MOTOR VEHICLE COLLISIONS 2011

OFFICE of TRAFFIC SAFETY
EDMONTON, CANADA

THE CITY OF Edmonton TRANSPORTATION

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Motor Vehicle Collisions

2011

Cover Photograph: damaged vehicle in the Edmonton Police Service Impound Lot. Photo Credit: Chris Neuman.

Key Facts and Figures – 2011 Collision Statistics

- There were 23,442 collisions in the City of Edmonton in 2011. This figure represents a decrease of 17.7% from 2010.
- The number of collisions per capita in Edmonton decreased by 19.6% from 2010 levels, to 28.9 collisions per 1,000 population. This is the lowest per-capita collision rate since 1997, when Edmonton's population was 23% lower than it is currently.
- In 2011 there were 3,504 collisions that resulted in injury or fatality, a reduction of 7.6% from 2010 and the lowest overall total in 20 years. These injury and fatal collisions resulted in 4,001 minor injuries, 445 major injuries, and 22 fatalities.
- The 22 fatalities in 2011 included 9 vehicle occupants and 13 vulnerable road users (8 pedestrians, 4 motorcyclists, and 1 cyclist).
- Collisions at intersections made up 53% (12,411) of the collision total, but resulted in 68% (3,010) of total injuries and 12 of the 22 fatalities sustained in 2011. Compared to 2010, the number of intersection collisions per 1,000 population decreased by 19.6%.
- The most common collision causes in Edmonton were following too close (35%, 8,276 collisions), striking parked vehicles (12%, 2,861), and improper lane changes (11%, 2,493).
- The collision causes most likely to result in injury or fatality were failure to observe traffic signals (24% of collisions resulted in injury or fatality), left turns across the path of oncoming traffic (23%), and stop or yield sign violations (18%).
- There were 316 pedestrian-involved collisions in 2011, resulting in 320 pedestrian injuries (a 1.8% decrease over 2010) and 8 fatalities, compared to 4 fatalities in 2010. Of these, 54 injuries and four fatalities occurred when a pedestrian was crossing at a midblock without the right of way (jaywalking).
- There was a 2.7% increase in the number of cyclists injured or killed, from 184 in 2010 to 189 in 2011. Slightly less than half of collisions involving cyclists were deemed to be caused by cyclist error or violation.
- The number of collisions involving motorcyclists decreased 6% from 2010 to 2011; however, the number of motorcyclists injured increased by 3%, to 139. There were 4 motorcyclist fatalities in 2011, the same number as in 2010.
- Ranked by the total number of collisions, the top three high-collision *intersections* in the City of Edmonton in 2011 were: Yellowhead Trail and 127 Street, (75 collisions, 10 injuries); 107 Avenue and 142 Street (72 collisions, 11 injuries); and 90 Avenue and 85 Street (70 collisions, 10 injuries). The top three high-collision *midblock* segments were: the High Level Bridge (63 collisions, 13 injuries); Whitemud Drive from 122 Street to the Terwillegar Drive interchange (42 collisions, 2 injuries); and Whitemud Drive from 159 Street to 170 Street (31 collisions, 8 injuries).

Introduction

The City of Edmonton Office of Traffic Safety maintains the Motor Vehicle Collision Information System (MVCIS), a database of motor vehicle collisions that occur on public roads in the City of Edmonton. The information in the database is collected from the provincial Collision Report Form, which is completed by members of the Edmonton Police Service either on paper at the scene of the collision or electronically at the front counter of a divisional or community police station. The database reflects all reported collisions on public roadways that result in property damage of $2,000 or greater, as well as any collision that results in a minor or major injury or fatality.

This report presents an overview of collisions that occurred in Edmonton from January 1 to December 31, 2011, based on causes, temporal information, and injury severity. The report also provides information on collisions involving pedestrians, cyclists, and motorcyclists, as well as information on speed and alcohol involvement in collisions.

On January 1, 2011, Alberta Transportation implemented a change in its regulations that affected the requirement to report collisions; specifically, the estimated damage amount beyond which a collision is required to be reported to police increased from $1,000 to $2,000. The substantial decrease in collisions in 2011 is likely due in part to this reporting limit change; however, the specific effect of the reporting change cannot be isolated from other factors that may have affected collision totals.

Intersection- and midblock-level collision detail is available in spreadsheet form to facilitate end-user analysis, and can be accessed from the Office of Traffic Safety's website at http://www.edmonton.ca/trafficsafety. This data is also available through the City of Edmonton's Open Data portal at http://data.edmonton.ca.

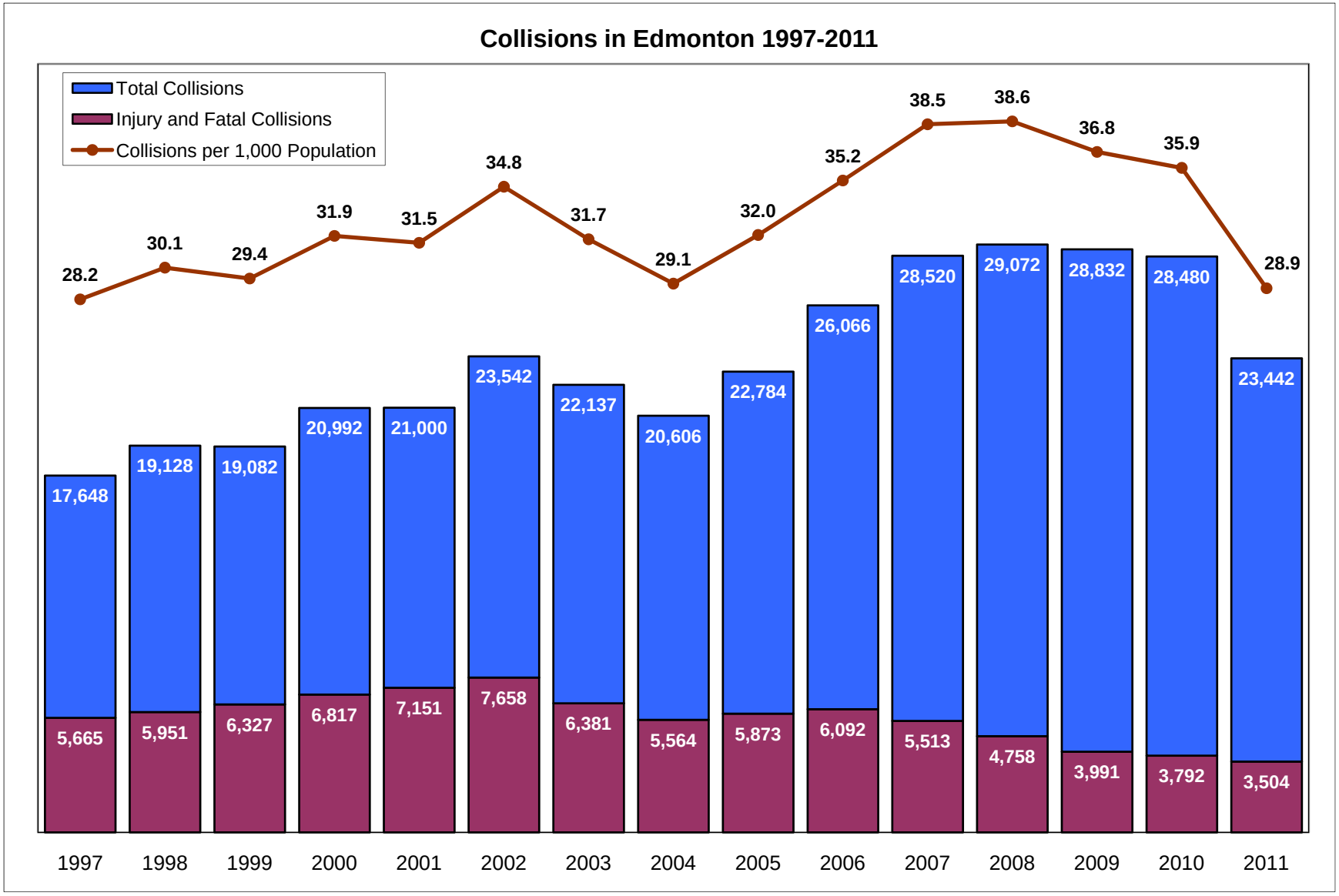


Figure 1: Historical Collision Statistics, 1997-2011

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	% Chg
Total Collisions	17,648	19,128	19,082	20,992	21,000	23,542	22,137	20,606	22,784	26,066	28,520	29,072	28,832	28,480	**23,442**	**-17.7 %**
Injury Collisions	5,648	5,927	6,316	6,798	7,127	7,638	6,352	5,530	5,847	6,067	5,482	4,730	3,962	3,768	**3,482**	**-7.6 %**
Injuries	8,319	8,756	9,173	9,805	10,284	11,013	9,083	7,686	8,006	8,221	7,445	6,270	5,203	4,910	**4,446**	**-9.5 %**
Fatal Collisions	17	24	11	19	24	20	29	34	26	25	31	28	29	24	**22**	**-8.3 %**
Fatalities	18	24	17	19	24	20	32	37	27	25	32	29	32	27	**22**	**-18.5 %**
Pedestrian Collisions	335	329	310	302	372	348	308	296	333	347	366	395	347	306	**316**	**3.3 %**
Pedestrians Injured	350	318	330	310	380	365	314	308	346	364	372	395	357	326	**320**	**-1.8 %**
Pedestrians Killed	9	11	3	9	11	9	6	10	4	0	13	9	9	4	**8**	**100.0 %**
Bicycle Collisions	239	233	249	214	227	201	181	196	221	199	184	235	220	182	**190**	**4.4 %**
Cyclists Injured	241	233	247	215	230	200	181	195	221	198	181	234	218	182	**188**	**3.3 %**
Cyclists Killed	1	0	1	1	0	0	0	2	1	0	4	2	2	2	**1**	**-50.0 %**
Motorcycle Collisions	106	117	119	105	148	157	110	161	177	177	213	255	201	211	**199**	**-5.7 %**
Motorcyclists Injured	108	115	106	98	137	144	111	137	162	144	160	184	150	135	**139**	**3.0 %**
Motorcyclists Killed	1	4	0	1	2	3	1	9	2	1	4	7	2	4	**4**	**0.0 %**
Population	625,450	636,100	648,284	657,500	666,104	676,300	697,657	707,271	712,391	741,028	741,392	752,412	782,439	793,000	**812,201**	**2.4 %**
Private Pass. Vehicles	329,822	339,397	349,575	356,679	365,232	376,157	380,475	381,456	389,471	407,732	431,425	452,101	470,602	479,194	**491,789**	**2.6 %**
Private Motorcycles	4,568	5,047	5,188	5,574	6,112	6,346	7,070	8,278	8,586	9,236	10,152	12,686	14,378	15,605	**14,087**	**-9.7 %**
Collisions/1000 Pop.	28.2	30.1	29.4	31.9	31.5	34.8	31.7	29.1	32.0	35.2	38.5	38.6	36.8	35.9	**28.9**	**-19.6 %**
Intersection Collisions/1000 Pop.	17.5	18.0	17.3	18.2	17.5	17.9	16.0	15.0	15.4	17.9	19.2	18.2	16.8	17.0	**15.3**	**-10.2 %**
Injuries/1000 Pop.	13.3	13.8	14.2	14.9	15.5	16.3	13.1	10.9	11.3	11.1	10.1	8.4	6.7	6.2	**5.5**	**-11.6 %**
Collisions/1000 Veh.	53.5	56.4	54.6	58.9	57.5	62.6	58.2	54.0	58.5	63.9	66.1	64.3	61.3	59.4	**47.7**	**-19.8 %**

Table 1: Summary of Selected Collision Statistics, 1997-2011

The population figure for 2011 is from the 2011 Census of Canada. The population figure for 2010 is an estimate and was provided by the Chief Economist of the City of Edmonton. Population figures for 2009 and 2008 are based on City of Edmonton Municipal Census results. The population for 2007 is interpolated from the 2006 Census of Canada and the 2008 Municipal Census. For population sources from previous years, please contact the report's author.

Data on passenger vehicle and motorcycle registrations are based on the Alberta Vehicle Registration Statistics by Vehicle Registration Classes, and reflect the number of registrations as of March 31 of each year.

Overview of 2011 Collision Statistics

The overall number of collisions in Edmonton has been decreasing year over year since 2008, despite significant population growth in the region at the time. The total number of reported collisions decreased 17.7% between 2010 and 2011. Collisions resulting in injury, and the number of people injured, decreased 7.6% and 9.5% respectively, the lowest annual figures reported in Edmonton in two decades. While collisions involving pedestrians and cyclists increased slightly in 2011, motorcycle collisions decreased from 2010 and are now at a 5 year low, despite a 39% increase in the number of motorcycles registered in the city compared to 2007. Critical measures of collisions by population and collisions by number of registered vehicles decreased from 2010 to 2011.

On January 1, 2011, Alberta Transportation implemented a change in its regulations that affected the requirement to report collisions; specifically, the estimated damage amount beyond which a collision is required to be reported to police increased from $1,000 to $2,000. The substantial decrease in collisions in 2011 is likely due in part to this reporting limit change; however, the specific effect of the reporting change cannot be isolated from other factors that may have affected collision totals.

