# *Alberta*

# *Traffic Collision Statistics*

# *2009*

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## *2009 Overview*

- The number of **traffic fatalities decreased 14.4%** over the past year from 410 fatalities in 2008 to 351 in 2009.
- The number of **traffic injuries decreased 12.9%** over the past year from 22015 injuries in 2008 to 19167 in 2009.
- The number of **traffic collisions decreased 0.5%** over the past year from 158055 collisions in 2008 to 157226 in 2009.
- **The highest number of fatal collisions** occurred in **July. The highest number of injury collisions** occurred in **September**.
- **Friday** was the most collision-prone day of the week.
- **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 18 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**.
- **37.5% of pedestrians** involved in **fatal collisions had consumed alcohol** prior to the collision compared to **13.0% of pedestrians in injury collisions**.
- **21.1% of drivers** involved in **fatal collisions had consumed alcohol** prior to the crash compared to **5.0% of drivers in injury collisions**.
- **Collision involved restraint users had a much lower injury rate** (7.0%) than those not using restraints (31.7%)

## *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 2009. 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 Transportation 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.

# *2009 Traffic Collision Summary*

## *Introduction*

During 2009, 157226 collisions were recorded on Alberta roadways. Property damage collisions (over $1000) represented 90.7% (142678) of this total while 9.1% (14246) were non-fatal injury collisions. Fatal collisions accounted for 0.2% (302) of the total reported collisions.

## *Five Year Trends*

In terms of population, licensed drivers and registered vehicles the fatal collision rate and fatality rate have decreased from 2008.

The non-fatal injury collision and injury rates have also decreased in 2009 in terms of population, licensed drivers, and registered vehicles.

Property damage collision rates decreased in 2009 in terms of population, licensed drivers and registered vehicles.

From 2008 to 2009, Alberta's fatality rate per billion vehicle kilometers travelled decreased from 8.6 to 7.1. During the same period, the injury rate per billion vehicle kilometers travelled decreased from 464.2 to 385.6. Over the last five years, since 2005, rates have declined by 3.5 fatalities and 169.5 injuries per billion vehicle kilometers travelled.

## *Provincial Comparisons*

In order to get a picture of Alberta's traffic casualties in comparison to other provinces, rates rather than absolute numbers are utilized. In this instance casualty rates per billion vehicle kilometres travelled were examined.

Figures for 2009 and 2008 provincial comparisons were not available at the time of printing; therefore, figures for 2007 were used. Based on this comparison of rates per billion vehicle kilometres travelled, five provinces and territories had a higher fatality rate than Alberta in 2007. With regard to injury rates, in 2007, seven jurisdictions had a higher injury rate than Alberta.

## *Table 1.1*

**Alberta Traffic Collisions**

**2005 – 2009**

| **Severity of Collisions** | **2009** | **2008** | **2007** | **2006** | **2005** |
|---|---|---|---|---|---|
| Fatal Collisions | 302 | 375 | 402 | 404 | 392 |
| Non-Fatal Injury Collisions | 14246 | 16153 | 17857 | 18831 | 17726 |
| Property Damage Collisions | 142678 | 141527 | 135642 | 123357 | 106088 |
| **Total Reportable Collisions** | **157226** | **158055** | **153901** | **142592** | **124206** |
| Number Killed | 351 | 410 | 458 | 453 | 466 |
| Number Injured | 19167 | 22015 | 24530 | 25964 | 24504 |
| **Total Number of Casualties** | **19518** | **22425** | **24988** | **26417** | **24970** |

**Observations**

In 2009, the overall number of collisions decreased 0.5% when compared to 2008. In 2009, injury collisions decreased by 11.8% and fatal crashes decreased by 19.5%. The number of fatalities decreased by 14.4% from 2008 to 2009 and the number of injuries decreased by 12.9%. In terms of the past five years, overall collisions were lowest in 2005 and highest in 2008.

## *Table 1.2*

**Traffic Collision Rates**

**2005 – 2009**

| Severity of Collision | Rate Per 10,000 Population* | | | | | Rate Per 10,000 Licensed Drivers | | | | | Rate Per 10,000 Registered Vehicles | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **2009** | **2008** | **2007** | **2006** | **2005** | **2009** | **2008** | **2007** | **2006** | **2005** | **2009** | **2008** | **2007** | **2006** | **2005** |
| Fatal Collisions | 0.8 | 1.0 | 1.1 | 1.2 | 1.2 | 1.1 | 1.4 | 1.5 | 1.6 | 1.6 | 1.0 | 1.2 | 1.4 | 1.5 | 1.5 |
| Number Killed | 1.0 | 1.1 | 1.3 | 1.3 | 1.4 | 1.3 | 1.5 | 1.8 | 1.8 | 1.9 | 1.1 | 1.4 | 1.6 | 1.6 | 1.8 |
| Non-Fatal Injury Collisions | 38.6 | 44.9 | 50.8 | 55.0 | 53.4 | 52.2 | 60.5 | 68.6 | 74.5 | 72.6 | 46.5 | 53.3 | 61.1 | 68.0 | 68.2 |
| Number Injured | 52.0 | 61.2 | 69.8 | 75.9 | 73.8 | 70.2 | 82.4 | 94.3 | 102.8 | 100.3 | 62.6 | 72.7 | 83.9 | 93.8 | 94.3 |
| Property Damage Collisions | 386.9 | 393.6 | 386.1 | 360.6 | 319.3 | 522.3 | 529.8 | 521.4 | 488.3 | 434.4 | 466.1 | 467.1 | 464.2 | 445.4 | 408.1 |
| **Total Reportable Collisions** | **426.4** | **439.5** | **438.1** | **416.8** | **373.9** | **575.6** | **591.7** | **591.5** | **564.4** | **508.6** | **513.6** | **521.6** | **526.7** | **514.9** | **477.8** |

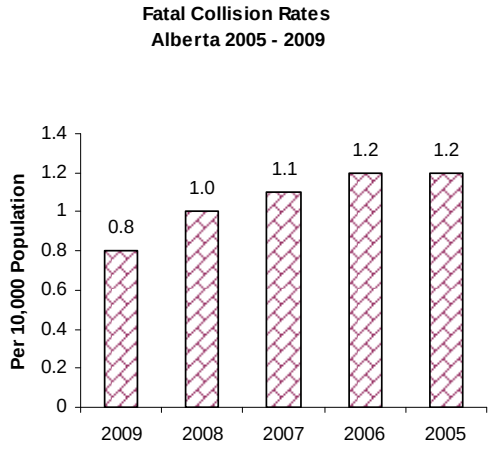
**Observations**

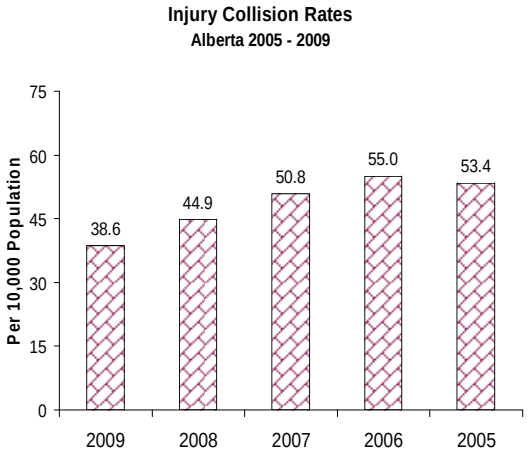
In terms of population, licensed drivers and registered vehicles, collision and casualty rates decreased from 2008 to 2009.

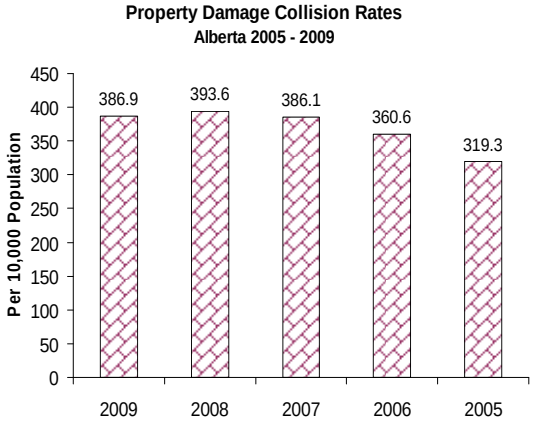
*In 2008, Statistics Canada updated the Alberta population estimates for 2004 - 2007 to align with the 2006 Standard Geographical Classification (SGC). As a result, collision rates for 2004 - 2007 in this report are based on the updated population estimates and may differ from previous publications in this series. In 2009, Statistics Canada further refined the 2008 and 2007 population numbers.

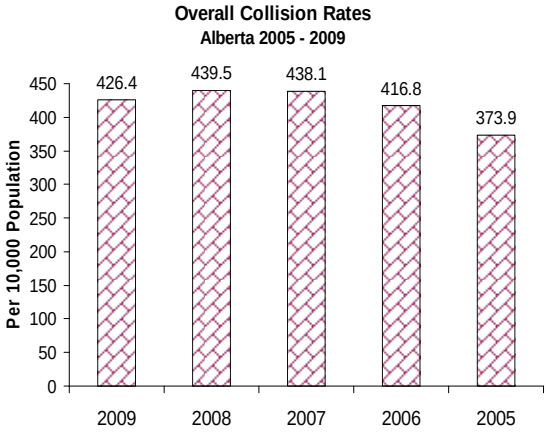
Sources:
Population – Statistics Canada as of July 1, 2009
Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009
Registered Vehicles – Service Alberta – Registries Services, as of December 31, 2009

## *Figure 1*




Note: In 2008, Statistics Canada updated the Alberta population estimates for 2004 - 2007 to align with the 2006 Standard Geographical Classification (SGC). As a result, collision rates for 2004 - 2007 in this report are based on the updated population estimates and may differ from previous publications in this series. In 2009, Statistics Canada further refined the 2008 and 2007 population numbers.

## *Table 1.3*

**Provincial Comparison of Casualty Rates**
**Per Billion Vehicle Kilometres Travelled***

**2005 – 2009**

| | Fatalities | | | | | Injuries | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2009** | **2008** | **2007** | **2006** | **2005** | **2009** | **2008** | **2007** | **2006** | **2005** |
| Canada | -- | -- | 8.3 | 8.9 | 9.3 | -- | -- | 584.4 | 604.0 | 668.0 |
| Alberta | 7.1 | 8.6 | 9.6 | 10.0 | 10.6 | 385.6 | 464.2 | 513.2 | 570.7 | 555.1 |
| British Columbia | -- | -- | 11.6 | 12.9 | 13.9 | -- | -- | 725.5 | 789.5 | 873.3 |
| Saskatchewan | -- | -- | 10.6 | 12.2 | 13.2 | -- | -- | 509.0 | 604.4 | 612.8 |
| Manitoba | -- | -- | 7.9 | 9.9 | 10.3 | -- | -- | 617.1 | 729.1 | 788.4 |
| Ontario | -- | -- | 6.2 | 6.0 | 6.3 | -- | -- | 534.8 | 525.2 | 571.5 |
| Quebec | -- | -- | 8.8 | 10.3 | 10.6 | -- | -- | 678.6 | 711.1 | 871.2 |
| New Brunswick | -- | -- | 11.0 | 12.3 | 13.6 | -- | -- | 459.5 | 452.3 | 508.5 |
| Nova Scotia | -- | -- | 9.3 | 8.4 | 7.1 | -- | -- | 577.9 | 470.8 | 487.7 |
| Prince Edward Island | -- | -- | 5.6 | 25.0 | 11.3 | -- | -- | 565.6 | 803.6 | 565.7 |
| Newfoundland | -- | -- | 9.4 | 8.5 | 9.8 | -- | -- | 519.0 | 501.3 | 537.1 |
| Yukon | -- | -- | 10.3 | 24.2 | 12.3 | -- | -- | 427.0 | 434.5 | 396.4 |
| Northwest Territories | -- | -- | 13.9 | 5.3 | 5.4 | -- | -- | 435.0 | 294.3 | 505.7 |
| Nunavut | -- | -- | 0.0 | N/A | N/A | -- | -- | 461.5 | N/A | N/A |

**Observations**

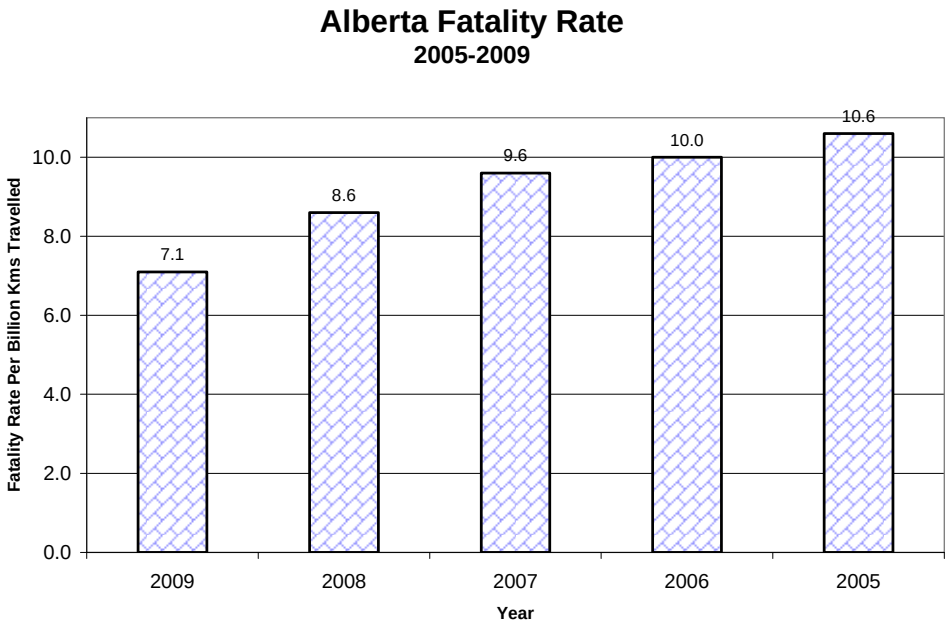
From 2008 to 2009, Alberta's fatality rate per billion vehicle kilometers travelled decreased from 8.6 to 7.1. During the same period, the injury rate per billion vehicle kilometers travelled decreased from 464.2 to 385.6. Over the last five years, since 2005, rates have declined by 3.5 fatalities and 169.5 injuries per billion vehicle kilometers travelled.

