Alberta

Traffic Collision Statistics

2010

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2010 Overview

- The number of **traffic fatalities decreased 2.0%** over the past year from 351 fatalities in 2009 to 344 in 2010.
- The number of **traffic injuries decreased 4.8%** over the past year from 19167 injuries in 2009 to 18253 in 2010.
- The number of **traffic collisions decreased 3.8%** over the past year from 157226 collisions in 2009 to 151289 in 2010.
- **The highest number of fatal collisions** occurred in **July. The highest number of injury collisions** occurred in **October**.
- **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**.
- **55.9% of pedestrians** involved in **fatal collisions had consumed alcohol** prior to the collision compared to **12.5% of pedestrians in injury collisions**.
- **21.8% of drivers** involved in **fatal collisions had consumed alcohol** prior to the crash compared to **4.7% of drivers in injury collisions**.
- **Collision involved restraint users had a much lower injury rate** (6.8%) than those not using restraints (30.4%)

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 2010. 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.

2010 Traffic Collision Summary

Introduction

During 2010, 151289 collisions were recorded on Alberta roadways. Property damage collisions (over $1000) represented 90.8% (137430) of this total while 9.0% (13552) were non-fatal injury collisions. Fatal collisions accounted for 0.2% (307) of the total reported collisions.

Five Year Trends

In terms of population, licensed drivers and registered vehicles the fatal collision rate are unchanged from 2009. The fatality rates have decreased in terms of population, licensed drivers and registered vehicles.

The non-fatal injury collision and injury rates have decreased in 2010 in terms of population, licensed drivers, and registered vehicles.

Property damage collision rates also decreased in 2010 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 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.

Based on this comparison of rates per billion vehicle kilometres travelled, nine provinces and territories had a higher fatality rate than Alberta in 2009. With regard to injury rates, in 2009, 11 jurisdictions had a higher injury rate than Alberta.

Table 1.1

Alberta Traffic Collisions

2006 – 2010

Severity of Collisions	**2010**	**2009**	**2008**	**2007**	**2006**
Fatal Collisions	307	302	375	402	404
Non-Fatal Injury Collisions	13552	14246	16153	17857	18831
Property Damage Collisions	137430	142678	141527	135642	123357
Total Reportable Collisions	**151289**	**157226**	**158055**	**153901**	**142592**
Number Killed	344	351	410	458	453
Number Injured	18253	19167	22015	24530	25964
Total Number of Casualties	**18597**	**19518**	**22425**	**24988**	**26417**

Observations

In 2010, the overall number of collisions decreased 3.8% when compared to 2009. In 2010, injury collisions decreased by 4.9% and fatal crashes increased by 1.7%. The number of fatalities decreased by 2.0% from 2009 to 2010 and the number of injuries decreased by 4.8%. In terms of the past five years, overall collisions were lowest in 2006 and highest in 2008.

Table 1.2

Traffic Collision Rates

2006 – 2010

Severity of Collision	Rate Per 10,000 Population*					Rate Per 10,000 Licensed Drivers					Rate Per 10,000 Registered Vehicles				
	2010	**2009**	**2008**	**2007**	**2006**	**2010**	**2009**	**2008**	**2007**	**2006**	**2010**	**2009**	**2008**	**2007**	**2006**
Fatal Collisions	0.8	0.8	1.0	1.1	1.2	1.1	1.1	1.4	1.5	1.6	1.0	1.0	1.2	1.4	1.5
Number Killed	0.9	1.0	1.1	1.3	1.3	1.2	1.3	1.5	1.8	1.8	1.1	1.1	1.4	1.6	1.6
Non-Fatal Injury Collisions	36.4	38.6	44.9	50.8	55.0	48.7	52.2	60.5	68.6	74.5	43.3	46.5	53.3	61.1	68.0
Number Injured	49.1	52.0	61.2	69.8	75.9	65.6	70.2	82.4	94.3	102.8	58.3	62.6	72.7	83.9	93.8
Property Damage Collisions	369.3	386.9	393.6	386.1	360.6	493.8	522.3	529.8	521.4	488.3	438.9	466.1	467.1	464.2	445.4
Total Reportable Collisions	**406.6**	**426.4**	**439.5**	**438.1**	**416.8**	**543.6**	**575.6**	**591.7**	**591.5**	**564.4**	**483.2**	**513.6**	**521.6**	**526.7**	**514.9**

Observations

In terms of population, licensed drivers and registered vehicles, the fatal collision rates are unchanged from 2009 to 2010. The fatality rates have decreased in terms of population, licensed drivers and registered vehicles.

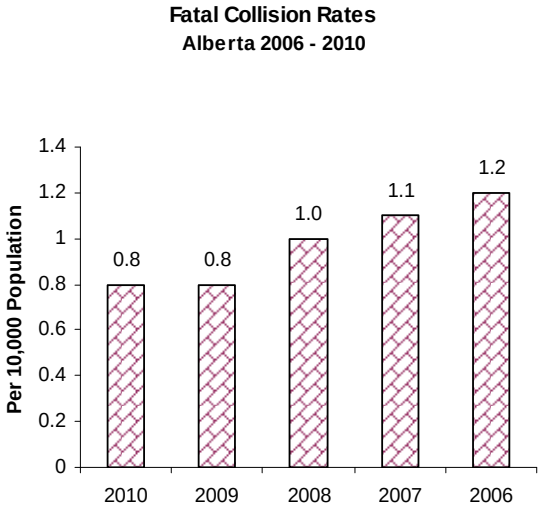
The non-fatal injury collision and injury rates has decreased from 2009 to 2010 in terms of population, licensed drivers and registered vehicles

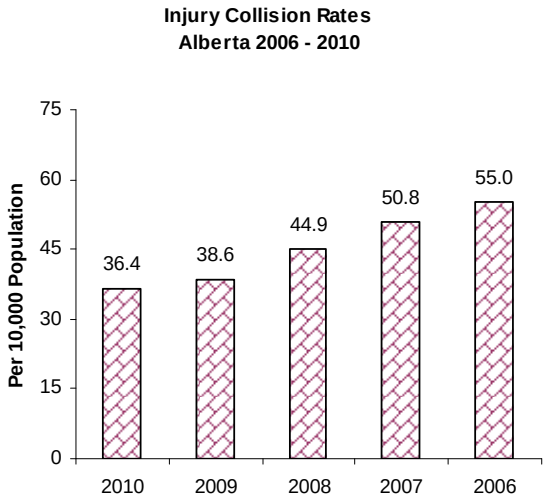
Property damage collision rates also decreased from 2009 to 2010 in terms of population, licensed drivers and registered vehicles

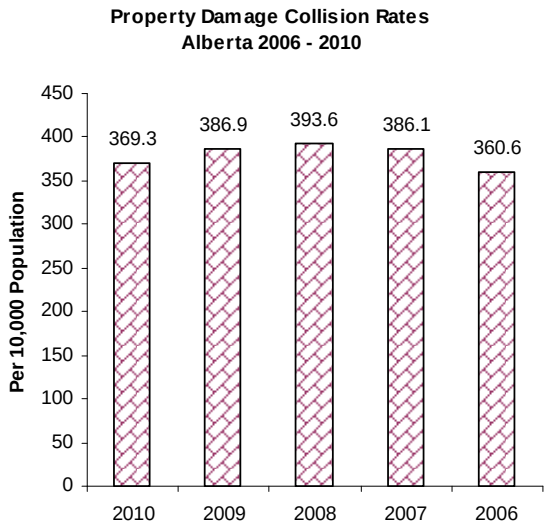
*In 2008, Statistics Canada updated the Alberta population estimates for 2004 - 2007 to align with the 2006 Standard Geographical Classification (SGC). As a result, collision rates for 2006 and 2007 in this report are based on the updated population estimates and may differ from previous publications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

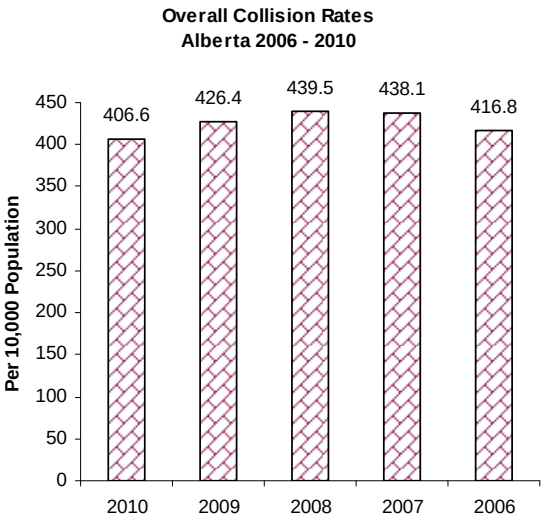
Sources:
Population – Statistics Canada as of July 1, 2010
Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2010
Registered Vehicles – Service Alberta – Registries Services, as of December 31, 2010

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 2006 and 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

