Alberta Traffic Collision Statistics 2021

Traffic Safety, Alberta Transportation
and Economic Corridors

Alberta

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Alberta Collision Statistics 2021 | Alberta Transportation and Economic Corridors

2021 Overview

- The number of **traffic fatalities increased 8.1%** over the past year from 235 fatalities in 2020 to 254 in 2021.
- The number of **traffic injuries increased 10.6%** over the past year from 11,844 in 2020 to 13,097 in 2021.
- The number of **traffic collisions increased 5.5%** over the past year from 95,001 in 2020 to 100,231 in 2021.
- The **highest number of fatal collisions** occurred in **July**. The **highest number of injury collisions** occurred in **December**.
- **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 18 and 19** 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**.
- **20.0% of pedestrians** involved in **fatal collisions were impaired** compared to **6.6% of pedestrians in injury collisions.**
- **7.6% of drivers** involved in **fatal collisions were impaired** compared to **2.1% of drivers in injury collisions**.
- **Collision-involved restraint users had a much lower injury rate** (7.4%) than those not using restraints (14.5%)

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 2021. Although the report is general in nature, it pays particular attention to casualty collisions, that is, those collisions resulting in death or injury. Legislation in Alberta requires that a motor vehicle 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 and Economic Corridors 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.

2021 traffic collision summary

Introduction

During 2021, 100,231 collisions were recorded on Alberta roadways. Property damage collisions (over $2,000) represented 89.8% (89,976) of this total while 10.0% (10,022) were non-fatal injury collisions. Fatal collisions accounted for 0.2% (233) of the total reported collisions.

Five-year trends

In terms of both licensed drivers and registered vehicles, the fatal collision rate has increased from 2020 to 2021, but remained the same for population. The fatality increased in terms of population, licensed drivers 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 2020 to 2021 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 Canadian 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, 10 jurisdictions had a higher fatality rate than Alberta in 2021. In 2021, Alberta had the second lowest injury rate.

Alberta traffic collisions
2017 – 2021

Severity of Collisions	2021	2020	2019	2018	2017
Fatal Collisions	233	207	215	246	259
Non-Fatal Injury Collisions	10,022	9,092	11,738	12,852	13,082
Property Damage Collisions	89,976	85,702	120,119	129,498	129,126
Total Reportable Collisions	**100,231**	**95,001**	**132,072**	**142,596**	**142,467**

Injury Severity	2021	2020	2019	2018	2017
Number Killed	254	235	233	289	290
Number Injured	13,097	11,844	15,364	17,055	17,186
Total Number of Casualties	**13,351**	**12,079**	**15,597**	**17,344**	**17,476**

Table 1.1. Alberta Traffic Collisions

Observations

In 2021, the overall number of collisions increased 5.5% when compared to 2020. In 2021, injury collisions increased by 10.2% and fatal collisions increased by 12.6%. The number of fatalities increased by 8.1% from 2020 to 2021 and the number of injuries increased by 10.6%. In terms of the past five years, overall collisions were lowest in 2020 and highest in 2018.

Traffic collision rates
2017 – 2021

Severity of Collision	Rate per 10,000 Population					Rate per 10,000 Licensed Drivers					Rate per 10,000 Registered Vehicles				
	2021	**2020**	**2019**	**2018**	**2017**	**2021**	**2020**	**2019**	**2018**	**2017**	**2021**	**2020**	**2019**	**2018**	**2017**
Fatal Collisions	0.5	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.8	0.8	0.6	0.5	0.6	0.6	0.7
Number Killed	0.6	0.5	0.5	0.7	0.7	0.8	0.7	0.7	0.9	0.9	0.7	0.6	0.6	0.8	0.8
Non-Fatal Injury Collisions	22.6	20.6	26.9	29.8	30.5	30.2	27.8	36.0	39.8	41.1	26.4	23.7	30.5	33.6	34.6
Number Injured	29.5	26.8	35.1	39.6	40.1	39.5	36.2	47.1	52.9	53.9	34.5	30.9	39.9	44.5	45.4
Property Damage Collisions	202.5	193.8	274.8	300.7	301.3	271.4	262.2	368.4	401.5	405.3	237.1	223.4	312.1	338.2	341.1
Total Reportable Collisions	**225.6**	**214.8**	**302.1**	**331.1**	**332.4**	**302.3**	**290.7**	**405.0**	**442.1**	**447.1**	**264.1**	**247.6**	**343.1**	**372.4**	**376.3**

Table 1.2. Traffic Collision Rates

Observations

In terms of both licensed drivers and registered vehicles, the fatal collision rate increased from 2020 to 2021, but remained the same for population. The fatality rates increased in terms of population, licensed drivers 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 2020 to 2021 in terms of population, licensed drivers and registered vehicles.

Sources:
Population – Statistics Canada as of July 1, 2021.
Licensed Drivers – Service Alberta, as of December 31, 2021.
Registered Vehicles – Service Alberta, as of December 31, 2021.

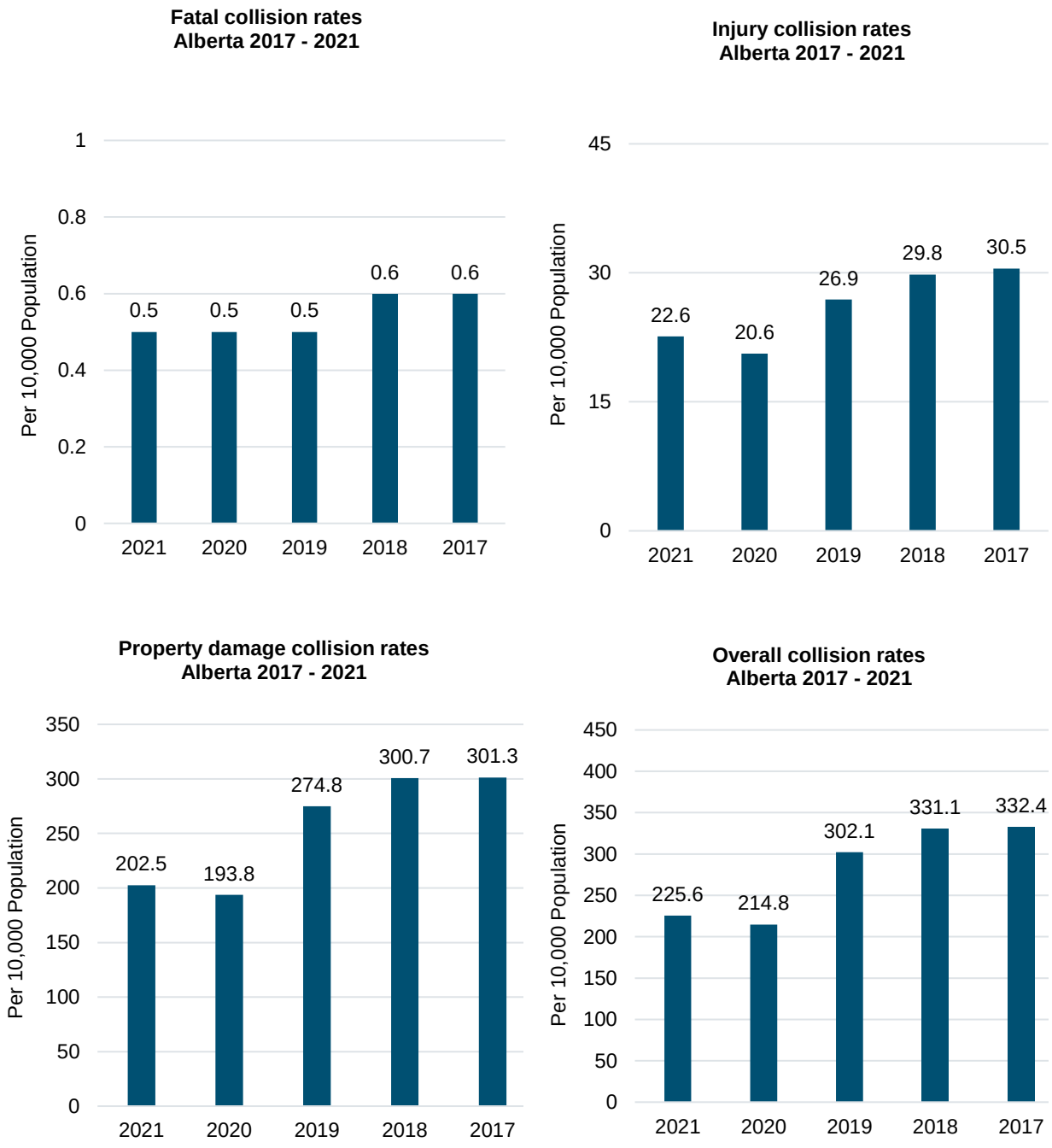

Figure 1. Alberta Traffic Collision Rates per 10,000 Population

Jurisdictional comparison of casualty rates per billion vehicle kilometres travelled
2017 – 2021

	Fatalities					Injuries				
	2021	**2020**	**2019**	**2018**	**2017**	**2021**	**2020**	**2019**	**2018**	**2017**
Canada	4.8	4.7	4.4	4.9	4.8	290.0	272.7	345.1	391.1	404.9
Alberta	4.2	4.0	3.7	4.5	4.8	200.5	182.3	228.5	265.8	273.1
British Columbia	6.7	5.6	6.4	6.9	6.9	314.3	283.1	381.7	477.5	523.5
Saskatchewan	6.4	6.6	4.6	8.6	6.8	345.6	265.5	270.1	284.0	311.1
Manitoba	3.8	3.8	4.9	4.6	4.9	365.5	351.3	743.0	791.6	844.4
Ontario	4.2	4.0	3.8	4.1	4.0	241.2	238.4	307.7	347.4	357.1
Quebec	4.9	4.8	4.1	4.5	4.6	386.7	338.8	429.3	444.1	475.5
New Brunswick	8.5	6.3	5.5	5.6	5.7	340.7	340.7	294.5	301.1	307.6
Nova Scotia	7.4	6.0	5.9	6.3	4.0	295.9	498.3	590.3	603.5	414.5
Prince Edward Island	12.0	10.6	9.4	9.6	9.1	325.8	325.8	378.4	415.6	403.7
Newfoundland	7.4	11.8	7.2	7.2	6.0	448.1	453.0	480.3	498.9	513.0
Yukon	2.8	5.6	14.0	10.1	10.3	222.4	260.1	223.3	284.5	392.1
Northwest Territories	4.6	9.2	13.9	4.7	7.2	193.1	160.9	177.8	235.8	241.0
Nunavut	23.8	47.6	47.6	48.8	0.0	381.0	595.2	595.2	609.8	575.0

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

Observations

Based on the most recent information from Transport Canada, from 2020 to 2021, Alberta's fatality rate per billion vehicle kilometres travelled increased from 4.0 to 4.2. During the same period, the injury rate per billion vehicle kilometres travelled increased from 182.3 to 200.5. Over the five years, since 2017, rates have decreased by 0.6 fatalities and 72.6 injuries per billion vehicle kilometres travelled.

Sources: Transport Canada, 'Canadian Motor Vehicle Traffic Collision Statistics,' (Catalogue No. T45-3E-PDF).

The Canadian Motor Vehicle Traffic Collision Statistics can be accessed online at:
https://tc.canada.ca/en/road-transportation/statistics-data/canadian-motor-vehicle-traffic-collision-statistics-2021.