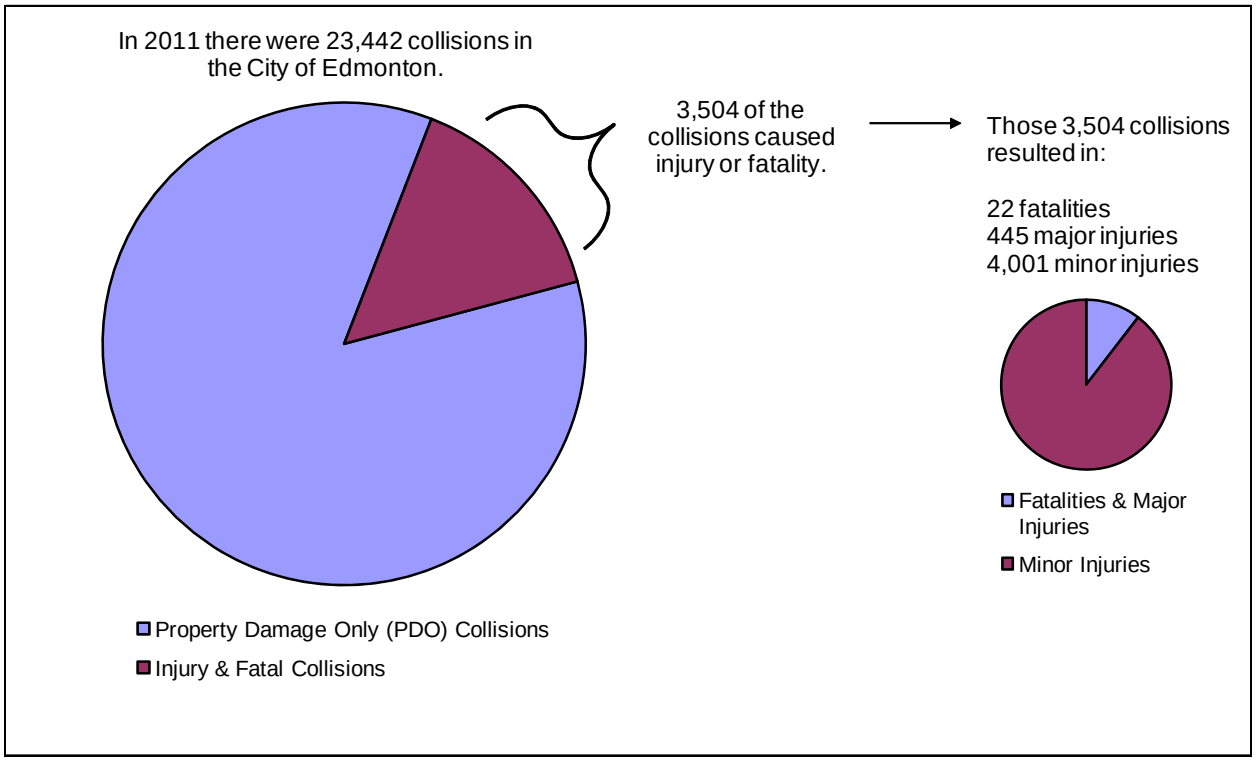


Figure 2: Collisions in 2011

In 2011, there were 23,442 reported motor vehicle collisions on Edmonton streets, a decrease of 17.7% from 2010. Included in this figure are 3,504 collisions that resulted in minor or major injury or death, a 7.6% reduction from the 2010 figure.

The 3,504 collisions resulting in injury or fatality caused a total of 4,446 injuries to drivers, passengers, pedestrians, cyclists, and motorcyclists. This overall injury and fatality figure is 9.5% lower compared to the total number of injuries in 2010. There were also 22 traffic fatalities in 2011, a reduction of 8.3% from 27 fatalities sustained in 2010. The fatality figure includes 9 vehicle occupants (7 drivers and 2 passengers), 8 pedestrians, 4 motorcyclists, and 1 cyclist.

Collisions per capita decreased 19.6% to 28.9 reported collisions per 1,000 people. There was also a 19.8% decrease in collisions per vehicle, to 47.7 collisions per 1,000 registered vehicles in the City of Edmonton. The total amount of reported property damage exceeded $103 million, a 24.9% increase over 2010. Both per capita and property damage amounts were likely affected by the reporting limit change, and analysis of this effect continues.

Collision Causes

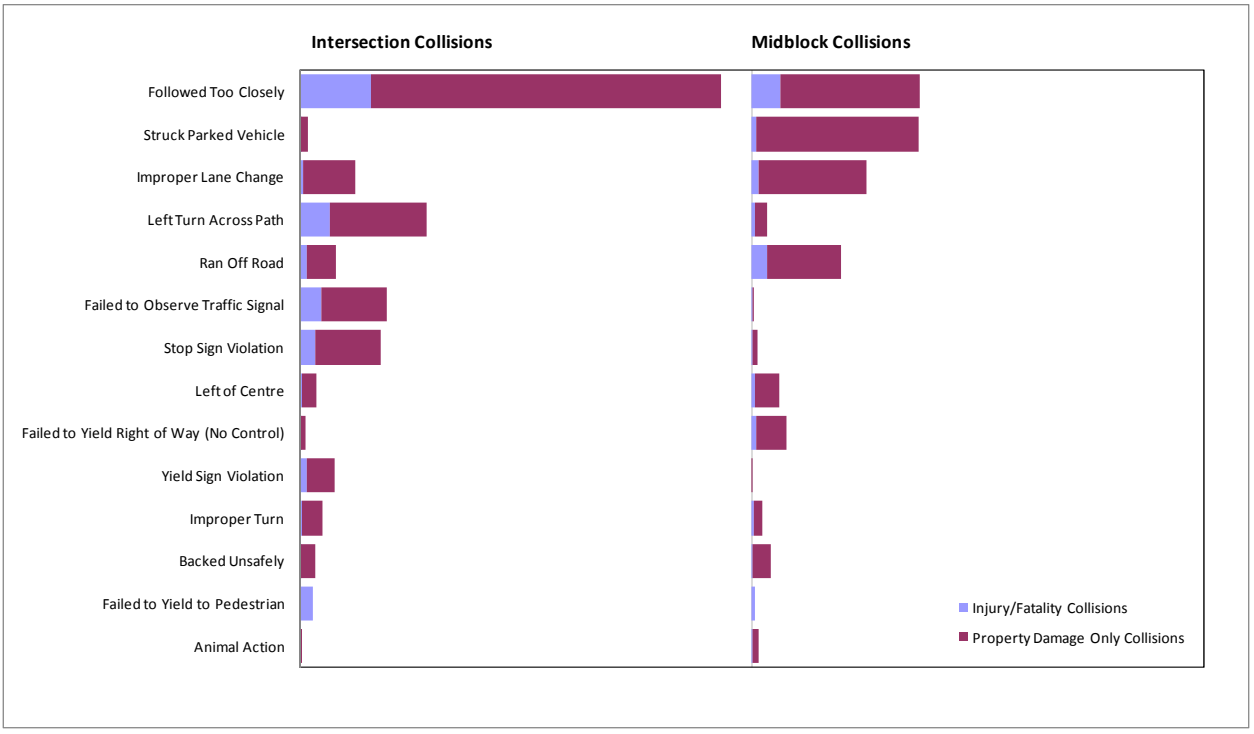


Figure 3: Collision Causes at Intersections and Midblock Segments

The most common collision cause reported was following too close, which was indicated in 35.3% (8,276) of all collisions. Other common collision causes included: striking parked vehicles (12.2%, 2,861); improper lane changes (10.6%, 2,493); running off the road (8.3%, 1,956); and left turns across the path of oncoming traffic (8.1%, 1,894).[1]

[1] For a glossary of collision causes, please refer to Appendix 2 at the end of this document.

Compared to the overall collision reduction of 17.7%, several collision causes decreased at a greater rate. Collisions involving unsafe backing decreased 38.0%, from 901 collisions in 2010 to 559 collisions in 2011. Follow too close collisions also decreased 29.5% from 11,730 collisions in 2010 to 8,276 collisions in 2011, although the reporting limit change likely affected this collision cause – which is frequent, but results in less property damage than other collision types – more drastically.

Figure 3 shows the considerable differences in the profile of collision causes at intersections versus midblock segments. At intersections, following too close was the reported cause in 45.0% (5,591) of all collisions; by comparison, following too close was the reported cause in only 24.8% (2,230) of collisions along midblocks. Of the 1,956 run off road collisions in 2011, only 24.5% (480) occurred at intersections, versus 60.2% (1,177) along midblocks.[2] On the other hand, of the 1,894 left turn across path collisions, 88.8% (1,682) occurred at intersections, versus 10.3% (196) along midblock segments with vehicles turning onto private property.

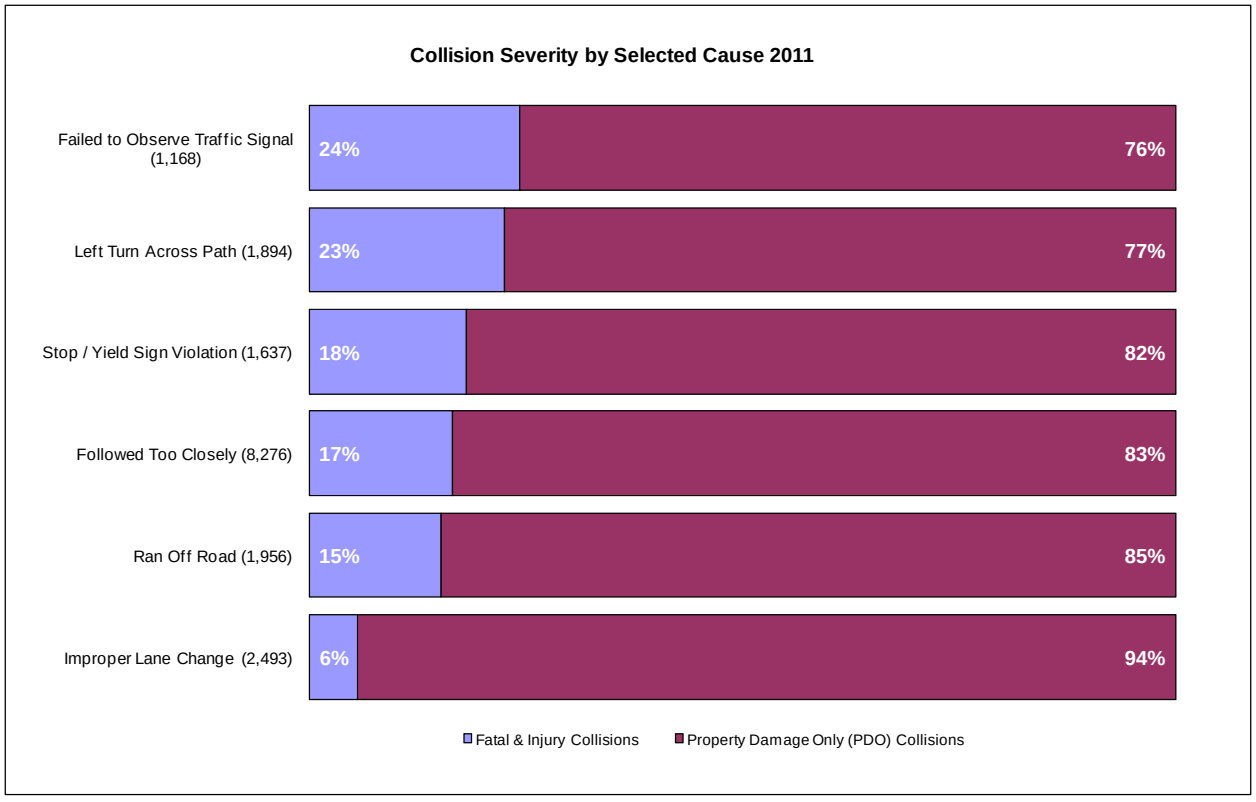


Figure 4: Proportion of Collisions Resulting in Fatality or Injury

Collisions that result in a head-on or right-angle impact are more likely to result in an injury or fatality. Figure 4 shows that in 2011, 24.4% (285) of all failure to observe traffic signal collisions resulted in injury or fatality. Similarly, 22.7% (429) of left turn cross path collisions and 18.1% (297) of stop / yield sign violation collisions resulted in injury. Sideswipe collisions (such as

[2] The remaining 299 collisions occurred either on side streets, in alleys, or did not specifically report a location.

improper lane changes) and rear-end collisions (such as follow too close) occurred more frequently but resulted in proportionally fewer injury or fatality collisions.

Temporal Analysis

The profile of collisions in Edmonton by month of year, day of week, and hour of day are consistent from year to year. Fluctuations in the number of collisions can be the result of changing traffic volumes, weather and road conditions, number of daylight hours, and roadway congestion, as well as many other factors. The following charts exhibit the overall patterns of collisions during the hours, days, and months of 2011.

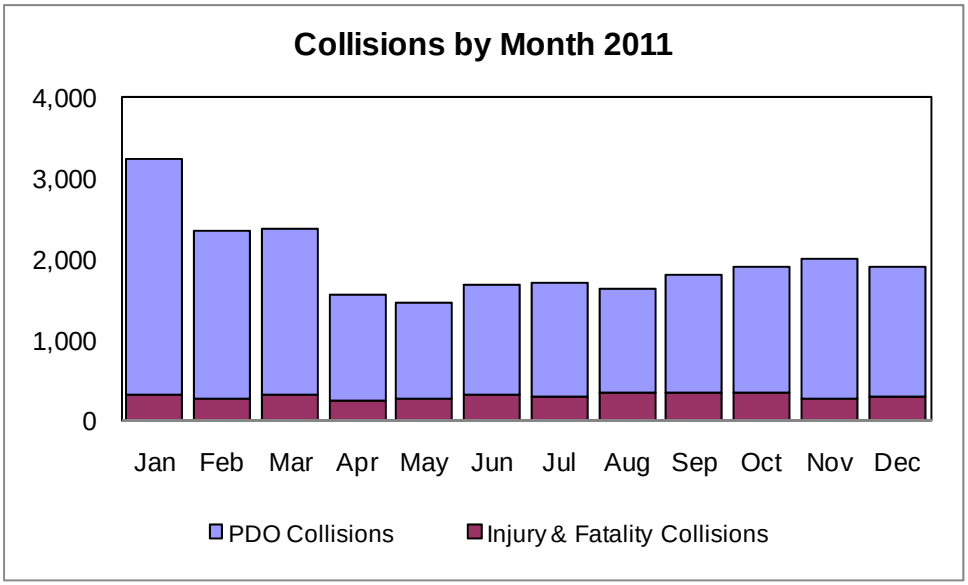


Figure 5: Collisions by Month

Figure 5 shows the breakdown of collisions by month, which in 2011 varied from a low of 1,450 collisions in May to 3,225 collisions in January. Overall, 58.4% (13,693) of collisions occurred in the fall and winter months (January – March and October – December). While the percentage of collisions in winter is consistent with prior years, there were significantly more collisions in January and February of 2011 compared to previous years, and significantly fewer in December 2011 than in previous years. The monthly totals in the winter months are highly dependent on weather (precipitation totals as well as number of precipitation events).

