



# ENCL 2 TRAFFIC SAFETY DEMOGRAPHICS AND TRENDS 2018 - 2022.DOCX

Demographics and Trends 2018-2022

## Abstract

This report provides information that will be used to develop effective enforcement, education, and engagement strategies for traffic safety in Strathcona County. It is developed as a companion report to our Annual Collision Reports.

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## Table of Contents

Executive Summary.....	3
A. Introduction .....	5
B. Collision Trends 2018-2022 .....	5
1. Number of Fatal and Major Injury (FMI) collisions .....	5
2. Location of Fatal and Major Injury (FMI) Collisions .....	7
a. Provincial Highway high collision locations.....	9
b. Strathcona County rural high collision locations .....	9
c. Strathcona County urban high collision locations.....	10
3. Unit Types Involved in FMI Collisions .....	10
a. Animal Strikes.....	11
b. Cyclist collisions .....	14
c. Pedestrian collisions.....	19
d. Commercial vehicle collisions (trucks>4500 kg and tractor trailers) .....	24
e. Motorcycle collisions.....	26
f. Off-highway vehicle (OHV) collisions .....	30
g. Single vehicle collisions .....	30
C. FMI Collisions: Driver Demographics .....	31
1. Age .....	31
2. Gender .....	33
3. Place of Residence .....	33
D. Driver Actions Leading to Injury Collisions 2018-2022 .....	35
1. Prior driver actions leading to FMI collisions in Strathcona County .....	35
2. Driver actions resulting in FMI collisions on urban Provincial highways .....	36
3. Driver actions resulting in FMI collisions on rural Provincial highways .....	37
4. Driver actions resulting in injury collisions on Strathcona County-owned urban roads .....	37
5. Driver actions resulting in injury collisions on Strathcona County-owned rural roads .....	39
E. Driver Conditions and Contributing Factors .....	40
1. Alcohol/drug impaired drivers .....	40
a. Demographics of alcohol/drug-impaired drivers.....	42
b. Alcohol/drug-related collisions and injury.....	44
2. Medical Defects .....	47
3. Fatigued/Asleep .....	48

4. Distraction.....	49
5. Restraint Use.....	49
6. Speed.....	50
Appendix One: Map of all fatal and major injury collisions on Provincial highways (excluding animal strikes) 2018-2022 .....	51
Appendix Two: Map of all injury collisions on Strathcona County-owned rural roads 2018-2022 (excluding animal strikes) .....	53
Appendix Three: Map of all injury collisions on Strathcona County-owned urban roads 2018-2022.....	55

## Executive Summary

The purpose of this report is to better understand Strathcona County's most serious traffic collisions to develop effective engineering, enforcement, education, and engagement strategies for traffic safety. Data used in this report is from the County's Traffic Crash Location System (TCLS) for the five-year period 2018-2022. Data in TCLS reflects information from collision reports and is obtained via Alberta's E-Collision system.

From 2018-2022, there were 111 fatal and major injury (FMI) collisions on public roads in Strathcona County: 29 fatal and 82 major injury (MI) collisions. Table 1 summarizes the contributing factors.

In 2020 and 2021, there was a marked decrease in FMI collisions in Strathcona County. With the return to more typical traffic patterns, the number of FMI collisions in 2022 have returned to levels experienced prior to the pandemic.

In the last five years, 70% of FMI collisions and 90% of fatal collisions in the County took place on a provincial highway. In the last two years, all fatal crashes in the County occurred on provincial highways, with 10/11 (91%) on rural highways. Ninety-eight percent of FMI collisions on Strathcona County roads took place on arterial or grid roads. There were two major injury collisions on urban residential roads between 2018 and 2022; there were no fatal collisions on an urban or rural collector or local road.

Forty-four percent (44%) of FMI collisions and 57% of fatal collisions involved either a vulnerable road user (pedestrian, cyclist, or motorcyclist) or a commercial vehicle. Forty-one percent of fatal collisions in the last five years involved a commercial vehicle; 24% of fatal collisions were single vehicle collisions.