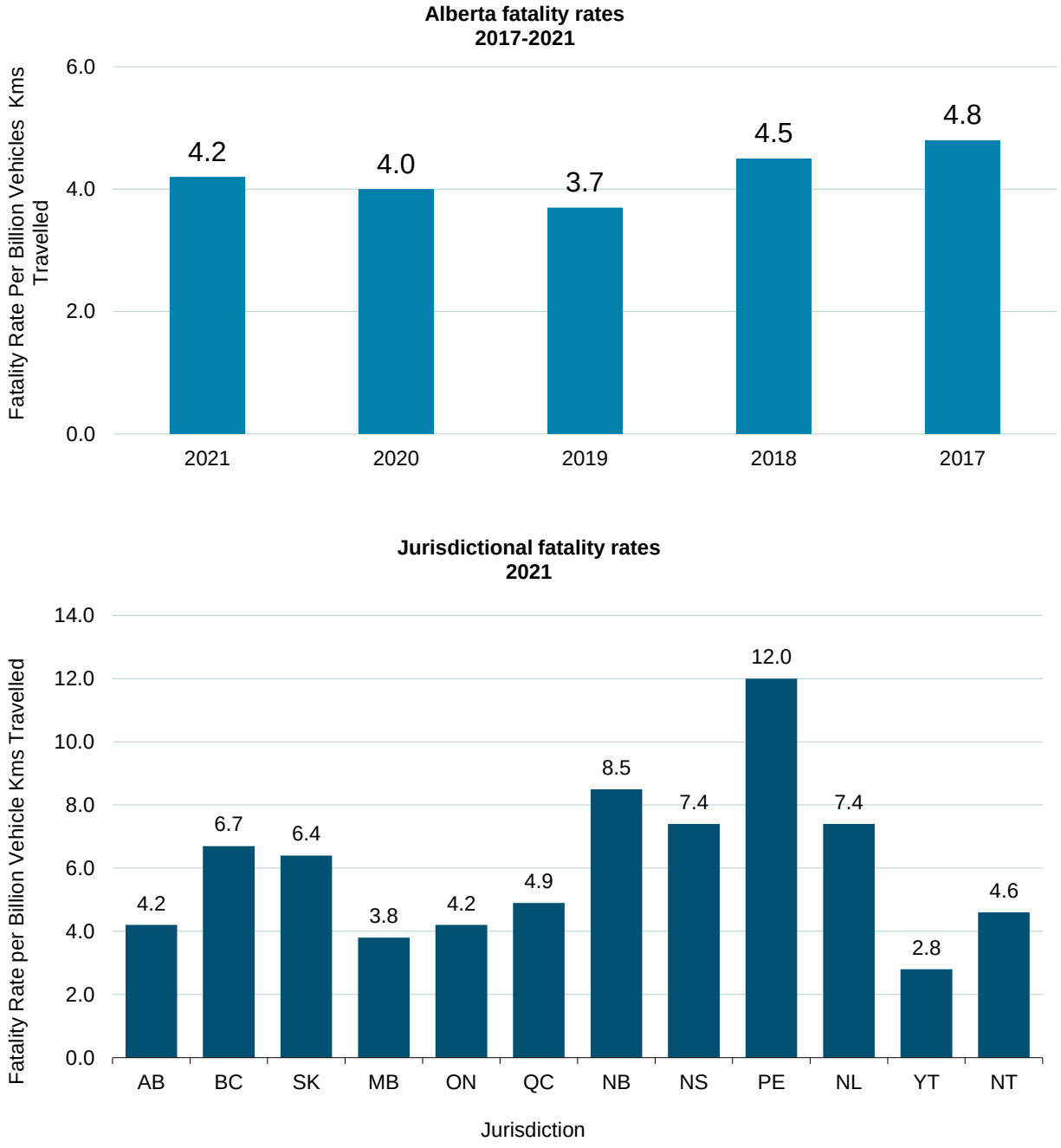

Figure 2. Traffic Fatality Rates per Billion Vehicle Kilometres Travelled

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

When the collisions occurred

Month

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

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/early morning period (11:00 p.m. - 2:59 a.m.).

Holidays

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

Collision occurrence by month
2021

Month	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
January	17	7.3	646	6.4	6,255	7.0	6,918	6.9
February	10	4.3	703	7.0	7,924	8.8	8,637	8.6
March	12	5.2	648	6.5	5,814	6.5	6,474	6.5
April	13	5.6	612	6.1	5,122	5.7	5,747	5.7
May	16	6.9	633	6.3	5,285	5.9	5,934	5.9
June	21	9.0	954	9.5	7,317	8.1	8,292	8.3
July	31	13.3	904	9.0	7,076	7.9	8,011	8.0
August	28	12.0	910	9.1	6,886	7.7	7,824	7.8
September	21	9.0	1,021	10.2	7,716	8.6	8,758	8.7
October	22	9.4	890	8.9	7,986	8.9	8,898	8.9
November	26	11.2	970	9.7	9,597	10.7	10,593	10.6
December	16	6.9	1,131	11.3	12,998	14.4	14,145	14.1
Total Number of Collisions	**233**	**100.0**	**10,022**	**100.0**	**89,976**	**100.0**	**100,231**	**100.0**

Table 2.1. Collision Occurrence by Month

Observations

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

Collision occurrence by day of week
2021

Day of Week	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Monday	32	13.7	1,382	13.8	12,487	13.9	13,901	13.9
Tuesday	30	12.9	1,488	14.8	13,273	14.8	14,791	14.8
Wednesday	35	15.0	1,598	15.9	14,085	15.7	15,718	15.7
Thursday	29	12.4	1,576	15.7	14,596	16.2	16,201	16.2
Friday	42	18.0	1,702	17.0	15,353	17.1	17,097	17.1
Saturday	34	14.6	1,237	12.3	10,870	12.1	12,141	12.1
Sunday	31	13.3	1,039	10.4	9,312	10.3	10,382	10.4
Total Number of Collisions	**233**	**100.0**	**10,022**	**100.0**	**89,976**	**100.0**	**100,231**	**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
2021

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.	38	16.3	501	5.0	3,696	4.1	4,235	4.2
3:00 a.m. - 6:59 a.m.	24	10.3	515	5.1	4,751	5.3	5,290	5.3
7:00 a.m. - 10:59 a.m.	32	13.7	1,594	15.9	15,307	17.0	16,933	16.9
11:00 a.m. - 2:59 p.m.	33	14.2	2,375	23.7	23,212	25.8	25,620	25.6
3:00 p.m. - 6:59 p.m.	60	25.8	3,245	32.4	26,705	29.7	30,010	29.9
7:00 p.m. - 10:59 p.m.	40	17.2	1,469	14.7	11,779	13.1	13,288	13.3
Unspecified	6	2.6	323	3.2	4,526	5.0	4,855	4.8
Total Number of Collisions	**233**	**100.0**	**10,022**	**100.0**	**89,976**	**100.0**	**100,231**	**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 (29.9%) of collisions occurring in a 24-hour period. The least collision-prone time period was the late night/early morning period (11:00 p.m. - 2:59 a.m.).

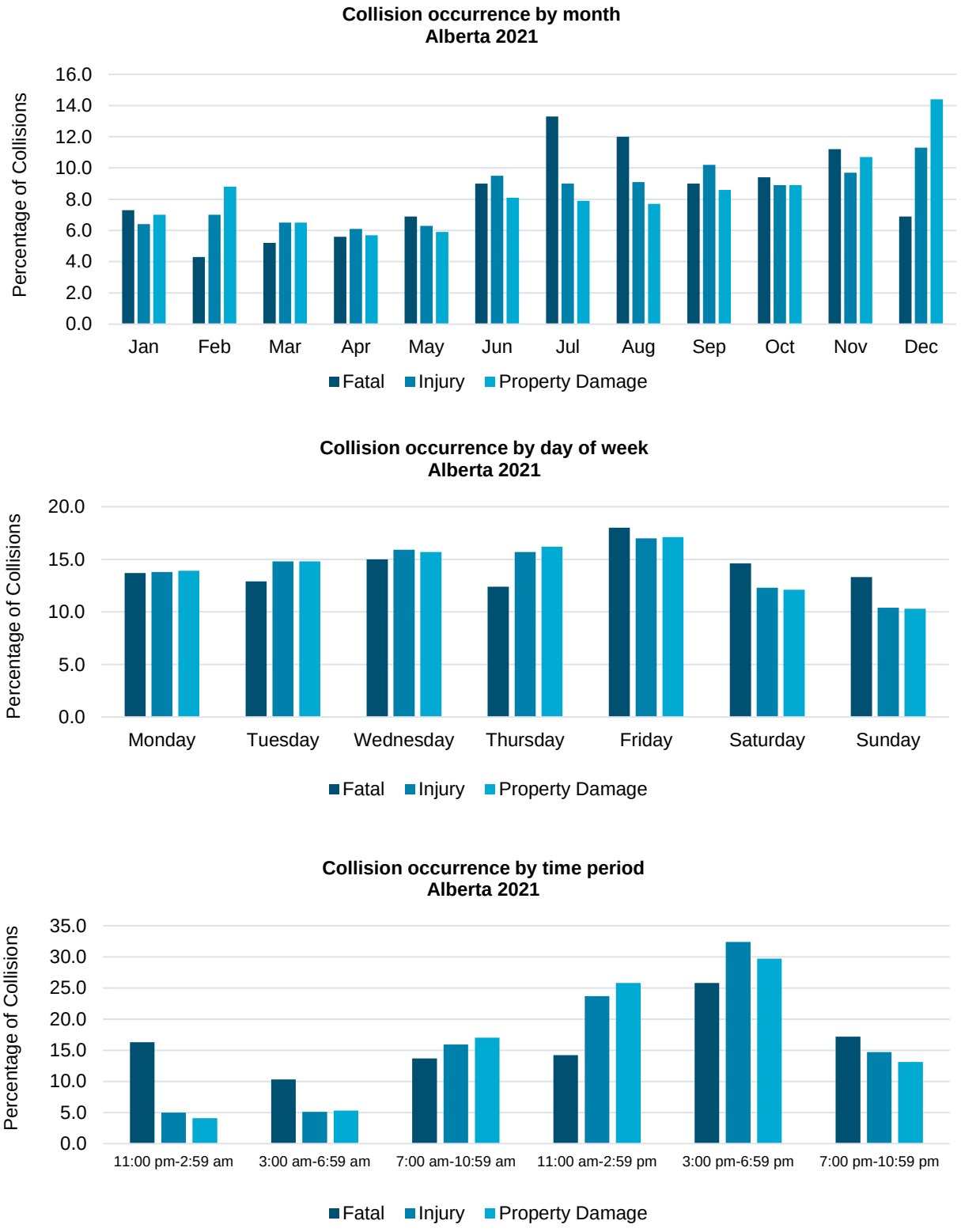

Figure 3. Collision Occurrence by Month/Day of Week/Time Period

Collisions during 2021 holidays
2021

	Number Killed	Number Injured	Total Collisions*
Holidays	**N**	**N**	**N**
New Year's Day (January 1)	1	17	149
Family Day Long Weekend (February 12-15)	2	128	1,196
Easter Long Weekend (April 1-5)	1	126	959
Victoria Day Long Weekend (May 21-24)	3	123	648
Canada Day (July 1)	-	45	268
August Long Weekend (July 30 - August 2)	4	145	888
Labour Day Long Weekend (September 3 - September 6)	1	176	1,047
Thanksgiving Long Weekend (October 8-11)	6	127	917
Remembrance Day (November 11)	-	34	254
Christmas Season (December 24-28)	3	209	2,032
Total	**21**	**1,130**	**8,358**

Table 2.4. Collisions during 2021 Holidays

Observations

The Thanksgiving Long Weekend recorded the highest number of fatalities. 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 (66.3%) and passengers (18.0%) of vehicles. Pedestrians and motorcyclists accounted for 5.7% and 3.7% 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 persons 14 years and under.

