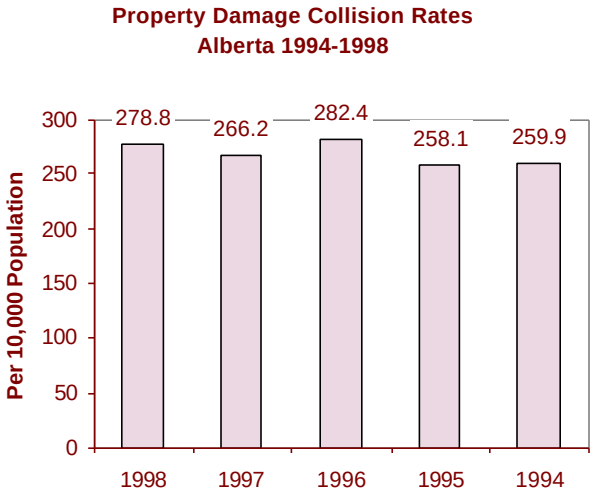
The non-fatal injury rate, in terms of population is up in 1998. The non fatal injury collision rate and non-fatal injury rate have also increased in terms of licensed drivers and registered vehicles.

Property damage and total collision rates increased in 1998.

*Sources:
Population - Statistics Canada as of July 1, 1998.
Licensed Drivers - Alberta Registries, as of December 31, 1998.
Registered Vehicles - Alberta Registries, as of December 31, 1998.


Fatal Collision Rates
Alberta 1994-1998
Per 10,000 Population
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1.2
1.3
1.1
1.2
1.3
1998
1997
1996
1995
1994


Injury Collision Rates
Alberta 1994-1998
Per 10,000 Population
60
50
40
30
20
10
0
58.3
57.0
53.9
50.8
50.4
1998
1997
1996
1995
1994


Property Damage Collision Rates
Alberta 1994-1998
Per 10,000 Population
300
250
200
150
100
50
0
278.8
266.2
282.4
258.1
259.9
1998
1997
1996
1995
1994

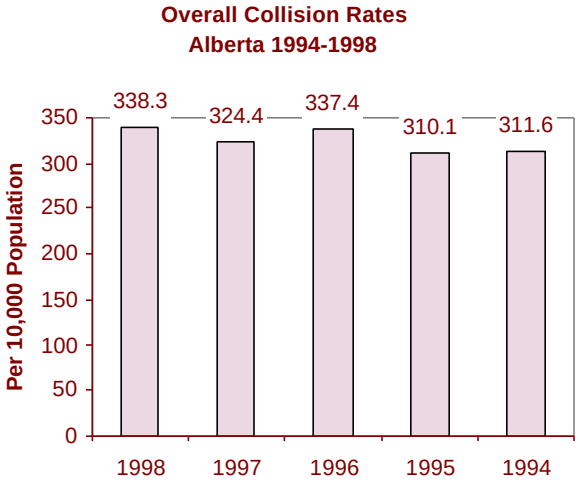

Overall Collision Rates
Alberta 1994-1998
Per 10,000 Population
350
300
250
200
150
100
50
0
338.3
324.4
337.4
310.1
311.6
1998
1997
1996
1995
1994

**Figure 1**

## *Table 1.3*

**Provincial Comparison of Casualty Rates Per 10,000 Population**

**1994 - 1998**

| | 1998 | | 1997 | | 1996 | | 1995 | | 1994 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **Fatal** | **Injury** | **Fatal** | **Injury** | **Fatal** | **Injury** | **Fatal** | **Injury** | **Fatal** | **Injury** |
| Alberta | 1.5 | 85.5 | 1.5 | 84.0 | 1.3 | 80.1 | 1.5 | 75.9 | 1.5 | 74.3 |
| British Columbia** | 1.0 | 74.4 | 1.0 | 80.1 | 1.0 | 104.0 | 1.3 | 126.1 | 1.5 | 131.7 |
| Saskatchewan | 1.4 | 70.1 | 1.6 | 73.9 | 1.3 | 67.1 | 1.5 | 73.5 | 1.5 | 79.8 |
| Manitoba | 1.1 | 83.7 | 1.0 | 79.9 | 0.8 | 91.6 | 1.1 | 106.7 | 1.1 | 122.3 |
| Ontario | 0.7 | * | 0.8 | 75.0 | 0.8 | 78.5 | 0.9 | 80.7 | 0.9 | 82.4 |
| Quebec | 1.0 | 64.1 | 1.1 | 64.4 | 1.2 | 64.5 | 1.2 | 66.2 | 1.1 | 66.9 |
| New Brunswick | 1.3 | 69.4 | 1.4 | 67.1 | 1.2 | 62.7 | 1.5 | 72.4 | 1.0 | 70.7 |
| Nova Scotia | 0.9 | 69.9 | 0.9 | 68.1 | 1.2 | 66.8 | 1.1 | 67.0 | 1.0 | 65.9 |
| Prince Edward Island | 1.5 | 67.2 | 1.5 | 65.7 | 1.4 | 61.5 | 1.2 | 58.0 | 1.3 | 54.1 |
| Newfoundland | 0.6 | 47.2 | 0.6 | 48.1 | 0.8 | 45.7 | 0.5 | 42.8 | 0.6 | 48.0 |

## *Observations*

In order to get a clear picture of Alberta's traffic injuries in comparison to other provinces, rates rather than absolute numbers are utilized. In this instance, casualty rates per 10,000 population were examined.

Alberta and PEI recorded the same fatality rate in terms of 10,000 population. Alberta recorded the highest injury rate, followed by Manitoba and British Columbia.

*Figures not available at time of printing.

**Figures for 1996, 1997 and 1998 are not comparable to previous years due to reporting changes.

Sources: Casualty statistics supplied by each province and may be subject to revision. Population estimates, as of July 1, 1998, Statistics Canada.

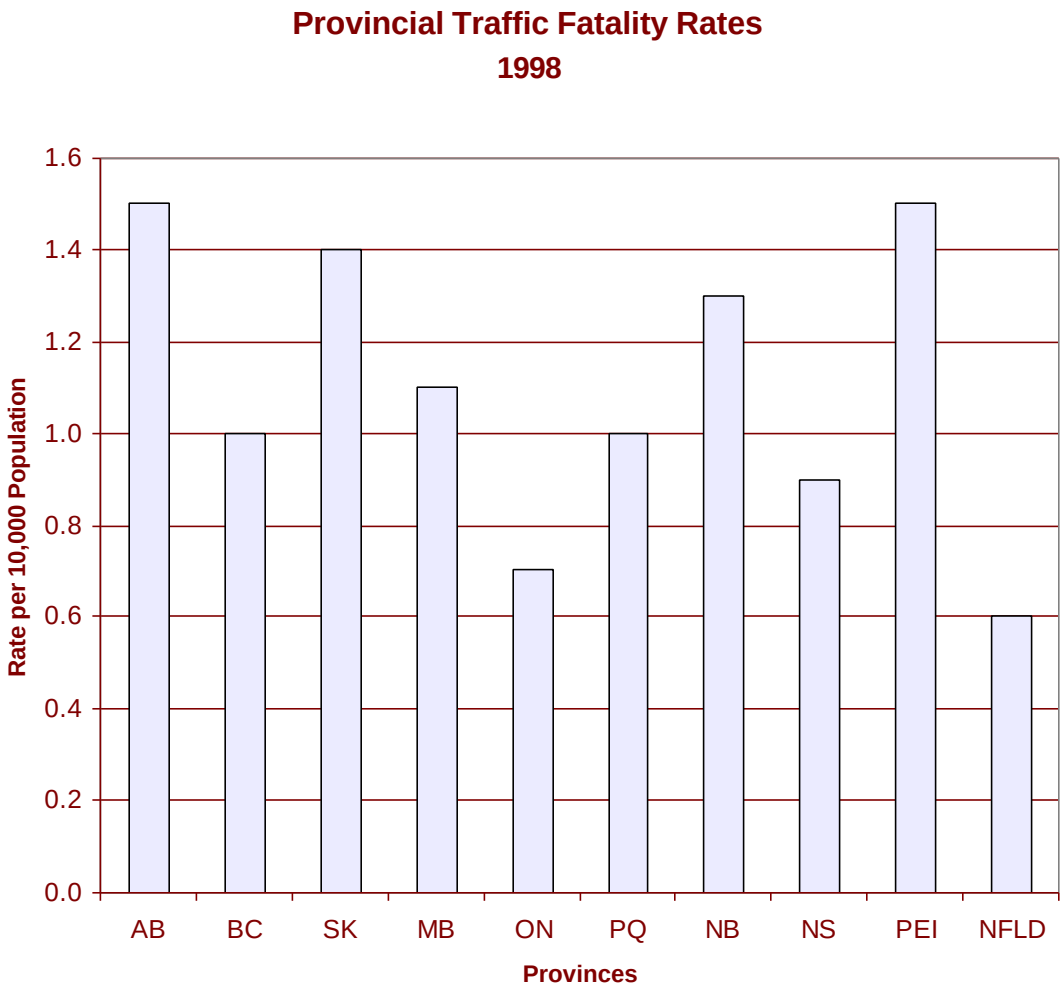

Provincial Traffic Fatality Rates
1998
Rate per 10,000 Population
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
AB
BC
SK
MB
ON
PQ
NB
NS
PEI
NFLD
Provinces

**Figure 2**

# *When the Collisions Occurred*

## *Month*

The month of December experienced more casualty collisions than other months. The highest number of property damage collisions was recorded during the month of January.

## *Day of Week*

The daily distribution of collisions indicated that Friday was the most collision-prone day of the week. The largest number of fatal crashes occurred on Sunday.

## *Time*

The afternoon rush hour period (3:00 p.m. - 6:59 p.m.) accounted for the highest proportion of collisions. The least collision-prone time period was the early morning (3:00 a.m. - 6:59 a.m.).

## *Holidays*

The August Long Weekend and the Labour Day Long Weekend recorded the highest number of individuals killed. The five day Christmas season recorded the highest number of injuries as well as the highest number of total collisions.

## *Table 2.1*

**Collision Occurrence by Month**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Property Damage Collisions | | Total Collisions | |
|---|---|---|---|---|---|---|---|---|
| **Month** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| January | 18 | 5.0 | 1450 | 8.5 | 9615 | 11.8 | 11083 | 11.2 |
| February | 21 | 5.9 | 987 | 5.8 | 5464 | 6.7 | 6472 | 6.6 |
| March | 24 | 6.7 | 1309 | 7.7 | 7280 | 9.0 | 8613 | 8.7 |
| April | 25 | 7.0 | 1131 | 6.7 | 4554 | 5.6 | 5710 | 5.8 |
| May | 35 | 9.8 | 1433 | 8.4 | 5566 | 6.8 | 7034 | 7.1 |
| June | 26 | 7.3 | 1474 | 8.7 | 6219 | 7.7 | 7719 | 7.8 |
| July | 30 | 8.4 | 1571 | 9.2 | 6393 | 7.9 | 7994 | 8.1 |
| August | 37 | 10.3 | 1465 | 8.6 | 5760 | 7.1 | 7262 | 7.4 |
| September | 37 | 10.3 | 1522 | 9.0 | 6114 | 7.5 | 7673 | 7.8 |
| October | 34 | 9.5 | 1492 | 8.8 | 6627 | 8.2 | 8153 | 8.3 |
| November | 37 | 10.3 | 1493 | 8.8 | 8521 | 10.5 | 10051 | 10.2 |
| December | 34 | 9.5 | 1645 | 9.7 | 8941 | 11.0 | 10620 | 10.8 |
| Unspecified | --- | --- | 15 | 0.1 | 202 | 0.2 | 217 | 0.2 |
| **Total Number of Collisions** | **358** | **100.00** | **16987** | **100.0** | **81256** | **100.0** | **98601** | **100.0** |

## *Observations*

The months of August, September and November experienced more fatal crashes than other months. The highest number of reported injury collisions was in December and the highest number of property damage collisions was in the month of January.

## *Table 2.2*

**Collision Occurrence by Day of Week**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Property Damage Collisions | | Total Collisions | |
|---|---|---|---|---|---|---|---|---|
| **Day of Week** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Monday | 41 | 11.5 | 2385 | 14.0 | 11273 | 13.9 | 13699 | 13.9 |
| Tuesday | 42 | 11.7 | 2419 | 14.2 | 11657 | 14.3 | 14118 | 14.3 |
| Wednesday | 38 | 10.6 | 2396 | 14.1 | 11481 | 14.1 | 13915 | 14.1 |
| Thursday | 60 | 16.8 | 2476 | 14.6 | 11835 | 14.6 | 14371 | 14.6 |
| Friday | 55 | 15.4 | 2984 | 17.6 | 14606 | 18.0 | 17645 | 17.9 |
| Saturday | 52 | 14.5 | 2436 | 14.3 | 11291 | 13.9 | 13779 | 14.0 |
| Sunday | 70 | 19.6 | 1871 | 11.0 | 8839 | 10.9 | 10780 | 10.9 |
| Unspecified | --- | --- | 20 | 0.1 | 274 | 0.3 | 294 | 0.3 |
| **Total Number of Collisions** | **358** | **100.0** | **16987** | **100.0** | **81256** | **100.0** | **98601** | **100.0** |

## *Observations*

The daily distribution of collisions indicated that overall Friday was the most collision-prone day of the week. The largest number of fatal crashes occurred on Sunday.