Eight percent of FMI collisions involved a pedestrian or cyclist. More than one quarter of all pedestrian and cyclist collisions in the County involved a hit and run. Only 10% of pedestrian collisions involved a pedestrian crossing without the right of way. One child pedestrian sustained a major injury (crossing without the right of way on Baseline Road). All nine cyclists who sustained a major injury on County roads were 21 years or older; all were wearing helmets. One motorcyclist who sustained a major injury was not wearing a helmet.

Rates of driver involvement in FMI collisions are very close to age demographics of licensed drivers in the County. When limited to at-fault drivers in FMI collisions, drivers under 34 are overrepresented, whereas those 55-84 are underrepresented. Male drivers are involved in FMI collisions at a rate of 3:1 to female drivers. Thirty-three percent (33%) of drivers involved in FMI collisions were County residents.

Twelve percent (12%) of drivers involved in FMI collisions were impaired by alcohol and/or drugs. Fatigued/asleep drivers accounted for 2% of MI collisions and no fatalities. One MI collision specifically identified a driver as distracted. Speed was identified as a contributing factor in eight percent of FMI collisions. Six FMI collisions involved unrestrained vehicle occupants; three of them resulted in a fatality.

Analysis of driver prior actions (as classified in collision reports) indicates the cause of FMI collisions varies significantly depending on the location. On urban provincial highways, the most common cause of collisions were "lost control" and "ran off road". On rural provincial highways, "stop sign violation" and "left of centre" are the most common causes of FMI collisions.

For Strathcona County-owned roads, analysis of FMI collisions is difficult as numbers are low. To increase the power of the analysis of driver actions leading to injury, the sample was expanded from FMI

collisions to all collisions resulting in any level of injury between 2018-2022. In this sample, the top three driver actions leading to injury on urban roads were: “follow too close”, “left turn across path”, and “disobey traffic signal”. On County-owned rural roads, two actions led to over half of injury collisions: “stop sign violation” and “ran off road”.

Table 1: Relative contributions of location, unit types, driver behaviours, and driver demographics in fatal and major Injury (FMI) collisions on public roads in Strathcona County 2018-2022

	Number FMI	Percent FMI	Number MI	Percent MI	Number Fatal	Percent Fatal
All FMI Collisions	111	100%	82	100%	29	100%
<b>Location</b>						
AT-Rural	52	47%	32	39%	20	69%
SC-Rural	15	14%	13	16%	2	7%
AT-Urban	25	23%	19	23%	6	21%
SC-Urban	19	17%	18	22%	1	3%
Residential	2	2%	2	2%	0	0%
Non-residential	109	98%	80	98%	29	100%
<b>Unit Type</b>						
Pedestrians	3	3%	2	2%	1	3%
Cyclists	5	5%	5	6%	0	0%
Motorcycles	20	18%	17	21%	3	10%
Commercial Vehicles	20	18%	8	10%	12	41%
Animals	5	5%	4	5%	1	3%
Single Vehicle	32	29%	25	30%	7	24%
<b>Driver Condition/Contributing Factors</b>						
Impaired-Alcohol/Drugs	13	12%	11	13%	2	7%
Fatigued/Asleep	2	2%	2	2%	0	0%
Distracted	1	1%	1	1%	0	0%
Unrestrained	6	5%	3	4%	3	10%
No Helmet	1	1%	1	1%	0	0%
Speeding	9	8%	6	7%	3	10%
<b>Driver Demographics Involved in FMI Collisions (n=187 FMI, n=135 MI, n= 52 fatal)</b>						
Male	140	75%	94	70%	46	88%
Female	47	25%	41	30%	6	12%
County Resident	61	33%	49	36%	12	23%
Non-Resident	126	67%	87	64%	40	77%

## A. Introduction

The purpose of this report is to better understand crash trends and the demographics of individuals involved in Strathcona County's most serious traffic collisions. As per our Traffic Safety Strategic Plan 2020 and consistent with the Safe System approach, Strathcona County's goal is to eliminate death and serious injury on our roads. For that reason, this report will mainly focus on data collected from fatal and major injury (FMI) collisions in Strathcona County. A major injury is defined as one requiring admission to a hospital. Delving into the demographics of those involved in collisions where someone sustained a fatal or major injury ensures traffic safety resource allocation is effective and informed.