Injuries and fatalities by road user class
2021

	Persons Killed		Persons Injured		Total Casualties	
Road User Class	**N**	**%**	**N**	**%**	**N**	**%**
Drivers	133	52.4	8,720	66.6	8,853	66.3
Passengers	32	12.6	2,371	18.1	2,403	18.0
Pedestrians	34	13.4	732	5.6	766	5.7
Motorcyclists	29	11.4	465	3.6	494	3.7
Bicyclists	3	1.2	441	3.4	444	3.3
Other	14	5.5	183	1.4	197	1.5
Unspecified	9	3.5	185	1.4	194	1.5
Total Casualties	**254**	**100.0**	**13,097**	**100.0**	**13,351**	**100.0**

Table 3.1. Injuries and Fatalities by Road User Class

Observations

The majority of traffic victims were drivers (66.3%) and passengers (18.0%) of vehicles. Pedestrians and motorcyclists accounted for 5.7% and 3.7% of the total casualties, respectively.

Age of casualties
2021

Age in Years	Persons Killed		Persons Injured		Total Casualties		Casualty Rate per 10,000 Population*
	N	%	N	%	N	%	
Under 5	1	0.4	131	1.0	132	1.0	5.1
5 - 9	2	0.8	185	1.4	187	1.4	6.7
10 - 14	--	--	328	2.5	328	2.5	11.7
15 - 19	15	5.9	1,281	9.8	1,296	9.7	50.4
20 - 24	27	10.6	1,306	10.0	1,333	10.0	48.7
25 - 29	36	14.2	1,284	9.8	1,320	9.9	43.3
30 - 34	29	11.4	1,267	9.7	1,296	9.7	36.9
35 - 44	42	16.5	2,408	18.4	2,450	18.4	35.4
45 - 54	38	15.0	1,854	14.2	1,892	14.2	33.7
55 - 64	25	9.8	1,470	11.2	1,495	11.2	27.4
65 and Over	39	15.4	1,165	8.9	1,204	9.0	18.8
Unspecified	--	--	418	3.2	418	3.1	
Total Casualties	**254**	**100.0**	**13,097**	**100.0**	**13,351**	**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 persons 14 years and under.

*Population – Statistics Canada as of July 1, 2021.

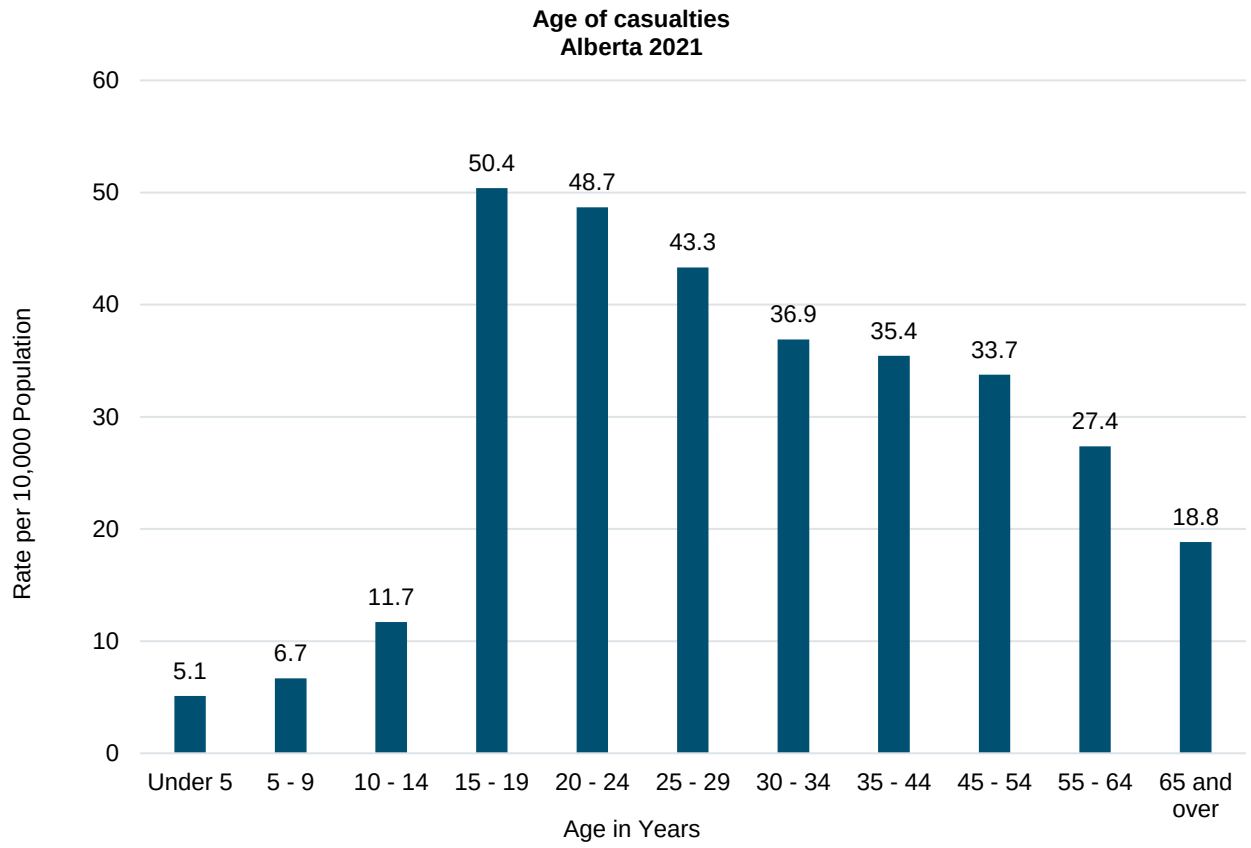

Figure 4. Age of Casualties

Drivers

Age and gender of drivers

Collison rates per 1,000 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.

Driver actions

The most frequently identified improper driver actions contributing to casualty collisions were:
followed too closely (30.0%), ran off road (17.5%) and making a left turn across the path of an oncoming vehicle (11.5%).

Age and gender of drivers involved in casualty collisions: per 1,000 licensed drivers
2021

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	96	0.5	4.5	47	0.3	2.3	143	0.8	3.4
16 - 17	371	2.1	9.8	333	1.9	9.6	704	3.9	9.7
18 - 19	446	2.5	10.1	319	1.8	7.8	765	4.3	9.0
20 - 24	1,067	5.9	8.6	784	4.4	6.9	1,851	10.3	7.8
25 - 34	2,129	11.9	6.7	1,578	8.8	5.2	3,708	20.7	6.0
35 - 44	2,234	12.4	6.5	1,469	8.2	4.5	3,704	20.6	5.6
45 - 54	1,739	9.7	6.2	1,062	5.9	4.1	2,801	15.6	5.2
55 - 64	1,352	7.5	5.0	824	4.6	3.3	2,176	12.1	4.2
65 and over	1,129	6.3	4.1	615	3.4	2.4	1,744	9.7	3.3
Unspecified	23	0.1		12	0.1		358	2.0	
Total Number of Drivers	**10,586**	**59.0**	**6.2**	**7,043**	**39.2**	**4.4**	**17,954**	**100.0**	**5.4**

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

Observations

Collison rates per 1,000 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 gender was other or unspecified on the collision report form. Includes bicyclists.

**Source: Licensed Drivers – Service Alberta, as of December 31, 2021.

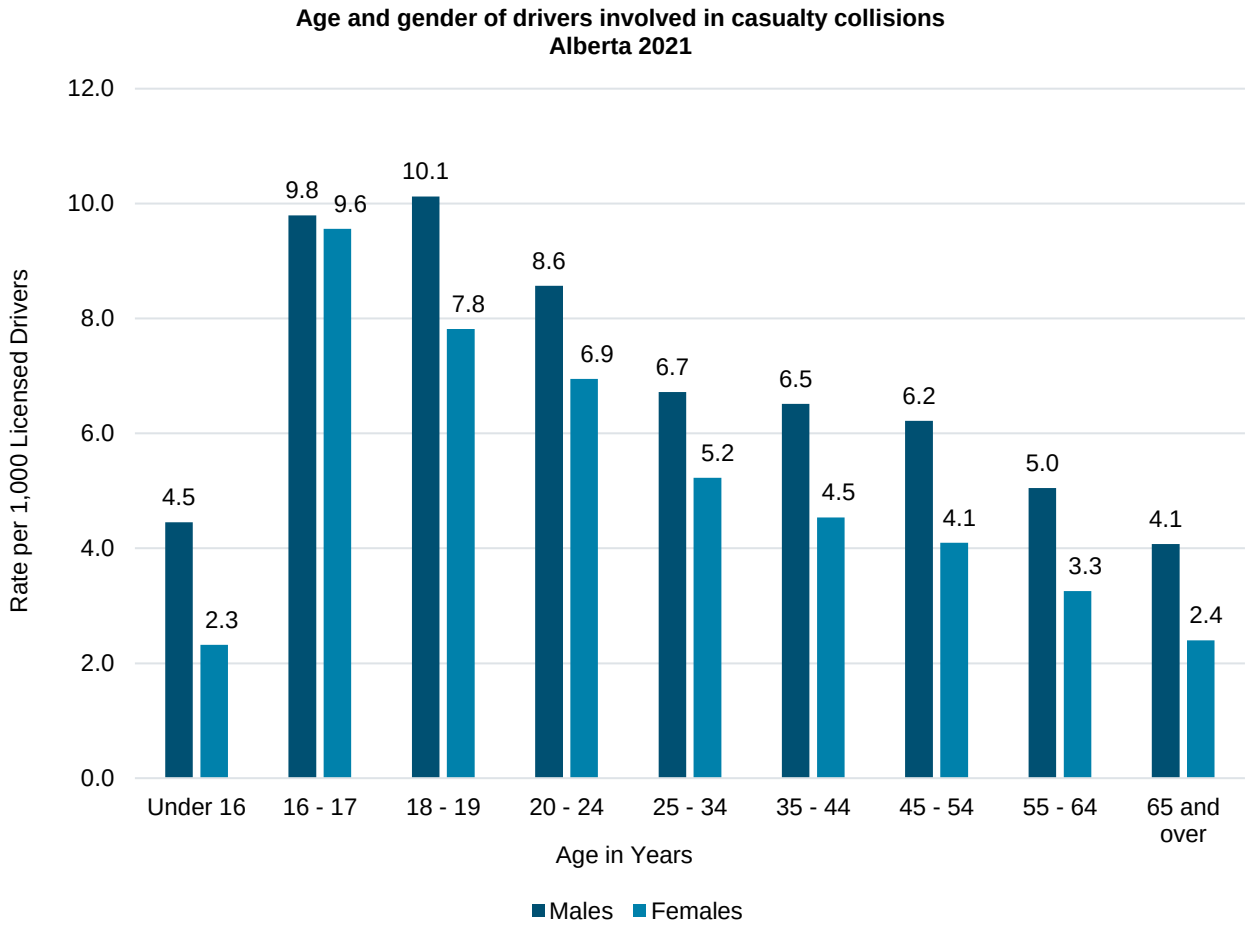

Figure 5. Age and Gender of Drivers Involved in Casualty Collisions

Improper actions of drivers involved in casualty collisions*
2021

Improper Actions	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Followed Too Closely	6	3.7	2,126	30.6	2,132	30.0
Ran Off Road	68	41.7	1,180	17.0	1,248	17.5
Left Turn Across Path	7	4.3	814	11.7	821	11.5
Stop Sign Violation	16	9.8	530	7.6	546	7.7
Disobey Traffic Signal	4	2.5	516	7.4	520	7.3
Fail to Yield Right of Way to Pedestrian	4	2.5	336	4.8	340	4.8
Improper Turn	1	0.6	274	3.9	275	3.9
Improper Lane Change	1	0.6	272	3.9	273	3.8
Left of Centre	42	25.8	168	2.4	210	3.0
Backed Unsafely	--	--	204	2.9	204	2.9
Fail to Yield Right of Way at Uncontrolled Intersection	3	1.8	152	2.2	155	2.2
Yield Sign Violation	2	1.2	131	1.9	133	1.9
Improper Passing	7	4.3	98	1.4	105	1.5
Other	2	1.2	153	2.2	155	2.2
Total Number of Drivers	**163**	**100.0**	**6,954**	**100.0**	**7,117**	**100.0**

Table 4.2. Improper Actions of Drivers Involved in Casualty Collisions

Observations

The most frequently identified improper driver actions contributing to casualty collisions were:
followed too closely (30.0%), ran off road (17.5%) and making a left turn across the path of an oncoming vehicle (11.5%).