There was less variance in injury and fatality collisions, which ranged from 243 in April to 344 in September. The proportion of collisions that result in injury or fatality is higher in the spring and summer; while injury and fatal collisions made up 12.6% of all fall and winter collisions, they constituted 18.3% of all spring and summer collisions.

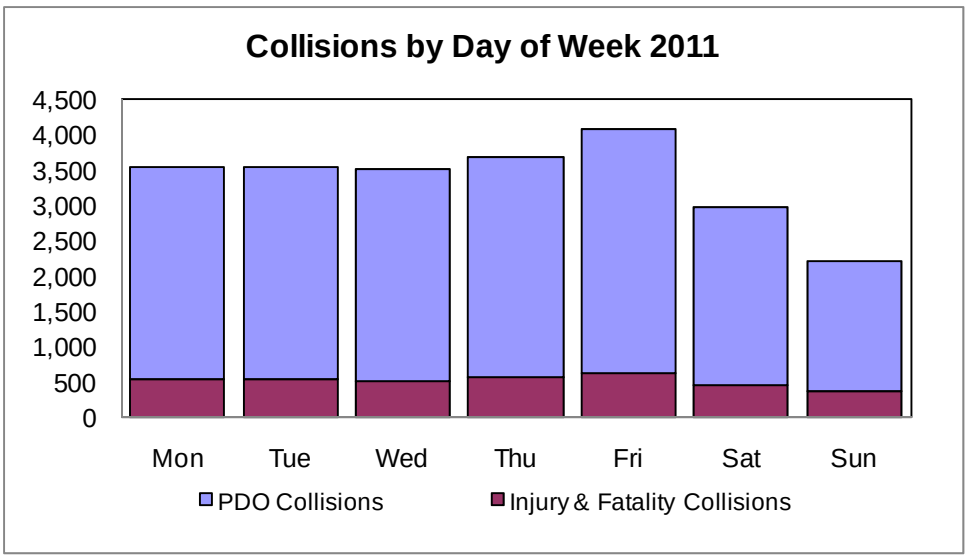


Figure 6: Collisions by Day of Week

Friday was the most common day of the week for collisions in 2011, accounting for 17.3% (4,062) collisions. Least common was Sunday, with 9.4% (2,202) of all collisions. As in previous years, there were fewer collisions on weekends than on weekdays.

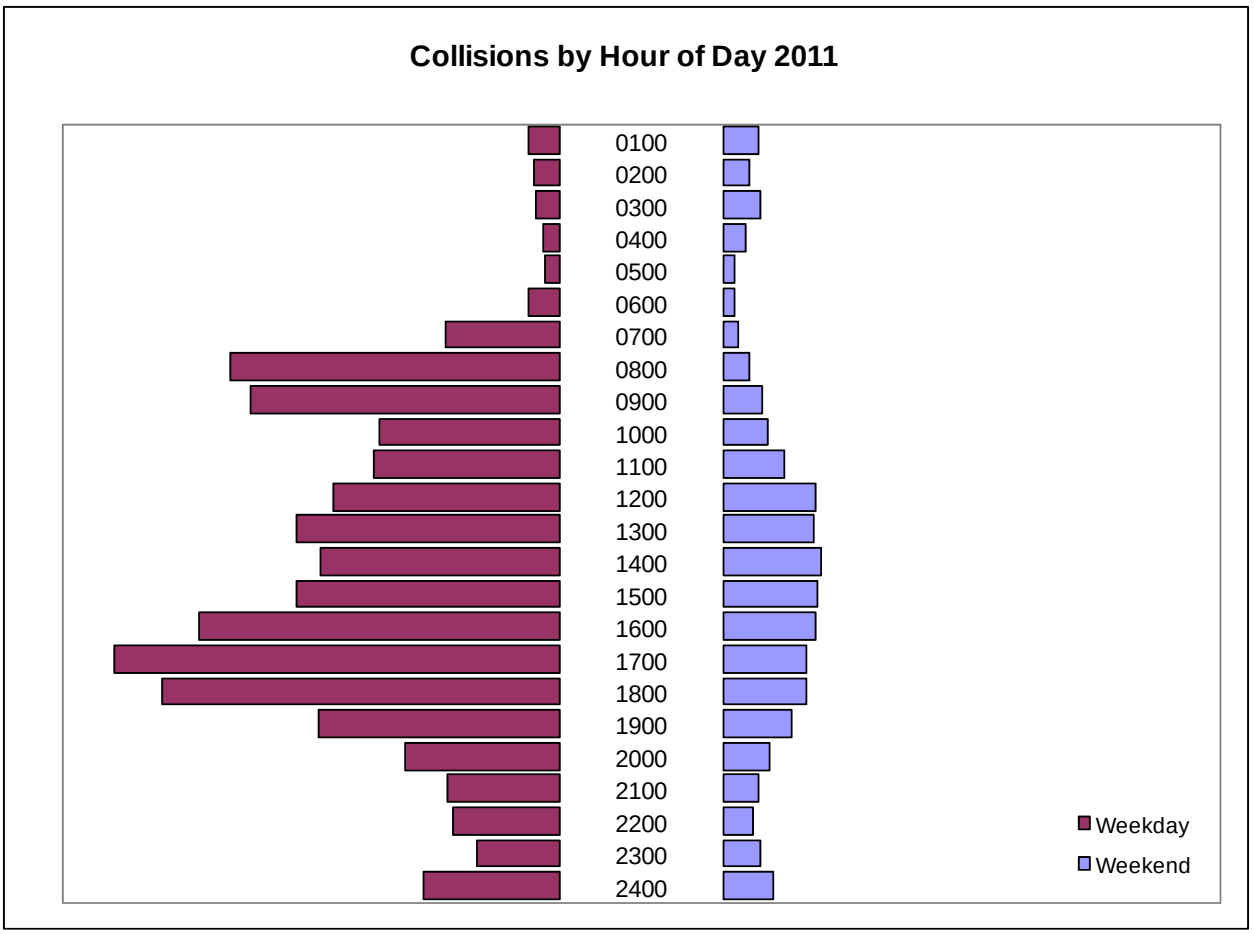


Figure 7: Collisions by Hour of Day (Weekday vs Weekend)

Figure 7 breaks down the pattern of collisions by hour of day, for both weekdays (Monday through Friday) and weekends (Saturday and Sunday). During the week, peak collision times match peak travel times; the morning peak period of 6:00 – 9:00 accounted for 17.5% (3,201) of weekday collisions, while collisions during the PM peak of 3:00 – 6:00 PM made up 28.0% (5,122) of collisions.

On weekends, collision patterns shifted in line with traffic patterns, with the number of collisions peaking at 2:00 PM. Collisions from 12:00 Noon to 6:00 PM made up 44.3% (2,286) of weekend collisions. Collisions during the overnight hours are also more prevalent during the weekend; there were 542 collisions from 12:00 midnight to 5:00 AM on weekends, representing 10.5% of all weekend collisions; by comparison, in the same time period there were 462 collisions over the five weekdays, representing only 2.5% of all weekday collisions.

Objects Involved in Motor Vehicle Collisions

Object Type	Number of Objects	Number of Collisions
Automobile	48,831	23,244
Fixed Object	2,275	2,239
Truck	1,212	1,152
Other/Unknown	255	254
ETS Bus	273	273
Motorcycle	205	199
Animal	132	132
Bicycle	190	190
School Bus	157	156
Other Vehicle (Construction, Farm)	95	95
Emergency Vehicle	34	32
Other Transit or Private Bus	17	17
Train	8	8

Table 2: Objects Involved in Collisions, 2011

All collisions in the motor vehicle database include at least one motor vehicle; collisions between two cyclists, for example, would not be entered in the database. Most collisions in 2011 involved two motor vehicles, or a single vehicle and a fixed object.

Table 2 summarizes the types of objects involved in collisions in 2011. Automobiles – a category that includes passenger vehicles, pickup trucks, and SUVs, but excludes large trucks over 4,500kg and buses – were involved in over 99% of all collisions. Fixed objects were involved in 9.6% (2,239) of all collisions. Other vehicle types included trucks greater than 4,500 kg (1,152 collisions), animals (132 collisions), ETS buses (273 collisions), and school buses (156 collisions). Eight collisions in 2011 involved a train.

Fixed Object Type	# Objects	Percent
Pole	371	16.3%
Post, Sign, Parking Meter	351	15.4%
Snowbank / Drift	294	12.9%
Restraining Barrier	278	12.2%
Curb	262	11.5%
Other Fixed Object	252	11.1%
Tree / Brush / Hedge	147	6.5%
Fence	110	4.8%
Ditch	85	3.7%
Utility Box	34	1.5%
Fire Hydrant	30	1.3%
Building	26	1.1%
Bus Shelter	22	1.0%
Bridge Support	11	0.5%
Telephone Booth	2	0.1%
Culvert	0	0.0%
Total	**2,275**	

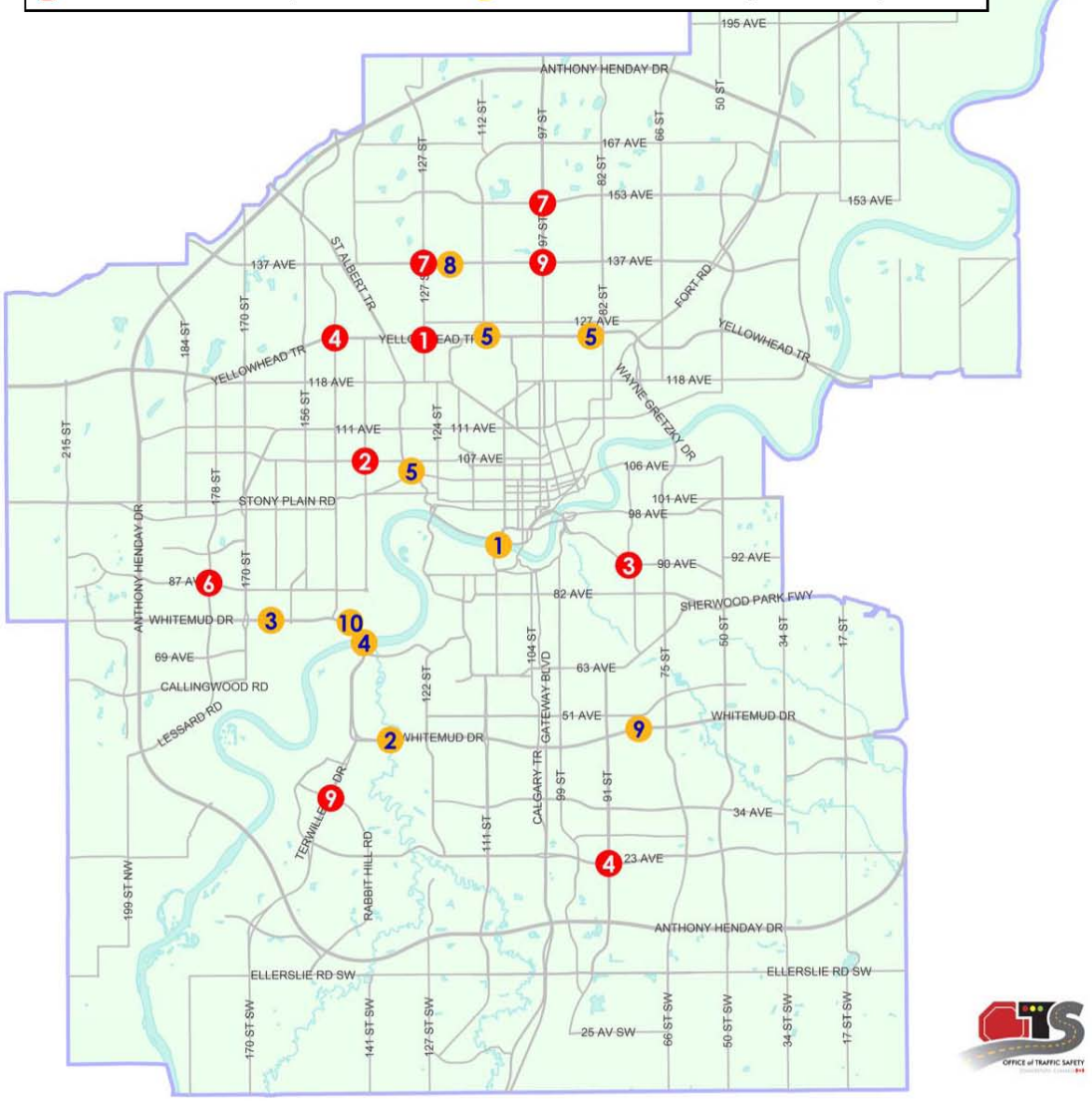
Table 3: Fixed Objects Involved in Collisions, 2011

Fixed objects are routinely involved in collisions, and Table 3 summarizes the type and number of these objects involved in collisions in 2011. The most common fixed object involved in collisions were poles, a category that includes street lights, overhead power poles, and signal light poles. In 2011, 371 poles – more than one a day on average – were struck.

Other fixed objects involved in collisions included 351 signs and parking meters, 278 restraining barriers, 147 trees or hedges, 30 fire hydrants, 22 bus shelters, and two telephone booths.

Rank	Intersection	Collisions
1	Yellowhead Trail & 127 Street	75
2	107 Avenue & 142 Street	72
3	90 Avenue & 85 Street	70
4	23 Avenue & 91 Street	69
4	Yellowhead Trail & 149 Street	69
6	87 Avenue & 178 Street	60
7	153 Avenue & 97 Street	51
7	137 Avenue & 127 Street	51
9	137 Avenue & 97 Street	50
9	Rabbit Hill Rd & Terwillegar Dr NB	50

Rank	Midblock	Collisions
1	High Level Bridge	63
2	Whitemud Dr btw Terwillegar Dr & 122 St	42
3	Whitemud Dr btw 170 & 159 St	31
4	Quesnell Bridge	30
5	Yellowhead Tr btw 89 & 82 St	26
5	Yellowhead Trail btw 121 & 107 St	26
5	Groat Rd - Stony Plain Rd To 107 Av	26
8	137 Ave btw 127 & 123A St	25
9	Whitemud Dr btw 91 & 66 St	23
10	Whitemud Dr Quesnell Brdg to 149 St ramps	22



Map 1: Top Intersection and Midblock Segments by Number of Collisions 2011

Seven of the top 10 intersection collision locations in 2011 were north and northwest of the downtown core, as indicated in Map 1. High-collision midblock segments included sections of Whitemud Drive and Yellowhead Trail, as well as the High Level and Quesnell Bridges.