## *Table 2.3*

**Collision Occurrence by Time Period**

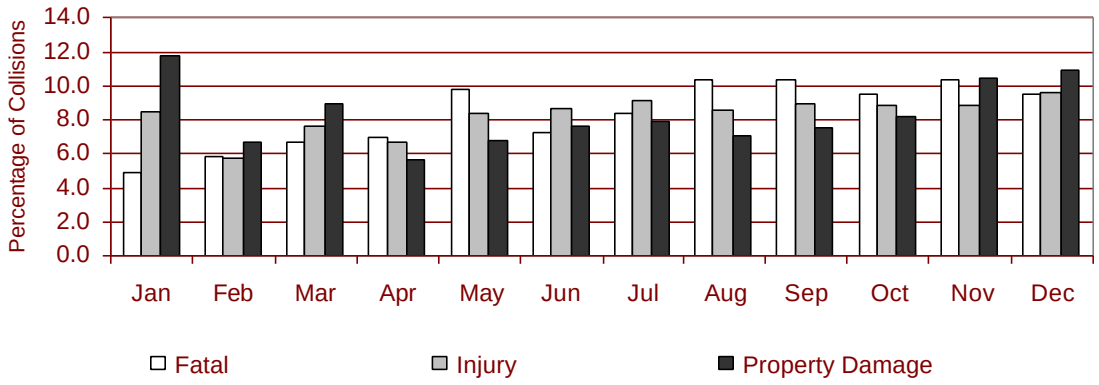
**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Property Damage Collisions | | Total Collisions | |
|---|---|---|---|---|---|---|---|---|
| **Time Period** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| 11:00 p.m.- 2:59 a.m. | 54 | 15.1 | 1323 | 7.8 | 6825 | 8.4 | 8202 | 8.3 |
| 3:00 a.m.- 6:59 a.m. | 52 | 14.5 | 775 | 4.6 | 3874 | 4.8 | 4701 | 4.8 |
| 7:00 a.m.- 10:59 a.m. | 52 | 14.5 | 2776 | 16.3 | 13513 | 16.6 | 16341 | 16.6 |
| 11:00 a.m.- 2:59 p.m. | 59 | 16.5 | 3921 | 23.1 | 18904 | 23.3 | 22884 | 23.2 |
| 3:00 p.m.- 6:59 p.m. | 71 | 19.8 | 5420 | 31.9 | 23004 | 28.3 | 28495 | 28.9 |
| 7:00 p.m.- 10:59 p.m. | 64 | 17.9 | 2627 | 15.5 | 13628 | 16.8 | 16319 | 16.6 |
| Unspecified | 6 | 1.7 | 145 | 0.9 | 1508 | 1.9 | 1659 | 1.7 |
| **Total Number of Collisions** | **358** | **100.0** | **16987** | **100.0** | **81256** | **100.0** | **98601** | **100.0** |

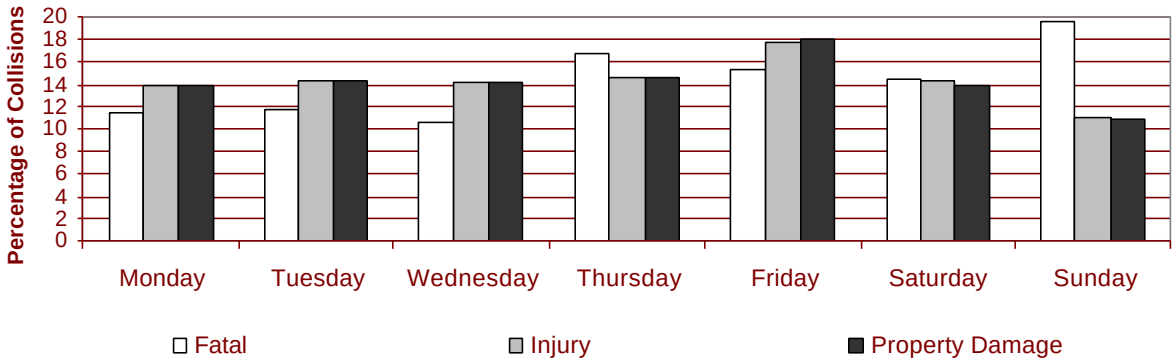
## *Observations*

The afternoon rush hour period (3:00 p.m. - 6:59 p.m.) accounted for the largest percentage (28.9%) of collisions occurring in a 24 hour period. The least collision-prone time period was the early morning (3:00 a.m. - 6:59 a.m.).

## Collision Occurrence By Month
**Alberta 1998**




## Collision Occurrence By Day of Week
**Alberta 1998**




## Collision Occurrence By Time Period
**Alberta 1998**

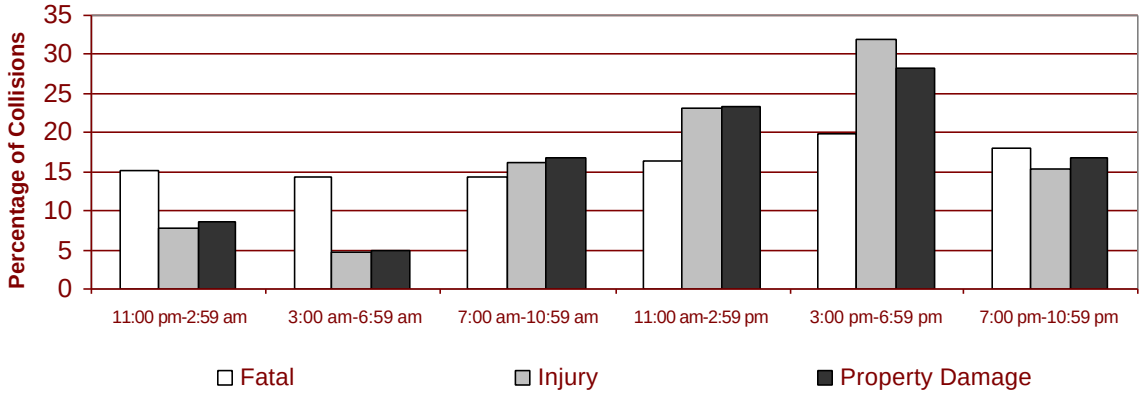


**Figure 3**

## *Table 2.4*

**Collisions During 1998 Holidays**

| Holidays | Number Killed N | Number Injured N | Total Collisions* N |
|---|---|---|---|
| New Year's Day (January 1) | --- | 71 | 274 |
| Family Day Long Weekend (February 13-16) | 4 | 203 | 789 |
| Easter Long Weekend (April 9-13) | 8 | 269 | 814 |
| Victoria Day Long Weekend (May 15-18) | 8 | 280 | 830 |
| Canada Day (July 1) | 1 | 63 | 228 |
| August Long Weekend (July 31 – August 3) | 10 | 309 | 972 |
| Labour Day Long Weekend (September 4-7) | 10 | 255 | 856 |
| Thanksgiving Long Weekend (October 9-12) | 4 | 278 | 1023 |
| Remembrance Day (November 11) | --- | 60 | 331 |
| Christmas Season (December 24-27) | 8 | 344 | 1158 |
| **Total** | **53** | **2132** | **7275** |

## *Observations*

The August and Labour Day Long Weekends recorded the highest number of individuals killed. The four day Christmas weekend recorded the highest number of injuries as well as the highest number of total collisions.

*Total collisions includes fatal, injury, and property damage collisions.

# *Victims*

## *Road User Class*

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and bicyclists accounted for 4.5% and 2.8% of the total casualties, respectively.

## *Age of Casualties*

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children 14 and under.

## *Table 3.1*

**Injuries and Fatalities by Road User Class**

**1998**

| | Persons Killed | | Persons Injured | | Total Casualties | |
|---|---|---|---|---|---|---|
| **Road User Class** | **N** | **%** | **N** | **%** | **N** | **%** |
| Drivers | 221 | 51.5 | 14568 | 58.4 | 14789 | 58.3 |
| Passengers | 114 | 26.6 | 7733 | 31.0 | 7847 | 30.9 |
| Pedestrians | 45 | 10.5 | 1104 | 4.4 | 1149 | 4.5 |
| Bicyclists | 2 | 0.5 | 714 | 2.9 | 716 | 2.8 |
| Motorcyclists | 26 | 6.1 | 499 | 2.0 | 525 | 2.1 |
| Other | 7 | 1.6 | 198 | 0.8 | 205 | 0.8 |
| Unspecified | 14 | 3.3 | 119 | 0.5 | 133 | 0.5 |
| **Total Casualties** | **429** | **100.0** | **24935** | **100.0** | **25364** | **100.0** |

## *Observations*

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and bicyclists accounted for 4.5% and 2.8% of the total casualties, respectively.

*Table 3.2*

**Age of Casualties**

**1998**

| Age In Years | Persons Killed N | Persons Killed % | Persons Injured N | Persons Injured % | Casualty Rate Per 10,000 Population* |
|---|---|---|---|---|---|
| Under 5 | 8 | 1.9 | 368 | 1.5 | 18.9 |
| 5 - 9 | 12 | 2.8 | 675 | 2.7 | 31.6 |
| 10 - 14 | 3 | 0.7 | 916 | 3.7 | 42.0 |
| 15 - 19 | 50 | 11.7 | 3700 | 14.8 | 176.8 |
| 20 - 24 | 59 | 13.8 | 3584 | 14.4 | 170.6 |
| 25 - 29 | 46 | 10.7 | 2808 | 11.3 | 128.6 |
| 30 - 34 | 35 | 8.2 | 2390 | 9.6 | 102.2 |
| 35 - 44 | 78 | 18.2 | 4425 | 17.7 | 86.0 |
| 45 - 54 | 38 | 8.9 | 2743 | 11.0 | 76.5 |
| 55 - 64 | 29 | 6.8 | 1333 | 5.3 | 62.0 |
| 65 and over | 71 | 16.6 | 1355 | 5.4 | 49.4 |
| Unspecified | --- | --- | 638 | 2.6 | |
| **Total Casualties** | **429** | **100.0** | **24935** | **100.0** | |

## *Observations*

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 24. The lowest casualty rates were recorded for children 14 years of age and younger.

* Based on estimates of the Alberta population by age groups and sex, July 1, 1998, Statistics Canada.

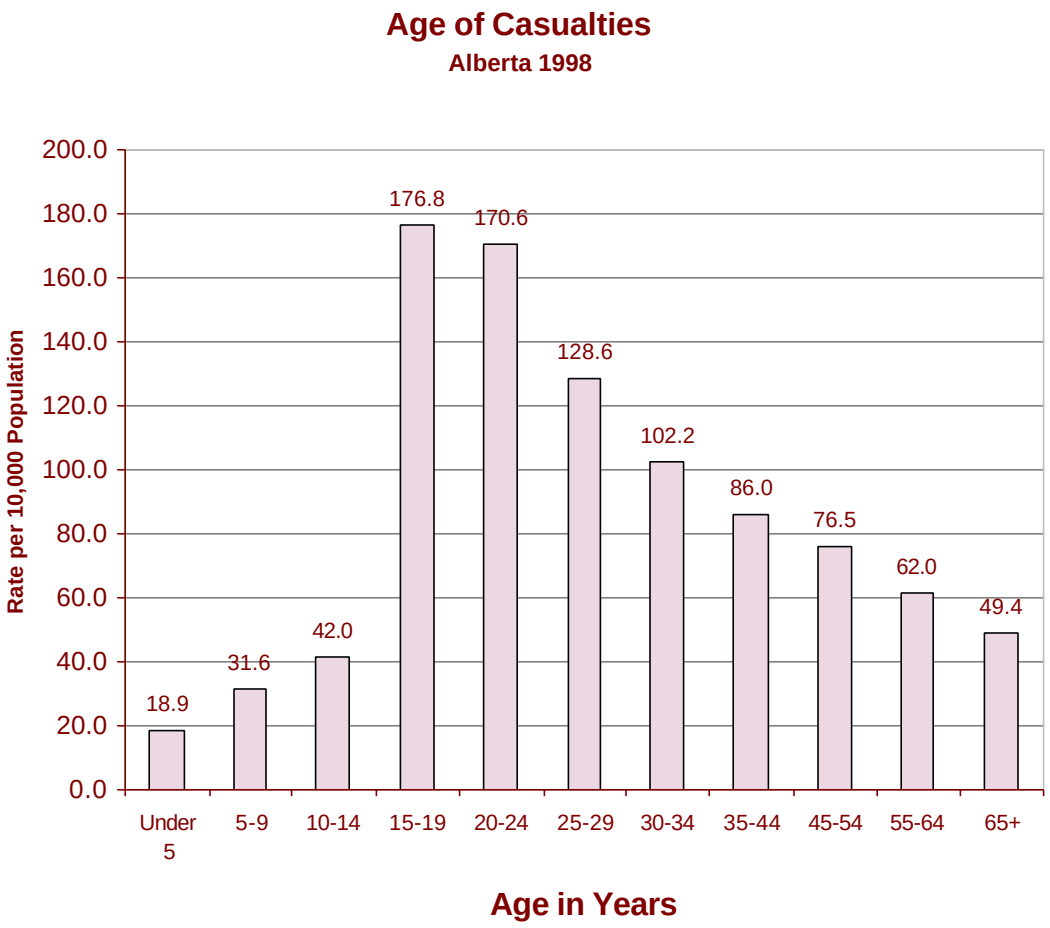

Age of Casualties
Alberta 1998
Rate per 10,000 Population
200.0
180.0
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
18.9
31.6
42.0
176.8
170.6
128.6
102.2
86.0
76.5
62.0
49.4
Under 5
5-9
10-14
15-19
20-24
25-29
30-34
35-44
45-54
55-64
65+
Age in Years

**Figure 4**

# *Drivers*

## *Age and Sex of Drivers*

Collision rates per 1000 licensed drivers indicated that 16-19 year olds were more likely to be involved in a casualty collision than any other age group.

## *Driver Actions*

Following too closely (30.9%), running off the road (15.9%) and left turn across path (11.9%) were the most frequently identified improper driver actions contributing to casualty collisions.