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

Note: There were a total of 15,568 drivers involved in casualty collisions for which a driver action was specified on the collision report form. 8,451 were indicated as driving properly at the time of the collision.

Vehicles

Types of vehicles

Passenger Cars (34.0%), Mini-Van/MPV/SUVs (33.3%) and Pick-Up/Van <4500kgs (20.4%) 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 front centre.

Types of vehicles involved in casualty collisions*
2021

Type of Vehicle	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
Passenger Car	81	21.9	6,122	34.2	6,203	34.0
Mini-Van/MPV/SUV	66	17.8	6,013	33.6	6,079	33.3
Pick-Up/Van <4500kg	114	30.8	3,604	20.2	3,718	20.4
Truck >4500kg	19	5.1	631	3.5	650	3.6
Motorcycle/Scooter	35	9.5	448	2.5	483	2.6
Bicycle	3	0.8	443	2.5	446	2.4
Truck Tractor	37	10.0	320	1.8	357	2.0
Off-Highway Vehicle	15	4.1	100	0.6	115	0.6
Transit Bus	--	--	55	0.3	55	0.3
Emergency Vehicle	--	--	43	0.2	43	0.2
School Bus	--	--	31	0.2	31	0.2
Construction Equipment	--	--	21	0.1	21	0.1
Motorhome	--	--	14	0.1	14	0.1
eScooter	--	--	11	0.1	11	0.1
Other Bus	--	--	9	0.1	9	0.0
Farm Equipment	--	--	8	0.0	8	0.0
Intercity Bus	--	--	2	0.0	2	0.0
Motorized Snow Vehicle	--	--	2	0.0	2	0.0
Moped	--	--	1	0.0	1	0.0
Other	--	--	--	--	--	--
Total Number of Vehicles	**370**	**100.0**	**17,878**	**100.0**	**18,248**	**100.0**

Table 5.1. Types of Vehicles Involved in Casualty Collisions

Observations

Passenger Cars, Mini-Van/MPV/SUVs and Pick-Up/Van <4500kgs were the vehicles most frequently involved in total casualty collisions. Overall, Motorcycle/Scooters represented 2.6% and Bicycles represented 2.4% of the vehicles involved in casualty collisions. Truck Tractors were 2.0% of the total vehicles involved in casualty collisions, but 10.0% of vehicles in fatal collisions.

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

Vehicle factors involved in casualty collisions*
2021

Vehicle Factors	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
No Apparent Defect	279	98.9	15,953	99.0	16,232	99.0
Defective Brakes	1	0.4	80	0.5	81	0.5
Tires Failed	2	0.7	39	0.2	41	0.3
Improper Load/Shift	--	--	12	0.1	12	0.1
Lighting Defect	--	--	10	0.1	10	0.1
Other	--	--	24	0.1	24	0.1
Total Number of Vehicles	**282**	**100.0**	**16,118**	**100.0**	**16,400**	**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 a mechanical inspection of the collision-involved vehicle was conducted.

Point of impact on vehicles involved in casualty collisions*
2021

Point Of Impact	Vehicles in Fatal Collisions		Vehicles in Non-Fatal Injury Collisions		Total Vehicles in Casualty Collisions	
	N	%	N	%	N	%
Front Centre	192	55.2	7,903	45.1	8,095	45.3
Back Centre	14	4.0	3,651	20.8	3,665	20.5
Right Front	22	6.3	1,303	7.4	1,325	7.4
Left Front	26	7.5	1,260	7.2	1,286	7.2
Left Centre	23	6.6	840	4.8	863	4.8
Right Centre	14	4.0	741	4.2	755	4.2
Rollover	40	11.5	697	4.0	737	4.1
Left Rear	4	1.1	489	2.8	493	2.8
Right Rear	3	0.9	440	2.5	443	2.5
Attachment	7	2.0	135	0.8	142	0.8
Undercarriage	1	0.3	41	0.2	42	0.2
Top	2	0.6	29	0.2	31	0.2
Total Number of Vehicles	**348**	**100.0**	**17,529**	**100.0**	**17,877**	**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 front centre. 20.5% of the impacts involved the back centre.

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

Environment

Location

The majority of fatal collisions (73.4%) occurred in rural areas, whereas the majority of injury (72.7%) and property damage collisions (84.3%) occurred in urban areas.

Surface conditions

The majority (69.3%) of all casualty collisions occurred when surface conditions were dry. Slush/Snow/Ice was involved in 15.9% of fatal collisions and 20.3% of non-fatal injury collisions.

Location of collisions
2021

Location	Fatal Collisions		Non-Fatal Injury Collisions		Property Damage Collisions		Total Collisions	
	N	%	N	%	N	%	N	%
Urban	62	26.6	7,281	72.7	75,830	84.3	83,173	83.0
Rural	171	73.4	2,741	27.3	14,146	15.7	17,058	17.0
Total Number of Collisions	**233**	**100.0**	**10,022**	**100.0**	**89,976**	**100.0**	**100,231**	**100.0**

Table 6.1. Location of Collisions

Observations

The majority of fatal collisions (73.4%) occurred in rural areas. The majority of non-fatal injury collisions (72.7%) and property damage collisions (84.3%) occurred in urban areas.

Casualty collision occurrence by surface condition
2021

Surface Condition	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
Dry	164	70.4	6,941	69.3	7,105	69.3
Slush/Snow/Ice	37	15.9	2,037	20.3	2,074	20.2
Wet	10	4.3	595	5.9	605	5.9
Loose Surface Material	13	5.6	201	2.0	214	2.1
Muddy	--	--	13	0.1	13	0.1
Other	--	--	14	0.1	14	0.1
Unspecified	9	3.9	221	2.2	230	2.2
Total Number of Collisions	**233**	**100.0**	**10,022**	**100.0**	**10,255**	**100.0**

Table 6.2. Casualty Collision Occurrence by Surface Condition

Observations

The majority (69.3%) of casualty collisions occurred when surface conditions were dry. Slush/Snow/Ice was involved in 15.9% of fatal collisions and 20.3% of non-fatal injury collisions.

Special types of vehicles - motorcycles

Motorcycles

- In 2021, based on motorcycle registrations, the involvement rate of motorcycles increased in fatal collisions and decreased in 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 make a driver error of: ran off road, improper turn, or improper passing. However, motorcycle operators were less likely to make a driver error of: followed too closely, left turn across path, or stop sign violation.
- Compared to drivers involved in all types of vehicle casualty collisions, motorcycle operators were less likely to have been legally impaired.
- Vehicle factors were identified for 2.1% 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 June.
- The majority of casualty collisions involving motorcycles occurred on dry roads.

Motorcycles involved in casualty collisions
2017 – 2021

Number of Motorcycles	2021	2020	2019	2018	2017
Fatal	35	30	25	17	27
Non-Fatal Injury	448	504	416	479	526
Total Number of Motorcycles Involved in Casualty Collisions	**483**	**534**	**441**	**496**	**553**

Casualties*	2021	2020	2019	2018	2017
Number Killed	31	31	24	18	26
Number Injured	491	520	450	510	557
Total Casualties in Collisions Involving Motorcycles	**522**	**551**	**474**	**528**	**583**

Number of Motorcycles Involved in Casualty Collisions Per 10,000 Registered Motorcycles**	2021	2020	2019	2018	2017
Fatal Collisions	2.5	2.2	2.0	1.4	2.2
Non-Fatal Injury Collisions	32.4	36.4	32.5	38.3	42.9

Table 7.1. Motorcycles Involved in Casualty Collisions

Observations

Based on motorcycle registrations in 2021, compared to 2020, the involvement rate of motorcycles increased in fatal collisions and decreased in 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, December 31, 2021.

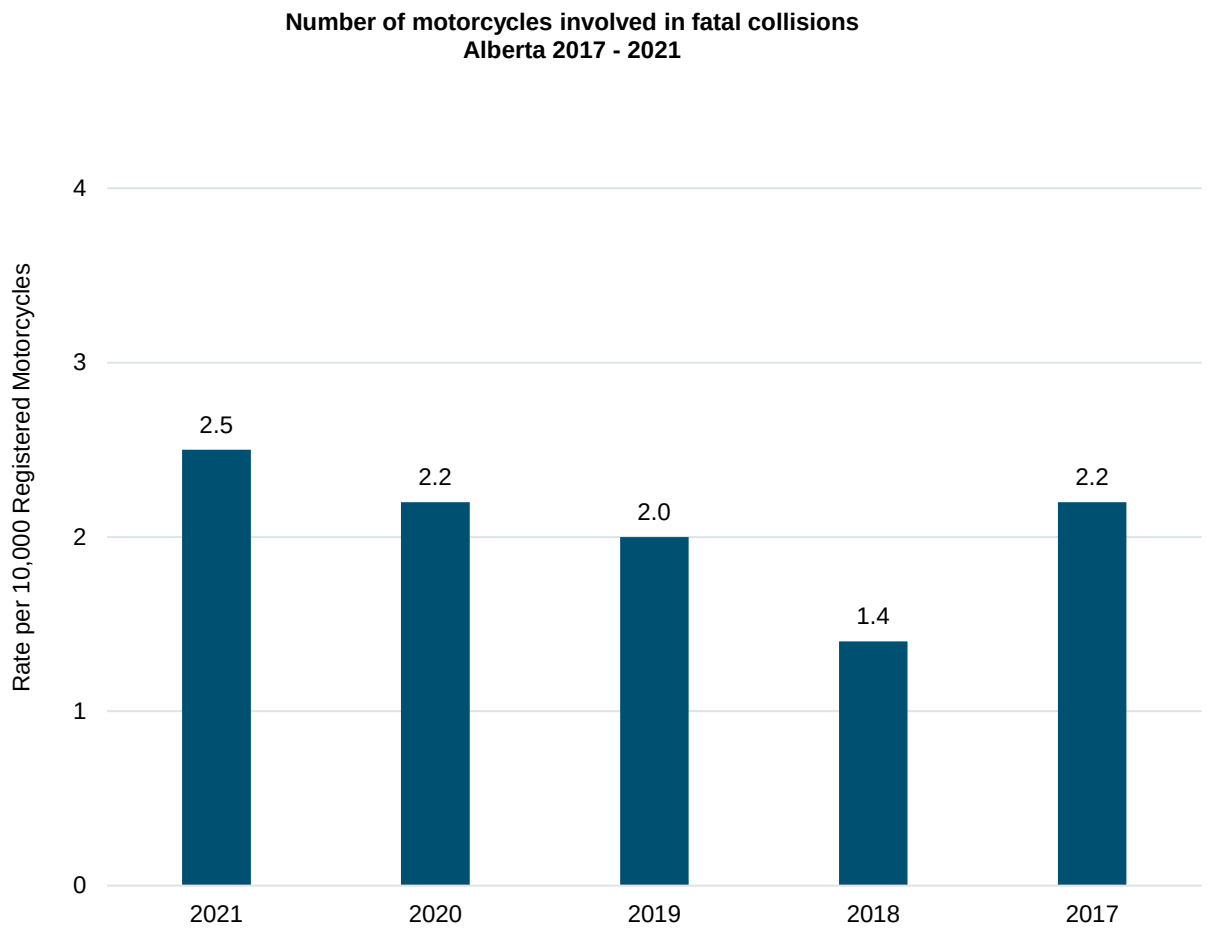

Figure 6. Number of Motorcycles Involved in Fatal Collisions

Age and gender of motorcycle operators involved in casualty collisions
2021

Age of Motorcycle Operators	Male		Female		Total*		Rate per 1,000 Licensed Motorcycle Operators**
	N	%	N	%	N	%	
Under 16	5	1.0	2	0.4	7	1.5	--
16 - 17	6	1.2	2	0.4	8	1.7	51.9
18 - 19	9	1.9	1	0.2	10	2.1	17.6
20 - 24	42	8.7	4	0.8	46	9.5	10.5
25 - 34	86	17.8	10	2.1	96	19.9	3.1
35 - 44	95	19.7	14	2.9	109	22.6	2.0
45 - 54	81	16.8	4	0.8	85	17.6	1.4
55 - 64	66	13.7	11	2.3	77	16.0	1.0
65 and Over	39	8.1	3	0.6	42	8.7	0.6
Unspecified	1	0.2	--	--	2	0.4	--
Total Number of Motorcycle Operators	**430**	**89.2**	**51**	**10.6**	**482**	**100.0**	

Table 7.2. Age and Gender 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 gender 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 gender group of motorcycle operators.