Demographic Analysis

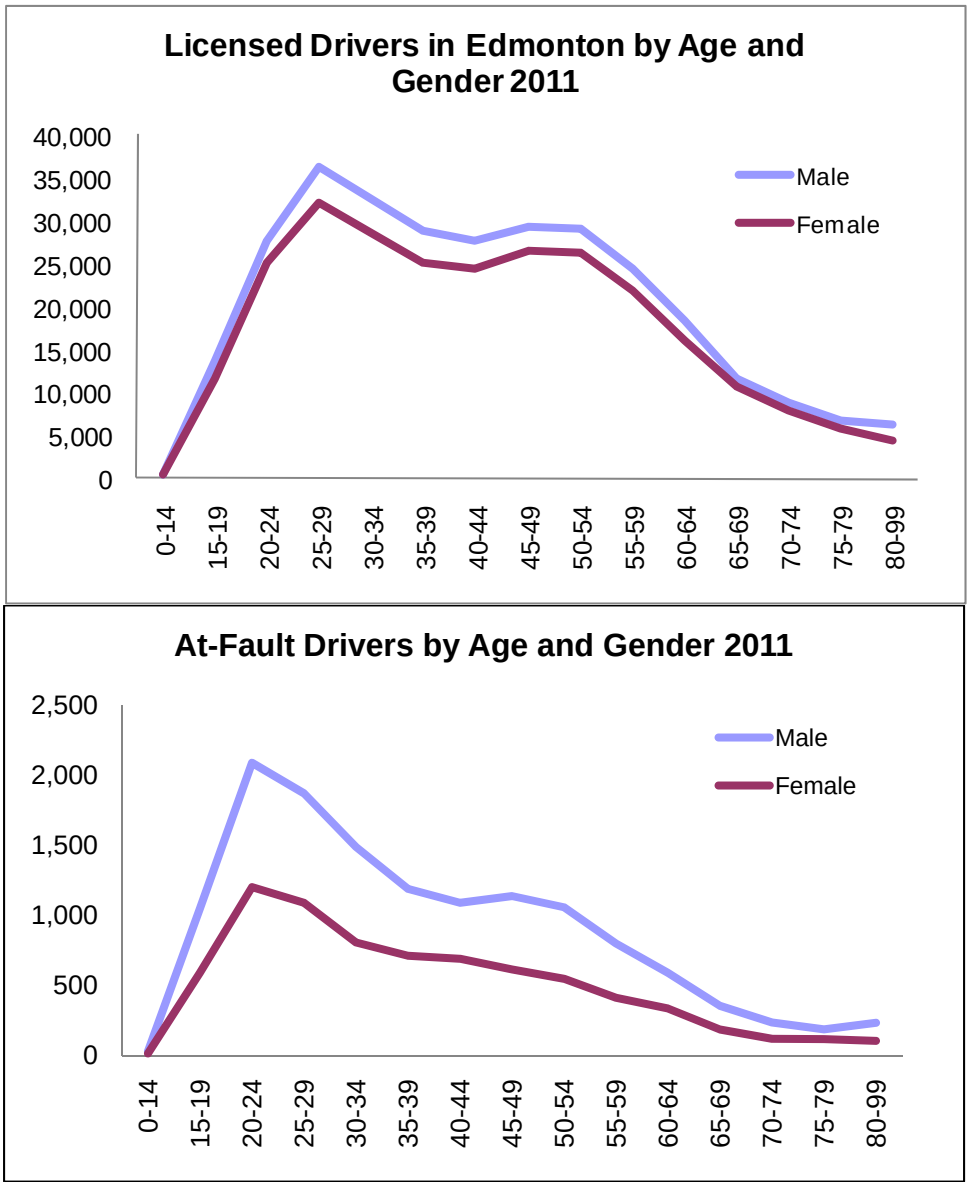


Figure 8: Age and Gender Breakdowns of Licensed Drivers and At-Fault Drivers

The demographic makeup of licensed drivers (as of March 31, 2011) in Edmonton is shown above. The graph shows there are slightly more licensed male drivers than female drivers across all age groups, and the age breakdown mirrors the population as a whole, with a general decrease in the number of drivers after the 25-29 age group.

The demographic profile of drivers deemed at fault in a collision is not consistent with the demographic profile. Young drivers were more likely to be deemed to be at fault for collisions in Edmonton. Drivers aged 15-24 made up 13.7% of Edmonton's licensed drivers in 2011, but were

responsible for 23.5% of collisions. By comparison, drivers aged 30-49 constituted 39.2% of all licensed drivers, but were deemed at fault in 36.9% of collisions.

Gender was also a factor in the likelihood of collision involvement. While males made up 53% of licensed drivers in Edmonton in 2011, they were deemed at fault in 64% of collisions.

Comparing different age/gender groups show much greater differences between the driving population and the population of at-fault drivers. Males aged 15-19 made up 2.4% of licensed drivers in Edmonton, but accounted for 5.0% of all at-fault drivers in 2011. Expanding the size of the group, males aged 15-24 change make up 7.3% of the licensed driving population but 15.0% of at-fault drivers.

The demographic breakdown of collision figures and at-fault drivers reveals that approximately 1 in 13 licensed males aged 15-19 were involved in a collision for which they were deemed at fault in 2011. By comparison, 1 in 20 female drivers aged 15-19 were at-fault in a collision, while the ratio for all licensed drivers was approximately 1 in 27.

Injury and Fatality Collisions in 2011

In 2011 a total of 4,446 injuries and 22 fatalities resulted from 3,504 collisions. The following section displays key information about injury and fatality collisions in 2011.

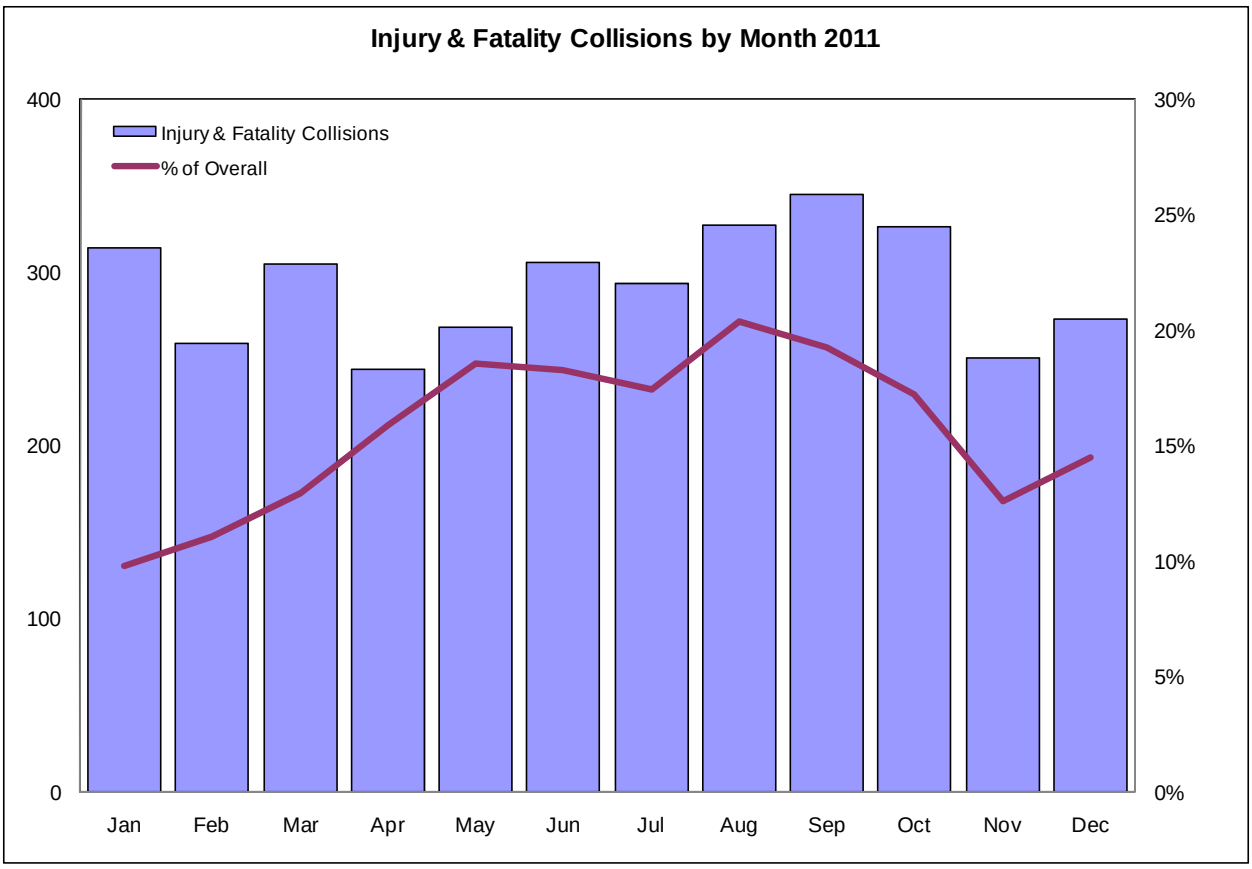


Figure 9: Injury and Fatality Collisions by Month

The number of injury and fatality collisions by month varied from a low of 243 collisions in April to a high of 344 collisions in September. The pattern of injury and fatality collisions did not follow that of collisions overall; the line chart on Figure 9 indicates that only 9.7% (314) of collisions in January resulted in injury or fatality, while 20.3% (327) of August collisions resulted in injury or fatality.

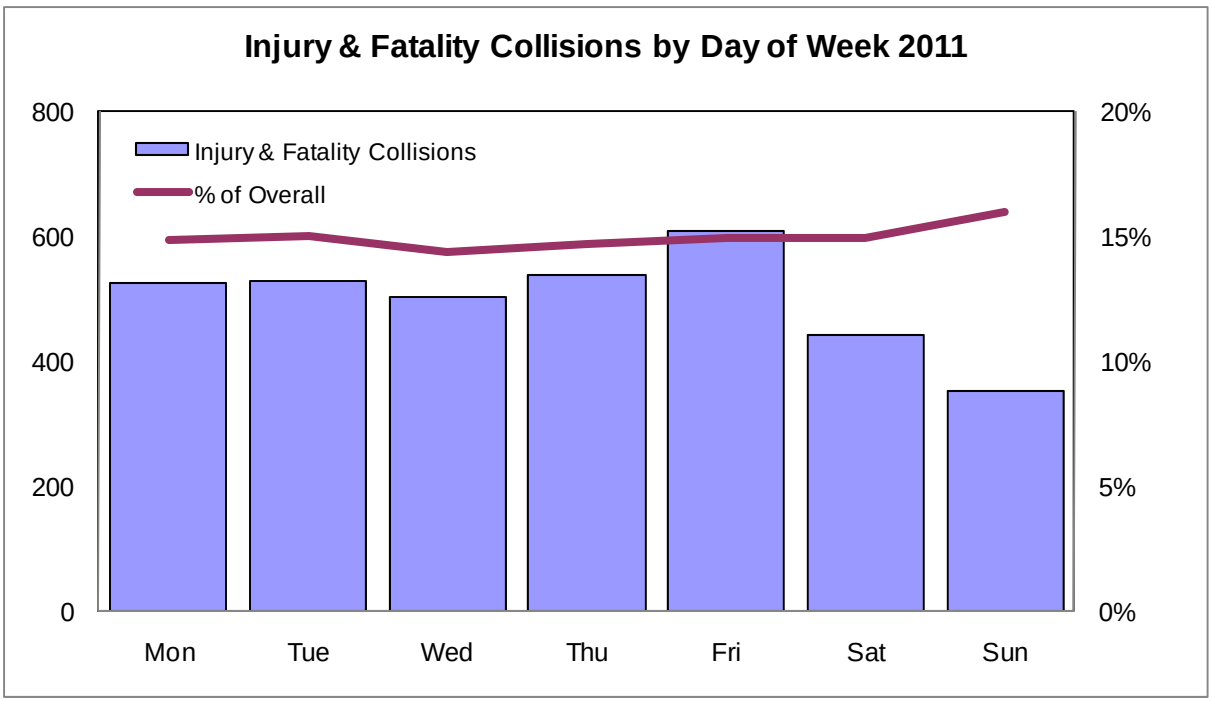


Figure 10: Injury and Fatality Collisions by Day of Week

Figure 10 shows that Friday had the highest number of injury and fatality collisions, with 17.4% (609) of all injury or fatality collisions occurring on the last day of the workweek. By contrast, only 10.1% (354) of injury or fatality collisions occurred on Sunday. The pattern of injury and fatality collisions by day of week generally followed that of overall collisions, with an increase in collisions from Monday to Friday and a decrease on the weekends. However, there were a proportionally higher number of injury and fatality collisions on Sundays compared to other days of the week.