## *Table 4.1*

**Age and Sex of Drivers Involved in Casualty Collisions:**

**Per 1,000 Licensed Drivers**

**1998**

| | Males | | | Females | | | Total* | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age of Driver** | **N** | **%** | **Per 1000* Licensed Drivers** | **N** | **%** | **Per 1000** Licensed Drivers** | **N** | **%** | **Per 1000** Licensed Drivers** |
| Under 16 | 264 | 0.8 | 17.9 | 124 | 0.4 | 10.8 | 389 | 1.2 | 14.9 |
| 16 - 17 | 934 | 2.9 | 30.1 | 617 | 1.9 | 22.8 | 1552 | 4.9 | 26.7 |
| 18 - 19 | 1358 | 4.3 | 35.1 | 791 | 2.5 | 23.4 | 2149 | 6.8 | 29.7 |
| 20 - 24 | 2914 | 9.2 | 27.1 | 1556 | 4.9 | 16.4 | 4471 | 14.1 | 22.1 |
| 25 - 34 | 4709 | 14.8 | 19.7 | 2732 | 8.6 | 12.6 | 7442 | 23.4 | 16.3 |
| 35 - 44 | 4375 | 13.8 | 15.8 | 2642 | 8.3 | 10.4 | 7017 | 22.1 | 13.2 |
| 45 - 54 | 2682 | 8.4 | 13.7 | 1599 | 5.0 | 9.2 | 4281 | 13.5 | 11.6 |
| 55 - 64 | 1395 | 4.4 | 12.3 | 634 | 2.0 | 6.6 | 2029 | 6.4 | 9.7 |
| 65 and over | 1263 | 4.0 | 11.1 | 510 | 1.6 | 5.9 | 1773 | 5.6 | 8.9 |
| Unspecified | 150 | 0.5 | | 60 | 0.2 | | 638 | 2.0 | |
| **Total Number of Drivers** | **20044** | **63.1** | | **11265** | **35.5** | | **31741** | **100.0** | **15.0** |

## *Observations*

Collision rates per 1000 licensed drivers indicated that 18 to19 year olds were more likely to be involved in a casualty collision than any other age group. The next age group most likely to be involved in casualty collisions were 16 to 17 year olds.

*Total includes drivers whose sex was not specified on the collision report form.

**Source: Alberta Registries. Operator Statistics, December 31, 1998.

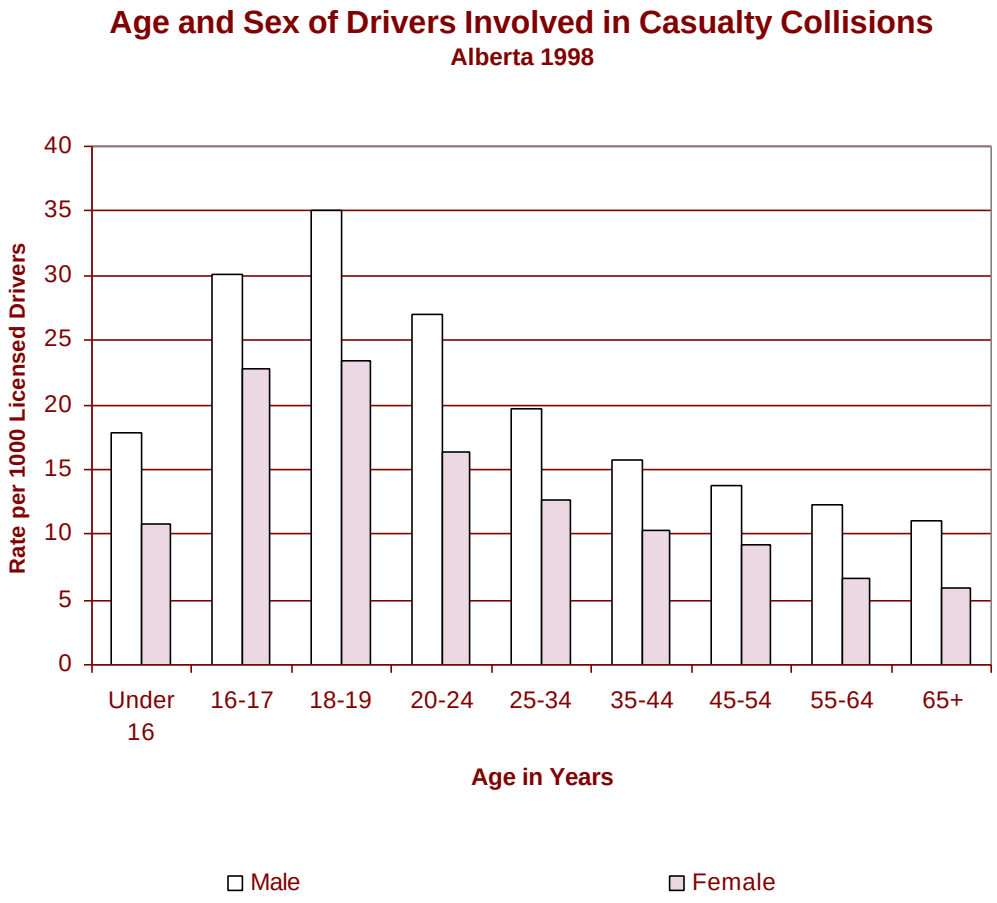

Age and Sex of Drivers Involved in Casualty Collisions
Alberta 1998
Rate per 1000 Licensed Drivers
40
35
30
25
20
15
10
5
0
Under 16
16-17
18-19
20-24
25-34
35-44
45-54
55-64
65+
Age in Years
Male
Female

**Figure 5**

## *Table 4.2*

**Improper Actions of Drivers Involved in Casualty Collisions***

**1998**

| Improper Actions | Drivers in Fatal Collisions N | Drivers in Fatal Collisions % | Drivers in Non-Fatal Injury Collisions N | Drivers in Non-Fatal Injury Collisions % | Total Drivers in Casualty Collisions N | Total Drivers in Casualty Collisions % |
|---|---|---|---|---|---|---|
| Followed Too Closely | 10 | 3.5 | 3970 | 31.5 | 3980 | 30.9 |
| Ran Off Road | 116 | 40.6 | 1932 | 15.3 | 2048 | 15.9 |
| Left Turn Across Path | 10 | 3.5 | 1528 | 12.1 | 1538 | 11.9 |
| Stop Sign Violation | 50 | 17.5 | 1090 | 8.6 | 1140 | 8.8 |
| Disobey Traffic Signal | 15 | 5.2 | 1057 | 8.4 | 1072 | 8.3 |
| Left of Centre | 50 | 17.5 | 350 | 2.8 | 400 | 3.1 |
| Fail to Yield Right of Way to Pedestrian | 4 | 1.4 | 369 | 2.9 | 373 | 2.9 |
| Improper Lane Change | 2 | 0.7 | 347 | 2.8 | 349 | 2.7 |
| Fail to Yield Right of Way Uncontrolled Intersection | 6 | 2.1 | 316 | 2.5 | 322 | 2.5 |
| Yield Sign Violation | 3 | 1.0 | 302 | 2.4 | 305 | 2.4 |
| Improper Turn | --- | --- | 284 | 2.3 | 284 | 2.2 |
| Backed Unsafely | 1 | 0.3 | 280 | 2.2 | 281 | 2.2 |
| Improper Passing | 9 | 3.1 | 142 | 1.1 | 151 | 1.2 |
| Other | 10 | 3.5 | 639 | 5.1 | 649 | 5.0 |
| **Total Number of Drivers** | **286** | **100.0** | **12606** | **100.0** | **12892** | **100.0** |

## *Observations*

Following too closely (30.9%), running off the road (15.9%) and left turn across path (11.9%) were the most frequently identified improper driver actions contributing to casualty collisions.

*Based on those cases where driver actions were specified on the collision report form.

**Note:** There was a total of 27127 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 14235 were indicated as driving properly at the time of the collision.

# *Vehicles*

## *Types of Vehicles*

Passenger cars (56.6%) and pickup trucks/vans (23.1%) were the vehicles most frequently involved in total casualty collisions.

## *Vehicular Factors*

Only 1.0% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defects were defective brakes and tire failure.

## *Point of Impact*

The most common point of impact in casualty collisions involved the front of the vehicle. Approximately 44.8% of the impacts involved the centre front.

## *Table 5.1*

**Types of Vehicles Involved in Casualty Collisions***

**1998**

| Type of Vehicle | Vehicles in Fatal Collisions N | % | Vehicles in Non-Fatal Injury Collisions N | % | Total Vehicles in Casualty Collisions N | % |
|---|---|---|---|---|---|---|
| Passenger Car | 205 | 36.2 | 18091 | 57.0 | 18296 | 56.6 |
| Pickup Truck/Van | 194 | 34.3 | 7287 | 23.0 | 7481 | 23.1 |
| Mini-Van/MPV | 48 | 8.5 | 3580 | 11.3 | 3628 | 11.2 |
| Truck 4500 kg+ | 30 | 5.3 | 728 | 2.3 | 758 | 2.3 |
| Bicycle | 2 | 0.4 | 717 | 2.3 | 719 | 2.2 |
| Truck-Tractor | 48 | 8.5 | 523 | 1.6 | 571 | 1.8 |
| Motorcycle | 24 | 4.2 | 463 | 1.5 | 487 | 1.5 |
| Transit Bus | --- | --- | 91 | 0.3 | 91 | 0.3 |
| School Bus | 1 | 0.2 | 59 | 0.2 | 60 | 0.2 |
| Emergency Vehicle | 1 | 0.2 | 58 | 0.2 | 59 | 0.2 |
| Off Highway Vehicle | 2 | 0.4 | 44 | 0.1 | 46 | 0.1 |
| Construction Equipment | 2 | 0.4 | 25 | 0.1 | 27 | 0.1 |
| Motorhome | 2 | 0.4 | 21 | 0.1 | 23 | 0.1 |
| Other Bus | 2 | 0.4 | 21 | 0.1 | 23 | 0.1 |
| Motorized Snow Vehicle | 2 | 0.4 | 20 | 0.1 | 22 | 0.1 |
| Farm Equipment | 2 | 0.4 | 19 | 0.1 | 21 | 0.1 |
| Intercity Bus | 1 | 0.2 | 3 | 0.0 | 4 | 0.0 |
| **Total Number of Vehicles** | **566** | **100.0** | **31750** | **100.0** | **32316** | **100.0** |

## *Observations*

Passenger cars and pickup trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, bicycles represented 2.2% and motorcycles 1.5% of the vehicles involved in casualty collisions. Truck tractors were 1.8% of total vehicles in casualty crashes, but 8.5% of vehicles in fatal crashes.

*Based on those cases where type of vehicle was specified on the collision report form.

## *Table 5.2*

**Vehicular Factors Involved in Casualty Collisions***

**1998**

| | Vehicles in Fatal Collisions | | Vehicles in Non-Fatal Injury Collisions | | Total Vehicles in Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Vehicular Factors** | **N** | **%** | **N** | **%** | **N** | **%** |
| No Apparent Defect | 441 | 98.9 | 25877 | 99.0 | 26318 | 99.0 |
| Defective Brakes | 2 | 0.4 | 100 | 0.4 | 102 | 0.4 |
| Tires Failed | --- | --- | 41 | 0.2 | 41 | 0.2 |
| Lighting Defect | --- | --- | 29 | 0.1 | 29 | 0.1 |
| Improper Load/Shift | --- | --- | 15 | 0.1 | 15 | 0.1 |
| Other | 3 | 0.7 | 69 | 0.3 | 72 | 0.3 |
| **Total Number of Vehicles** | **446** | **100.0** | **26131** | **100.0** | **26577** | **100.0** |

## *Observations*

Only 1.0% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common were defective brakes and tire failure.

*Based on those cases where a vehicle factor was specified on the collision report form. This information does not indicate whether or not a mechanical inspection of the collision-involved vehicle was conducted.

## *Table 5.3*

**Point of Impact on Vehicles Involved in Casualty Collisions***

**1998**

| | Vehicles In Fatal Collisions | | Vehicles in Non-Fatal Injury Collisions | | Total Vehicles in Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Point of Impact** | **N** | **%** | **N** | **%** | **N** | **%** |
| Centre Front | 237 | 45.5 | 12889 | 44.8 | 13126 | 44.8 |
| Centre Rear | 18 | 3.5 | 6346 | 22.0 | 6364 | 21.7 |
| Right Front | 33 | 6.3 | 2031 | 7.1 | 2064 | 7.0 |
| Left Front | 30 | 5.8 | 2010 | 7.0 | 2040 | 7.0 |
| Rollover | 91 | 17.5 | 1515 | 5.3 | 1606 | 5.5 |
| Left Side | 41 | 7.9 | 1158 | 4.0 | 1199 | 4.1 |
| Right Side | 33 | 6.3 | 1096 | 3.8 | 1129 | 3.9 |
| Right Rear | 6 | 1.2 | 724 | 2.5 | 730 | 2.5 |
| Left Rear | 11 | 2.1 | 689 | 2.4 | 700 | 2.4 |
| Attachment | 13 | 2.5 | 167 | 0.6 | 180 | 0.6 |
| Undercarriage | 5 | 1.0 | 120 | 0.4 | 125 | 0.4 |
| Top | 3 | 0.6 | 57 | 0.2 | 60 | 0.2 |
| **Total Number of Vehicles** | **521** | **100.0** | **28802** | **100.0** | **29323** | **100.0** |

## *Observations*

The most common point of impact in casualty collisions involved the front of the vehicle. 44.8% of the impacts involved the centre front, while 21.7% of the impacts involved the centre rear.

*Based on those cases for which the point of impact was specified on the collision report form.

# *Environment*

## *Location*

The majority of fatal crashes (71.8%) occurred in rural areas, whereas the majority of injury (79.9%) and property damage (80.7%) crashes occurred in urban areas.