This report provides information that will be used to develop data driven enforcement, engineering education, and engagement strategies for traffic safety. It is developed as a companion report to Strathcona County's annual collision reports. Unless otherwise noted, data used in this report is gathered from Strathcona County's Traffic Crash Location System (TCLS) for the five-year period 2018-2022.

Collision data is obtained in electronic format through the Government of Alberta's E-Collision system, which is produced by the RCMP and maintained by Strathcona County. There are many collisions that go unreported for a variety of reasons and therefore are not included in this data. There are also many collisions that may have data deficiencies that are inherent in collecting data and maintaining large databases. The database reflects all reported collisions that result in property damage of CAD \$2000 or greater, as well as any collision that results in an injury or fatality. The information presented in this report is based on reported incidents at the time of printing. Due to ongoing police investigations, some data presented in this report may be subject to revision.

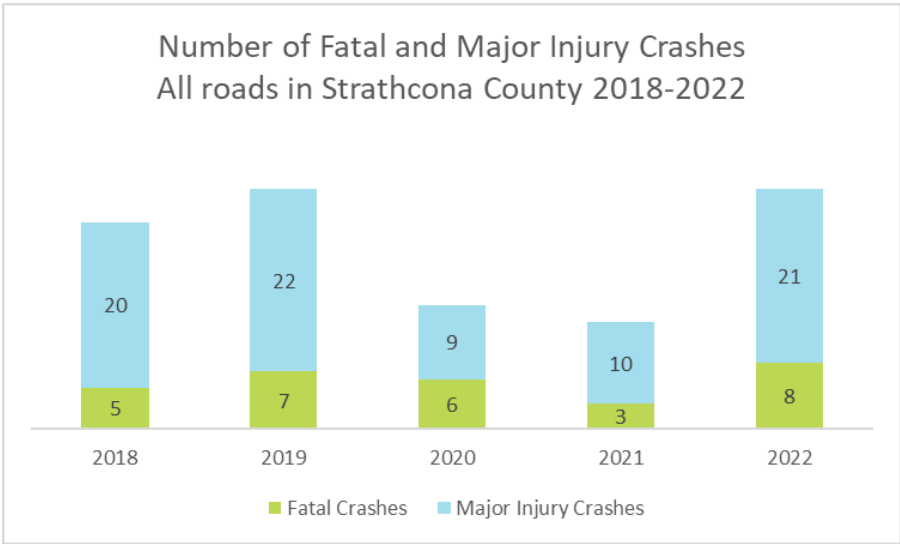
## B. Collision Trends 2018-2022

### 1. Number of Fatal and Major Injury (FMI) collisions

From 2018-2022, there were 111 FMI collisions in Strathcona County: 29 fatal collisions and 82 major injury collisions. Thirty-six people lost their lives, and 118 suffered a major injury requiring hospitalization. There were an additional nine FMI collisions involving off-highway vehicles on private property (4), the driver experiencing a medical event when driving (3) or took place in private parking lots (2). For the purposes of the overall collision statistics, these collisions have been removed. They will be considered later in the report in their own sections.

In 2020 and 2021, there was a marked decrease in the number of FMI collisions in Strathcona County. This is likely a result of the COVID 19 pandemic and the associated drop in traffic volumes that were experienced with many public spaces being closed and many residents working from home. With the return to more typical traffic patterns, the number of FMI collisions in 2022 have returned to levels experienced prior to the pandemic.

Figure 1: Number of FMI collisions in Strathcona County 2018-2022



While the number of FMI collisions that occurred in 2022 is consistent with years prior to the pandemic, the number of fatalities (11) in 2022 was higher than usual. There has not been as much loss of life on Strathcona County roads since 2009. This resulted from a slightly higher number of fatal collisions than usual, combined with a higher than usual incidence of collisions with two fatalities (3). In the last ten years, we have not had another year with more than one collision involving two fatalities.