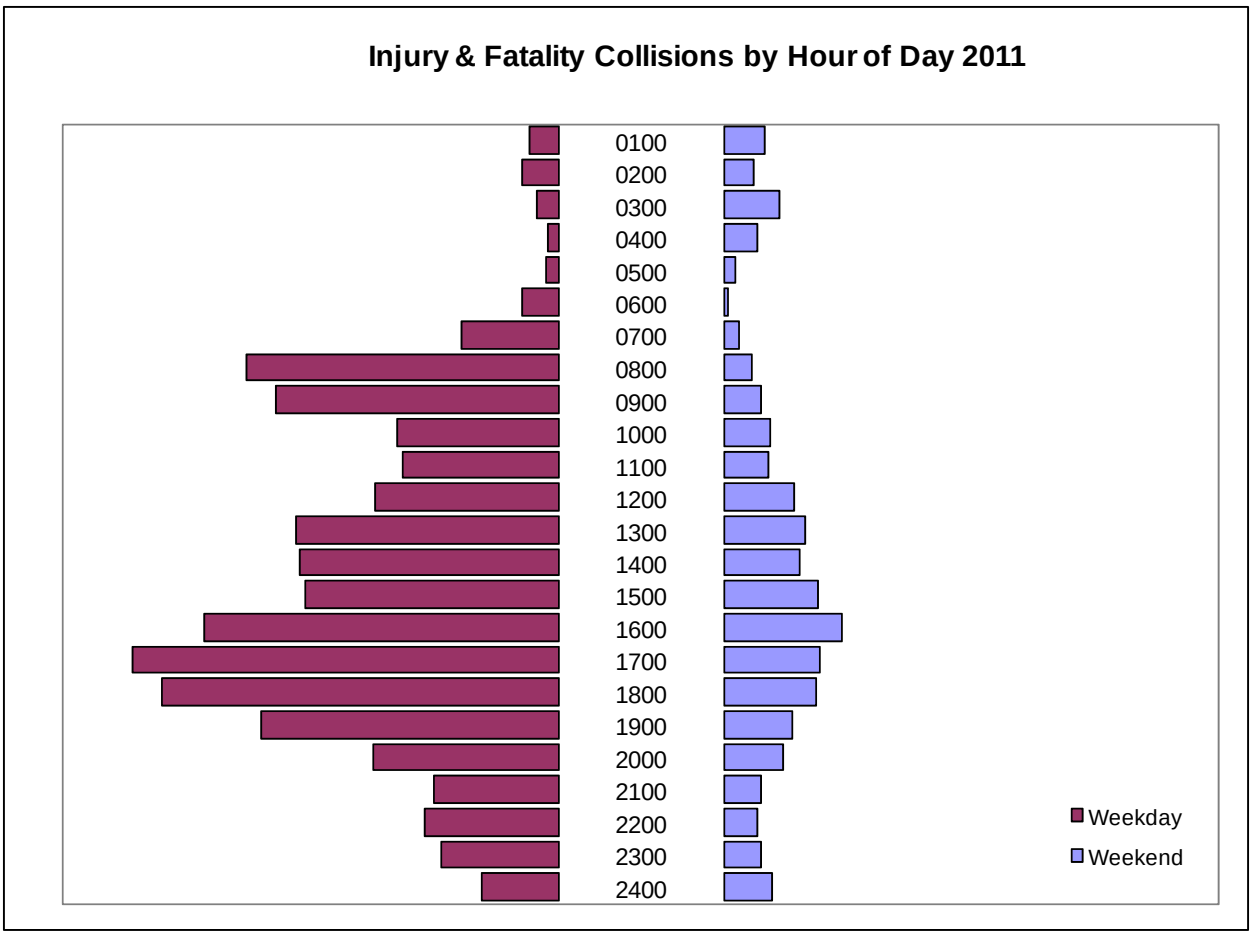


Figure 11: Injury Collisions by Hour of Day

The profile of injury and fatality collisions by hour of day was similar to the profile of overall collisions. On weekdays, the same morning and evening spikes occurred with injury and fatality collisions; collisions during the morning peak (6:00- 9:00 AM) made up 16.2% (441) of all injury and fatality collisions on weekdays, while the evening peak (3:00 – 6:00 PM) accounted for 27.7% (751) of all injury and fatality collisions.

The profile of injury and fatality collisions on weekends was generally the same as the profile of overall collisions, with a gradual increase during the day and a peak between 3:00 – 4:00 PM. Injury and fatality collisions from noon to 6:00 PM made up 44.2% (353) of weekend injury and fatality collisions.

Injury and fatality collisions are over-represented in the data in the late evening and overnight hours. Collisions between midnight and 5:00 AM accounted for 4.3% of all collisions in 2011, but accounted for 5.1% of all injury and fatal collisions. Of the 179 injury or fatal collisions that occurred between midnight and 5:00 AM, 108 occurred on Saturday or Sunday.

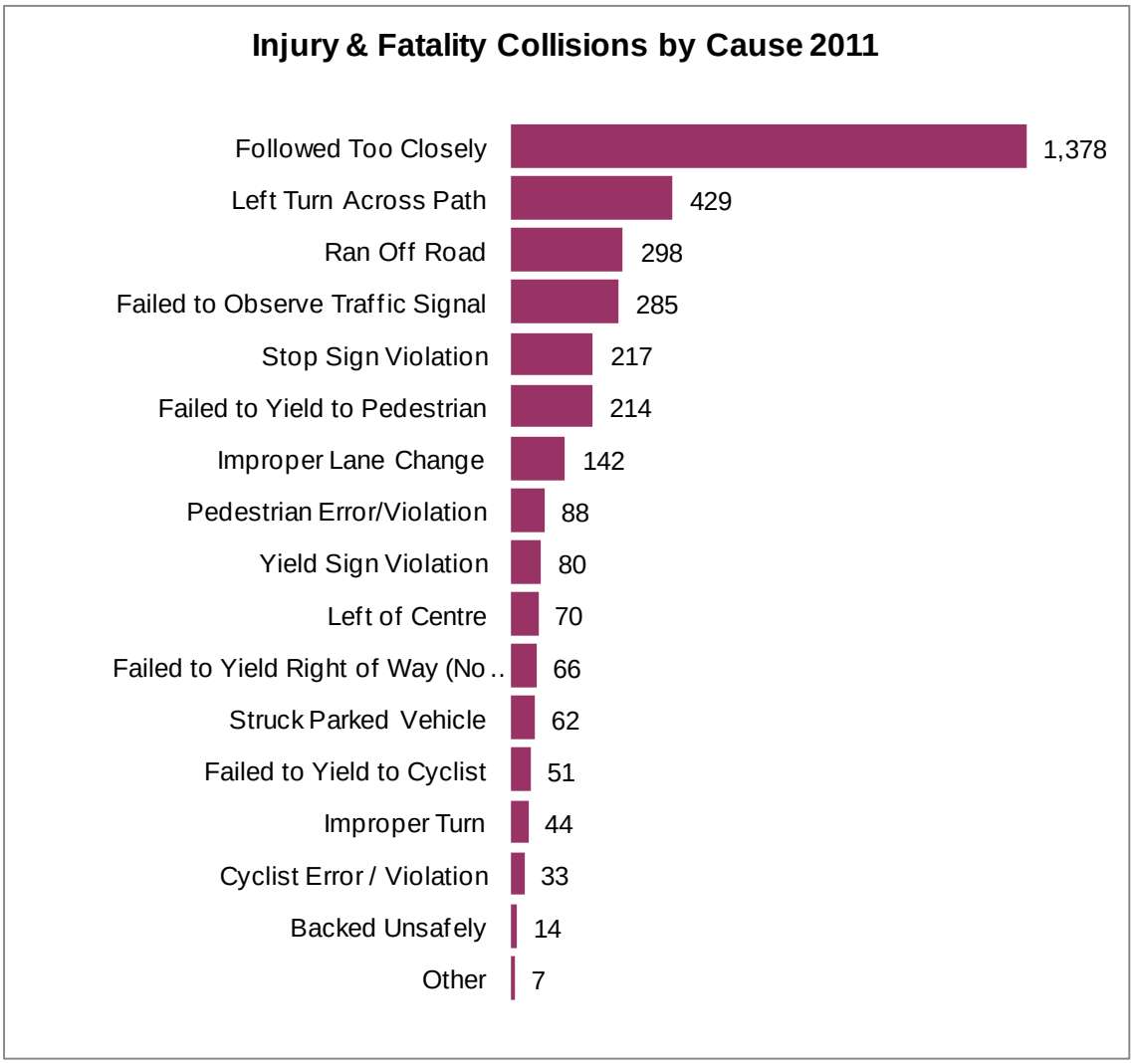


Figure 12: Injury and Fatal Collisions by Cause

Collisions with the reported cause of "following too close" made up 39.6% (1,378) of all injury and fatal collisions. Other collision causes with significant injury / fatality counts included left turns across path (12.3%, 429), run off road (8.6%, 298), and failure to observe traffic signals (8.2%, 285).

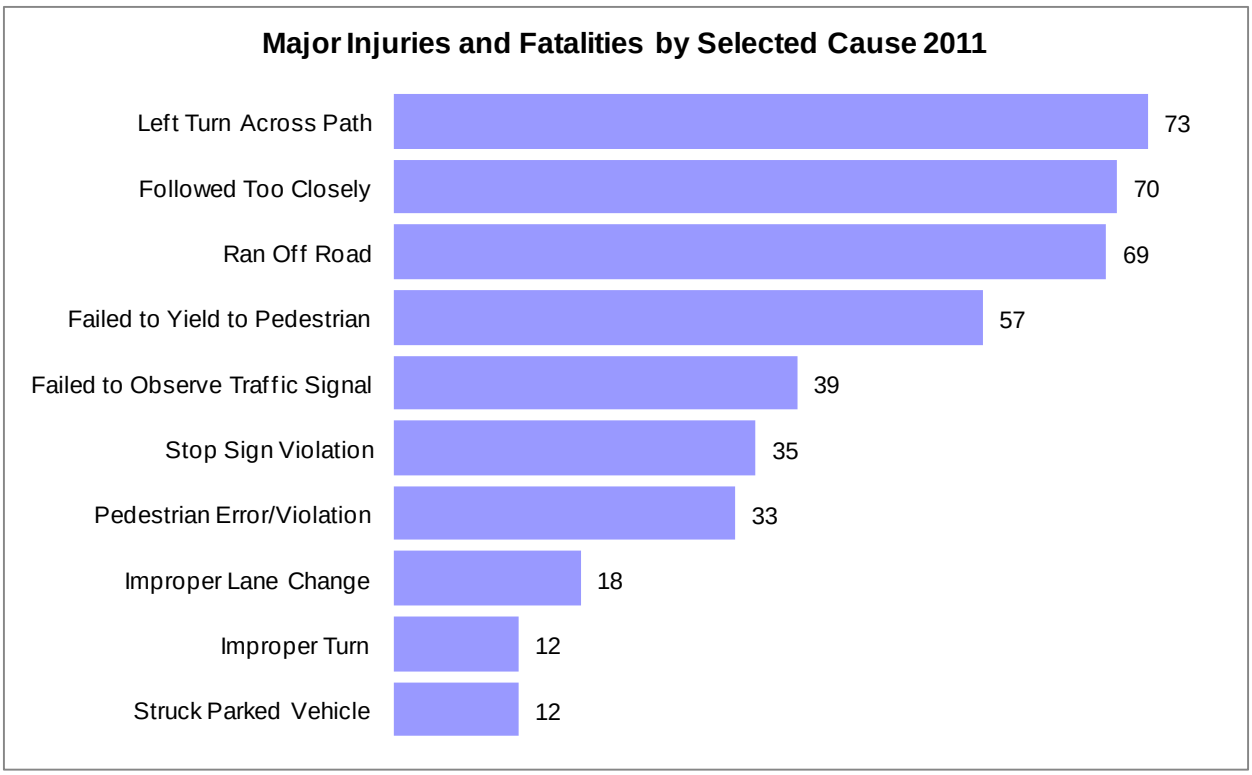


Figure 13: Major Injuries and Fatalities by Cause

A single collision can result in multiple injuries and/or fatalities. Injuries are classified as minor or major depending on the level of treatment required.[3] Figure 13 displays the number of major injuries and fatalities for a number of collision causes.

Left turn across path collisions contributed 15.6% (73) of all major injuries and fatalities. Other common causes of major injury and fatality included follow too close (15.0%, 70), ran off road (14.8%, 69), and failure to yield to pedestrians (12.2%, 57).

Certain collision causes result in proportionately more major injuries or fatalities when compared to minor injuries. Of the 93 injuries or fatalities resulting from pedestrian error or violation, 35.5% (33) were a major injury or fatality. Major injury or fatality made up 19.7% (69) of the total number of run off road injuries and fatalities. By comparison, while there were 70 major injuries or fatalities resulting from follow too close collisions, this represents only 3.9% of all follow too close injuries.

[3] For a definition of minor and major injuries, please refer to Appendix 1.

Injury Mode	Class	< 14	14 - 15	16 - 18	19 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74	75+	N/A	Total
	Minor	0	0	66	347	627	497	477	311	102	58	9	**2,494**
	Major	0	0	2	39	42	46	39	27	10	12	2	**219**
Vehicle Driver	Fatal	0	0	0	1	1	1	2	2	0	0	0	**7**
	Minor	161	24	76	164	158	115	121	66	33	37	28	**983**
	Major	3	5	14	13	15	8	8	6	1	9	1	**83**
Vehicle Passenger	Fatal	0	0	0	2	0	0	0	0	0	0	0	**2**
	Minor	19	10	18	40	42	34	24	17	14	12	6	**236**
	Major	7	1	8	11	15	10	11	9	6	5	1	**84**
Pedestrian	Fatal	0	0	0	0	2	0	1	1	2	2	0	**8**
	Minor	21	7	15	24	24	24	28	9	0	0	13	**165**
	Major	1	0	1	2	8	5	3	3	0	0	0	**23**
Cyclist	Fatal	0	1	0	0	0	0	0	0	0	0	0	**1**
	Minor	0	0	1	21	28	17	25	13	1	1	0	**107**
	Major	1	0	0	6	11	5	7	2	0	0	0	**32**
Motorcyclist	Fatal	0	0	0	0	2	1	1	0	0	0	0	**4**
	Minor	1	0	1	1	2	1	1	1	2	1	5	**16**
Unknown	Major	0	0	0	1	1	2	0	0	0	0	0	**4**
	Minor	**202**	**41**	**177**	**597**	**881**	**688**	**676**	**417**	**152**	**109**	**61**	**4,001**
	Major	**12**	**6**	**25**	**72**	**92**	**76**	**68**	**47**	**17**	**26**	**4**	**445**
All Modes	**Fatal**	**0**	**1**	**0**	**3**	**5**	**2**	**4**	**3**	**2**	**2**	**0**	**22**