*Total includes drivers whose gender was other or unspecified on the collision report form.
**Source: Licensed Drivers – Service Alberta, as of December 31, 2021.
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*
2021

Improper Actions of Motorcycle Operators	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	107	56.3	17.5
Followed Too Closely	28	14.7	30.0
Improper Turn	15	7.9	3.9
Improper Passing	7	3.7	1.5
Left of Centre	7	3.7	3.0
Disobey Traffic Signal	5	2.6	7.3
Improper Lane Change	5	2.6	3.8
Stop Sign Violation	4	2.1	7.7
Fail to Yield Right of Way to Pedestrian	1	0.5	4.8
Left Turn Across Path	1	0.5	11.5
Fail to Yield Right of Way at Uncontrolled Intersection	--	--	2.2
Yield Sign Violation	--	--	1.9
Backed Unsafely	--	--	2.9
Other	10	5.3	2.2
Total Number of Operators	**190**	**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 make a driver error of: ran off road, improper turn, or improper passing. However, motorcycle operators were less likely to make a driver error of: followed too closely, left turn across path, or stop sign violation.

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

Note: There were a total of 400 motorcycle operators involved in casualty collisions for which a driver action was specified on the collision report form. 210 were indicated as driving properly at the time of the collision.

Condition of motorcycle operators involved in casualty collisions*
2021

Condition of Motorcycle Operators	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	405	95.1	95.3
Alcohol Impaired	5	1.2	1.7
Alcohol and Drug Impaired	1	0.2	0.2
Drug Impaired	--	--	0.3
Total Impaired Operators	**6**	**1.4**	**2.2**
Fatigued/Asleep	1	0.2	0.7
Other	14	3.3	1.9
Total Number of Operators	**426**	**100.0**	**100.0**

Table 7.4. Condition of Motorcycle Operators Involved in Casualty Collisions

Observations

The motorcycle operator's condition was a contributory factor for 4.9% of the motorcycle operators involved in casualty collisions. Compared to drivers involved in total casualty collisions, motorcycle operators were less 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*
2021

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	420	97.9	99.0
Tires Failed	4	0.9	0.3
Defective Brakes	2	0.5	0.5
Improper Load/Shift	--	--	0.1
Lighting Defect	--	--	0.1
Other	3	0.7	0.1
Total Number of Motorcycles	**429**	**100.0**	

Table 7.5. Motorcycle Vehicle Factors in Casualty Collisions

Observations

Vehicle factors were identified for 2.1% 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 information does not indicate whether a mechanical inspection of the collision-involved motorcycle was conducted.

Casualty collisions involving motorcycles: month of occurrence
2021

Month	N	%
January	2	0.4
February	1	0.2
March	11	2.4
April	39	8.4
May	66	14.1
June	93	19.9
July	74	15.8
August	74	15.8
September	68	14.6
October	32	6.9
November	7	1.5
December	--	--
Unspecified	--	--
Total Number of Collisions	**467**	**100.0**

Table 7.6. Casualty Collisions Involving Motorcycles: Month of Occurrence

Observations

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

Casualty collisions involving motorcycles: road surface condition
2021

Road Surface Condition	N	%
Dry	403	86.3
Loose Surface Material	31	6.6
Wet	12	2.6
Muddy	--	--
Other	3	0.6
Unspecified	18	3.9
Total Number of Collisions	**467**	**100.0**

Table 7.7. Casualty Collisions Involving Motorcycles: Road Surface Condition

Observations

The majority (86.3%) of casualty collisions involving motorcycles occurred on dry roads. Loose material on the road surface was involved in 6.6% of motorcycle casualty collisions. Wet roads were the scene for 2.6% of motorcycle casualty collisions.

Special types of vehicles - truck tractors

Truck tractors

- In 2021, there were 30 people killed and 413 injured in collisions involving truck tractors. This represents a decrease in fatalities and an increase in injuries from 2020.
- Compared to drivers of other vehicles, truck tractor drivers were more likely to make a driver error of: ran off road, improper lane change, or left of centre. However, operators of truck tractors were less likely than other vehicle operators to make a driver error of: followed too closely, disobey traffic signal, or left turn across path.
- 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 December.

Truck tractors involved in casualty collisions
2017 – 2021

Number of Truck Tractors	2021	2020	2019	2018	2017
Fatal	37	32	47	45	49
Non-Fatal Injury	320	280	362	472	473
Total Number of Truck Tractors Involved in Casualty Collisions	**357**	**312**	**409**	**517**	**522**

Casualties*	2021	2020	2019	2018	2017
Number Killed	30	37	50	45	49
Number Injured	413	352	488	604	588
Total Casualties in Collisions Involving Truck Tractors	**443**	**389**	**538**	**649**	**637**

Table 7.8. Truck Tractors Involved in Casualty Collisions

Observations

In 2021, there were 30 people killed and 413 injured in collisions involving truck tractors. This represents a decrease in fatalities and an increase in injuries from 2020. The total number of truck tractors involved in casualty collisions was highest in 2017 at 522.

*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*
2021

Improper Actions of Truck Tractor Driver	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Ran Off Road	50	37.0	17.5
Followed Too Closely	30	22.2	30.0
Improper Lane Change	12	8.9	3.8
Left Turn Across Path	9	6.7	11.5
Left of Centre	8	5.9	3.0
Improper Turn	7	5.2	3.9
Improper Passing	5	3.7	1.5
Stop Sign Violation	5	3.7	7.7
Backed Unsafely	2	1.5	2.9
Fail to Yield Right of Way to Pedestrian	2	1.5	4.8
Disobey Traffic Signal	1	0.7	7.3
Fail to Yield Right of Way at Uncontrolled Intersection	1	0.7	2.2
Yield Sign Violation	1	0.7	1.9
Other	2	1.5	2.2
Total Number of Drivers	**135**	**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 make a driver error of: ran off road, improper lane change, or left of centre. However, operators of truck tractors were less likely than other vehicle operators to make a driver error of: followed too closely, disobey traffic signal, or left turn across path.

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

Note: There was a total of 302 truck-tractor drivers involved in casualty collisions for which a driver action was specified on the collision report form. 167 were indicated as driving properly at the time of the collision.

Condition of truck tractor drivers involved in casualty collisions*
2021

Condition of Driver	N	%	Driver Condition in Total Casualty Collisions (All Vehicle Types) %
Normal	302	95.6	95.3
Alcohol Impaired	2	0.6	1.7
Alcohol and Drug Impaired	--	--	0.2
Drug Impaired	--	--	0.3
Total Impaired Drivers	**2**	**0.6**	**2.2**
Fatigued/Asleep	7	2.2	0.7
Other	5	1.6	1.9
Total Number of Drivers	**316**	**100.0**	**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 4.4% of the drivers involved. Compared to all drivers in casualty collisions, truck tractor drivers were more likely to have been fatigued or asleep at the time of the collision.

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

Vehicle factors of truck tractors involved in casualty collisions*
2021

Vehicle Factors	N	%	Vehicle Factors in Total Casualty Collisions (All Vehicle Types) %
No Apparent Defect	317	97.2	99.0
Improper Load/Shift	6	1.8	0.1
Defective Brakes	2	0.6	0.5
Tires Failed	--	--	0.3
Lighting Defect	--	--	0.1
Other	1	0.3	0.1
Total Number of Truck Tractors	**326**	**100.0**	

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

Observations

Vehicle factors were identified for 2.8% 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
2021

Month	N	%
January	37	11.2
February	29	8.8
March	21	6.4
April	9	2.7
May	14	4.3
June	21	6.4
July	26	7.9
August	21	6.4
September	26	7.9
October	25	7.6
November	43	13.1
December	57	17.3
Total Number of Collisions	**329**	**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 December and lowest during April.

Special types of vehicles - trains

Trains

- In 2021, six people were killed and 10 people were injured in collisions in which a train was involved. The number of casualties involving trains has increased from 2020.
- Compared to other types of casualty collisions, train-involved casualty collisions are relatively rare and occur throughout the year.
- All of the drivers (100%) involved in casualty collisions with a train made an improper driving action.

Trains involved in casualty collisions
2017 – 2021

Number of Trains	2021	2020	2019	2018	2017
Fatal	6	4	1	1	1
Non-Fatal Injury	6	8	15	6	8
Total Number of Trains Involved in Casualty Collisions	**12**	**12**	**16**	**7**	**9**

Casualties*	2021	2020	2019	2018	2017
Number Killed	6	4	1	1	1
Number Injured	10	11	20	8	10
Total Casualties in Collisions Involving Trains	**16**	**15**	**21**	**9**	**11**

Table 7.13. Trains Involved in Casualty Collisions

Observations

The number of trains involved in casualty collisions remained the same from 2020 to 2021. The number of casualties resulting from these collisions increased.

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

Casualty collisions involving trains: month of occurrence
2021

	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
Month	**N**	**%**	**N**	**%**	**N**	**%**
January	--	--	2	33.3	2	16.7
February	--	--	--	--	--	--
March	--	--	--	--	--	--
April	1	16.7	1	16.7	2	16.7
May	--	--	2	33.3	2	16.7
June	--	--	--	--	--	--
July	2	33.3	--	--	2	16.7
August	--	--	1	16.7	1	8.3
September	1	16.7	--	--	1	8.3
October	1	16.7	--	--	1	8.3
November	1	16.7	--	--	1	8.3
December	--	--	--	--	--	--
Total Number of Collisions	**6**	**100.0**	**6**	**100.0**	**12**	**100.0**

Table 7.14. Casualty Collisions Involving Trains: Month of Occurrence

Observations

Compared to other types of casualty collisions, train-involved casualty collisions are relatively rare and occur throughout the year.