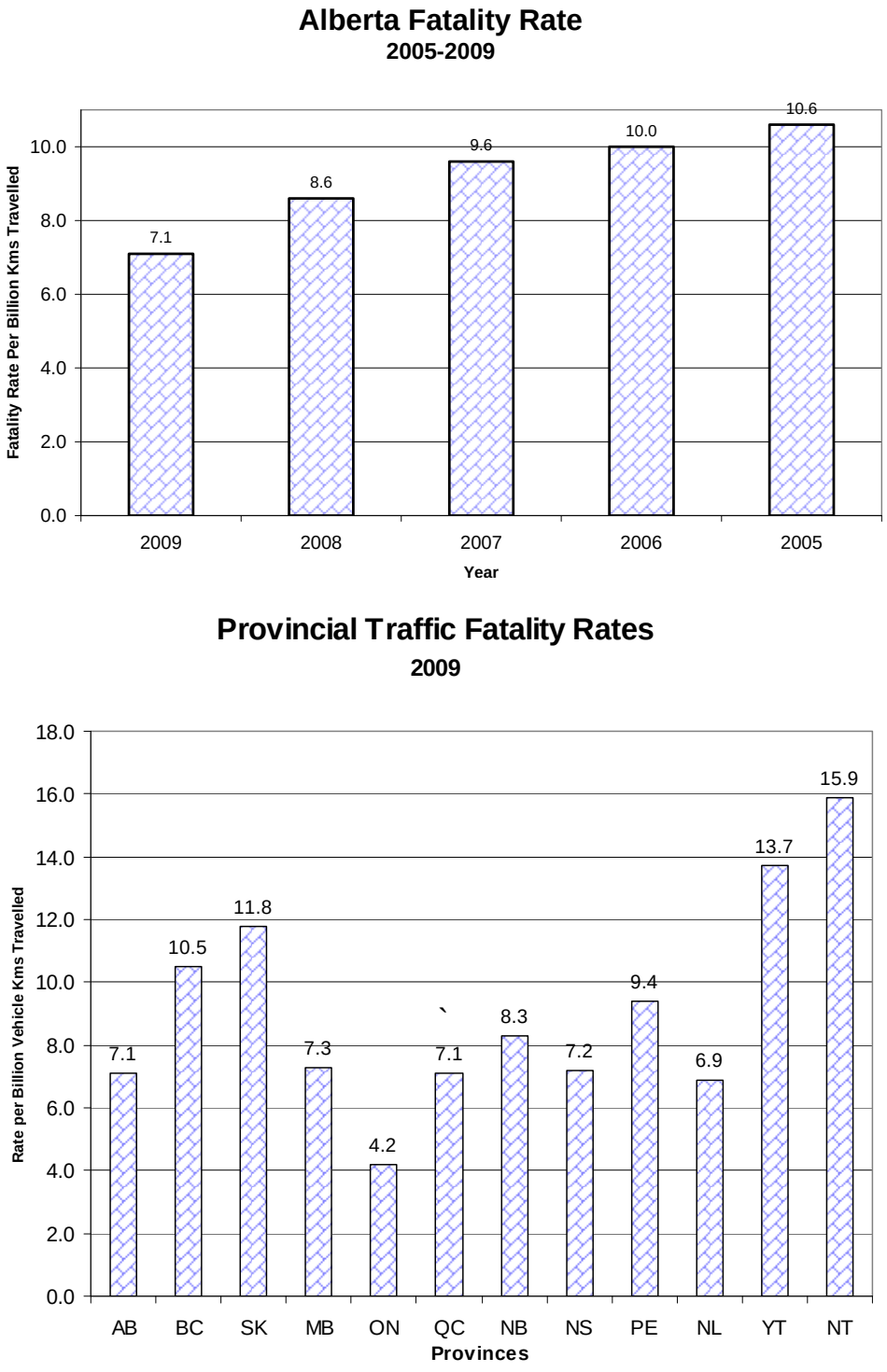
	Fatalities					Injuries				
	2009	**2008**	**2007**	**2006**	**2005**	**2009**	**2008**	**2007**	**2006**	**2005**
Canada	6.6	7.4	8.3	8.9	9.3	518.7	549.2	584.4	604.0	668.0
Alberta	7.1	8.6	9.6	10.0	10.6	385.6	464.2	513.2	570.7	555.1
British Columbia	10.5	9.9	11.6	12.9	13.9	562.6	613.1	725.5	789.5	873.3
Saskatchewan	11.8	12.2	10.6	12.2	13.2	526.0	541.0	509.0	604.4	612.8
Manitoba	7.3	8.1	7.9	9.9	10.3	615.9	689.1	617.1	729.1	788.4
Ontario	4.2	5.0	6.2	6.0	6.3	490.7	479.9	534.8	525.2	571.5
Quebec	7.1	8.1	8.8	10.3	10.6	592.2	632.1	678.6	711.1	871.2
New Brunswick	8.3	9.6	11.0	12.3	13.6	480.7	482.2	459.5	452.3	508.5
Nova Scotia	7.2	8.6	9.3	8.4	7.1	751.5	743.6	577.9	470.8	487.7
Prince Edward Island	9.4	14.9	5.6	25.0	11.3	596.2	496.5	565.6	803.6	565.7
Newfoundland	6.9	8.0	9.4	8.5	9.8	508.9	385.9	519.0	501.3	537.1
Yukon	13.7	15.4	10.3	24.2	12.3	341.1	461.4	427.0	434.5	396.4
Northwest Territories	15.9	11.8	13.9	5.3	5.4	419.8	408.8	435.0	294.3	505.7
Nunavut	65.1	132.5	0.0	N/A	N/A	1368.1	1357.6	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 five years, since 2005, rates have declined by 3.5 fatalities and 169.5 injuries per billion vehicle kilometers travelled.

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



Note: To maintain the scale of the graph and to facilitate the comparison across jurisdictions the fatality rate for Nunavut is not included in this graph. The rate for Nunavut is reported in Table 1.3.

When the Collisions Occurred

Month

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

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

Table 2.1

Collision Occurrence by Month

2010

Month	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
January	21	6.8	1128	8.3	13620	9.9	14769	9.8
February	16	5.2	896	6.6	10177	7.4	11089	7.3
March	19	6.2	912	6.7	9761	7.1	10692	7.1
April	14	4.6	996	7.3	9022	6.6	10032	6.6
May	27	8.8	1068	7.9	9810	7.1	10905	7.2
June	27	8.8	1188	8.8	10774	7.8	11989	7.9
July	37	12.1	1141	8.4	10211	7.4	11389	7.5
August	36	11.7	1114	8.2	9743	7.1	10893	7.2
September	28	9.1	1210	8.9	10588	7.7	11826	7.8
October	30	9.8	1321	9.7	11507	8.4	12858	8.5
November	32	10.4	1269	9.4	16214	11.8	17515	11.6
December	20	6.5	1300	9.6	15656	11.4	16976	11.2
Unspecified	--	--	9	0.1	347	0.3	356	0.2
Total Number of Collisions	**307**	**100.0**	**13552**	**100.0**	**137430**	**100.0**	**151289**	**100.0**

Observations

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

Table 2.2

Collision Occurrence by Day of Week

2010

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	38	12.4	1785	13.2	19020	13.8	20843	13.8
Tuesday	37	12.1	1956	14.4	20029	14.6	22022	14.6
Wednesday	36	11.7	2057	15.2	21183	15.4	23276	15.4
Thursday	41	13.4	2015	14.9	21210	15.4	23266	15.4
Friday	51	16.6	2355	17.4	23752	17.3	26158	17.3
Saturday	55	17.9	1824	13.5	17746	12.9	19625	13.0
Sunday	49	16.0	1544	11.4	14039	10.2	15632	10.3
Unspecified	--	--	16	0.1	451	0.3	467	0.3
Total Number of Collisions	**307**	**100.0**	**13552**	**100.0**	**137430**	**100.0**	**151289**	**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

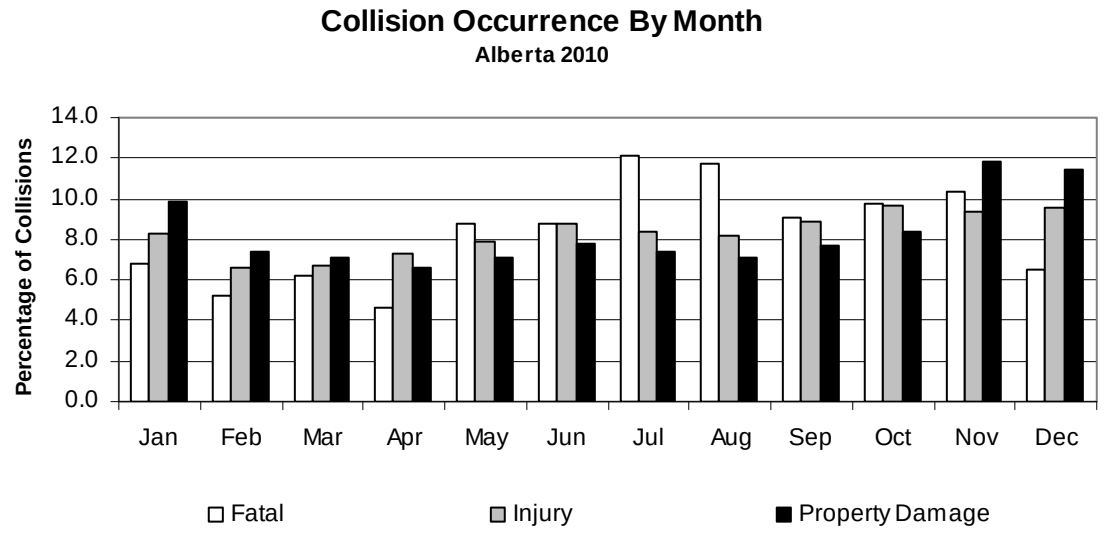
2010

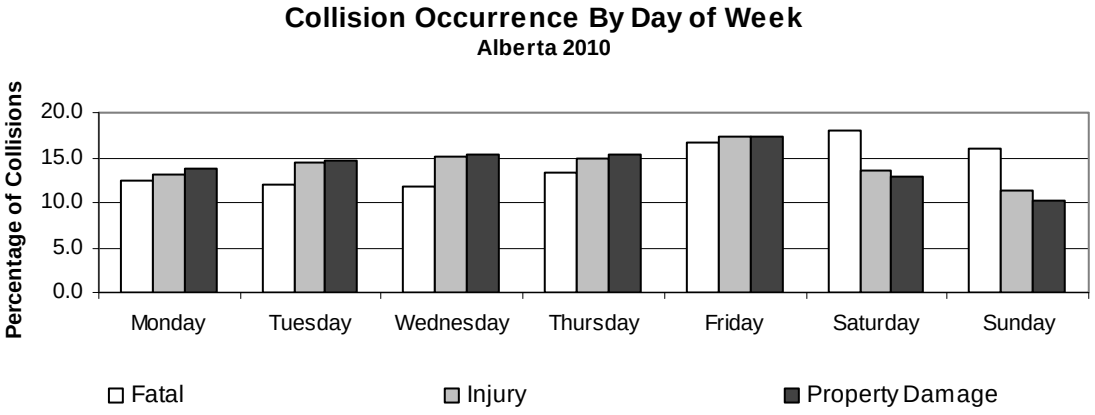
Time Period	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Property Damage Collisions N	Property Damage Collisions %	Total Collisions N	Total Collisions %
11:00 p.m. - 2:59 a.m.	40	13.0	955	7.0	8187	6.0	9182	6.1
3:00 a.m. - 6:59 a.m.	41	13.4	773	5.7	7007	5.1	7821	5.2
7:00 a.m. - 10:59 a.m.	50	16.3	2419	17.8	25336	18.4	27805	18.4
11:00 a.m. - 2:59 p.m.	44	14.3	3144	23.2	34099	24.8	37287	24.6
3:00 p.m. - 6:59 p.m.	61	19.9	4188	30.9	40033	29.1	44282	29.3
7:00 p.m. - 10:59 p.m.	67	21.8	1959	14.5	20009	14.6	22035	14.6
Unspecified	4	1.3	114	0.8	2759	2.0	2877	1.9
Total Number of Collisions	**307**	**100.0**	**13552**	**100.0**	**137430**	**100.0**	**151289**	**100.0**

Observations

The afternoon rush hour period (3:00 p.m. – 6:59 p.m.) accounted for the largest percentage (29.3%) 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 2010
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 2010
Percentage of Collisions
20.0
15.0
10.0
5.0
0.0
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Fatal
Injury
Property Damage

