Alberta Traffic Collision Statistics

2017

Traffic Safety, Alberta Transportation

MAY 2020

Alberta

www.alberta.ca/collision-vehicle-licence-statistics.aspx

2017 Overview

- The number of **traffic fatalities decreased 3.0%** over the past year from 299 fatalities in 2016 to 290 in 2017.
- The number of **traffic injuries increased 3.4%** over the past year from 16,622 injuries in 2016 to 17,186 in 2017.
- The number of **traffic collisions increased 7.0%** over the past year from 133,124 in 2016 to 142,467 in 2017.
- **The highest number of fatal collisions** occurred in **July. The highest number of injury collisions** occurred in **November**.
- **Friday** was the most collision-prone day of the week.
- The most collision-prone time period was the **afternoon rush hour**.
- **Casualty rates** were highest for persons between the **ages of 15 and 24.**
- **Male drivers** between the **ages of 16 and 17** had the highest involvement rate of all drivers involved in casualty collisions.
- **Following too closely, running off the road and making a left turn across the path of an oncoming vehicle** 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**.
- **15.4% of pedestrians** involved in **fatal collisions were impaired** compared to 4.4**% of pedestrians in injury collisions**.
- **10.2% of drivers** involved in **fatal collisions were impaired** compared to 1.7**% of drivers in injury collisions**.
- **Collision-involved restraint users had a much lower injury rate** (6.8%) than those not using restraints (17.6%)

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 2017. 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 death, injury, or property damage to an apparent extent of $2,000.00 or more, be reported immediately to an authorized peace officer. The officer completes a standardized collision report, which provides information on various aspects of the traffic collision. This report is based on the data collected from these reports.

The collision report 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, complete an on-scene investigation and clear the roadway. Completion of the collision report is a secondary, but necessary, task.

Once the collision report is completed, the data is stored in the collision database. The system undergoes several data quality checks 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

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

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.

Impaired Driving
: In the judgment of the police officer, driving ability was legally impaired by alcohol and/or drug consumption. Whether or not the subject was actually charged is not taken into consideration by the collision report.

Major Injury
: Persons with injuries or complaints of pain who went to the hospital and were subsequently admitted, even if for observation only.

Minor Injury
: Persons with injuries or complaints 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 $2,000.00.

Reportable Collision
: A vehicle collision, which resulted in death, injury or property damage greater than $2,000.00.

Rural
: Any area outside of what is defined as “Urban.”

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

2017 Traffic Collision Summary

Introduction

During 2017, 142,467 collisions were recorded on Alberta roadways. Property damage collisions (over $2,000) represented 90.6% (129,126) of this total while 9.2% (13,082) were non-fatal injury collisions. Fatal collisions accounted for 0.2% (259) of the total reported collisions.

Five-Year Trends

In terms of population and registered vehicles, the fatal collision rate is unchanged from 2016 to 2017, but decreased for licensed drivers. The fatality rates have decreased in terms of licensed drivers, but remained the same for population and registered vehicles.

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

Property damage collision rates increased from 2016 to 2017 in terms of population, licensed drivers and registered vehicles.

Jurisdictional Comparisons

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

Based on this comparison of rates per billion vehicle kilometres travelled, eight jurisdictions had a higher fatality rate than Alberta in 2017. In 2017, Alberta had the second lowest injury rate.

Alberta Traffic Collisions

2013 – 2017

Severity of Collisions	2017	2016	2015	2014	2013
Fatal Collisions	259	273	288	328	331
Non-Fatal Injury Collisions	13,082	12,465	13,531	14,244	14,073
Property Damage Collisions	129,126	120,386	126,886	130,168	127,234
Total Reportable Collisions	**142,467**	**133,124**	**140,705**	**144,740**	**141,638**

Injury Severity	2017	2016	2015	2014	2013
Number Killed	290	299	330	369	358
Number Injured	17,186	16,622	17,907	18,745	18,650
Total Number of Casualties	**17,476**	**16,921**	**18,237**	**19,114**	**19,008**

Table 1.1. Alberta Traffic Collisions

Observations

In 2017, the overall number of collisions increased 7.0% when compared to 2016. In 2017, injury collisions increased by 4.9% and fatal crashes decreased by 5.1%. The number of fatalities decreased by 3.0% from 2016 to 2017 and the number of injuries increased by 3.4%. In terms of the past five years, overall collisions were lowest in 2016 and highest in 2014.

Traffic Collision Rates

2013 – 2017

Severity of Collision	Rate Per 10,000 Population					Rate Per 10,000 Licensed Drivers					Rate Per 10,000 Registered Vehicles				
	2017	2016	2015	2014	2013	2017	2016	2015	2014	2013	2017	2016	2015	2014	2013
Fatal Collisions	0.6	0.6	0.7	0.8	0.8	0.8	0.9	0.9	1.1	1.1	0.7	0.7	0.8	0.9	1.0
Number Killed	0.7	0.7	0.8	0.9	0.9	0.9	1.0	1.1	1.2	1.2	0.8	0.8	0.9	1.0	1.0
Non-Fatal Injury Collisions	30.5	29.3	32.2	34.6	35.0	41.1	39.6	43.3	46.6	47.4	34.6	33.3	37.1	39.5	40.5
Number Injured	40.1	39.1	42.7	45.5	46.3	53.9	52.9	57.3	61.3	62.8	45.4	44.4	49.1	52.0	53.6
Property Damage Collisions	301.3	283.1	302.4	315.8	316.1	405.3	382.8	405.8	425.7	428.7	341.1	321.5	347.9	360.8	366.0
Total Reportable Collisions	**332.4**	**313.0**	**335.3**	**351.2**	**351.9**	**447.1**	**423.3**	**450.0**	**473.4**	**477.2**	**376.3**	**355.6**	**385.8**	**401.2**	**407.4**

Table 1.2. Traffic Collision Rates

Observations

In terms of both population and registered vehicles, the fatal collision rate is unchanged from 2016 to 2017, but decreased for licensed drivers. The fatality rates have decreased in terms of licensed drivers, but remained the same for population and registered vehicles.

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

Property damage collision rates increased from 2016 to 2017 in terms of population, licensed drivers and registered vehicles.

Sources:
Population – Statistics Canada as of July 1, 2017.
Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2017.
Registered Vehicles – Service Alberta – Registries Services, as of December 31, 2017.

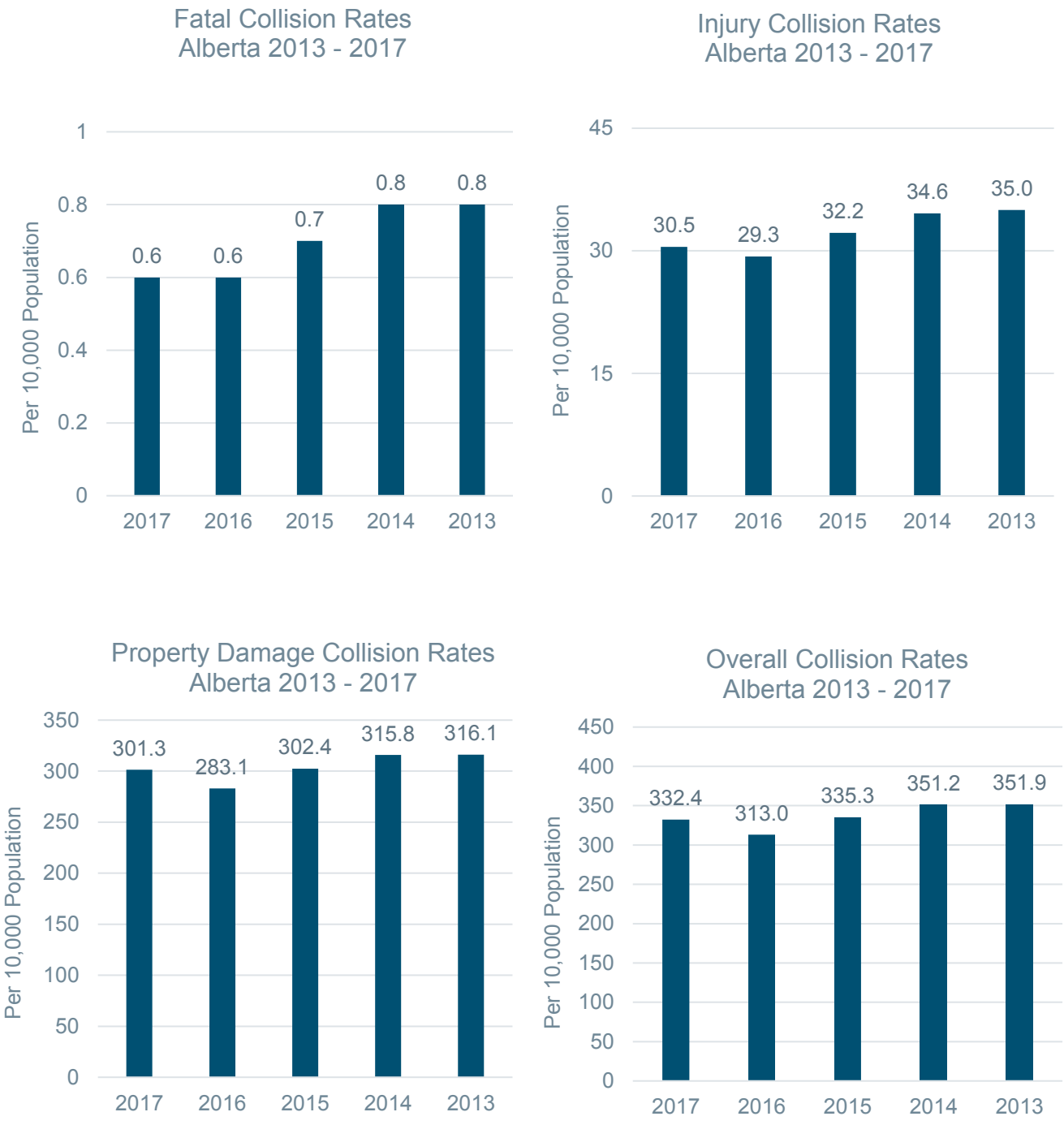


Figure 1. Alberta Traffic Collision Rates per 10,000 Population

Jurisdictional Comparison of Casualty Rates per Billion Vehicle Kilometres Travelled

2013 – 2017

	Fatalities					Injuries				
	2017	2016	2015	2014	2013	2017	2016	2015	2014	2013
Canada	4.8	5.1	5.1	5.1	5.6	404.9	427.8	442.5	418.1	481.9
Alberta	4.8	4.8	5.5	6.3	6.4	273.1	269.6	298.2	317.8	335.5
British Columbia	6.9	7.4	7.7	7.7	7.5	523.5	538.5	583.7	560.0	567.2
Saskatchewan	6.8	8.7	8.7	9.5	10.6	311.1	400.8	396.3	423.0	535.7
Manitoba	4.9	7.3	5.5	4.9	6.4	844.4	859.1	837.4	820.3	840.0
Ontario	4.0	4.0	3.7	3.6	3.7	357.1	392.5	401.9	352.1	465.6
Quebec	4.6	4.6	4.9	4.6	5.6	475.5	491.5	499.3	493.3	530.4
New Brunswick	5.7	5.8	6.0	7.1	6.3	307.6	314.0	321.6	326.5	355.7
Nova Scotia	4.0	4.2	4.8	5.0	7.6	414.5	423.1	433.4	356.2	401.4
Prince Edward Island	9.1	7.3	12.3	3.5	9.7	403.7	389.3	354.5	358.9	826.1
Newfoundland	6.0	8.4	8.2	5.8	5.8	513.0	574.9	647.8	413.7	426.2
Yukon	10.3	6.0	6.1	6.3	6.4	392.1	367.3	319.5	280.6	329.6
Northwest Territories	7.2	9.8	7.6	10.3	7.9	241.0	304.7	204.0	228.8	314.0
Nunavut	0.0	51.3	26.3	108.1	85.7	575.0	1,000.0	1,289.5	1,270.3	1,142.9

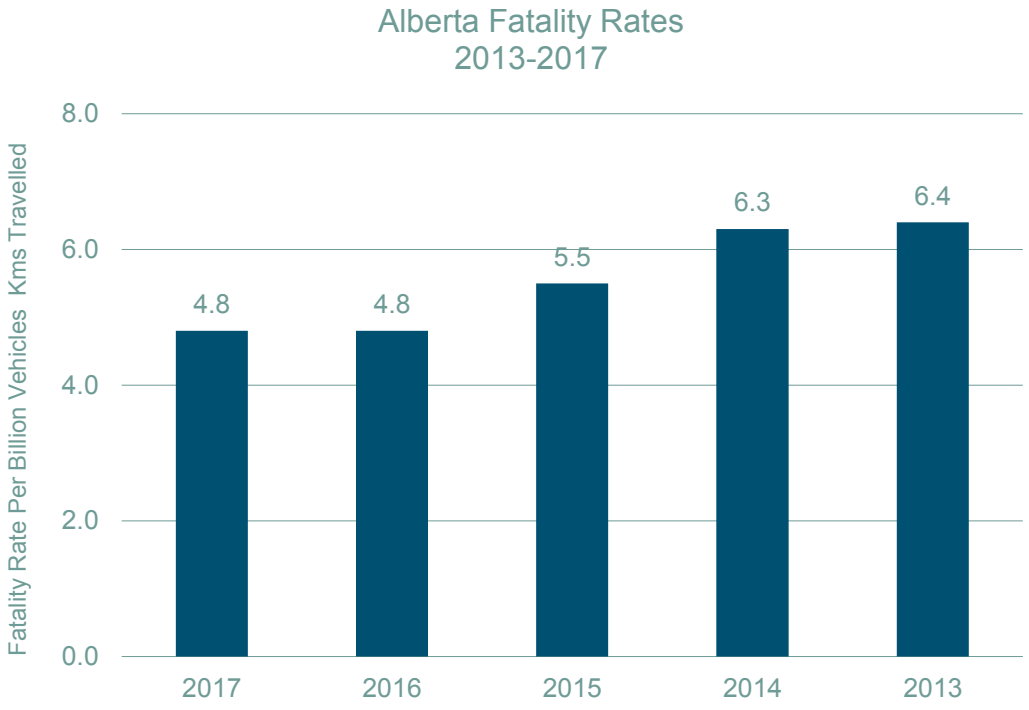
Table 1.3. Jurisdictional Comparison of Casualty Rates, Per Billion Vehicle Kilometres Travelled

Observations

Based on the most recent information from Transport Canada, from 2016 to 2017, Alberta's fatality rate per billion vehicle kilometers travelled remained the same at 4.8. During the same period, the injury rate per billion vehicle kilometers travelled increased from 269.6 to 273.1. Over the five years, since 2013, rates have declined by 1.6 fatalities and 62.4 injuries per billion vehicle kilometers travelled.