## *Surface Conditions*

The majority (64.5%) of all casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 16.2% of fatal collisions and 18.1% of non-fatal injury collisions.

## *Table 6.1*

**Location of Collisions**

**1998**

| Location | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Property Damage Only Collisions N | Property Damage Only Collisions % | Total Collisions N | Total Collisions % |
|---|---|---|---|---|---|---|---|---|
| Urban | 101 | 28.2 | 13579 | 79.9 | 65609 | 80.7 | 79289 | 80.4 |
| Rural | 257 | 71.8 | 3408 | 20.1 | 15647 | 19.3 | 19312 | 19.6 |
| **Total Number of Collisions** | **358** | **100.0** | **16987** | **100.0** | **81256** | **100.0** | **98601** | **100.0** |

## *Observations*

Collisions which occurred in rural areas accounted for 71.8% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (79.9%) and property damage crashes (80.7%).

## *Table 6.2*

**Casualty Collision Occurrence by Surface Condition**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Total Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Surface Condition** | **N** | **%** | **N** | **%** | **N** | **%** |
| Dry | 245 | 68.4 | 10934 | 64.4 | 11179 | 64.5 |
| Slush/Snow/Ice | 58 | 16.2 | 3082 | 18.1 | 3140 | 18.1 |
| Wet | 30 | 8.4 | 1812 | 10.7 | 1842 | 10.6 |
| Loose Surface Material | 10 | 2.8 | 302 | 1.8 | 312 | 1.8 |
| Muddy | 3 | 0.8 | 28 | 0.2 | 31 | 0.2 |
| Other | 4 | 1.1 | 97 | 0.6 | 101 | 0.6 |
| Unspecified | 8 | 2.2 | 732 | 4.3 | 740 | 4.3 |
| **Total Number of Collisions** | **358** | **100.0** | **16987** | **100.0** | **17345** | **100.0** |

## *Observations*

The majority (64.5%) of casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 16.2% of fatal collisions and 18.1% of non-fatal injury collisions.

# *Special Types of Vehicles*

## *Motorcycles*

- Based on motorcycle registrations, the involvement rate of motorcycles in fatal collisions has increased in 1998. The involvement rate for non-fatal injury collisions has also increased since 1997.
- The majority of motorcycle casualty collisions involved male drivers. Motorcycle drivers under the age of 25 had the highest involvement rate per 1000 licensed drivers. In particular 16 and 17 year old motorcycle drivers had an involvement rate per 1,000 licensed driver of 71.0, a rate over four times greater than that of the 20-24 year old motorcycle drivers.
- Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to run off the road or pass improperly. However, motorcycle drivers were less likely to follow too closely, make an unsafe left turn or disobey a traffic control device.
- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.
- Vehicular factors were identified for 1.9% of motorcycles involved in casualty collisions compared to 1.0% for all types of vehicles involved in casualty collisions.
- The majority of casualty collisions involving motorcycles occurred on dry roads.

## *Table 7.1*

**Motorcycles Involved in Casualty Collisions**

**1994 - 1998**

| **Number of Motorcycles** | **1998** | **1997** | **1996** | **1995** | **1994** |
|---|---|---|---|---|---|
| Fatal | 24 | 7 | 11 | 15 | 11 |
| Non-Fatal Injury | 463 | 385 | 334 | 429 | 455 |
| **Total Number of Motorcycles Involved in Casualty Collisions** | **487** | **392** | **345** | **444** | **466** |
| **Casualties*** | | | | | |
| Number Killed | 26 | 8 | 11 | 15 | 11 |
| Number Injured | 528 | 454 | 397 | 518 | 532 |
| **Total Casualties in Collisions Involving Motorcycles** | **554** | **462** | **408** | **533** | **543** |
| **Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**** | | | | | |
| Fatal Collisions | 6.4 | 2.0 | 3.2 | 4.2 | 3.0 |
| Non-Fatal Injury Collisions | 123.4 | 109.0 | 98.0 | 121.4 | 124.6 |

## *Observations*

Based on motorcycle registrations, the involvement rate of motorcycles in fatal and injury collisions has increased in 1998.

*This refers to the total number of people killed and injured in collisions in which a motorcycle was involved. It does not refer to the number of motorcyclists killed and injured.

**Source: Based on vehicle registration statistics, Alberta Registries, December 31, 1998.

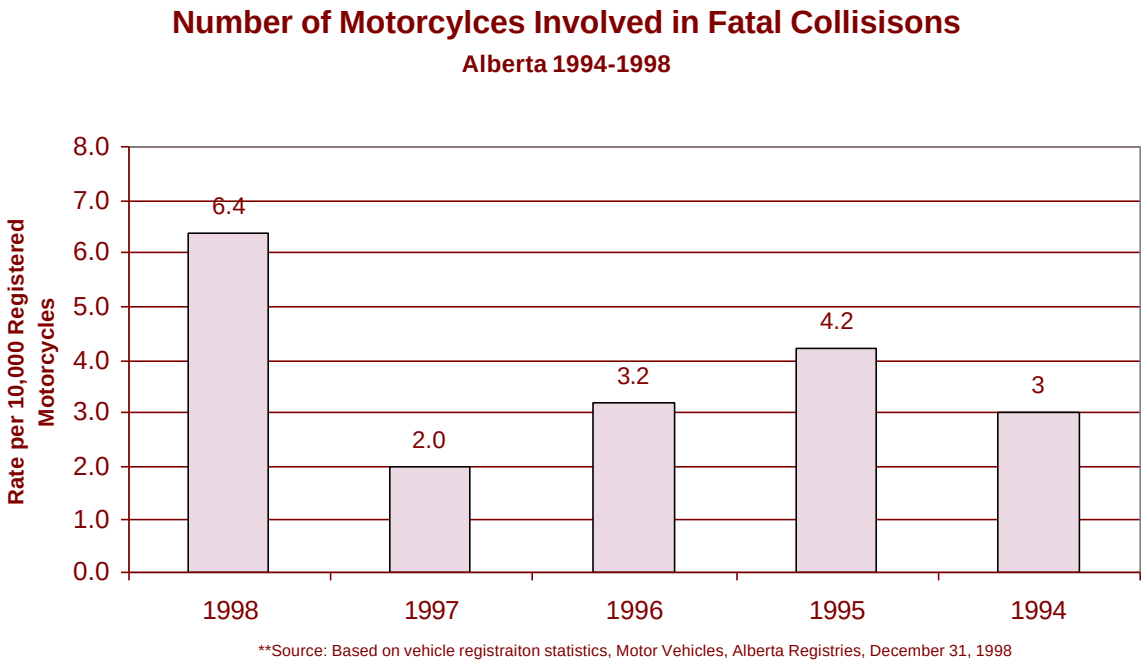

Number of Motorcylces Involved in Fatal Collisisons
Alberta 1994-1998
Rate per 10,000 Registered Motorcycles
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
6.4
2.0
3.2
4.2
3
1998
1997
1996
1995
1994
**Source: Based on vehicle registraiton statistics, Motor Vehicles, Alberta Registries, December 31, 1998

**Figure 6**

## *Table 7.2*

**Age and Sex of Motorcycle Drivers Involved in Casualty Collisions**

**1998**

| Age of Motorcycle Driver | Male | | Female | | Total* | | Rate Per 1,000 Licensed Motorcycle Drivers** |
|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | |
| Under 16 | 14 | 2.9 | --- | --- | 14 | 2.9 | |
| 16 - 17 | 25 | 5.2 | 1 | 0.2 | 26 | 5.4 | 71.0 |
| 18 - 19 | 40 | 8.2 | 1 | 0.2 | 41 | 8.5 | 36.1 |
| 20 - 24 | 121 | 24.9 | 5 | 1.0 | 126 | 26.0 | 16.4 |
| 25 - 34 | 109 | 22.5 | 6 | 1.2 | 115 | 23.7 | 3.2 |
| 35 - 44 | 79 | 16.3 | 9 | 1.9 | 88 | 18.1 | 1.3 |
| 45 - 54 | 46 | 9.5 | 7 | 1.4 | 53 | 10.9 | 1.2 |
| 55 - 64 | 15 | 3.1 | --- | --- | 15 | 3.1 | 1.1 |
| 65 and over | 4 | 0.8 | --- | --- | 4 | 0.8 | 0.6 |
| Unspecified | --- | --- | --- | --- | 3 | 0.6 | |
| **Total Number of Motorcycle Drivers** | **453** | **93.4** | **29** | **6.0** | **485** | **100.0** | |

## *Observations*

The majority of motorcycle casualty collisions involved male drivers. Based on involvement per 1,000 licensed operators, motorcycle drivers under the age of 25 were most likely to be involved in collisions. In particular, 16 and 17 year old motorcycle drivers had the highest involvement rate per 1,000 licensed motorcyclists. These age and sex comparisons are limited due to the lack of driving exposure data. That is, in order to make valid age comparisons, it is important to take into account the number of kilometres driven annually by each age and sex group of motorcycle operators.

**Note:** In Alberta, Class 6 (motorcycle) licenses are not issued to operators under 16 years of age.

*Total includes drivers whose sex was not specified on the collision report form.

**Source: Alberta Registries. Operator Statistics, December 31, 1998.

## *Table 7.3*

**Improper Actions of Motorcycle Drivers Involved in Casualty Collisions**

**1998**

| Improper Actions of Motorcycle Driver | N | % | Driver Actions in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Ran Off Road | 90 | 45.2 | 15.9 |
| Followed Too Closely | 37 | 18.6 | 30.9 |
| Disobey Traffic Signal | 9 | 4.5 | 8.3 |
| Improper Lane Change | 7 | 3.5 | 2.7 |
| Stop Sign Violation | 7 | 3.5 | 8.8 |
| Failed to Yield Right of Way Uncontrolled Intersection | 6 | 3.0 | 2.5 |
| Improper Passing | 5 | 2.5 | 1.2 |
| Improper Turn | 4 | 2.0 | 2.2 |
| Left Turn Across Path | 3 | 1.5 | 11.9 |
| Left of Centre | 2 | 1.0 | 3.1 |
| Yield Sign Violation | 1 | 0.5 | 2.4 |
| Other | 28 | 14.1 | 5.0 |
| **Total Number of Motorcycle Drivers** | **199** | **100.0** | **100.0** |

## *Observations*

Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to run off the road or pass improperly. However, motorcycle drivers were less likely to follow too closely, make an unsafe left turn or disobey a traffic control device.

*Based on those cases where driver actions were specified on the collision report form.

**Note:** There was a total of 403 motorcycle drivers involved in casualty collisions for which a driver action was specified on the collision report form. 204 were indicated as driving properly at the time of the collision.

## *Table 7.4*

**Condition of Motorcycle Drivers* Involved in Casualty Collisions**

**1998**

| Condition of Motorcycle Driver | N | % | Driver Condition in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Normal | 380 | 88.2 | 92.2 |
| Had Been Drinking | 31 | 7.2 | 3.2 |
| Alcohol Impaired | 18 | 4.2 | 3.1 |
| **Total Alcohol Involvement** | **49** | **11.4** | **6.2** |
| Fatigued/Asleep | 1 | 0.2 | 1.0 |
| Other | 1 | 0.2 | 0.5 |
| **Total Number of Motorcycle Drivers** | **431** | **100.0** | |

## *Observations*

The motorcycle driver's condition was a contributory factor for 11.8% of the involved motorcycle drivers. Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to have consumed alcohol prior to the crash.

*Based on those cases where driver condition was specified on the collision report form.

## *Table 7.5*

**Motorcycle Vehicular Factors* in Casualty Collisions**

**1998**

| Vehicular Factors | N | % | Vehicular Factors in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| No Apparent Defect | 421 | 98.1 | 99.0 |
| Tires Failed | 3 | 0.7 | 0.2 |
| Defective Brakes | 2 | 0.5 | 0.4 |
| Improper Load/Shift | 1 | 0.2 | 0.1 |
| Other | 2 | 0.5 | 0.3 |
| **Total Number of Motorcycles** | **429** | **100.0** | |

## *Observations*

Vehicular factors were identified for 1.9% of the motorcycles involved in casualty collisions, compared to 1.0% for all types of vehicles involved in casualty collisions.

*Based on those cases where a vehicular factor was specified on the collision report form. This does not indicate that a mechanical inspection of the collision-involved motorcycle was conducted.

## *Table 7.6*

**Casualty Collisions Involving Motorcycles:**

**Month of Occurrence**

**1998**

| Month | N | % |
|---|---|---|
| January | --- | --- |
| February | 1 | 0.2 |
| March | 5 | 1.0 |
| April | 56 | 11.7 |
| May | 78 | 16.3 |
| June | 64 | 13.4 |
| July | 94 | 19.6 |
| August | 74 | 15.4 |
| September | 66 | 13.8 |
| October | 34 | 7.1 |
| November | 4 | 0.8 |
| December | 2 | 0.4 |
| Unspecified | 1 | 0.2 |
| **Total Number of Collisions** | **479** | **100.0** |

## *Observations*

The months of May and July recorded the highest proportion of casualty crashes involving motorcycles.

## *Table 7.7*

**Casualty Collisions Involving Motorcycles:**

**Road Surface Condition***

**1998**

| Road Surface Condition | N | % |
|---|---|---|
| Dry | 427 | 89.1 |
| Wet | 18 | 3.8 |
| Loose Surface Material | 17 | 3.5 |
| Muddy | 3 | 0.6 |
| Other | 2 | 0.4 |
| Unspecified | 12 | 2.5 |
| **Total Number of Collisions** | **479** | **100.0** |

## *Observations*

The majority of casualty collisions involving motorcycles occurred on dry roads. Wet roads were the scene of 3.8% of motorcycle casualty collisions. Loose material on the road surface was involved in 3.5% of motorcycle casualty crashes.