Figure 2: Number of fatal collisions in Strathcona County (all roads) 2013-2022

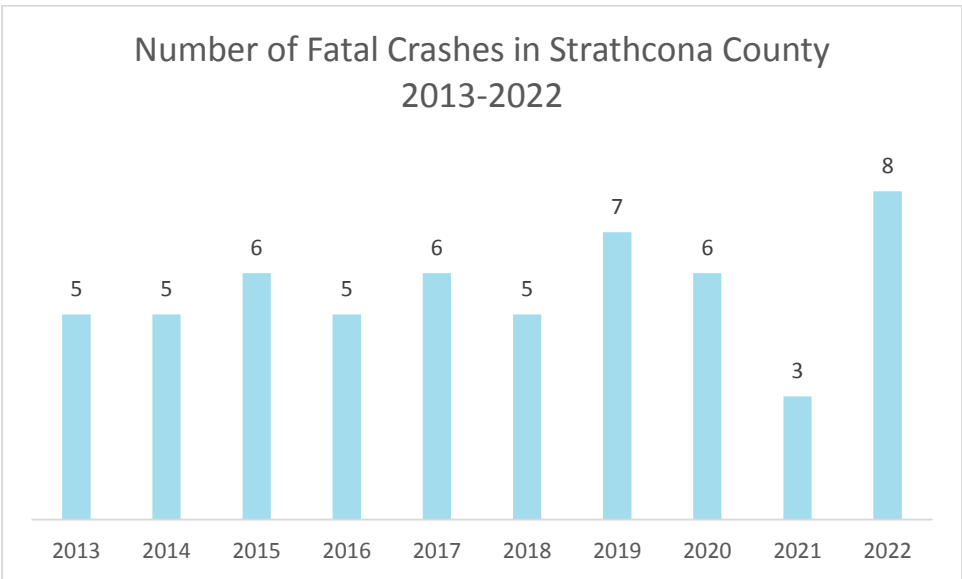
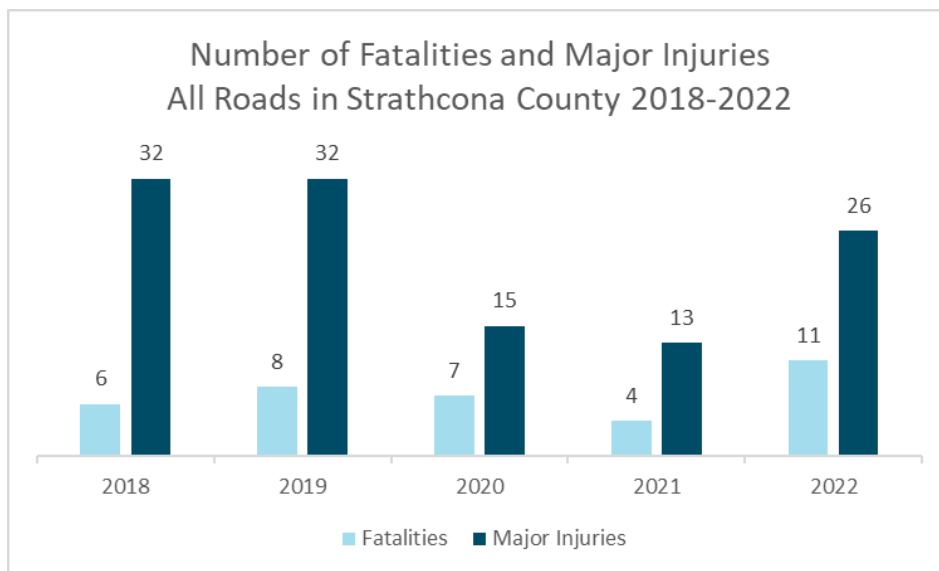