Table 4: 2011 Injuries by Mode, Severity, and Age

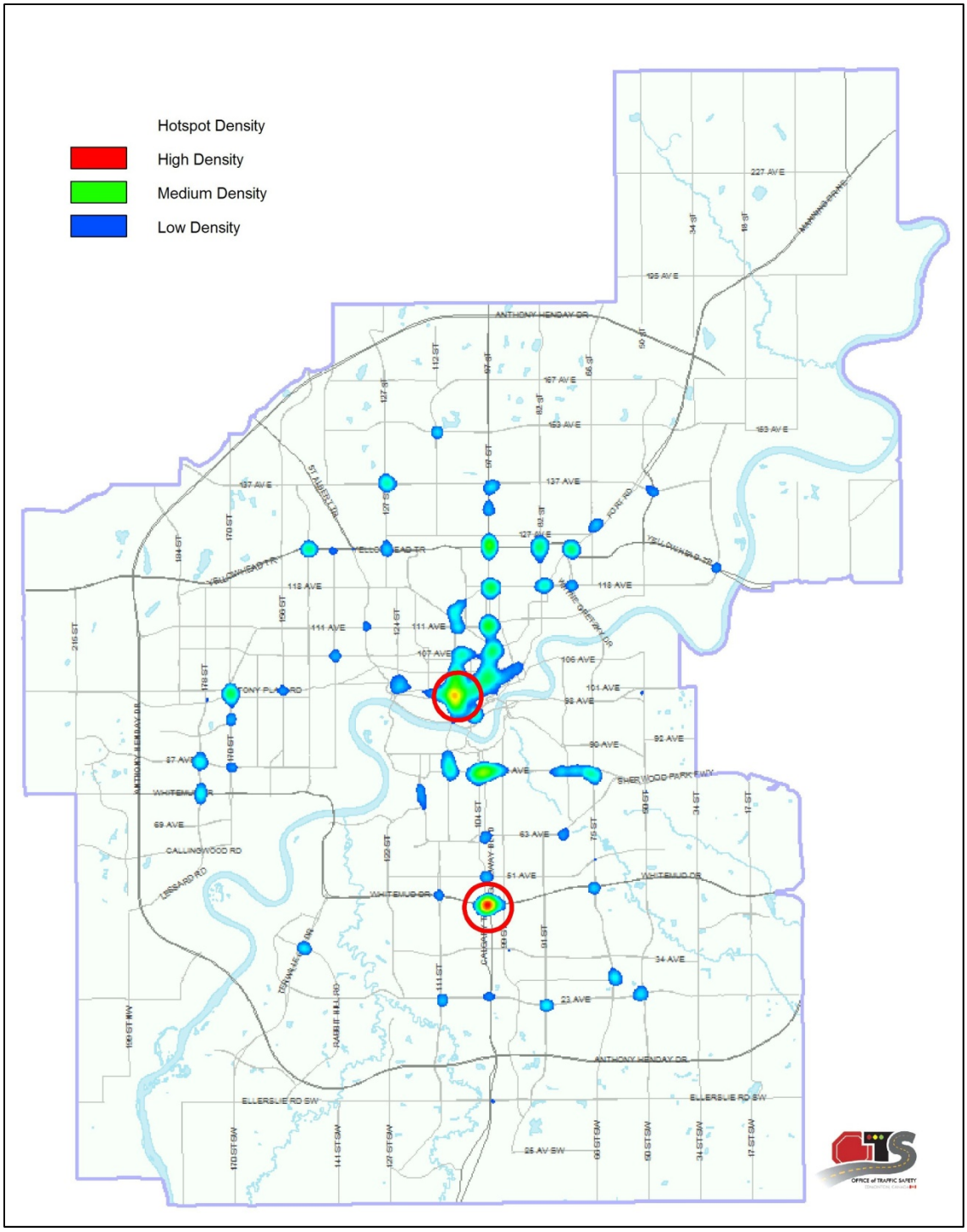
A summary of all injuries and fatalities is presented in Table 4, broken out by age group and injury class. The largest number of injuries and fatalities were sustained by vehicle drivers, followed by vehicle passengers. Most injuries and fatalities to children 15 and under were sustained while they were passengers in a vehicle.

Among vehicle drivers, there were 2,720 injuries or fatalities in 2011, a rate of 4.8 per 1,000 licensed drivers in Edmonton and 0.39 major injuries or fatalities per 1,000 licensed drivers. However, these figures increase to 6.4 injuries or fatalities per 1,000 licensed drivers and 0.67 major injuries or fatalities per 1,000 licensed drivers aged 19-24. Among those drivers aged 75 and over, the 3.0 injuries or fatalities per 1,000 licensed drivers is lower than the overall rate but the 0.52 major injuries or fatalities per 1,000 licensed drivers is higher than the overall rate.

	Vehicle Driver	Vehicle Passenger	Pedestrian	Bicyclist	Motorcyclist	Unknown	Total
Construction	6	2	2	0	1	0	11
Flagperson Control	0	1	0	0	0	0	1
Marked Pedestrian Crosswalk	41	18	49	10	2	5	125
Merge Sign	4	1	0	0	0	0	5
No Control	1,012	399	115	77	90	9	1,702
One Way Sign	1	0	0	3	0	0	4
Pedestrian-Actuated Signal	44	13	8	2	5	0	72
Pedestrian Amber Flasher	11	2	11	0	1	0	25
Police Control	7	3	1	0	0	1	12
Rail Crossing / ROW	7	1	1	0	0	0	9
Signal Light	1,075	440	125	53	26	3	1,722
Stop Sign	221	70	12	33	12	1	349
Warning / Advance Light	2	1	0	0	0	0	3
Yield Sign	289	117	4	11	6	1	428
Total	**2,720**	**1,068**	**328**	**189**	**143**	**20**	**4,468**

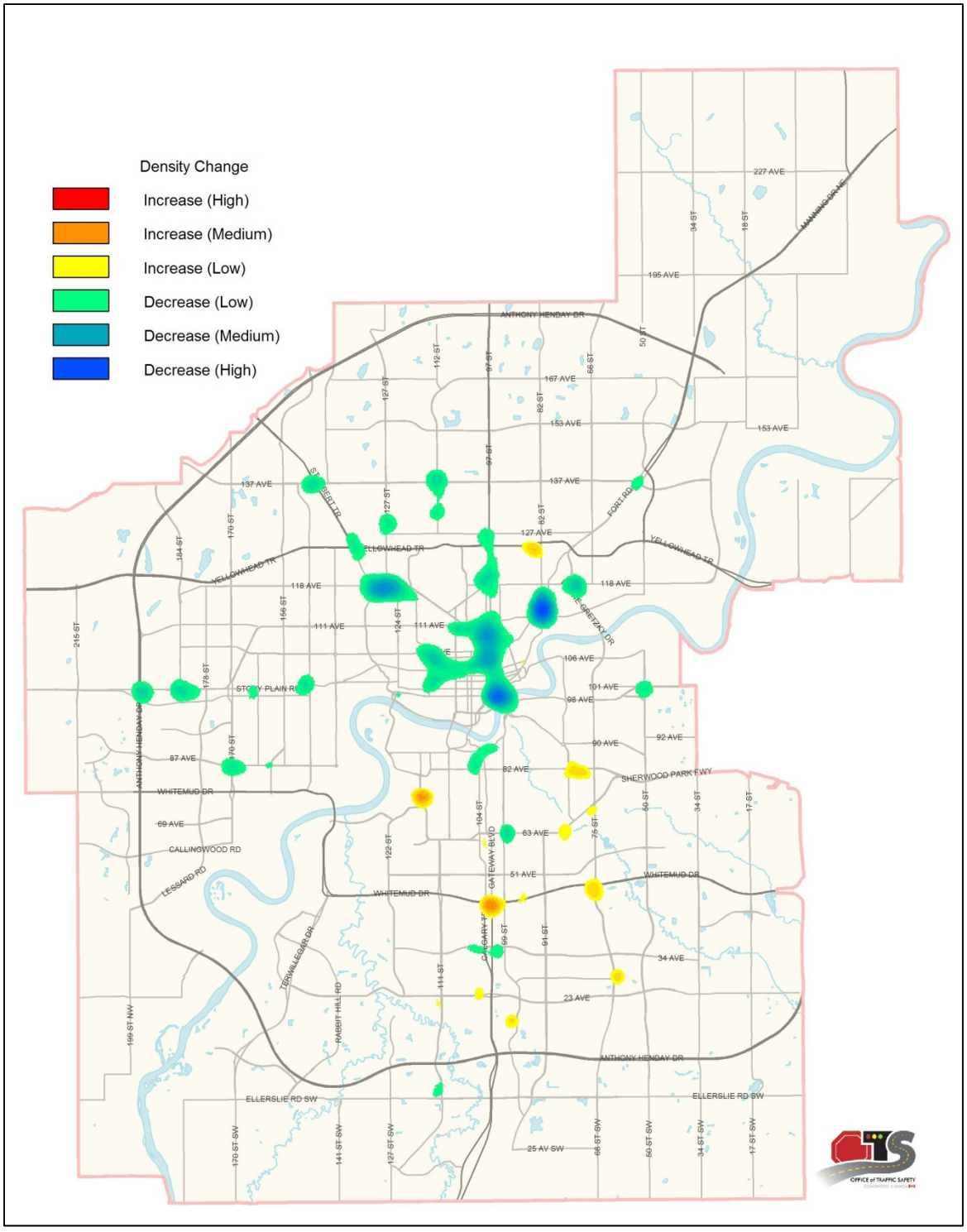
Table 5: Injuries by Mode and Traffic Control

Table 5 breaks down injuries and fatalities by the type of traffic control present at the collision. Collisions where the traffic control was a signal light made up 38.5% (1,722) of all injuries and fatalities, followed by no control, which includes both intersections that have no traffic control and midblock segments (38.1%, 1,702) and yield signs (9.6%, 428). Among the three standalone pedestrian crosswalk controls (as opposed to crosswalks that are part of intersection traffic signals), the fewest injuries and fatalities occurred at crosswalks with amber crossing lights (0.6%, 25), followed by standalone pedestrian crossings with full signals (1.6%, 72), and finally marked crosswalks with no signals (2.8%, 125). Nine injuries occurred at rail crossings.



Map 2: Injury and Fatal Collision Locations 2011

Map 2 highlights locations with higher numbers of injury and fatal collisions in 2011. Injury and fatal collisions were most prevalent in the downtown core, the Whyte Avenue entertainment area, and at the intersection of Whitemud Drive and Calgary Trail / Gateway Boulevard.



Map 3: Changes in Injury and Fatality Collisions, 2010 to 2011

Map 3 shows where the largest increase or decrease in injury and fatal collisions occurred between 2010 and 2011. The intersection of Calgary Trail / Gateway Boulevard and Whitemud Drive saw the largest increase, while the largest decrease was at Yellowhead Trail and 82 Street.

Pedestrian Collisions in 2011

In 2011 there were 316 collisions involving pedestrians, resulting in 320 pedestrian injuries and 8 fatalities.

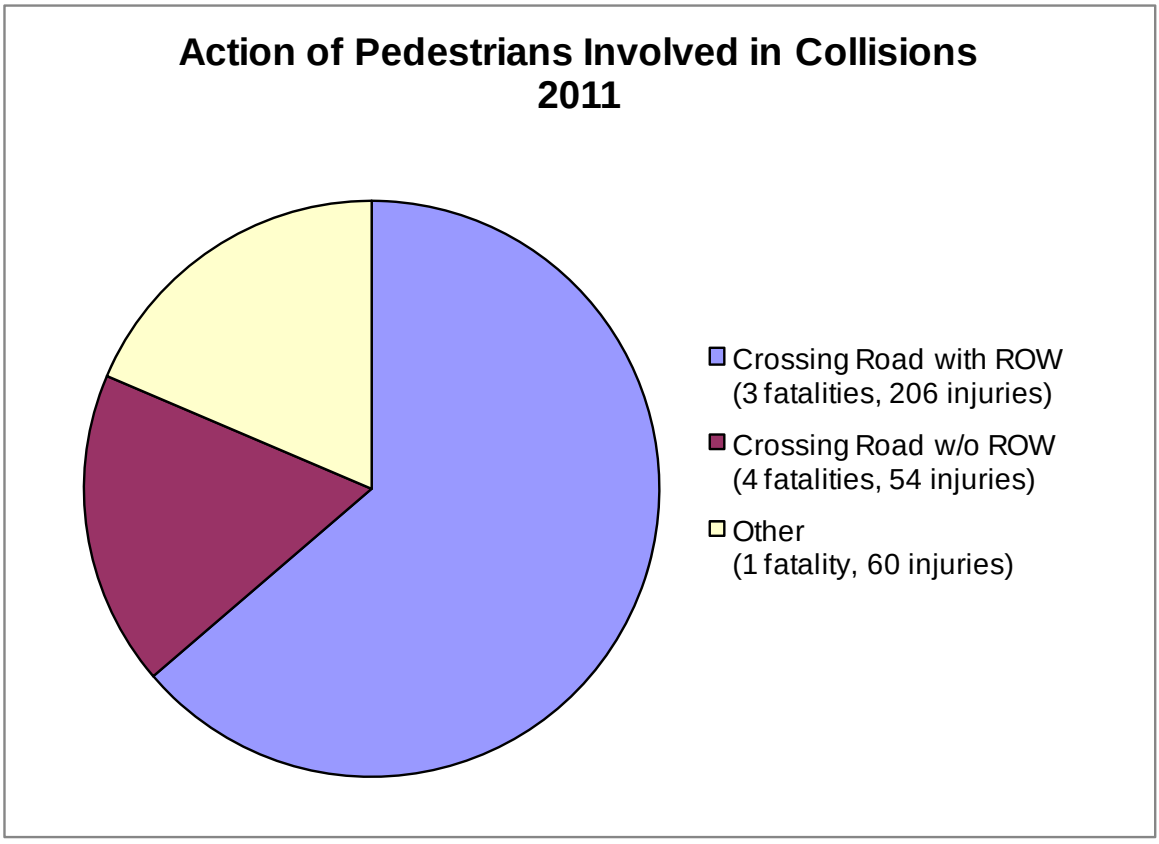


Figure 14: Action of Pedestrians Involved in Collisions

Pedestrians crossing the road with the right of way – either at a marked crosswalk, an unmarked crossing at an intersection, or at a signalized intersection with a walk sign – made up 64% (209) of all pedestrian injuries and fatalities. Pedestrians crossing without the right of way, either crossing at a midblock without a marked crosswalk or crossing against the flow of traffic at a signalized intersection, accounted for 18% (58) injuries or fatalities. Other actions – including running on the roadway, working on the roadway and entering or exiting vehicles – made up 19% (61) of pedestrian injuries.