Actions of drivers involved in casualty collisions with trains*
2021

Driver Actions	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Driving Properly	--	--	--	--	--	--
Stop Sign Violation	2	50.0	3	50.0	5	50.0
Disobey Traffic Signal	1	25.0	1	16.7	2	20.0
Fail to Yield Right of Way at Uncontrolled Intersection	--	--	1	16.7	1	10.0
Yield Sign Violation	1	25.0	--	--	1	10.0
Improper Passing	--	--	1	16.7	1	10.0
Total Number of Drivers	**4**	**100.0**	**6**	**100.0**	**10**	**100.0**

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

Observations

All 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 October. April experienced the least number of pedestrian collisions.
- Pedestrian casualty collisions were most likely to occur on Wednesday 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.).
- 43.9% of the drivers in casualty collisions involving a pedestrian were recorded as failed to yield right of way to pedestrian.
- The casualty rate per 10,000 population was highest for pedestrians between the ages of 25 and 29.
- Of pedestrians involved in injury collisions, 6.6% were legally impaired, compared to 20.0% involved in fatal collisions.
- Of those pedestrians who were impaired, the highest rate of involvement per 10,000 population was for pedestrians 25 to 29 years of age.

Casualty collisions involving pedestrians: month of occurrence
2021

Month of Collision	N	%
January	58	7.8
February	44	5.9
March	53	7.1
April	41	5.5
May	46	6.2
June	54	7.3
July	52	7.0
August	62	8.3
September	80	10.8
October	99	13.3
November	87	11.7
December	68	9.1
Total Number of Collisions	**744**	**100.0**

Table 8.1. Casualty Collisions Involving Pedestrians: Month of Occurrence

Observations

Pedestrian casualty collisions were more likely to occur in October than any other month. April experienced the least number of pedestrian collisions.

Casualty collisions involving pedestrians: day of week
2021

Day of Week	N	%
Monday	97	13.0
Tuesday	124	16.7
Wednesday	137	18.4
Thursday	102	13.7
Friday	129	17.3
Saturday	82	11.0
Sunday	73	9.8
Total Number of Collisions	**744**	**100.0**

Table 8.2. Casualty Collisions Involving Pedestrians: Day of Week

Observations

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

Casualty collisions involving pedestrians: time period
2021

Time Period	N	%
11:00 p.m. - 2:59 a.m.	44	5.9
3:00 a.m. - 6:59 a.m.	22	3.0
7:00 a.m. - 10:59 a.m.	122	16.4
11:00 a.m. - 2:59 p.m.	172	23.1
3:00 p.m. - 6:59 p.m.	232	31.2
7:00 p.m. - 10:59 p.m.	129	17.3
Unspecified	23	3.1
Total Number of Collisions	**744**	**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
2021

Location	N	%
Urban	693	93.1
Rural	51	6.9
Total Number of Collisions	**744**	**100.0**

Table 8.4. Casualty Collisions Involving Pedestrians: Location

Observations

The majority of pedestrian casualty collisions (93.1%) occurred in urban areas. Only 6.9% occurred in rural areas.

Actions of drivers involved in casualty collisions with pedestrians*
2021

Driver Actions	N	%
Driving Properly	208	33.7
Fail to Yield Right of Way to Pedestrian	271	43.9
Backed Unsafely	55	8.9
Improper Turn	17	2.8
Ran Off Road	10	1.6
Fail to Yield Right of Way at Uncontrolled Intersection	9	1.5
Left Turn Across Path	8	1.3
Improper Passing	7	1.1
Disobey Traffic Signal	7	1.1
Stop Sign Violation	5	0.8
Followed Too Closely	4	0.6
Improper Lane Change	3	0.5
Left of Centre	3	0.5
Yield Sign Violation	1	0.2
Other	9	1.5
Total Number of Drivers	**617**	**100.0**

Table 8.5. Action of Drivers Involved In Casualty Collisions with Pedestrians

Observations

33.7% of the drivers involved in pedestrian casualty collisions were recorded as driving properly. However, 43.9% 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
2021

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	--	--	12	1.6	12	1.6	0.5
5 - 9	--	--	22	3.0	22	2.9	0.8
10 - 14	--	--	47	6.4	47	6.1	1.7
15 - 19	--	--	66	9.0	66	8.6	2.6
20 - 24	2	5.9	51	7.0	53	6.9	1.9
25 - 29	5	14.7	79	10.8	84	11.0	2.8
30 - 34	7	20.6	63	8.6	70	9.1	2.0
35 - 44	12	35.3	96	13.1	108	14.1	1.6
45 - 54	2	5.9	89	12.2	91	11.9	1.6
55 - 64	--	--	111	15.2	111	14.5	2.0
65 and Over	6	17.6	79	10.8	85	11.1	1.3
Unspecified	--	--	17	2.3	17	2.2	
Total Number of Pedestrian Casualties	**34**	**100.0**	**732**	**100.0**	**766**	**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 25 and 29. The lowest casualty rate was recorded for children under 5 years of age.

*Population – Statistics Canada as of July 1, 2021.

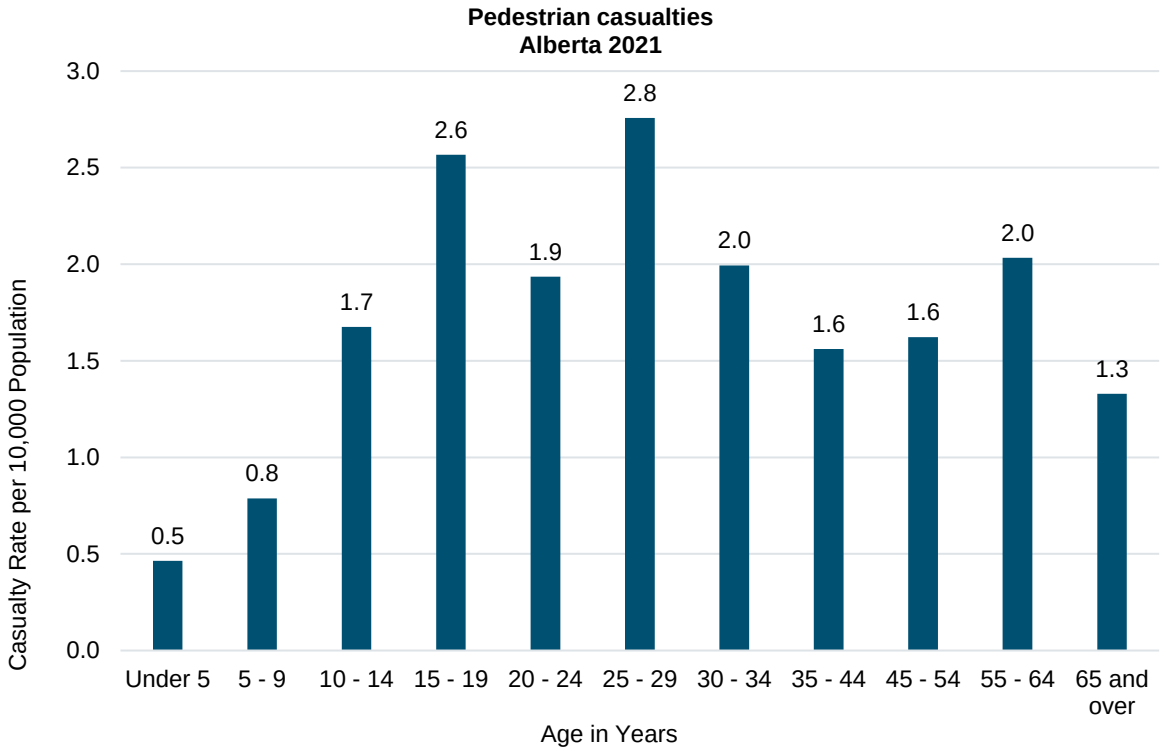

Figure 7. Pedestrian Casualties

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

Condition of pedestrians involved in casualty collisions*
2021

Condition of Pedestrian	Pedestrians in Fatal Collisions		Pedestrians in Non-Fatal Injury Collisions		Total Pedestrians in Casualty Collisions	
	N	%	N	%	N	%
Normal	10	66.7	600	90.4	610	89.8
Alcohol Impaired	1	6.7	25	3.8	26	3.8
Alcohol and Drug Impaired	1	6.7	5	0.8	6	0.9
Drug Impaired	1	6.7	14	2.1	15	2.2
Total Impaired Pedestrians	**3**	**20.0**	**44**	**6.6**	**47**	**6.9**
Fatigued/Asleep	--	--	1	0.2	1	0.1
Other	2	13.3	19	2.9	21	3.1
Total Number of Pedestrians	**15**	**100.0**	**664**	**100.0**	**679**	**100.0**

Table 8.7. Condition of Pedestrians Involved in Casualty Collisions

Observations

Of pedestrians involved in injury collisions, 6.6% were legally impaired, compared to 20.0% involved in fatal collisions. As the severity of the collision increased, the involvement of impairment increased.

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

Age of impaired pedestrians involved in casualty collisions*
2021

Age in Years	N	%	Rate per 10,000 Population**
Under 10	--	--	--
10 - 14	--	--	--
15 - 19	1	2.1	0.0
20 - 24	4	8.5	0.1
25 - 29	12	25.5	0.4
30 - 34	6	12.8	0.2
35 - 44	9	19.1	0.1
45 - 54	11	23.4	0.2
55 - 64	3	6.4	0.1
65 and Over	1	2.1	0.0
Unspecified	--	--	
Total Number of Pedestrian Casualties	**47**	**100.0**	

Table 8.8. Age of Impaired Pedestrians Involved in Casualty Collisions

Observations

Of those pedestrians who were legally impaired, the highest rate of involvement per 10,000 population was for pedestrians 25 to 29 years of age.

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

**Population – Statistics Canada as of July 1, 2021.

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 collisions (39.5%) occurred during the evening rush-hour period.
- Young bicyclists aged 15 to 19 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.
- In 2021, 2.6% of bicyclists involved in casualty collisions were legally impaired before the collision.

Casualty collisions involving bicycles: month of occurrence
2021

Month of Collision	N	%
January	6	1.4
February	2	0.5
March	14	3.2
April	32	7.3
May	53	12.0
June	79	17.9
July	62	14.1
August	58	13.2
September	71	16.1
October	39	8.8
November	22	5.0
December	3	0.7
Total Number of Collisions	**441**	**100.0**

Table 9.1. Casualty Collisions Involving Bicycles: Month of Occurrence

Observations

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

Casualty collisions involving bicycles: day of week
2021

Day of Week	N	%
Monday	63	14.3
Tuesday	59	13.4
Wednesday	77	17.5
Thursday	71	16.1
Friday	91	20.6
Saturday	48	10.9
Sunday	32	7.3
Total Number of Collisions	**441**	**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
2021

Time Period	N	%
11:00 p.m. - 2:59 a.m.	12	2.7
3:00 a.m. - 6:59 a.m.	14	3.2
7:00 a.m. - 10:59 a.m.	57	12.9
11:00 a.m. - 2:59 p.m.	96	21.8
3:00 p.m. - 6:59 p.m.	174	39.5
7:00 p.m. - 10:59 p.m.	82	18.6
Unspecified	6	1.4
Total Number of Collisions	**441**	**100.0**

Table 9.3. Casualty Collisions Involving Bicycles: Time Period

Observations

The largest proportion of casualty collisions (39.5%) involving bicycles occurred during the evening rush-hour period of 3:00 p.m. - 6:59 p.m.

Age of bicyclist casualties
2021

Age in Years	Persons Killed		Persons Injured		Total Bicyclist Casualties		Casualty Rate per 10,000 Population*
	N	%	N	%	N	%	
Under 5	--	--	2	0.5	2	0.5	0.1
5 - 9	--	--	18	4.1	18	4.1	0.6
10 - 14	--	--	57	12.9	57	12.8	2.0
15 - 19	--	--	59	13.4	59	13.3	2.3
20 - 24	--	--	32	7.3	32	7.2	1.2
25 - 29	1	33.3	53	12.0	54	12.2	1.8
30 - 34	--	--	18	4.1	18	4.1	0.5
35 - 44	--	--	76	17.2	76	17.1	1.1
45 - 54	--	--	47	10.7	47	10.6	0.8
55 - 64	2	66.7	43	9.8	45	10.1	0.8
65 and Over	--	--	22	5.0	22	5.0	0.3
Unspecified	--	--	14	3.2	14	3.2	
Total Casualties	**3**	**100.0**	**441**	**100.0**	**444**	**100.0**	

Table 9.4. Age of Bicyclist Casualties

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 65 and older.