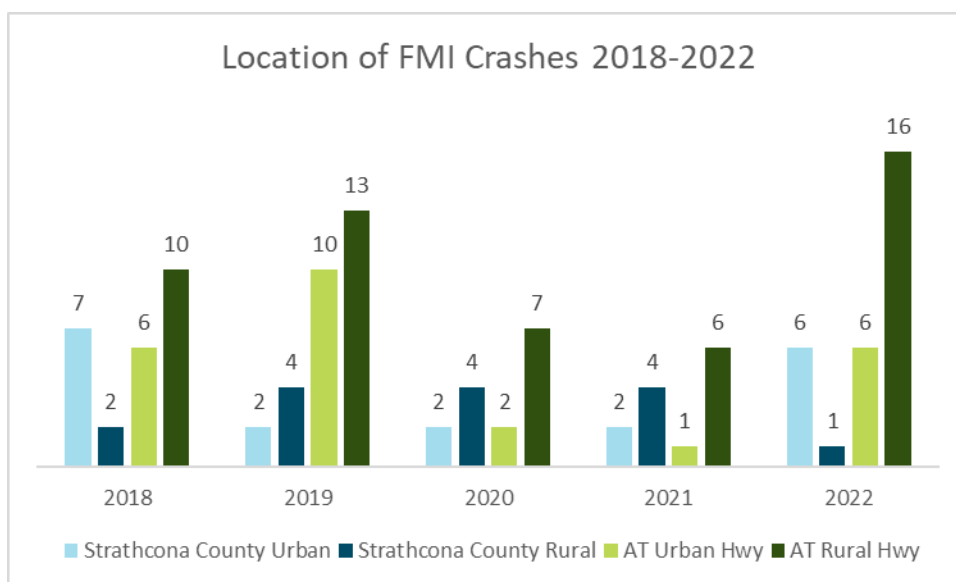
Figure 3: Number of traffic fatalities and major injuries in Strathcona County 2018-2022



## 2. Location of Fatal and Major Injury (FMI) Collisions

In total, there are 1955 km of public roadways in the County. Strathcona County owns and maintains an extensive road network, comprised of over 1314 km of rural (grid, subdivision and hamlet roads) and over 416 km of urban roads. Another 225 km of provincially owned and maintained highways operate within the County. Provincial highways are classified according to their engineering as “urban” (divided with controlled accesses/interchanges) and “rural” (those with uncontrolled, grade level accesses).

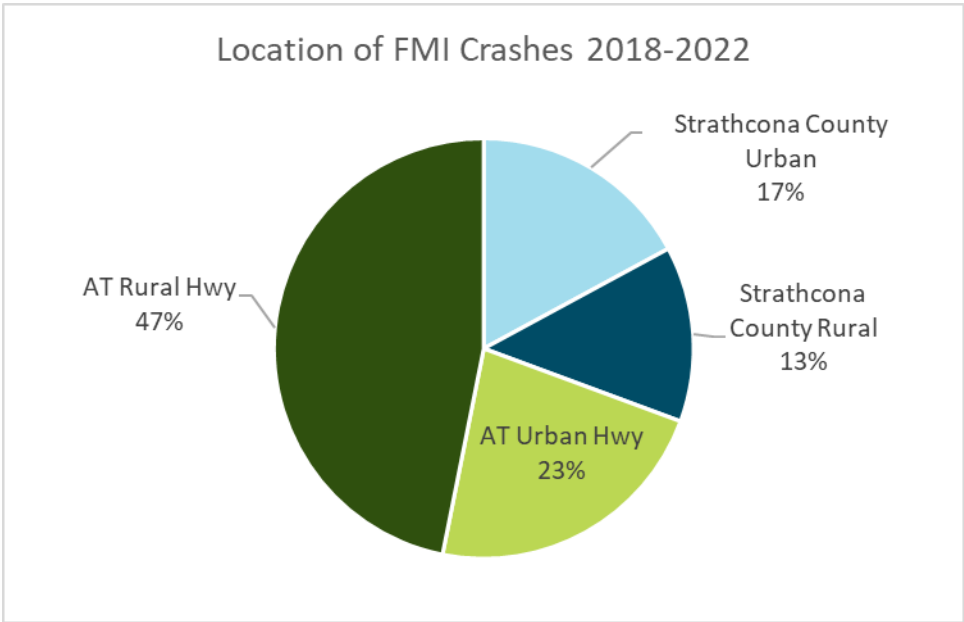
Figure 4: Location of FMI Crashes in Strathcona County



Not surprisingly, given higher operating speeds, 70% of FMI collisions in the last five years occurred on provincial highways.