# *Special Types of Vehicles*

## *Truck Tractors*

- In 1998, there were 57 persons killed and 687 injured in collisions involving truck tractors. This represents a decrease in casualties from 1997.
- Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road or make an improper lane change. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, disobey a traffic control device or make a left turn across the path of an oncoming vehicle.
- Truck tractor drivers were less likely to consume alcohol before the crash than were drivers in total casualty collisions.
- Vehicular factors were more likely to be present in truck tractor casualty collisions than in total casualty collisions.
- The occurrence of casualty collisions involving truck tractors was highest in the months of January and March.

## *Table 7.8*

**Truck Tractors Involved in Casualty Collisions**

**1994 - 1998**

| **Number of Truck Tractors** | **1998** | **1997** | **1996** | **1995** | **1994** |
|---|---|---|---|---|---|
| Fatal | 48 | 68 | 35 | 34 | 39 |
| Non-Fatal Injury | 523 | 545 | 464 | 385 | 461 |
| **Total Number of Truck Tractors Involved in Casualty Collisions** | **571** | **613** | **499** | **419** | **500** |
| **Casualties*** | | | | | |
| Number Killed | 57 | 86 | 45 | 51 | 42 |
| Number Injured | 687 | 741 | 645 | 541 | 614 |
| **Total Casualties in Collisions Involving Truck Tractors** | **744** | **827** | **690** | **592** | **656** |

## *Observations*

In 1998, there were 57 persons killed and 687 injured in collisions involving truck tractors. This represents a decrease in casualties from 1997. The total number of truck tractors involved in casualty crashes decreased in 1998, standing at 571 compared to the five-year low of 419 recorded in 1995.

*This refers to the total number of people killed and injured in collisions in which a truck tractor was involved. It does not refer to the number of truck tractor drivers killed and injured.

## *Table 7.9*

**Casualty Collisions Involving Truck Tractors:**

**Improper Actions* of Truck Tractor Drivers Involved in Casualty Collisions**

**1998**

| Improper Driver Actions | N | % | Driver Actions in Total Casualty Collisions (All Types of Vehicles) % |
|---|---|---|---|
| Ran Off Road | 83 | 38.8 | 15.9 |
| Followed Too Closely | 41 | 19.2 | 30.9 |
| Left Turn Across Path | 20 | 9.3 | 11.9 |
| Improper Lane Change | 15 | 7.0 | 2.7 |
| Stop Sign Violation | 14 | 6.5 | 8.8 |
| Improper Turn | 9 | 4.2 | 2.2 |
| Disobey Traffic Signal | 8 | 3.7 | 8.3 |
| Left of Centre | 7 | 3.3 | 3.1 |
| Improper Passing | 5 | 2.3 | 1.2 |
| Failed to Yield Right of Way Uncontrolled Intersection | 3 | 1.4 | 2.5 |
| Backed Unsafely | 2 | 0.9 | 2.2 |
| Yield Sign Violation | 2 | 0.9 | 2.4 |
| Other | 5 | 2.3 | 5.0 |
| **Total Number of Drivers** | **214** | **100.0** | |

## *Observations*

Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road, or make an improper lane change. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, disobey a traffic control device or make a left turn across the path of an oncoming vehicle.

*Based on those cases where driver actions were specified on the collision report form.

**Note:** There was a total of 488 tractor drivers involved in casualty collisions for which a driver action was specified on the collision report form. 274 were indicated as driving properly at the time of the collision.

## *Table 7.10*

**Casualty Collisions Involving Truck Tractors:**

**Condition* of Truck Tractor Drivers Involved in Casualty Collisions**

**1998**

| Driver Condition | N | % | Driver Condition in Total Casualty Collisions (All Types of Vehicles) % |
|---|---|---|---|
| Normal | 475 | 94.4 | 92.2 |
| Had Been Drinking | 4 | 0.8 | 3.2 |
| Alcohol Impaired | 4 | 0.8 | 3.1 |
| **Total Alcohol Involvement** | **8** | **1.6** | **6.3** |
| Fatigued/Asleep | 17 | 3.4 | 1.0 |
| Impaired by Drugs | 1 | 0.2 | 0.1 |
| Other | 2 | 0.4 | 0.5 |
| **Total Number of Drivers** | **503** | **100.0** | |

## *Observations*

The condition of the truck tractor driver was a contributory factor for 5.6% of the drivers involved. Truck tractor drivers were less likely to consume alcohol before the crash than were drivers involved in total casualty collisions. However, they were more likely to have been fatigued or asleep at the time of the crash.

*Based on those cases where driver condition was specified on the collision report form.

## *Table 7.11*

**Casualty Collisions Involving Truck Tractors:**

**Vehicular Factors* of Truck Tractors Involved in Casualty Collisions**

**1998**

| Vehicular Factors | N | % | Vehicular Factors in Total Casualty Collisions (All Types of Vehicles) % |
|---|---|---|---|
| No Apparent Defect | 495 | 96.9 | 99.0 |
| Defective Brakes | 4 | 0.8 | 0.4 |
| Improper Load/Shift | 7 | 1.4 | 0.1 |
| Tires Failed | 3 | 0.6 | 0.2 |
| Lighting Defect | 1 | 0.2 | 0.1 |
| Other | 1 | 0.2 | 0.3 |
| **Total Number of Truck Tractors** | **511** | **100.0** | **100.0** |

## *Observations*

Vehicular factors were identified for 3.1% of truck tractors involved in casualty collisions. Vehicular factors were more likely to be present in truck tractor collisions than in total casualty collisions.

*Based on those cases where vehicular factor was specified on the collision report form. This information does not indicate whether or not a mechanical inspection of the collision-involved truck tractor was conducted.

## *Table 7.12*

**Casualty Collisions Involving Truck Tractors:**

**Month of Occurrence**

**1998**

| Month | N | % |
|---|---|---|
| January | 60 | 11.0 |
| February | 48 | 8.8 |
| March | 54 | 9.9 |
| April | 24 | 4.4 |
| May | 30 | 5.5 |
| June | 42 | 7.7 |
| July | 50 | 9.2 |
| August | 45 | 8.2 |
| September | 50 | 9.2 |
| October | 34 | 6.2 |
| November | 52 | 9.5 |
| December | 57 | 10.4 |
| **Total Number of Collisions** | **546** | **100.0** |

## *Observations*

The occurrence of casualty collisions involving truck tractors was highest in the month of January. The lowest number of truck tractor casualty collisions occurred during April.

# *Special Types of Vehicles*

## *Trains*

- In 1998, 5 people were killed and 50 people were injured in crashes in which a train was involved. The number of casualties involving trains has increased from 1997.
- The largest number of casualty collisions involving trains occurred in the month of November.
- A large percentage of drivers involved in collisions with a train disobeyed a traffic control device or failed to yield the right of way at an uncontrolled intersection.

## *Table 7.13*

**Trains Involved in Casualty Collisions**

**1994 - 1998**

| Number of Trains | 1998 | 1997 | 1996 | 1995 | 1994 |
|---|---|---|---|---|---|
| Fatal | 5 | 3 | 5 | 7 | 6 |
| Non-Fatal Injury | 26 | 29 | 33 | 30 | 42 |
| **Total Number of Trains Involved in Casualty Collisions** | **31** | **32** | **38** | **37** | **48** |
| **Casualties*** | | | | | |
| Number Killed | 5 | 4 | 6 | 9 | 8 |
| Number Injured | 50 | 39 | 42 | 41 | 52 |
| **Total Casualties in Collisions Involving Trains** | **55** | **43** | **48** | **50** | **60** |

## *Observations*

The number of trains involved in casualty collisions decreased slightly from 1997. However, the number of casualties resulting from these collisions has increased.

*This refers to the total number of people killed and injured in collisions involving a train.

## *Table 7.14*

**Casualty Collisions Involving Trains:**

**Month of Occurrence**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Total Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Month** | **N** | **%** | **N** | **%** | **N** | **%** |
| January | 1 | 20.0 | 1 | 3.8 | 2 | 6.5 |
| February | --- | --- | 5 | 19.2 | 5 | 16.1 |
| March | 1 | 20.0 | 1 | 3.8 | 2 | 6.5 |
| April | 1 | 20.0 | 1 | 3.8 | 2 | 6.5 |
| May | --- | --- | 2 | 7.7 | 2 | 6.5 |
| June | --- | --- | 2 | 7.7 | 2 | 6.5 |
| July | --- | --- | 2 | 7.7 | 2 | 6.5 |
| August | 1 | 20.0 | 2 | 7.7 | 3 | 9.7 |
| September | 1 | 20.0 | --- | --- | 1 | 3.2 |
| October | --- | --- | 2 | 7.7 | 2 | 6.5 |
| November | --- | --- | 6 | 23.1 | 6 | 19.4 |
| December | --- | --- | 2 | 7.7 | 2 | 6.5 |
| **Total Number of Collisions** | **5** | **100.0** | **26** | **100.0** | **31** | **100.0** |

## *Observations*

The largest number of casualty collisions involving trains occurred in the month of November.

## *Table 7.15*

**Casualty Collisions Involving Trains:**

**Actions* of Drivers Involved in Casualty Collisions with Trains**

**1998**

| | Drivers in Fatal Collisions | | Driver in Non-Fatal Injury Collisions | | Total Drivers in Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Driver Actions** | **N** | **%** | **N** | **%** | **N** | **%** |
| Disobey Traffic Signal | 3 | 75.0 | 13 | 59.1 | 16 | 61.5 |
| Failed to Yield Right of Way Uncontrolled Intersection | 1 | 25.0 | 3 | 13.6 | 4 | 15.4 |
| Ran Off Road | --- | --- | 3 | 13.6 | 3 | 11.5 |
| Stop Sign Violation | --- | --- | 2 | 9.1 | 2 | 7.7 |
| Left Turn Across Path | --- | --- | 1 | 4.5 | 1 | 3.8 |
| **Total Number of Drivers** | **4** | **100.0** | **22** | **100.0** | **26** | **100.0** |

## *Observations*

A large percentage of drivers involved in collisions with a train disobeyed a traffic control device or failed to yield the right of way at an uncontrolled intersection.

*Based on those cases where driver actions were specified on the collision report form.

# *Pedestrians*

- Pedestrian casualty collisions were more likely to occur from September to December. October accounted for the largest number of collisions, while February and April experienced the least number of pedestrian crashes.
- Pedestrian casualty collisions were most likely to occur on Friday and least likely to occur on Sunday.
- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period (3:00 p.m. to 6:59 p.m.).
- 36.1% of the drivers in collisions involving a pedestrian were recorded as failing to yield the right of way to the pedestrian.
- The casualty rate per population was highest for pedestrians between the ages of 15 and 19.
- Of pedestrians involved in injury collisions, 15% had consumed alcohol before the collision, compared to 41.5% involved in fatal collisions.
- Of those pedestrians who had consumed alcohol prior to the collision, the highest rate of involvement per 10,000 population was for the age group 20-24 years of age.

## *Table 8.1*

**Casualty Collisions Involving Pedestrians:**

**Month of Occurrence**

**1998**

| Month of Collision | N | % |
|---|---|---|
| January | 85 | 7.7 |
| February | 71 | 6.4 |
| March | 94 | 8.5 |
| April | 68 | 6.2 |
| May | 81 | 7.3 |
| June | 94 | 8.5 |
| July | 81 | 7.3 |
| August | 98 | 8.9 |
| September | 107 | 9.7 |
| October | 124 | 11.2 |
| November | 101 | 9.1 |
| December | 100 | 9.1 |
| **Total Number of Collisions** | **1104** | **100.0** |

## *Observations*

Pedestrian casualty collisions were more likely to occur from September to December. October accounted for the largest number of collisions, while February and April experienced the least number of pedestrian crashes.

## *Table 8.2*

**Casualty Collisions Involving Pedestrians:**

**Day of Week**

**1998**

| Day of Week | N | % |
|---|---|---|
| Monday | 153 | 13.9 |
| Tuesday | 160 | 14.5 |
| Wednesday | 151 | 13.7 |
| Thursday | 171 | 15.5 |
| Friday | 211 | 19.1 |
| Saturday | 150 | 13.6 |
| Sunday | 108 | 9.8 |
| **Total Number of Collisions** | **1104** | **100.0** |

## *Observations*

Pedestrian casualty collisions were most likely to occur on Friday and least likely to occur on Sunday.

## *Table 8.3*

**Casualty Collisions Involving Pedestrians:**

**Time Period**

**1998**

| Time Period | N | % |
|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 107 | 9.7 |
| 3:00 a.m. - 6:59 a.m. | 42 | 3.8 |
| 7:00 a.m. - 10:59 a.m. | 166 | 15.0 |
| 11:00 a.m. - 2:59 p.m. | 222 | 20.1 |
| 3:00 p.m. - 6:59 p.m. | 350 | 31.7 |
| 7:00 p.m. - 10:59 p.m. | 212 | 19.2 |
| Unspecified | 5 | 0.5 |
| **Total Number of Collisions** | **1104** | **100.0** |

## *Observations*

Pedestrian casualty collisions were most likely to occur during the evening rush-hour period from 3:00 p.m. to 6:59 p.m. These collisions were least likely to occur during the early morning hours (3:00 a.m. to 6:59 a.m.).

## *Table 8.4*

**Casualty Collisions Involving Pedestrians:**

**Location**

**1998**

| Location | N | % |
|---|---|---|
| Urban | 1049 | 95.0 |
| Rural | 55 | 5.0 |
| **Total Number of Collisions** | **1104** | **100.0** |

## *Observations*

The majority of pedestrian casualty collisions (95.0%) occurred in urban areas. Only 5.0% occurred in rural areas.