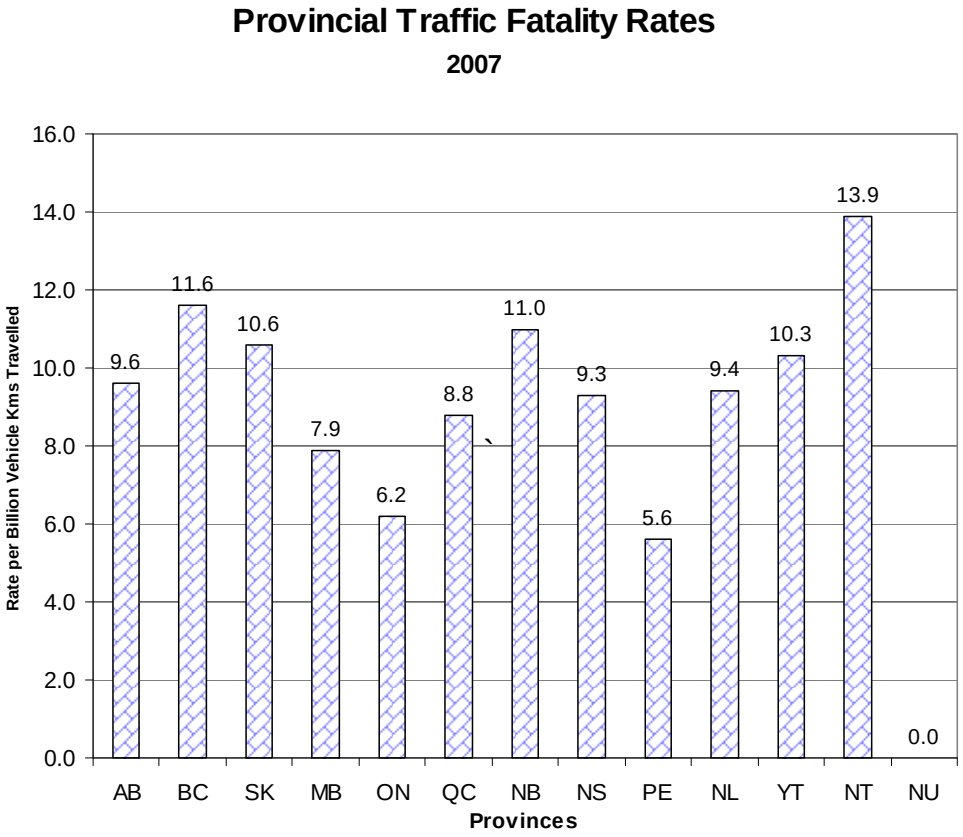
Provincial comparisons for Canada and other Canadian jurisdictions for 2008 and 2009 were not available at time of printing.

*Figures for other Canadian jurisdictions for 2008 and 2009 were not available at time of printing. The numbers in this report are based on the final 2007 collision counts received by Transport Canada and may differ from the 2008 publication in this series, which were based on preliminary numbers.

Sources: Transport Canada Canadian Motor Vehicle Traffic Collision Statistics TP3322 and Statistics Canada, "Canadian Vehicle Survey", catalogue No. 53-223-XIE. The Canadian Vehicle Survey (CVS) is a voluntary vehicle-based survey that provides annual estimates of road vehicle activity (Vehicle-kilometres and passenger-kilometres) of vehicles registered in Canada. The in-scope vehicles for the CVS include all motor vehicles except motorcycles, buses, off-road vehicles (e.g., snowmobiles, dune buggies, amphibious vehicles) and special equipment (e.g. cranes, street cleaners, snowplows and backhoes) registered in Canada anytime during the survey reference period that have not been scrapped or salvaged.

***Figure 2***


Alberta Fatality Rate
2005-2009
Fatality Rate Per Billion Kms Travelled
0.0
2.0
4.0
6.0
8.0
10.0
7.1
8.6
9.6
10.0
10.6
2009
2008
2007
2006
2005
Year


Provincial Traffic Fatality Rates
2007
Rate per Billion Vehicle Kms Travelled
0.0
2.0
4.0
6.0
8.0
10.0
12.0
14.0
16.0
9.6
11.6
10.6
7.9
6.2
8.8
11.0
9.3
5.6
9.4
10.3
13.9
0.0
AB
BC
SK
MB
ON
QC
NB
NS
PE
NL
YT
NT
NU
Provinces

## *When the Collisions Occurred*

### Month

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

### Day of Week

The daily distribution of collisions indicated that Friday was the most collision-prone day of the week.

### 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 recorded the highest number of fatalities. The five day Christmas Season recorded the highest number of injuries and total number of collisions.

## *Table 2.1*

**Collision Occurrence by Month**

**2009**

| Month | Fatal Collisions | | Non-Fatal Injury Collisions | | Property Damage Collisions | | Total Collisions | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| January | 18 | 6.0 | 1308 | 9.2 | 15169 | 10.6 | 16495 | 10.5 |
| February | 16 | 5.3 | 1072 | 7.5 | 11582 | 8.1 | 12670 | 8.1 |
| March | 19 | 6.3 | 1223 | 8.6 | 13829 | 9.7 | 15071 | 9.6 |
| April | 23 | 7.6 | 914 | 6.4 | 8855 | 6.2 | 9792 | 6.2 |
| May | 27 | 8.9 | 1062 | 7.5 | 9169 | 6.4 | 10258 | 6.5 |
| June | 28 | 9.3 | 1216 | 8.5 | 9892 | 6.9 | 11136 | 7.1 |
| July | 40 | 13.2 | 1148 | 8.1 | 9819 | 6.9 | 11007 | 7.0 |
| August | 32 | 10.6 | 1271 | 8.9 | 9324 | 6.5 | 10627 | 6.8 |
| September | 32 | 10.6 | 1318 | 9.3 | 9897 | 6.9 | 11247 | 7.2 |
| October | 25 | 8.3 | 1243 | 8.7 | 12613 | 8.8 | 13881 | 8.8 |
| November | 24 | 7.9 | 1152 | 8.1 | 13294 | 9.3 | 14470 | 9.2 |
| December | 18 | 6.0 | 1316 | 9.2 | 18855 | 13.2 | 20189 | 12.8 |
| Unspecified | -- | -- | 3 | 0.0 | 380 | 0.3 | 383 | 0.2 |
| **Total Number of Collisions** | **302** | **100.0** | **14246** | **100.0** | **142678** | **100.0** | **157226** | **100.0** |

**Observations**

The month of July experienced more fatal crashes than any other month. The highest number of reported injury collisions were in September. December recorded more property damage collisions than any other month.

## *Table 2.2*

**Collision Occurrence by Day of Week**

**2009**

| Day of Week | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Property Damage Collisions N | Property Damage Collisions % | Total Collisions N | Total Collisions % |
|---|---|---|---|---|---|---|---|---|
| Monday | 32 | 10.6 | 1897 | 13.3 | 19331 | 13.5 | 21260 | 13.5 |
| Tuesday | 34 | 11.3 | 2102 | 14.8 | 21341 | 15.0 | 23477 | 14.9 |
| Wednesday | 35 | 11.6 | 2043 | 14.3 | 21224 | 14.9 | 23302 | 14.8 |
| Thursday | 42 | 13.9 | 2284 | 16.0 | 22086 | 15.5 | 24412 | 15.5 |
| Friday | 53 | 17.5 | 2398 | 16.8 | 24254 | 17.0 | 26705 | 17.0 |
| Saturday | 64 | 21.2 | 1939 | 13.6 | 19155 | 13.4 | 21158 | 13.5 |
| Sunday | 42 | 13.9 | 1576 | 11.1 | 14803 | 10.4 | 16421 | 10.4 |
| Unspecified | -- | -- | 7 | 0.0 | 484 | 0.3 | 491 | 0.3 |
| **Total Number of Collisions** | **302** | **100.0** | **14246** | **100.0** | **142678** | **100.0** | **157226** | **100.0** |

**Observations**

The daily distribution of collisions indicated that overall Friday was the most collision-prone day of the week.

## *Table 2.3*

**Collision Occurrence by Time Period**

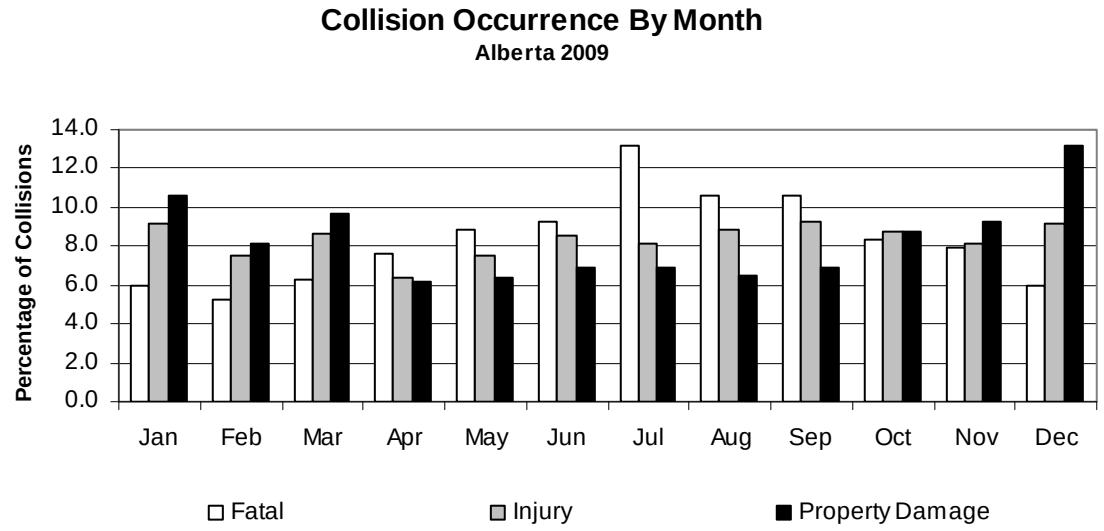
**2009**

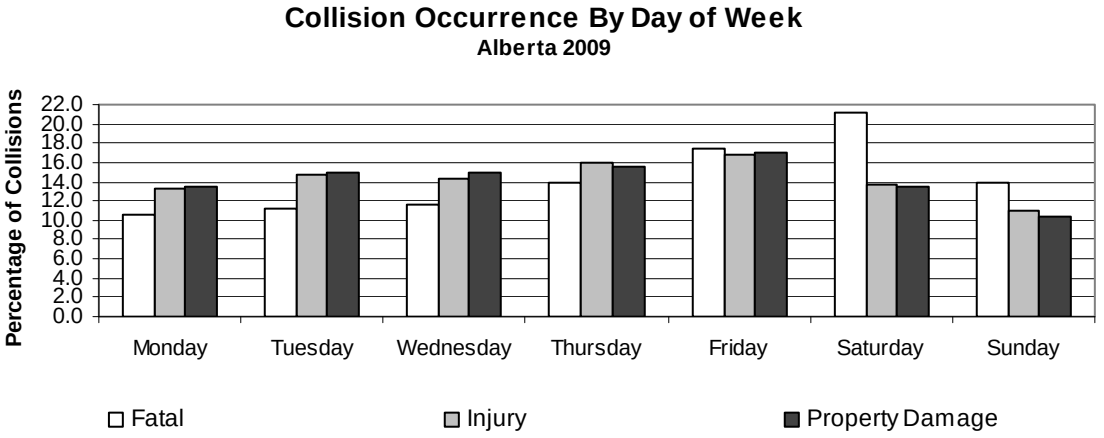
| Time Period | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Property Damage Collisions N | Property Damage Collisions % | Total Collisions N | Total Collisions % |
|---|---|---|---|---|---|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 51 | 16.9 | 1070 | 7.5 | 9099 | 6.4 | 10220 | 6.5 |
| 3:00 a.m. - 6:59 a.m. | 21 | 7.0 | 685 | 4.8 | 6866 | 4.8 | 7572 | 4.8 |
| 7:00 a.m. - 10:59 a.m. | 43 | 14.2 | 2519 | 17.7 | 26362 | 18.5 | 28924 | 18.4 |
| 11:00 a.m. - 2:59 p.m. | 57 | 18.9 | 3337 | 23.4 | 35288 | 24.7 | 38682 | 24.6 |
| 3:00 p.m. - 6:59 p.m. | 60 | 19.9 | 4356 | 30.6 | 41265 | 28.9 | 45681 | 29.1 |
| 7:00 p.m. - 10:59 p.m. | 67 | 22.2 | 2122 | 14.9 | 20609 | 14.4 | 22798 | 14.5 |
| Unspecified | 3 | 1.0 | 157 | 1.1 | 3189 | 2.2 | 3349 | 2.1 |
| **Total Number of Collisions** | **302** | **100.0** | **14246** | **100.0** | **142678** | **100.0** | **157226** | **100.0** |

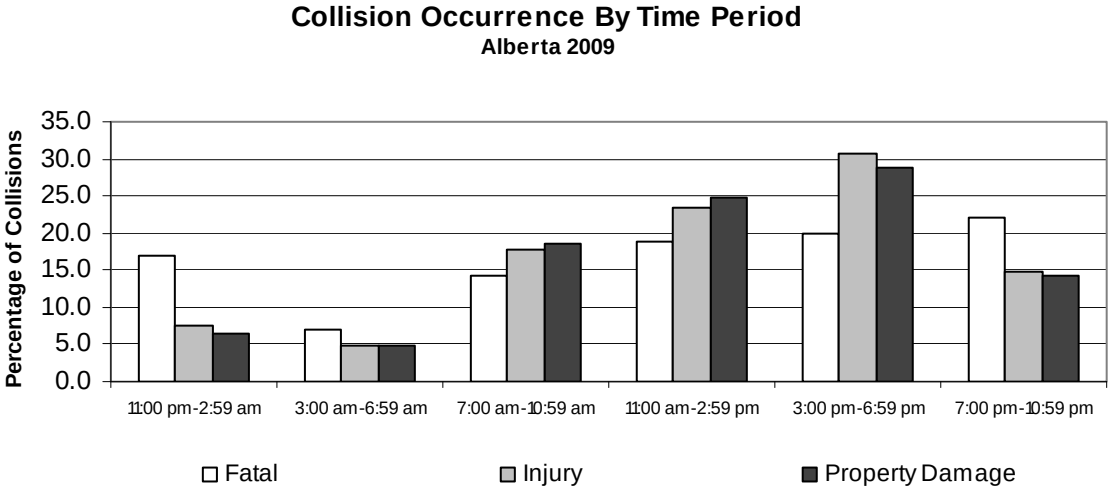
**Observations**

The afternoon rush hour period (3:00 p.m. – 6:59 p.m.) accounted for the largest percentage (29.1%) 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.).

