

MOTOR VEHICLE COLLISIONS 2012



2012 QUICK FACTS

STATISTICS	2011	2012	% CHANGE
Total Collisions	23,442	23,237	-0.9
Fatal Collisions	22	26	18.2
Injury Collisions	3,482	3,362	-3.4
Fatal and Injury Collisions	3,504	3,388	-3.3
Property Damage Only (PDO) Collisions	19,938	19,849	-0.4
Intersection Collisions	12,412	12,669	2.1

Number of Fatalities	22	27	22.7
Number of Major Injuries	445	517	16.2
Number of Minor Injuries	4,001	3,820	-4.5
Number of Major and Minor Injuries	4,446	4,337	-2.5

Pedestrian Collisions	316	296	-6.3
Number of Pedestrian Injuries	320	302	-5.6
Number of Pedestrian Fatalities	8	8	0.0
Number of Pedestrian Fatalities and Injuries	328	310	-5.5
Bicycle Collisions	190	177	-6.8
Number of Cyclist Injuries	188	176	-6.4
Number of Cyclist Fatalities	1	1	0.0
Number of Cyclist Fatalities and Injuries	189	177	-6.3
Motorcycle Collisions	199	157	-21.1
Number of Motorcyclist Injuries	139	126	-9.4
Number of Motorcyclist Fatalities	4	4	0.0
Number of Motorcyclist Fatalities and Injuries	143	130	-9.1

Population	812,201	817,498	0.7
Private Passenger Vehicles	491,789	509,655	3.6
Private Motorcycles	14,087	14,945	6.1
Collisions per 1,000 Population	28.86	28.42	-1.5
Intersection Collisions per 1,000 Population	15.28	15.50	1.4
Number of Fatalities and Injuries per 1,000 Population	5.50	5.34	-3.0
Collisions per 1,000 Vehicles	47.67	45.59	-4.3
Intersection Collisions per 1,000 Vehicles	25.24	24.86	-1.5
Number of Fatalities and Injuries per 1,000 Vehicles	9.09	8.56	-5.8

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Cover Photograph: three-way crash south of Edmonton's Old Strathcona. Photo Credit: Edmonton Journal

(<http://www.edmontonjournal.com/news/Area+reopened+after+three+crash+just+south+Edmont+on+Strathcona/8121195/story.html>)

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2012 Summary

- There were 23,237 collisions in the City of Edmonton in 2012. This number represents a decrease of 0.9% from 2011.
- The number of collisions per capita in Edmonton decreased by 1.5% from 2011 level, to 28.42 collisions per 1,000 population. This is the lowest per-capita collision rate since 1997, when Edmonton's population was 23.5% lower than it is currently.
- In 2012 there were 3,388 collisions that resulted in fatality or injury, a reduction of 3.3% from 2011 and the lowest overall total in 20 years. These fatal and injury collisions resulted in 3,820 minor injuries, 517 major injuries, and 27 fatalities.¹
- The 27 fatalities in 2012 included 14 vehicle occupants (11 vehicle drivers and 3 vehicle passengers) and 13 vulnerable road users (8 pedestrians, 4 motorcyclists, and 1 cyclist).
- Collisions at intersections made up 54.5% (12,669) of the collision total, but resulted in 69.2% (3,002) of total injuries and 5 of the 27 fatalities sustained in 2012. Compared to 2011, the number of intersection collisions per 1,000 population increased by 1.4%.
- The most common collision causes in Edmonton were followed too closely (36.7%, 8,526 collisions), struck parked vehicle (11.1%, 2,576), changing lanes improperly (10.6%, 2,472), and ran off road (9.0%, 2,099).
- The collision causes most likely to result in fatality or injury were followed too closely (40.6%, 1,374 collisions resulted in fatality or injury), left turn across path (11.5%, 389), ran off road (8.4%, 284) and failed to observe traffic signal (8.3%, 280).
- There were 296 pedestrian-involved collisions in 2012, resulting in 302 pedestrian injuries (a 5.6% decrease over 2011) and 8 fatalities (the same number as in 2011). Of these, 52 injuries and 3 fatalities occurred when a pedestrian was crossing at a midblock without the right of way (jaywalking).
- There was a 6.3% decrease in the number of cyclist fatalities and injuries, from 189 in 2011 to 177 in 2012. Among them 24.3% collisions involving cyclists were deemed to be caused by cyclist error or violation.
- The number of collisions involving motorcyclists decreased 21.1% from 199 in 2011 to 157 in 2012; the number of motorcyclists injured decreased by 9.4%, to 126. There were 4 motorcyclist fatalities in 2012, the same number as in 2011.
- Ranked by the total number of collisions, the top three high-collision intersections in the City of Edmonton in 2012 were: 23 Avenue & 91 Street (76 collisions, 31 injuries), Yellowhead Trail & 149 Street (74 collisions, 15 injuries), and Whitemud Drive Westbound & Gateway Boulevard (59 collisions, 13 injuries). The top three high-collision midblock segments were: Whitemud Drive from 122 Street to the Terwillegar Drive interchange (54 collisions, 11 injuries); High Level Bridge (50 collisions, 6 injuries); and Whitemud Drive from 66 to 91 Street (39 collisions, 11 injuries).

¹ For classifications of fatality, major and minor injury, please refer to Appendix 1 at the end of this document.

Section 1: 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.

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.

This report presents an overview of collisions that occurred in Edmonton from January 1 to December 31, 2012, based on causes, temporal information, high collision locations and injury severity. The report also provides information on collisions involving pedestrians, cyclists, and motorcyclists.

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/transportation/traffic_reports/collision-speed-reports.aspx. This data is also available through the City of Edmonton's Open Data portal at <http://data.edmonton.ca>.

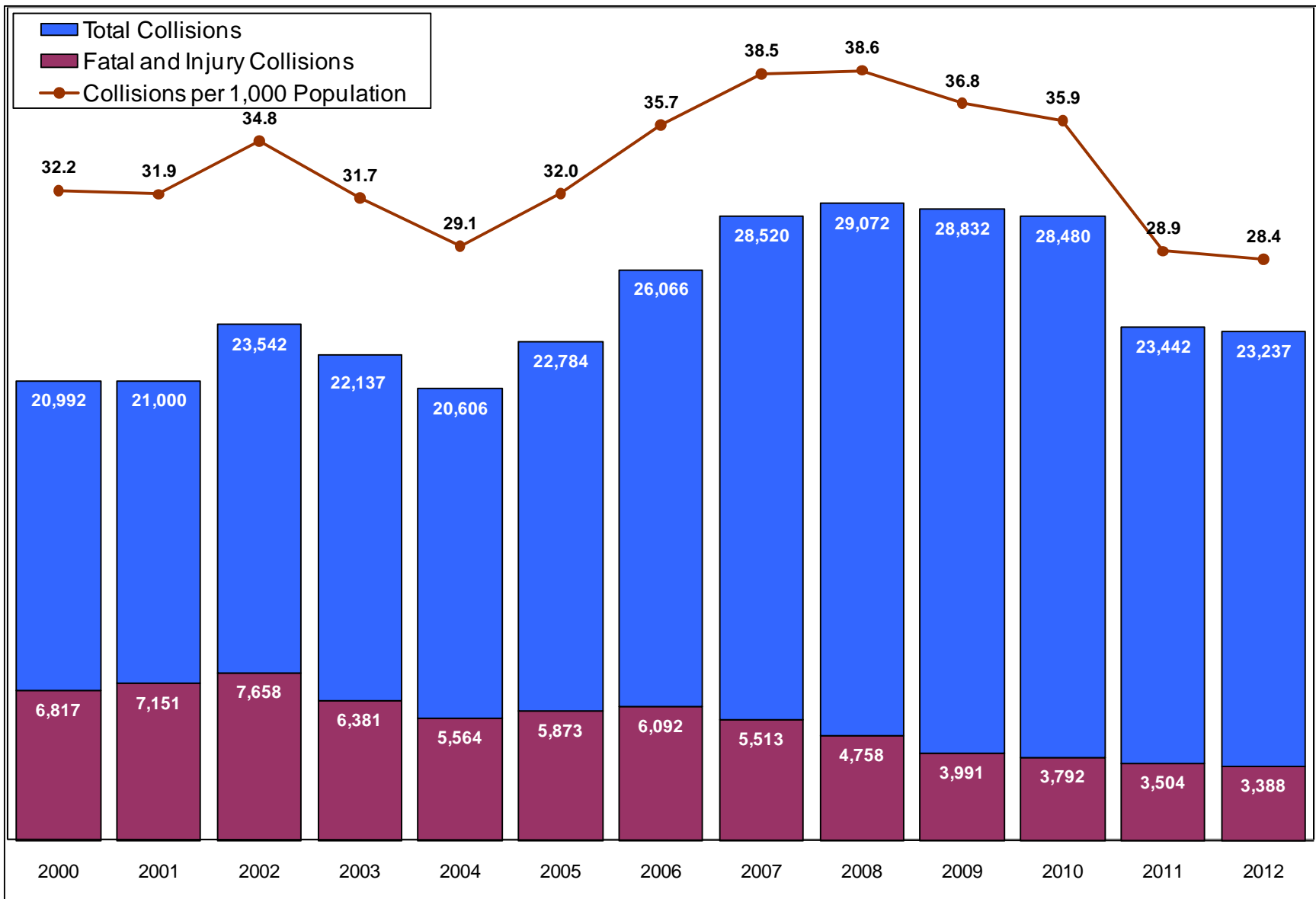


Figure 1: Historical Collision Statistics from 2000 to 2012

Table 1: Summary of Selected Collision Statistics from 2000 to 2012

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	% Chg
Total Collisions	20,992	21,000	23,542	22,137	20,606	22,784	26,066	28,520	29,072	28,832	28,480	23,442	23,237	-0.9 %
Injury Collisions	6,798	7,127	7,638	6,352	5,530	5,847	6,067	5,482	4,730	3,962	3,768	3,482	3,362	-3.4 %
Injuries	9,805	10,284	11,013	9,083	7,686	8,006	8,221	7,445	6,270	5,203	4,910	4,446	4,337	-2.5 %
Fatal Collisions	19	24	20	29	34	26	25	31	28	29	24	22	26	18.2 %
Fatalities	19	24	20	32	37	27	25	32	29	32	27	22	27	22.7 %
Pedestrian Collisions	302	372	348	308	296	333	347	366	395	347	306	316	296	-6.3 %
Pedestrians Injured	310	380	365	314	308	346	364	372	395	357	326	320	302	-5.6 %
Pedestrians Killed	9	11	9	6	10	4	0	13	9	9	4	8	8	0.0 %
Bicycle Collisions	214	227	201	181	196	221	199	184	235	220	182	190	177	-6.8 %
Cyclists Injured	215	230	200	181	195	221	198	181	234	218	182	188	176	-6.4 %
Cyclists Killed	1	0	0	0	2	1	0	4	2	2	2	1	1	0.0 %
Motorcycle Collisions	105	148	157	110	161	177	177	213	255	201	211	199	157	-21.1 %
Motorcyclists Injured	98	137	144	111	137	162	144	160	184	150	135	139	126	-9.4 %
Motorcyclists Killed	1	2	3	1	9	2	1	4	7	2	4	4	4	0.0 %
Population	652,817	657,350	676,300	697,657	707,271	712,391	730,372	741,392	752,412	782,439	793,000	812,201	817,498	0.7 %
Private Pass. Vehicles	356,679	365,232	376,157	380,475	381,456	389,471	407,732	431,425	452,101	470,602	479,194	491,789	509,655	3.6 %
Private Motorcycles	5,574	6,112	6,346	7,070	8,278	8,586	9,236	10,152	12,686	14,378	15,605	14,087	14,945	6.1 %
Collisions/1,000 Pop.	32.16	31.95	34.81	31.73	29.13	31.98	35.69	38.47	38.64	36.85	35.91	28.86	28.42	-1.5 %
Intersection Collisions/1,000 Pop.	18.37	17.75	17.88	15.96	14.98	15.43	18.19	19.20	18.24	16.79	17.03	15.28	15.50	1.4 %
Fatalities+Injuries/1,000 Pop.	15.05	15.68	16.31	13.07	10.92	11.28	11.29	10.09	8.37	6.69	6.23	5.50	5.34	-3.0 %
Collisions/1,000 Veh.	58.85	57.50	62.59	58.18	54.02	58.50	63.93	66.11	64.30	61.27	59.43	47.67	45.59	-4.3 %
Intersection Collisions/1,000 Veh.	33.61	31.94	32.15	29.26	27.78	28.23	32.59	32.99	30.35	27.92	28.18	25.24	24.86	-1.5 %
Fatalities+Injuries/1,000 Veh.	27.54	28.22	29.33	23.96	20.25	20.63	20.22	17.33	13.93	11.12	10.30	9.09	8.56	-5.8 %

The population figure for 2012 is based on Edmonton's official population on April 1, 2012 from 2012 Edmonton Municipal Census (http://www.edmonton.ca/city_government/municipal-census.aspx); Population figures for previous years were primarily obtained from either Census of Canada or City of Edmonton Municipal Census, (see "Population History" of 2012 Edmonton Municipal Census (http://www.edmonton.ca/city_government/facts_figures/population-history.aspx)). For those years without census results, the population figure for 2010 is an estimate and was provided by the Chief Economist of the City of Edmonton. Interpolations were applied to estimate figures for other years.

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.

Section 2: Overview

The overall number of collisions in Edmonton, as shown in Figure 1 and Table 1, has been decreasing year after year since 2008, despite significant population growth in the region at the time. The total number of reported collisions decreased 0.9% between 2011 and 2012. Collisions resulting in injury, and the number of people injured, decreased 3.4% and 2.5% respectively, the lowest annual figures reported in Edmonton in two decades. However, collisions resulting in fatality increased from 22 in 2011 to 26 in 2012, and fatalities increased from 22 in 2011 to 27 in 2012. Major injuries also increased in 2012 from 2011 by 16.2%.

Collisions and injuries involving vulnerable road users (pedestrian, cyclist and motorcyclists) all decreased in 2012 compared to 2011. Collisions involving pedestrians and pedestrian fatalities and injuries decreased 6.3% and 5.5% respectively from 2011 to 2012. Collisions involving cyclists and cyclist fatalities and injuries decreased 6.8% and 6.3% respectively. Motorcycle collisions decreased significantly in 2012 by 21.1% over 2011 and motorcyclist fatalities and injuries in decreased 9.1%.

Critical measures of collisions by population, total collisions and intersection collisions by number of registered vehicles decreased from 2011 to 2012, while intersection collisions by population slightly increased. Collisions per capita decreased 1.5% to 28.42 reported collisions per 1,000 people. There was also a 3.0% decrease in collisions per 1,000 vehicles, to 45.59 collisions per 1,000 registered vehicles in the City of Edmonton. The total amount of reported property damage was approximately \$108 million, a 4.8% increase over 2011.

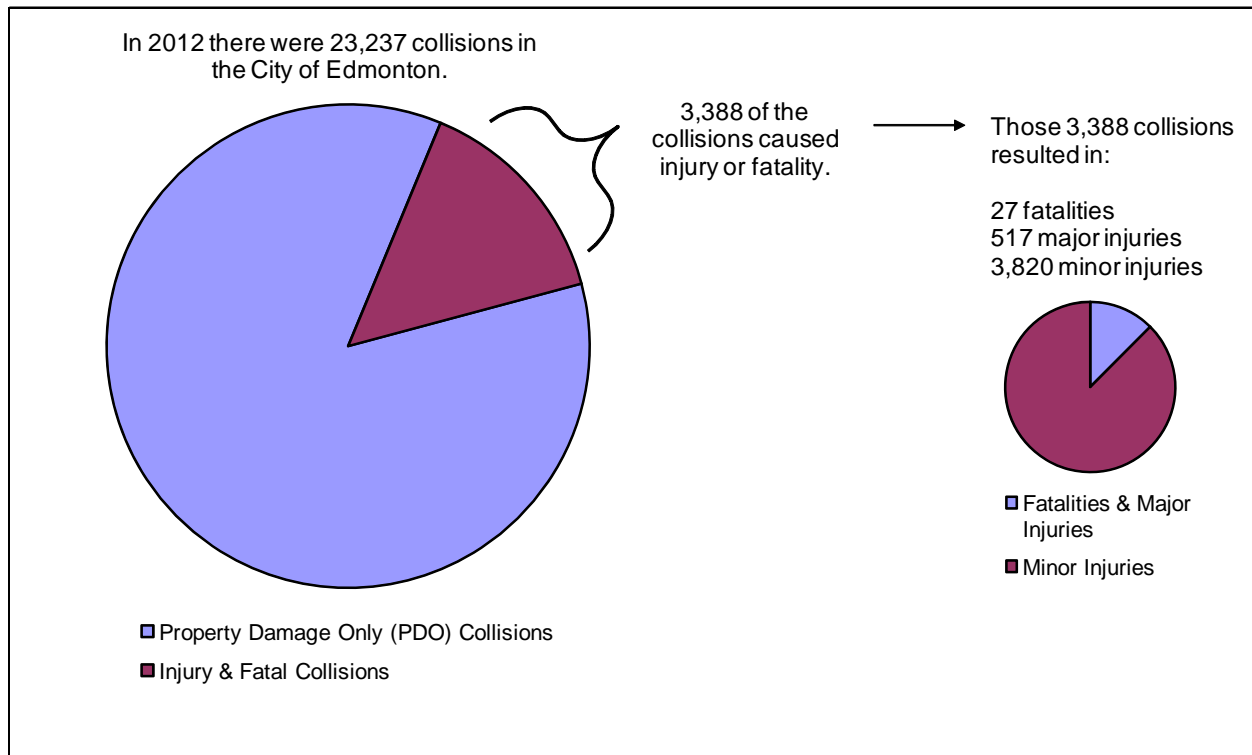


Figure 2: Collision Severity Distributions

In 2012, as shown in Figure 2, included in 23,237 reported motor vehicle collisions on Edmonton streets are 3,388 (14.6%) collisions that resulted in minor or major injury or death. The 3,388 collisions resulting in fatality or injury caused a total of 4,337 injuries to drivers, passengers, pedestrians, cyclists, and motorcyclists. Among them there were 27 traffic fatalities, 517 major injuries and 3,820 minor injuries. The fatality figure includes 14 vehicle occupants (11 drivers and 3 passengers), 8 pedestrians, 4 motorcyclists, and 1 cyclist.