Sources: Transport Canada, "Canadian Motor Vehicle Traffic Collision Statistics," (Catalogue No T45-3E-PDF) 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, and 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. Vehicle Kilometres data for 2017 were estimated using average yearly change for the years 2014-2016.

The Canadian Motor Vehicle Traffic Collision Statistics can be accessed online at:
http://www.tc.gc.ca/eng/roadsafety/resources-researchstats-menu-847.htm.



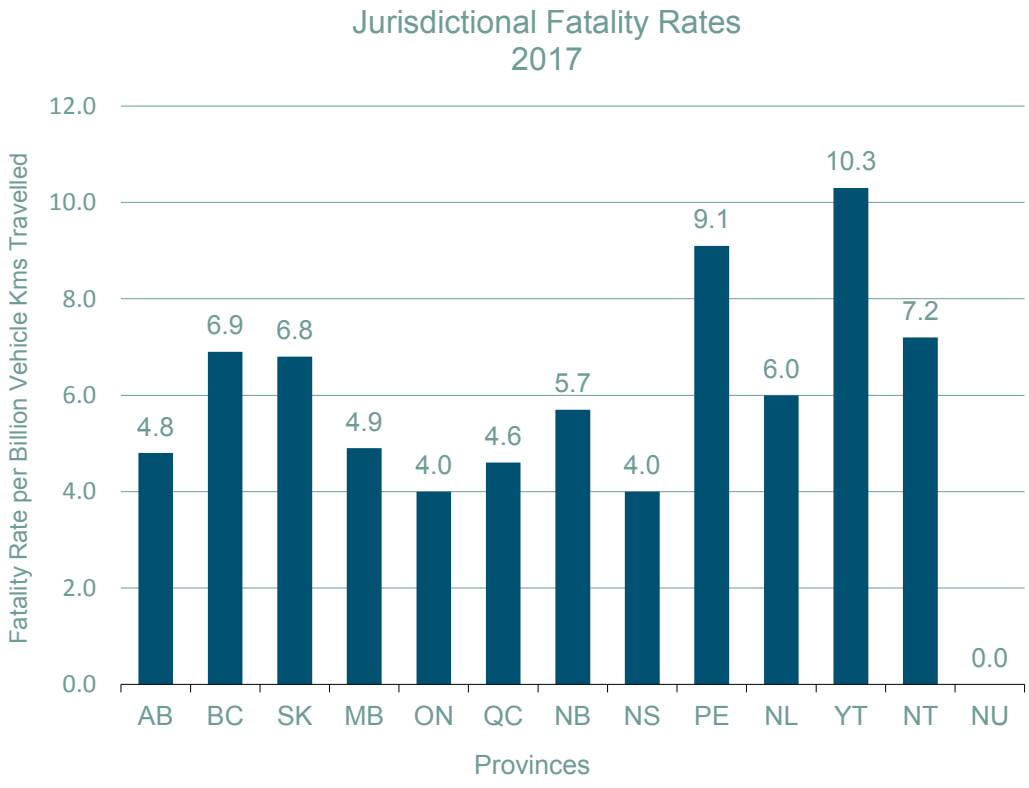


Figure 2. Traffic Fatality Rates per Billion Vehicle Kilometers Travelled

When the Collisions Occurred

Month

July experienced more fatal collisions than other months. The highest number of injury and property damage collisions were both recorded during the months 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 late night (11:00 p.m. – 2:59 a.m.).

Holidays

The Canada Day Long Weekend recorded the highest number of fatalities while the Christmas Season recorded the highest number of injuries. The Christmas Season also recorded the highest total number of collisions.

Collision Occurrence by Month

2017

Month	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
January	18	6.9	1,066	8.1	12,847	9.9	13,931	9.8
February	15	5.8	895	6.8	10,960	8.5	11,870	8.3
March	19	7.3	1,005	7.7	11,279	8.7	12,303	8.6
April	21	8.1	814	6.2	8,211	6.4	9,046	6.3
May	19	7.3	990	7.6	9,060	7.0	10,069	7.1
June	19	7.3	1,152	8.8	9,928	7.7	11,099	7.8
July	30	11.6	1,060	8.1	9,383	7.3	10,473	7.4
August	25	9.7	1,081	8.3	9,283	7.2	10,389	7.3
September	25	9.7	1,155	8.8	9,554	7.4	10,734	7.5
October	28	10.8	1,209	9.2	10,606	8.2	11,843	8.3
November	21	8.1	1,353	10.3	14,416	11.2	15,790	11.1
December	19	7.3	1,302	10.0	13,573	10.5	14,894	10.5
Unspecified	--	--	--	--	26	0.0	26	0.0
Total Number of Collisions	**259**	**100.0**	**13,082**	**100.0**	**129,126**	**100.0**	**142,467**	**100.0**

Table 2.1. Collision Occurrence by Month

Observations

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

Collision Occurrence by Day of Week

2017

Day of Week	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Monday	36	13.9	1,908	14.6	18,073	14.0	20,017	14.1
Tuesday	37	14.3	2,060	15.7	19,314	15.0	21,411	15.0
Wednesday	36	13.9	2,019	15.4	19,574	15.2	21,629	15.2
Thursday	24	9.3	1,979	15.1	19,774	15.3	21,777	15.3
Friday	41	15.8	2,068	15.8	21,944	17.0	24,053	16.9
Saturday	47	18.1	1,723	13.2	16,721	12.9	18,491	13.0
Sunday	38	14.7	1,325	10.1	13,680	10.6	15,043	10.6
Unspecified	--	--	--	--	46	0.0	46	0.0
Total Number of Collisions	**259**	**100.0**	**13,082**	**100.0**	**129,126**	**100.0**	**142,467**	**100.0**

Table 2.2. Collision Occurrence by Day of Week

Observations

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

Collision Occurrence by Time Period

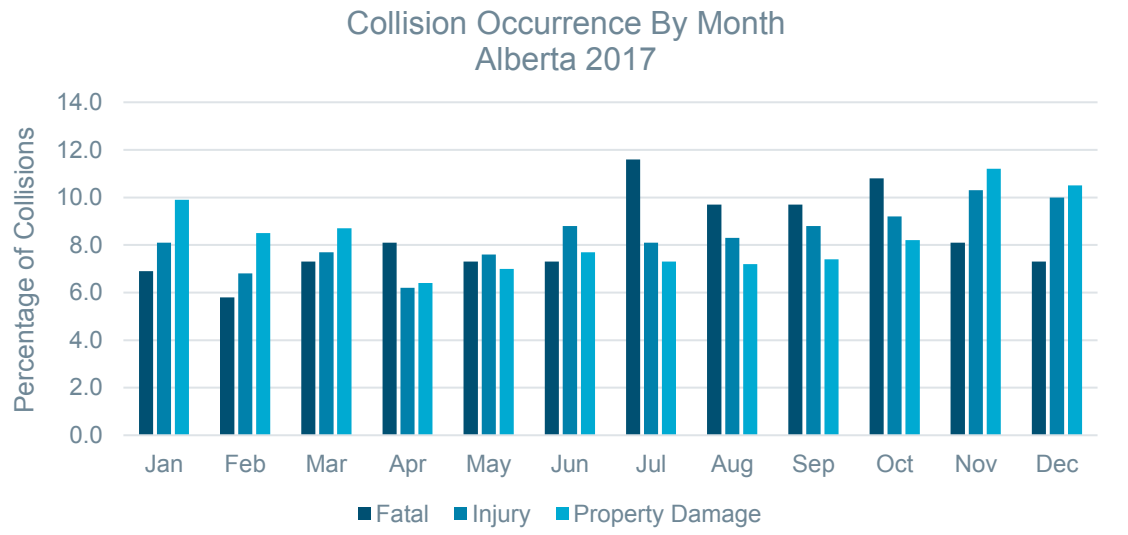
2017

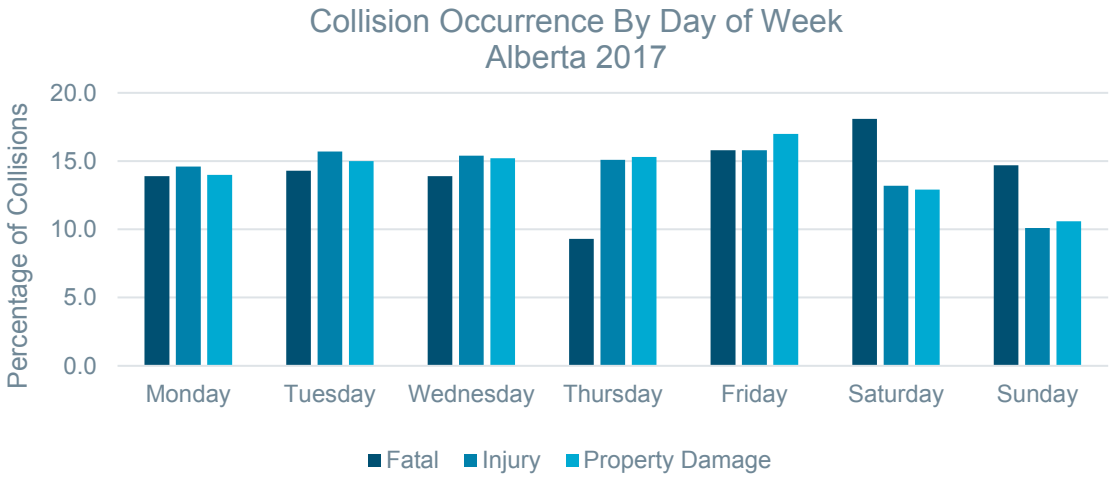
Time Period	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
11:00 p.m. - 2:59 a.m.	44	17.0	701	5.4	5,974	4.6	6,719	4.7
3:00 a.m. - 6:59 a.m.	24	9.3	679	5.2	6,417	5.0	7,120	5.0
7:00 a.m. - 10:59 a.m.	35	13.5	2,422	18.5	24,316	18.8	26,773	18.8
11:00 a.m. - 2:59 p.m.	49	18.9	3,053	23.3	32,286	25.0	35,388	24.8
3:00 p.m. - 6:59 p.m.	56	21.6	4,158	31.8	36,951	28.6	41,165	28.9
7:00 p.m. - 10:59 p.m.	42	16.2	1,784	13.6	17,175	13.3	19,001	13.3
Unspecified	9	3.5	285	2.2	6,007	4.7	6,301	4.4
Total Number of Collisions	**259**	**100.0**	**13,082**	**100.0**	**129,126**	**100.0**	**142,467**	**100.0**

Table 2.3. Collision Occurrence by Time Period

Observations

The afternoon rush hour period (3:00 p.m. – 6:59 p.m.) accounted for the largest percentage (28.9%) of collisions occurring in a 24-hour period. The least collision-prone time period was the late night (11:00 p.m. – 2:59 a.m.).