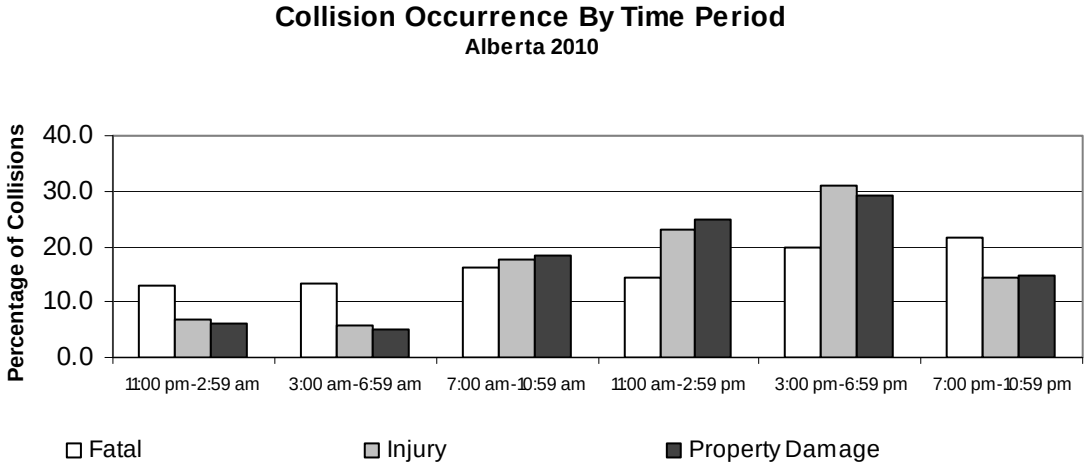

Collision Occurrence By Time Period
Alberta 2010
Percentage of Collisions
40.0
30.0
20.0
10.0
0.0
11:00 pm-2:59 am
3:00 am-6:59 am
7:00 am-10:59 am
11:00 am-2:59 pm
3:00 pm-6:59 pm
7:00 pm-10:59 pm
Fatal
Injury
Property Damage

Table 2.4

Collisions During 2010 Holidays

Holidays	Number Killed N	Number Injured N	Total Collisions* N
New Year's Day (January 1)	1	62	450
Family Day Long Weekend (February 12-15)	3	121	1306
Easter Long Weekend (April 1-5)	4	214	1346
Victoria Day Long Weekend (May 21-24)	5	173	1197
Canada Day (July 1)	2	58	296
August Long Weekend (July 30-August 2)	5	219	1273
Labour Day Long Weekend (September 3-6)	7	259	1339
Thanksgiving Long Weekend (October 8-11)	5	218	1399
Remembrance Day (November 11)	1	40	326
Christmas Season (December 24-28)	3	221	1685
TOTAL	**36**	**1585**	**10617**

Observations

The Labour Day Long Weekend recorded the highest number of fatalities and injuries. The five day Christmas Season recorded the highest 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 6.3 % 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

2010

Road User Class	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %
Drivers	185	53.8	11012	60.3	11197	60.2
Passengers	65	18.9	4528	24.8	4593	24.7
Pedestrians	35	10.2	1129	6.2	1164	6.3
Motorcyclists	31	9.0	683	3.7	714	3.8
Bicyclists	6	1.7	461	2.5	467	2.5
Other	11	3.2	310	1.7	321	1.7
Unspecified	11	3.2	130	0.7	141	0.8
Total Casualties	**344**	**100.0**	**18253**	**100.0**	**18597**	**100.0**

Observations

The majority of traffic victims were drivers (60.2%) and passengers (24.7%) of vehicles. Pedestrians and motorcyclists accounted for 6.3% and 3.8% of the total casualties, respectively.

Table 3.2

Age of Casualties

2010

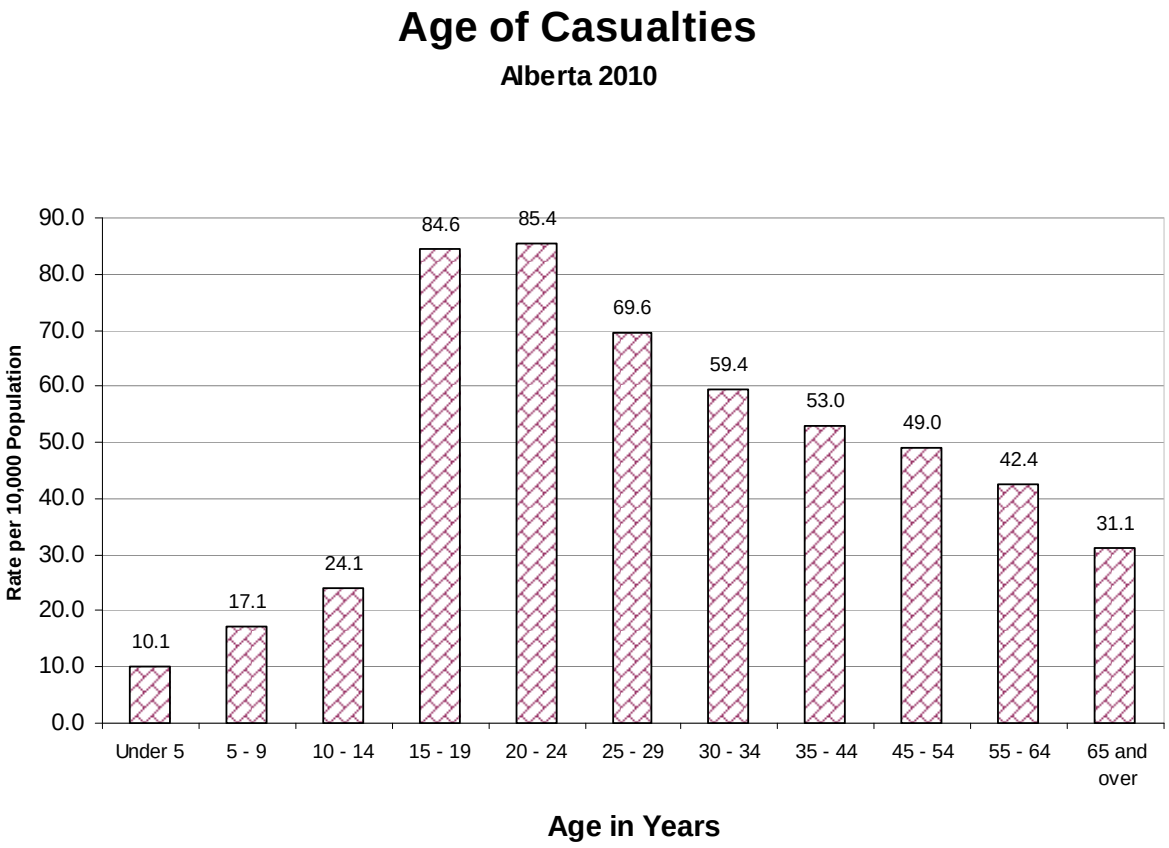
Age in Years	Persons Killed N	Persons Killed %	Persons Injured N	Persons Injured %	Total Casualties N	Total Casualties %	Casualty Rate Per 10,000 Population*
Under 5	2	0.6	247	1.4	249	1.3	10.1
5-9	5	1.5	363	2.0	368	2.0	17.1
10-14	1	0.3	526	2.9	527	2.8	24.1
15-19	28	8.1	2024	11.1	2052	11.0	84.6
20-24	50	14.5	2391	13.1	2441	13.1	85.4
25-29	49	14.2	2148	11.8	2197	11.8	69.6
30-34	25	7.3	1693	9.3	1718	9.2	59.4
35-44	59	17.2	2816	15.4	2875	15.5	53.0
45-54	54	15.7	2726	14.9	2780	14.9	49.0
55-64	28	8.1	1676	9.2	1704	9.2	42.4
65 and over	43	12.5	1188	6.5	1231	6.6	31.1
Unspecified	--	--	455	2.5	455	2.4	
Total Casualties	**344**	**100.0**	**18253**	**100.0**	**18597**	**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, 2010, Statistics Canada

Figure 4


Age of Casualties
Alberta 2010
Rate per 10,000 Population
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
10.1
17.1
24.1
84.6
85.4
69.6
59.4
53.0
49.0
42.4
31.1
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 (31.3%), running off the road (14.6%) and left turn across path (11.7%) 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

2010

	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	101	0.4	6.5	46	0.2	3.4	148	0.6	5.1
16-17	489	2.0	15.3	389	1.6	13.9	878	3.6	14.6
18-19	753	3.1	18.3	540	2.2	14.7	1293	5.3	16.6
20-24	1971	8.1	15.1	1250	5.2	10.7	3221	13.3	13.0
25-34	3388	14.0	10.9	2181	9.0	7.9	5571	23.0	9.5
35-44	2568	10.6	9.3	1740	7.2	7.0	4309	17.8	8.2
45-54	2528	10.4	8.7	1590	6.6	6.0	4118	17.0	7.4
55-64	1671	6.9	8.0	894	3.7	4.8	2565	10.6	6.5
65 and over	1057	4.4	6.5	596	2.5	4.2	1653	6.8	5.4
Unspecified	80	0.3		32	0.1		504	2.1	
Total Number of Drivers	**14606**	**60.2**		**9258**	**38.2**		**24260**	**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, 2010.