***Figure 3***


Collision Occurrence By Month
Alberta 2009
Percentage of Collisions
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Fatal
Injury
Property Damage


Collision Occurrence By Day of Week
Alberta 2009
Percentage of Collisions
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Fatal
Injury
Property Damage


Collision Occurrence By Time Period
Alberta 2009
Percentage of Collisions
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
11:00 pm-2:59 am
3:00 am-6:59 am
7:00 am-10:59 am
11:00 am-2:59 pm
3:00 pm-6:59 pm
7:00 pm-10:59 pm
Fatal
Injury
Property Damage

## *Table 2.4*

**Collisions During 2009 Holidays**

| Holidays | Number Killed N | Number Injured N | Total Collisions* N |
|---|---|---|---|
| New Year's Day (January 1) | 1 | 46 | 389 |
| Family Day Long Weekend (February 13-16) | 5 | 184 | 1674 |
| Easter Long Weekend (April 9-13) | 5 | 212 | 1481 |
| Victoria Day Long Weekend (May 15-18) | 2 | 179 | 1186 |
| Canada Day (July 1) | 2 | 54 | 295 |
| August Long Weekend (July 31-August 3) | 10 | 224 | 1173 |
| Labour Day Long Weekend (September 4-7) | 7 | 189 | 1241 |
| Thanksgiving Long Weekend (October 9-12) | 2 | 200 | 1374 |
| Remembrance Day (November 11) | -- | 20 | 282 |
| Christmas Season (December 24-28) | 4 | 234 | 2176 |
| **TOTAL** | **38** | **1542** | **11271** |

### Observations

The August Long Weekend recorded the highest number of fatalities. The five day Christmas Season recorded the highest number of injuries and total number of collisions.

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

**Note:** Comparisons should be done with caution. The number of days for each holiday period within the year may vary. From year to year, holiday periods may also vary in length.

## *Victims*

### Road User Class

The majority of traffic victims were drivers and passengers of vehicles. Pedestrians and motorcyclists accounted for 6.2% and 3.8% 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**

**2009**

| Road User Class | Persons Killed N | Persons Killed % | Persons Injured N | Persons Injured % | Total Casualties N | Total Casualties % |
|---|---|---|---|---|---|---|
| Drivers | 173 | 49.3 | 11397 | 59.5 | 11570 | 59.3 |
| Passengers | 84 | 23.9 | 4922 | 25.7 | 5006 | 25.6 |
| Pedestrians | 35 | 10.0 | 1173 | 6.1 | 1208 | 6.2 |
| Motorcyclists | 36 | 10.3 | 715 | 3.7 | 751 | 3.8 |
| Bicyclists | 2 | 0.6 | 535 | 2.8 | 537 | 2.8 |
| Other | 13 | 3.7 | 264 | 1.4 | 277 | 1.4 |
| Unspecified | 8 | 2.3 | 161 | 0.8 | 169 | 0.9 |
| **Total Casualties** | **351** | **100.0** | **19167** | **100.0** | **19518** | **100.0** |

**Observations**

The majority of traffic victims were drivers (59.3%) and passengers (25.6%) of vehicles. Pedestrians and motorcyclists accounted for 6.2% and 3.8% of the total casualties, respectively.

## *Table 3.2*

**Age of Casualties**

**2009**

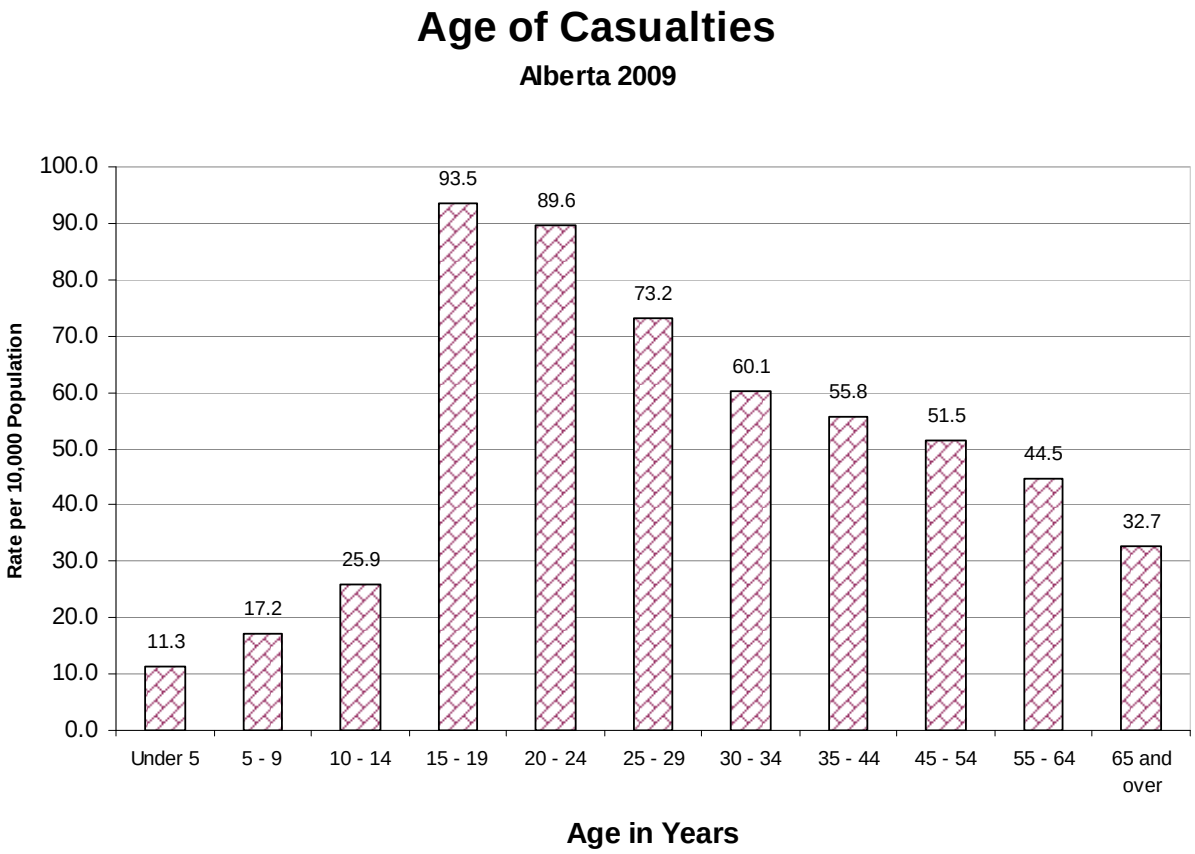
| Age in Years | Persons Killed N | Persons Killed % | Persons Injured N | Persons Injured % | Total Casualties N | Total Casualties % | Casualty Rate Per 10,000 Population* |
|---|---|---|---|---|---|---|---|
| Under 5 | 5 | 1.4 | 264 | 1.4 | 269 | 1.4 | 11.3 |
| 5-9 | 5 | 1.4 | 363 | 1.9 | 368 | 1.9 | 17.2 |
| 10-14 | 1 | 0.3 | 575 | 3.0 | 576 | 3.0 | 25.9 |
| 15-19 | 36 | 10.3 | 2286 | 11.9 | 2322 | 11.9 | 93.5 |
| 20-24 | 56 | 16.0 | 2554 | 13.3 | 2610 | 13.4 | 89.6 |
| 25-29 | 35 | 10.0 | 2243 | 11.7 | 2278 | 11.7 | 73.2 |
| 30-34 | 33 | 9.4 | 1682 | 8.8 | 1715 | 8.8 | 60.1 |
| 35-44 | 46 | 13.1 | 2996 | 15.6 | 3042 | 15.6 | 55.8 |
| 45-54 | 56 | 16.0 | 2857 | 14.9 | 2913 | 14.9 | 51.5 |
| 55-64 | 36 | 10.3 | 1668 | 8.7 | 1704 | 8.7 | 44.5 |
| 65 and over | 42 | 12.0 | 1216 | 6.3 | 1258 | 6.4 | 32.7 |
| Unspecified | -- | -- | 463 | 2.4 | 463 | 2.4 | |
| **Total Casualties** | **351** | **100.0** | **19167** | **100.0** | **19518** | **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, 2009, Statistics Canada

***Figure 4***


Age of Casualties
Alberta 2009
Rate per 10,000 Population
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
11.3
17.2
25.9
93.5
89.6
73.2
60.1
55.8
51.5
44.5
32.7
Under 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years

## *Drivers*

### Age and Sex of Drivers

Collision rates per 1000 licensed drivers indicate that males 18 to 19 years old 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 was males 16 to 17 years old.

### Driver Actions

Following too closely (31.4%), running off the road (15.4%) and left turn across path (12.1%) 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**

**2009**

| | Male | | | Female | | | Total* | | |
|---|---|---|---|---|---|---|---|---|---|
| **Age of Driver** | **N** | **%** | **Rate Per 1000** Licensed Drivers** | **N** | **%** | **Rate Per 1000** Licensed Drivers** | **N** | **%** | **Rate Per 1000** Licensed Drivers** |
| Under 16 | 147 | 0.6 | 9.7 | 55 | 0.2 | 4.3 | 202 | 0.8 | 7.3 |
| 16-17 | 567 | 2.2 | 17.9 | 421 | 1.7 | 15.3 | 988 | 3.9 | 16.7 |
| 18-19 | 840 | 3.3 | 20.3 | 538 | 2.1 | 14.8 | 1378 | 5.4 | 17.7 |
| 20-24 | 2062 | 8.1 | 15.5 | 1315 | 5.2 | 11.2 | 3377 | 13.3 | 13.5 |
| 25-34 | 3455 | 13.6 | 11.4 | 2211 | 8.7 | 8.2 | 5670 | 22.4 | 9.9 |
| 35-44 | 2733 | 10.8 | 10.0 | 1922 | 7.6 | 7.8 | 4656 | 18.4 | 8.9 |
| 45-54 | 2635 | 10.4 | 9.1 | 1717 | 6.8 | 6.5 | 4354 | 17.2 | 7.9 |
| 55-64 | 1580 | 6.2 | 8.0 | 881 | 3.5 | 5.0 | 2462 | 9.7 | 6.5 |
| 65 and over | 1090 | 4.3 | 6.9 | 595 | 2.3 | 4.4 | 1685 | 6.7 | 5.8 |
| Unspecified | 101 | 0.4 | | 30 | 0.1 | | 556 | 2.2 | |
| **Total Number of Drivers** | **15210** | **60.1** | | **9685** | **38.2** | | **25328** | **100.0** | |

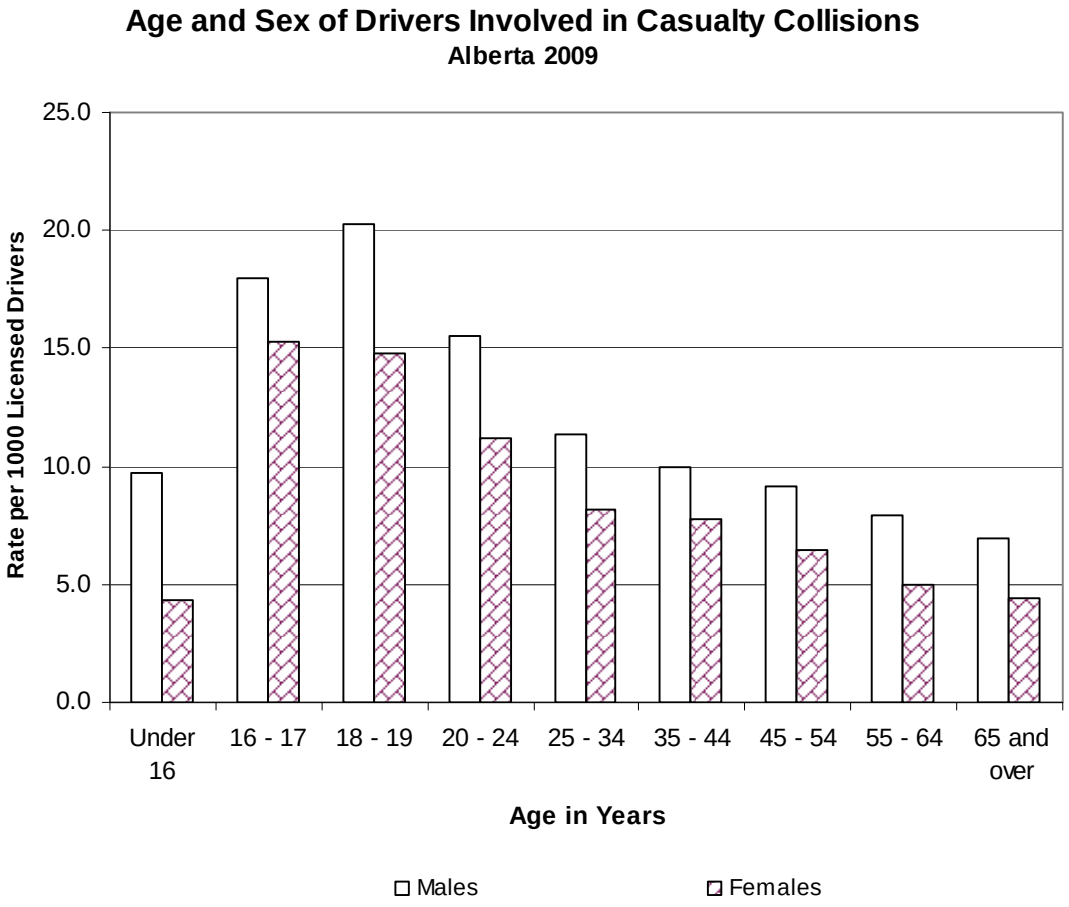
### Observations

Collision rates per 1000 licensed drivers indicated that males 18 to 19 years old 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 was males 16 to 17 years old.