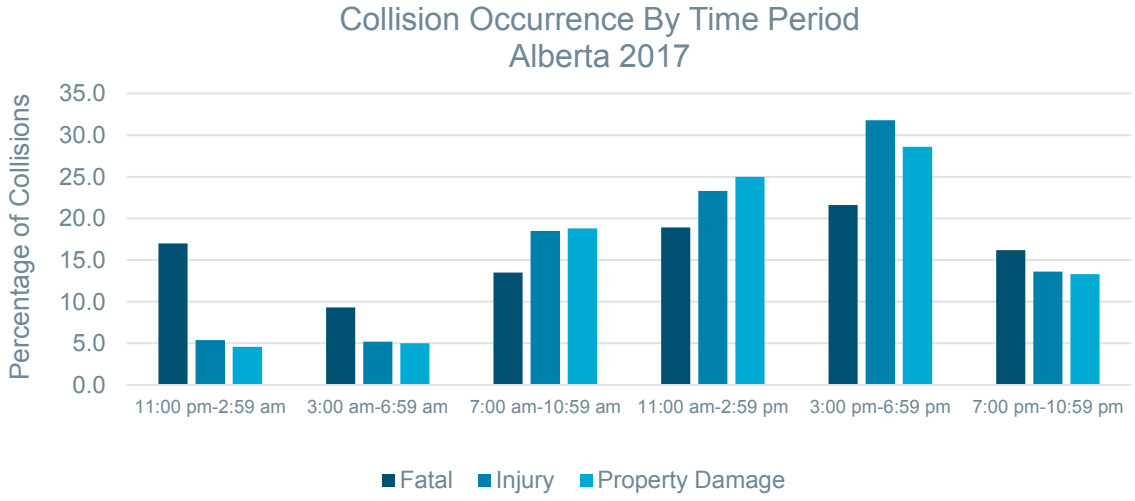


Figure 3. Collision Occurrence by Month/Day of Week/Time Period

Collisions During 2017 Holidays

Holidays	Number Killed N	Number Injured N	Total Collisions* N
New Year's Day (January 1)	1	37	357
Family Day Long Weekend (February 17-20)	3	127	1,217
Easter Long Weekend (April 13-17)	5	181	1,588
Victoria Day Long Weekend (May 19-22)	2	212	1,089
Canada Day Long Weekend (June 30 - July 3)	9	159	1,329
August Long Weekend (August 4-7)	7	184	1,075
Labour Day Long Weekend (September 1-4)	4	178	1,232
Thanksgiving Long Weekend (October 6-9)	2	143	1,203
Remembrance Day Long Weekend (November 10-13)	6	193	1,643
Christmas Season (December 22-26)	1	235	2,357
Total	**40**	**1,649**	**13,090**

Table 2.4. Collisions During 2017 Holidays

Observations

The Canada Day Long Weekend recorded the highest number of fatalities while the Christmas Season recorded the highest number of injuries. The Christmas Season also recorded the highest total number of collisions.

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

Note: Use caution when comparing holidays. 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 6.4% and 3.2% 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 years of age and under.

Injuries and Fatalities by Road User Class

2017

Road User Class	Persons Killed		Persons Injured		Total Casualties	
	N	%	N	%	N	%
Drivers	156	53.8	11,311	65.8	11,467	65.6
Passengers	59	20.3	3,444	20.0	3,503	20.0
Pedestrians	37	12.8	1,086	6.3	1,123	6.4
Motorcyclists	26	9.0	526	3.1	552	3.2
Bicyclists	6	2.1	416	2.4	422	2.4
Other	3	1.0	125	0.7	128	0.7
Unspecified	3	1.0	278	1.6	281	1.6
Total Casualties	**290**	**100.0**	**17,186**	**100.0**	**17,476**	**100.0**

Table 3.1. Injuries and Fatalities by Road User Class

Observations

The majority of traffic victims were drivers (65.6%) and passengers (20.0%) of vehicles. Pedestrians and motorcyclists accounted for 6.4% and 3.2% of the total casualties, respectively.

Age of Casualties

2017

Age in Years	Persons Killed		Persons Injured		Total Casualties		Casualty Rate Per 10,000 Population*
	N	%	N	%	N	%	
Under 5	6	2.1	211	1.2	217	1.2	7.8
5 - 9	3	1.0	370	2.2	373	2.1	13.7
10 - 14	5	1.7	457	2.7	462	2.6	18.8
15 - 19	18	6.2	1,528	8.9	1,546	8.8	64.3
20 - 24	27	9.3	1,824	10.6	1,851	10.6	65.9
25 - 29	29	10.0	1,814	10.6	1,843	10.5	54.8
30 - 34	23	7.9	1,784	10.4	1,807	10.3	49.0
35 - 44	50	17.2	2,937	17.1	2,987	17.1	46.5
45 - 54	38	13.1	2,481	14.4	2,519	14.4	44.8
55 - 64	43	14.8	1,988	11.6	2,031	11.6	38.3
65 and over	48	16.6	1,420	8.3	1,468	8.4	27.7
Unspecified	--	--	372	2.2	372	2.1	
Total Casualties	**290**	**100.0**	**17,186**	**100.0**	**17,476**	**100.0**	

Table 3.2. Age of Casualties

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, 2017, Statistics Canada

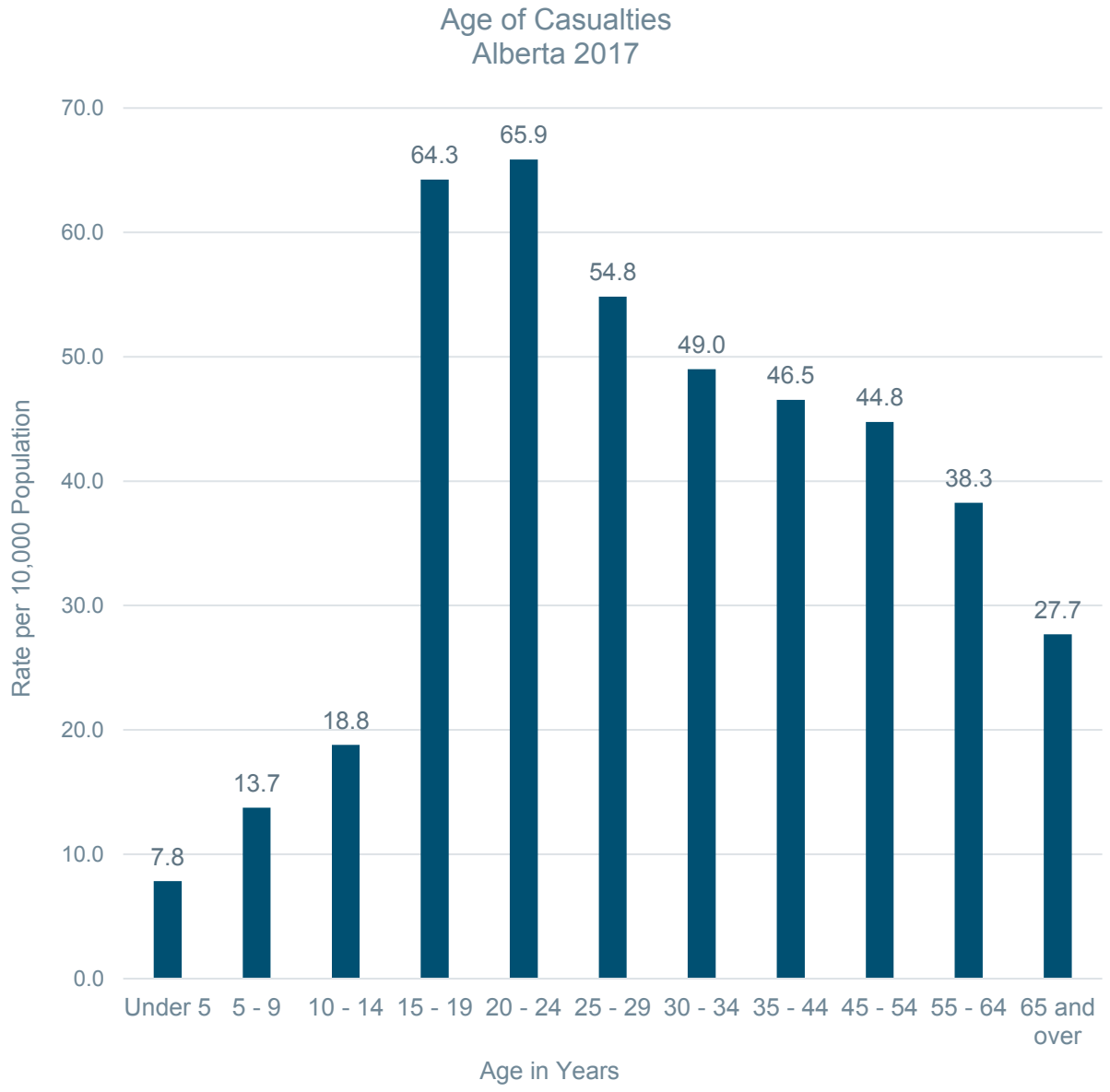


Figure 4. Age of Casualties

Drivers

Age and Sex of Drivers

Collision rates per 1,000 licensed drivers indicate that males 16 to 17 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 18 to 19 years old.

Driver Actions

Following too closely (31.7%), running off the road (18.0%) and making a left turn across the path of an incoming vehicle (11.4%) were the most frequently identified improper driver actions contributing to casualty collisions.

Age and Sex of Drivers Involved in Casualty Collisions: per 1,000 licensed Drivers

2017

Age of Driver	Male			Female			Total*		
	N	%	Rate Per 1,000** Licensed Drivers	N	%	Rate Per 1,000** Licensed Drivers	N	%	Rate Per 1,000** Licensed Drivers
Under 16	105	0.4	6.1	41	0.2	2.5	146	0.6	4.3
16 - 17	435	1.8	12.9	339	1.4	11.0	774	3.3	12.0
18 - 19	505	2.1	12.0	433	1.8	11.3	938	4.0	11.6
20 - 24	1,497	6.3	11.7	1,078	4.5	9.3	2,575	10.9	10.6
25 - 34	3,005	12.7	8.6	2,283	9.6	7.1	5,288	22.3	7.9
35 - 44	2,625	11.1	8.2	1,978	8.3	6.7	4,603	19.4	7.5
45 - 54	2,243	9.5	8.0	1,584	6.7	6.2	3,827	16.1	7.1
55 - 64	1,856	7.8	7.0	1,163	4.9	4.8	3,019	12.7	5.9
65 and over	1,276	5.4	5.6	761	3.2	3.7	2,035	8.6	4.7
Unspecified	93	0.4		32	0.1		526	2.2	
Total Number of Drivers	**13,640**	**57.5**		**9,692**	**40.8**		**23,731**	**100.0**	

Table 4.1. Age and Sex of Drivers Involved in Casualty Collisions: per 1,000 Licensed Drivers

Observations

Collision rates per 1,000 licensed drivers indicated that males 16 to 17 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 18 to 19 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, 2017.