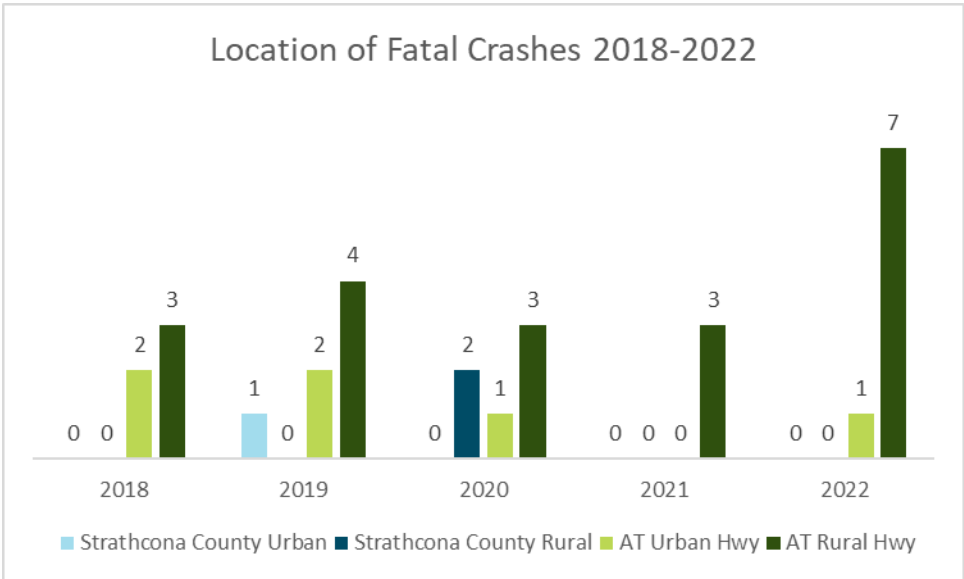


Figure 5: Proportion of FMI in Strathcona County 2018-2022 by location



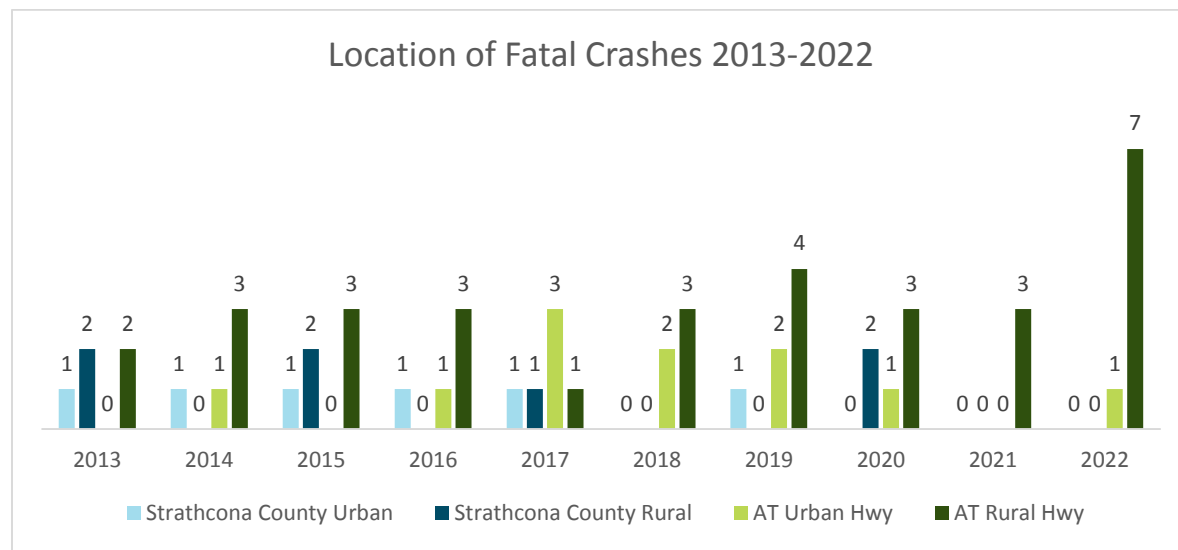
The trend is even stronger when only fatal collisions are considered. In the last 5 years, 90% of fatal collisions in the County occurred on provincial highways and only 10% took place on Strathcona County owned roads. In the last two years, all fatal crashes in the County occurred on provincial highways. Rural highways, where grade-level access exists and the highway is often undivided, are the most dangerous. In particular, the number of fatal collisions on provincial rural highways was unusually high in 2022.