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

**Source: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

***Figure 5***


Age and Sex of Drivers Involved in Casualty Collisions
Alberta 2009
Rate per 1000 Licensed Drivers
25.0
20.0
15.0
10.0
5.0
0.0
Under 16
16 - 17
18 - 19
20 - 24
25 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years
Males
Females

## *Table 4.2*

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

**2009**

| 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 | 43 | 15.5 | 3353 | 31.8 | 3396 | 31.4 |
| Ran Off Road | 101 | 36.3 | 1561 | 14.8 | 1662 | 15.4 |
| Left Turn Across Path | 13 | 4.7 | 1292 | 12.3 | 1305 | 12.1 |
| Stop Sign Violation | 26 | 9.4 | 774 | 7.3 | 800 | 7.4 |
| Disobey Traffic Signal | 4 | 1.4 | 777 | 7.4 | 781 | 7.2 |
| Failed to Yield Right of Way to Pedestrian | 5 | 1.8 | 439 | 4.2 | 444 | 4.1 |
| Left of Centre | 44 | 15.8 | 330 | 3.1 | 374 | 3.5 |
| Improper Turn | 2 | 0.7 | 364 | 3.5 | 366 | 3.4 |
| Improper Lane Change | 3 | 1.1 | 323 | 3.1 | 326 | 3.0 |
| Backed Unsafely | 1 | 0.4 | 288 | 2.7 | 289 | 2.7 |
| Yield Sign Violation | 2 | 0.7 | 214 | 2.0 | 216 | 2.0 |
| Failed to Yield Right of Way - Uncontrolled Intersection | 4 | 1.4 | 188 | 1.8 | 192 | 1.8 |
| Improper Passing | 5 | 1.8 | 138 | 1.3 | 143 | 1.3 |
| Other | 25 | 9.0 | 490 | 4.7 | 515 | 4.8 |
| **Total Number of Drivers** | **278** | **100.0** | **10531** | **100.0** | **10809** | **100.0** |

### Observations

Following too closely (31.4%), running off the road (15.4%) and left turn across path (12.1%) 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. Includes bicyclists.

**Note:** There was a total of 22169 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 11360 were indicated as driving properly at the time of the collision.

# *Vehicles*

### Types of Vehicles

Passenger cars (45.4%), minivans/MPV (23.3%) and pick-up trucks/vans (19.5%) were the vehicles most frequently involved in total casualty collisions.

### Vehicle Factors

Overall 0.9% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defect was defective brakes.

### Point of Impact

The most common point of impact in casualty collisions involved the front of the vehicle. Overall 44.2% of the impacts involved the centre front.

## *Table 5.1*

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

**2009**

| Type of Vehicle | Vehicles in Fatal Collisions N | % | Vehicles in Non-Fatal Injury Collisions N | % | Total Vehicles in Casualty Collisions N | % |
|---|---|---|---|---|---|---|
| Passenger Car | 158 | 29.9 | 11593 | 45.8 | 11751 | 45.4 |
| Mini-Van/MPV | 83 | 15.7 | 5947 | 23.5 | 6030 | 23.3 |
| Pick-up Truck/Van | 151 | 28.5 | 4901 | 19.3 | 5052 | 19.5 |
| Truck 4500 kg+ | 32 | 6.0 | 838 | 3.3 | 870 | 3.4 |
| Motorcycle | 34 | 6.4 | 692 | 2.7 | 726 | 2.8 |
| Bicycle | 2 | 0.4 | 535 | 2.1 | 537 | 2.1 |
| Tractor-Trailer | 44 | 8.3 | 331 | 1.3 | 375 | 1.5 |
| Off-Highway Vehicle | 13 | 2.5 | 158 | 0.6 | 171 | 0.7 |
| Transit Bus | -- | -- | 120 | 0.5 | 120 | 0.5 |
| Emergency Vehicle | 5 | 0.9 | 59 | 0.2 | 64 | 0.2 |
| School Bus | -- | -- | 62 | 0.2 | 62 | 0.2 |
| Construction Equipment | 3 | 0.6 | 26 | 0.1 | 29 | 0.1 |
| Farm Equipment | 3 | 0.6 | 16 | 0.1 | 19 | 0.1 |
| Motorized Snow Vehicle | -- | -- | 17 | 0.1 | 17 | 0.1 |
| Other Bus | -- | -- | 13 | 0.1 | 13 | 0.1 |
| Motorhome | 1 | 0.2 | 11 | 0.0 | 12 | 0.0 |
| Intercity Bus | -- | -- | 5 | 0.0 | 5 | 0.0 |
| Moped | -- | -- | 3 | 0.0 | 3 | 0.0 |
| Other | -- | -- | 2 | 0.0 | 2 | 0.0 |
| **Total Number of Vehicles** | **529** | **100.0** | **25329** | **100.0** | **25858** | **100.0** |

**Observations**

Passenger cars, mini-van/MPV and pick-up trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, bicycles represented 2.1% and motorcycles 2.8% of the vehicles involved in casualty collisions. Tractor-Trailers were 1.5% of total vehicles in casualty crashes, but 8.3% of vehicles in fatal crashes.

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

## *Table 5.2*

**Vehicle Factors Involved in Casualty Collisions***

**2009**

| Vehicle Factors | Vehicles in Fatal Collisions N | Vehicles in Fatal Collisions % | Vehicles in Non-Fatal Injury Collisions N | Vehicles in Non-Fatal Injury Collisions % | Total Vehicles in Casualty Collisions N | Total Vehicles in Casualty Collisions % |
|---|---|---|---|---|---|---|
| No Apparent Defect | 402 | 97.8 | 20678 | 99.2 | 21080 | 99.1 |
| Defective Brakes | 2 | 0.5 | 45 | 0.2 | 47 | 0.2 |
| Tires Failed | 3 | 0.7 | 31 | 0.1 | 34 | 0.2 |
| Improper Load/Shift | -- | -- | 9 | 0.0 | 9 | 0.0 |
| Lighting Defect | 1 | 0.2 | 5 | 0.0 | 6 | 0.0 |
| Other | 3 | 0.7 | 86 | 0.4 | 89 | 0.4 |
| **Total Number of Vehicles** | **411** | **100.0** | **20854** | **100.0** | **21265** | **100.0** |

**Observations**

Overall 0.9% of vehicles involved in casualty collisions were identified as having a vehicle defect. The most common defect was defective brakes.

*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***

**2009**

| Point of Impact | Vehicles in Fatal Collisions N | % | Vehicles in Non-Fatal Injury Collisions N | % | Total Vehicles in Casualty Collisions N | % |
|---|---|---|---|---|---|---|
| Centre Front | 233 | 46.2 | 10552 | 44.1 | 10785 | 44.2 |
| Centre Rear | 34 | 6.7 | 4959 | 20.7 | 4993 | 20.4 |
| Left Front | 42 | 8.3 | 1770 | 7.4 | 1812 | 7.4 |
| Right Front | 17 | 3.4 | 1736 | 7.3 | 1753 | 7.2 |
| Rollover | 82 | 16.3 | 1662 | 7.0 | 1744 | 7.1 |
| Left Side | 31 | 6.2 | 930 | 3.9 | 961 | 3.9 |
| Right Side | 30 | 6.0 | 894 | 3.7 | 924 | 3.8 |
| Right Rear | 5 | 1.0 | 577 | 2.4 | 582 | 2.4 |
| Left Rear | 9 | 1.8 | 559 | 2.3 | 568 | 2.3 |
| Attachment | 11 | 2.2 | 138 | 0.6 | 149 | 0.6 |
| Undercarriage | 6 | 1.2 | 74 | 0.3 | 80 | 0.3 |
| Top | 4 | 0.8 | 62 | 0.3 | 66 | 0.3 |
| **Total Number of Vehicles** | **504** | **100.0** | **23913** | **100.0** | **24417** | **100.0** |

**Observations**

The most common point of impact in casualty collisions involved the front of the vehicle. 44.2% of the impacts involved the centre front, while 20.4% of the impacts involved the centre rear.

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

# *Environment*

## Location

The majority of fatal crashes (71.9%) occurred in rural areas, whereas the majority of injury (74.6%) and property damage (82.7%) crashes occurred in urban areas.

## Surface Conditions

The majority (58.7%) of all casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 18.2% of fatal collisions and 24.9% of non-fatal injury collisions.

## *Table 6.1*

**Location of Collisions**

**2009**

| Location | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Property Damage Collisions N | Property Damage Collisions % | Total Collisions N | Total Collisions % |
|---|---|---|---|---|---|---|---|---|
| Urban | 85 | 28.1 | 10633 | 74.6 | 117952 | 82.7 | 128670 | 81.8 |
| Rural | 217 | 71.9 | 3613 | 25.4 | 24726 | 17.3 | 28556 | 18.2 |
| **Total Number of Collisions** | **302** | **100.0** | **14246** | **100.0** | **142678** | **100.0** | **157226** | **100.0** |

**Observations**

Collisions which occurred in rural areas accounted for 71.9% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (74.6%) and property damage crashes (82.7%).

## *Table 6.2*

**Casualty Collision Occurrence by Surface Condition**

**2009**

| Surface Condition | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Total Casualty Collisions N | Total Casualty Collisions % |
|---|---|---|---|---|---|---|
| Dry | 204 | 67.5 | 8337 | 58.5 | 8541 | 58.7 |
| Slush/Snow/Ice | 55 | 18.2 | 3542 | 24.9 | 3597 | 24.7 |
| Wet | 18 | 6.0 | 1036 | 7.3 | 1054 | 7.2 |
| Loose Surface Material | 16 | 5.3 | 285 | 2.0 | 301 | 2.1 |
| Muddy | 1 | 0.3 | 30 | 0.2 | 31 | 0.2 |
| Other | 2 | 0.7 | 55 | 0.4 | 57 | 0.4 |
| Unspecified | 6 | 2.0 | 961 | 6.7 | 967 | 6.6 |
| **Total Number of Collisions** | **302** | **100.0** | **14246** | **100.0** | **14548** | **100.0** |

**Observations**

The majority (58.7%) of casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 18.2% of fatal collisions and 24.9% of non-fatal injury collisions.

## *Special Types of Vehicles*

### Motorcycles

- In 2009, based on motorcycle registrations, the involvement rate of motorcycles has decreased in fatal collisions and in injury collisions from 2008.

- 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, 16-17 year old motorcycle drivers had an involvement rate per 1000 licensed drivers of 30.3, a rate over two 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 signal.

- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle drivers were more likely to have consumed alcohol before the crash.