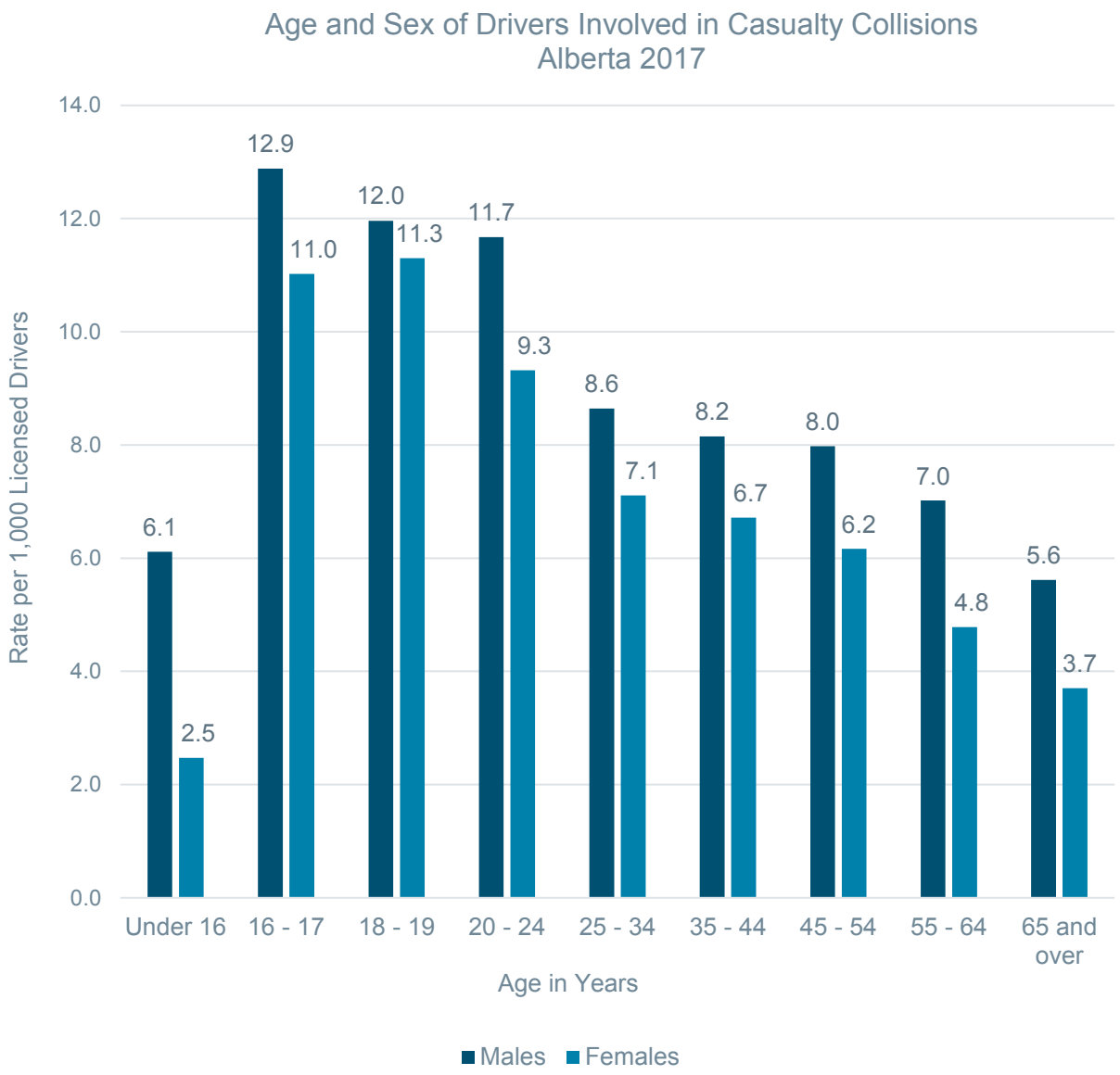


Figure 5. Age and Sex of Drivers Involved in Casualty Collions

Improper Actions of Drivers Involved in Casualty Collisions*

2017

Improper Actions	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Followed Too Closely	11	5.0	3,233	32.3	3,244	31.7
Ran Off Road	92	42.0	1,753	17.5	1,845	18.0
Left Turn Across Path	9	4.1	1,163	11.6	1,172	11.4
Stop Sign Violation	36	16.4	761	7.6	797	7.8
Disobey Traffic Signal	4	1.8	626	6.2	630	6.2
Failed to Yield Right of Way to Pedestrian	6	2.7	455	4.5	461	4.5
Improper Turn	2	0.9	334	3.3	336	3.3
Improper Lane Change	1	0.5	334	3.3	335	3.3
Left of Centre	43	19.6	268	2.7	311	3.0
Backed Unsafely	1	0.5	276	2.8	277	2.7
Failed to Yield Right of Way - Uncontrolled Intersection	1	0.5	210	2.1	211	2.1
Yield Sign Violation	3	1.4	172	1.7	175	1.7
Improper Passing	4	1.8	117	1.2	121	1.2
Other	6	2.7	318	3.2	324	3.2
Total Number of Drivers	**219**	**100.0**	**10,020**	**100.0**	**10,239**	**100.0**

Table 4.2. Improper Actions of Drivers Involved in Casualty Collisions*

Observations

Following too closely (31.7%), running off the road (18.0%) and making a left turn across the path of an oncoming vehicle (11.4%) 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 were a total of 21,123 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 10,884 were indicated as driving properly at the time of the collision.

Vehicles

Types of Vehicles

Passenger cars (36.5%), minivans/MPVs (30.6%) and pick-up trucks/vans (22.3%) were the vehicles most frequently involved in total casualty collisions.

Vehicle Factors

Overall 1.0% 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, 45.3% of the impacts involved the centre front.

Types of Vehicles Involved in Casualty Collisions*

2017

Type of Vehicle	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
Passenger Car	108	24.4	8,652	36.7	8,760	36.5
Mini-Van/MPV	101	22.8	7,248	30.8	7,349	30.6
Pick-up Truck/Van	130	29.3	5,220	22.2	5,350	22.3
Truck 4500 kg+	15	3.4	763	3.2	778	3.2
Motorcycle	27	6.1	526	2.2	553	2.3
Tractor-Trailer	49	11.1	473	2.0	522	2.2
Bicycle	6	1.4	416	1.8	422	1.8
Transit Bus	2	0.5	64	0.3	66	0.3
Off-Highway Vehicle	1	0.2	51	0.2	52	0.2
School Bus	--	--	44	0.2	44	0.2
Emergency Vehicle	--	--	38	0.2	38	0.2
Construction Equipment	1	0.2	21	0.1	22	0.1
Farm Equipment	1	0.2	14	0.1	15	0.1
Motorhome	--	--	13	0.1	13	0.1
Other Bus	2	0.5	10	0.0	12	0.0
Moped	--	--	5	0.0	5	0.0
Motorized Snow Vehicle	--	--	2	0.0	2	0.0
Intercity Bus	--	--	2	0.0	2	0.0
Other	--	--	1	0.0	1	0.0
Total Number of Vehicles	**443**	**100.0**	**23,563**	**100.0**	**24,006**	**100.0**

Table 5.1. Types of Vehicles Involved in Casualty Collisions*

Observations

Passenger cars, mini-vans/MPVs and pick-up trucks/vans were the vehicles most frequently involved in total casualty collisions. Overall, motorcycles represented 2.3% and bicycles 1.8% of the vehicles involved in casualty collisions. Tractor-Trailers were 2.2% of total vehicles in casualty crashes, but 11.1% of vehicles in fatal crashes.

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

Vehicle Factors Involved in Casualty Collisions*

2017

Vehicle Factors	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
No Apparent Defect	346	99.1	21,163	99.0	21,509	99.0
Defective Brakes	1	0.3	84	0.4	85	0.4
Tires Failed	1	0.3	55	0.3	56	0.3
Lighting Defect	--	--	11	0.1	11	0.1
Improper Load/Shift	1	0.3	7	0.0	8	0.0
Other	--	--	58	0.3	58	0.3
Total Number of Vehicles	**349**	**100.0**	**21,378**	**100.0**	**21,727**	**100.0**

Table 5.2. Vehicle Factors Involved in Casualty Collisions*

Observations

Overall 1.0% 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.

Point of Impact on Vehicles Involved in Casualty Collisions*

2017

Point of Impact	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
Centre Front	210	49.6	10,459	45.3	10,669	45.3
Centre Rear	25	5.9	5,154	22.3	5,179	22.0
Right Front	19	4.5	1,567	6.8	1,586	6.7
Left Front	20	4.7	1,545	6.7	1,565	6.6
Left Side	31	7.3	1,016	4.4	1,047	4.4
Right Side	20	4.7	978	4.2	998	4.2
Rollover	53	12.5	914	4.0	967	4.1
Left Rear	8	1.9	582	2.5	590	2.5
Right Rear	11	2.6	559	2.4	570	2.4
Attachment	16	3.8	229	1.0	245	1.0
Undercarriage	9	2.1	71	0.3	80	0.3
Top	1	0.2	37	0.2	38	0.2
Total Number of Vehicles	**423**	**100.0**	**23,111**	**100.0**	**23,534**	**100.0**

Table 5.3. Point of Impact on Vehicles Involved in Casualty Collisions*

Observations

The most common point of impact in casualty collisions involved the front of the vehicle. 45.3% of the impacts involved the centre front, while 22.0% 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 (67.6%) occurred in rural areas, whereas the majority of injury (74.3%) and property damage (83.5%) crashes occurred in urban areas.

Surface Conditions

The majority (64.5%) of all casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 16.6% of fatal collisions and 23.5% of non-fatal injury collisions.

Location of Collisions

2017

Location	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Urban	84	32.4	9,724	74.3	107,840	83.5	117,648	82.6
Rural	175	67.6	3,358	25.7	21,286	16.5	24,819	17.4
Total Number of Collisions	**259**	**100.0**	**13,082**	**100.0**	**129,126**	**100.0**	**142,467**	**100.0**

Table 6.1. Location of Collisions

Observations

The majority of fatal collisions (67.6%) occurred in rural areas. Collisions occurring in urban areas resulted in the highest proportion of non-fatal injury collisions (74.3%) and property damage crashes (83.5%).

Casualty Collision Occurrence by Surface Condition

2017

Surface Condition	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Dry	180	69.5	8,430	64.4	8,610	64.5
Slush/Snow/Ice	43	16.6	3,070	23.5	3,113	23.3
Wet	22	8.5	1,065	8.1	1,087	8.1
Loose Surface Material	8	3.1	161	1.2	169	1.3
Muddy	1	0.4	15	0.1	16	0.1
Other	1	0.4	63	0.5	64	0.5
Unspecified	4	1.5	278	2.1	282	2.1
Total Number of Collisions	**259**	**100.0**	**13,082**	**100.0**	**13,341**	**100.0**

Table 6.2. Casualty Collision Occurrence by Surface Condition

Observations

The majority (64.5%) of casualty collisions occurred when surface conditions were dry. Slush, snow or ice was involved in 16.6% of fatal collisions and 23.5% of non-fatal injury collisions.

Special Types of Vehicles - Motorcycles

Motorcycles

- In 2017, based on motorcycle registrations, the involvement rate of motorcycles has decreased in both fatal collisions and injury collisions.
- The majority of motorcycle casualty collisions involved male drivers. Motorcycle operators under the age of 25 had the highest involvement rate per 1,000 licensed drivers.
- Compared to drivers involved in total casualty collisions, motorcycle operators were more likely to run off the road, pass improperly, make an improper turn, or make an improper lane change. However, motorcycle operators were less likely to follow too closely, make a left turn across the path of an oncoming vehicle, or commit a stop sign violation.
- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle operators were as likely to have been legally impaired.
- Vehicle factors were identified for 2.2% of motorcycles involved in casualty collisions compared to 1.0% for all types of vehicles involved in casualty collisions.
- The occurrence of casualty collisions involving motorcycles was highest in the month of July.
- The majority of casualty collisions involving motorcycles occurred on dry roads.

Motorcycles Involved in Casualty Collisions

2013 – 2017

Number of Motorcycles	2017	2016	2015	2014	2013
Fatal	27	38	31	36	42
Non-Fatal Injury	526	607	622	598	642
Total Number of Motorcycles Involved in Casualty Collisions	**553**	**645**	**653**	**634**	**684**

Casualties*	2017	2016	2015	2014	2013
Number Killed	26	32	33	35	42
Number Injured	557	665	685	649	697
Total Casualties in Collisions Involving Motorcycles	**583**	**697**	**718**	**684**	**739**

Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**	2017	2016	2015	2014	2013
Fatal Collisions	2.2	3.1	2.5	2.9	3.6
Non-Fatal Injury Collisions	42.9	50.1	49.2	48.9	54.7

Table 7.1. Motorcycles Involved in Casualty Collisions

Observations

Based on motorcycle registrations in 2017, compared to 2016, the involvement rate of motorcycles decreased in both fatal collisions and injury collisions.

*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, 2017.