Section 3: Collision Causes

The most common collision cause reported was followed too closely, which was indicated in 36.7% (8,526) of all collisions. Other common collision causes included: struck parked vehicle (11.1%, 2,576), changing lanes improperly (10.6%, 2,472), ran off road (9.0%, 2,099), and left turn across path (8.0%, 1,870).²

The collision causes most likely to result in fatality or injury were mainly similar with the above but in a different sequence. The most common cause was still followed too closely (40.6%, 1,374 collisions resulted in fatality or injury), while the others were left turn across path (11.5%, 389), ran off road (8.4%, 284), failed to observe traffic signal (8.3%, 280) and stop sign violation (6.3%, 215).

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

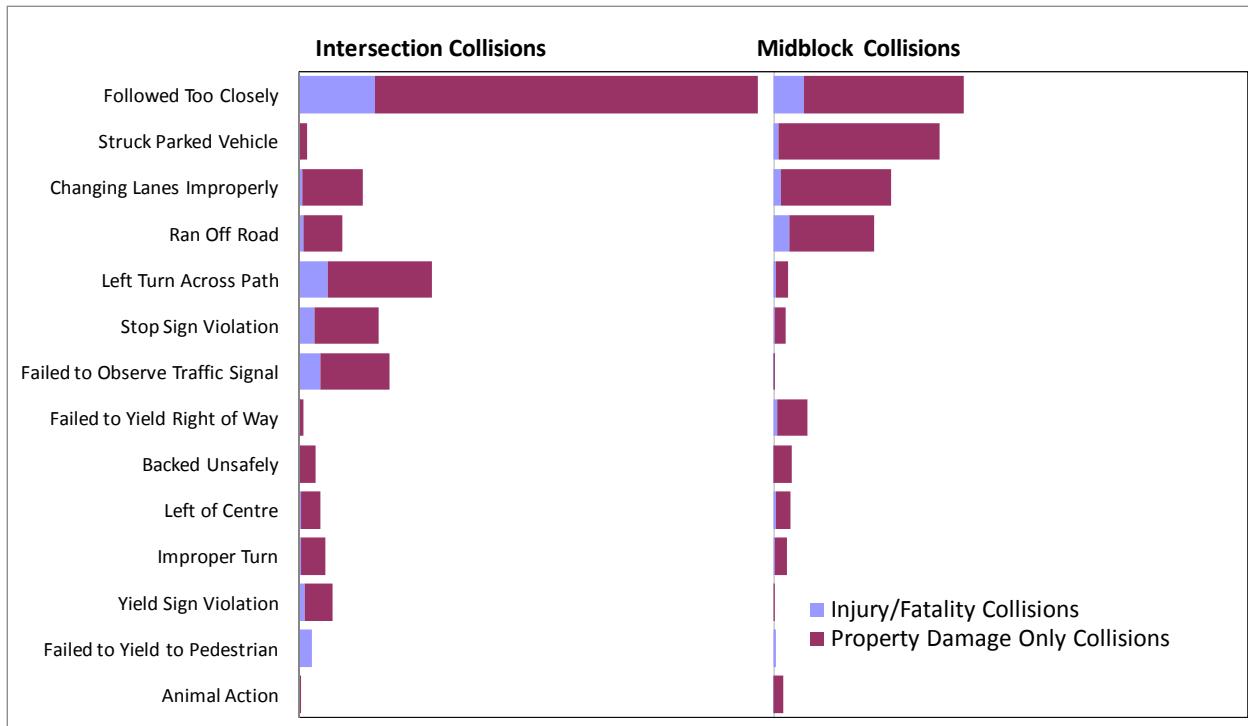


Figure 3: Collision Causes at Intersections and Midblock Segments

Figure 3 shows the considerable differences in the profile of collision causes at intersections versus midblock segments. At intersections, followed too closely was the reported cause in 45.7% (5,796) of intersection collisions; by comparison, followed too closely was the reported cause in 26.6% (2,402) of collisions along mid-blocks. Of the 2,099 ran off road collisions in 2012, 25.7% (540) occurred at intersections, versus 60.4% (1,268) along mid-blocks.³ On the other hand, of the 1,870 left turn across path collisions, 89.4% (1,672) occurred at intersections, versus 9.8% (183) along midblock segments with vehicles turning onto private property or alley.

Ranked by the severity of outcome, there were four causes where 100% of collisions resulted in fatality or injury (i.e., no PDO collisions for these four causes). They were “cyclist error / violation”, “failed to yield to cyclist”, “failed to yield to pedestrian” and “pedestrian error/violation”. The fifth highest cause in terms of severity was “one way violation”, with which 60% of collisions resulted in fatality or injury.

³ The remaining 291 collisions occurred either on side streets, in alleys, or did not specifically report a location.

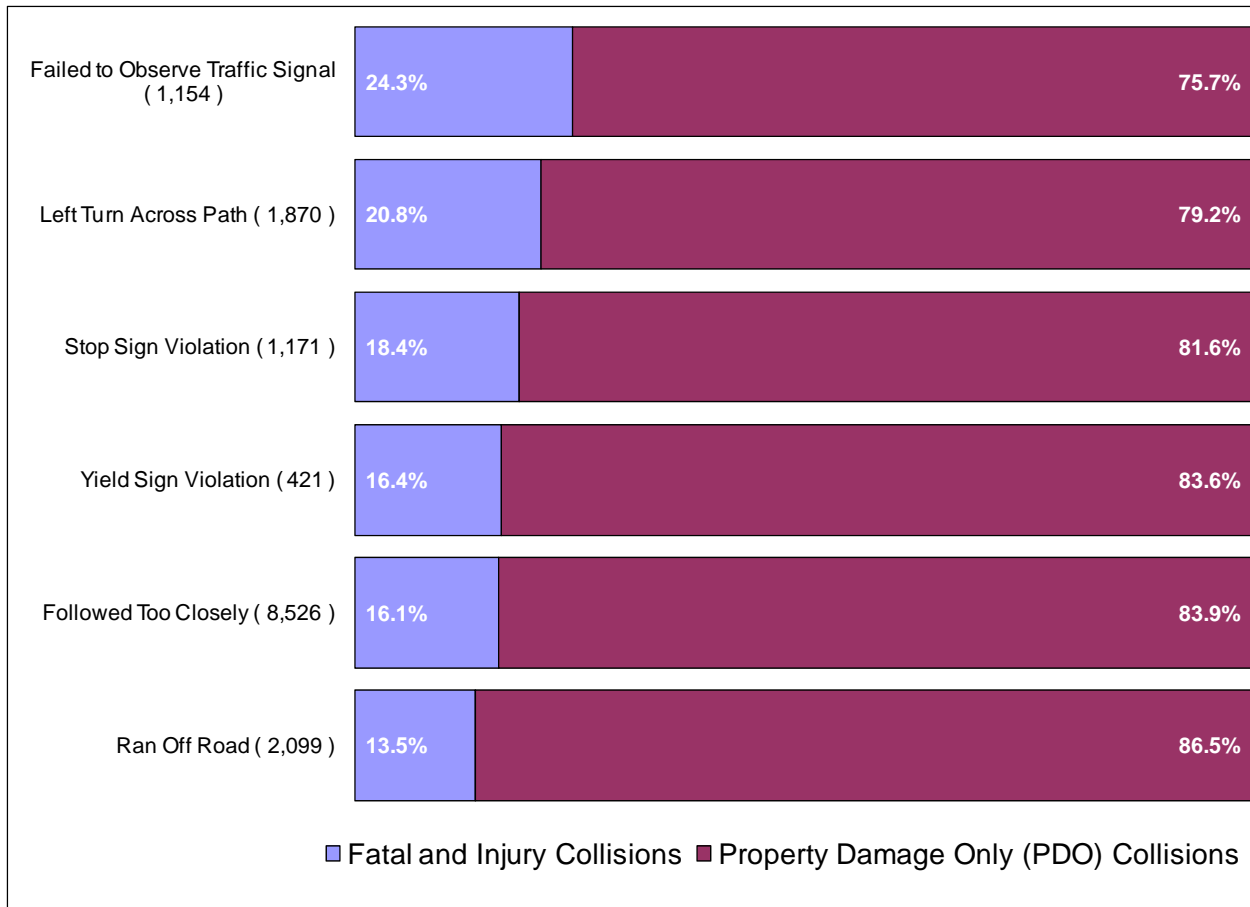


Figure 4: Collision Severity by Selected Causes

Figure 4 shows other causes (above mentioned top five severity causes were not included into this Figure), ranked by the severity of outcome. Among them, in 2012, 24.3% (280) of failed to observe traffic signal collisions resulted in fatality or injury. Similarly, 20.8% (389) of left turn across path collisions, 18.4% (215) of stop sign violation and 16.4% (69) yield sign violation collisions resulted in injury. Sideswipe collisions (such as changing lane improperly) and rear-end collisions (such as followed too closely or struck parked vehicle) occurred more frequently but resulted in proportionally fewer fatality or injury collisions.

Section 4: 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 2012.

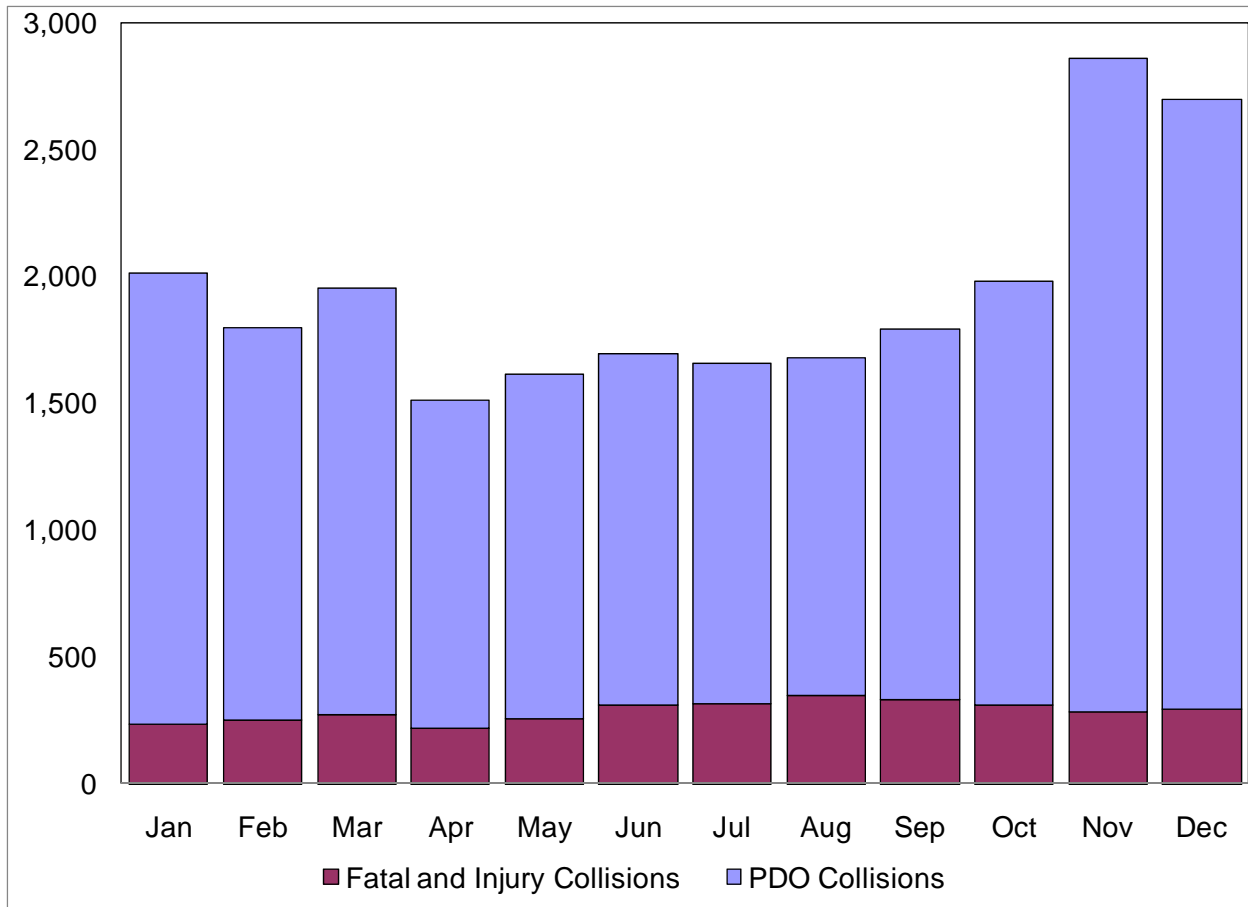


Figure 5: Collisions by Month

Figure 5 shows the breakdown of collisions by month, which in 2012 varied from a low of 1,508 collisions in April to 2,859 collisions in November. Overall, 57.2% (13,297) of collisions occurred in the fall and winter months (January - March and October - December). While the percentage of collisions in fall and winter is consistent with prior years, there were significant shifts in terms of monthly distributions. The top three collision months in 2012 were November, December, and January compared to January, March and February in 2011. This shift may in part reflect differences in weather.

Fatal and injury collisions ranged from 215 in April to 344 in August 2012. The proportion of collisions that result in fatality or injury is higher in the spring and summer (April-September); while fatal and injury collisions made up 12.3% of all fall and winter collisions, they constituted 17.7% of all spring and summer collisions.

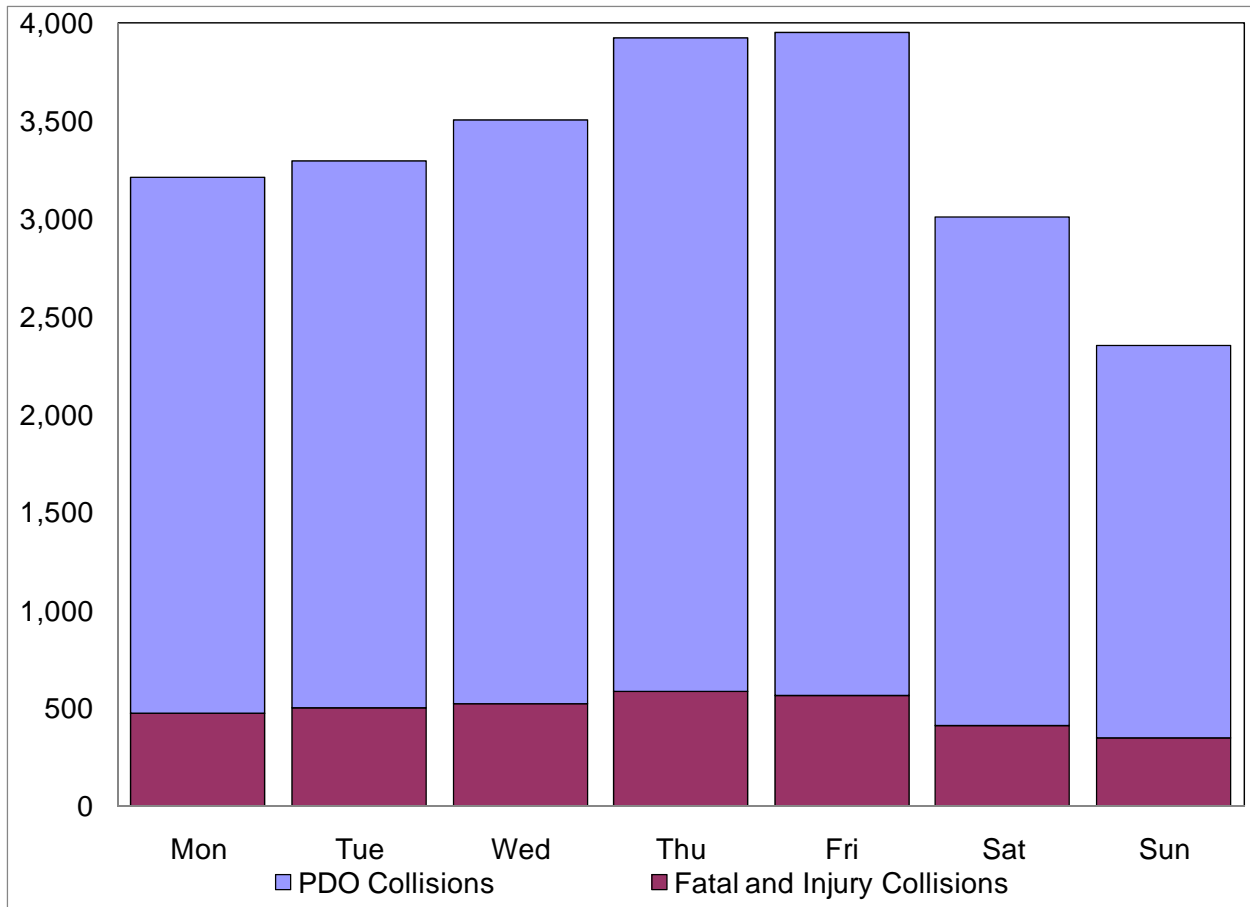


Figure 6: Collisions by Day of Week

As shown as Figure 6, Friday was the most common day of the week for collisions in 2012, accounting for 17.0% (3,951) of collisions. Least common was Sunday, with 10.1% (2,348) of all collisions. As in previous years, there were fewer collisions on weekends than on weekdays.