- Vehicle factors were identified for 2.2% of motorcycles involved in casualty collisions compared to 0.9% 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**

**2005 – 2009**

| **Number of Motorcycles** | **2009** | **2008** | **2007** | **2006** | **2005** |
|---|---|---|---|---|---|
| Fatal | 34 | 43 | 34 | 31 | 22 |
| Non-Fatal Injury | 692 | 807 | 773 | 764 | 718 |
| **Total Number of Motorcycles Involved in Casualty Collisions** | **726** | **850** | **807** | **795** | **740** |
| **Casualties*** | | | | | |
| Number Killed | 37 | 42 | 32 | 32 | 21 |
| Number Injured | 757 | 852 | 833 | 830 | 771 |
| **Total Casualties in Collisions Involving Motorcycles** | **794** | **894** | **865** | **862** | **792** |
| **Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**** | | | | | |
| Fatal Collisions | 3.3 | 4.4 | 4.0 | 4.2 | 3.4 |
| Non-Fatal Injury Collisions | 67.4 | 82.4 | 90.5 | 103.1 | 110.9 |

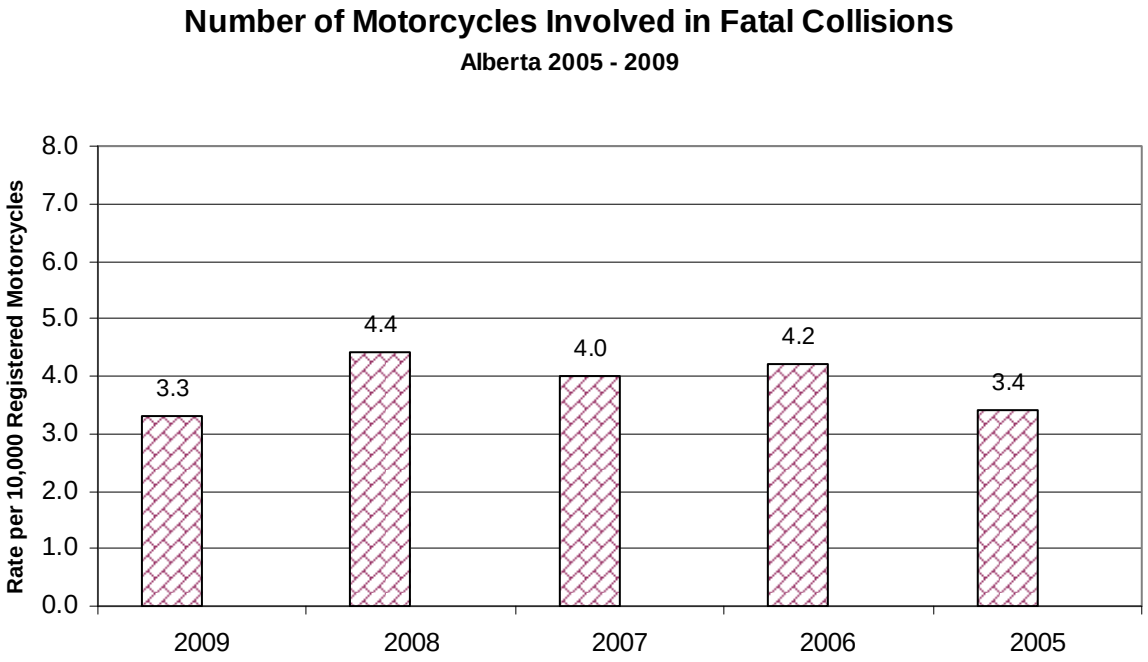
**Observations**

Based on motorcycle registrations in 2009, the involvement rate of motorcycles has decreased in fatal and injury collisions from 2008.

*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, Service Alberta – Registries Services, December 31, 2009.

***Figure 6***


Number of Motorcycles Involved in Fatal Collisions
Alberta 2005 - 2009
Rate per 10,000 Registered Motorcycles
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
3.3
4.4
4.0
4.2
3.4
2009
2008
2007
2006
2005

## *Table 7.2*

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

**2009**

| | Male | | Female | | Total* | | Rate Per 1,000 Licensed Motorcycle Drivers** |
|---|---|---|---|---|---|---|---|
| **Age of Motorcycle Driver** | **N** | **%** | **N** | **%** | **N** | **%** | |
| Under 16 | 11 | 1.5 | 1 | 0.1 | 12 | 1.7 | |
| 16-17 | 5 | 0.7 | -- | -- | 5 | 0.7 | 30.3 |
| 18-19 | 19 | 2.6 | -- | -- | 19 | 2.6 | 22.2 |
| 20-24 | 109 | 15.0 | 10 | 1.4 | 119 | 16.4 | 12.8 |
| 25-34 | 156 | 21.5 | 16 | 2.2 | 172 | 23.7 | 4.2 |
| 35-44 | 104 | 14.3 | 22 | 3.0 | 126 | 17.4 | 2.3 |
| 45-54 | 154 | 21.2 | 25 | 3.4 | 180 | 24.8 | 2.3 |
| 55-64 | 69 | 9.5 | 5 | 0.7 | 74 | 10.2 | 1.4 |
| 65 and over | 11 | 1.5 | -- | -- | 11 | 1.5 | 0.6 |
| Unspecified | 1 | 0.1 | -- | -- | 7 | 1.0 | |
| **Total Number of Motorcycle Drivers** | **639** | **88.1** | **79** | **10.9** | **725** | **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, 16-17 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 kilometers 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: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

## *Table 7.3*

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

**2009**

| Improper Actions of Motorcycle Driver | N | % | Driver Actions in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Ran Off Road | 99 | 39.4 | 15.4 |
| Followed Too Closely | 47 | 18.7 | 31.4 |
| Improper Passing | 19 | 7.6 | 1.3 |
| Left of Centre | 17 | 6.8 | 3.5 |
| Improper Turn | 11 | 4.4 | 3.4 |
| Improper Lane Change | 9 | 3.6 | 3.0 |
| Stop Sign Violation | 9 | 3.6 | 7.4 |
| Disobey Traffic Signal | 7 | 2.8 | 7.2 |
| Left Turn Across Path | 5 | 2.0 | 12.1 |
| Failed to Yield Right of Way - Uncontrolled Intersection | 3 | 1.2 | 1.8 |
| Yield Sign Violation | 1 | 0.4 | 2.0 |
| Failed to Yield Right of Way to Pedestrian | 1 | 0.4 | 4.1 |
| Backed Unsafely | 1 | 0.4 | 2.7 |
| Other | 22 | 8.8 | 4.8 |
| **Total Number of Motorcycle Drivers** | **251** | **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 signal.

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

**Note:** There was a total of 598 motorcycle drivers involved in casualty collisions for which a driver action was specified on the collision report form. 347 were indicated as driving properly at the time of the collision.

## *Table 7.4*

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

**2009**

| Condition of Motorcycle Driver | N | % | Driver Condition in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Normal | 565 | 91.7 | 92.9 |
| Had Been Drinking | 24 | 3.9 | 2.3 |
| Alcohol Impaired | 21 | 3.4 | 3.0 |
| **Total Alcohol Involvement** | **45** | **7.3** | **5.3** |
| Other | 6 | 1.0 | 1.8 |
| **Total Number of Motorcycle Drivers** | **616** | **100.0** | |

### Observations

The motorcycle driver's condition was a contributory factor for 8.3% 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 Vehicle Factors in Casualty Collisions***

**2009**

| Vehicle Factors | N | % | Vehicle Factors in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| No Apparent Defect | 617 | 97.8 | 99.1 |
| Tires Failed | 4 | 0.6 | 0.2 |
| Defective Brakes | 4 | 0.6 | 0.2 |
| Other | 6 | 1.0 | 0.4 |
| **Total Number of Motorcycles** | **631** | **100.0** | |

### Observations

Vehicle factors were identified for 2.2% of the motorcycles involved in casualty collisions, compared to 0.9% for all types of vehicles involved in casualty collisions.

*Based on those cases where a vehicle 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**

**2009**

| Month | N | % |
|---|---|---|
| January | 1 | 0.1 |
| February | -- | -- |
| March | 1 | 0.1 |
| April | 38 | 5.4 |
| May | 127 | 18.0 |
| June | 132 | 18.7 |
| July | 128 | 18.1 |
| August | 125 | 17.7 |
| September | 130 | 18.4 |
| October | 13 | 1.8 |
| November | 11 | 1.6 |
| December | -- | -- |
| **Total Number of Collisions** | **706** | **100.0** |

**Observations**

The month of June recorded the highest proportion of casualty crashes involving motorcycles.

## *Table 7.7*

**Casualty Collisions Involving Motorcycles:**

**Road Surface Condition**

**2009**

| Road Surface Condition | N | % |
|---|---|---|
| Dry | 613 | 86.8 |
| Loose Surface Material | 40 | 5.7 |
| Wet | 19 | 2.7 |
| Slush/Snow/Ice | 1 | 0.1 |
| Muddy | 1 | 0.1 |
| Other | 7 | 1.0 |
| Unspecified | 25 | 3.5 |
| **Total Number of Collisions** | **706** | **100.0** |

**Observations**

The majority (86.8%) of casualty collisions involving motorcycles occurred on dry roads. Loose material on the road surface was involved in 5.7% of motorcycle casualty crashes. Wet roads were the scene of 2.7% of motorcycle casualty collisions.

## *Special Types of Vehicles*

### Truck Tractors

- In 2009, there were 49 persons killed and 453 injured in collisions involving truck tractors. This represents a decrease in fatalities and injuries from 2008.
- Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road or make an improper turn. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make an unsafe left turn, or disobey a traffic signal.
- Truck tractor drivers were less likely to consume alcohol before the crash than were drivers in total casualty collisions.
- Vehicle 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 month of December.

## *Table 7.8*

**Truck Tractors Involved in Casualty Collisions**

**2005 – 2009**

| **Number of Truck Tractors** | **2009** | **2008** | **2007** | **2006** | **2005** |
|---|---|---|---|---|---|
| Fatal | 44 | 55 | 73 | 64 | 45 |
| Non-Fatal Injury | 331 | 498 | 577 | 642 | 601 |
| **Total Number of Truck Tractors Involved in Casualty Collisions** | **375** | **553** | **650** | **706** | **646** |
| **Casualties*** | | | | | |
| Number Killed | 49 | 61 | 81 | 67 | 58 |
| Number Injured | 453 | 657 | 754 | 813 | 802 |
| **Total Casualties in Collisions Involving Truck Tractors** | **502** | **718** | **835** | **880** | **860** |

### Observations

In 2009, there were 49 persons killed and 453 injured in collisions involving truck tractors. This represents a decrease in fatalities and injuries from 2008. The total number of truck tractors involved in casualty crashes was highest in 2006 at 706.

*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*

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

**2009**

| Improper Actions of Truck Tractor Driver | N | % | Driver Actions in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Ran Off Road | 28 | 26.7 | 15.4 |
| Followed Too Closely | 23 | 21.9 | 31.4 |
| Improper Turn | 11 | 10.5 | 3.4 |
| Left Turn Across Path | 8 | 7.6 | 12.1 |
| Improper Lane Change | 7 | 6.7 | 3.0 |
| Left of Centre | 6 | 5.7 | 3.5 |
| Stop Sign Violation | 5 | 4.8 | 7.4 |
| Improper Passing | 4 | 3.8 | 1.3 |
| Disobey Traffic Signal | 3 | 2.9 | 7.2 |
| Yield Sign Violation | 2 | 1.9 | 2.0 |
| Failed to Yield Right of Way - Uncontrolled Intersection | 2 | 1.9 | 1.8 |
| Backed Unsafely | 1 | 1.0 | 2.7 |
| Other | 5 | 4.8 | 4.8 |
| **Total Number of Drivers** | **105** | **100.0** | |

### Observations

Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road or make an improper turn. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make an unsafe left turn, or disobey a traffic signal.

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

**Note:** There was a total of 310 truck-tractor drivers involved in casualty collisions for which a driver action was specified on the collision report form. 205 were indicated as driving properly at the time of the collision.

## *Table 7.10*

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

**2009**

| Driver Condition | N | % | Driver Condition in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Normal | 305 | 97.4 | 92.9 |
| Had Been Drinking | -- | -- | 2.3 |
| Alcohol Impaired | 1 | 0.3 | 3.0 |
| **Total Alcohol Involvement** | **1** | **0.3** | **5.3** |
| Fatigued/Asleep | 6 | 1.9 | 0.8 |
| Impaired by Drugs | -- | -- | 0.2 |
| Other | 1 | 0.3 | 0.8 |
| **Total Number of Drivers** | **313** | **100.0** | |

### Observations

The condition of the truck tractor driver was a contributory factor for 2.6% of the drivers involved. Truck tractor drivers were less likely to consume alcohol before the crash than were drivers involved in total casualty collisions (0.3% compared to 5.3%). 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*

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

**2009**

| Vehicle Factors | N | % | Vehicle Factors in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| No Apparent Defect | 310 | 96.3 | 99.1 |
| Improper Load/Shift | 3 | 0.9 | 0.0 |
| Tires Failed | 2 | 0.6 | 0.2 |
| Defective Brakes | 2 | 0.6 | 0.2 |
| Other | 5 | 1.6 | 0.4 |
| **Total Number of Truck Tractors** | **322** | **100.0** | |

### Observations

Vehicle factors were identified for 3.7% of truck tractors in casualty collisions. Vehicle factors were more likely to be present in truck tractor collisions than in total casualty collisions.

*Based on those cases where a vehicle factor was specified on the collision report form. This 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**

**2009**

| Month | N | % |
|---|---|---|
| January | 42 | 11.8 |
| February | 35 | 9.8 |
| March | 33 | 9.2 |
| April | 22 | 6.2 |
| May | 15 | 4.2 |
| June | 31 | 8.7 |
| July | 21 | 5.9 |
| August | 23 | 6.4 |
| September | 24 | 6.7 |
| October | 33 | 9.2 |
| November | 35 | 9.8 |
| December | 43 | 12.0 |
| **Total Number of Collisions** | **357** | **100.0** |

**Observations**

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

## *Special Types of Vehicles*

### Trains

- In 2009, two people were killed and 12 people were injured in crashes in which a train was involved. The number of casualties involving trains has decreased from 2008.
- The largest number of casualty collisions involving trains occurred in the months of January, April, and October.
- A large percentage of drivers involved in casualty collisions with a train disobeyed a traffic control device.

## *Table 7.13*

**Trains Involved in Casualty Collisions**

**2005 – 2009**

| **Number of Trains** | **2009** | **2008** | **2007** | **2006** | **2005** |
|---|---|---|---|---|---|
| Fatal | 2 | 3 | 4 | 3 | 5 |
| Non-Fatal Injury | 9 | 21 | 18 | 23 | 23 |
| **Total Number of Trains Involved in Casualty Collisions** | **11** | **24** | **22** | **26** | **28** |
| **Casualties*** | | | | | |
| Number Killed | 2 | 3 | 5 | 3 | 5 |
| Number Injured | 12 | 27 | 30 | 30 | 28 |
| **Total Casualties in Collisions Involving Trains** | **14** | **30** | **35** | **33** | **33** |

**Observations**

The number of trains involved in casualty collisions decreased from 2008. The number of casualties resulting from these collisions also decreased.