## *Table 8.5*

**Casualty Collisions Involving Pedestrians:**

**Actions* of Drivers Involved in Casualty Collisions with Pedestrians**

**1998**

| Driver Actions | N | % |
|---|---|---|
| Driving Properly | 393 | 42.9 |
| Failed to Yield Right of Way to Pedestrian | 331 | 36.1 |
| Backed Unsafely | 81 | 8.8 |
| Ran Off Road | 28 | 3.1 |
| Followed Too Closely | 16 | 1.7 |
| Improper Turn | 8 | 0.9 |
| Disobey Traffic Signal | 7 | 0.8 |
| Stop Sign Violation | 7 | 0.8 |
| Failed to Yield Right of Way Uncontrolled Intersection | 6 | 0.7 |
| Left of Centre | 6 | 0.7 |
| Improper Passing | 5 | 0.5 |
| Left Turn Across Path | 3 | 0.3 |
| Improper Lane Change | 3 | 0.3 |
| Other | 22 | 2.4 |
| **Total Number of Drivers** | **916** | **100.0** |

## *Observations*

42.9% of the drivers involved in pedestrian crashes were recorded as driving properly. However, 36.1% of the drivers involved in pedestrian casualty collisions failed to yield the right of way to the pedestrian.

*Based on those cases where driver actions were specified on the collision report form.

## *Table 8.6*

**Age of Pedestrian Casualties**

**1998**

| Age in Years | Pedestrians Killed N | Pedestrians Injured N | Total Pedestrian Casualties N | % | Pedestrian Casualty Rate Per 10,000 Population* |
|---|---|---|---|---|---|
| Under 5 | 2 | 30 | 32 | 2.8 | 1.6 |
| 5 – 9 | 1 | 63 | 64 | 5.6 | 2.9 |
| 10 – 14 | --- | 125 | 125 | 10.9 | 5.7 |
| 15 – 19 | 3 | 147 | 150 | 13.1 | 7.1 |
| 20 – 24 | 6 | 120 | 126 | 11.0 | 5.9 |
| 25 – 29 | 2 | 118 | 120 | 10.4 | 5.4 |
| 30 – 34 | 1 | 69 | 70 | 6.1 | 2.9 |
| 35 – 44 | 6 | 162 | 168 | 14.6 | 3.2 |
| 45 – 54 | 7 | 109 | 116 | 10.1 | 3.2 |
| 55 – 64 | 6 | 50 | 56 | 4.9 | 2.5 |
| 65 and over | 11 | 86 | 97 | 8.4 | 3.4 |
| Unspecified | --- | 25 | 25 | 2.2 | |
| **Total Number of Pedestrian Casualties** | **45** | **1104** | **1149** | **100.0** | |

## *Observations*

The casualty rate per population was highest for pedestrians between the ages of 15 and 19. The lowest casualty rate was recorded for persons under 5 years of age.

*Source: Based on estimates of the Alberta population by age groups and sex, July 1, 1998, Statistics Canada.

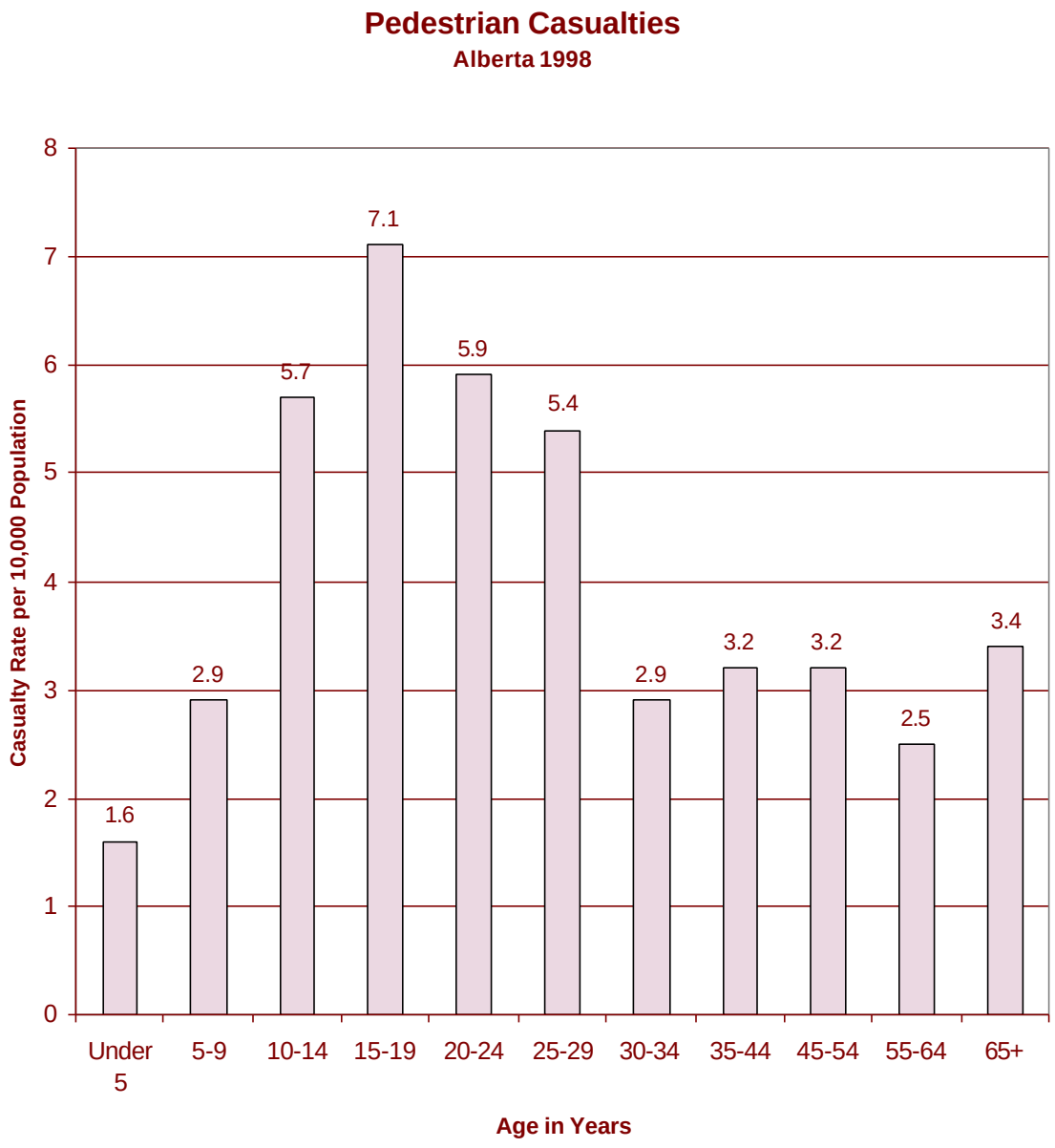

Pedestrian Casualties
Alberta 1998
Casualty Rate per 10,000 Population
0
1
2
3
4
5
6
7
8
1.6
2.9
5.7
7.1
5.9
5.4
2.9
3.2
3.2
2.5
3.4
Under 5
5-9
10-14
15-19
20-24
25-29
30-34
35-44
45-54
55-64
65+
Age in Years

**Figure 7**

## *Table 8.7*

**Condition of Pedestrians* Involved in Casualty Collisions**

**1998**

| | Pedestrians in Fatal Collisions | | Pedestrians in Non-Fatal Injury Collisions | | Total Pedestrians in Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Condition of Pedestrian** | **N** | **%** | **N** | **%** | **N** | **%** |
| Normal | 24 | 58.5 | 764 | 84.1 | 788 | 83.0 |
| Had Been Drinking | 10 | 24.4 | 77 | 8.5 | 87 | 9.2 |
| Alcohol Impaired | 7 | 17.1 | 59 | 6.5 | 66 | 7.0 |
| **Total Alcohol Involvement** | **17** | **41.5** | **136** | **15.0** | **153** | **16.1** |
| Impaired by Drugs | --- | --- | 2 | 0.2 | 2 | 0.2 |
| Other | --- | --- | 6 | 0.7 | 6 | 0.6 |
| **Total Number of Pedestrians** | **41** | **100.0** | **908** | **100.0** | **949** | **100.0** |

## *Observations*

Of pedestrians involved in injury collisions, 15.0% had consumed alcohol before the collision, compared to 41.5% involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol increased dramatically.

*Based only on those cases where pedestrian condition was specified on the collision report form.

## *Table 8.8*

**Age of Drinking Pedestrians* Involved in Casualty Collisions**

**1998**

| Age in Years | N | % | Rate per 10,000 Population** |
|---|---|---|---|
| 10-14 | 1 | 0.7 | 0.0 |
| 15 - 19 | 19 | 12.4 | 0.9 |
| 20 - 24 | 28 | 18.3 | 1.3 |
| 25 - 29 | 26 | 17.0 | 1.2 |
| 30 - 34 | 15 | 9.8 | 0.6 |
| 35 - 44 | 29 | 19.0 | 0.6 |
| 45 - 54 | 17 | 11.1 | 0.5 |
| 55 - 64 | 8 | 5.2 | 0.4 |
| 65 and over | 6 | 3.9 | 0.2 |
| Unspecified | 4 | 2.6 | |
| **Total Number of Pedestrian Casualties** | **153** | **100.0** | |

## *Observations*

Of those pedestrians who had consumed alcohol prior to the collision, the highest rate of involvement per 10,000 population was for the age group 20-24 years of age.

*Based on those cases where Pedestrian Condition was specified on the collision report form.

**Source: Based on estimates of the Alberta population by age groups and sex, July 1, 1998, Statistics Canada.

# *Bicyclists*

- Casualty collisions involving bicycles were more likely to occur in the month of June.
- Weekdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (37.8%) occurred during the evening rush-hour period.
- Young bicyclists, 10-14 years of age, were the group most frequently involved in bicycle casualty crashes.
- Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to fail to yield right-of-way at an uncontrolled intersection, disobey a traffic signal, or be left of centre.
- 4.1% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

## *Table 9.1*

**Casualty Collisions Involving Bicycles:**

**Month of Occurrence**

**1998**

| Month | N | % |
|---|---|---|
| January | 6 | 0.8 |
| February | 16 | 2.2 |
| March | 17 | 2.4 |
| April | 59 | 8.3 |
| May | 103 | 14.5 |
| June | 118 | 16.6 |
| July | 111 | 15.6 |
| August | 97 | 13.6 |
| September | 96 | 13.5 |
| October | 64 | 9.0 |
| November | 13 | 1.8 |
| December | 12 | 1.7 |
| **Total Number of Collisions** | **712** | **100.0** |

## *Observations*

The majority of casualty crashes involving bicycles occurred during the month of June.

## *Table 9.2*

**Casualty Collisions Involving Bicycles:**

**Day of Week**

**1998**

| Day of Week | N | % |
|---|---|---|
| Monday | 132 | 18.5 |
| Tuesday | 122 | 17.1 |
| Wednesday | 96 | 13.5 |
| Thursday | 108 | 15.2 |
| Friday | 111 | 15.6 |
| Saturday | 87 | 12.2 |
| Sunday | 56 | 7.9 |
| **Total Number of Collisions** | **712** | **100.0** |

## *Observations*

Casualty collisions involving bicycles were more likely to occur on weekdays.

## *Table 9.3*

**Casualty Collisions Involving Bicycles:**

**Time Period**

**1998**

| Time Period | N | % |
|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 17 | 2.4 |
| 3:00 a.m. - 6:59 a.m. | 11 | 1.5 |
| 7:00 a.m. - 10:59 a.m. | 122 | 17.1 |
| 11:00 a.m. - 2:59 p.m. | 149 | 20.9 |
| 3:00 p.m. - 6:59 p.m. | 269 | 37.8 |
| 7:00 p.m. - 10:59 p.m. | 139 | 19.5 |
| Unspecified | 5 | 0.7 |
| **Total Number of Collisions** | **712** | **100.0** |

## *Observations*

The largest proportion of casualty crashes (37.8%) involving bicycles occurred during the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

## *Table 9.4*

**Age and Sex of Bicyclists Involved in Casualty Collisions**

**1998**

| Age of Bicyclist | Male | | Female | | Total* | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Under 5 | 7 | 1.0 | 1 | 0.1 | 8 | 1.1 |
| 5 - 9 | 48 | 6.7 | 19 | 2.6 | 67 | 9.3 |
| 10 - 14 | 123 | 17.1 | 51 | 7.1 | 175 | 24.3 |
| 15 - 19 | 71 | 9.9 | 32 | 4.5 | 103 | 14.3 |
| 20 - 24 | 47 | 6.5 | 23 | 3.2 | 70 | 9.7 |
| 25 - 29 | 55 | 7.6 | 14 | 1.9 | 69 | 9.6 |
| 30 - 34 | 39 | 5.4 | 13 | 1.8 | 52 | 7.2 |
| 35 - 44 | 78 | 10.8 | 19 | 2.6 | 97 | 13.5 |
| 45 - 54 | 33 | 4.6 | 7 | 1.0 | 40 | 5.6 |
| 55 - 64 | 11 | 1.5 | 1 | 0.1 | 12 | 1.7 |
| 65 and over | 9 | 1.3 | 1 | 0.1 | 10 | 1.4 |
| Unspecified | 8 | 1.1 | 4 | 0.6 | 16 | 2.2 |
| **Total Number of Bicyclists** | **529** | **73.6** | **185** | **25.7** | **719** | **100.0** |

## *Observations*

The majority of bicycle casualty collisions involved male bicyclists. The 10-14 year old age group was most frequently involved in these collisions.

*Total includes bicyclists whose sex was not specified on the collision report form.