Figure 5

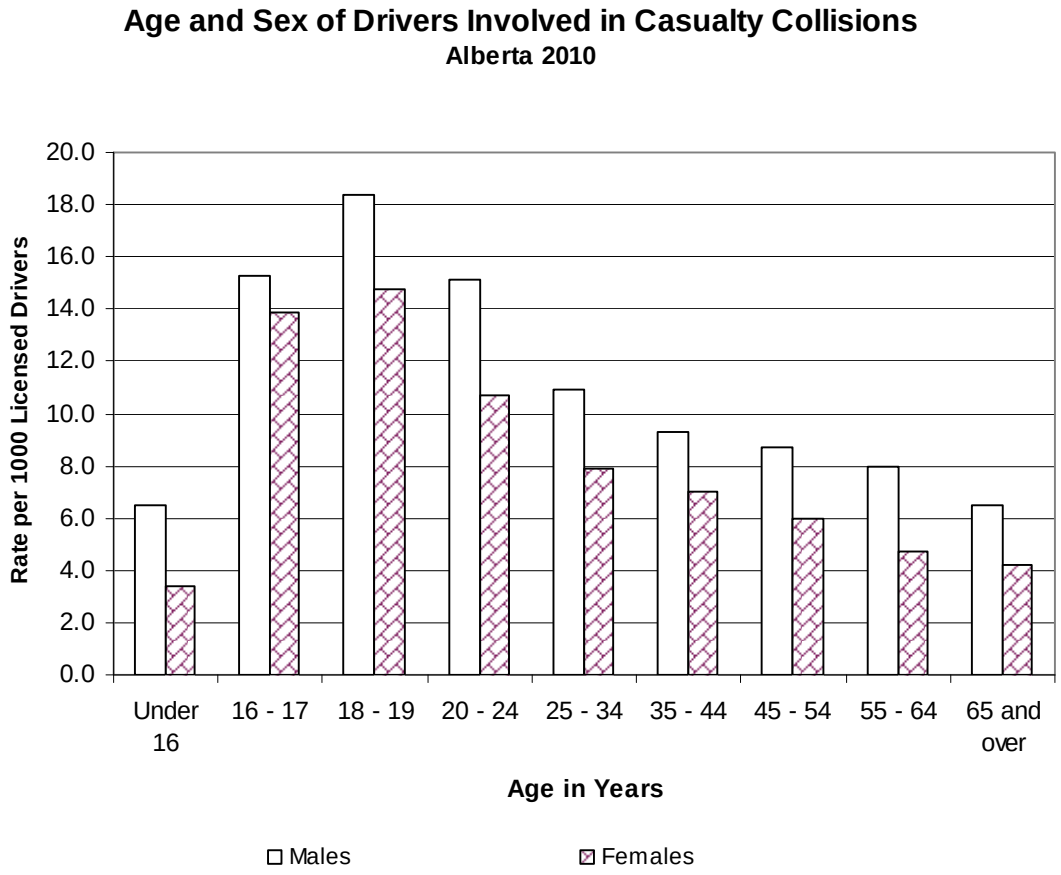

Age and Sex of Drivers Involved in Casualty Collisions
Alberta 2010
Rate per 1000 Licensed Drivers
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Under 16
16 - 17
18 - 19
20 - 24
25 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years
Males
Females

Table 4.2

Improper Actions of Drivers Involved in Casualty Collisions*

2010

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	5	2.1	3321	32.0	3326	31.3
Ran Off Road	95	39.1	1451	14.0	1546	14.6
Left Turn Across Path	17	7.0	1227	11.8	1244	11.7
Stop Sign Violation	26	10.7	785	7.6	811	7.6
Disobey Traffic Signal	6	2.5	745	7.2	751	7.1
Failed to Yield Right of Way to Pedestrian	9	3.7	453	4.4	462	4.4
Improper Turn	2	0.8	333	3.2	335	3.2
Backed Unsafely	2	0.8	320	3.1	322	3.0
Left of Centre	49	20.2	242	2.3	291	2.7
Improper Lane Change	7	2.9	273	2.6	280	2.6
Yield Sign Violation	2	0.8	222	2.1	224	2.1
Failed to Yield Right of Way - Uncontrolled Intersection	3	1.2	201	1.9	204	1.9
Improper Passing	7	2.9	129	1.2	136	1.3
Other	13	5.3	673	6.5	686	6.5
Total Number of Drivers	**243**	**100.0**	**10375**	**100.0**	**10618**	**100.0**

Observations

Following too closely (31.3%), running off the road (14.6%) and left turn across path (11.7%) 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 21505 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 10887 were indicated as driving properly at the time of the collision.

Vehicles

Types of Vehicles

Passenger cars (44.3%), minivans/MPV (23.5%) and pick-up trucks/vans (20.4%) 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 44.7% of the impacts involved the centre front.

Table 5.1

Types of Vehicles Involved in Casualty Collisions*

2010

Type of Vehicle	Vehicles in Fatal Collisions N	%	Vehicles in Non-Fatal Injury Collisions N	%	Total Vehicles in Casualty Collisions N	%
Passenger Car	134	28.0	10813	44.6	10947	44.3
Mini-Van/MPV	62	12.9	5757	23.8	5819	23.5
Pick-up Truck/Van	150	31.3	4896	20.2	5046	20.4
Truck 4500 kg+	46	9.6	769	3.2	815	3.3
Motorcycle	31	6.5	662	2.7	693	2.8
Bicycle	6	1.3	468	1.9	474	1.9
Tractor-Trailer	32	6.7	411	1.7	443	1.8
Off-Highway Vehicle	6	1.3	147	0.6	153	0.6
Transit Bus	1	0.2	107	0.4	108	0.4
School Bus	2	0.4	58	0.2	60	0.2
Emergency Vehicle	2	0.4	45	0.2	47	0.2
Construction Equipment	3	0.6	30	0.1	33	0.1
Farm Equipment	1	0.2	21	0.1	22	0.1
Other Bus	--	--	17	0.1	17	0.1
Motorized Snow Vehicle	2	0.4	14	0.1	16	0.1
Motorhome	--	--	11	0.0	11	0.0
Moped	1	0.2	6	0.0	7	0.0
Other	--	--	1	0.0	1	0.0
Total Number of Vehicles	**479**	**100.0**	**24233**	**100.0**	**24712**	**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 1.9% and motorcycles 2.8% of the vehicles involved in casualty collisions. Tractor-Trailers were 1.8% of total vehicles in casualty crashes, but 6.7% 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*

2010

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	374	97.9	20138	99.2	20512	99.1
Defective Brakes	3	0.8	53	0.3	56	0.3
Tires Failed	1	0.3	30	0.1	31	0.1
Lighting Defect	1	0.3	14	0.1	15	0.1
Improper Load/Shift	--	--	14	0.1	14	0.1
Other	3	0.8	61	0.3	64	0.3
Total Number of Vehicles	**382**	**100.0**	**20310**	**100.0**	**20692**	**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*

2010

Point of Impact	Vehicles in Fatal Collisions N	%	Vehicles in Non-Fatal Injury Collisions N	%	Total Vehicles in Casualty Collisions N	%
Centre Front	212	46.5	10297	44.7	10509	44.7
Centre Rear	19	4.2	4882	21.2	4901	20.8
Right Front	24	5.3	1648	7.1	1672	7.1
Left Front	38	8.3	1624	7.0	1662	7.1
Rollover	79	17.3	1506	6.5	1585	6.7
Right Side	23	5.0	888	3.9	911	3.9
Left Side	25	5.5	842	3.7	867	3.7
Left Rear	8	1.8	539	2.3	547	2.3
Right Rear	5	1.1	488	2.1	493	2.1
Attachment	13	2.9	181	0.8	194	0.8
Undercarriage	7	1.5	84	0.4	91	0.4
Top	3	0.7	75	0.3	78	0.3
Total Number of Vehicles	**456**	**100.0**	**23054**	**100.0**	**23510**	**100.0**

Observations

The most common point of impact in casualty collisions involved the front of the vehicle. 44.7% of the impacts involved the centre front, while 20.8% 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 (72.3%) occurred in rural areas, whereas the majority of injury (74.3%) and property damage (82.1%) crashes occurred in urban areas.

Surface Conditions

The majority (60.9%) of all casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 15.0% of fatal collisions and 20.9% of non-fatal injury collisions.

Table 6.1

Location of Collisions

2010

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	27.7	10065	74.3	112782	82.1	122932	81.3
Rural	222	72.3	3487	25.7	24648	17.9	28357	18.7
Total Number of Collisions	**307**	**100.0**	**13552**	**100.0**	**137430**	**100.0**	**151289**	**100.0**

Observations

Collisions which occurred in rural areas accounted for 72.3% of all fatal crashes. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (74.3%) and property damage crashes (82.1%).

Table 6.2

Casualty Collision Occurrence by Surface Condition

2010

Surface Condition	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
Dry	217	70.7	8224	60.7	8441	60.9
Slush/Snow/Ice	46	15.0	2827	20.9	2873	20.7
Wet	24	7.8	1299	9.6	1323	9.5
Loose Surface Material	9	2.9	219	1.6	228	1.6
Muddy	2	0.7	33	0.2	35	0.3
Other	2	0.7	78	0.6	80	0.6
Unspecified	7	2.3	872	6.4	879	6.3
Total Number of Collisions	**307**	**100.0**	**13552**	**100.0**	**13859**	**100.0**

Observations

The majority (60.9%) of casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 15.0% of fatal collisions and 20.9% of non-fatal injury collisions.

Special Types of Vehicles

Motorcycles

- In 2010, based on motorcycle registrations, the involvement rate of motorcycles has decreased in fatal collisions and in injury collisions from 2009.

- 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 51.6, a rate almost 5 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, make an improper lane change 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 0.8% 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

2006 – 2010

Number of Motorcycles	**2010**	**2009**	**2008**	**2007**	**2006**
Fatal	31	34	43	34	31
Non-Fatal Injury	662	692	807	773	764
Total Number of Motorcycles Involved in Casualty Collisions	**693**	**726**	**850**	**807**	**740**
Casualties*					
Number Killed	31	37	42	32	32
Number Injured	715	757	852	833	830
Total Casualties in Collisions Involving Motorcycles	**746**	**794**	**894**	**865**	**862**
Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**					
Fatal Collisions	2.9	3.3	4.4	4.0	4.2
Non-Fatal Injury Collisions	62.7	67.4	82.4	90.5	103.1

Observations

Based on motorcycle registrations in 2010, the involvement rate of motorcycles has decreased in fatal and injury collisions from 2009.

*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, 2010.