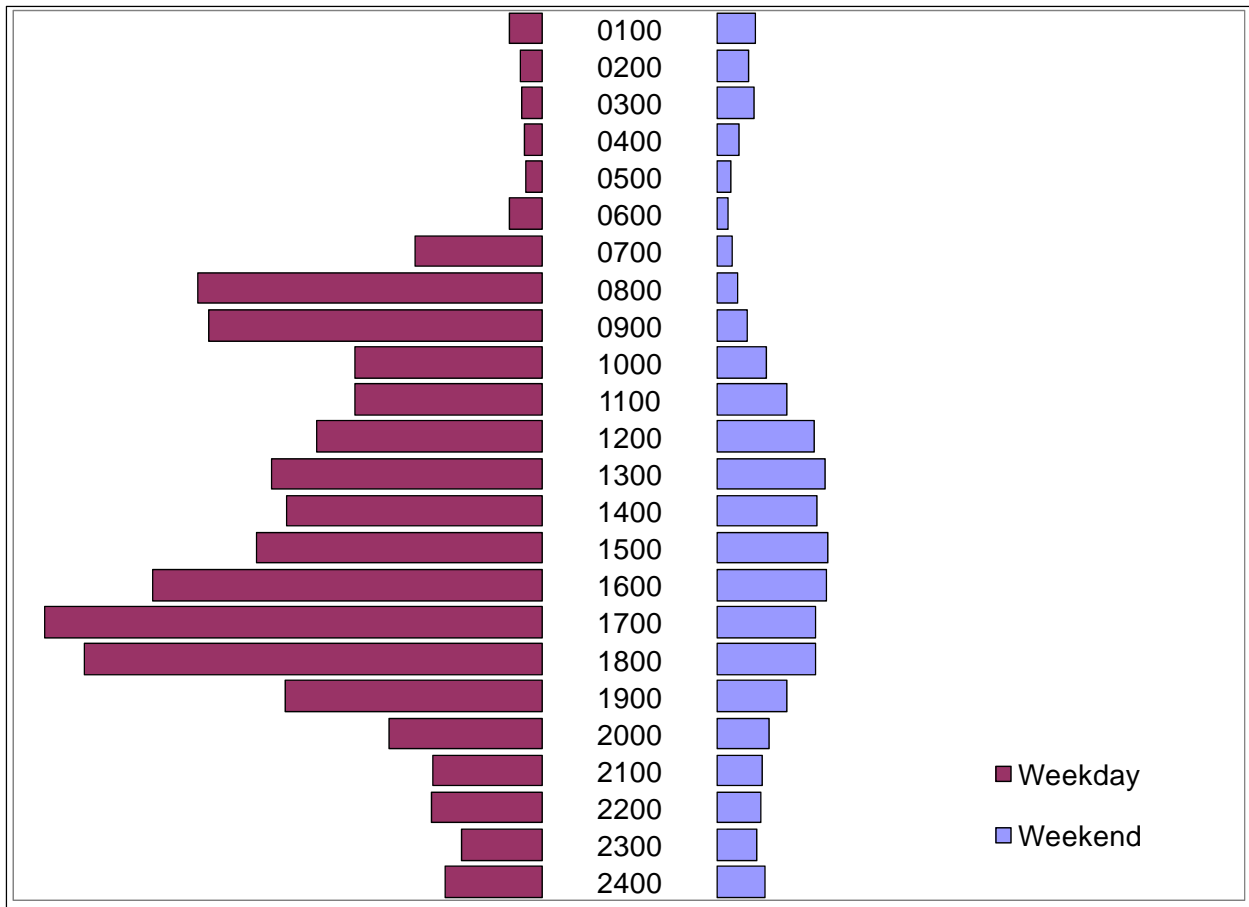


Figure 7: Collisions by Hour⁴ of Day (Weekday vs. Weekend)

Figure 7 breaks down collisions by hour of day, for both weekdays (Monday through Friday) and weekends (Saturday and Sunday). During the weekdays, peak collision times match peak travel times; the morning peak period of 6:00 - 9:00 AM accounted for 17.8% (3,189) of all weekday collisions, while collisions during the PM peak of 3:00 - 6:00 PM made up 29.8% (5,324) of all weekday collisions.

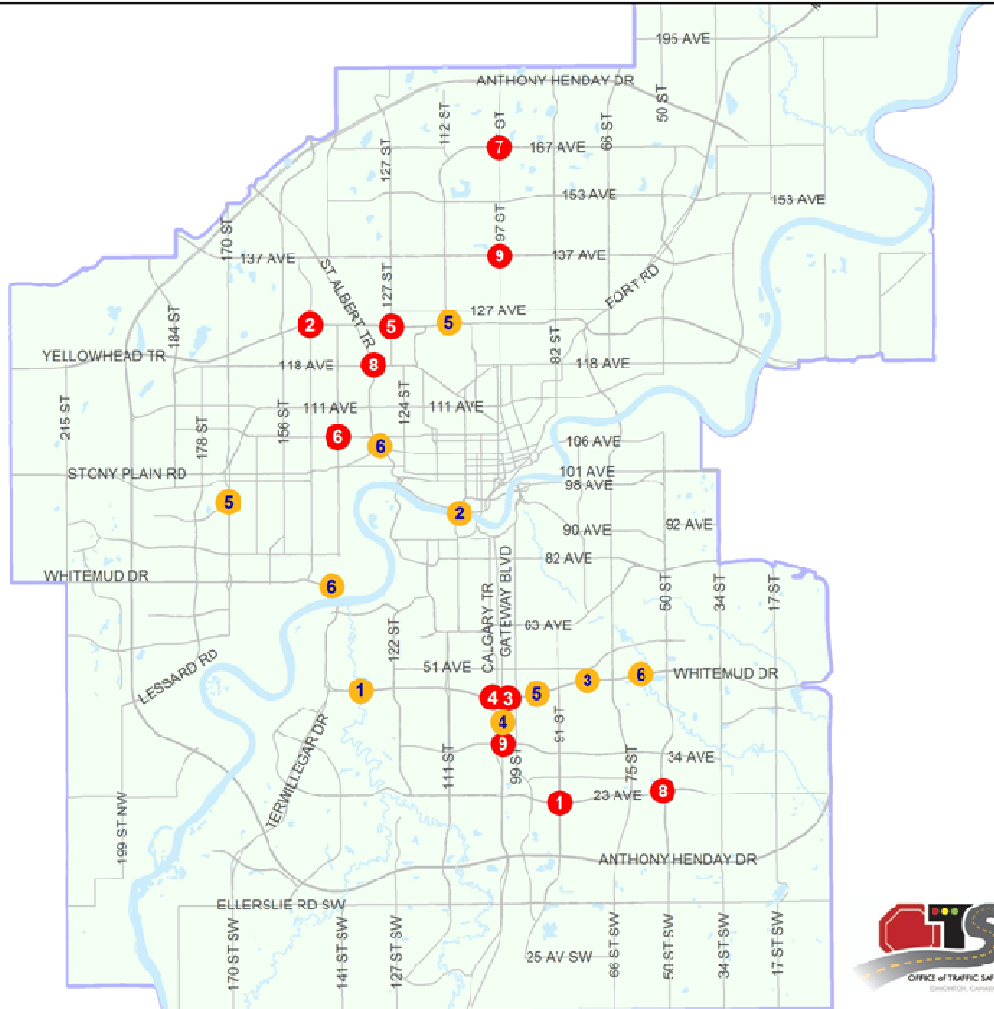
On weekends, collision patterns shifted in line with traffic patterns, with the number of collisions peaking between 2:00 - 3:00 PM. Collisions from 12:00 Noon to 6:00 PM made up 46.1% (2,464) of weekend collisions. Collisions during the overnight hours were also more prevalent during the weekend; there were 552 collisions from 12:00 midnight to 5:00 AM on weekends, representing 10.3% of all weekend collisions; by comparison, in the same time period there were 429 collisions over the five weekdays, representing only 2.4% of all weekday collisions.

⁴ Hour name corresponds to “hour ending” in MVCIS, e.g., 1400 means 13:01-14:00 inclusive.

Section 5: Intersection and Midblock Collision Hot Spots

Map 1 illustrates the top intersections and midblock segments with the highest numbers of collisions in the city for 2012. A high collision location is also called a “hot spot”.

Rank	Intersection	Collisions	Rank	Midblock	Collisions
1	23 Av & 91 St	76	1	Whitemud Dr - 122 St to Terwillegar Dr	54
2	Yellowhead Tr & 149 St	74	2	High Level Bridge	50
3	Whitemud Dr WB & Gateway Blvd	59	3	Whitemud Dr - 66 St to 91 St	39
4	Whitemud Dr EB & Calgary Tr	58	4	Gateway Blvd - 34 Av to Whitemud Dr	26
5	Yellowhead Tr & 127 St	55	5	170 St - 95 Av to 100 Av	24
6	107 Av & 142 St	52	5	Whitemud Dr - 91 St to 99 St	24
7	167 Av & 97 St	50	5	Yellowhead Tr - 107 St to 121 St	24
8	23 Av & 50 St	49	6	Whitemud Dr - 50 St to 66 St	21
8	118 Av & Groat Rd	49	6	Great Rd - Stony Plain Rd to 107 Av	21
9	34 Av & Gateway Blvd	48	6	Whitemud Dr - Quesnell Bridge to 149 St	21
9	137 Av & 97 St	48			



Map 1: Top Intersections and Midblock Segments by Number of Collisions

Map 1 also highlights two areas with very dense hot spots: the area north and northwest of the downtown core that included six intersection and two midblock hot spots; and, the “L-shaped” corridor of Whitemud Drive - Calgary Trail to 50 Street (as one leg of “L-shaped” corridor) and Gateway Boulevard - 34 Avenue to Whitemud Drive (another leg) where three intersection and four midblock hot spots were located.

In addition, 23 Avenue between 50 and 91 Street had two intersection hot spots while Whitemud Drive west of 122 Street contained two midblock hot spots. High-collision midblock segments also included sections of the High Level Bridge and 170 Street from 95 to 100 Avenue.

Table 2 shows some intersections and midblock segments were also 2011 hot spots while others were new hot spots for 2012.

Table 2: Summary of 2012 Hot Spots

Type	Location Name	2012 Rank	2012 Collisions	2011 Rank	2011 Collisions
Intersection	23 Avenue & 91 Street	1	76	4	69
	Yellowhead Trail & 149 Street	2	74	4	69
	Whitemud Drive WB & Gateway Boulevard	3	59	NA	45
	Whitemud Drive EB & Calgary Trail	4	58	NA	44
	Yellowhead Trail & 127 Street	5	55	1	75
	107 Avenue & 142 Street	6	52	2	72
	167 Avenue & 97 Street	7	50	NA	33
	23 Avenue & 50 Street	8	49	NA	45
	118 Avenue & Groat Road	8	49	NA	35
	34 Avenue & Gateway Boulevard	9	48	NA	42
	137 Avenue & 97 Street	9	48	9	50
Midblock	Whitemud Drive – 122 Street to Terwillegar Drive	1	54	2	42
	High Level Bridge	2	50	1	63
	Whitemud Drive – 66 to 91 Street	3	39	NA	23
	Gateway Boulevard - Whitemud Drive to 34 Avenue	4	26	NA	17
	170 Street - 95 to 100 Avenue	5	24	NA	18
	Whitemud Drive - 91 to 99 Street	5	24	NA	19
	Yellowhead Trail – 107 to 121 Street	5	24	5	26
	Whitemud Drive - 50 to 66 Street	6	21	NA	18
	Groat Road – Stony Plain Road to 107 Avenue	6	21	7	26
	Whitemud Drive – Quesnell Bridge to 149 Street	6	21	10	22

Section 6: Objects Involved in Collisions

All collisions in the MVCIS database include at least one motor vehicle; collisions between two cyclists, for example, would not be entered in the database. Most collisions in 2012 involved two motor vehicles, or a single vehicle and a fixed object.

Table 3: Objects Involved in Collisions

Object Type	Number of Objects	Number of Collisions
Automobile	43,713	23,043
Fixed Object	2,451	2,429
Truck	1,261	1,208
Pedestrian	310	296
ETS Bus	238	238
Bicycle	178	177
Motorcycle	158	157
Animal	148	148
School Bus	119	119
Rollover	90	90
Other Vehicle	51	51
Other Bus	22	22
Emergency Vehicle	12	12
Train	6	6
Unknown	3	3

Table 3 summarizes the types of objects involved in collisions in 2012. Automobiles – a category that includes passenger vehicles, pickup trucks, and SUVs, but excludes large trucks over 4,500 kg and buses – were involved in over 99.2% (23,043) of all 23,237 collisions in 2012.

Fixed objects were involved in 10.5% (2,429) of all collisions. Other object types included trucks greater than 4,500 kg (5.2%, 1,208 collisions), pedestrians (1.3%, 296 collisions), ETS buses (1.0%, 238 collisions), and bicycles (0.8%, 177 collisions). Six collisions in 2012 involved a train.

Fixed objects are routinely involved in collisions, and Table 4 summarizes the type and number of these objects for 2012. The most common fixed object involved in collisions was “post, sign, parking meter”. In 2012, 448 posts, signs or parking meters – more than one a day on average – were struck.

Some other fixed objects more frequently involved in collisions included 407 poles, 321 other fixed objects⁵, 297 curbs, 292 restraining barriers, 223 trees, brush or hedges, 154 fences, 80 ditches. Except for above mentioned, other objects listed in Table 4 were less frequently involved.

⁵ Includes objects not already identified in MVCIS such as trolley lines.

Table 4: Fixed Objects Involved in Collisions

Fixed Object Type	# Objects	Percent
Post, Sign, Parking Meter	448	18.3%
Pole	407	16.6%
Other Fixed Object	321	13.1%
Curb	297	12.1%
Restraining Barrier	292	11.9%
Tree, Brush, Hedge	223	9.1%
Fence	154	6.3%
Ditch	80	3.3%
Utility Box	53	2.2%
Snow Bank/Drift	52	2.1%
Fire Hydrant	49	2.0%
Bus Shelter	29	1.2%
Building	26	1.1%
Bridge Support	18	0.7%
Culvert	2	0.1%
Total	2,451	

Section 7: Demographic Analysis

The demographic makeup of licensed drivers (as of March 31, 2012) in Edmonton is shown in Figure 8. The graph exhibits 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.

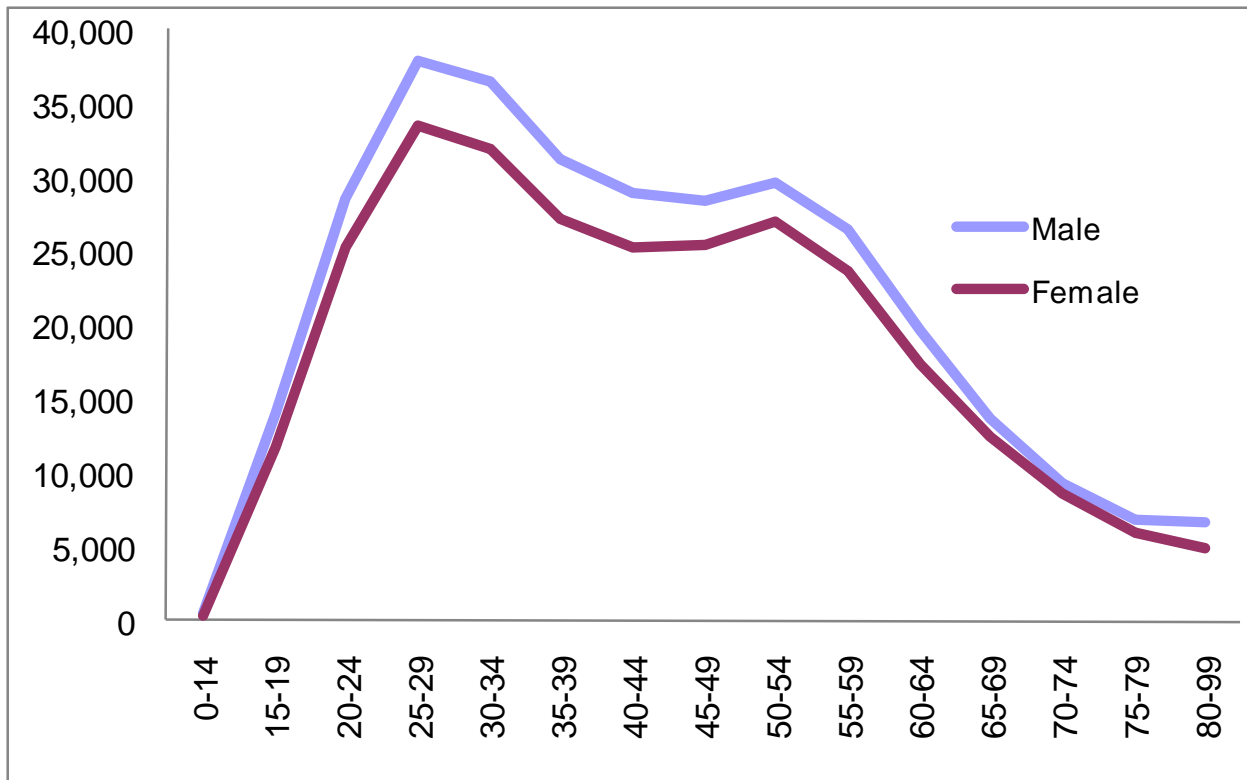


Figure 8: Age and Gender Breakdowns of Licensed Drivers

The demographic profile of drivers deemed at fault in a collision, as shown in Figure 9, is not consistent with the demographic profile. Young drivers were more likely to be deemed at fault for collisions in Edmonton. Drivers aged 15-24 made up 13.3% of Edmonton's licensed drivers in 2012, but were responsible for 24.1% of collisions. By comparison, drivers aged 30-49 constituted 39.2% of all licensed drivers, but were deemed at fault in 36.1% of collisions.

Gender was also a factor in the likelihood of collision involvement. While males made up 53.2% of licensed drivers in Edmonton in 2012, they were deemed at fault in 63.6% of collisions.

Comparing different age/gender groups showed much greater differences between the driving population and the population of at-fault drivers. Males aged 15-19 made up 2.3% of licensed drivers in Edmonton, but accounted for 5.1% of all at-fault drivers in 2012. Expanding the size of the group, males aged 15-24 change make up 7.1% of the licensed driving population but 15.0% of at-fault drivers.

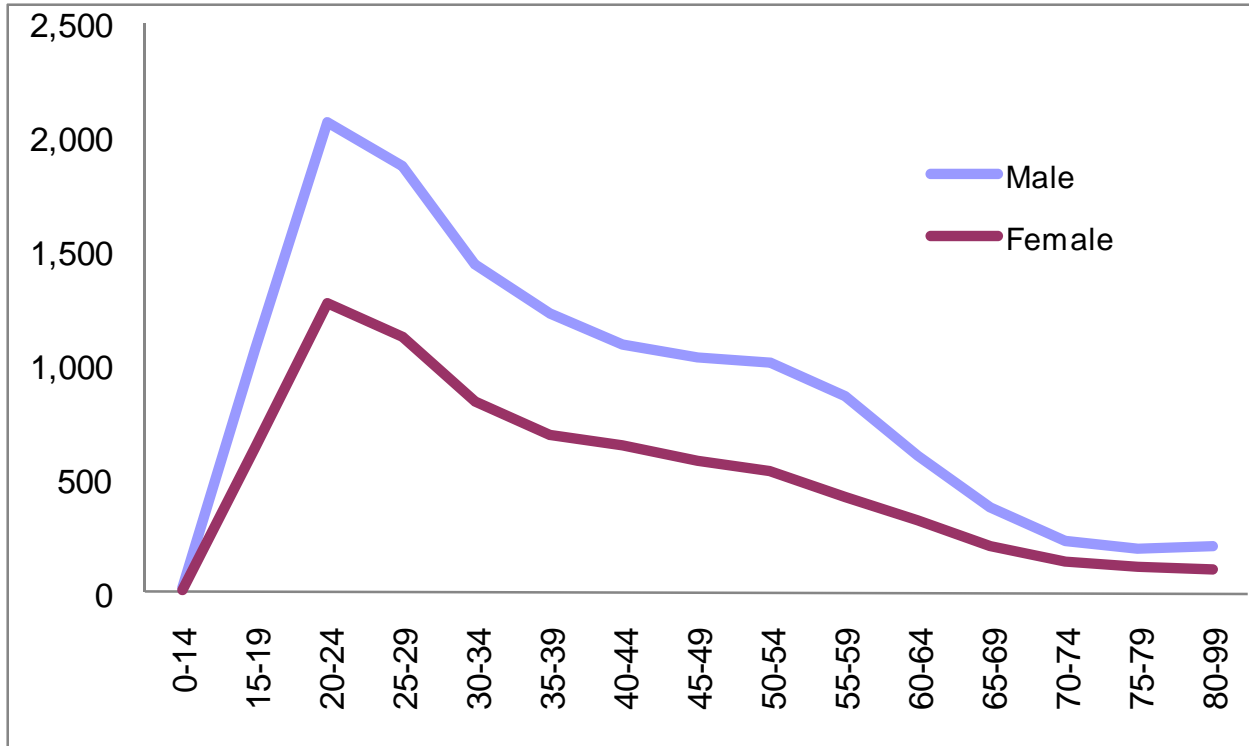


Figure 9: Age and Gender Breakdowns of At-Fault Drivers

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 2012. By comparison, 1 in 19 female drivers aged 15-19 were at-fault in a collision, while the ratio for all licensed drivers at-fault was approximately 1 in 29.