## *Table 9.5*

**Improper Actions of Bicyclists Involved in Casualty Collisions**

**1998**

| Improper Actions of Bicyclist | N | % | Driver Actions In Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Failed to Yield Right of Way Uncontrolled Intersection | 74 | 23.5 | 2.5 |
| Disobey Traffic Signal | 34 | 10.8 | 8.3 |
| Left of Centre | 32 | 10.2 | 3.1 |
| Stop Sign Violation | 29 | 9.2 | 8.8 |
| Left Turn Across Path | 16 | 5.1 | 11.9 |
| Yield Sign Violation | 13 | 4.1 | 2.4 |
| Improper Lane Change | 12 | 3.8 | 2.7 |
| Followed Too Closely | 8 | 2.5 | 30.9 |
| Ran Off Road | 7 | 2.2 | 15.9 |
| Improper Turn | 5 | 1.6 | 2.2 |
| Improper Passing | 5 | 1.6 | 1.2 |
| Failed to Yield Right of Way to Pedestrian | 1 | 0.3 | 2.9 |
| Other | 79 | 25.1 | 5.0 |
| **Total Number of Bicyclists** | **315** | **100.0** | |

## *Observations*

Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to fail to yield right of way at an uncontrolled intersection, disobey a traffic signal or be left of centre.

*Based on those cases where driver actions were specified on the collision report form.

**Note:** There was a total of 505 bicyclists involved in casualty collisions for which a driver action was specified on the collision report form. 190 were indicated as driving properly at the time of the collision.

## *Table 9.6*

**Condition of Bicyclists Involved in Casualty Collisions**

**1998**

| Condition of Bicyclist | N | % |
|---|---|---|
| Normal | 586 | 95.4 |
| Had Been Drinking | 18 | 2.9 |
| Alcohol Impaired | 7 | 1.1 |
| **Total Alcohol Involvement** | **25** | **4.1** |
| Other | 3 | 0.5 |
| **Total Number of Bicyclists** | **614** | **100.0** |

## *Observations*

4.1% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

*Based on those cases where bicyclist condition was specified on the collision report form.

# *Traffic Safety Issues*

## *Alcohol Involvement*

- A total of 5.9% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 22.6% of drivers involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased.
- In terms of involvement per 1,000 licensed drivers, males between 18 and 21 years of age were most likely to have been drinking before the crash. There were over five times as many male drivers as female drivers who had consumed alcohol prior to the collision.
- In 1998, alcohol related casualty crashes were most likely to have occurred in October, on Saturday, and between 11:00 p.m. and 2:59 a.m.
- Figure 8 provides a graphic representation of the involvement of drinking drivers in casualty collisions over the past five years, 1994-1998.

## *Table 10.1*

**Condition of Drivers in Casualty Collisions***

**1998**

| Condition of Driver | Drivers in Fatal Collisions N | Drivers in Fatal Collisions % | Drivers in Non-Fatal Injury Collisions N | Drivers in Non-Fatal Injury Collisions % | Total Drivers in Casualty Collisions N | Total Drivers in Casualty Collisions % |
|---|---|---|---|---|---|---|
| Normal | 334 | 73.4 | 23539 | 92.6 | 23873 | 92.2 |
| Had Been Drinking | 45 | 9.9 | 778 | 3.1 | 823 | 3.2 |
| Alcohol Impaired | 58 | 12.7 | 734 | 2.9 | 792 | 3.1 |
| **Total Alcohol Involvement** | **103** | **22.6** | **1512** | **5.9** | **1615** | **6.2** |
| Impaired by Drugs | 3 | 0.7 | 22 | 0.1 | 25 | 0.1 |
| Fatigued/Asleep | 14 | 3.1 | 241 | 0.9 | 255 | 1.0 |
| Other | 1 | 0.2 | 116 | 0.5 | 117 | 0.5 |
| **Total Number of Drivers** | **455** | **100.0** | **25430** | **100.0** | **25885** | **100.0** |

## *Observations*

Of drivers involved in injury collisions, 5.9% had consumed alcohol before the crash, compared to 22.6% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall, 6.2% of drivers involved in casualty collisions were judged to have consumed alcohol before the crash.

*Based on those cases where driver condition was specified on the collision report form.
These numbers do not include bicyclists (see Table 9.6, page 65).

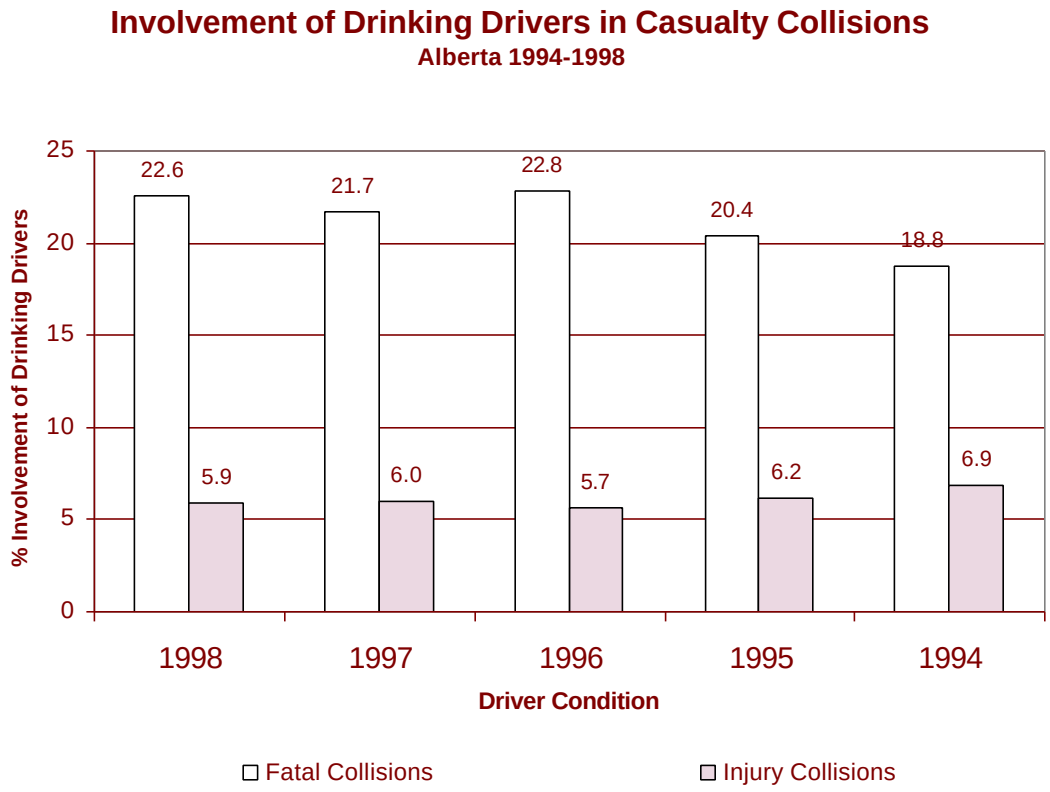

Involvement of Drinking Drivers in Casualty Collisions
Alberta 1994-1998
% Involvement of Drinking Drivers
25
20
15
10
5
0
22.6
5.9
21.7
6.0
22.8
5.7
20.4
6.2
18.8
6.9
1998
1997
1996
1995
1994
Driver Condition
Fatal Collisions
Injury Collisions

**Figure 8**

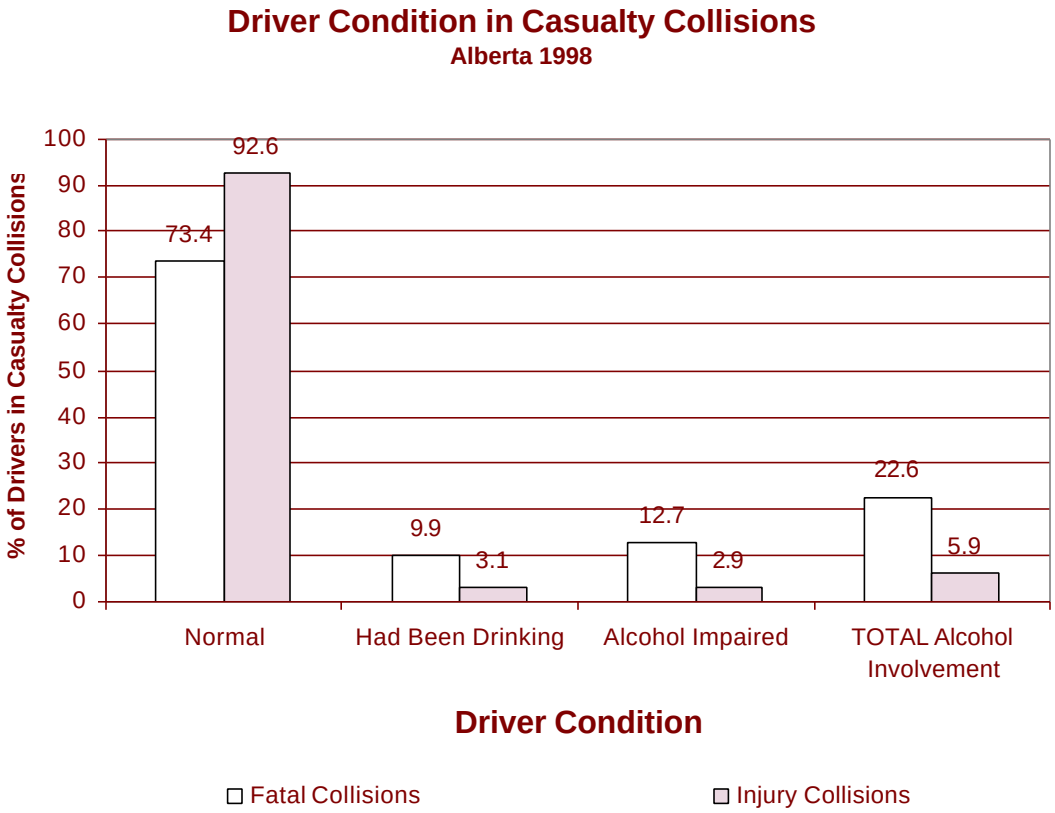

Driver Condition in Casualty Collisions
Alberta 1998
% of Drivers in Casualty Collisions
100
90
80
70
60
50
40
30
20
10
0
73.4
92.6
9.9
3.1
12.7
2.9
22.6
5.9
Normal
Had Been Drinking
Alcohol Impaired
TOTAL Alcohol Involvement
Driver Condition
Fatal Collisions
Injury Collisions

**Figure 9**

*Table 10.2*

**Age and Sex of Drinking Drivers in Casualty Collisions**

**1998**

| | Male | | Rate Per 1000** Licensed Drivers | Female | | Rate Per 1000** Licensed Drivers | Total* | | Rate Per 1000** Licensed Drivers |
|---|---|---|---|---|---|---|---|---|---|
| **Age in Years** | **N** | **%** | | **N** | **%** | | **N** | **%** | |
| Under 16 | 6 | 0.4 | 0.4 | 5 | 0.3 | 0.4 | 11 | 0.7 | 0.4 |
| 16 - 17 | 52 | 3.2 | 1.7 | 18 | 1.1 | 0.7 | 70 | 4.3 | 1.2 |
| 18 - 19 | 140 | 8.7 | 3.6 | 35 | 2.2 | 1.0 | 175 | 10.8 | 2.4 |
| 20 - 21 | 126 | 7.8 | 3.1 | 27 | 1.7 | 0.8 | 153 | 9.5 | 2.0 |
| 22 - 24 | 174 | 10.8 | 2.6 | 29 | 1.8 | 0.5 | 203 | 12.6 | 1.6 |
| 25 - 29 | 208 | 12.9 | 1.8 | 41 | 2.5 | 0.4 | 249 | 15.4 | 1.1 |
| 30 - 34 | 182 | 11.3 | 1.5 | 45 | 2.8 | 0.4 | 227 | 14.1 | 1.0 |
| 35 - 44 | 265 | 16.4 | 1.0 | 62 | 3.8 | 0.2 | 327 | 20.2 | 0.6 |
| 45 - 54 | 98 | 6.1 | 0.5 | 18 | 1.1 | 0.1 | 116 | 7.2 | 0.3 |
| 55 - 64 | 45 | 2.8 | 0.4 | 2 | 0.1 | 0.0 | 47 | 2.9 | 0.2 |
| 65 and over | 21 | 1.3 | 0.2 | 1 | 0.1 | 0.0 | 22 | 1.4 | 0.1 |
| Unspecified | 6 | 0.4 | | --- | --- | | 15 | 0.9 | |
| **Total Drivers** | **1323** | **81.9** | | **283** | **17.5** | | **1615** | **100.0** | |

## *Observations*

Of those collision-involved drivers who had consumed alcohol, there were over four times as many male drivers as female drivers. The majority were male drivers under the age of 45. In terms of involvement per 1,000 licensed drivers, males 18-21 years of age were more likely to have consumed alcohol prior to a casualty collision than any other age group.

Drinking drivers include those indicated on the collision report form as having been drinking prior to the crash and those who were alcohol-impaired at the time of the crash. Whether or not the driver was actually charged is not taken into consideration by the collision report form.

*Includes only drivers whose age and/or sex was specified on the collision report form. Total includes drinking drivers whose sex was not specified on the collision report form.