Figure 6

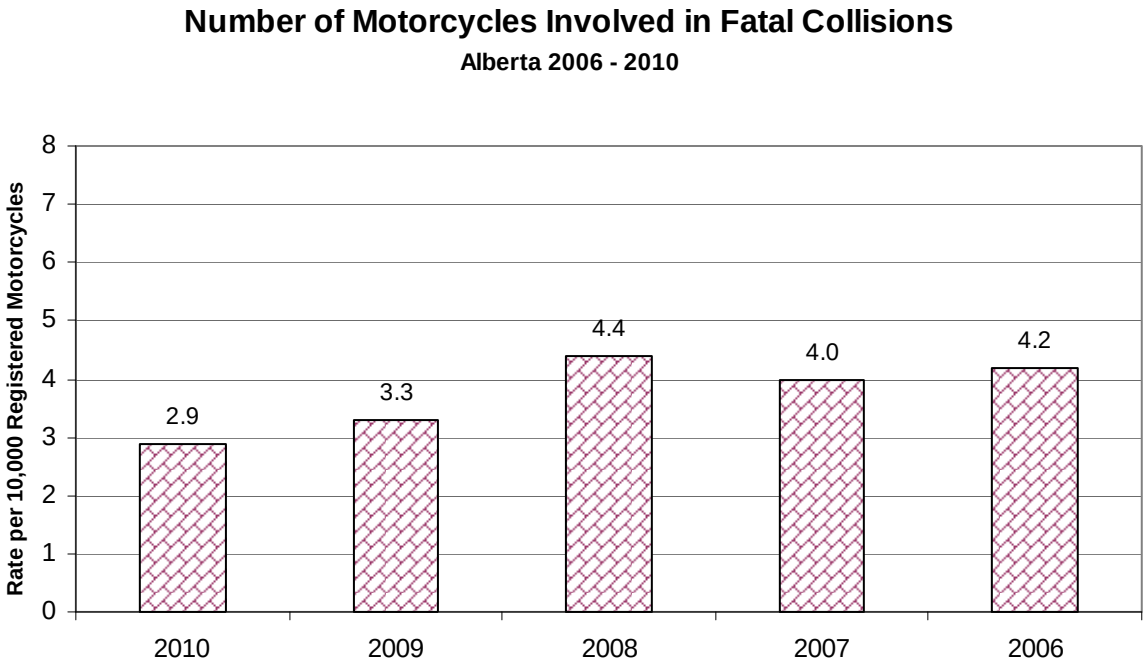

Number of Motorcycles Involved in Fatal Collisions
Alberta 2006 - 2010
Rate per 10,000 Registered Motorcycles
0
1
2
3
4
5
6
7
8
2.9
3.3
4.4
4.0
4.2
2010
2009
2008
2007
2006

Table 7.2

Age and Sex of Motorcycle Drivers Involved in Casualty Collisions

2010

	Male		Female		Total*		Rate Per 1,000 Licensed Motorcycle Drivers**
Age of Motorcycle Driver	**N**	**%**	**N**	**%**	**N**	**%**	
Under 16	11	1.6	2	0.3	13	1.9	
16-17	8	1.2	--	--	8	1.2	51.6
18-19	15	2.2	--	--	15	2.2	20.3
20-24	87	12.6	8	1.2	95	13.7	11.4
25-34	143	20.6	14	2.0	157	22.7	3.8
35-44	103	14.9	22	3.2	126	18.2	2.3
45-54	145	20.9	19	2.7	164	23.7	2.1
55-64	101	14.6	5	0.7	106	15.3	1.8
65 and over	6	0.9	--	--	6	0.9	0.3
Unspecified	1	0.1	--	--	3	0.4	
Total Number of Motorcycle Drivers	**620**	**89.5**	**70**	**10.1**	**693**	**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, 2010.

Table 7.3

Improper Actions of Motorcycle Drivers Involved in Casualty Collisions*

2010

Improper Actions of Motorcycle Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	87	36.7	14.6
Followed Too Closely	51	21.5	31.3
Improper Lane Change	19	8.0	2.6
Improper Passing	10	4.2	1.3
Improper Turn	9	3.8	3.2
Stop Sign Violation	8	3.4	7.6
Left of Centre	6	2.5	2.7
Disobey Traffic Signal	6	2.5	7.1
Left Turn Across Path	6	2.5	11.7
Yield Sign Violation	3	1.3	2.1
Failed to Yield Right of Way to Pedestrian	1	0.4	4.4
Failed to Yield Right of Way - Uncontrolled Intersection	--	--	1.9
Backed Unsafely	--	--	3.0
Other	31	13.1	6.5
Total Number of Motorcycle Drivers	**237**	**100.0**	

Observations

Compared to drivers involved in total casualty collisions, motorcycle drivers were more likely to run off the road, make an improper lane change 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 585 motorcycle drivers involved in casualty collisions for which a driver action was specified on the collision report form. 348 were indicated as driving properly at the time of the collision.

Table 7.4

Condition of Motorcycle Drivers Involved in Casualty Collisions*

2010

Condition of Motorcycle Driver	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	551	92.9	93.0
Had Been Drinking	25	4.2	2.2
Alcohol Impaired	14	2.4	2.8
Total Alcohol Involvement	**39**	**6.6**	**5.1**
Impaired by Drugs	--	--	0.2
Fatigued/Asleep	--	--	0.9
Other	3	0.5	0.9
Total Number of Motorcycle Drivers	**593**	**100.0**	

Observations

The motorcycle driver's condition was a contributory factor for 7.1% 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*

2010

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	599	99.2	99.1
Tires Failed	2	0.3	0.1
Defective Brakes	1	0.2	0.3
Lighting Defect	--	--	0.1
Improper Load/Shift	--	--	0.1
Other	2	0.3	0.3
Total Number of Motorcycles	**604**	**100.0**	

Observations

Vehicle factors were identified for 0.8% 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

2010

Month	N	%
January	1	0.1
February	2	0.3
March	17	2.5
April	61	9.1
May	56	8.3
June	130	19.4
July	121	18.0
August	117	17.4
September	83	12.4
October	66	9.8
November	15	2.2
December	1	0.1
Unspecified	1	0.1
Total Number of Collisions	**671**	**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

2010

Road Surface Condition	N	%
Dry	571	85.1
Loose Surface Material	29	4.3
Wet	25	3.7
Muddy	5	0.7
Slush/Snow/Ice	1	0.1
Other	6	0.9
Unspecified	34	5.1
Total Number of Collisions	**671**	**100.0**

Observations

The majority (85.1%) of casualty collisions involving motorcycles occurred on dry roads. Loose material on the road surface was involved in 4.3% of motorcycle casualty crashes. Wet roads were the scene of 3.7% of motorcycle casualty collisions.

Special Types of Vehicles

Truck Tractors

- In 2010, there were 33 persons killed and 535 injured in collisions involving truck tractors. This represents a decrease in fatalities and an increase in injuries from 2009.
- 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 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 November.

Table 7.8

Truck Tractors Involved in Casualty Collisions

2006 – 2010

Number of Truck Tractors	**2010**	**2009**	**2008**	**2007**	**2006**
Fatal	32	44	55	73	64
Non-Fatal Injury	411	331	498	577	642
Total Number of Truck Tractors Involved in Casualty Collisions	**443**	**375**	**553**	**650**	**706**
Casualties*					
Number Killed	33	49	61	81	67
Number Injured	535	453	657	754	813
Total Casualties in Collisions Involving Truck Tractors	**568**	**502**	**718**	**835**	**880**

Observations

In 2010, there were 33 persons killed and 535 injured in collisions involving truck tractors. This represents a decrease in fatalities and an increase in injuries from 2009. 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*

2010

Improper Actions of Truck Tractor Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	39	25.7	14.6
Followed Too Closely	28	18.4	31.3
Left Turn Across Path	15	9.9	11.7
Improper Lane Change	12	7.9	2.6
Stop Sign Violation	12	7.9	7.6
Improper Turn	9	5.9	3.2
Left of Centre	9	5.9	2.7
Improper Passing	7	4.6	1.3
Disobey Traffic Signal	4	2.6	7.1
Backed Unsafely	3	2.0	3.0
Yield Sign Violation	2	1.3	2.1
Failed to Yield Right of Way - Uncontrolled Intersection	2	1.3	1.9
Failed to Yield Right of Way to Pedestrian	--	--	4.4
Other	10	6.6	6.5
Total Number of Drivers	**152**	**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 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 379 truck-tractor drivers involved in casualty collisions for which a driver action was specified on the collision report form. 227 were indicated as driving properly at the time of the collision.

Table 7.10

Condition of Truck Tractor Drivers Involved in Casualty Collisions*

2010

Driver Condition	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	358	97.8	93.0
Had Been Drinking	--	--	2.2
Alcohol Impaired	2	0.5	2.8
Total Alcohol Involvement	**2**	**0.5**	**5.1**
Fatigued/Asleep	4	1.1	0.9
Impaired by Drugs	--	--	0.2
Other	2	0.5	0.9
Total Number of Drivers	**366**	**100.0**	

Observations

The condition of the truck tractor driver was a contributory factor for 2.2% of the drivers involved. Truck tractor drivers were less likely to consume alcohol before the crash than were drivers involved in total casualty collisions (0.5% compared to 5.1%). 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*

2010

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	378	98.7	99.1
Improper Load/Shift	3	0.8	0.1
Tires Failed	1	0.3	0.1
Defective Brakes	--	--	0.3
Lighting Defect	--	--	0.1
Other	1	0.3	0.3
Total Number of Truck Tractors	**383**	**100.0**	

Observations

Vehicle factors were identified for 1.3% 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

2010

Month	N	%
January	41	9.9
February	25	6.0
March	27	6.5
April	30	7.2
May	30	7.2
June	31	7.5
July	30	7.2
August	25	6.0
September	24	5.8
October	40	9.6
November	66	15.9
December	45	10.8
Unspecified	1	0.2
Total Number of Collisions	**415**	**100.0**

Observations

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

Special Types of Vehicles

Trains

- In 2010, 6 people were killed and 13 people were injured in crashes in which a train was involved. The number of casualties involving trains has increased from 2009.
- The largest number of casualty collisions involving trains occurred in the months of January, March, September and November.
- Almost all of the drivers involved in casualty collisions with a train made an improper driving action.

Table 7.13

Trains Involved in Casualty Collisions

2006 – 2010

Number of Trains	**2010**	**2009**	**2008**	**2007**	**2006**
Fatal	5	2	3	4	3
Non-Fatal Injury	10	9	21	18	23
Total Number of Trains Involved in Casualty Collisions	**15**	**11**	**24**	**22**	**26**
Casualties*					
Number Killed	6	2	3	5	3
Number Injured	13	12	27	30	30
Total Casualties in Collisions Involving Trains	**19**	**14**	**30**	**35**	**33**

Observations

The number of trains involved in casualty collisions increased from 2009. The number of casualties resulting from these collisions also 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

2010

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	1	20.0	1	10.0	2	13.3
February	--	--	1	10.0	1	6.7
March	--	--	2	20.0	2	13.3
April	--	--	--	--	--	--
May	1	20.0	--	--	1	6.7
June	--	--	1	10.0	1	6.7
July	1	20.0	--	--	1	6.7
August	--	--	1	10.0	1	6.7
September	--	--	2	20.0	2	13.3
October	--	--	1	10.0	1	6.7
November	1	20.0	1	10.0	2	13.3
December	1	20.0	--	--	1	6.7
Total Number of Collisions	**5**	**100.0**	**10**	**100.0**	**15**	**100.0**

Observations

The largest number of casualty collisions involving trains occurred in the months of January, March, September and November.

Table 7.15

Actions of Drivers Involved in Casualty Collisions with Trains*

2010

Driver Actions	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Driving Properly	--	--	1	10.0	1	7.7
Disobey Traffic Signal	2	66.7	4	40.0	6	46.2
Stop Sign Violation	--	--	3	30.0	3	23.1
Failed to Yield Right of Way - Uncontrolled Intersection	1	33.3	2	20.0	3	23.1
Total Number of Drivers	**3**	**100.0**	**10**	**100.0**	**13**	**100.0**

Observations

Almost all of the drivers involved in casualty collisions with a train made an improper driving action.