* Population – Statistics Canada as of July 1, 2021.

Improper actions of bicyclists involved in casualty collisions
2021

Improper Actions of Bicyclists	N	%	Driver Actions in Total Casualty Collisions (All Vehicle Types) %
Disobey Traffic Signal	34	19.4	7.3
Fail to Yield Right of Way at Uncontrolled Intersection	17	9.7	2.2
Stop Sign Violation	10	5.7	7.8
Left Turn Across Path	6	3.4	11.5
Followed Too Closely	5	2.9	29.9
Left of Centre	5	2.9	2.9
Fail to Yield Right of Way to Pedestrian	4	2.3	4.8
Yield Sign Violation	4	2.3	1.9
Improper Turn	4	2.3	3.9
Improper Passing	2	1.1	1.5
Ran Off Road	2	1.1	17.5
Improper Lane Change	2	1.1	3.8
Backed Unsafely	--	--	2.9
Other	80	45.7	2.2
Total Number of Bicyclists	**175**	**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 345 bicyclists involved in casualty collisions for which a driver action was specified on the collision report form. 170 were indicated as driving properly at the time of the collision.

Condition of bicyclists involved in casualty collisions*
2021

Condition of Bicyclist	N	%
Normal	371	95.9
Alcohol Impaired	5	1.3
Alcohol and Drug Impaired	2	0.5
Drug Impaired	3	0.8
Total Impaired Bicyclists	**10**	**2.6**
Fatigued/Asleep	--	--
Other	6	1.6
Total Number of Bicyclists	**387**	**100.0**

Table 9.6. Condition of Bicyclists Involved in Casualty Collisions

Observations

2.6% 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

- A total of 2.1% of drivers involved in injury collisions were judged to have been legally impaired, compared to 7.6% 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 20 and 21 years of age were most likely to have been legally impaired. There were about three times as many male impaired drivers as female impaired drivers.
- In 2021, impaired driving casualty collisions were most likely to have occurred in June, on Saturday, and between 7:00 p.m. and 10:59 p.m.
- Figure 8 provides a graphic representation of the involvement of impaired drivers in casualty collisions over the five year period, 2017 - 2021.

Condition of drivers in casualty collisions*
2021

Condition of Driver	Drivers in Fatal Collisions		Drivers in Non-Fatal Injury Collisions		Total Drivers in Casualty Collisions	
	N	%	N	%	N	%
Normal	212	84.8	14,557	95.4	14,769	95.3
Alcohol Impaired	14	5.6	250	1.6	264	1.7
Alcohol and Drug Impaired	4	1.6	30	0.2	34	0.2
Drug Impaired	1	0.4	40	0.3	41	0.3
Total Impaired Drivers	**19**	**7.6**	**320**	**2.1**	**339**	**2.2**
Fatigued/Asleep	--	--	104	0.7	104	0.7
Other	19	7.6	272	1.8	291	1.9
Total Number of Drivers	**250**	**100.0**	**15,253**	**100.0**	**15,503**	**100.0**

Table 10.1. Condition of Drivers in Casualty Collisions

Observations

Of drivers involved in injury collisions, 2.1% were legally impaired by alcohol and/or drugs, compared to 7.6% in fatal collisions. As the severity of the collision increased, the involvement of impairment dramatically increased. Overall, 2.2% 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)

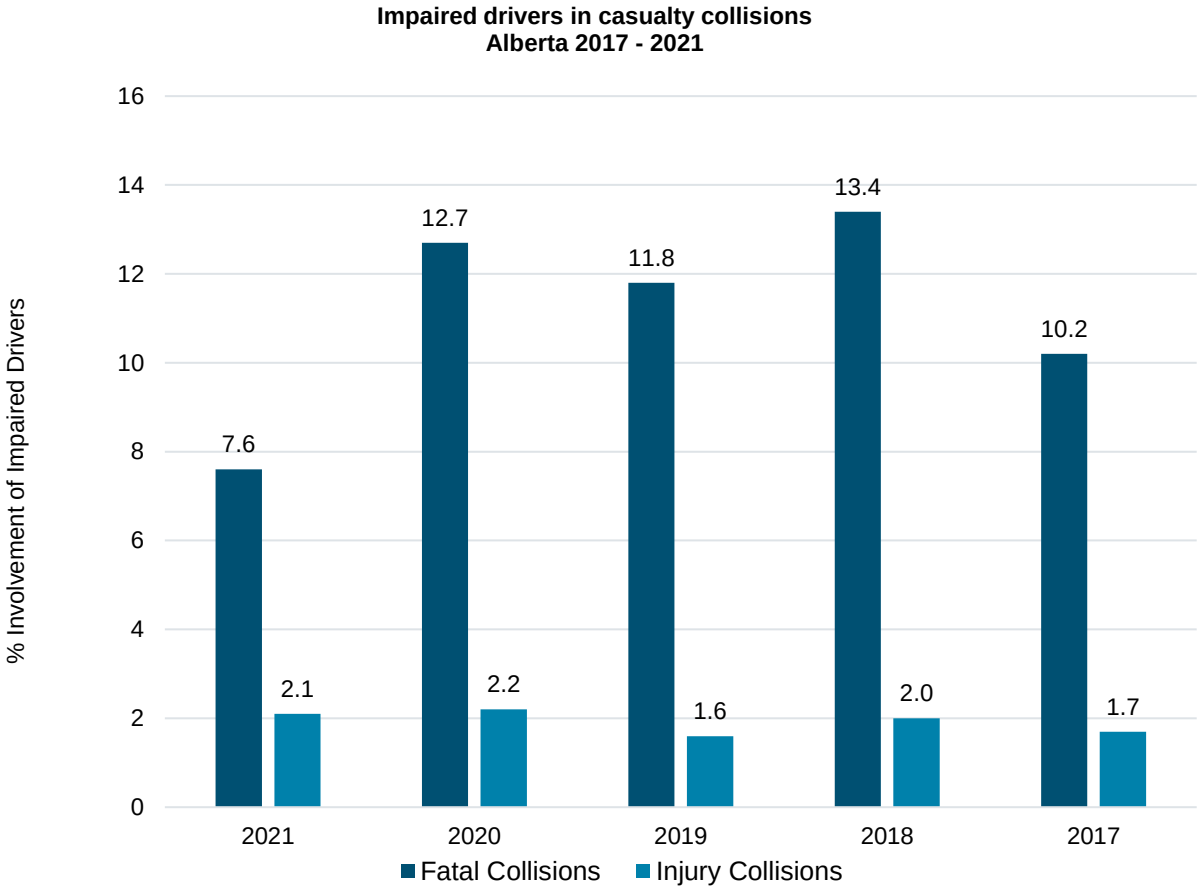

Figure 8. Impaired Drivers in Casualty Collisions

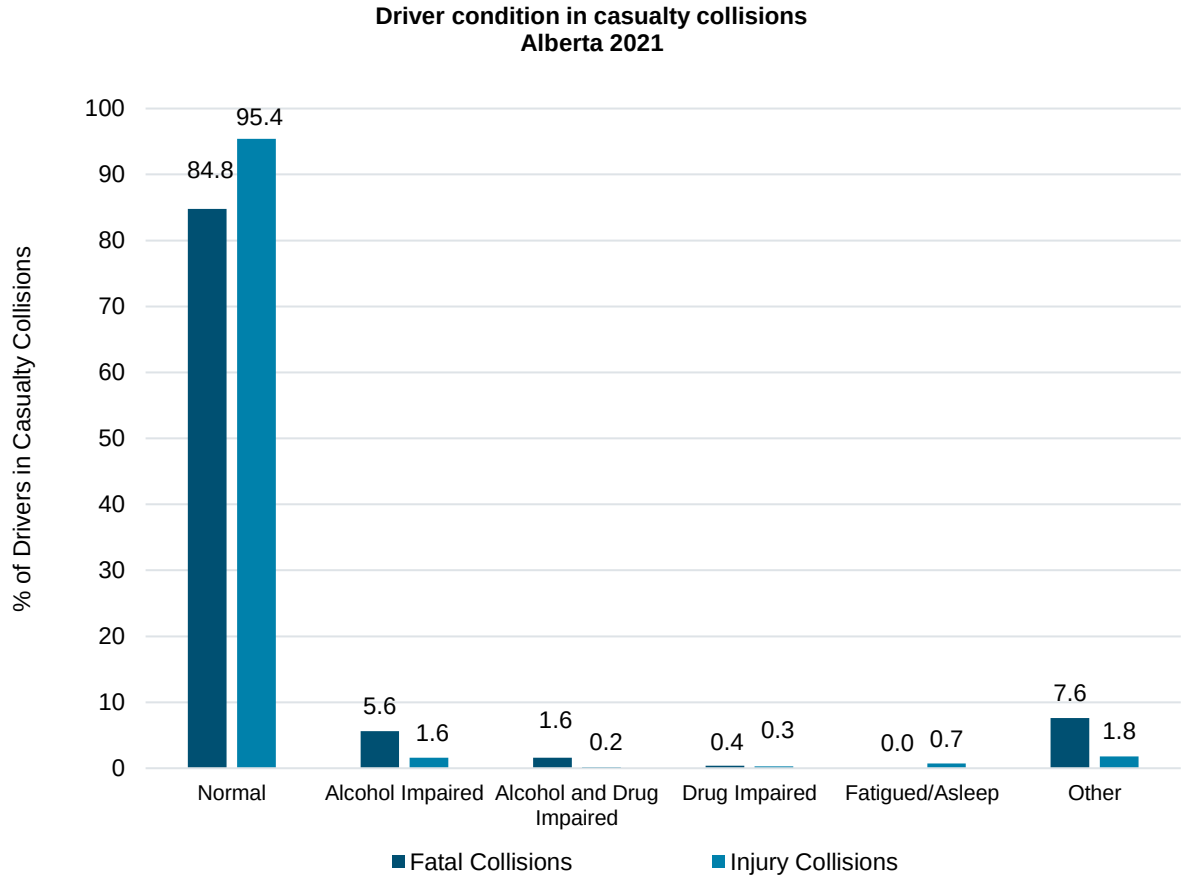

Figure 9. Driver Condition in Casualty Collisions

Age and gender of impaired drivers in casualty collisions*
2021

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	--	--	--	1	0.3	0.0	1	0.3	0.0
16 - 17	3	0.9	0.1	3	0.9	0.1	6	1.8	0.1
18 - 19	13	3.8	0.3	4	1.2	0.1	17	5.0	0.2
20 - 21	21	6.2	0.4	7	2.1	0.2	28	8.3	0.3
22 - 24	22	6.5	0.3	8	2.4	0.1	30	8.8	0.2
25 - 29	35	10.3	0.2	12	3.5	0.1	47	13.9	0.2
30 - 34	44	13.0	0.3	11	3.2	0.1	55	16.2	0.2
35 - 44	53	15.6	0.2	17	5.0	0.1	70	20.6	0.1
45 - 54	37	10.9	0.1	11	3.2	0.0	48	14.2	0.1
55 - 64	20	5.9	0.1	5	1.5	0.0	25	7.4	0.0
65 and Over	11	3.2	0.0	1	0.3	0.0	12	3.5	0.0
Unspecified	--	--	--	--	--		--	--	
Total Drivers	**259**	**76.4**		**80**	**23.6**		**339**	**100.0**	

Table 10.2. Age and Gender of Impaired Drivers in Casualty Collisions

Observations

Of those collision-involved drivers who were legally impaired, there were about three times as many male drivers as female drivers. In terms of involvement per 1,000 licensed drivers, males 20 to 21 years of age were more likely to have been legally impaired in a casualty collision than any other age group.