Section 8: Fatal and Injury collisions

In 2012 a total of 4,337 injuries and 27 fatalities resulted from 3,388 collisions. The following section presents detailed information about fatal and injury collisions in 2012.

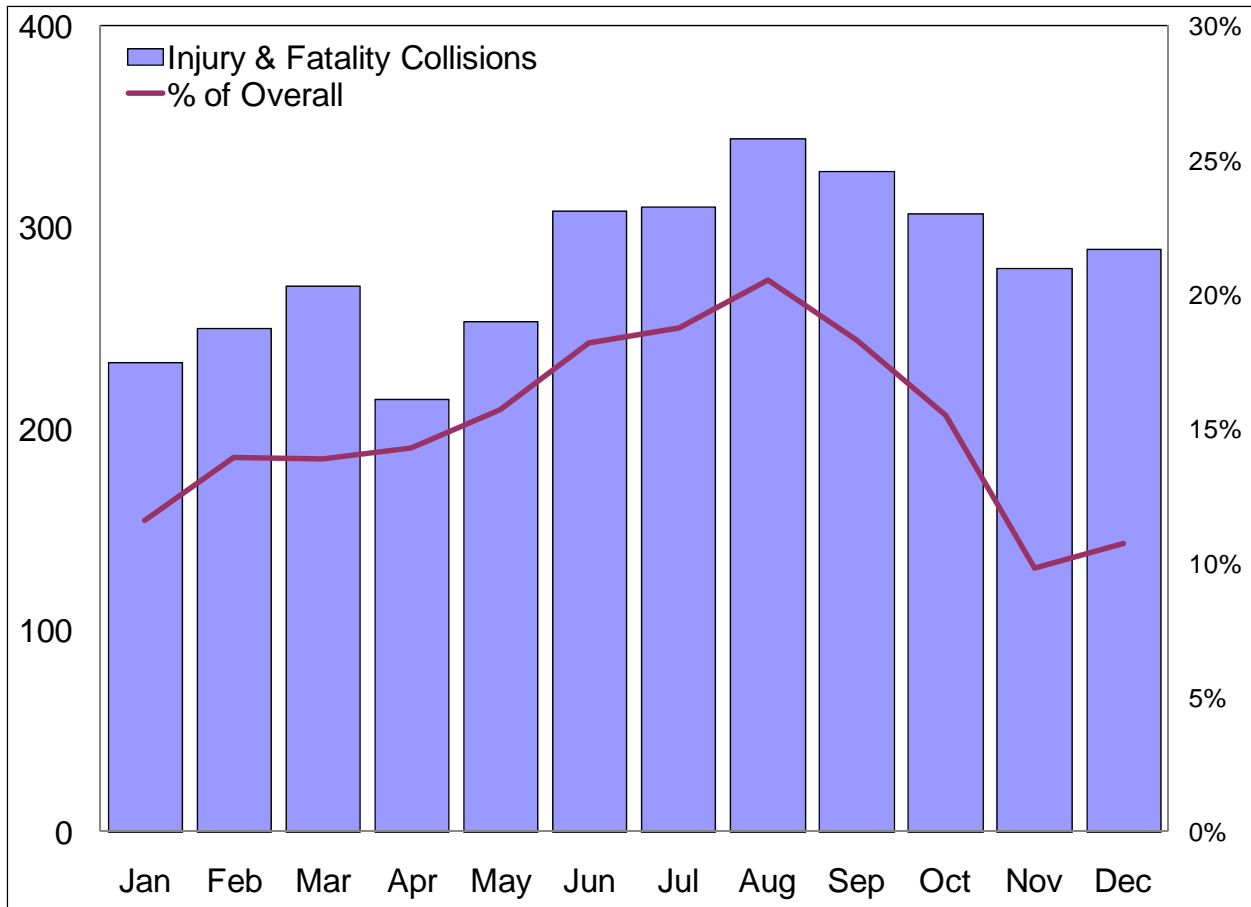


Figure 10: Fatal and Injury Collisions by Month

The number of fatal and injury collisions by month varied from a low of 215 collisions in April to a high of 344 collisions in August. The pattern of fatal and injury collisions did not follow that of collisions overall; Figure 10 indicates that only 9.8% (280) of collisions in November (the month with largest number of total collisions) resulted in fatality or injury, while 20.5% (344) of August collisions resulted in fatality or injury.

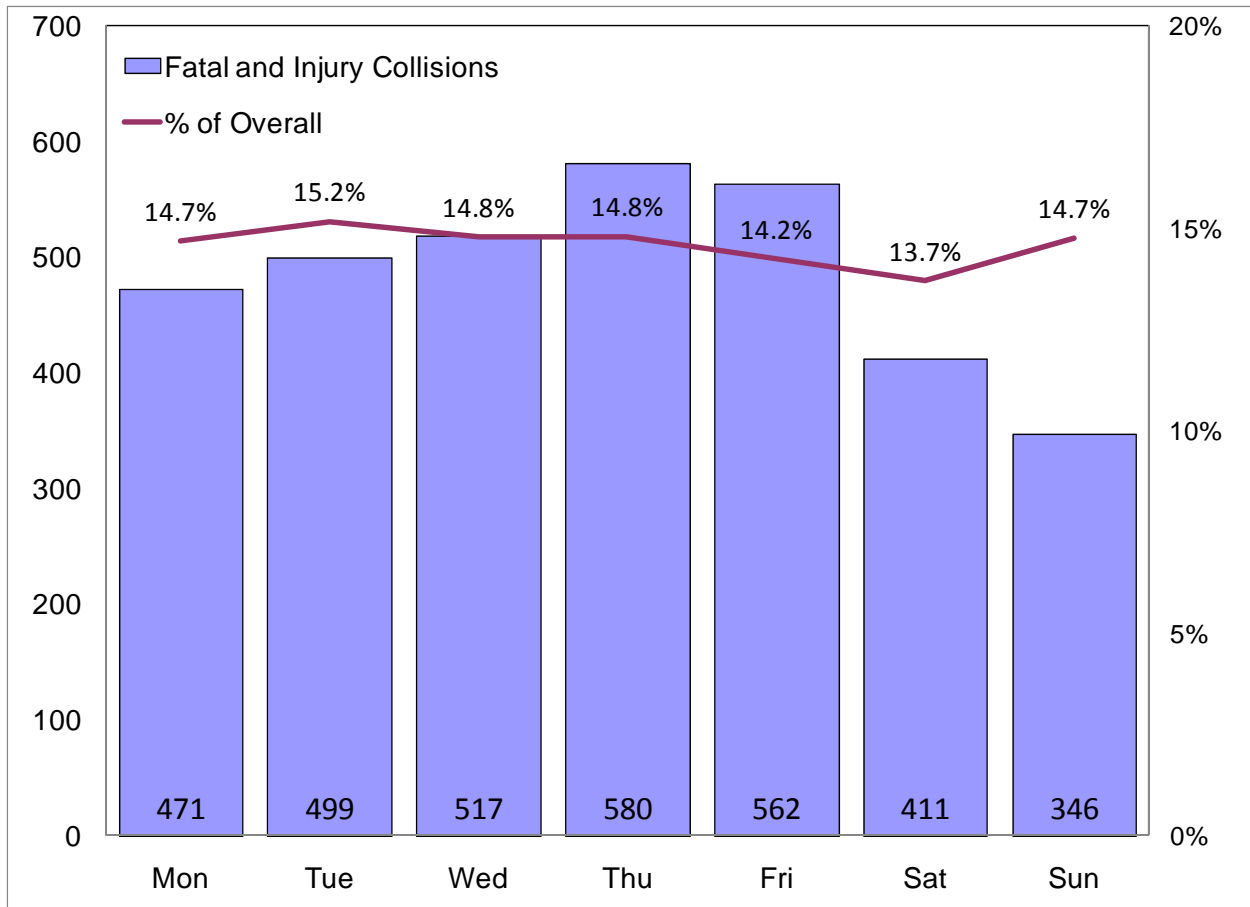


Figure 11: Fatal and Injury Collisions by Day of Week

Figure 11 indicates that Thursday had the highest number of fatal and injury collisions, with 14.8% (580) of all fatal or injury collisions, closely followed by Friday (14.2%, or 562 collisions). By contrast, only 346 (14.7%) fatal or injury collisions occurred on Sunday. The pattern in terms of raw numbers of fatal and injury 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, the pattern in terms of percentages of fatal and injury collisions of the overall collision told different story: there were a proportionately lower number of fatal and injury collisions on Saturdays and Fridays compared to other days of the week.

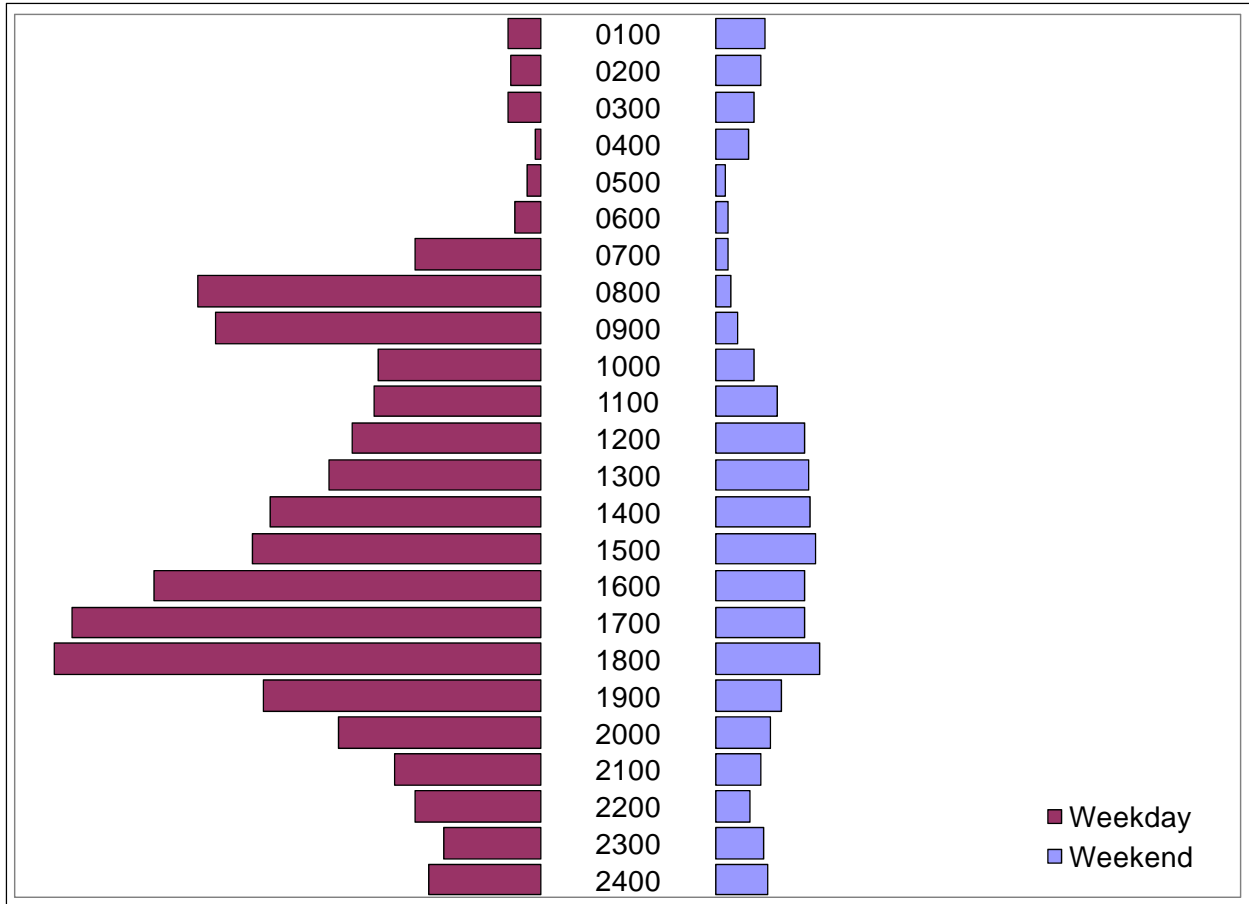


Figure 12: Fatal and Injury Collisions by Hour of Day

Figure 12 shows the profile of fatal and injury collisions by hour of day is similar to the profile of overall collisions. On weekdays, the same morning and evening spikes occurred with fatal and injury collisions; collisions during the morning peak (6:00 - 9:00 AM) accounted for 17.5% (461) of all fatal and injury collisions on weekdays, while the evening peak (3:00 - 6:00 PM) accounted for 29.6% (778) of all fatal and injury collisions.

The profile of fatal and injury collisions on weekends was generally the same as the profile of overall collisions, with a gradual increase during the daytime and a peak between 5:00 - 6:00 PM. Fatal and injury collisions from noon to 6:00 PM made up 43.7% (331) of all weekend fatal and injury collisions.

Fatal and injury collisions are over-represented in the late evening and overnight hours. Collisions between midnight and 5:00 AM accounted for 4.2% of all collisions in 2012, but accounted for 5.0% of all injury and fatal collisions. Of the 168 fatal or injury collisions that occurred between midnight and 5:00 AM, 102 (60.7%) occurred on Saturday or Sunday.

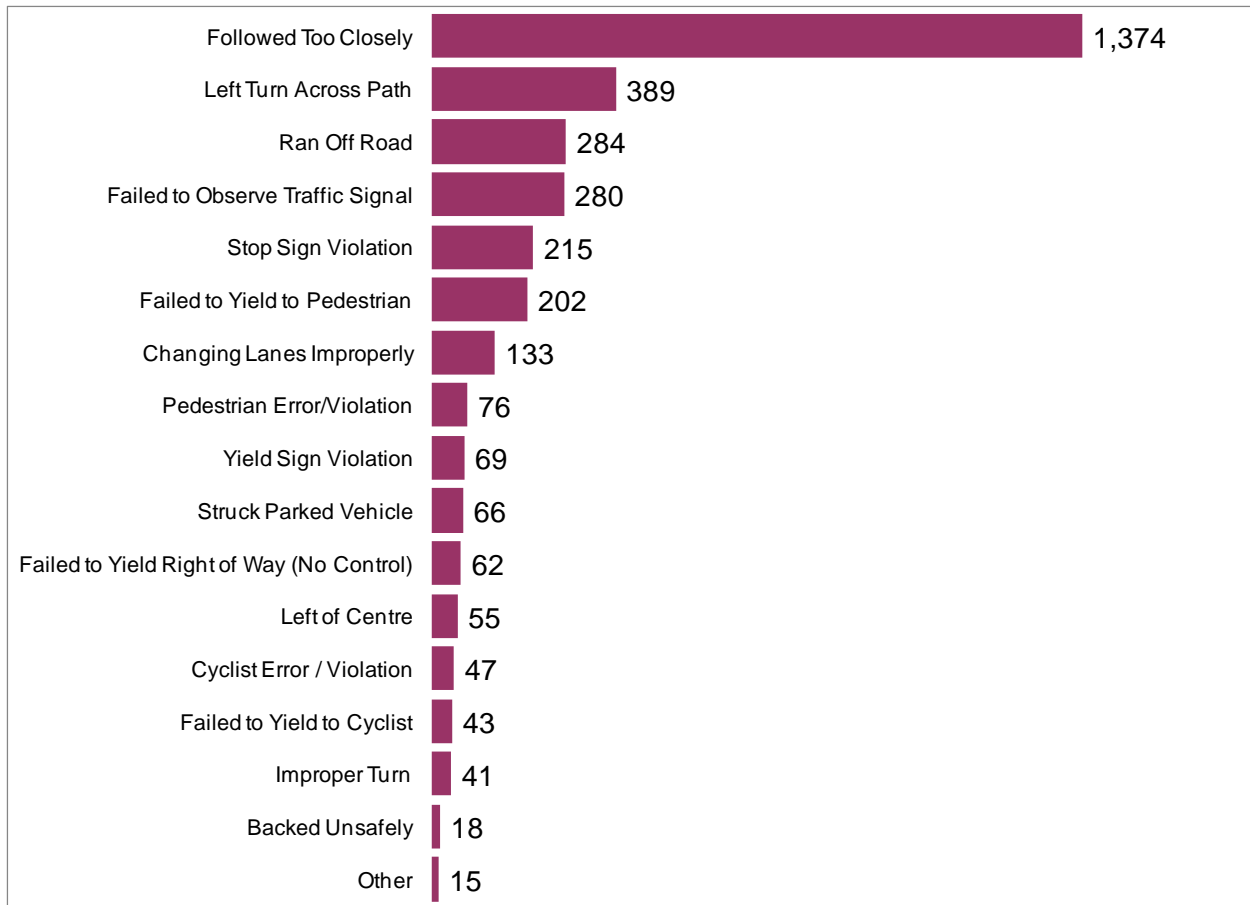


Figure 13: Fatal and Injury Collisions by Cause

As shown in Figure 13, collisions with the reported cause of “followed too closely” made up 40.6% (1,374) of all injury and fatal collisions. Other collision causes with significant injury / fatality counts included left turn across path (11.5%, 389), ran off road (8.4%, 284), and failed to observe traffic signals (8.3%, 280).