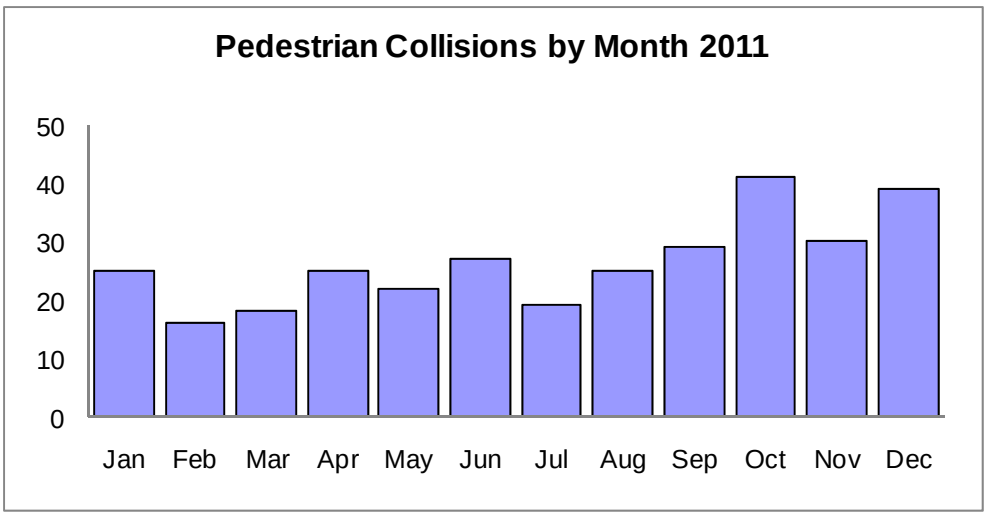


Figure 15: Pedestrian Collisions by Month

Pedestrian collisions occurred throughout the year but were most prevalent in the fall months, with 29 collisions in September, 41 collisions in October, 30 collisions in November, and 39 collisions in December. Fewer collisions occurred in the winter and summer months, with February's 16 pedestrian collisions being the lowest monthly total of the year.

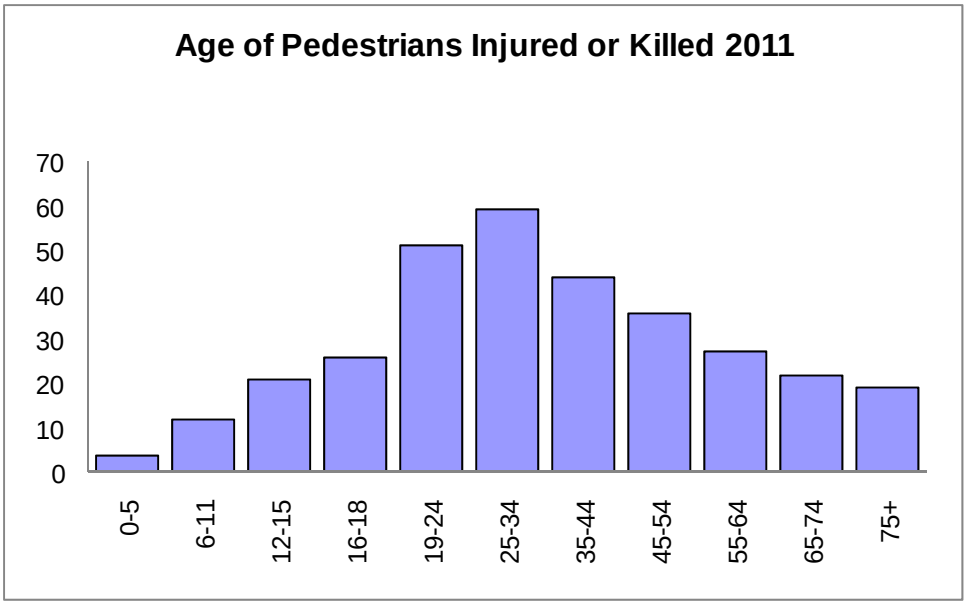


Figure 16: Age of Pedestrians Injured or Killed

A total of 34% (110) of pedestrians involved in collisions were between the ages of 19 and 34. Children 18 and younger made up 19% (63) of pedestrians involved in collisions while those aged 65 and older constituted 13% (41) of pedestrians involved in collisions.

Cyclist Collisions in 2011

In 2011 there were 190 collisions involving cyclists, which resulted in 188 injuries and 1 fatality.

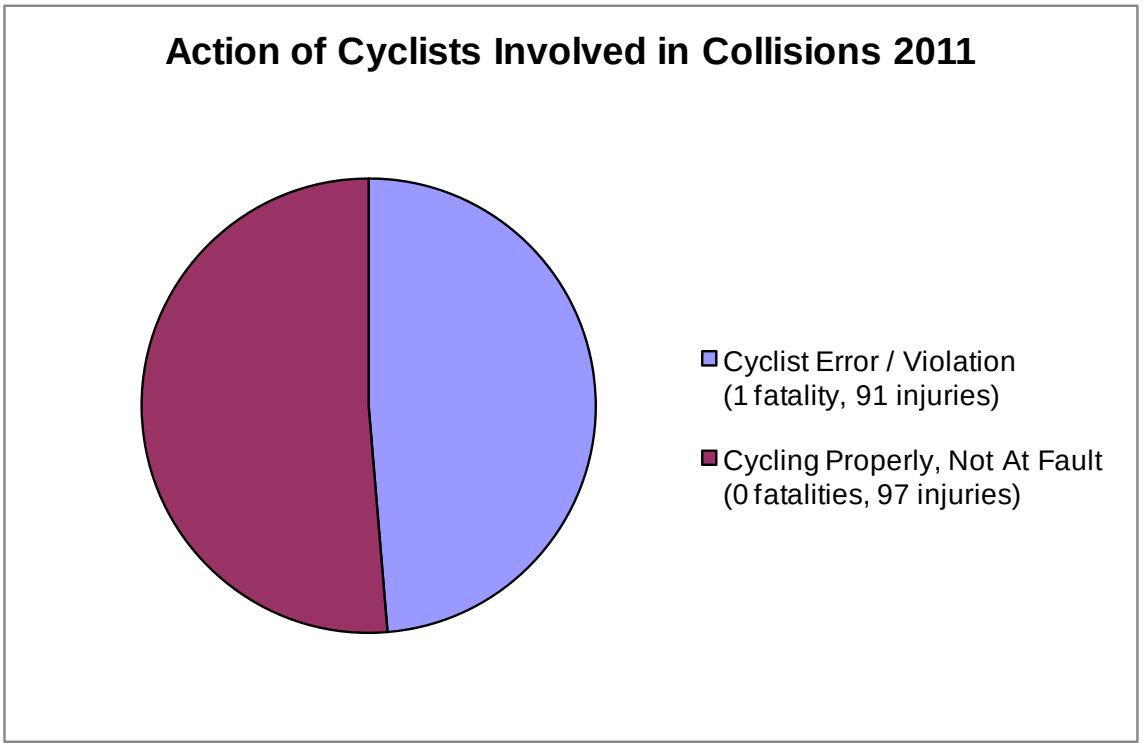


Figure 17: Action of Cyclists Involved in Collisions

Of the 189 cyclists involved in collisions, 51% (97) were deemed to be not at fault in the collision. Cyclists who were deemed to have committed errors or violations made up 49% (92) of collisions. In the one fatal collision, which occurred at an intersection, the cyclist was deemed at fault.

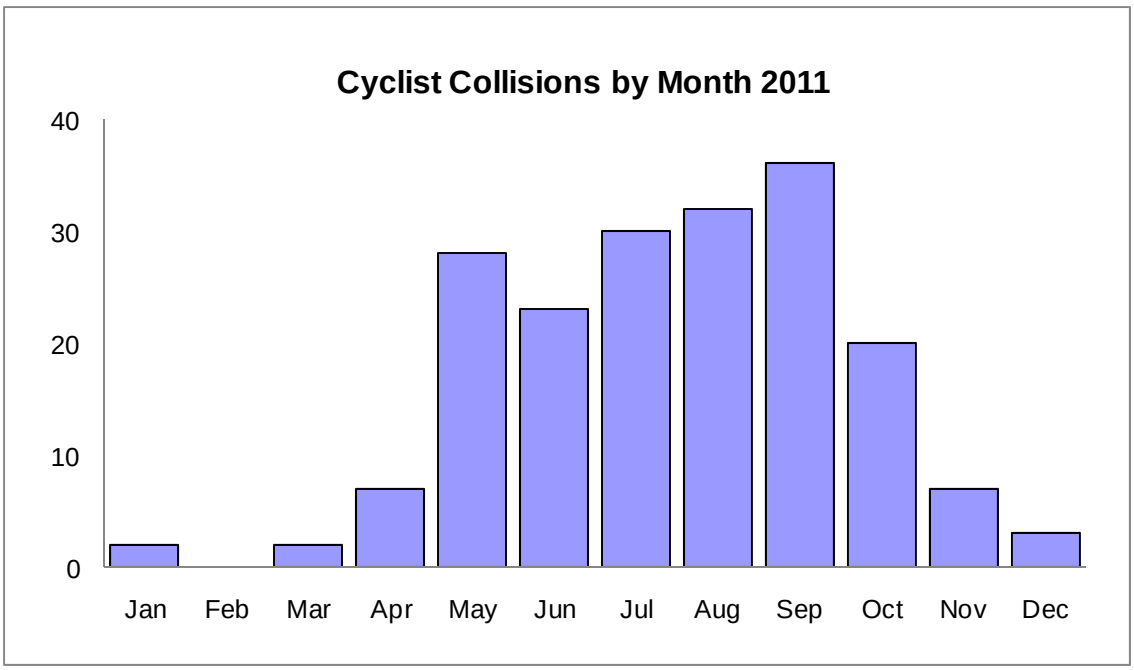


Figure 18: Cyclist Collisions by Month

There were collisions involving cyclists in every month of 2011 except February, although most collisions occurred in the spring, summer, and fall months when more cyclists are on the road. The number of collisions peaked at 36 in September, compared to four collisions in total from January to March.

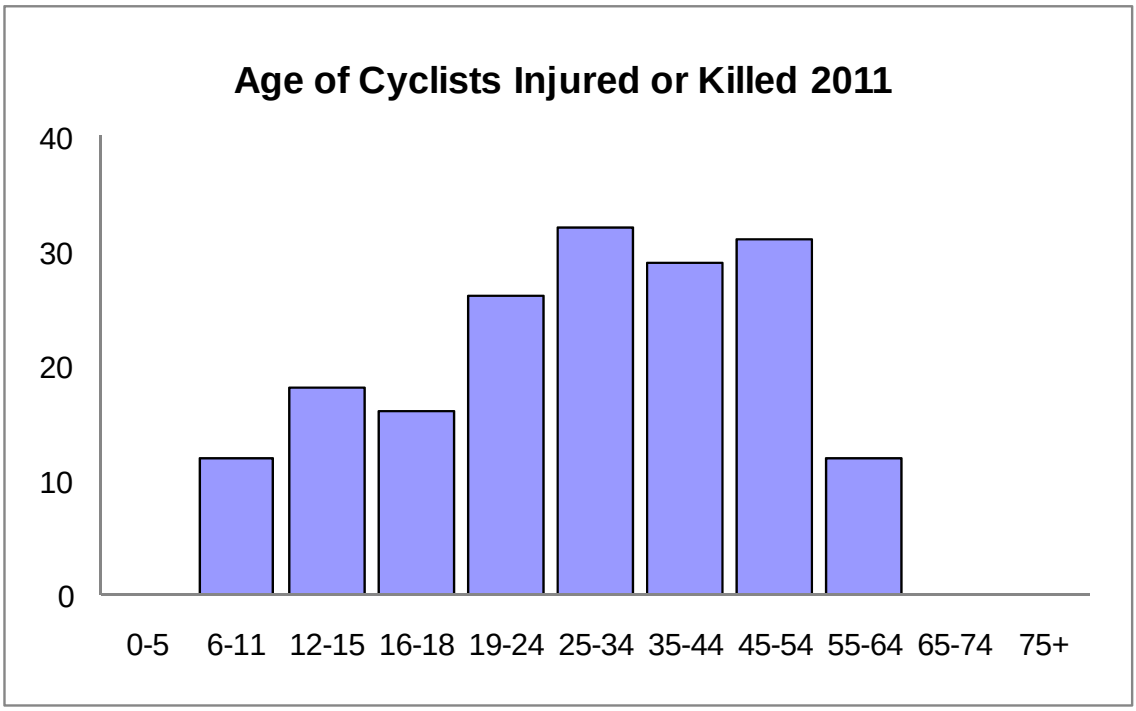


Figure 19: Age of Cyclists Injured or Killed

A total of 24% (46) of cyclists involved in collisions were 18 or younger, while the 25-34 year old age group was involved in 17% (32) of collisions. The one fatal collision involved a cyclist in the 12-15 age group.

Motorcyclist Collisions in 2011

In 2011 there were 199 collisions involving motorcycles[4], resulting in 139 injuries and 4 fatalities. The following information relates to the 138 collisions in which motorcyclists were injured or killed.