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

Pedestrians

- Pedestrian casualty collisions were more likely to occur in October. June 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.).
- 42.5% 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, 12.5% had consumed alcohol before the collision, compared to 55.9% 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

2010

Month of Collision	N	%
January	99	8.9
February	89	8.0
March	84	7.5
April	89	8.0
May	89	8.0
June	75	6.7
July	78	7.0
August	85	7.6
September	106	9.5
October	117	10.5
November	108	9.7
December	94	8.4
Unspecified	1	0.1
Total Number of Collisions	**1114**	**100.0**

Observations

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

Table 8.2

Casualty Collisions Involving Pedestrians:

Day of Week

2010

Day of Week	N	%
Monday	141	12.7
Tuesday	166	14.9
Wednesday	187	16.8
Thursday	184	16.5
Friday	199	17.9
Saturday	126	11.3
Sunday	110	9.9
Unspecified	1	0.1
Total Number of Collisions	**1114**	**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

2010

Time Period	N	%
11:00 p.m. - 2:59 a.m.	103	9.2
3:00 a.m. - 6:59 a.m.	50	4.5
7:00 a.m. - 10:59 a.m.	232	20.8
11:00 a.m. - 2:59 p.m.	221	19.8
3:00 p.m. - 6:59 p.m.	316	28.4
7:00 p.m. - 10:59 p.m.	186	16.7
Unspecified	6	0.5
Total Number of Collisions	**1114**	**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

2010

Location	**N**	%
Urban	1067	95.8
Rural	47	4.2
Total Number of Collisions	**1114**	**100.0**

Observations

The majority of pedestrian casualty collisions (95.8%) occurred in urban areas. Only 4.2% occurred in rural areas.

Table 8.5

Actions of Drivers Involved in Casualty Collisions with Pedestrians*

2010

Driver Actions	N	%
Driving Properly	297	31.3
Failed to Yield Right of Way To Pedestrian	403	42.5
Backed Unsafely	103	10.9
Left Turn Across Path	18	1.9
Ran Off Road	14	1.5
Stop Sign Violation	13	1.4
Disobey Traffic Signal	12	1.3
Followed Too Closely	10	1.1
Improper Turn	10	1.1
Failed to Yield Right of Way - Uncontrolled Intersection	7	0.7
Improper Passing	5	0.5
Yield Sign Violation	5	0.5
Left of Centre	4	0.4
Improper Lane Change	3	0.3
Other	44	4.6
Total Number of Drivers	**948**	**100.0**

Observations

31.3% of the drivers involved in pedestrian casualty crashes were recorded as driving properly. However, 42.5% 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

2010

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	--	25	25	2.1	1.0
5 - 9	--	43	43	3.7	2.0
10 - 14	--	67	67	5.8	3.1
15 - 19	2	139	141	12.1	5.8
20 - 24	5	140	145	12.5	5.1
25 - 29	3	102	105	9.0	3.3
30 - 34	2	97	99	8.5	3.4
35 - 44	7	136	143	12.3	2.6
45 - 54	8	153	161	13.8	2.8
55 - 64	3	94	97	8.3	2.4
65 and over	5	90	95	8.2	2.4
Unspecified	--	43	43	3.7	
Total Number of Pedestrian Casualties	**35**	**1129**	**1164**	**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, 2010, Statistics Canada

Figure 7

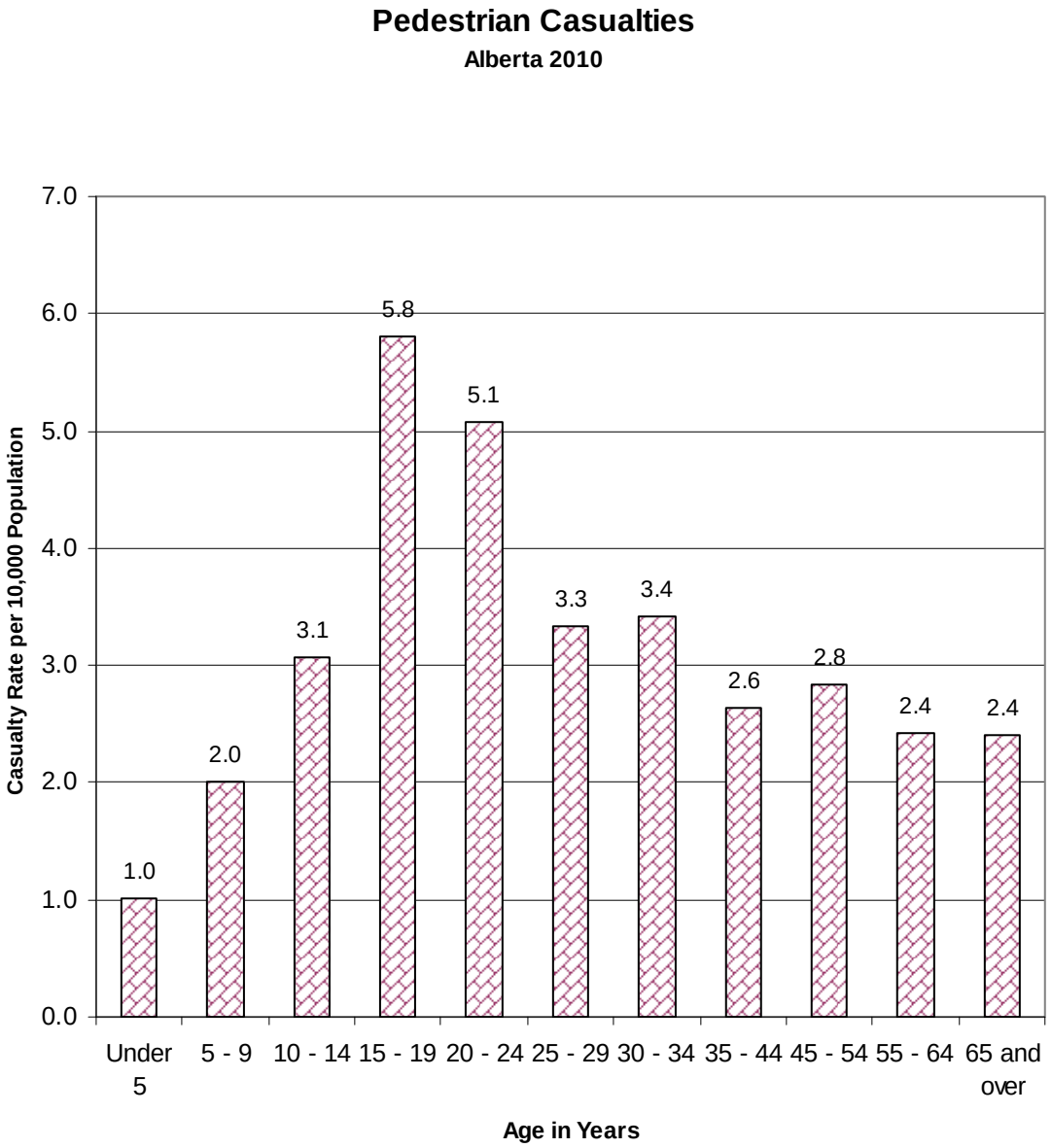

Pedestrian Casualties
Alberta 2010
Casualty Rate per 10,000 Population
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1.0
2.0
3.1
5.8
5.1
3.3
3.4
2.6
2.8
2.4
2.4
Under 5
5 - 9
10 - 14
15 - 19
20 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years

Table 8.7

Condition of Pedestrians Involved in Casualty Collisions*

2010

Condition of Pedestrian	Pedestrians in Fatal Collisions N	%	Pedestrians in Non-Fatal Injury Collisions N	%	Total Pedestrians in Casualty Collisions N	%
Normal	15	44.1	787	85.7	802	84.2
Had Been Drinking	7	20.6	67	7.3	74	7.8
Alcohol Impaired	12	35.3	48	5.2	60	6.3
Total Alcohol Involvement	**19**	**55.9**	**115**	**12.5**	**134**	**14.1**
Impaired by Drugs	--	--	2	0.2	2	0.2
Other	--	--	14	1.5	14	1.5
Total Number of Pedestrians	**34**	**100.0**	**918**	**100.0**	**952**	**100.0**

Observations

Of pedestrians involved in injury collisions, 12.5% had consumed alcohol before the collision, compared to 55.9% 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*

2010

Age in Years	N	%	Rate per 10,000 Population**
Under 10	--	--	
10 - 14	--	--	
15 - 19	17	12.7	0.7
20 - 24	28	20.9	1.0
25 - 29	16	11.9	0.5
30 - 34	17	12.7	0.6
35 - 44	25	18.7	0.5
45 - 54	21	15.7	0.4
55 - 64	6	4.5	0.1
65 and over	3	2.2	0.1
Unspecified	1	0.7	
Total Number of Pedestrian Casualties	**134**	**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, 2010, 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 (38.5%) occurred during the evening rush-hour period.
- Young bicyclists, 15-19 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.
- 7.2% of bicyclists involved in casualty collisions had consumed alcohol before the crash.

Table 9.1

Casualty Collisions Involving Bicycles:

Month of Occurrence

2010

Month of Collision	N	%
January	7	1.5
February	11	2.3
March	19	4.0
April	32	6.8
May	59	12.6
June	77	16.4
July	60	12.8
August	60	12.8
September	66	14.0
October	56	11.9
November	20	4.3
December	3	0.6
Total Number of Collisions	**470**	**100.0**

Observations

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

Table 9.2

Casualty Collisions Involving Bicycles:

Day of Week

2010

Day of Week	N	%
Monday	50	10.6
Tuesday	82	17.4
Wednesday	82	17.4
Thursday	75	16.0
Friday	78	16.6
Saturday	50	10.6
Sunday	53	11.3
Total Number of Collisions	**470**	**100.0**

Observations

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

Table 9.3

Casualty Collisions Involving Bicycles:

Time Period

2010

Time Period	N	%
11:00 p.m. - 2:59 a.m.	21	4.5
3:00 a.m. - 6:59 a.m.	12	2.6
7:00 a.m. - 10:59 a.m.	82	17.4
11:00 a.m. - 2:59 p.m.	107	22.8
3:00 p.m. - 6:59 p.m.	181	38.5
7:00 p.m. - 10:59 p.m.	66	14.0
Unspecified	1	0.2
Total Number of Collisions	**470**	**100.0**

Observations

The largest proportion of casualty crashes (38.5%) 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