*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**

**2009**

| Month | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Total Casualty Collisions N | Total Casualty Collisions % |
|---|---|---|---|---|---|---|
| January | -- | -- | 2 | 22.2 | 2 | 18.2 |
| February | -- | -- | 1 | 11.1 | 1 | 9.1 |
| March | -- | -- | 1 | 11.1 | 1 | 9.1 |
| April | -- | -- | 2 | 22.2 | 2 | 18.2 |
| May | -- | -- | 1 | 11.1 | 1 | 9.1 |
| June | 1 | 50.0 | -- | -- | 1 | 9.1 |
| July | -- | -- | 1 | 11.1 | 1 | 9.1 |
| August | -- | -- | -- | -- | -- | -- |
| September | -- | -- | -- | -- | -- | -- |
| October | 1 | 50.0 | 1 | 11.1 | 2 | 18.2 |
| November | -- | -- | -- | -- | -- | -- |
| December | -- | -- | -- | -- | -- | -- |
| **Total Number of Collisions** | **2** | **100.0** | **9** | **100.0** | **11** | **100.0** |

**Observations**

The largest number of casualty collisions involving trains occurred in the months of January, April, and October.

## *Table 7.15*

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

**2009**

| Driver 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 % |
|---|---|---|---|---|---|---|
| Driving Properly | -- | -- | -- | -- | -- | -- |
| Disobey Traffic Signal | -- | -- | 5 | 62.5 | 5 | 50.0 |
| Stop Sign Violation | 1 | 50.0 | 2 | 25.0 | 3 | 30.0 |
| Failed to Yield Right of Way - Uncontrolled Intersection | -- | -- | 1 | 12.5 | 1 | 10.0 |
| Other | 1 | 50.0 | -- | -- | 1 | 10.0 |
| **Total Number of Drivers** | **2** | **100.0** | **8** | **100.0** | **10** | **100.0** |

**Observations**

Half of the drivers involved in casualty collisions with a train disobeyed a traffic control device.

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

## *Pedestrians*

- Pedestrian casualty collisions were more likely to occur in November. March 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 (3:00-6:59 p.m.).
- 37.6% of the drivers in casualty 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, 13.0% had consumed alcohol before the collision, compared to 37.5% 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 pedestrians 20-24 years of age.

## *Table 8.1*

**Casualty Collisions Involving Pedestrians:**

**Month of Occurrence**

**2009**

| Month of Collision | N | % |
|---|---|---|
| January | 117 | 10.0 |
| February | 96 | 8.2 |
| March | 74 | 6.3 |
| April | 90 | 7.7 |
| May | 81 | 6.9 |
| June | 86 | 7.4 |
| July | 87 | 7.4 |
| August | 92 | 7.9 |
| September | 117 | 10.0 |
| October | 121 | 10.4 |
| November | 125 | 10.7 |
| December | 83 | 7.1 |
| **Total Number of Collisions** | **1169** | **100.0** |

**Observations**

Pedestrian casualty collisions were more likely to occur in November. March experienced the least number of pedestrian crashes.

## *Table 8.2*

**Casualty Collisions Involving Pedestrians:**

**Day of Week**

**2009**

| Day of Week | N | % |
|---|---|---|
| Monday | 148 | 12.7 |
| Tuesday | 187 | 16.0 |
| Wednesday | 170 | 14.5 |
| Thursday | 173 | 14.8 |
| Friday | 212 | 18.1 |
| Saturday | 178 | 15.2 |
| Sunday | 100 | 8.6 |
| Unspecified | 1 | 0.1 |
| **Total Number of Collisions** | **1169** | **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**

**2009**

| Time Period | N | % |
|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 115 | 9.8 |
| 3:00 a.m. - 6:59 a.m. | 47 | 4.0 |
| 7:00 a.m. - 10:59 a.m. | 219 | 18.7 |
| 11:00 a.m. - 2:59 p.m. | 246 | 21.0 |
| 3:00 p.m. - 6:59 p.m. | 353 | 30.2 |
| 7:00 p.m. - 10:59 p.m. | 183 | 15.7 |
| Unspecified | 6 | 0.5 |
| **Total Number of Collisions** | **1169** | **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**

**2009**

| **Location** | **N** | % |
|---|---|---|
| Urban | 1118 | 95.6 |
| Rural | 51 | 4.4 |
| **Total Number of Collisions** | **1169** | **100.0** |

**Observations**

The majority of pedestrian casualty collisions (95.6%) occurred in urban areas. Only 4.4% occurred in rural areas.

## *Table 8.5*

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

**2009**

| Driver Actions | N | % |
|---|---|---|
| Driving Properly | 342 | 33.4 |
| Failed to Yield Right of Way To Pedestrian | 385 | 37.6 |
| Backed Unsafely | 100 | 9.8 |
| Followed Too Closely | 48 | 4.7 |
| Ran Off Road | 33 | 3.2 |
| Improper Turn | 18 | 1.8 |
| Disobey Traffic Signal | 13 | 1.3 |
| Left Turn Across Path | 11 | 1.1 |
| Failed to Yield Right of Way - Uncontrolled Intersection | 8 | 0.8 |
| Improper Passing | 8 | 0.8 |
| Stop Sign Violation | 6 | 0.6 |
| Yield Sign Violation | 3 | 0.3 |
| Improper Lane Change | 3 | 0.3 |
| Left of Centre | 2 | 0.2 |
| Other | 45 | 4.4 |
| **Total Number of Drivers** | **1025** | **100.0** |

**Observations**

33.4% of the drivers involved in pedestrian casualty crashes were recorded as driving properly. However, 37.6% 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**

**2009**

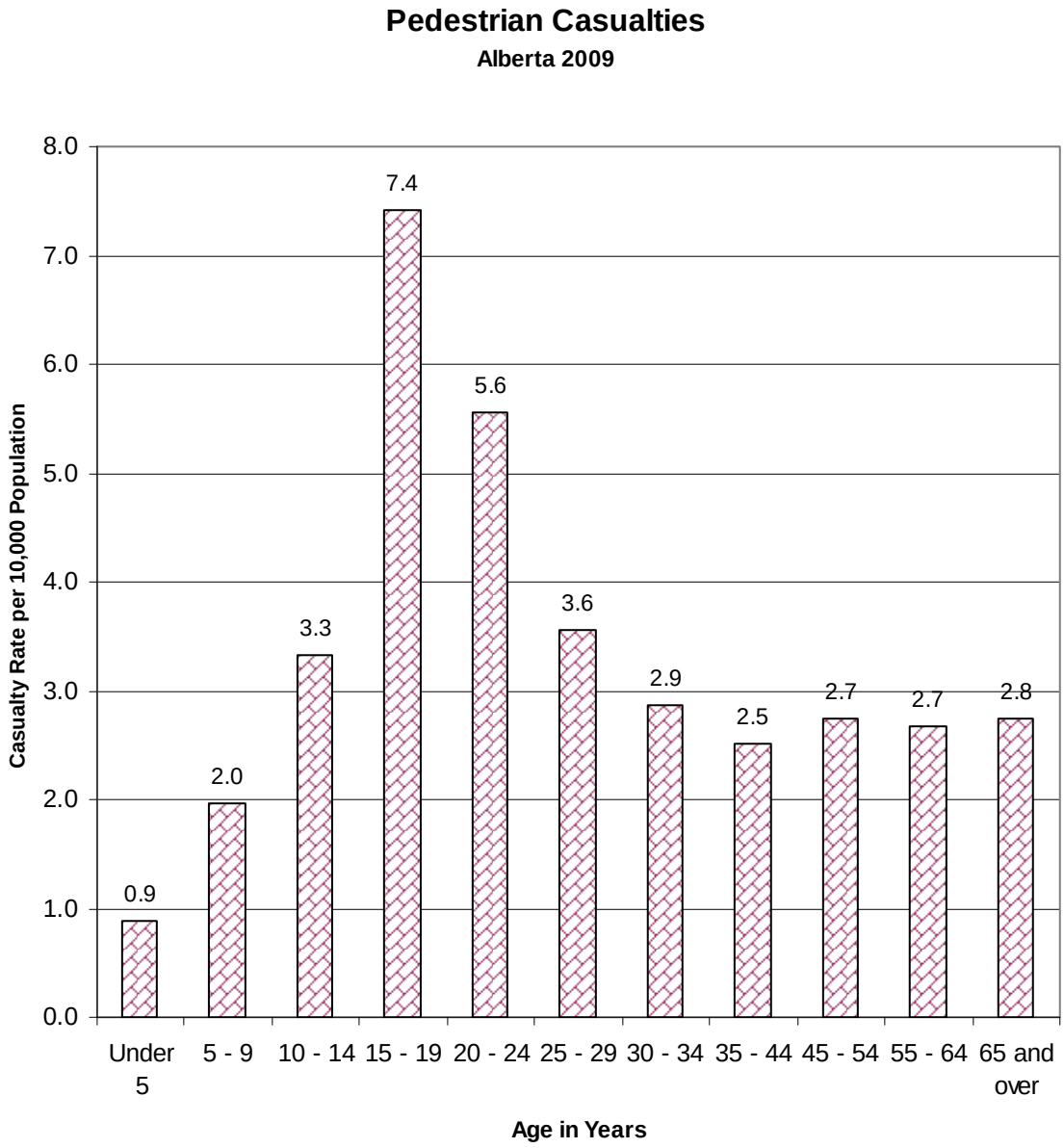
| Age in Years | Pedestrians Killed N | Pedestrians Injured N | Total Pedestrian Casualties N | Total Pedestrian Casualties % | Pedestrian Casualty Rate Per 10,000 Population* |
|---|---|---|---|---|---|
| Under 5 | 1 | 20 | 21 | 1.7 | 0.9 |
| 5 - 9 | 2 | 40 | 42 | 3.5 | 2.0 |
| 10 - 14 | -- | 74 | 74 | 6.1 | 3.3 |
| 15 - 19 | 5 | 179 | 184 | 15.2 | 7.4 |
| 20 - 24 | 6 | 156 | 162 | 13.4 | 5.6 |
| 25 - 29 | 2 | 109 | 111 | 9.2 | 3.6 |
| 30 - 34 | 6 | 76 | 82 | 6.8 | 2.9 |
| 35 - 44 | 3 | 134 | 137 | 11.3 | 2.5 |
| 45 - 54 | 1 | 154 | 155 | 12.8 | 2.7 |
| 55 - 64 | 4 | 98 | 102 | 8.4 | 2.7 |
| 65 and over | 5 | 101 | 106 | 8.8 | 2.8 |
| Unspecified | -- | 32 | 32 | 2.6 | |
| **Total Number of Pedestrian Casualties** | **35** | **1173** | **1208** | **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 children under 5 years of age.

*Source: Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada

***Figure 7***


Pedestrian Casualties
Alberta 2009
Casualty Rate per 10,000 Population
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.9
2.0
3.3
7.4
5.6
3.6
2.9
2.5
2.7
2.7
2.8
Under 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years

## *Table 8.7*

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

**2009**

| Condition of Pedestrian | Pedestrians in Fatal Collisions N | % | Pedestrians in Non-Fatal Injury Collisions N | % | Total Pedestrians in Casualty Collisions N | % |
|---|---|---|---|---|---|---|
| Normal | 20 | 62.5 | 817 | 85.4 | 837 | 84.6 |
| Had Been Drinking | 4 | 12.5 | 66 | 6.9 | 70 | 7.1 |
| Alcohol Impaired | 8 | 25.0 | 58 | 6.1 | 66 | 6.7 |
| **Total Alcohol Involvement** | **12** | **37.5** | **124** | **13.0** | **136** | **13.8** |
| Impaired by Drugs | -- | -- | 2 | 0.2 | 2 | 0.2 |
| Other | -- | -- | 14 | 1.5 | 14 | 1.4 |
| **Total Number of Pedestrians** | **32** | **100.0** | **957** | **100.0** | **989** | **100.0** |

**Observations**

Of pedestrians involved in injury collisions, 13.0% had consumed alcohol before the collision, compared to 37.5% involved in fatal collisions. As the severity of the collision increased, the involvement of alcohol increased.

*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***

**2009**

| Age in Years | N | % | Rate per 10,000 Population** |
|---|---|---|---|
| Under 10 | -- | -- | -- |
| 10 - 14 | -- | -- | -- |
| 15 - 19 | 20 | 14.7 | 0.8 |
| 20 - 24 | 27 | 19.9 | 0.9 |
| 25 - 29 | 17 | 12.5 | 0.5 |
| 30 - 34 | 14 | 10.3 | 0.5 |
| 35 - 44 | 17 | 12.5 | 0.3 |
| 45 - 54 | 25 | 18.4 | 0.4 |
| 55 - 64 | 9 | 6.6 | 0.2 |
| 65 and over | 2 | 1.5 | 0.1 |
| Unspecified | 5 | 3.7 | |
| **Total Number of Pedestrian Casualties** | **136** | **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 pedestrians 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, 2009, Statistics Canada.

## *Bicyclists*

- Casualty collisions involving bicycles were more likely to occur in the month of September.
- Weekdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (35.2%) occurred during the evening rush-hour period.
- Young bicyclists, 10-14 years of age had the highest casualty rate per 10,000 population.
- Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to disobey a traffic signal or fail to yield right-of-way at an uncontrolled intersection.
- 5.7% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

## *Table 9.1*

**Casualty Collisions Involving Bicycles:**

**Month of Occurrence**

**2009**

| Month of Collision | N | % |
|---|---|---|
| January | 4 | 0.7 |
| February | 4 | 0.7 |
| March | 8 | 1.5 |
| April | 26 | 4.9 |
| May | 73 | 13.7 |
| June | 86 | 16.1 |
| July | 71 | 13.3 |
| August | 95 | 17.8 |
| September | 102 | 19.1 |
| October | 33 | 6.2 |
| November | 30 | 5.6 |
| December | 2 | 0.4 |
| **Total Number of Collisions** | **534** | **100.0** |

**Observations**

The highest number of casualty crashes involving bicycles occurred during the month of September.