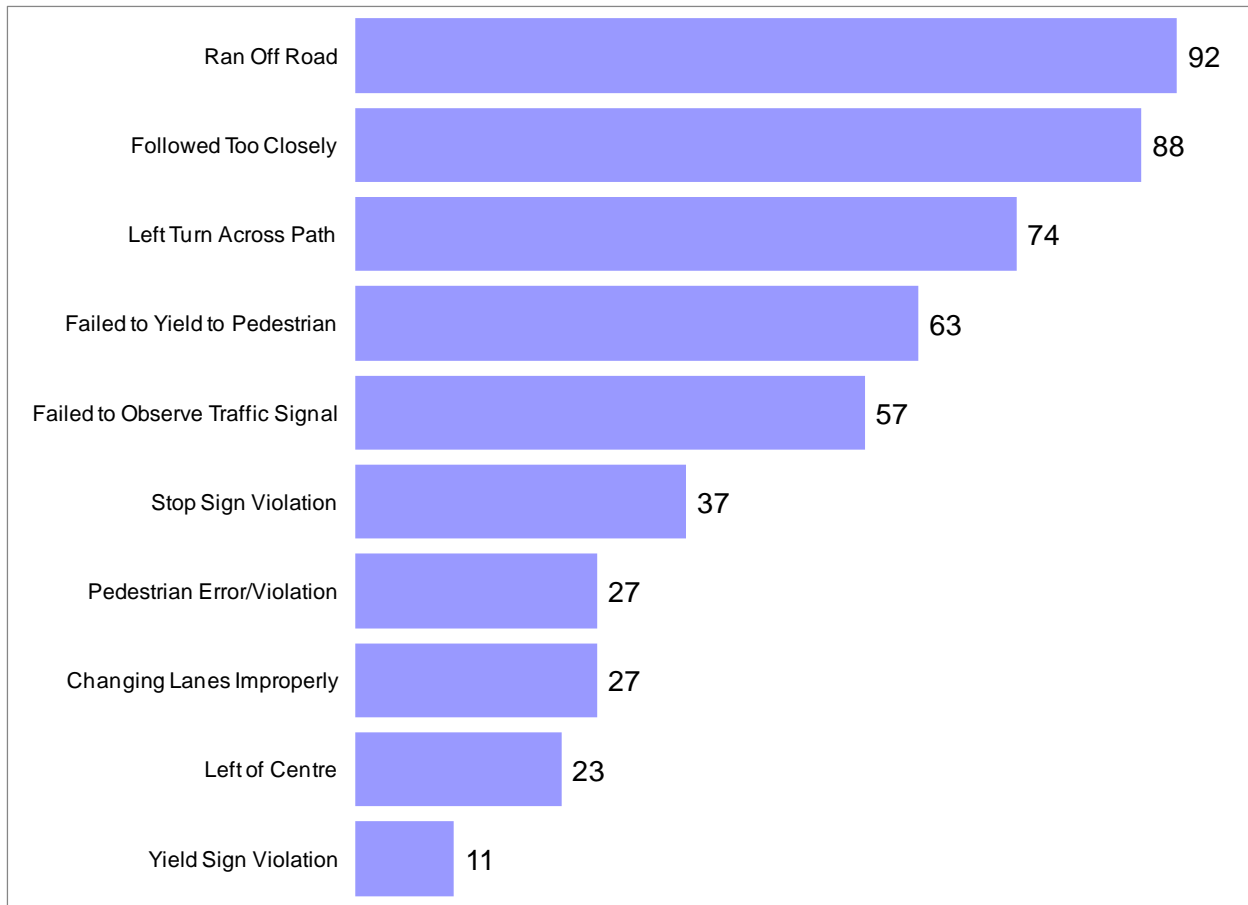


Figure 14: Fatalities and Major Injuries by Cause

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.⁶ Figure 14 displays the number of fatalities and major injuries for a number of collision causes.

Ran off road collisions contributed 16.9% (92) of all fatalities and major injuries. Other common causes of fatalities and major injuries included followed too closely (16.2%, 88), left turn across path (13.6%, 74), and failed to yield to pedestrian (11.6%, 63).

Certain collision causes result in proportionately more fatalities or major injuries when compared to minor injuries. Of the 78 fatalities or injuries resulting from pedestrian error or violation, 34.6% (27) were a fatality or major injury, while 27.2% (92) of the total number of ran off road fatalities and injuries were considered as major injury or fatality. By comparison, there were 88 fatalities and injuries resulting from followed too closely collisions, representing just 5.0% of all followed too closely injuries.

⁶ For a definition of minor and major injuries, please refer to Appendix 1.

Table 5: Fatalities and Injuries by Mode, Severity, and Age Group

Injury Mode	Class	< 14	14-15	16-18	19-24	25-34	35-44	45-54	55-64	65-74	75+	N/A	Total
Vehicle Driver	Minor	1	1	150	484	601	372	339	240	100	67	78	2,433
	Major	0	0	12	46	43	48	45	24	10	10	4	242
	Fatal	0	0	0	4	4	2	0	1	0	0	0	11
Vehicle Passenger	Minor	1	3	69	178	247	146	116	73	40	27	36	936
	Major	0	0	9	28	20	15	21	8	6	2	2	111
	Fatal	0	0	0	1	0	1	0	0	0	1	0	3
Pedestrian	Minor	6	3	3	38	39	25	26	25	16	6	29	216
	Major	4	1	5	9	16	11	12	10	7	2	9	86
	Fatal	0	0	1	1	0	1	0	1	0	2	2	8
Cyclist	Minor	7	2	8	20	23	16	24	19	6	4	16	145
	Major	1	0	0	5	5	4	6	4	2	1	3	31
	Fatal	0	0	0	1	0	0	0	0	0	0	0	1
Motorcyclist	Minor	0	0	1	20	25	18	7	10	1	1	3	86
	Major	0	0	1	8	12	6	3	6	2	1	1	40
	Fatal	0	0	0	2	2	0	0	0	0	0	0	4
Unknown	Minor	0	0	0	2	0	0	0	1	0	0	0	3
	Major	0	0	0	2	4	1	0	0	0	0	0	7
Other	Minor	0	0	0	1	0	0	0	0	0	0	0	1
All Modes	Minor	15	9	231	743	935	577	512	368	163	105	162	3,820
	Major	5	1	27	98	100	85	87	52	27	16	19	517
	Fatal	0	0	1	9	6	4	0	2	0	3	2	27

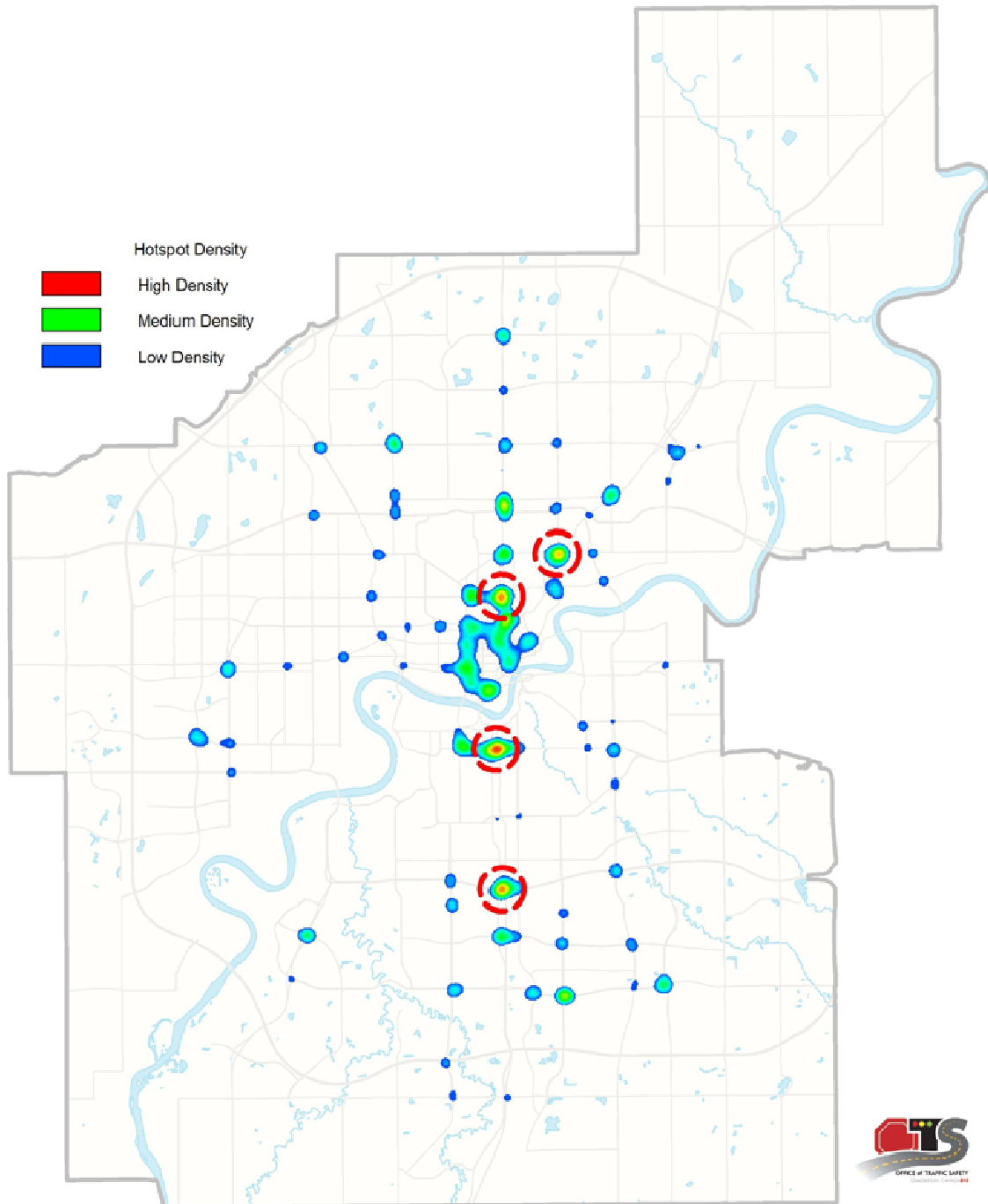
A summary of all fatalities and injuries is presented in Table 5, broken out by age group and injury class. The largest number of fatalities and injuries were sustained by vehicle drivers, followed by vehicle passengers. Most fatalities and injuries to children 14 and under were sustained while they were pedestrians. Most fatalities and injuries to adolescents 16-18 were caused while they were driving or as passengers in a vehicle.

Among vehicle drivers, there were 2,686 fatalities or injuries in 2012, a rate of 4.5 per 1,000 licensed drivers in Edmonton and 0.42 fatalities or major injuries per 1,000 licensed drivers. However, these figures increase to 9.9 fatalities or injuries per 1,000 licensed drivers and 0.93 fatalities or major injuries per 1,000 licensed drivers aged 19-24. Among those drivers aged 75 and over, the 3.2 fatalities or injuries per 1,000 licensed drivers, 0.41 fatalities or major injuries per 1,000 licensed drivers are lower than the overall rates respectively.

Table 6: Fatalities and Injuries by Mode and Traffic Control

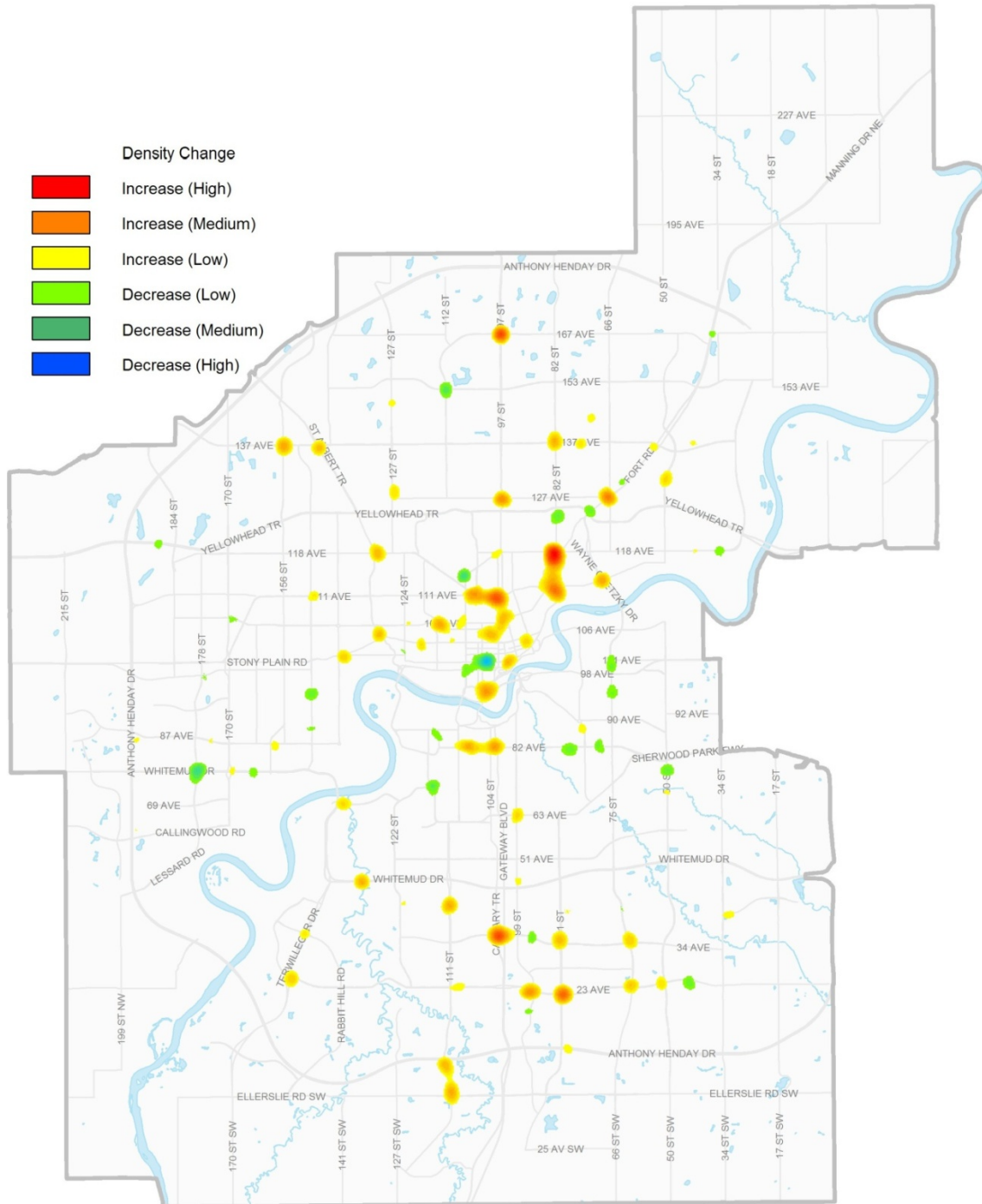
	Vehicle Driver	Vehicle Passenger	Pedestrian	Cyclist	Motor cyclist	Unknown	Other	Total
Construction	9	0	1	0	2	0	0	12
Flagman	0	0	2	0	0	0	0	2
Marked Pedestrian Crosswalk	52	27	46	12	4	3	0	144
Merge Sign	4	1	0	0	0	0	0	5
No Control	947	365	127	73	82	5	1	1,600
One Way Sign	8	1	0	0	0	0	0	9
Pedestrian-Actuated Signal	35	18	5	2	0	0	0	60
Pedestrian Amber Flasher	6	2	8	2	0	0	0	18
Police Control	2	0	0	0	0	0	0	2
Rail Crossing	5	2	0	1	1	0	0	9
Signal Light	1,108	454	88	54	27	2	0	1,733
Stop Sign	221	83	24	26	11	0	0	365
Warning / Advisory Light	1	1	0	0	0	0	0	2
Yield Sign	288	96	9	7	3	0	0	403
Total	2,686	1,050	310	177	130	10	1	4,364

Table 6 breaks down fatalities and injuries by the type of traffic control present. Collisions where the traffic control was a signal light made up 39.7% (1,733) of all fatalities and injuries, followed by no control, which includes both intersections that have no traffic control and midblock segments (36.7%, 1,600) and yield signs (9.2%, 403). Among the three standalone pedestrian crosswalk controls (as opposed to crosswalks that are part of intersection traffic signals), the fewest fatalities and injuries occurred at crosswalks with amber crossing lights (0.4%, 18), followed by standalone pedestrian crossings with full actuated signals (1.4%, 60), and finally marked crosswalks with no signals (3.3%, 144). Nine injuries occurred at rail crossings.



Map 2: Density Map of Fatal and Injury Collisions





Map 2 highlights locations with higher concentrations of fatal and injury collisions in 2012. Fatal and injury 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. Some fatal and injury hot spots in 2012 included: Whyte Avenue (82 Avenue) & 104 Street/Gateway Boulevard, Whitemud Drive & Calgary Trail/Gateway Boulevard, 111 Avenue & 101 Street/97 Street and 118 Avenue & 82 Street.