2010

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	--	--	2	0.4	2	0.4	0.1
5-9	--	--	27	5.9	27	5.8	1.3
10-14	--	--	49	10.6	49	10.5	2.2
15-19	--	--	69	15.0	69	14.8	2.8
20-24	--	--	56	12.1	56	12.0	2.0
25-29	1	16.7	41	8.9	42	9.0	1.3
30-34	--	--	36	7.8	36	7.7	1.2
35-44	--	--	67	14.5	67	14.3	1.2
45-54	2	33.3	72	15.6	74	15.8	1.3
55-64	--	--	20	4.3	20	4.3	0.5
65 and over	3	50.0	12	2.6	15	3.2	0.4
Unspecified	--	--	10	2.2	10	2.1	
Total Casualties	**6**	**100.0**	**461**	**100.0**	**467**	**100.0**	

Observations

Casualty rates per 10,000 population were highest for persons between the ages of 15 and 19. 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, 2010, Statistics Canada

Table 9.5

Improper Actions of Bicyclists Involved in Casualty Collisions

2010

Improper Actions of Bicyclists	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Disobey Traffic Signal	52	27.1	7.1
Failed to Yield Right of Way - Uncontrolled Intersection	26	13.5	1.9
Stop Sign Violation	11	5.7	7.6
Left Turn Across Path	9	4.7	11.7
Improper Lane Change	7	3.6	2.6
Yield Sign Violation	6	3.1	2.1
Left of Centre	5	2.6	2.7
Ran Off Road	4	2.1	14.6
Improper Passing	3	1.6	1.3
Improper Turn	3	1.6	3.2
Followed Too Closely	3	1.6	31.3
Failed to Yield Right of Way to Pedestrian	1	0.5	4.4
Backed Unsafely	--	--	3.0
Other	62	32.3	6.5
Total Number of Bicyclists	**192**	**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 333 bicyclists involved in casualty collisions for which a driver action was specified on the collision report form. 141 were indicated as driving properly at the time of the collision.

Table 9.6

Condition of Bicyclists Involved in Casualty Collisions*

2010

Condition of Bicyclist	N	%
Normal	357	91.5
Had Been Drinking	16	4.1
Alcohol Impaired	12	3.1
Total Alcohol Involvement	**28**	**7.2**
Impaired by Drugs	2	0.5
Fatigued/Asleep	1	0.3
Other	2	0.5
Total Number of Bicyclists	**390**	**100.0**

Observations

7.2% 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 4.7% of drivers involved in injury crashes were judged to have consumed alcohol prior to the crash, compared to 21.8% 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 2010, alcohol related casualty crashes were most likely to have occurred in May, 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, 2006 - 2010.

Table 10.1

Condition of Drivers in Casualty Collisions*

2010

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	304	73.8	18265	93.4	18569	93.0
Had Been Drinking	33	8.0	411	2.1	444	2.2
Alcohol Impaired	57	13.8	509	2.6	566	2.8
Total Alcohol Involvement	**90**	**21.8**	**920**	**4.7**	**1010**	**5.1**
Impaired by Drugs	5	1.2	31	0.2	36	0.2
Fatigued/Asleep	9	2.2	165	0.8	174	0.9
Other	4	1.0	170	0.9	174	0.9
Total Number of Drivers	**412**	**100.0**	**19551**	**100.0**	**19963**	**100.0**

Observations

Of drivers involved in injury collisions, 4.7% had consumed alcohol before the crash, compared to 21.8% in fatal collisions. As the severity of the collision increased, the involvement of alcohol dramatically increased. Overall, 5.1% 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

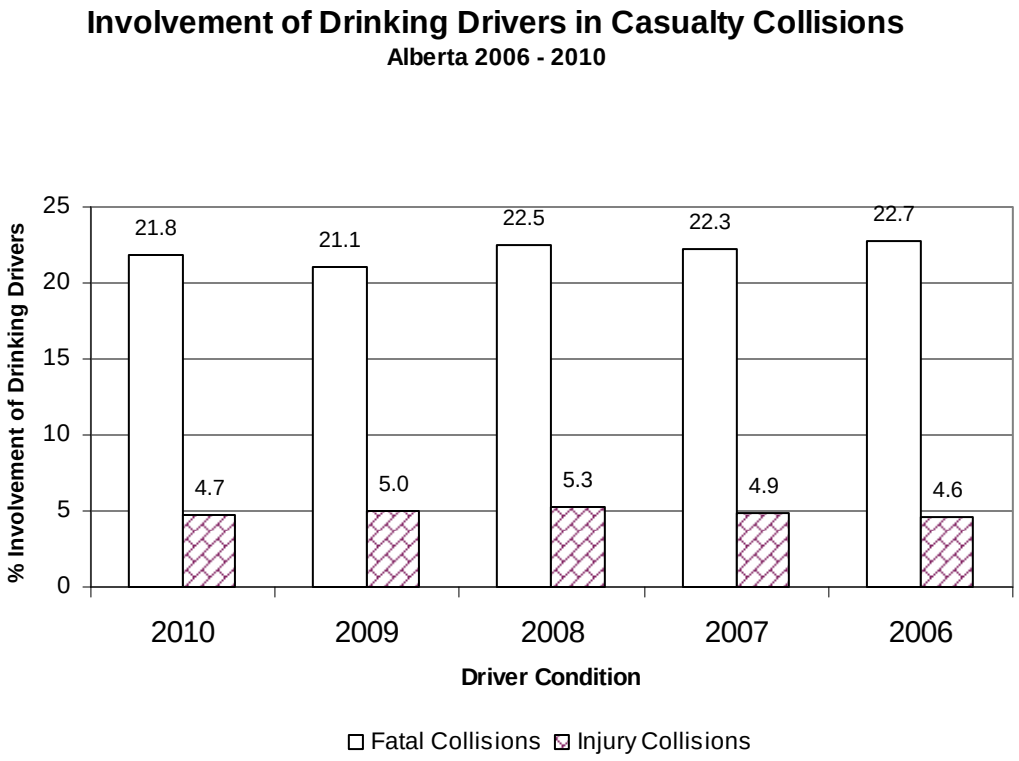

Involvement of Drinking Drivers in Casualty Collisions
Alberta 2006 - 2010
% Involvement of Drinking Drivers
25
20
15
10
5
0
21.8
4.7
21.1
5.0
22.5
5.3
22.3
4.9
22.7
4.6
2010
2009
2008
2007
2006
Driver Condition
Fatal Collisions
Injury Collisions

Figure 9

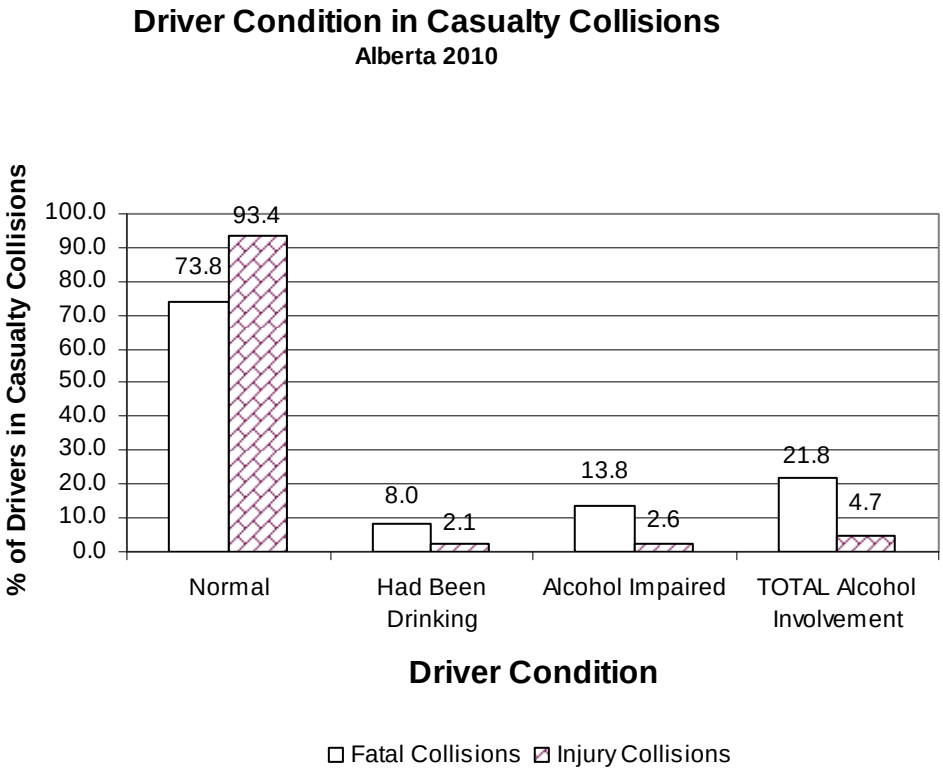

Driver Condition in Casualty Collisions
Alberta 2010
% of Drivers in Casualty Collisions
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
73.8
93.4
8.0
2.1
13.8
2.6
21.8
4.7
Normal
Had Been Drinking
Alcohol Impaired
TOTAL Alcohol Involvement
Driver Condition
Fatal Collisions
Injury Collisions

Table 10.2

Age and Sex of Drinking Drivers in Casualty Collisions*

2010

	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	3	0.3	0.2	--	--	--	3	0.3	0.1
16 - 17	24	2.4	0.7	8	0.8	0.3	32	3.2	0.5
18 - 19	65	6.4	1.6	25	2.5	0.7	90	8.9	1.2
20 - 21	79	7.8	1.7	16	1.6	0.4	95	9.4	1.1
22 - 24	125	12.4	1.5	28	2.8	0.4	153	15.1	1.0
25 - 29	129	12.8	0.8	28	2.8	0.2	157	15.5	0.5
30 - 34	97	9.6	0.6	23	2.3	0.2	120	11.9	0.4
35 - 44	124	12.3	0.4	37	3.7	0.1	161	15.9	0.3
45 - 54	104	10.3	0.4	27	2.7	0.1	131	13.0	0.2
55 - 64	32	3.2	0.2	5	0.5	0.0	37	3.7	0.1
65 and over	10	1.0	0.1	2	0.2	0.0	12	1.2	0.0
Unspecified	4	0.4		1	0.1		19	1.9	
Total Drivers	**796**	**78.8**		**200**	**19.8**		**1010**	**100.0**	

Observations

Of those collision-involved drivers who had consumed alcohol, there were almost 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, 2010.