Figure 6: Location of fatal crashes in Strathcona County 2018-2022



Due to the particular concern with rural highway crashes, fatal collision data was examined by location for the last ten years. It is important to note that construction of the east leg of the Anthony Henday took place from 2013-2016 and changed traffic patterns in the area during that time.

Figure 7: Location of Fatal Crashes in Strathcona County 2013-2022



#### a. Provincial Highway high collision locations

To assess for high collision location trends, all highway FMI collisions in the last five years have been mapped in Appendix 1. These maps identify specific areas of concern:

- Urban Highways
  - Highway 216 and Highway 16 (in its urban section) experience a high level of FMI. As very high traffic corridors, this is not surprising. The interchange of the two highways shows a particularly dense area of collisions.
- Rural Highways
  - Highway 21, south of Hwy 14 to County boundary
  - Highway 14 east of Hwy 824 to County boundary
  - Highway 14 between Highway 216 and Highway 21
  - Highway 15 between Range Road 212 and Hwy 830
  - Highway 630 between Highway 21 and Range Road 222
  - Highway 16, from Highway 830 to the County boundary

#### b. Strathcona County rural high collision locations

There were 15 FMI collisions that occurred on Strathcona County owned rural roads in the last five years, which is not enough for detailed analysis. For that reason, all injury collisions, including fatal, major injury and minor injury, have been mapped in Appendix 2 to illustrate collision trends. A high percentage of rural collisions are animal strikes. For the purposes of this analysis, they have been removed. Animal strikes will be mapped and analyzed in another section of this report.

From the map, higher collision frequencies are seen on:

- RR 224, north of Twp 530
- Twp 530, between Hwy 21 and RR 213
- Twp 514 west of RR 231
- Twp 510
- RR 232, south of Wye Road

- RR 233, between Wye Road and Hwy 628 (this high-volume segment is currently undergoing engineering changes that should improve safety)
- RR 231, between Wye Road and Hwy 628

All rural collisions on Strathcona County-owned roads took place on grid roads; no FMI collisions were reported on a rural residential road from 2018-2022.

### c. Strathcona County urban high collision locations

There were only 19 FMI collisions that occurred on urban roads in the last five years. When all collisions that resulted in any level of injury are included, there were 1331 in the same time frame. To better observe for any collision trends, all injury collisions have been mapped in Appendix 3.

From the map, the bulk of injury collisions are concentrated along major corridors, including Baseline Road, Wye Road, Sherwood Drive, Clover Bar Road, etc. Collector roads in residential areas experience a lower number of injury collisions, but Bethel Drive stands out as a higher collision location.

For urban collisions, only two major injury collisions took place in an urban residential area: one on a collector road (Main Boulevard) involving a right-angle collision, and one on a local road involving an adult cyclist in darkness.

## 3. Unit Types Involved in FMI Collisions

Forty-nine (49%) FMI collisions that happened between 2018-2022 in Strathcona County involved “units” beyond personal vehicles (cars, light trucks, SUVs). These included vulnerable road users (pedestrians, cyclists and motorcyclists), commercial vehicles (trucks >4500 kg and tractor trailers) and animals. When limited to fatal collisions, 57% of collisions involved an animal, pedestrian, motorcycle or commercial vehicle. Additionally, single vehicle collisions, which account for 29% of FMI collisions, will also be examined in this section.