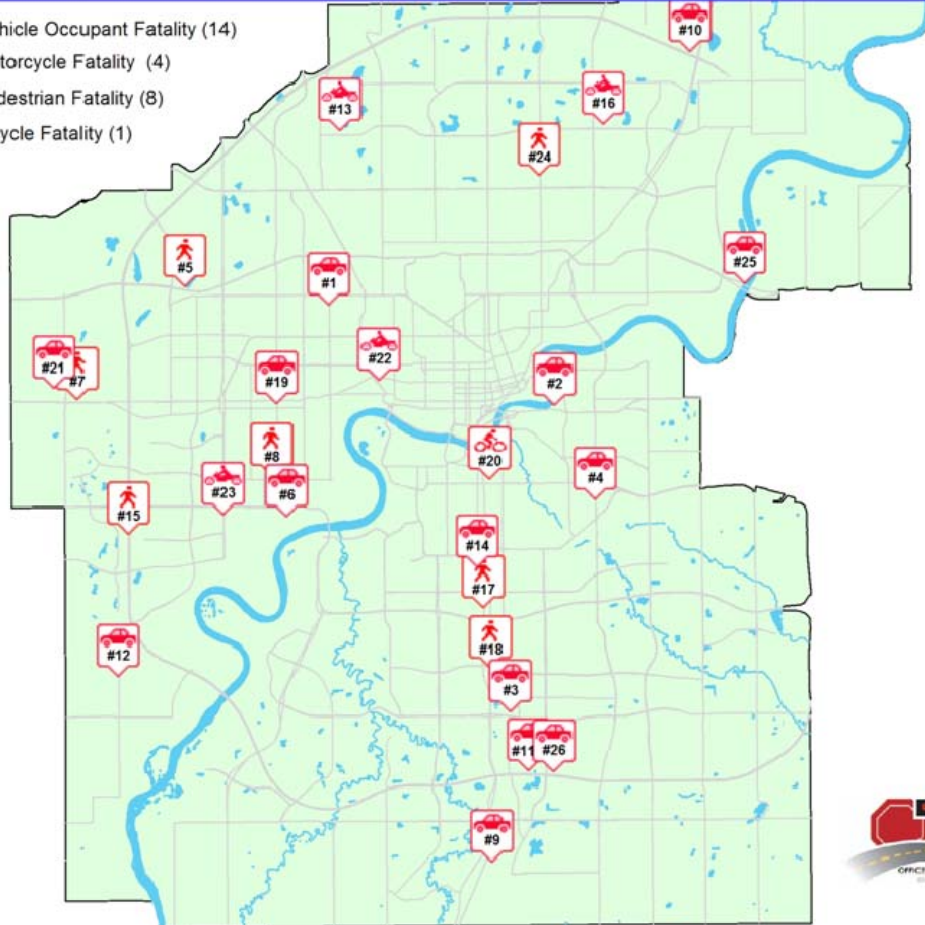


Map 3: Density Changes in Fatal and Injury Collisions from 2011 to 2012

Map 3 illustrates where the largest increases or decreases in fatal and injury collisions occurred between 2011 and 2012. The intersections of 118 Avenue & 82 Street, 111 Avenue & 97 Street and 34 Avenue & Calgary Trail/Gateway Boulevard saw the largest increases, while the largest decreases happened in the downtown area close to Jasper Avenue & 105 Street, intersection of Whitemud Drive & 178 Street and 82 Street south of Yellowhead Trail.

#1 Jan.15 - N. of 116 Av & 142 St	#11 Apr.27 - W. of A.Henday Dr & 91 St	#21 Sep.12 - 103 Av & 218 St
#2 Jan.17 - W. of 98 Av & 85 St	#12 May.16 - N. of 23 Av & 199 St	#22 Sep.16 - Groat Rd N. of 102 Av
#3 Feb.2 - 23 Av & 98 St	#13 May.21 - 153 Av & 139 St	#23 Sep.26 - N. of 69 Av & 170 St
#4 Mar.8 - 76 Av & 75 St	#14 Jun.9 - N. of 55 Av & Calgary Tr	#24 Oct.14 - N. of 137 Av & 82 St
#5 Mar.15 - W. of 118 Av & 178 St	#15 Jun.13 - N. of 62 Av & A.Henday Dr	#25 Oct.15 - Beverly Bridge
#6 Mar.18 - W. of 76 Av & 154 St	#16 Jul.8 - W. of 153 Ave & 59A St	#26 Oct.25 - A.Henday Dr E. of 91 St
#7 Mar.22 - E. of Stony Plain Rd & 215 St	#17 Jul.11 - N. of 45 Av & Calgary Tr	
#8 Mar.24 - 87 Av & 156 St	#18 Jul.16 - N. of 31 Av & Gateway Blvd	26 fatal collisions causing
#9 Mar.28 - N. of 30 Av & 101 St	#19 Aug.6 - 100 Av & 156 St	27 fatalities (#17 involved
#10 Apr.6 - A.Henday Dr & Manning Dr	#20 Aug.27 - W. of 82 Av & 101 St	two pedestrian fatalities)

-  Vehicle Occupant Fatality (14)
-  Motorcycle Fatality (4)
-  Pedestrian Fatality (8)
-  Bicycle Fatality (1)



Map 4: Fatality Locations

Among 14 vehicle occupancy fatalities, as shown in Map 4, there were 11 drivers and 3 passengers. Map 4 indicates locations with fatal collisions in 2012. All fatalities in 2012 happened outside of the central downtown area. Among them, 10 fatal collisions, including four pedestrian fatalities, occurred in the area west of downtown and north of Saskatchewan River. As well, the area from 82 Avenue to Whitemud Drive, bordered by Calgary Trail/Gateway Boulevard and 91 Street saw 8 fatalities from 7 collisions, including three pedestrian fatalities.

Section 9: Vulnerable Road User Collisions

Section 9.1: Pedestrian Collisions

In 2012 there were 296 collisions involving pedestrians, resulting in 8 pedestrian fatalities and 302 injuries.

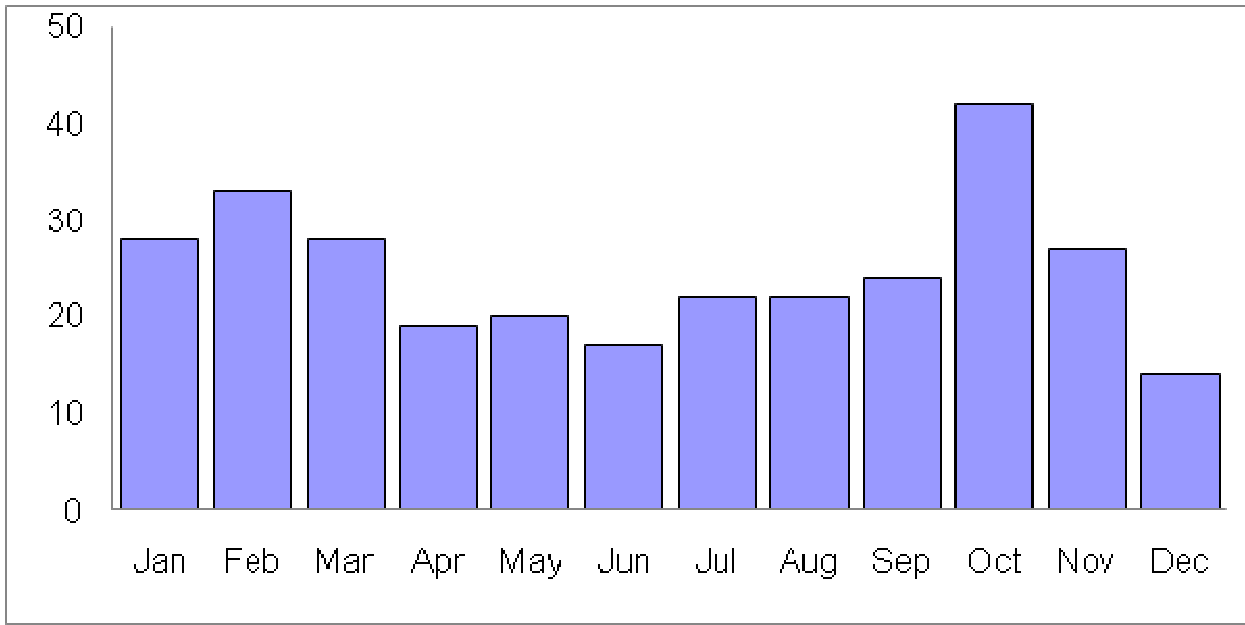


Figure 15: Pedestrian Collisions by Month

Pedestrian collisions occurred throughout the year but were most prevalent in the fall and winter months, the highest number of collisions occurred in October (42). Fewer collisions occurred in the spring and summer months, with June's 17 pedestrian collisions being the lowest monthly total in spring and summer months.

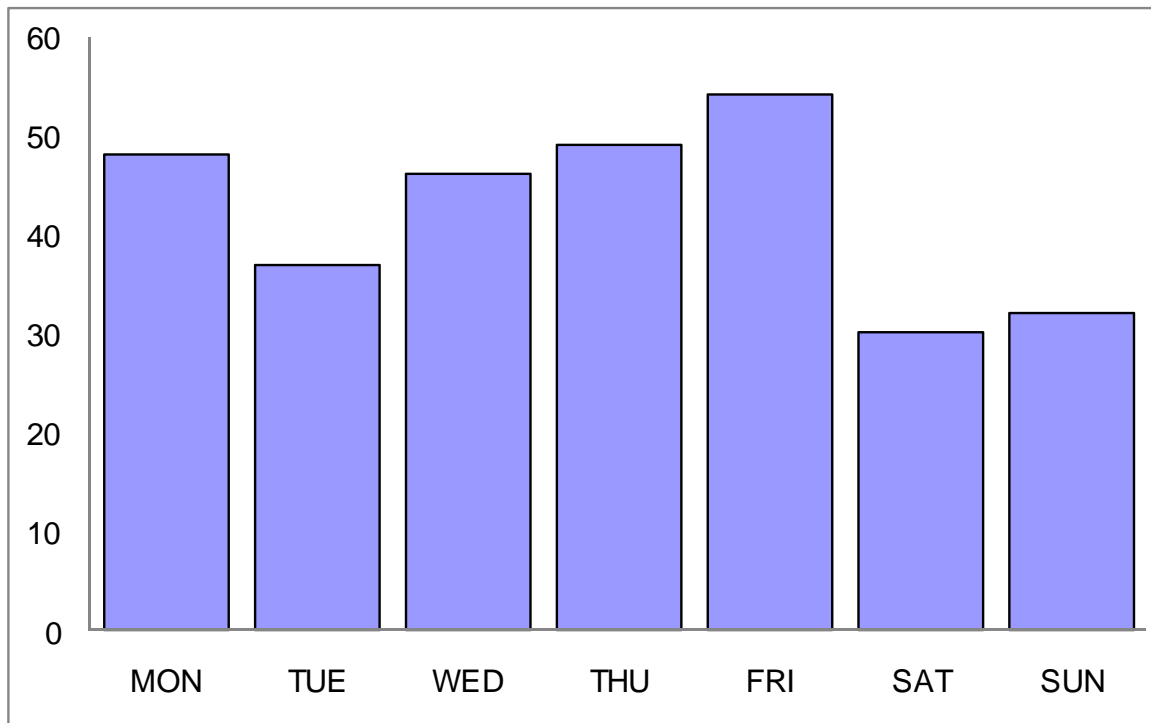


Figure 16: Pedestrian Collisions by Day of Week

Pedestrian collisions were more likely to occur on Fridays, as shown as Figure 16 (54, 18%).

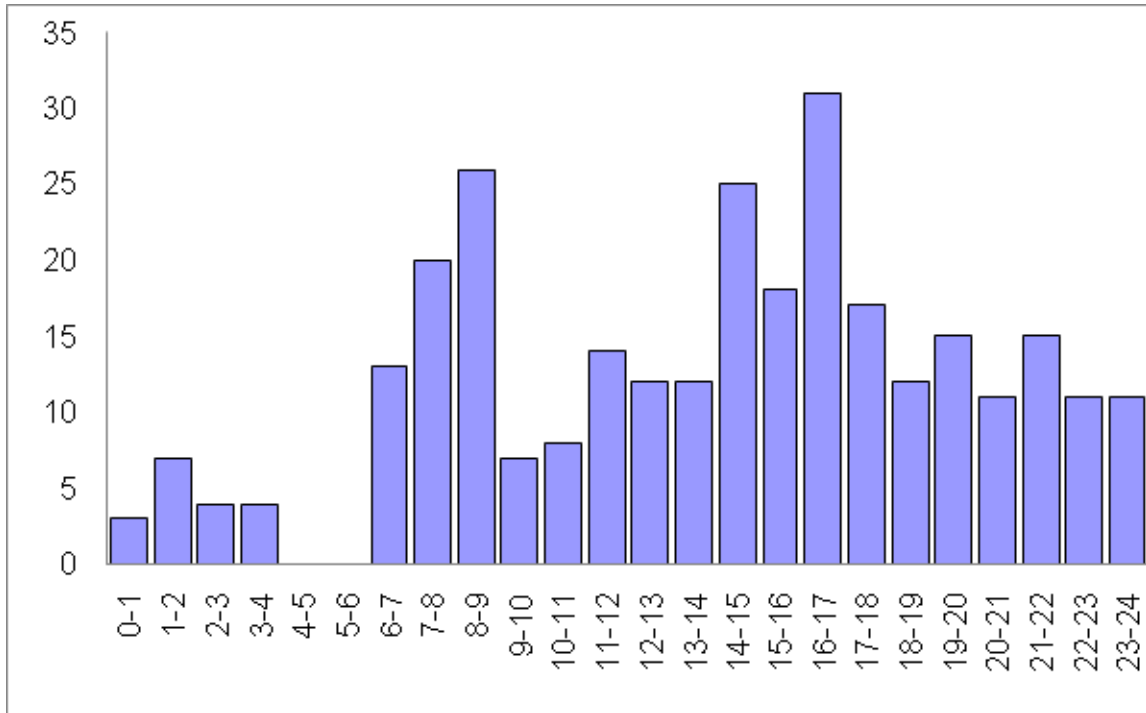


Figure 17: Pedestrian Collisions by Hour of Day

Figure 17 reveals more pedestrian collisions occurred between 8:00 - 9:00 AM (26, 9%) and 4:00 - 5:00 PM (31, 11%).

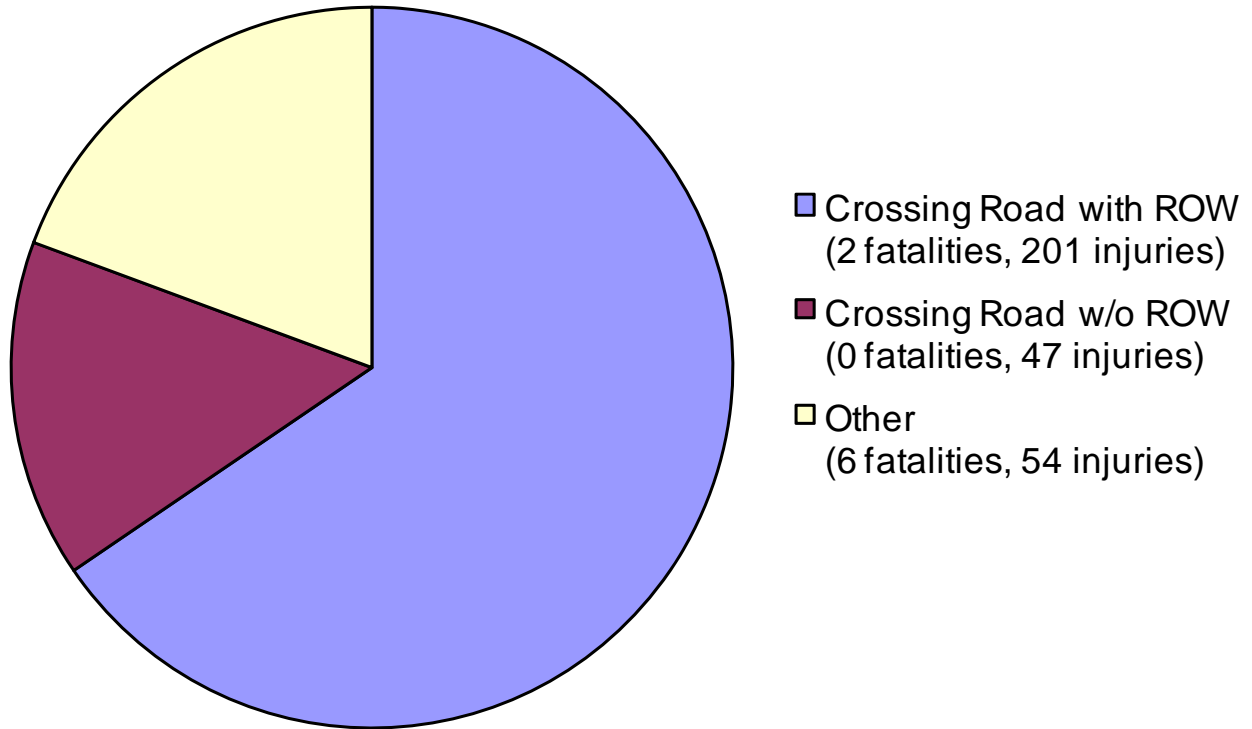


Figure 18: Action of Pedestrians Involved in Collisions

As shown in Figure 18, 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 65% (203) of all pedestrian fatalities and injuries. 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 15% (47) fatalities and injuries. Other actions – including running on the roadway, working on the roadway and entering or exiting vehicles – made up 19% (60) of pedestrian fatalities and injuries.

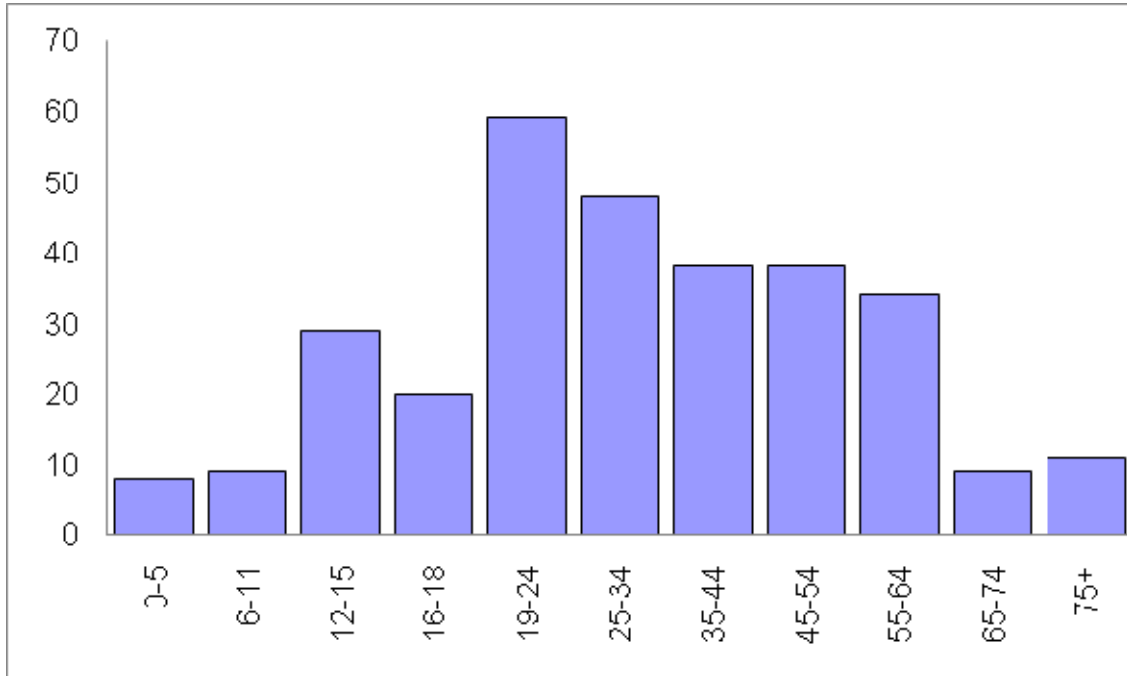


Figure 19: Age of Pedestrian Fatalities and Injuries

Figure 19 shows a total of 35% (107) of pedestrians involved in collisions were between the ages of 19 and 34. Children 18 and younger made up 21% (66) of pedestrians involved in collisions while those aged 65 and older constituted 7% (20) of overall pedestrian fatalities and injuries.