*Total includes drivers whose gender was other or unspecified on the collision report form.

**Source: Licensed Drivers – Service Alberta, as of December 31, 2021.

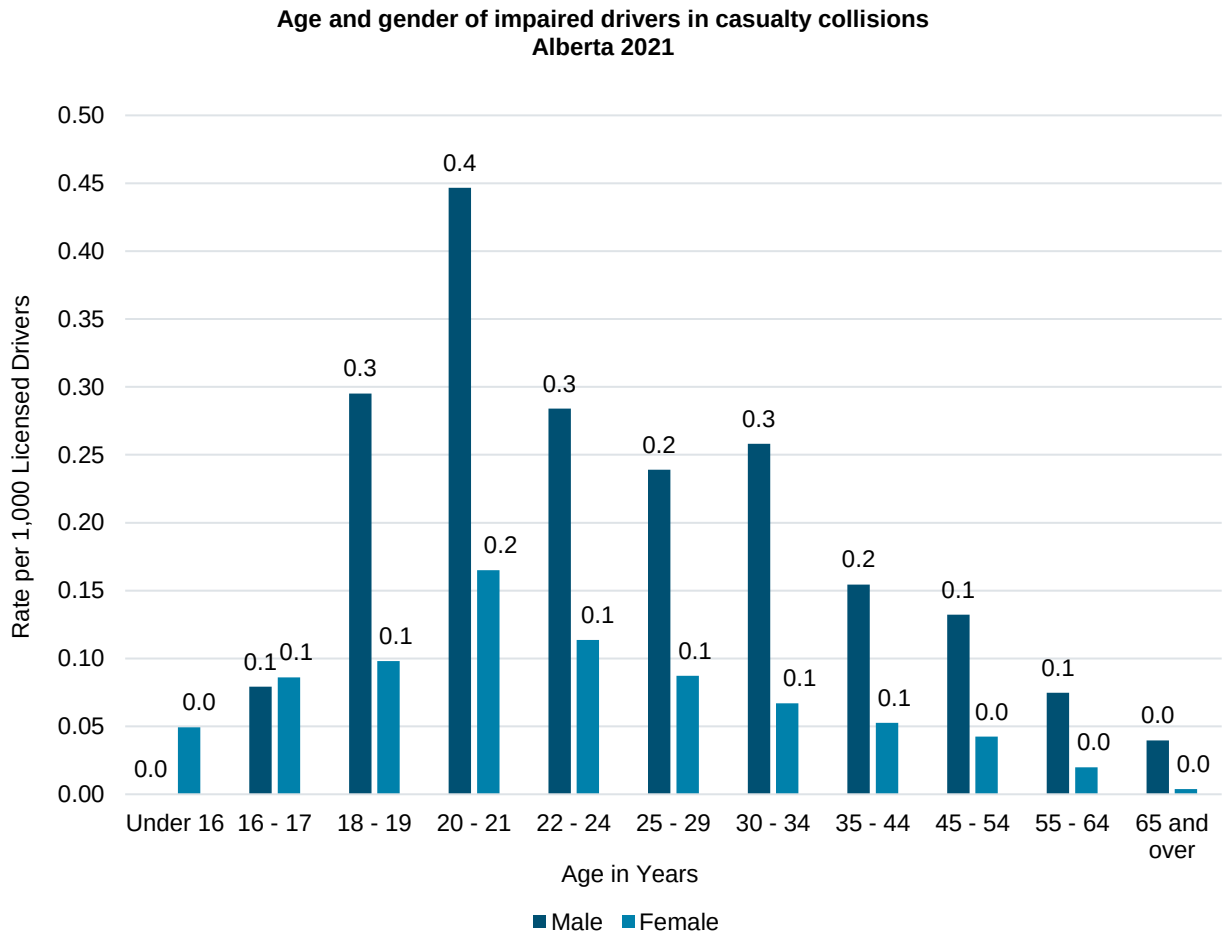

Figure 10. Age and Gender of Impaired Drivers in Casualty Collisions

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

Impaired driving casualty collisions: month of occurrence
2021

	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
Month	**N**	**%**	**N**	**%**	**N**	**%**
January	--	--	20	6.3	20	5.9
February	1	5.3	18	5.6	19	5.6
March	1	5.3	22	6.9	23	6.8
April	2	10.5	19	6.0	21	6.2
May	1	5.3	27	8.5	28	8.3
June	2	10.5	46	14.4	48	14.2
July	3	15.8	36	11.3	39	11.5
August	3	15.8	36	11.3	39	11.5
September	4	21.1	31	9.7	35	10.4
October	1	5.3	28	8.8	29	8.6
November	1	5.3	24	7.5	25	7.4
December	--	--	12	3.8	12	3.6
Total Number of Collisions	**19**	**100.0**	**319**	**100.0**	**338**	**100.0**

Table 10.3. Impaired Driving Casualty Collisions: Month of Occurrence

Observations

The month of June accounted for the largest proportion of impaired driving casualty collisions. The month of December accounted for the smallest proportion of impaired driving casualty collisions.

Impaired driving casualty collisions: day of week
2021

	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
Day of Week	**N**	**%**	**N**	**%**	**N**	**%**
Monday	4	21.1	40	12.5	44	13.0
Tuesday	4	21.1	41	12.9	45	13.3
Wednesday	2	10.5	36	11.3	38	11.2
Thursday	2	10.5	40	12.5	42	12.4
Friday	1	5.3	49	15.4	50	14.8
Saturday	3	15.8	61	19.1	64	18.9
Sunday	3	15.8	52	16.3	55	16.3
Total Number of Collisions	**19**	**100.0**	**319**	**100.0**	**338**	**100.0**

Table 10.4. Impaired Driving Casualty Collisions: Day of Week

Observations

The highest number of impaired driving casualty collisions occurred on Saturday (18.9%). The smallest number of impaired driving casualty collisions occurred on Wednesday (11.2%).

Impaired driving casualty collisions: time period
2021

Time Period	Fatal Collisions		Non-Fatal Injury Collisions		Total Casualty Collisions	
	N	%	N	%	N	%
11:00 p.m. - 2:59 a.m.	5	26.3	59	18.5	64	18.9
3:00 a.m. - 6:59 a.m.	4	21.1	38	11.9	42	12.4
7:00 a.m. - 10:59 a.m.	1	5.3	26	8.2	27	8.0
11:00 a.m. - 2:59 p.m.	1	5.3	32	10.0	33	9.8
3:00 p.m. - 6:59 p.m.	1	5.3	69	21.6	70	20.7
7:00 p.m. - 10:59 p.m.	5	26.3	84	26.3	89	26.3
Unspecified	2	10.5	11	3.4	13	3.8
Total Number of Collisions	**19**	**100.0**	**319**	**100.0**	**338**	**100.0**

Table 10.5. Impaired Driving Casualty Collisions: Time Period

Observations

The evening period (7:00 p.m. – 10:59 p.m.) was most likely to record impaired driving casualty collisions (26.3%). The morning hours (7:00 a.m. – 10:59 a.m.) were least likely to record impaired driving casualty collisions (8.0%).

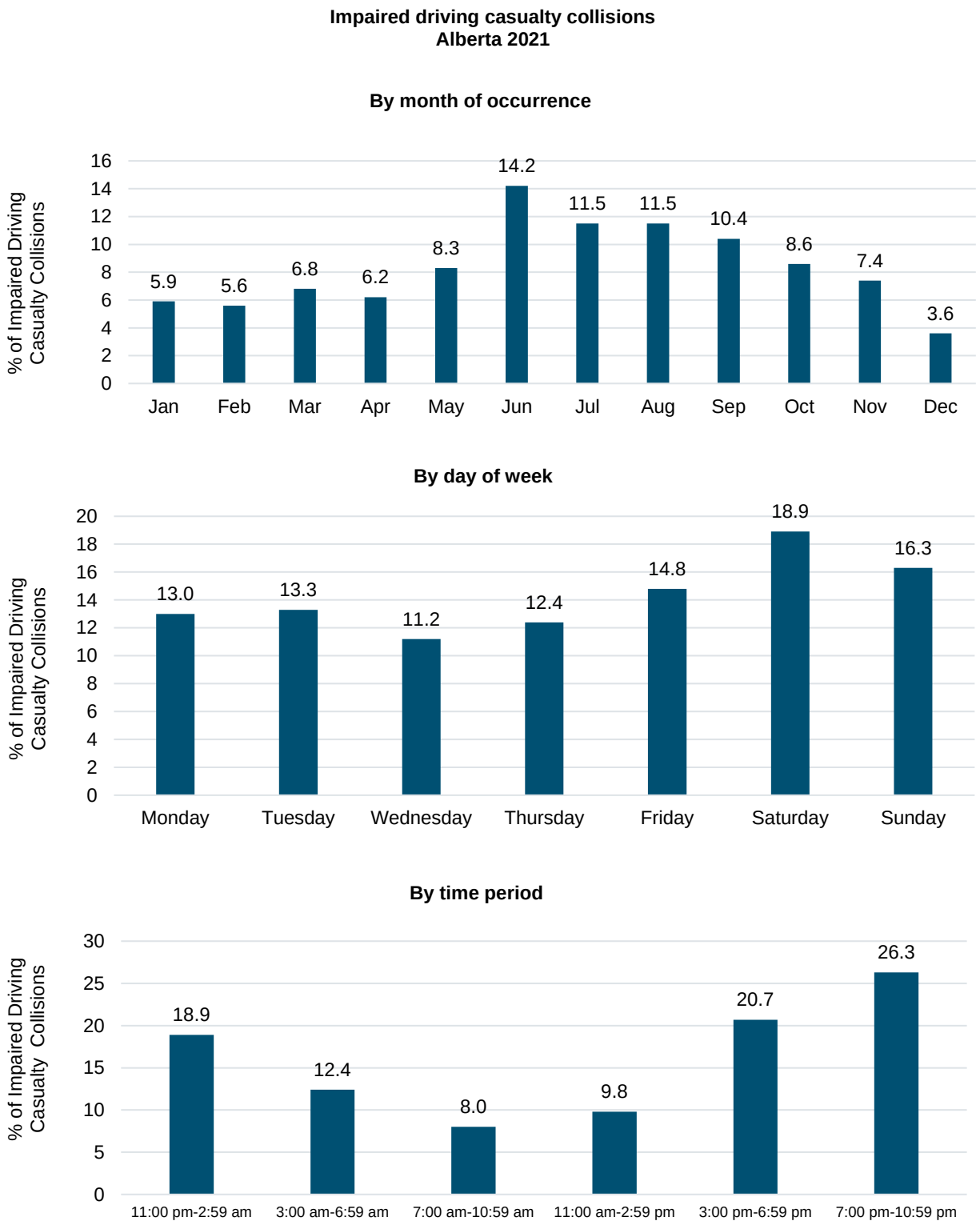

Figure 11. Impaired Driving Casualty Collisions by Month/Day of Week/Time Period

Traffic safety issues

Restraint use

- Collision-involved restraint users had a much lower injury rate (7.4%) than those not using restraints (14.5%).
- 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)
2021

Injury Severity of Occupants	Percentage of Occupants Using Restraints %	Percentage of Occupants Not Using Restraints %
Fatal Injury	0.1	1.8
Major Injury	0.9	5.1
Minor Injury	6.4	7.6
Total Occupants Sustaining Injuries	**7.4**	**14.5**
No Apparent Injury	92.6	85.5
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 (7.4%) than those not using restraints (14.5%). 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.