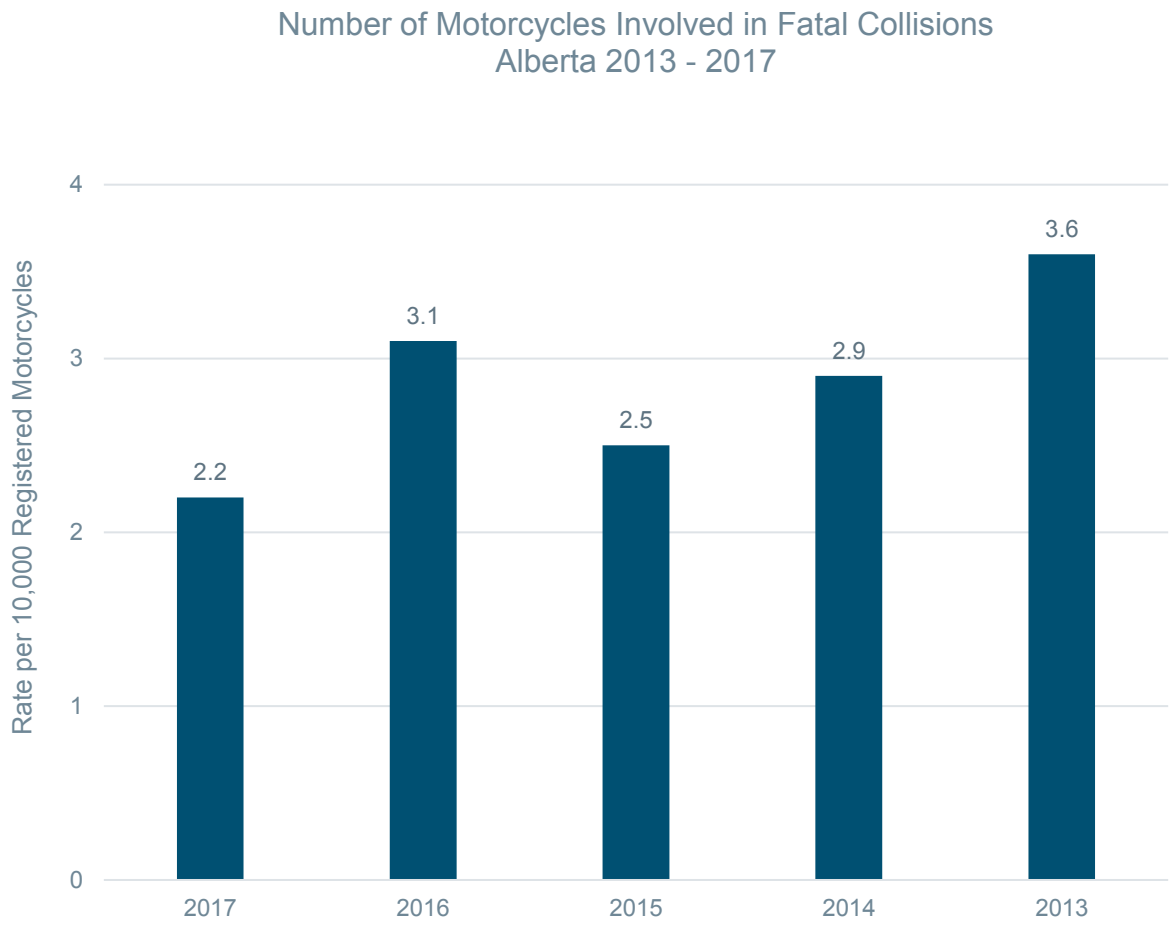


Figure 6. Number of Motorcycles Involved in Fatal Collisions

Age and Sex of Motorcycle Operators Involved in Casualty Collisions

2017

Age of Motorcycle Operators	Male		Female		Total*		Rate Per 1,000 Licensed Motorcycle Operators**
	N	%	N	%	N	%	
Under 16	7	1.3	3	0.5	10	1.8	--
16 - 17	5	0.9	--	--	5	0.9	34.5
18 - 19	10	1.8	2	0.4	12	2.2	19.3
20 - 24	64	11.6	4	0.7	68	12.3	11.4
25 - 34	104	18.8	13	2.4	117	21.2	2.9
35 - 44	83	15.0	11	2.0	94	17.0	1.7
45 - 54	81	14.6	18	3.3	99	17.9	1.5
55 - 64	92	16.6	15	2.7	107	19.3	1.3
65 and over	36	6.5	1	0.2	37	6.7	0.8
Unspecified	1	0.2	--	--	4	0.7	
Total Number of Motorcycle Operators	**483**	**87.3**	**67**	**12.1**	**553**	**100.0**	

Table 7.2. Age and Sex of Motorcycle Operators Involved in Casualty Collisions

Observations

The majority of motorcycle casualty collisions involved male operators. Based on involvement per 1,000 licensed operators, motorcycle operators under the age of 25 were most likely to be involved in collisions. In particular, 16 - 17 year old motorcycle operators had the highest involvement rate per 1,000 licensed motorcycle operators. These age and sex comparisons are limited due to the lack of driving exposure data. 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.

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

**Source: licensed Drivers – Service Alberta – Registries Services, as of December 31, 2017.

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

Improper Actions of Motorcycle Operators Involved in Casualty Collisions*

2017

Improper Actions of Motorcycle Operators	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	125	49.6	18.0
Followed Too Closely	49	19.4	31.7
Improper Turn	13	5.2	3.3
Improper Lane Change	13	5.2	3.3
Improper Passing	12	4.8	1.2
Disobey Traffic Signal	6	2.4	6.2
Left Turn Across Path	5	2.0	11.4
Stop Sign Violation	4	1.6	7.8
Failed to Yield Right of Way to Pedestrian	2	0.8	4.5
Left of Centre	1	0.4	3.0
Failed to Yield Right of Way - Uncontrolled Intersection	1	0.4	2.1
Yield Sign Violation	1	0.4	1.7
Backed Unsafely	--	--	2.7
Other	20	7.9	3.2
Total Number of Operators	**252**	**100.0**	

Table 7.3. Improper Actions of Motorcycle Operators Involved in Casualty Collisions*

Observations

Compared to drivers involved in total casualty collisions, motorcycle operators were more likely to run off the road, pass improperly, make an improper turn, or make an improper lane change. However, motorcycle operators were less likely to follow too closely, make a left turn across the path of an oncoming vehicle, or commit a stop sign violation.

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

Note: There were a total of 470 motorcycle operators involved in casualty collisions for which a driver action was specified on the collision report form. 218 were indicated as driving properly at the time of the collision.

Condition of Motorcycle Operators Involved in Casualty Collisions*

2017

Condition of Motorcycle Operator	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	474	95.6	95.1
Alcohol Impaired	8	1.6	1.4
Drug Impaired	1	0.2	0.4
Total Impaired Operators	**9**	**1.8**	**1.8**
Fatigued/Asleep	2	0.4	1.0
Other	11	2.2	2.0
Total Number of Motorcycle Operators	**496**	**100.0**	

Table 7.4. Condition of Motorcycle Operators Involved in Casualty Collisions*

Observations

The motorcycle operator's condition was a contributory factor for 4.4% of the motorcycle operators involved in casualty collisions. Compared to drivers involved in total casualty collisions, motorcycle operators were as likely to have been legally impaired.

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

Motorcycle Vehicle Factors in Casualty Collisions*

2017

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	500	97.8	99.0
Tires Failed	6	1.2	0.3
Improper Load/Shift	1	0.2	0.1
Lighting Defect	1	0.2	0.0
Defective Brakes	--	--	0.4
Other	3	0.6	0.3
Total Number of Motorcycles	**511**	**100.0**	

Table 7.5. Motorcycle Vehicle Factors in Casualty Collisions*

Observations

Vehicle factors were identified for 2.2% of the motorcycles involved in casualty collisions compared to 1.0% for all types of vehicles involved in casualty collisions.

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

Casualty Collisions Involving Motorcycles: Month of Occurrence

2017

Month	N	%
January	1	0.2
February	--	--
March	6	1.1
April	25	4.7
May	87	16.4
June	96	18.0
July	111	20.9
August	88	16.5
September	81	15.2
October	32	6.0
November	2	0.4
December	3	0.6
Unspecified	--	--
Total Number of Collisions	**532**	**100.0**

Table 7.6. Casualty Collisions Involving Motorcycles: Month of Occurrence

Observations

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

Casualty Collisions Involving Motorcycles: Road Surface Condition

2017

Road Surface Condition	N	%
Dry	475	89.3
Loose Surface Material	24	4.5
Wet	20	3.8
Slush/Snow/Ice	1	0.2
Other	4	0.8
Unspecified	8	1.5
Total Number of Collisions	**532**	**100.0**

Table 7.7. Casualty Collisions Involving Motorcycles: Road Surface Condition

Observations

The majority (89.3%) of casualty collisions involving motorcycles occurred on dry roads. Loose material on the road surface was involved in 4.5% of motorcycle casualty crashes. Wet roads were the scene for 3.8% of motorcycle casualty collisions.

Special Types of Vehicles - Truck Tractors

Truck Tractors

- In 2017, there were 49 persons killed and 588 injured in collisions involving truck tractors. This represents an increase in fatalities and injuries from 2016.
- Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road, turn improperly, make an improper lane change, or violate a yield sign. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make a left turn across the path of an oncoming vehicle, or disobey a traffic signal.
- Truck tractor drivers were less likely to have been legally impaired, compared to 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.

Truck Tractors Involved in Casualty Collisions

2013 – 2017

Number of Truck Tractors	2017	2016	2015	2014	2013
Fatal	49	36	39	54	50
Non-Fatal Injury	473	332	457	526	477
Total Number of Truck Tractors Involved in Casualty Collisions	**522**	**368**	**496**	**580**	**527**

Casualties*	2017	2016	2015	2014	2013
Number Killed	49	39	38	57	53
Number Injured	588	411	556	633	584
Total Casualties in Collisions Involving Truck Tractors	**637**	**450**	**594**	**690**	**637**

Table 7.8. Truck Tractors Involved in Casualty Collisions

Observations

In 2017, there were 49 persons killed and 588 injured in collisions involving truck tractors. This represents an increase in fatalities and injuries from 2016. The total number of truck tractors involved in casualty crashes was highest in 2014 at 580.

*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.

Improper Actions of Truck Tractor Drivers Involved in Casualty Collisions*

2017

Improper Actions of Truck Tractor Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	116	47.7	18.0
Followed Too Closely	45	18.5	31.7
Stop Sign Violation	18	7.4	7.8
Left Turn Across Path	16	6.6	11.4
Improper Turn	10	4.1	3.3
Improper Lane Change	9	3.7	3.3
Left of Centre	6	2.5	3.0
Yield Sign Violation	5	2.1	1.7
Disobey Traffic Signal	4	1.6	6.2
Backed Unsafely	3	1.2	2.7
Failed to Yield Right of Way - Uncontrolled Intersection	3	1.2	2.1
Failed to Yield Right of Way - Pedestrian	2	0.8	4.5
Improper Passing	2	0.8	1.2
Other	4	1.6	3.2
Total Number of Drivers	**243**	**100.0**	

Table 7.9. Improper Actions of Truck Tractor Drivers Involved in Casualty Collisions*

Observations

Compared to drivers of other vehicles, truck tractor drivers were more likely to run off the road, turn improperly, make an improper lane change, or violate a yield sign. However, operators of truck tractors were less likely than other vehicle operators to follow too closely, make a left turn across the path of an oncoming vehicle, 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 470 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.

Condition of Truck Tractor Drivers Involved in Casualty Collisions*

2017

Driver Condition	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	436	96.0	95.1
Alcohol Impaired	2	0.4	1.4
Drug Impaired	--	--	0.4
Total Impaired Drivers	**2**	**0.4**	**1.8**
Fatigued/Asleep	9	2.0	1.0
Other	7	1.5	2.0
Total Number of Drivers	**454**	**100.0**	

Table 7.10. Condition of Truck Tractor Drivers Involved in Casualty Collisions*

Observations

The condition of the truck tractor driver was a contributory factor for 4.0% of the drivers involved. In 2017, two truck tractor drivers were reported by police as having been legally impaired. Truck tractor drivers 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.

Vehicle Factors of Truck Tractors Involved in Casualty Collisions*

2017

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	444	97.4	99.0
Tires Failed	5	1.1	0.3
Defective Brakes	3	0.7	0.4
Improper Load/Shift	1	0.2	0.0
Lighting Defect	1	0.2	0.1
Other	2	0.4	0.3
Total Number of Truck Tractors	**456**	**100.0**	

Table 7.11. Vehicle Factors of Truck Tractors Involved in Casualty Collisions*

Observations

Vehicle factors were identified for 2.6% 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.

Casualty Collisions Involving Truck Tractors: Month of Occurrence

2017

Month	N	%
January	50	10.3
February	37	7.6
March	37	7.6
April	16	3.3
May	37	7.6
June	38	7.8
July	45	9.3
August	44	9.1
September	39	8.0
October	47	9.7
November	60	12.3
December	36	7.4
Total Number of Collisions	**486**	**100.0**

Table 7.12. Casualty Collisions Involving Truck Tractors: Month of Occurrence

Observations

The occurrence of casualty collisions involving truck tractors was highest in the month of November and lowest during April.

Special Types of Vehicles - Trains

Trains

- In 2017, one person was killed and 10 people were injured in crashes in which a train was involved. The number of casualties involving trains has decreased from 2016.
- The largest number of casualty collisions involving trains occurred in the month of March.
- The majority (88.9%) of drivers involved in casualty collisions with a train made an improper driving action.

Trains Involved in Casualty Collisions

2013 – 2017

Number of Trains	2017	2016	2015	2014	2013
Fatal	1	1	4	2	4
Non-Fatal Injury	8	8	12	14	16
Total Number of Trains Involved in Casualty Collisions	**9**	**9**	**16**	**16**	**20**

Casualties*	2017	2016	2015	2014	2013
Number Killed	1	2	4	2	4
Number Injured	10	10	14	16	20
Total Casualties in Collisions Involving Trains	**11**	**12**	**18**	**18**	**24**

Table 7.13. Trains Involved in Casualty Collisions

Observations

The number of trains involved in casualty collisions remained the same as in 2016. The number of casualties resulting from these collisions decreased.