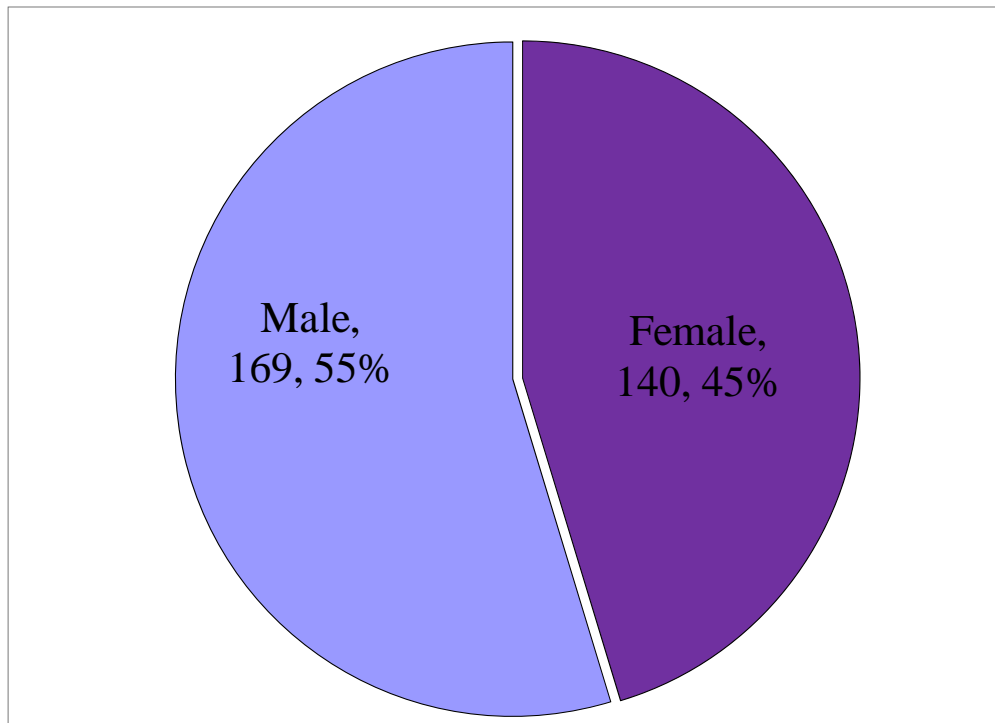


Figure 20: Gender of Pedestrian Fatalities and Injuries

Male pedestrians were slightly more likely to be injured or killed than females, shown as Figure 20 (55% vs. 45%).

Section 9.2: Cyclist Collisions

In 2012 there were 177 collisions involving cyclists, which resulted in 1 fatality and 176 injuries.

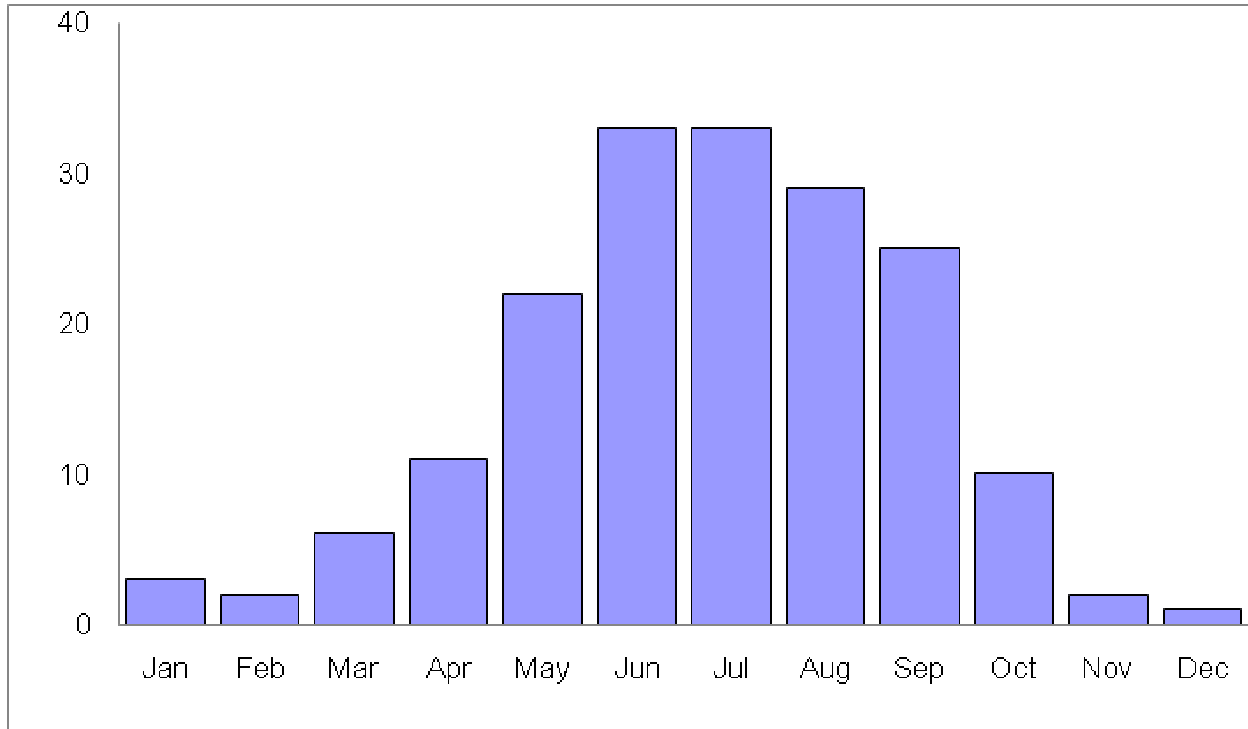


Figure 21: Cyclist Collisions by Month

There were collisions involving cyclists in every month of 2012, as illustrated in Figure 21, although most collisions occurred in the spring, summer, and fall months when more cyclists are on the road. The number of collisions peaked at 33 each month in June and July, compared to 11 collisions in total from January to March.

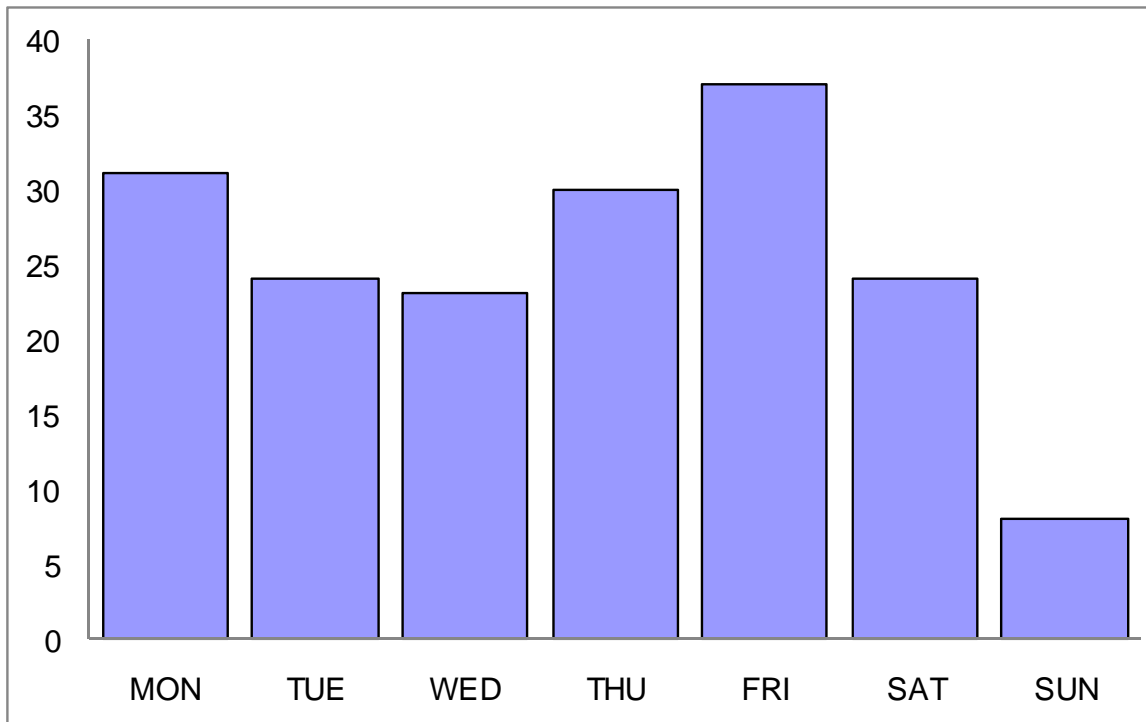


Figure 22: Cyclist Collisions by Day of Week

Figure 22 indicates cyclist collisions were more likely to occur on Fridays (37, 21%).

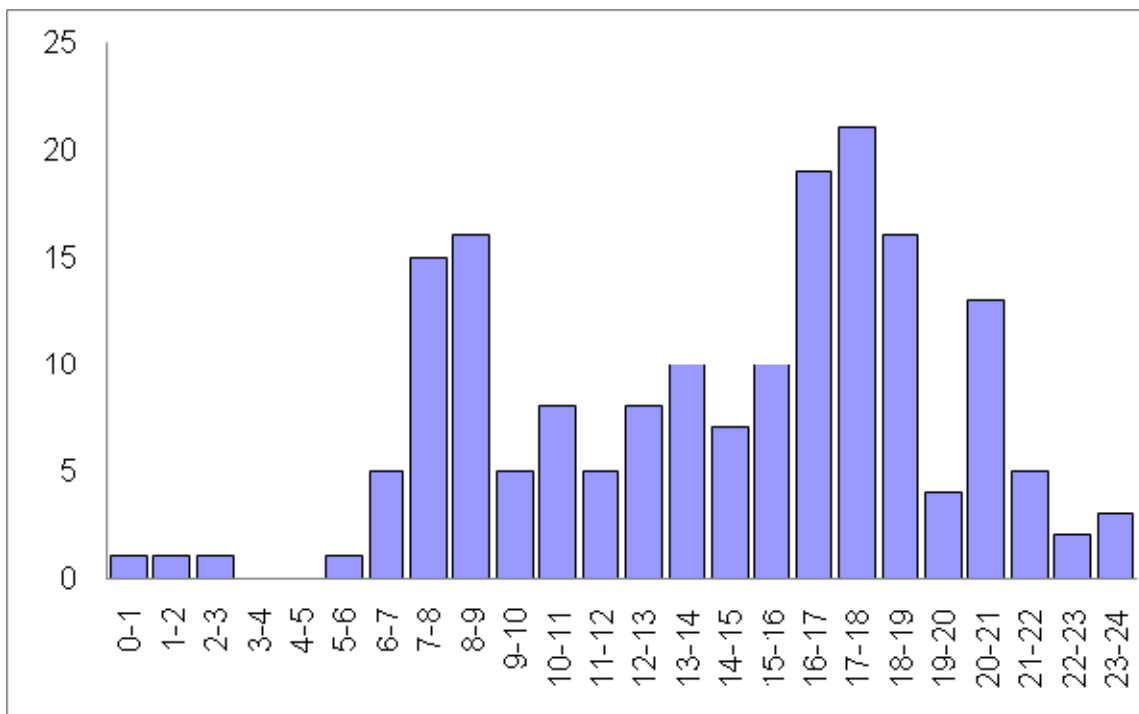


Figure 23: Cyclist Collisions by Hour of Day

Figure 23 shows more cyclist collisions occurred between 8:00 - 9:00 AM (16, 9%) and 5:00 - 6:00 PM (21, 12%), reflecting peak traffic hours.

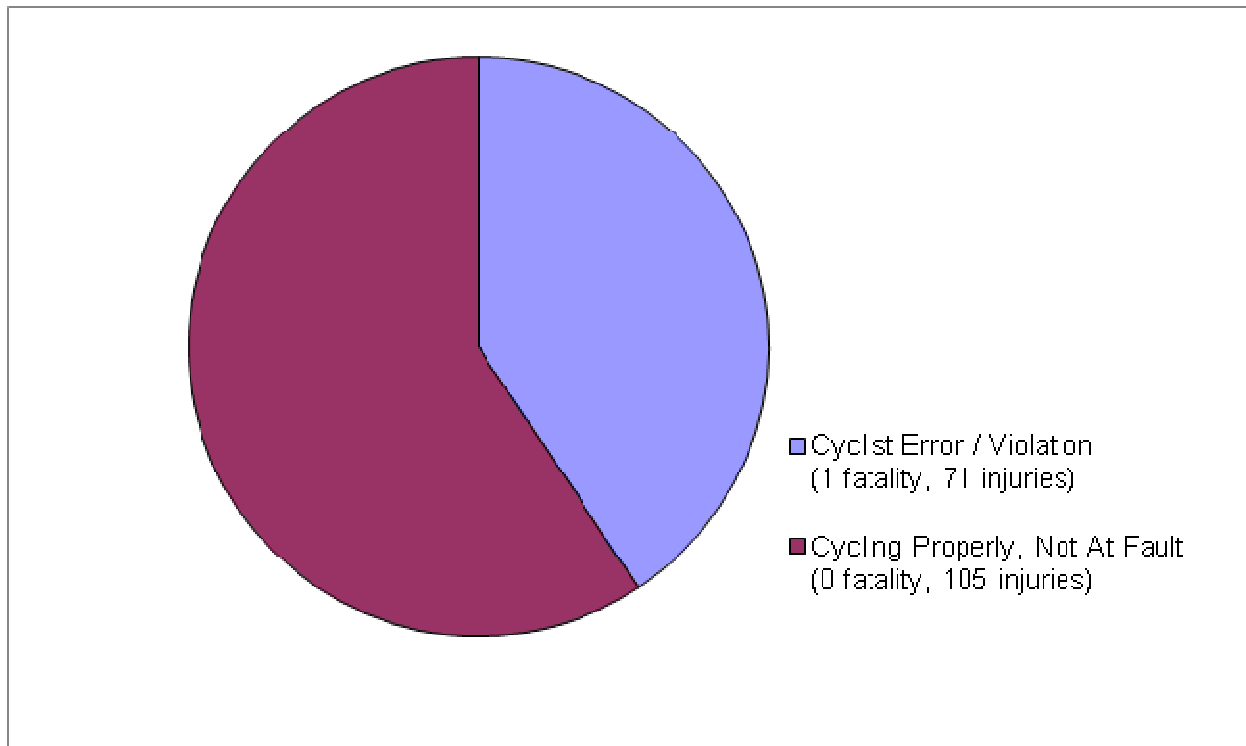


Figure 24: Action of Cyclists Involved in Collisions

Of the 177 cyclists involved in collisions, as shown in Figure 24, 59% (105) were deemed to be not at fault in the collision. Cyclists who were deemed to have committed errors or violations made up 41% (72) of collisions. In the one fatal collision, which occurred at a midblock, the cyclist was deemed at fault.

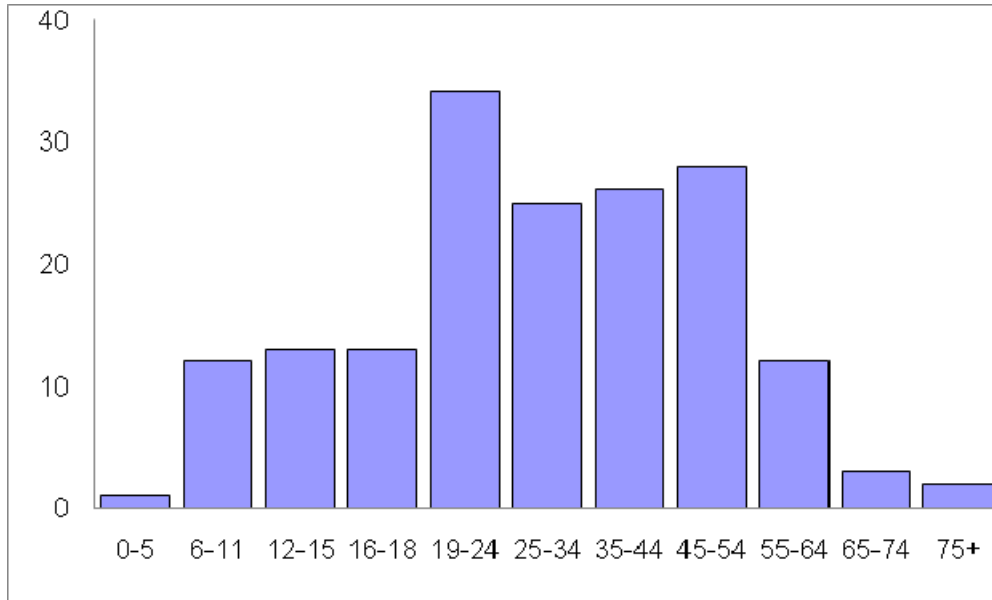


Figure 25: Age of Cyclist Fatalities and Injuries

A total of 22% (39) of cyclists involved in collisions were 18 or younger, concluded from Figure 25, while the 19-24 year old age group was involved in 19% (34) of collisions. The one fatal collision involved a cyclist in the 19-24 age group.