Figure 10

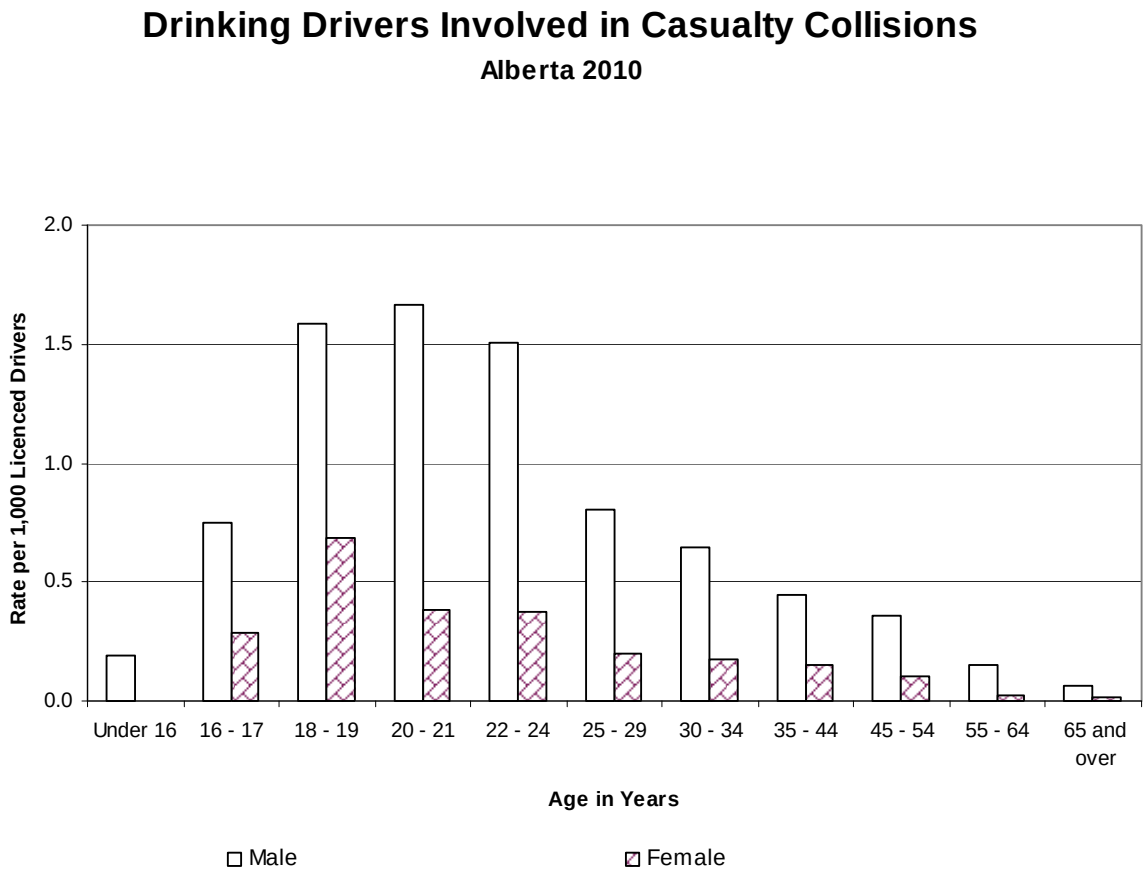

Drinking Drivers Involved in Casualty Collisions
Alberta 2010
Rate per 1,000 Licenced Drivers
2.0
1.5
1.0
0.5
0.0
Under 16
16 - 17
18 - 19
20 - 21
22 - 24
25 - 29
30 - 34
35 - 44
45 - 54
55 - 64
65 and over
Age in Years
Male
Female

Table 10.3

Alcohol-Involved Casualty Collisions:

Month of Occurrence

2010

Month	Fatal Collisions N	Fatal Collisions %	Non-Fatal Injury Collisions N	Non-Fatal Injury Collisions %	Total Casualty Collisions N	Total Casualty Collisions %
January	7	8.1	60	6.6	67	6.7
February	4	4.7	58	6.3	62	6.2
March	7	8.1	72	7.9	79	7.9
April	8	9.3	83	9.1	91	9.1
May	7	8.1	92	10.1	99	9.9
June	5	5.8	79	8.6	84	8.4
July	11	12.8	81	8.9	92	9.2
August	11	12.8	83	9.1	94	9.4
September	6	7.0	91	10.0	97	9.7
October	11	12.8	86	9.4	97	9.7
November	6	7.0	73	8.0	79	7.9
December	3	3.5	55	6.0	58	5.8
Unspecified	--	--	1	0.1	1	0.1
Total Number of Collisions	**86**	**100.0**	**914**	**100.0**	**1000**	**100.0**

Observations

The month of May 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

2010

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	7	8.1	88	9.6	95	9.5
Tuesday	9	10.5	67	7.3	76	7.6
Wednesday	9	10.5	81	8.9	90	9.0
Thursday	6	7.0	107	11.7	113	11.3
Friday	15	17.4	164	17.9	179	17.9
Saturday	21	24.4	220	24.1	241	24.1
Sunday	19	22.1	186	20.4	205	20.5
Unspecified	--	--	1	0.1	1	0.1
Total Number of Collisions	**86**	**100.0**	**914**	**100.0**	**1000**	**100.0**

Observations

The highest number of alcohol-involved fatal collisions and non-fatal injury collisions occurred on Saturday (24.4% and 24.1% respectively). The smallest number of alcohol-involved casualty collisions occurred on Tuesday (7.6%).

Table 10.5

Alcohol-Involved Casualty Collisions:

Time Period

2010

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.	21	24.4	310	33.9	331	33.1
3:00 a.m. - 6:59 a.m.	17	19.8	142	15.5	159	15.9
7:00 a.m. - 10:59 a.m.	7	8.1	42	4.6	49	4.9
11:00 a.m. - 2:59 p.m.	3	3.5	44	4.8	47	4.7
3:00 p.m. - 6:59 p.m.	14	16.3	141	15.4	155	15.5
7:00 p.m. - 10:59 p.m.	21	24.4	217	23.7	238	23.8
Unspecified	3	3.5	18	2.0	21	2.1
Total Number of Collisions	**86**	**100.0**	**914**	**100.0**	**1000**	**100.0**

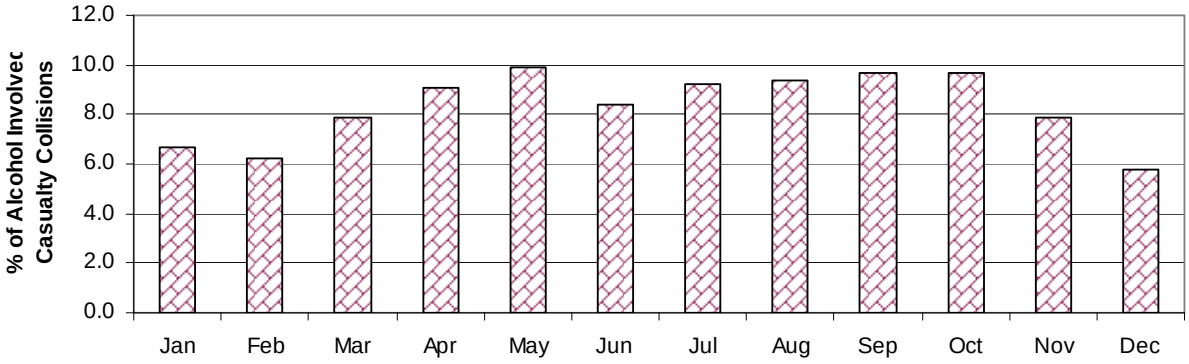
Observations

The late night/early morning time period (11:00 p.m. – 2:59 a.m.) was most likely to record alcohol-involved casualty collisions (33.1%). The early afternoon hours (11:00 a.m. – 2:59 p.m.) were least likely to record alcohol-involved casualty crashes (4.7%).

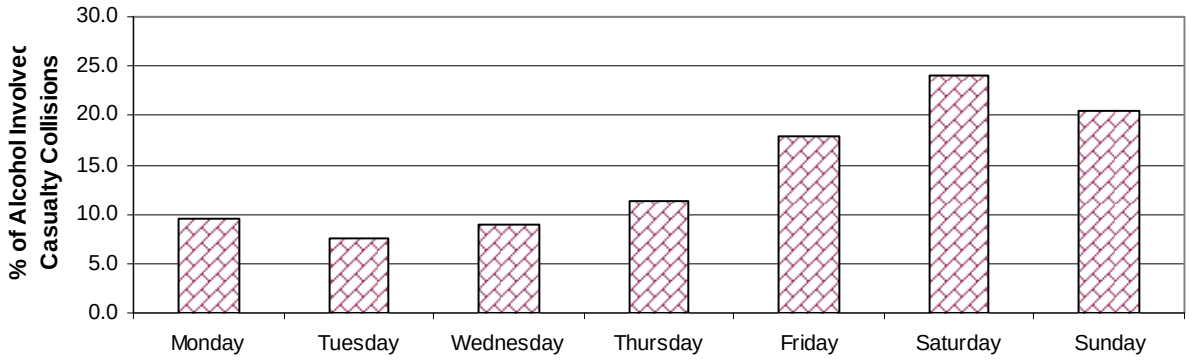
Figure 11

Alcohol-Involved Casualty Collisions
Alberta 2010

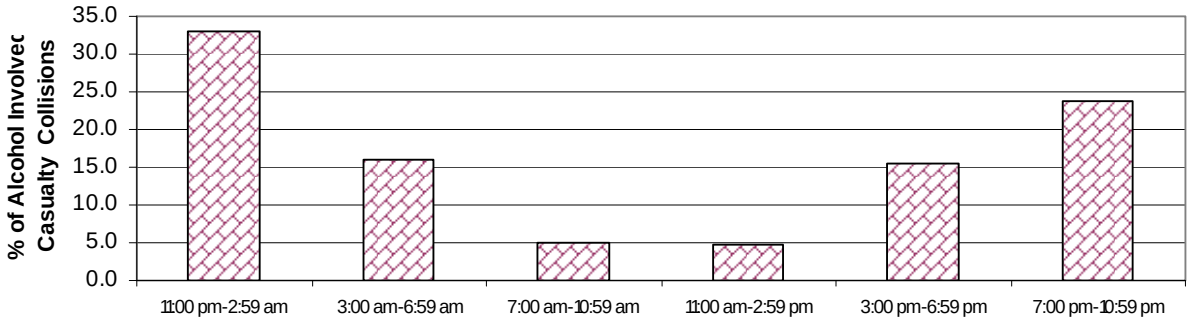
By Month of Occurrence



By Day of Week



By Time Period



Traffic Safety Issues

Restraint Use

- Collision-involved restraint users had a much lower injury rate (6.8%) than those not using restraints (30.4%).
- 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)

2010

Injury Severity of Occupants	Percentage of Occupants Using Restraints %	Percentage of Occupants Not Using Restraints %
Fatal Injury	0.1	3.4
Major Injury	0.8	9.8
Minor Injury	5.9	17.1
Total Occupants Sustaining Injuries	**6.8**	**30.4**
No Apparent Injury	93.2	69.6
Total Occupants	**100.0**	**100.0**

Observations

Collision involved restraint users had a much lower injury rate (6.8%) than those not using restraints (30.4%). 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.