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

Casualty Collisions Involving Trains: Month of Occurrence
2017

Month	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
January	--	--	2	25.0	2	22.2
February	--	--	1	12.5	1	11.1
March	--	--	3	37.5	3	33.3
April	--	--	--	--	--	--
May	--	--	--	--	--	--
June	--	--	1	12.5	1	11.1
July	--	--	--	--	--	--
August	--	--	1	12.5	1	11.1
September	--	--	--	--	--	--
October	--	--	--	--	--	--
November	1	100.0	--	--	1	11.1
December	--	--	--	--	--	--
Total Number of Collisions	**1**	**100.0**	**8**	**100.0**	**9**	**100.0**

Table 7.14. Casualty Collisions Involving Trains: Month of Occurrence

Observations

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

Actions of Drivers Involved in Casualty Collisions with Trains*

2017

Driver Actions	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Driving Properly	--	--	1	12.5	1	11.1
Disobey Traffic Signal	1	100.0	4	50.0	5	55.6
Stop Sign Violation	--	--	2	25.0	2	22.2
Failed to Yield Right of Way - Uncontrolled Intersection	--	--	1	12.5	1	11.1
Total Number of Drivers	**1**	**100.0**	**8**	**100.0**	**9**	**100.0**

Table 7.15. Actions of Drivers Involved in Casualty Collisions with Trains*

Observations

The majority (88.9%) of drivers involved in a casualty collision 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 September. March experienced the least number of pedestrian crashes.
- Pedestrian casualty collisions were most likely to occur on Tuesday and least likely to occur on Sunday.
- Pedestrian casualty collisions were most likely to occur during the evening rush-hour period (3:00 p.m. - 6:59 p.m.).
- 47.3% 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 10,000 population was highest for pedestrians between the ages of 20 and 24.
- Of pedestrians involved in injury collisions, 4.4% were legally impaired, compared to 15.4% involved in fatal collisions.
- Of those pedestrians who were impaired, the highest rate of involvement per 10,000 population was for pedestrians 25 to 34 years of age.

Casualty Collisions Involving Pedestrians: Month of Occurrence

2017

Month of Collision	N	%
January	79	7.3
February	83	7.7
March	59	5.5
April	65	6.0
May	67	6.2
June	104	9.6
July	87	8.1
August	83	7.7
September	121	11.2
October	114	10.6
November	100	9.3
December	118	10.9
Total Number of Collisions	**1,080**	**100.0**

Table 8.1. Casualty Collisions Involving Pedestrians: Month of Occurrence

Observations

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

Casualty Collisions Involving Pedestrians: Day of Week
2017

Day of Week	N	%
Monday	153	14.2
Tuesday	186	17.2
Wednesday	185	17.1
Thursday	156	14.4
Friday	184	17.0
Saturday	133	12.3
Sunday	83	7.7
Total Number of Collisions	**1,080**	**100.0**

Table 8.2. Casualty Collisions Involving Pedestrians: Day of Week

Observations

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

Casualty Collisions Involving Pedestrians: Time Period
2017

Time Period	N	%
11:00 p.m. - 2:59 a.m.	64	5.9
3:00 a.m. - 6:59 a.m.	40	3.7
7:00 a.m. - 10:59 a.m.	220	20.4
11:00 a.m. - 2:59 p.m.	248	23.0
3:00 p.m. - 6:59 p.m.	301	27.9
7:00 p.m. - 10:59 p.m.	185	17.1
Unspecified	22	2.0
Total Number of Collisions	**1,080**	**100.0**

Table 8.3. Casualty Collisions Involving Pedestrians: Time Period

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.).

Casualty Collisions Involving Pedestrians: Location
2017

Location	N	%
Urban	1,042	96.5
Rural	38	3.5
Total Number of Collisions	**1,080**	**100.0**

Table 8.4. Casualty Collisions Involving Pedestrians: Location

Observations

The majority of pedestrian casualty collisions (96.5%) occurred in urban areas. Only 3.5% occurred in rural areas.

Actions of Drivers Involved in Casualty Collisions with Pedestrians*

2017

Driver Actions	N	%
Driving Properly	276	31.4
Failed to Yield Right of Way To Pedestrian	416	47.3
Backed Unsafely	84	9.6
Improper Turn	27	3.1
Ran Off Road	16	1.8
Left Turn Across Path	10	1.1
Followed Too Closely	9	1.0
Stop Sign Violation	8	0.9
Disobey Traffic Signal	6	0.7
Failed to Yield Right of Way - Uncontrolled Intersection	4	0.5
Left of Centre	4	0.5
Yield Sign Violation	3	0.3
Improper Lane Change	1	0.1
Other	15	1.7
Total Number of Drivers	**879**	**100.0**

Table 8.5. Actions of Drivers Involved in Casualty Collisions with Pedestrians*

Observations

31.4% of the drivers involved in pedestrian casualty crashes were recorded as driving properly. However, 47.3% 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.

Age of Pedestrian Casualties
2017

Age in Years	Pedestrians Killed N	Pedestrians Killed %	Pedestrians Injured N	Pedestrians Injured %	Total Pedestrian Casualties N	Total Pedestrian Casualties %	Pedestrian Casualty Rate Per 10,000 Population*
Under 5	3	8.1	17	1.6	20	1.8	0.7
5 - 9	1	2.7	37	3.4	38	3.4	1.4
10 - 14	--	--	70	6.4	70	6.2	2.8
15 - 19	--	--	93	8.6	93	8.3	3.9
20 - 24	1	2.7	112	10.3	113	10.1	4.0
25 - 29	4	10.8	106	9.8	110	9.8	3.3
30 - 34	2	5.4	85	7.8	87	7.7	2.4
35 - 44	3	8.1	124	11.4	127	11.3	2.0
45 - 54	9	24.3	145	13.4	154	13.7	2.7
55 - 64	4	10.8	127	11.7	131	11.7	2.5
65 and over	10	27.0	136	12.5	146	13.0	2.8
Unspecified	--	--	34	3.1	34	3.0	
Total Number of Pedestrian Casualties	**37**	**100.0**	**1,086**	**100.0**	**1,123**	**100.0**	

Table 8.6. Age of Pedestrian Casualties

Observations

The casualty rate per 10,000 population was highest for pedestrians between the ages of 20 and 24. 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, 2017, Statistics Canada.

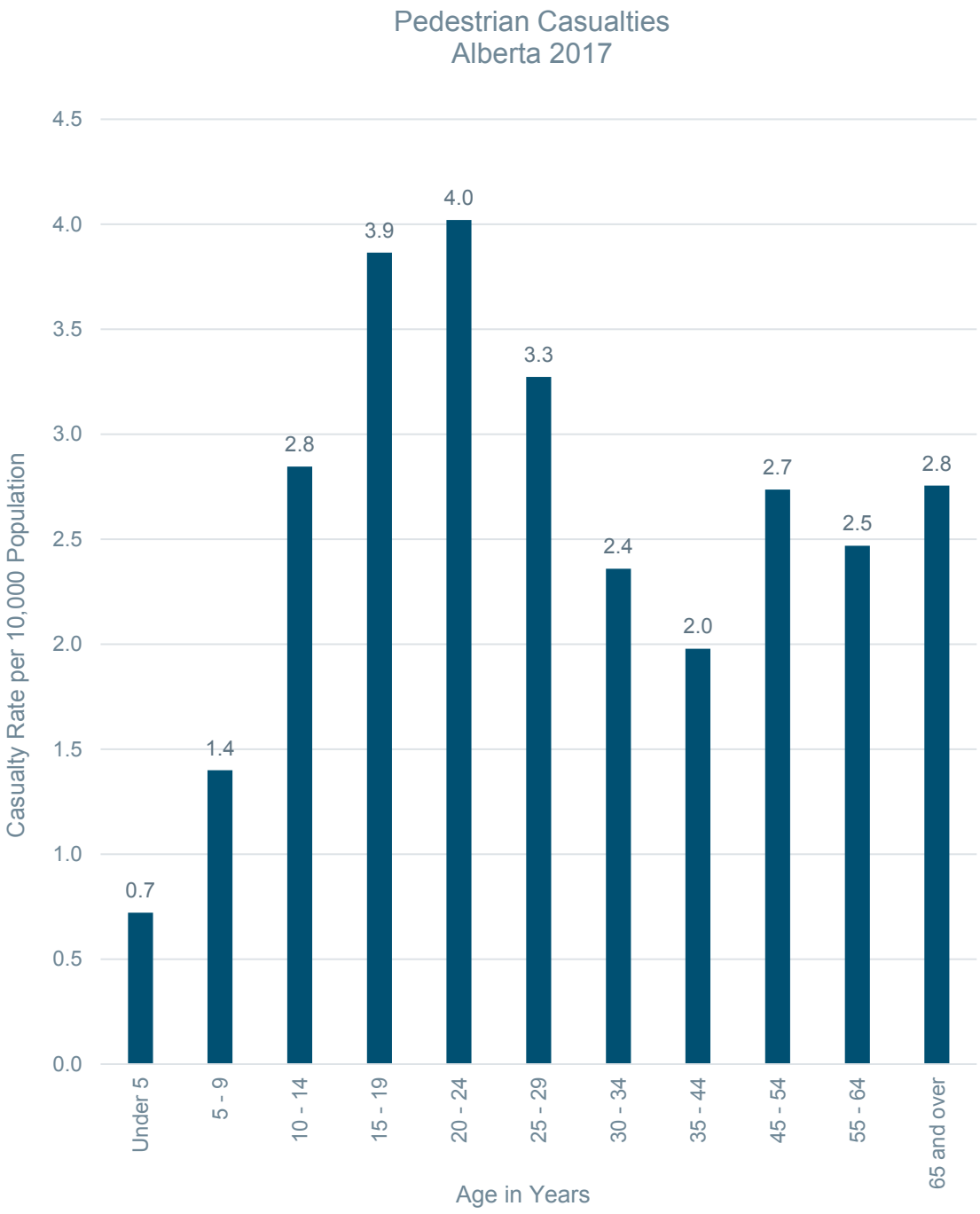


Figure 7. Pedestrian Casualties

Condition of Pedestrians Involved in Casualty Collisions*

2017

Condition of Pedestrian	Pedestrians in Fatal Collisions		Pedestrians in Non-Fatal Injury Collisions		Total Pedestrians in Casualty Collisions	
	N	%	N	%	N	%
Normal	18	69.2	916	90.8	934	90.2
Alcohol Impaired	4	15.4	41	4.1	45	4.3
Drug Impaired	--	--	3	0.3	3	0.3
Total Impaired Pedestrians	**4**	**15.4**	**44**	**4.4**	**48**	**4.6**
Fatigued/Asleep	--	--	1	0.1	1	0.1
Other	4	15.4	48	4.8	52	5.0
Total Number of Pedestrians	**26**	**100.0**	**1,009**	**100.0**	**1,035**	**100.0**

Table 8.7. Condition of Pedestrians Involved in Casualty Collisions*

Observations

Of pedestrians involved in injury collisions, 4.4% were legally impaired, compared to 15.4% involved in fatal collisions. As the severity of the collision increased, the involvement of impairment increased.

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

Age of Impaired Pedestrians Involved in Casualty Collisions*

2017

Age in Years	N	%	Rate per 10,000 Population**
Under 10	--	--	--
10 - 14	--	--	--
15 - 19	2	4.2	0.1
20 - 24	3	6.3	0.1
25 - 29	9	18.8	0.3
30 - 34	10	20.8	0.3
35 - 44	10	20.8	0.2
45 - 54	7	14.6	0.1
55 - 64	6	12.5	0.1
65 and over	--	--	--
Unspecified	1	2.1	
Total Number of Pedestrian Casualties	**48**	**100.0**	

Table 8.8. Age of Impaired Pedestrians Involved in Casualty Collisions*

Observations

Of those pedestrians who were legally impaired, the highest rates of involvement per 10,000 population were for pedestrians 25 - 34 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, 2017, Statistics Canada.

Bicyclists

- Casualty collisions involving bicycles were more likely to occur in the month of June.
- Weekdays experienced the most casualty collisions involving bicycles. As well, the largest number of these crashes (37.1%) occurred during the evening rush-hour period.
- Young bicyclists aged 10 to 14 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.
- 1.9% of bicyclists involved in casualty collisions were legally impaired.