**Source: Alberta Registries. Operator Statistics, December 31, 1998.

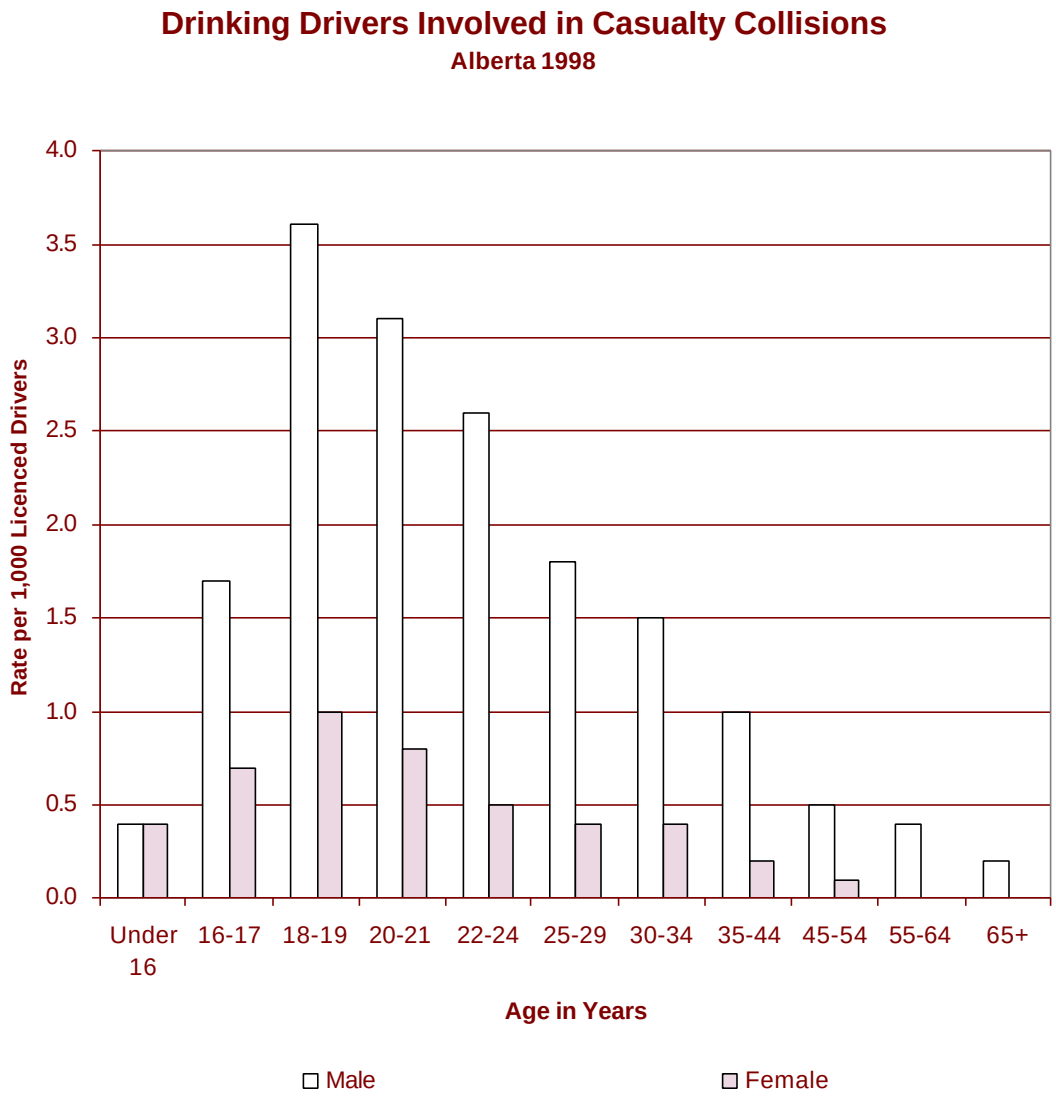

Drinking Drivers Involved in Casualty Collisions
Alberta 1998
Rate per 1,000 Licenced Drivers
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Under 16
16-17
18-19
20-21
22-24
25-29
30-34
35-44
45-54
55-64
65+
Age in Years
Male
Female

**Figure 10**

## *Table 10.3*

**Alcohol-Involved Casualty Collisions:**

**Month of Occurrence**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Total Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Month** | **N** | **%** | **N** | **%** | **N** | **%** |
| January | 2 | 2.0 | 89 | 6.0 | 91 | 5.7 |
| February | 4 | 4.1 | 96 | 6.5 | 100 | 6.3 |
| March | 3 | 3.1 | 118 | 7.9 | 121 | 7.6 |
| April | 11 | 11.2 | 124 | 8.3 | 135 | 8.5 |
| May | 13 | 13.3 | 142 | 9.5 | 155 | 9.8 |
| June | 8 | 8.2 | 128 | 8.6 | 136 | 8.6 |
| July | 6 | 6.1 | 140 | 9.4 | 146 | 9.2 |
| August | 9 | 9.2 | 153 | 10.3 | 162 | 10.2 |
| September | 11 | 11.2 | 141 | 9.5 | 152 | 9.6 |
| October | 11 | 11.2 | 162 | 10.9 | 173 | 10.9 |
| November | 9 | 9.2 | 99 | 6.7 | 108 | 6.8 |
| December | 11 | 11.2 | 95 | 6.4 | 106 | 6.7 |
| Unspecified | | | 1 | 0.1 | 1 | 0.1 |
| **Total Number of Collisions** | **98** | **100.0** | **1488** | **100.0** | **1586** | **100.0** |

## *Observations*

The month of October accounted for the largest proportion of alcohol-involved casualty collisions. The months of January and February accounted for the smallest proportion of alcohol-involved casualty collisions.

## *Table 10.4*

**Alcohol-Involved Casualty Collisions:**

**Day of Week**

**1998**

| | Fatal Collisions | | Non-Fatal Injury Collisions | | Total Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Day of Week** | **N** | **%** | **N** | **%** | **N** | **%** |
| Monday | 9 | 9.2 | 109 | 7.3 | 118 | 7.4 |
| Tuesday | 8 | 8.2 | 119 | 8.0 | 127 | 8.0 |
| Wednesday | 8 | 8.2 | 138 | 9.3 | 146 | 9.2 |
| Thursday | 14 | 14.3 | 194 | 13.0 | 208 | 13.1 |
| Friday | 14 | 14.3 | 247 | 16.6 | 261 | 16.5 |
| Saturday | 24 | 24.5 | 398 | 26.7 | 422 | 26.6 |
| Sunday | 21 | 21.4 | 281 | 18.9 | 302 | 19.0 |
| Unspecified | | | 2 | 0.1 | 2 | 0.1 |
| **Total Number of Collisions** | **98** | **100.0** | **1488** | **100.0** | **1586** | **100.0** |

## *Observations*

The highest number of alcohol-involved fatal collisions occurred on Saturday (24.5%). The highest number of non-fatal injury collisions also occurred on Saturday (26.7%). The smallest number of alcohol-involved casualty collisions occurred on Monday and Tuesday.

## *Table 10.5*

**Alcohol-Involved Casualty Collisions:**

**Time Period**

**1998**

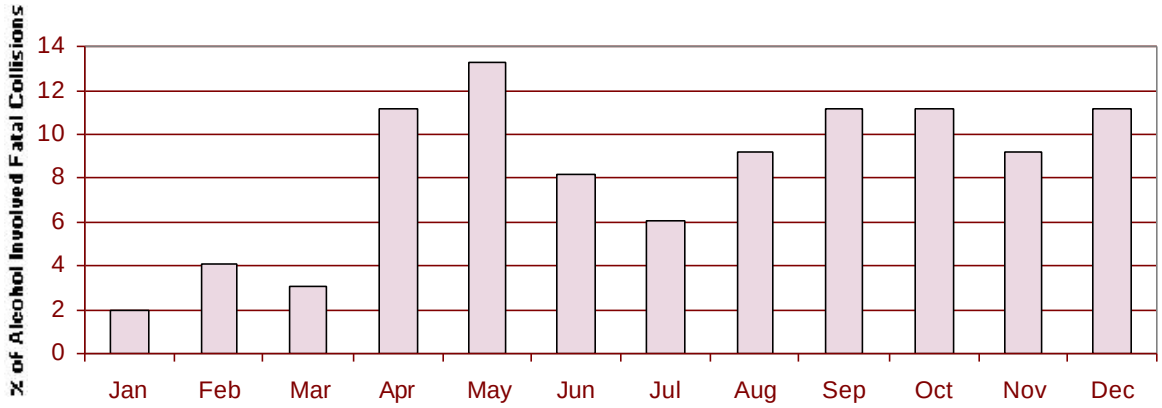
| | Fatal Collisions | | Non-Fatal Injury Collisions | | Total Casualty Collisions | |
|---|---|---|---|---|---|---|
| **Time of Day** | **N** | **%** | **N** | **%** | **N** | **%** |
| 11:00 p.m. - 2:59 a.m. | 25 | 25.5 | 503 | 33.8 | 528 | 33.3 |
| 3:00 a.m. - 6:59 a.m. | 22 | 22.4 | 236 | 15.9 | 258 | 16.3 |
| 7:00 a.m. - 10:59 a.m. | 7 | 7.1 | 63 | 4.2 | 70 | 4.4 |
| 11:00 a.m. - 2:59 p.m. | 4 | 4.1 | 83 | 5.6 | 87 | 5.5 |
| 3:00 p.m. - 6:59 p.m. | 15 | 15.3 | 204 | 13.7 | 219 | 13.8 |
| 7:00 p.m. - 10:59 p.m. | 22 | 22.4 | 373 | 25.1 | 395 | 24.9 |
| Unspecified | 3 | 3.1 | 26 | 1.7 | 29 | 1.8 |
| **Total Number of Collisions** | **98** | **100.0** | **1488** | **100.0** | **1586** | **100.0** |

## *Observations*

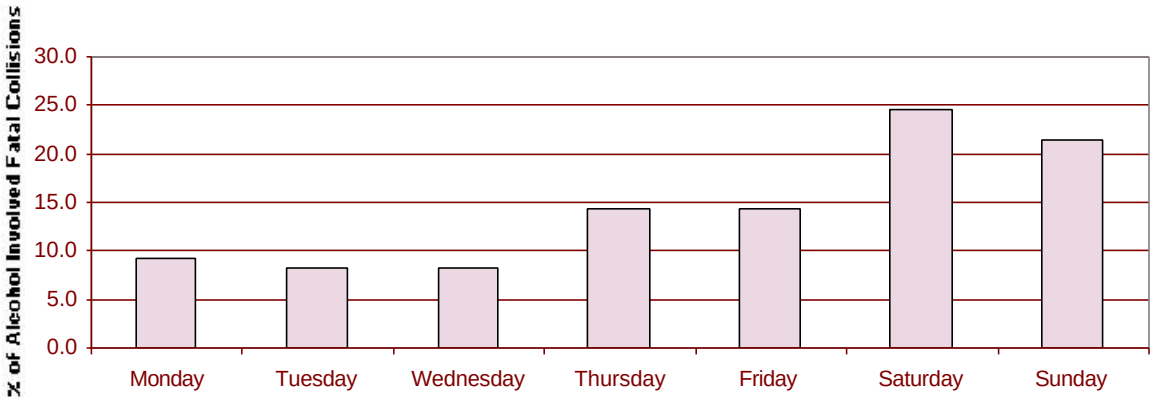
The late night/early morning time period (11:00 p.m. - 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (33.3%). The morning hours (7:00 a.m. - 10:59 a.m.) were least likely to record alcohol-involved casualty crashes (4.4%).

## Alcohol Involved Fatal Collisions
## Alberta 1998

### By Month of Occurrence




### By Day of Week




### By Time Period

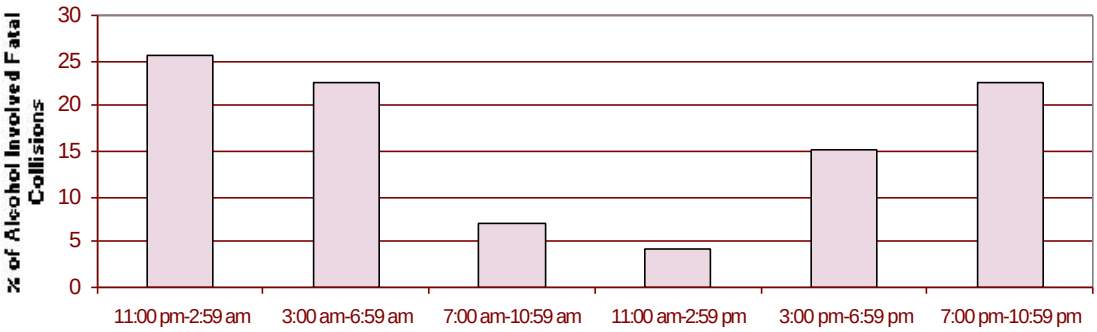


**Figure 11**

# *Traffic Safety Issues*

## *Restraint Use*

- Collision involved restraint users had a much lower injury rate (14.4%) than those not using restraints (36.1%).
- Non-restraint users were more than twice as likely as restraint users to be injured.

*Table 10.6*

**Restraint Use of Vehicle Occupants and Injury Severity* (Use versus Non-Use)**

**1998**

| Injury Severity of Occupants | Percentage of Occupants Using Restraints | Percentage of Occupants Not Using Restraints |
|---|---|---|
| | % | % |
| Fatal Injury | 0.1 | 2.1 |
| Major Injury | 1.1 | 10.1 |
| Minor Injury | 13.3 | 26.0 |
| **Total Occupants Sustaining Non-Fatal Injuries** | **14.4** | **36.1** |
| No Apparent Injury | 85.5 | 61.8 |
| **Total Occupants** | **100.0** | **100.0** |

## *Observations*

Collision involved restraint users had a much lower injury rate (14.4%) than those not using restraints (36.1%). Non-restraint users were more than twice as likely as restraint users to be injured.

## Injury Severity

Fatal - A fatal injury is the death of a person that occurs as a result of a motor vehicle collision within 30 days of the collision.

Major - Persons with injuries or complaint of pain that went to the hospital and were subsequently admitted even if for observation only.

Minor - Persons with injuries or complaint of pain that went to the hospital, were treated in emergency (or refused treatment) and SENT HOME without ever being admitted to the hospital. (Also includes persons who indicate they intend to seek medical attention).

*Based on those cases where occupant restraint use and injury severity were specified on the collision report form.