## *Table 9.2*

**Casualty Collisions Involving Bicycles:**

**Day of Week**

**2009**

| Day of Week | N | % |
|---|---|---|
| Monday | 80 | 15.0 |
| Tuesday | 75 | 14.0 |
| Wednesday | 93 | 17.4 |
| Thursday | 92 | 17.2 |
| Friday | 90 | 16.9 |
| Saturday | 58 | 10.9 |
| Sunday | 46 | 8.6 |
| **Total Number of Collisions** | **534** | **100.0** |

**Observations**

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

## *Table 9.3*

**Casualty Collisions Involving Bicycles:**

**Time Period**

**2009**

| Time Period | N | % |
|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 20 | 3.7 |
| 3:00 a.m. - 6:59 a.m. | 12 | 2.2 |
| 7:00 a.m. - 10:59 a.m. | 107 | 20.0 |
| 11:00 a.m. - 2:59 p.m. | 121 | 22.7 |
| 3:00 p.m. - 6:59 p.m. | 188 | 35.2 |
| 7:00 p.m. - 10:59 p.m. | 84 | 15.7 |
| Unspecified | 2 | 0.4 |
| **Total Number of Collisions** | **534** | **100.0** |

### Observations

The largest proportion of casualty crashes (35.2%) involving bicycles occurred during the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

## *Table 9.4*

**Age of Bicycle Casualties**

**2009**

| Age in Years | Persons Killed N | Persons Killed % | Persons Injured N | Persons Injured % | Total Bicyclist Casualties N | Total Bicyclist Casualties % | Casualty Rate Per 10,000 Population* |
|---|---|---|---|---|---|---|---|
| Under 5 | -- | -- | 4 | 0.7 | 4 | 0.7 | 0.2 |
| 5-9 | -- | -- | 33 | 6.2 | 33 | 6.1 | 1.5 |
| 10-14 | -- | -- | 81 | 15.1 | 81 | 15.1 | 3.6 |
| 15-19 | -- | -- | 81 | 15.1 | 81 | 15.1 | 3.3 |
| 20-24 | -- | -- | 66 | 12.3 | 66 | 12.3 | 2.3 |
| 25-29 | -- | -- | 56 | 10.5 | 56 | 10.4 | 1.8 |
| 30-34 | -- | -- | 39 | 7.3 | 39 | 7.3 | 1.4 |
| 35-44 | 1 | 50.0 | 62 | 11.6 | 63 | 11.7 | 1.2 |
| 45-54 | -- | -- | 67 | 12.5 | 67 | 12.5 | 1.2 |
| 55-64 | 1 | 50.0 | 20 | 3.7 | 21 | 3.9 | 0.5 |
| 65 and over | -- | -- | 14 | 2.6 | 14 | 2.6 | 0.4 |
| Unspecified | -- | -- | 12 | 2.2 | 12 | 2.2 | |
| **Total Casualties** | **2** | **100.0** | **535** | **100.0** | **537** | **100.0** | |

**Observations**

Casualty rates per 10,000 population were highest for persons between the ages of 10 and 14. The lowest casualty rates were recorded for children under 5 years of age and adults aged 55 and older.

*Based on estimates of the Alberta population by age groups and sex, July 1, 2009, Statistics Canada

## *Table 9.5*

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

**2009**

| Improper Actions of Bicyclists | N | % | Driver Actions in Total Casualty Collisions (All Vehicle Types) % |
|---|---|---|---|
| Disobey Traffic Signal | 37 | 15.9 | 7.2 |
| Failed to Yield Right of Way - Uncontrolled Intersection | 28 | 12.1 | 1.8 |
| Stop Sign Violation | 12 | 5.2 | 7.4 |
| Left of Centre | 11 | 4.7 | 3.5 |
| Left Turn Across Path | 11 | 4.7 | 12.1 |
| Improper Passing | 8 | 3.4 | 1.3 |
| Improper Lane Change | 5 | 2.2 | 3.0 |
| Improper Turn | 5 | 2.2 | 3.4 |
| Yield Sign Violation | 4 | 1.7 | 2.0 |
| Ran Off Road | 4 | 1.7 | 15.4 |
| Followed Too Closely | 4 | 1.7 | 31.4 |
| Failed to Yield Right of Way to Pedestrian | 1 | 0.4 | 4.1 |
| Other | 102 | 44.0 | 4.8 |
| **Total Number of Bicyclists** | **232** | **100.0** | |

### Observations

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

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

**Note:** There was a total of 385 bicyclists involved in casualty collisions for which a driver action was specified on the collision report form. 153 were indicated as driving properly at the time of the collision.

## *Table 9.6*

**Condition of Bicyclists Involved in Casualty Collisions***

**2009**

| Condition of Bicyclist | N | % |
|---|---|---|
| Normal | 412 | 94.1 |
| Had Been Drinking | 14 | 3.2 |
| Alcohol Impaired | 11 | 2.5 |
| **Total Alcohol Involvement** | **25** | **5.7** |
| Other | 1 | 0.2 |
| **Total Number of Bicyclists** | **438** | **100.0** |

**Observations**

5.7% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

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

## *Traffic Safety Issues*

### Alcohol Involvement

- A total of 5.0% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 21.1% 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 24 years of age were most likely to have been drinking before the crash. There were more than four times as many male drivers as female drivers who had consumed alcohol prior to the collision.

- In 2009, alcohol related casualty crashes were most likely to have occurred in August, 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, 2005 - 2009.

## *Table 10.1*

**Condition of Drivers in Casualty Collisions***

**2009**

| 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 | 345 | 75.8 | 18524 | 93.3 | 18869 | 92.9 |
| Had Been Drinking | 27 | 5.9 | 445 | 2.2 | 472 | 2.3 |
| Alcohol Impaired | 69 | 15.2 | 544 | 2.7 | 613 | 3.0 |
| **Total Alcohol Involvement** | **96** | **21.1** | **989** | **5.0** | **1085** | **5.3** |
| Impaired by Drugs | 6 | 1.3 | 29 | 0.1 | 35 | 0.2 |
| Fatigued/Asleep | 5 | 1.1 | 159 | 0.8 | 164 | 0.8 |
| Other | 3 | 0.7 | 160 | 0.8 | 163 | 0.8 |
| **Total Number of Drivers** | **455** | **100.0** | **19861** | **100.0** | **20316** | **100.0** |

**Observations**

Of drivers involved in injury collisions, 5.0% had consumed alcohol before the crash, compared to 21.1% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall, 5.3% 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).

***Figure 8***

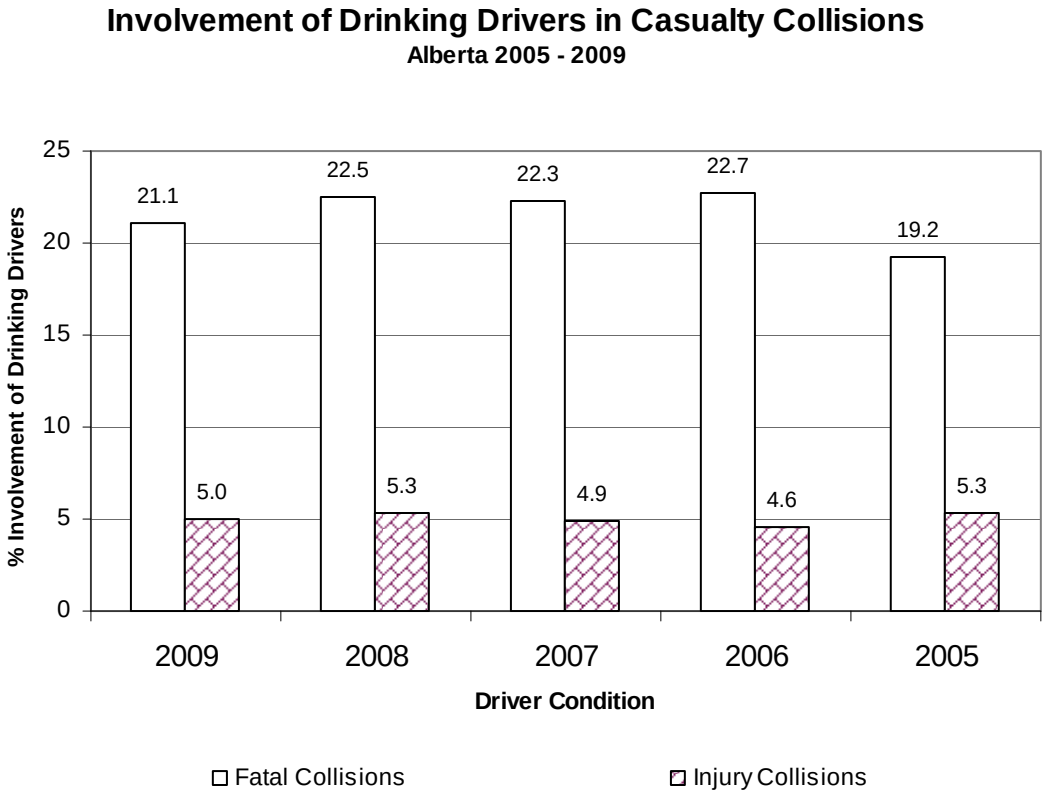
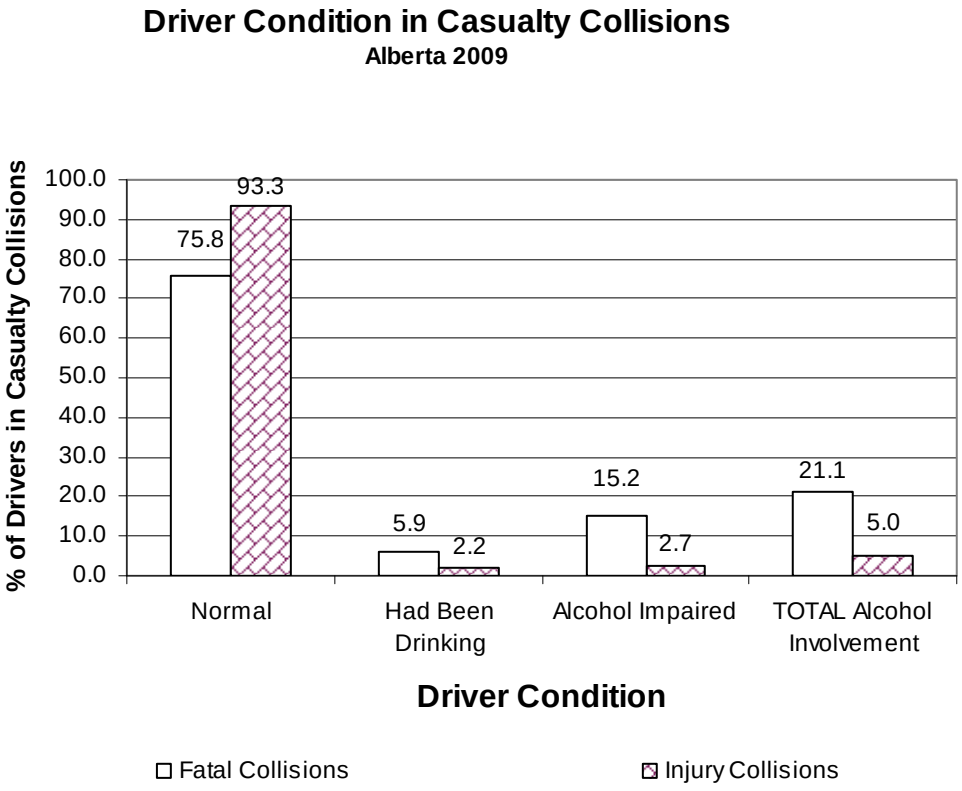

Involvement of Drinking Drivers in Casualty Collisions
Alberta 2005 - 2009
% Involvement of Drinking Drivers
25
20
15
10
5
0
21.1
5.0
22.5
5.3
22.3
4.9
22.7
4.6
19.2
5.3
2009
2008
2007
2006
2005
Driver Condition
Fatal Collisions
Injury Collisions

***Figure 9***


Driver Condition in Casualty Collisions
Alberta 2009
% of Drivers in Casualty Collisions
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
75.8
93.3
5.9
2.2
15.2
2.7
21.1
5.0
Normal
Had Been Drinking
Alcohol Impaired
TOTAL Alcohol Involvement
Driver Condition
Fatal Collisions
Injury Collisions

## *Table 10.2*

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

**2009**

| | Male | | Rate Per 1,000** Licensed Drivers | Female | | Rate Per 1,000** Licensed Drivers | Total* | | Rate Per 1,000** Licensed Drivers |
|---|---|---|---|---|---|---|---|---|---|
| **Age in Years** | **N** | **%** | | **N** | **%** | | **N** | **%** | |
| Under 16 | 1 | 0.1 | 0.1 | 2 | 0.2 | 0.2 | 3 | 0.3 | 0.1 |
| 16 - 17 | 24 | 2.2 | 0.8 | 15 | 1.4 | 0.5 | 39 | 3.6 | 0.7 |
| 18 - 19 | 66 | 6.1 | 1.6 | 16 | 1.5 | 0.4 | 82 | 7.6 | 1.1 |
| 20 - 21 | 76 | 7.0 | 1.6 | 20 | 1.8 | 0.5 | 96 | 8.8 | 1.1 |
| 22 - 24 | 104 | 9.6 | 1.2 | 29 | 2.7 | 0.4 | 133 | 12.3 | 0.8 |
| 25 - 29 | 151 | 13.9 | 1.0 | 30 | 2.8 | 0.2 | 182 | 16.8 | 0.6 |
| 30 - 34 | 100 | 9.2 | 0.7 | 20 | 1.8 | 0.2 | 120 | 11.1 | 0.4 |
| 35 - 44 | 155 | 14.3 | 0.6 | 40 | 3.7 | 0.2 | 195 | 18.0 | 0.4 |
| 45 - 54 | 129 | 11.9 | 0.4 | 20 | 1.8 | 0.1 | 149 | 13.7 | 0.3 |
| 55 - 64 | 38 | 3.5 | 0.2 | 7 | 0.6 | 0.0 | 45 | 4.1 | 0.1 |
| 65 and over | 20 | 1.8 | 0.1 | 2 | 0.2 | 0.0 | 22 | 2.0 | 0.1 |
| Unspecified | 3 | 0.3 | | -- | -- | | 19 | 1.8 | |
| **Total Drivers** | **867** | **79.9** | | **201** | **18.5** | | **1085** | **100.0** | |