Casualty Collisions Involving Bicycles: Month of Occurrence

2017

Month of Collision	N	%
January	6	1.4
February	5	1.2
March	2	0.5
April	20	4.8
May	48	11.4
June	83	19.7
July	65	15.4
August	54	12.8
September	64	15.2
October	54	12.8
November	9	2.1
December	11	2.6
Total Number of Collisions	**421**	**100.0**

Table 9.1. Casualty Collisions Involving Bicycles: Month of Occurrence

Observations

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

Casualty Collisions Involving Bicycles: Day of Week

2017

Day of Week	N	%
Monday	64	15.2
Tuesday	59	14.0
Wednesday	72	17.1
Thursday	79	18.8
Friday	72	17.1
Saturday	41	9.7
Sunday	34	8.1
Total Number of Collisions	**421**	**100.0**

Table 9.2. Casualty Collisions Involving Bicycles: Day of Week

Observations

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

Casualty Collisions Involving Bicycles: Time Period

2017

Time Period	N	%
11:00 p.m. - 2:59 a.m.	14	3.3
3:00 a.m. - 6:59 a.m.	15	3.6
7:00 a.m. - 10:59 a.m.	84	20.0
11:00 a.m. - 2:59 p.m.	84	20.0
3:00 p.m. - 6:59 p.m.	156	37.1
7:00 p.m. - 10:59 p.m.	61	14.5
Unspecified	7	1.7
Total Number of Collisions	**421**	**100.0**

Table 9.3. Casualty Collisions Involving Bicycles: Time Period

Observations

The largest proportion of casualty crashes (37.1%) involving bicycles occurred during the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

Age of Bicyclist Casualties
2017

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	--	--	6	1.4	6	1.4	0.2
5 - 9	--	--	20	4.8	20	4.7	0.7
10 - 14	1	16.7	57	13.7	58	13.7	2.4
15 - 19	--	--	44	10.6	44	10.4	1.8
20 - 24	--	--	35	8.4	35	8.3	1.2
25 - 29	--	--	36	8.7	36	8.5	1.1
30 - 34	1	16.7	46	11.1	47	11.1	1.3
35 - 44	2	33.3	61	14.7	63	14.9	1.0
45 - 54	--	--	42	10.1	42	10.0	0.7
55 - 64	2	33.3	31	7.5	33	7.8	0.6
65 and over	--	--	17	4.1	17	4.0	0.3
Unspecified	--	--	21	5.0	21	5.0	
Total Casualties	**6**	**100.0**	**416**	**100.0**	**422**	**100.0**	

Table 9.4. Age of Bicyclist Casualties

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 65 and older.

*Based on estimates of the Alberta population by age groups and sex, July 1, 2017, Statistics Canada.

Improper Actions of Bicyclists Involved in Casualty Collisions

2017

Improper Actions of Bicyclists	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Disobey Traffic Signal	28	14.9	6.2
Failed to Yield Right of Way - Uncontrolled Intersection	19	10.1	2.1
Stop Sign Violation	11	5.9	7.8
Left Turn Across Path	9	4.8	11.4
Left of Centre	6	3.2	3.0
Improper Lane Change	5	2.7	3.3
Followed Too Closely	4	2.1	31.7
Failed to Yield Right of Way to Pedestrian	3	1.6	4.5
Yield Sign Violation	2	1.1	1.7
Improper Turn	2	1.1	3.3
Improper Passing	2	1.1	1.2
Backed Unsafely	2	1.1	2.7
Ran Off Road	1	0.5	18.0
Other	94	50.0	3.2
Total Number of Bicyclists	**188**	**100.0**	

Table 9.5. Improper Actions of Bicyclists Involved in Casualty Collisions

Observations

Compared to operators of all vehicles in casualty collisions, bicyclists were more likely to disobey a traffic signal or to 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 were a total of 341 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.

Condition of Bicyclists Involved in Casualty Collisions*

2017

Condition of Bicyclist	N	%
Normal	355	94.4
Alcohol Impaired	4	1.1
Drug Impaired	3	0.8
Total Impaired Bicyclists	**7**	**1.9**
Fatigued/Asleep	--	--
Other	14	3.7
Total Number of Bicyclists	**376**	**100.0**

Table 9.6. Condition of Bicyclists Involved in Casualty Collisions*

Observations

1.9% of bicyclists involved in casualty collisions were legally impaired.

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

Traffic Safety Issues

Impaired Driving: Alcohol and/or Drug Impairment

- A total of 1.7% of drivers involved in injury crashes were judged to have been legally impaired, compared to 10.2% of drivers involved in fatal collisions. As the severity of the collision increased, the involvement of impairment dramatically increased.

- In terms of involvement per 1,000 licensed drivers, males between 22 and 24 years of age were most likely to have been legally impaired. There were over three times as many male impaired drivers as female impaired drivers.

- In 2017, impaired driving casualty crashes were most likely to have occurred in July, on Saturday, and between 11:00 p.m. and 2:59 a.m.

- Figure 8 provides a graphic representation of the involvement of impaired drivers in casualty collisions over the past five years, 2013 - 2017.

Condition of Drivers in Casualty Collisions*

2017

Condition of Driver	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Normal	274	82.0	19,495	95.4	19,769	95.1
Alcohol Impaired	29	8.7	268	1.3	297	1.4
Drug Impaired	5	1.5	75	0.4	80	0.4
Total Impaired Drivers	**34**	**10.2**	**343**	**1.7**	**377**	**1.8**
Fatigued/Asleep	6	1.8	200	1.0	206	1.0
Other	20	6.0	405	2.0	425	2.0
Total Number of Drivers	**334**	**100.0**	**20,443**	**100.0**	**20,777**	**100.0**

Table 10.1. Condition of Drivers in Casualty Collisions*

Observations

Of drivers involved in injury collisions, 1.7% were legally impaired by alcohol and/or drugs, compared to 10.2% in fatal collisions. As the severity of the collision increased, the involvement of impairment dramatically increased. Overall, 1.8% of drivers involved in casualty collisions were judged to have been legally impaired.

*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).

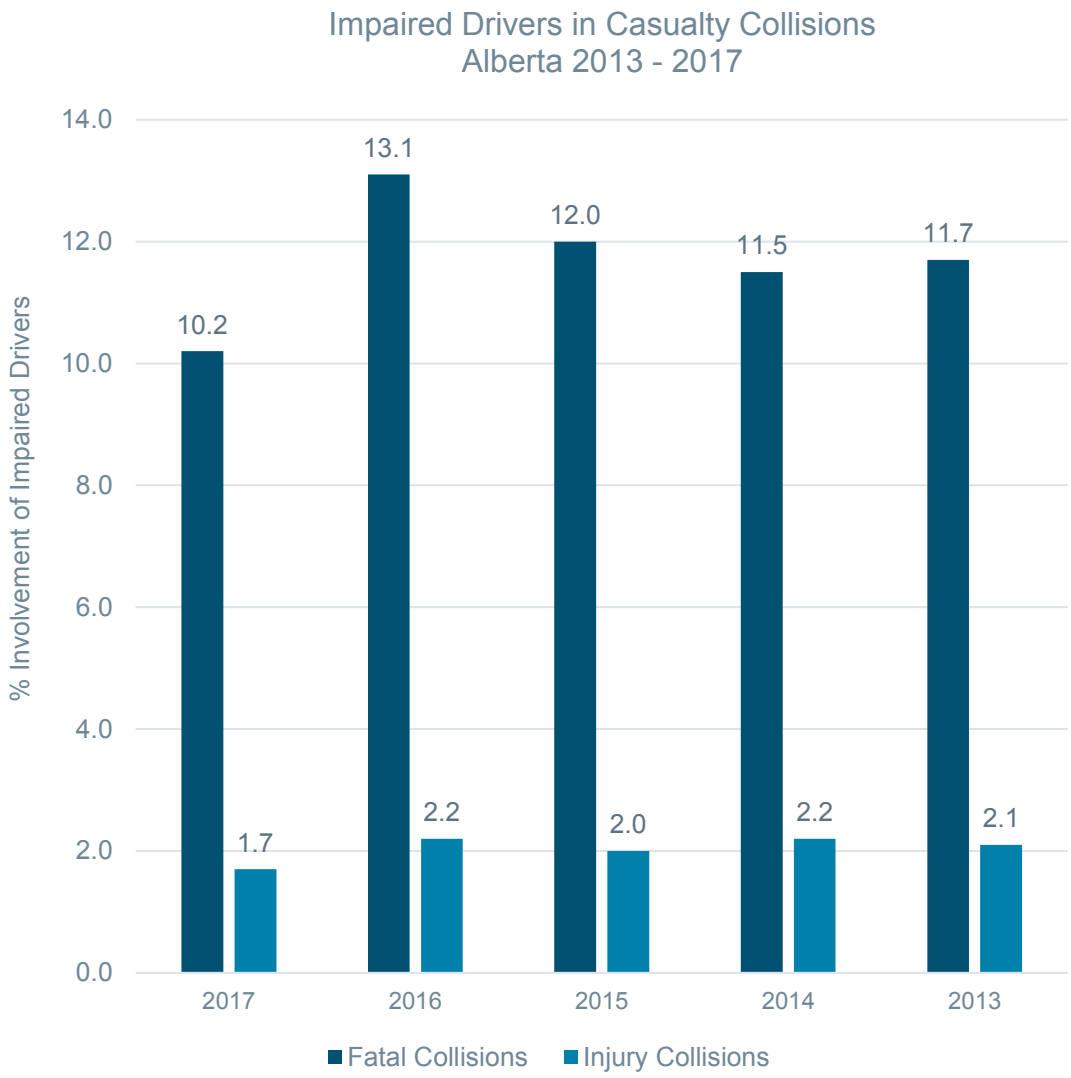


Figure 8. Impaired Drivers in Casualty Collisions

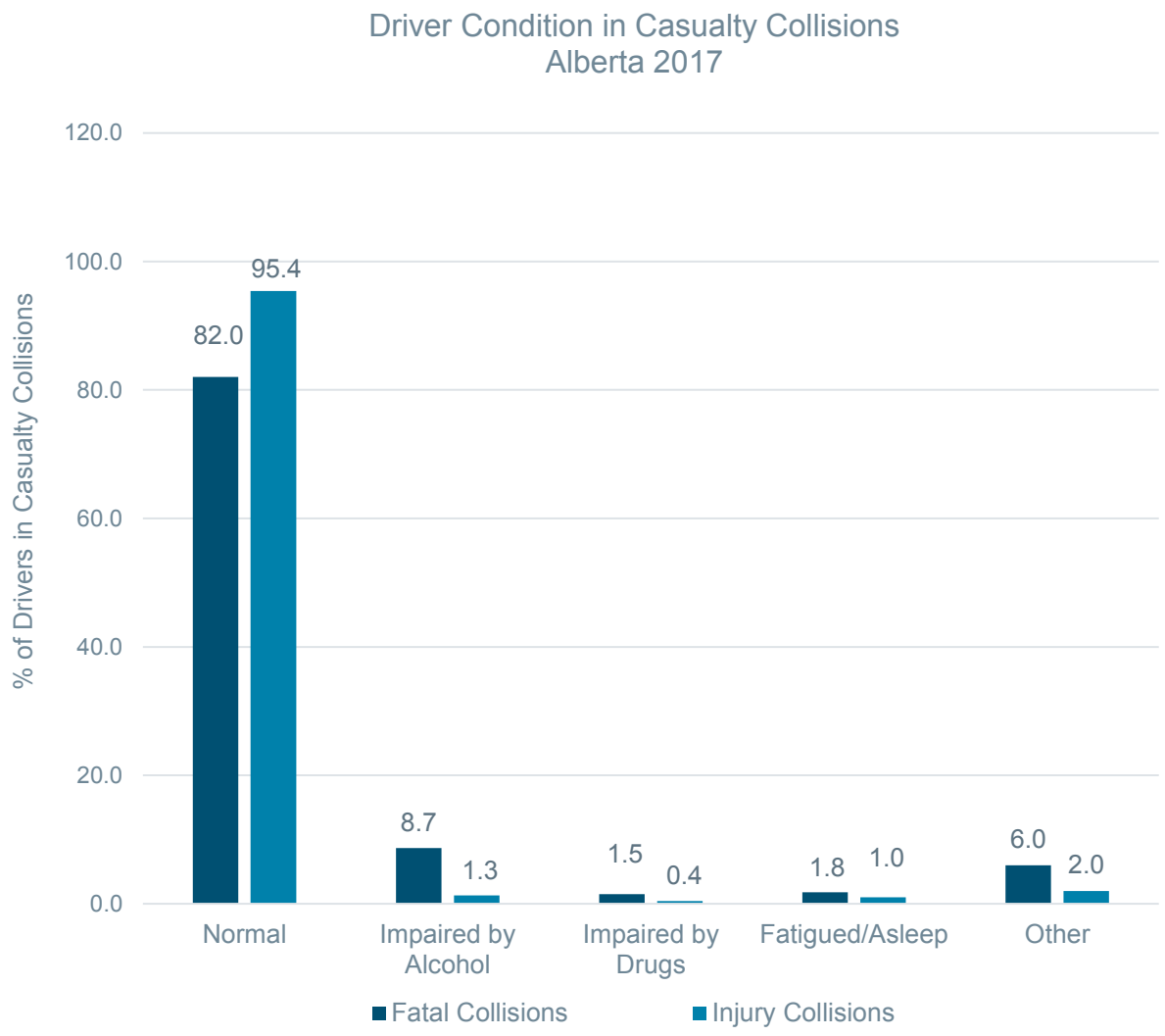


Figure 9. Driver Condition in Casualty Collisions

Age and Sex of Impaired Drivers in Casualty Collisions*
2017

Age in Years	Male			Female			Total*		
	N	%	Rate Per 1,000** Licensed Drivers	N	%	Rate Per 1,000** Licensed Drivers	N	%	Rate Per 1,000** Licensed Drivers
Under 16	--	--	--	--	--	--	--	--	--
16 - 17	4	1.1	0.1	1	0.3	0.0	5	1.3	0.1
18 - 19	11	2.9	0.3	6	1.6	0.2	17	4.5	0.2
20 - 21	14	3.7	0.3	5	1.3	0.1	19	5.0	0.2
22 - 24	37	9.8	0.5	8	2.1	0.1	45	11.9	0.3
25 - 29	63	16.7	0.4	13	3.4	0.1	76	20.2	0.2
30 - 34	42	11.1	0.2	18	4.8	0.1	60	15.9	0.2
35 - 44	74	19.6	0.2	12	3.2	0.0	86	22.8	0.1
45 - 54	23	6.1	0.1	9	2.4	0.0	32	8.5	0.1
55 - 64	18	4.8	0.1	5	1.3	0.0	23	6.1	0.0
65 and over	7	1.9	0.0	1	0.3	0.0	8	2.1	0.0
Unspecified	2	0.5		--	--		6	1.6	
Total Drivers	**295**	**78.2**		**78**	**20.7**		**377**	**100.0**	

Table 10.2. Age and Sex of Impaired Drivers in Casualty Collisions*

Observations

Of those collision-involved drivers who were legally impaired, there were over three times as many male drivers as female drivers. In terms of involvement per 1,000 licensed drivers, males 22 to 24 years of age were more likely to have been legally impaired in a casualty collision than any other age group.