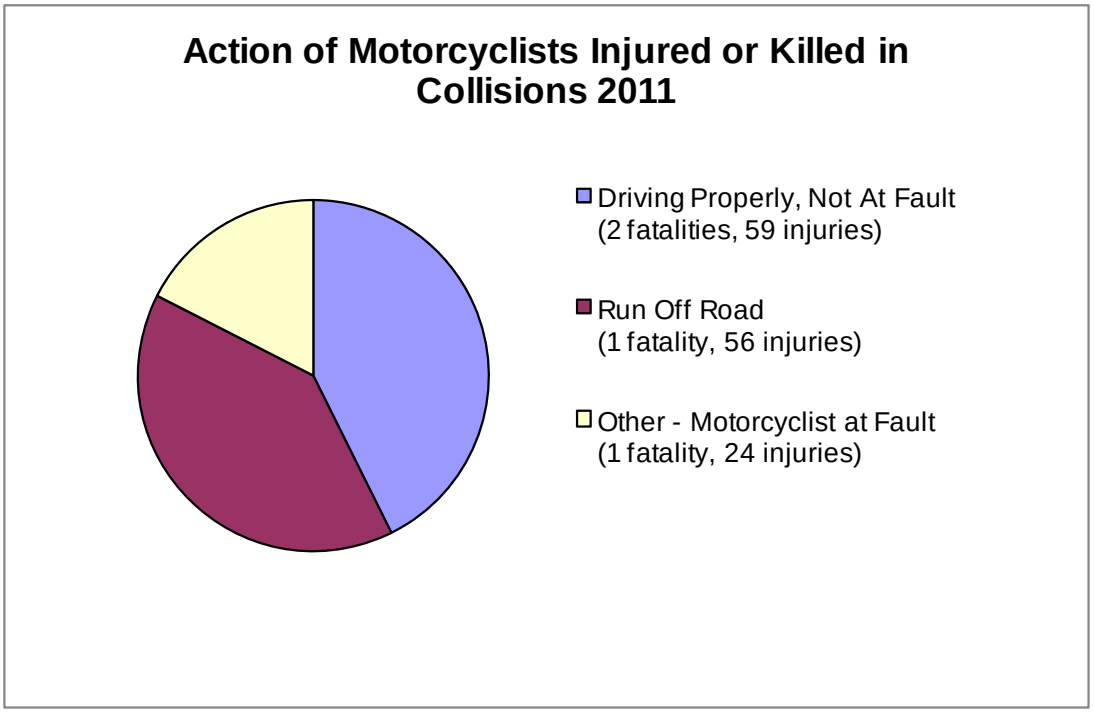


Figure 20: Action of Motorcyclists Injured or Killed in Collisions

Motorcyclists who were driving properly and deemed not at fault made up 43% (61) of motorcyclist injuries and fatalities. The remaining 57% (82) of injuries and fatalities occurred in collisions where the motorcyclist was deemed to be at fault. Among these at-fault collisions, the most common collision cause was run off road, which was the reported cause for 40% (57) of all motorcyclist injuries and fatalities.

[4] The figure of 199 collisions includes 9 collisions where the motorcycle was struck while legally parked and unattended.

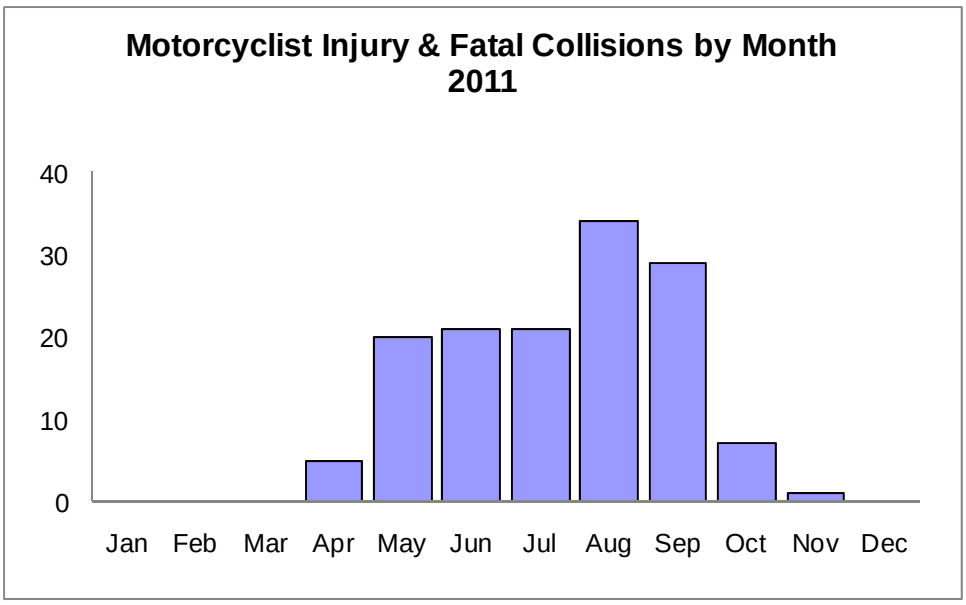


Figure 21: Motorcyclist Injury and Fatal Collisions by Month

There were no collisions resulting in motorcyclist injury or fatality from January to March or in December. The most common month for injury or fatality collisions was August (25%, 34).

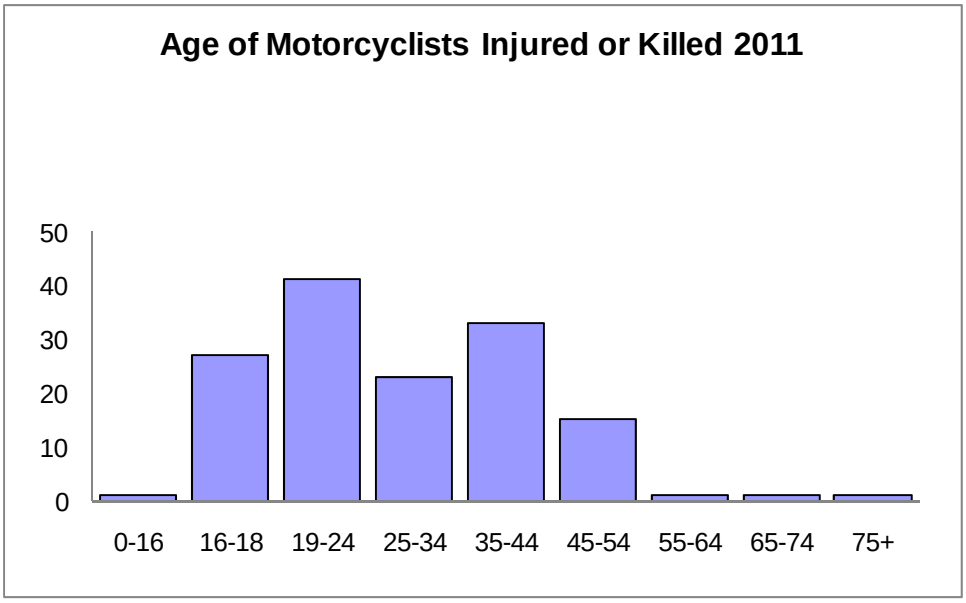
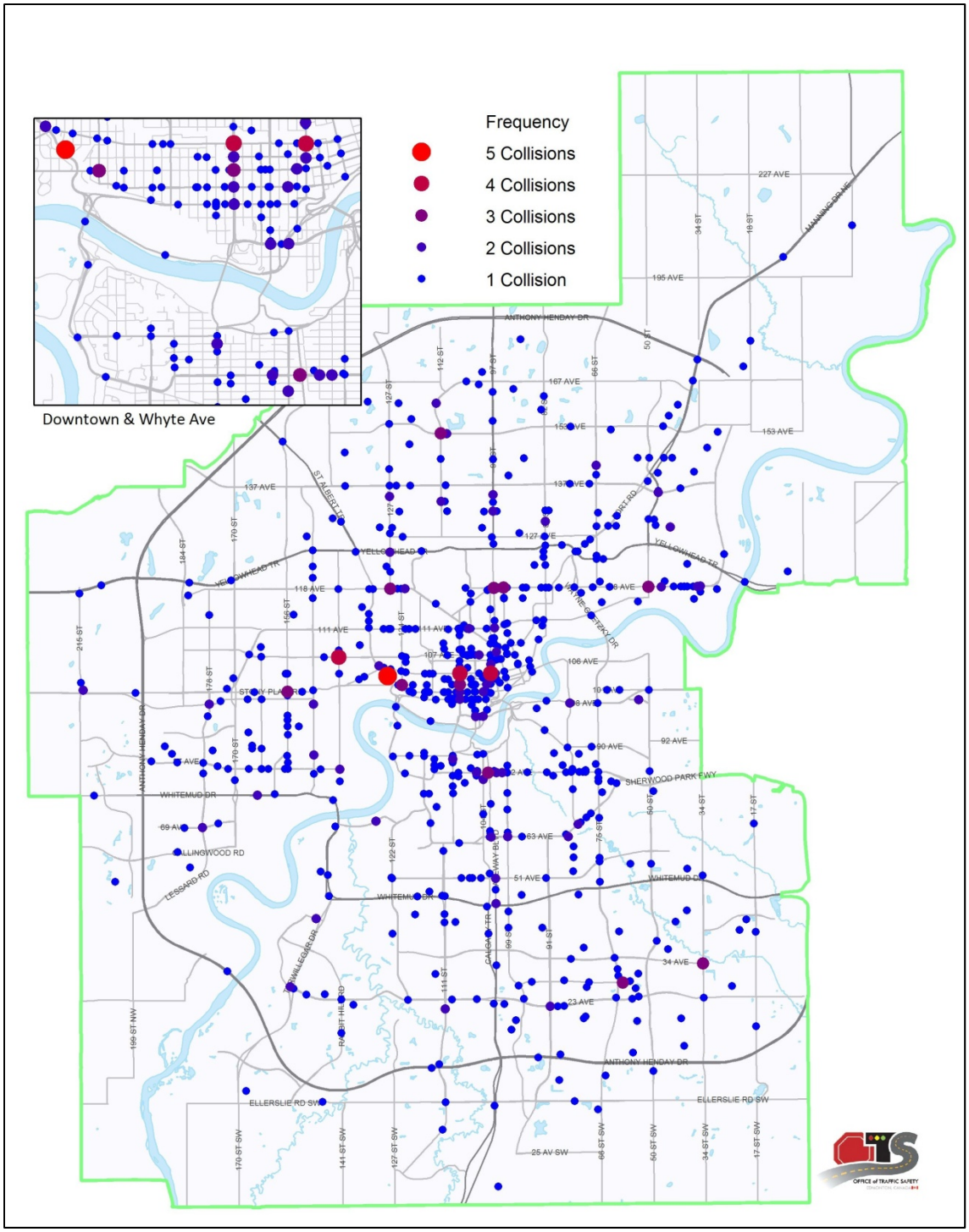


Figure 22: Age of Motorcyclists Injured or Killed

Riders aged 19-24 made up 29% (41) of all motorcyclist injuries in 2011, followed by the 35-44 age group (23%, 33). The 4 motorcyclist fatalities in 2011 ranged in age from 25 to 47.



Map 4: Vulnerable Road User (Pedestrian, Cyclist, Motorcyclist) Collision Locations 2011

Vulnerable road user collisions occurred in all areas of the city but, as Map 4 shows, Groat Road saw three locations – one along Groat Road south of 107 Avenue, the intersection of 104 Avenue and 109 Street, and the intersection of 104 Avenue and 101 Street – saw four or more vulnerable road user collisions, more than anywhere else in the city.

Appendix 1: Glossary of Terms

The following terms are used throughout this report.

Collision	Police-reported collisions occurring on public roadways in the City of Edmonton which result in a minimum of $1,000 property damage or which result in injury or fatality. The collision must include at least one (1) motor vehicle. This report includes all collisions where data was received by the Office of Traffic Safety from the Edmonton Police Service as of February 23, 2011. Non-vehicular collisions and collisions on private roadways are not included in this report.
Injury	Injuries noted by police on the collision report form. Injuries are classified as minor (treated but not admitted to hospital – may include treatment at an emergency department) or major (result in admission to hospital).
Fatality	On-scene fatalities, as well as any fatalities occurring within 30 days of and which are related to the collision.
Automobile	Cars, pickup trucks, SUVs, and vans under 4,500 kg.
Truck	Tractor-trailers, trucks, and vans 4,500 kg and over.
Intersection	Defined as extending 10 m past the legally defined limits of the outer crosswalk lines of an intersecting roadway.
Midblock	A section of roadway between two intersections. Bridges are also included as midblock segments.
Bridge	One of the 10 vehicle bridges over the North Saskatchewan River: Beverly, Capilano, Dawson, Low Level, James MacDonald, Walterdale, High Level, Groat, Quesnell, and Anthony Henday.

Appendix 2: Glossary of Collision Causes

The collision causes used throughout this report are derived from the provincial Collision Report Form. The following table provides an explanation of each of these causes.

Followed Too Closely	A vehicle rear-ends another vehicle due to a number of possible reasons, such as driver inattention, failure to maintain a safe distance between the vehicle and the one ahead, or failing to account for road conditions.
Struck Parked Vehicle	A moving vehicle collides with a legally parked or unattended vehicle.
Ran Off Road	The vehicle leaves the roadway.
Improper Lane Change	A vehicle is involved in a collision while changing lanes.
Left Turn Across Path	A driver makes a left turn and is struck by an oncoming vehicle with the right of way.
Failed to Observe Traffic Signal	At a signalized intersection, the driver fails to obey a signal and collides with another vehicle with the right of way.
Stop Sign Violation	A driver fails to stop at a stop sign, or fails to proceed safely after stopping, and collides with a vehicle with the right of way.
Backed Unsafely	A driver strikes another vehicle while backing.
Failed to Yield ROW (No Control)	A driver fails to yield the right of way at an uncontrolled intersection, striking or being struck by another vehicle.
Improper Turn	A vehicle either turns from or to an incorrect lane (for example, turning from the inside lane to an outside lane) and causes a collision.
Left of Centre	A vehicle driving left of the centre line on a roadway collides with another vehicle.
Yield Sign Violation	A driver fails to stop at a yield sign and strikes a vehicle with the right of way.
Failed to Yield to Pedestrian	A vehicle fails to yield to a pedestrian who has the right of way.

Animal Action	An animal on the roadway causes a collision with a vehicle.
Pedestrian Error / Violation	A pedestrian is involved in a collision after failing to cross at an intersection or marked crosswalk, or after crossing against a “don’t walk” sign.
Improper Passing	A driver causes a collision while attempting to pass another vehicle.
Failed to Yield to Cyclist	A vehicle fails to yield to a cyclist.
Cyclist Error / Violation	A cyclist commits an error or violation and is struck. (This code is typically used for cyclist actions such as entering the road improperly; collisions involving cyclists which can be classified as a vehicle-related cause are also used.)
Driverless Vehicle	A vehicle not being controlled by a driver causes a collision.
Signed Forced Turn Violation	A vehicle in a lane signed for specific turns disobeys the sign and causes a collision.
Improper Loading	An improperly-secured or unstable load causes a collision.
One Way Violation	A vehicle causes a collision by driving the wrong way down a one-way street.
Oversize Vehicle	A vehicle causes a collision after entering a roadway and exceeding posted height restriction.

Contact Information

Chris Neuman
Traffic Safety Analyst
City of Edmonton Office of Traffic Safety
Suite 200, 9304 41 Avenue NW
Edmonton, AB T6E 6G8
Telephone (780) 442-6426
E-Mail chris.neuman@edmonton.ca

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