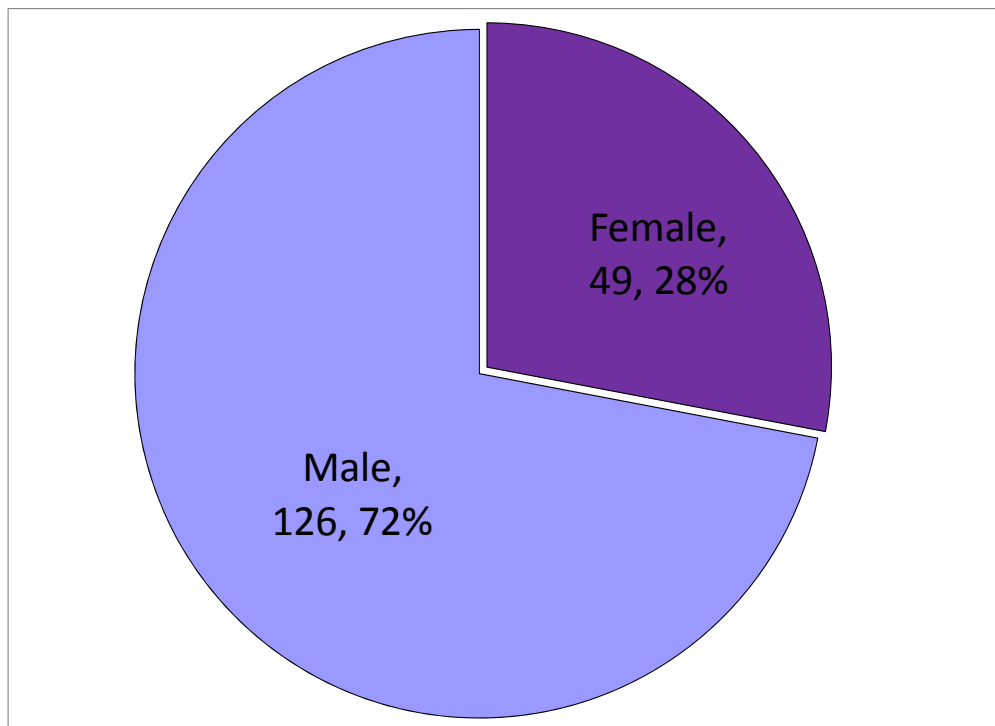


Figure 26: Gender of Cyclist Fatalities and Injuries

Figure 26 shows that males are over-represented in cyclist collisions where the cyclist is injured or killed (male: 126 (72%) vs. female: 49 (28%)).

Section 9.3: Motorcyclist Collisions

In 2012 there were 157 collisions involving motorcycles⁷, resulting in 4 fatalities and 126 injuries. The following information relates to the 123 collisions in which motorcyclists were injured or killed.

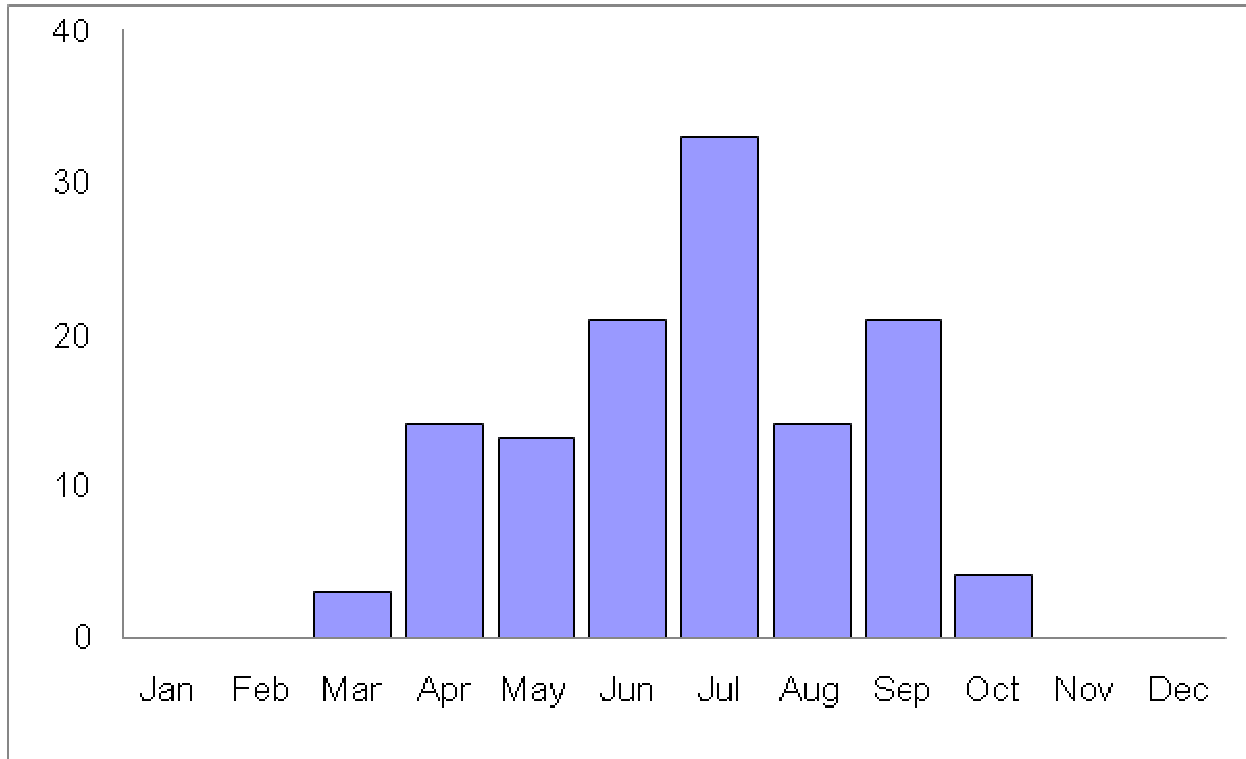


Figure 27: Motorcyclist Fatal and Injury Collisions by Month

Figure 27 reveals that there were no motorcyclist collisions resulting in a fatality or injury from January to February or from November to December. The most common month for fatal or injury collisions was July (27%, 33).

⁷ The figure of 157 collisions includes 4 collisions where the motorcycle was struck while legally parked and unattended.

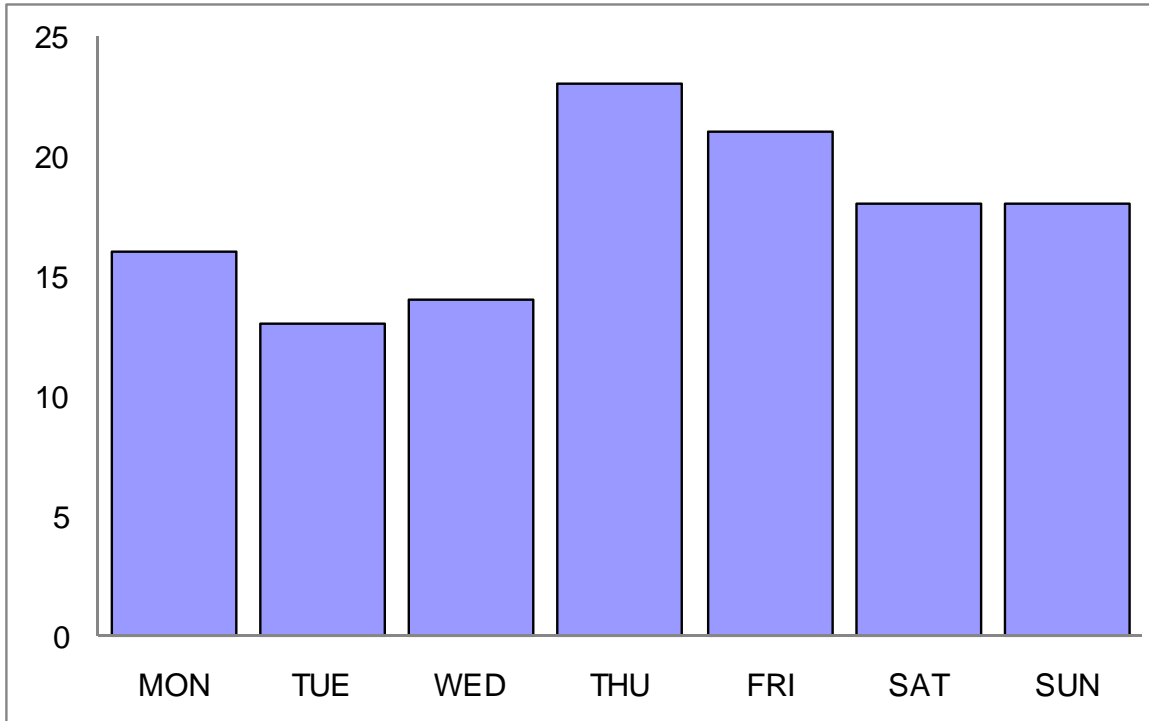


Figure 28: Motorcyclist Fatal and Injury Collisions by Day of Week

Figure 28 shows that a higher number of motorcyclist fatal & injury collisions occurred on Thursdays (23, 19%).

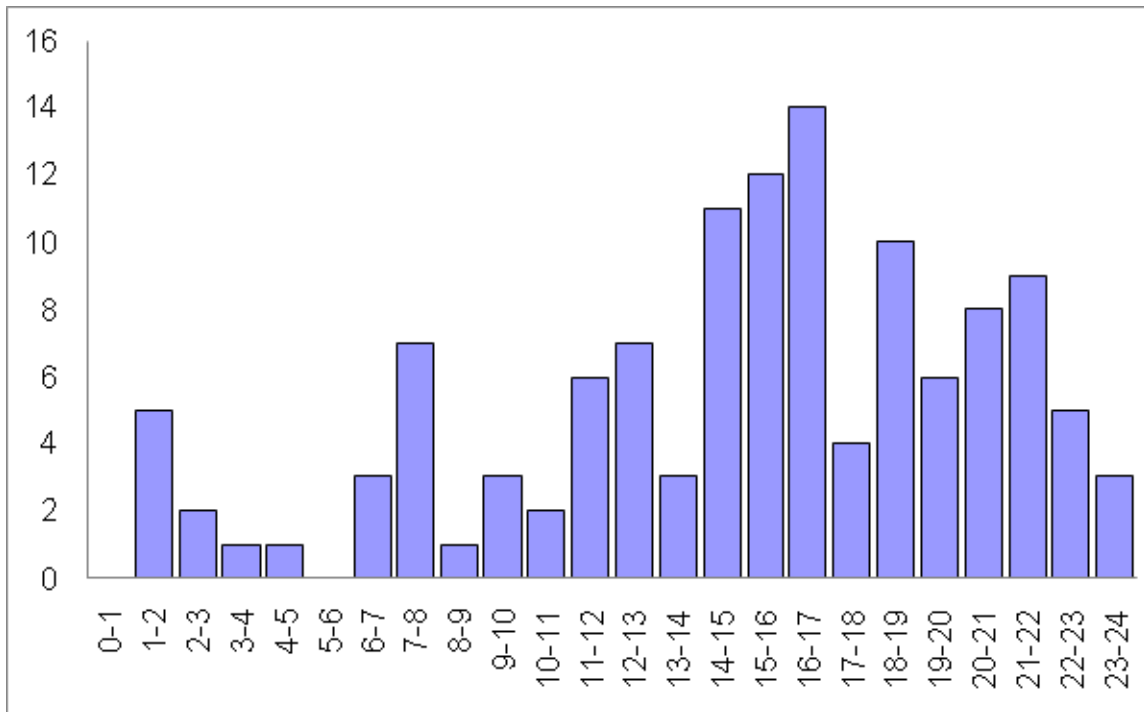


Figure 29: Motorcyclist Fatal and Injury Collisions by Hour of Day

Figure 29 further shows that more motorcyclist fatal and injury collisions occurred between 4:00 - 5:00 PM (14, 9%).

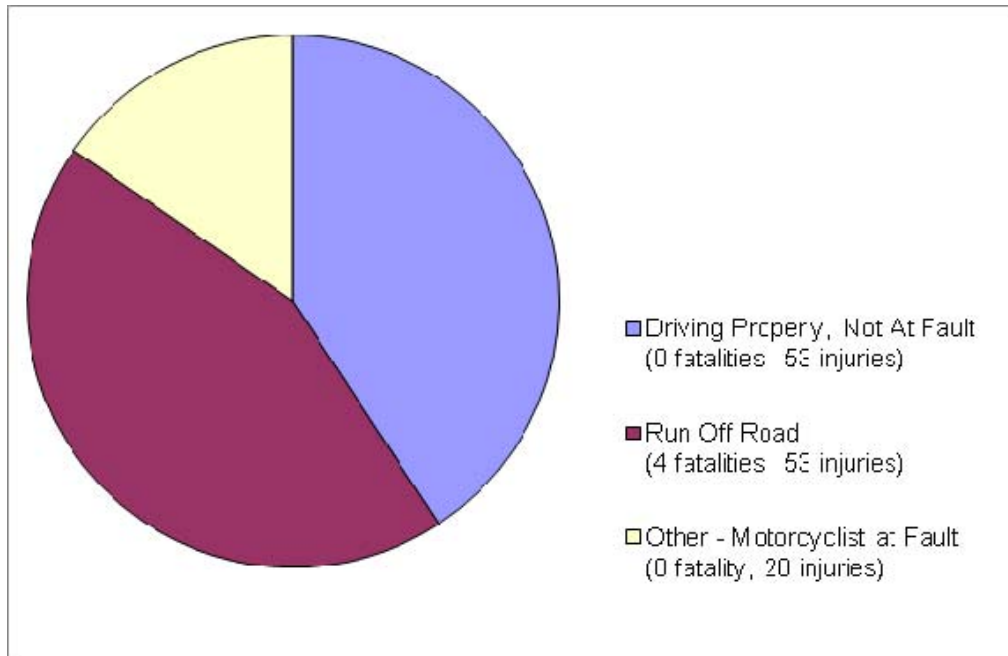


Figure 30: Action of Motorcyclist Fatalities and Injuries in Collisions

Figure 30 reveals motorcyclists who were driving properly and deemed not at fault made up 41% (53) of motorcyclist fatalities and injuries. The remaining 59% (77) of fatalities and injuries occurred in collisions where the motorcyclist was deemed to be at fault. Among these at-fault collisions, the most common collision cause was ran off road, which was the reported cause for 44% (57) of all motorcyclist fatalities and injuries.

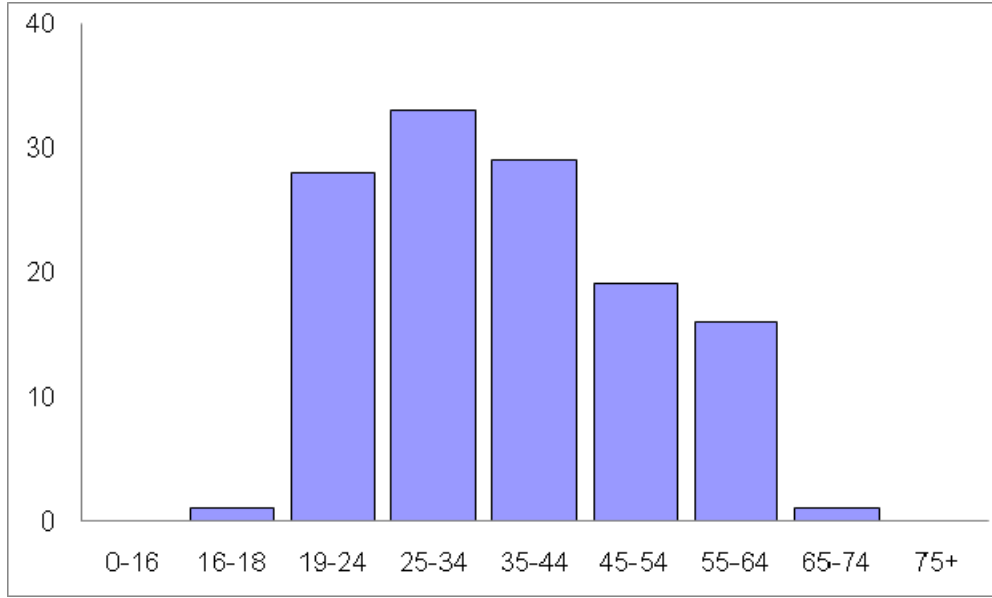


Figure 31: Age of Motorcyclist Fatalities and Injuries

Figure 31 reveals that riders aged 25-34 made up 25% (33) of all motorcyclist fatalities and injuries in 2012, followed by the 35-44 age group (22%, 29). The four motorcyclist fatalities in 2012 ranged in age from 19 to 34.

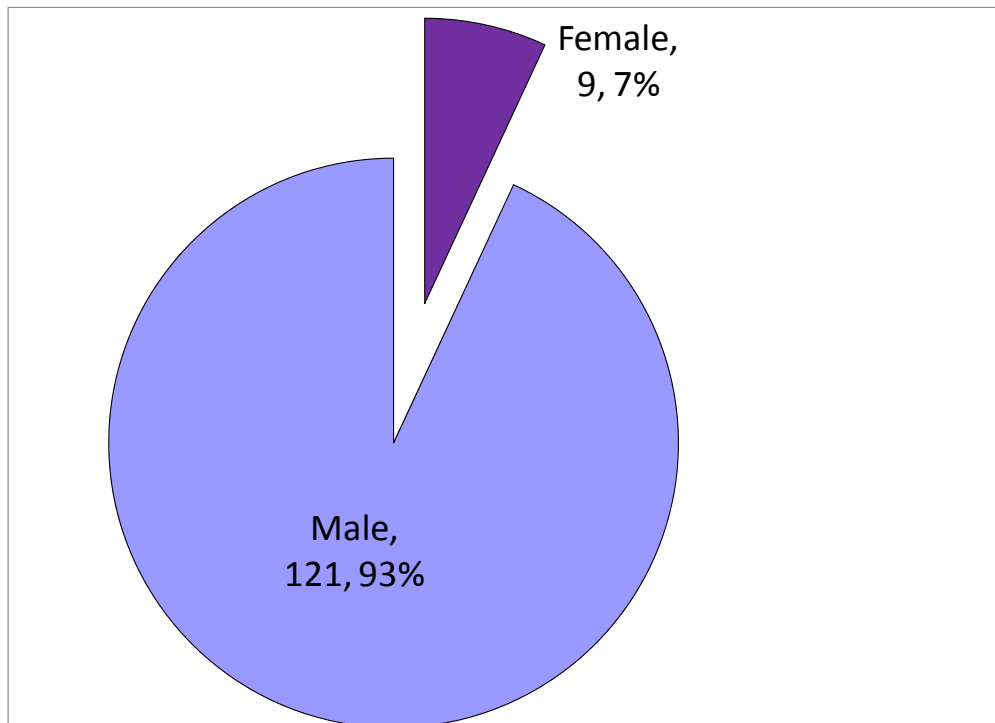


Figure 32: Gender of Motorcyclist Fatalities and Injuries

As is clearly indicated by Figure 32, similar to cyclists, males are over-represented in motorcyclist fatalities and injuries (male: 121 (93%) vs. female: 9 (7%)).

Appendix 1: Glossary of Terms

The following terms are used throughout this report.

Collision	<p>Police-reported collisions occurring on public roadways in the City of Edmonton which result in a minimum of \$2,000 property damage or which result in fatality or injury. 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 26, 2013.</p> <p>Non-vehicular collisions and collisions on private roadways are not included in this report.</p>
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.

Collision Cause	Description
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.
Changing Lanes Improperly	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 ⁸ (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.

⁸ ROW – Right of Way

Collision Cause	Description
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.

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