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

**Source: Licensed Drivers – Service Alberta – Registries Services, as of December 31, 2017.

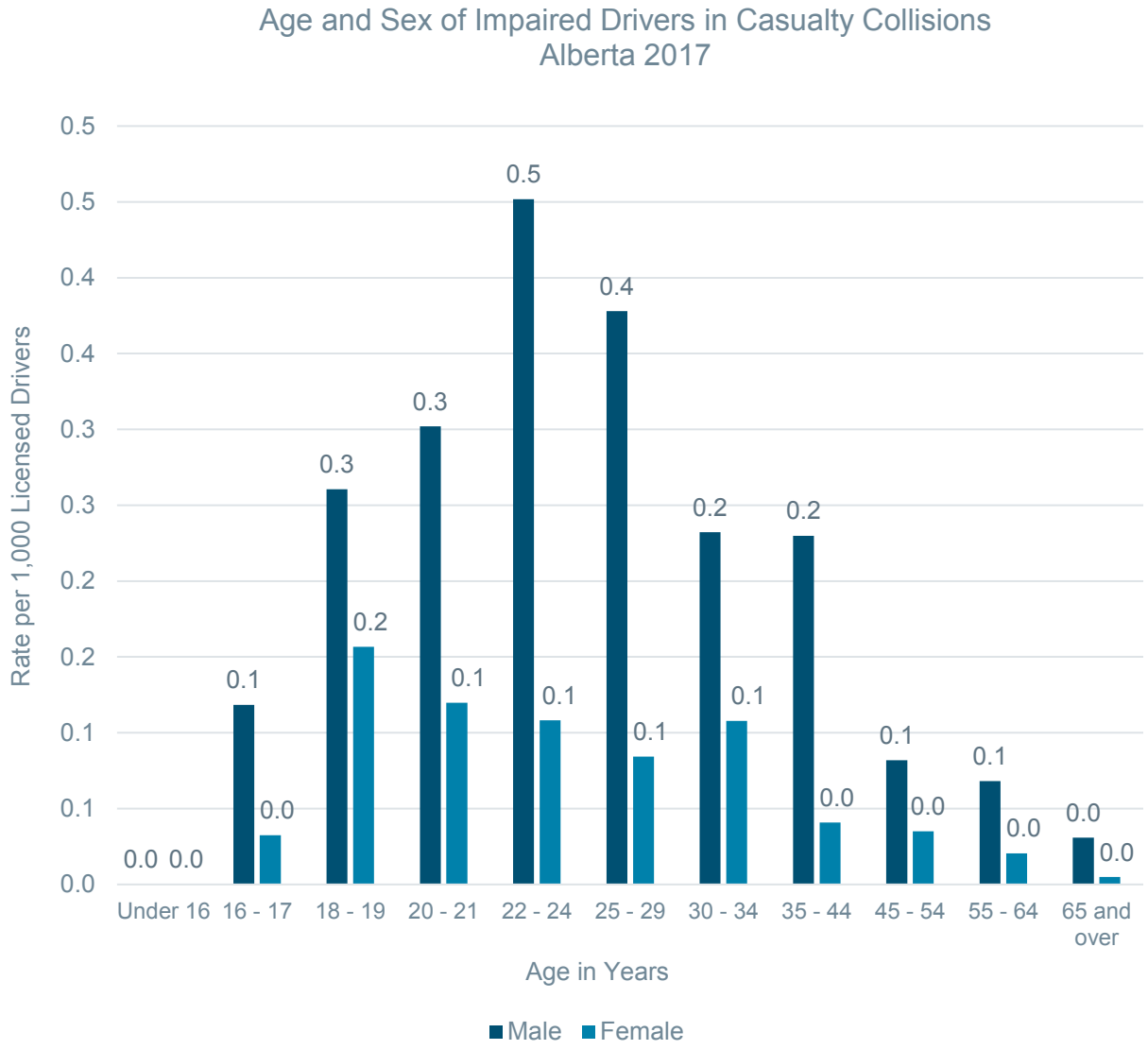


Figure 10. Impaired Drivers Involved in Casualty Collisions

Note: The bars in the above figure depict the actual number. The data labels have been rounded.

Impaired Driving Casualty Collisions: Month of Occurrence
2017

Month	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
January	2	6.1	20	5.8	22	5.9
February	1	3.0	31	9.1	32	8.5
March	2	6.1	31	9.1	33	8.8
April	2	6.1	19	5.6	21	5.6
May	2	6.1	24	7.0	26	6.9
June	1	3.0	27	7.9	28	7.5
July	5	15.2	35	10.2	40	10.7
August	6	18.2	30	8.8	36	9.6
September	4	12.1	31	9.1	35	9.3
October	5	15.2	34	9.9	39	10.4
November	3	9.1	26	7.6	29	7.7
December	--	--	34	9.9	34	9.1
Total Number of Collisions	**33**	**100.0**	**342**	**100.0**	**375**	**100.0**

Table 10.3 Impaired Driving Casualty Collisions: Month of Occurrence

Observations

The month of July accounted for the largest proportion of impaired driving casualty collisions. The month of April accounted for the smallest proportion of impaired driving casualty collisions.

Impaired Driving Casualty Collisions: Day of Week
2017

Day of Week	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Monday	3	9.1	46	13.5	49	13.1
Tuesday	4	12.1	45	13.2	49	13.1
Wednesday	2	6.1	30	8.8	32	8.5
Thursday	2	6.1	39	11.4	41	10.9
Friday	2	6.1	37	10.8	39	10.4
Saturday	9	27.3	83	24.3	92	24.5
Sunday	11	33.3	62	18.1	73	19.5
Total Number of Collisions	**33**	**100.0**	**342**	**100.0**	**375**	**100.0**

Table 10.4. Impaired Driving Casualty Collisions: Day of Week

Observations

The highest number of impaired driving fatal collisions occurred on Sunday (33.3%). The highest number of non-fatal injury collisions occurred on Saturday (24.3%). The smallest number of impaired driving casualty collisions occurred on Wednesday (8.8%).

Impaired Driving Casualty Collisions: Time Period
2017

Time Period	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
11:00 p.m. - 2:59 a.m.	16	48.5	96	28.1	112	29.9
3:00 a.m. - 6:59 a.m.	2	6.1	28	8.2	30	8.0
7:00 a.m. - 10:59 a.m.	2	6.1	21	6.1	23	6.1
11:00 a.m. - 2:59 p.m.	2	6.1	38	11.1	40	10.7
3:00 p.m. - 6:59 p.m.	6	18.2	67	19.6	73	19.5
7:00 p.m. - 10:59 p.m.	2	6.1	86	25.1	88	23.5
Unspecified	3	9.1	6	1.8	9	2.4
Total Number of Collisions	**33**	**100.0**	**342**	**100.0**	**375**	**100.0**

Table 10.5. Impaired Driving Casualty Collisions: Time Period

Observations

The late night/early morning time period (11:00 p.m. – 2:59 a.m.) was most likely to record impaired driving casualty collisions (29.9%). The morning hours (7:00 a.m. – 10:59 a.m.) were least likely to record impaired driving casualty crashes (6.1%).

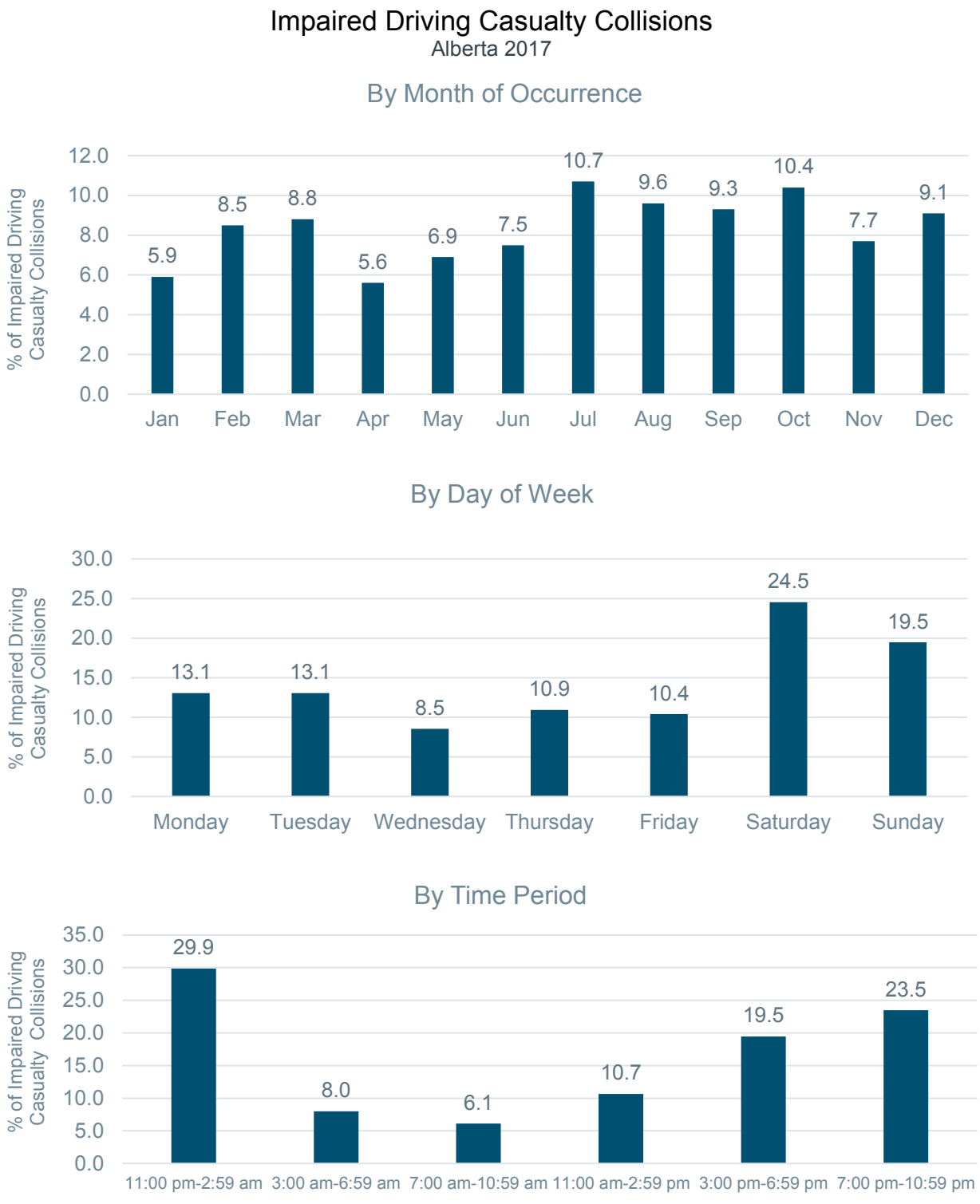


Figure 11. Impaired Driving Casualty Collisions by Month/Day of Week/Time Period

Traffic Safety Issues

Restraint Use

- Collision-involved restraint users had a much lower injury rate (6.8%) than those not using restraints (17.6%).
- Occupants using a restraint reduce the likelihood of sustaining an injury and the severity of injury decreases.

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

2017

Injury Severity of Occupants	Percentage of Occupants Using Restraints %	Percentage of Occupants Not Using Restraints %
Fatal Injury	0.1	2.2
Major Injury	0.8	6.0
Minor Injury	5.9	9.4
Total Occupants Sustaining Injuries	**6.8**	**17.6**
No Apparent Injury	93.2	82.4
Total Occupants	**100.0**	**100.0**

Table 10.6. Restraint Use of Vehicle Occupants and Injury Severity* (Use versus Non-Use)

Observations

Collision involved restraint users had a much lower injury rate (6.8%) than those not using restraints (17.6%). 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.