### Observations

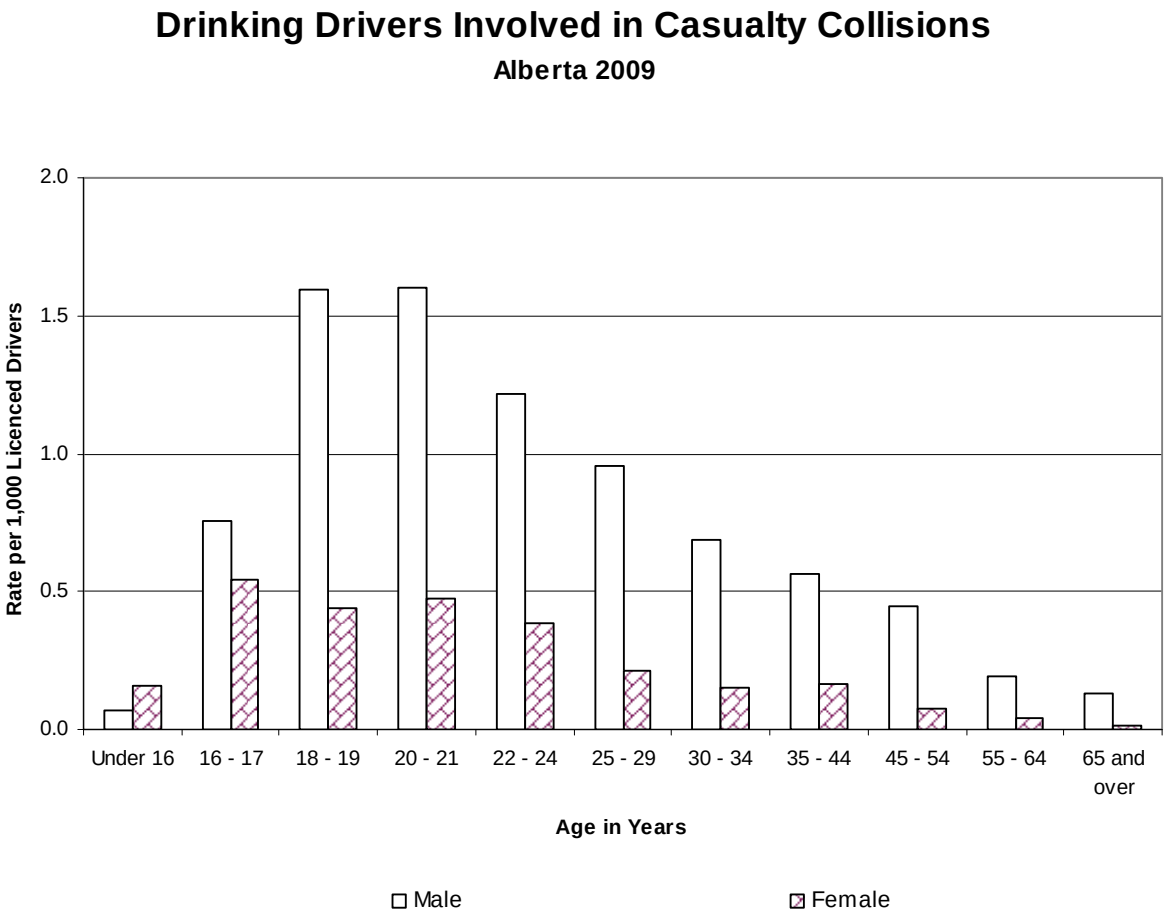
Of those collision-involved drivers who had consumed alcohol, there were over four times as many male drivers as female drivers. In terms of involvement per 1,000 licensed drivers, males 18-24 years of age were more likely to have consumed alcohol prior to a casualty collision than any other age group.

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: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2009.

***Figure 10***


Drinking Drivers Involved in Casualty Collisions
Alberta 2009
Rate per 1,000 Licenced Drivers
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 and over
Age in Years
Male
Female

## *Table 10.3*

**Alcohol-Involved Casualty Collisions:**

**Month of Occurrence**

**2009**

| Month | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Total Casualty Collisions N | Total Casualty Collisions % |
|---|---|---|---|---|---|---|
| January | 1 | 1.1 | 69 | 7.0 | 70 | 6.5 |
| February | 6 | 6.5 | 79 | 8.0 | 85 | 7.9 |
| March | 8 | 8.6 | 69 | 7.0 | 77 | 7.2 |
| April | 5 | 5.4 | 71 | 7.2 | 76 | 7.1 |
| May | 9 | 9.7 | 103 | 10.5 | 112 | 10.4 |
| June | 12 | 12.9 | 90 | 9.2 | 102 | 9.5 |
| July | 18 | 19.4 | 75 | 7.6 | 93 | 8.6 |
| August | 10 | 10.8 | 115 | 11.7 | 125 | 11.6 |
| September | 12 | 12.9 | 93 | 9.5 | 105 | 9.8 |
| October | 6 | 6.5 | 91 | 9.3 | 97 | 9.0 |
| November | 4 | 4.3 | 76 | 7.7 | 80 | 7.4 |
| December | 2 | 2.2 | 52 | 5.3 | 54 | 5.0 |
| **Total Number of Collisions** | **93** | **100.0** | **983** | **100.0** | **1076** | **100.0** |

**Observations**

The month of August accounted for the largest proportion of alcohol-involved casualty collisions. The month of December accounted for the smallest proportion of alcohol-involved casualty collisions.

## *Table 10.4*

**Alcohol-Involved Casualty Collisions:**

**Day of Week**

**2009**

| Day of Week | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Total Casualty Collisions N | Total Casualty Collisions % |
|---|---|---|---|---|---|---|
| Monday | 12 | 12.9 | 99 | 10.1 | 111 | 10.3 |
| Tuesday | 5 | 5.4 | 83 | 8.4 | 88 | 8.2 |
| Wednesday | 10 | 10.8 | 108 | 11.0 | 118 | 11.0 |
| Thursday | 9 | 9.7 | 99 | 10.1 | 108 | 10.0 |
| Friday | 17 | 18.3 | 160 | 16.3 | 177 | 16.4 |
| Saturday | 27 | 29.0 | 243 | 24.7 | 270 | 25.1 |
| Sunday | 13 | 14.0 | 191 | 19.4 | 204 | 19.0 |
| **Total Number of Collisions** | **93** | **100.0** | **983** | **100.0** | **1076** | **100.0** |

**Observations**

The highest number of alcohol-involved fatal collisions and non-fatal injury collisions occurred on Saturday (29.0% and 24.7% respectively). The smallest number of alcohol-involved casualty collisions occurred on Tuesday (8.2%).

## *Table 10.5*

**Alcohol-Involved Casualty Collisions:**

**Time Period**

**2009**

| Time Period | Fatal Collisions N | Fatal Collisions % | Non-Fatal Injury Collisions N | Non-Fatal Injury Collisions % | Total Casualty Collisions N | Total Casualty Collisions % |
|---|---|---|---|---|---|---|
| 11:00 p.m. - 2:59 a.m. | 30 | 32.3 | 348 | 35.4 | 378 | 35.1 |
| 3:00 a.m. - 6:59 a.m. | 6 | 6.5 | 124 | 12.6 | 130 | 12.1 |
| 7:00 a.m. - 10:59 a.m. | 7 | 7.5 | 44 | 4.5 | 51 | 4.7 |
| 11:00 a.m. - 2:59 p.m. | 10 | 10.8 | 52 | 5.3 | 62 | 5.8 |
| 3:00 p.m. - 6:59 p.m. | 13 | 14.0 | 152 | 15.5 | 165 | 15.3 |
| 7:00 p.m. - 10:59 p.m. | 25 | 26.9 | 248 | 25.2 | 273 | 25.4 |
| Unspecified | 2 | 2.2 | 15 | 1.5 | 17 | 1.6 |
| **Total Number of Collisions** | **93** | **100.0** | **983** | **100.0** | **1076** | **100.0** |

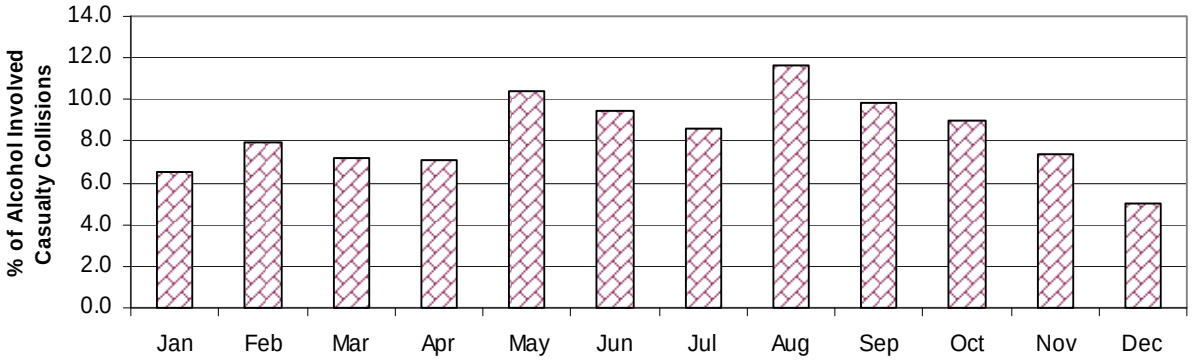
**Observations**

The late night/early morning time period (11:00 p.m. – 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (35.1%). The morning hours (7:00 a.m. – 10:59 a.m.) were least likely to record alcohol-involved casualty crashes (4.7%).

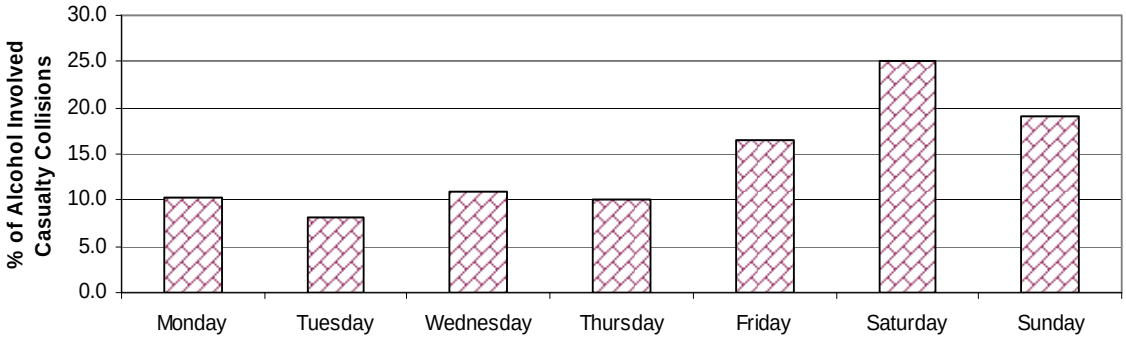
***Figure 11***

## Alcohol-Involved Casualty Collisions
### Alberta 2009

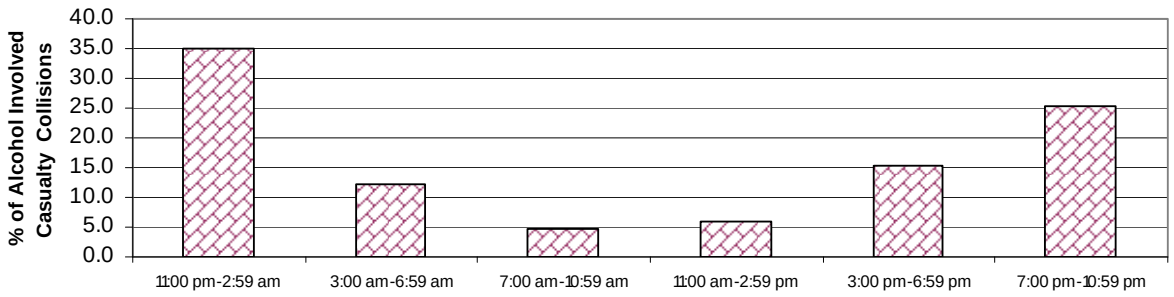
**By Month of Occurrence**




**By Day of Week**




**By Time Period**



## *Traffic Safety Issues*

### Restraint Use

- Collision-involved restraint users had a much lower injury rate (7.0%) than those not using restraints (31.7%).
- Occupants using a restraint reduce the likelihood of sustaining an injury and the severity of injury decreases.

## *Table 10.6*

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

**2009**

| Injury Severity of Occupants | Percentage of Occupants Using Restraints % | Percentage of Occupants Not Using Restraints % |
|---|---|---|
| Fatal Injury | 0.1 | 3.6 |
| Major Injury | 0.8 | 9.7 |
| Minor Injury | 6.1 | 18.4 |
| **Total Occupants Sustaining Injuries** | **7.0** | **31.7** |
| No Apparent Injury | 93.0 | 68.3 |
| **Total Occupants** | **100.0** | **100.0** |

### Observations

Collision involved restraint users had a much lower injury rate (7.0%) than those not using restraints (31.7%). This table illustrates the moderating effect of seat belt use on injury severity. Occupants using a restraint reduce the likelihood of sustaining an injury and the severity of injury decreases.

### 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 indicated they intend to seek medical attention.)

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