Figure 8: Incidence of Unit Types in FMI Collisions in Strathcona County

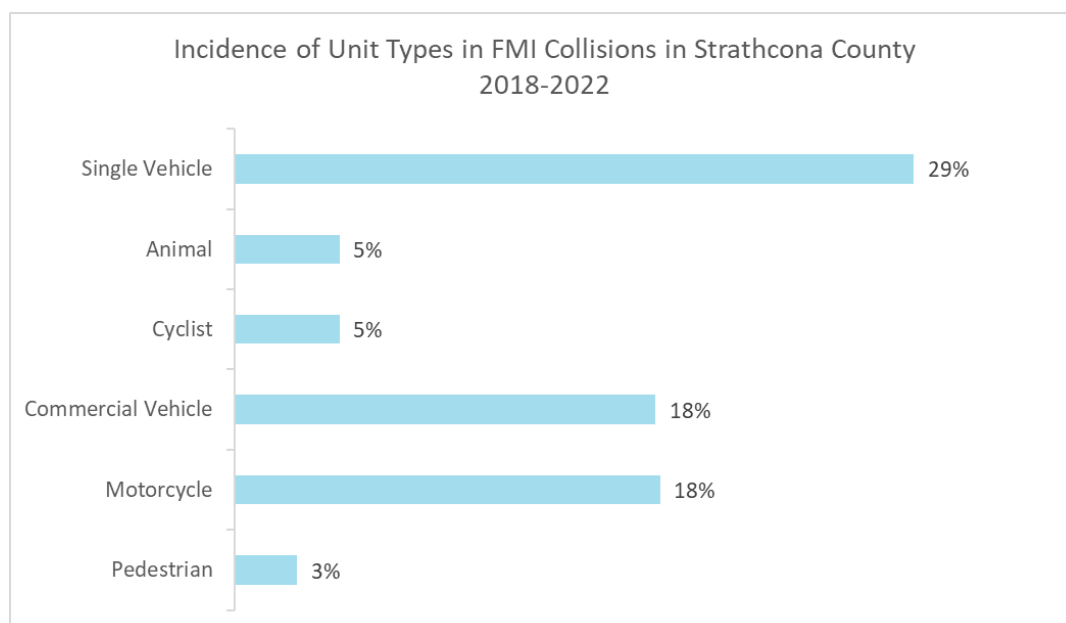
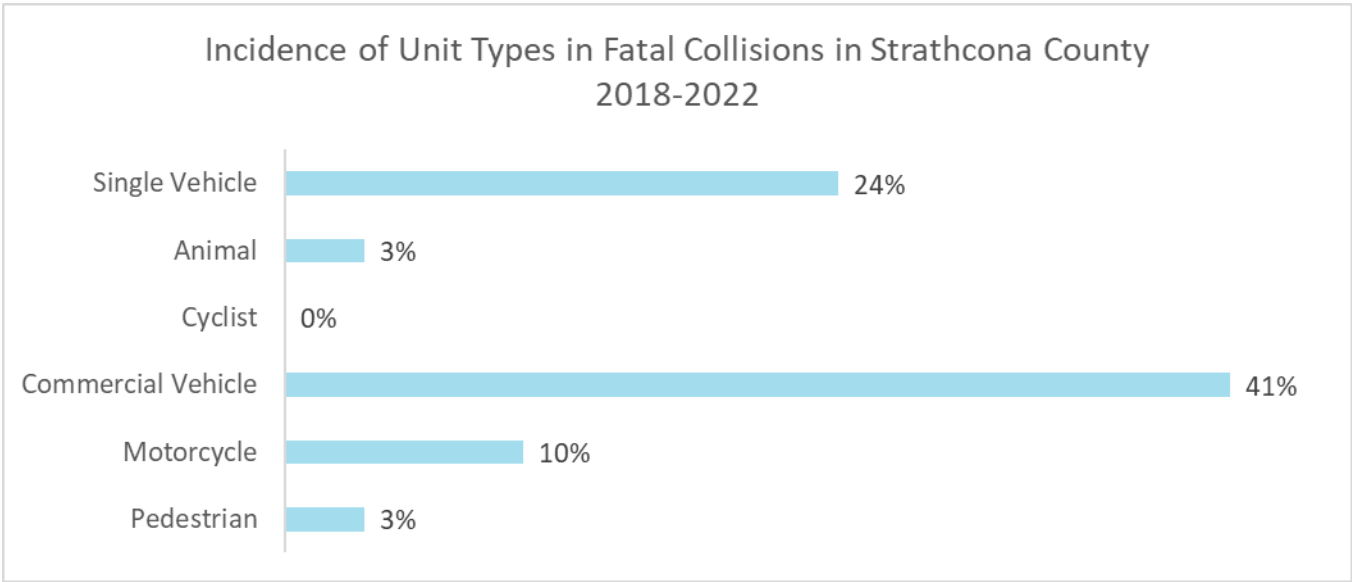


Figure 9: Incidence of Unit Types in Fatal Collisions in Strathcona County 2018-2022

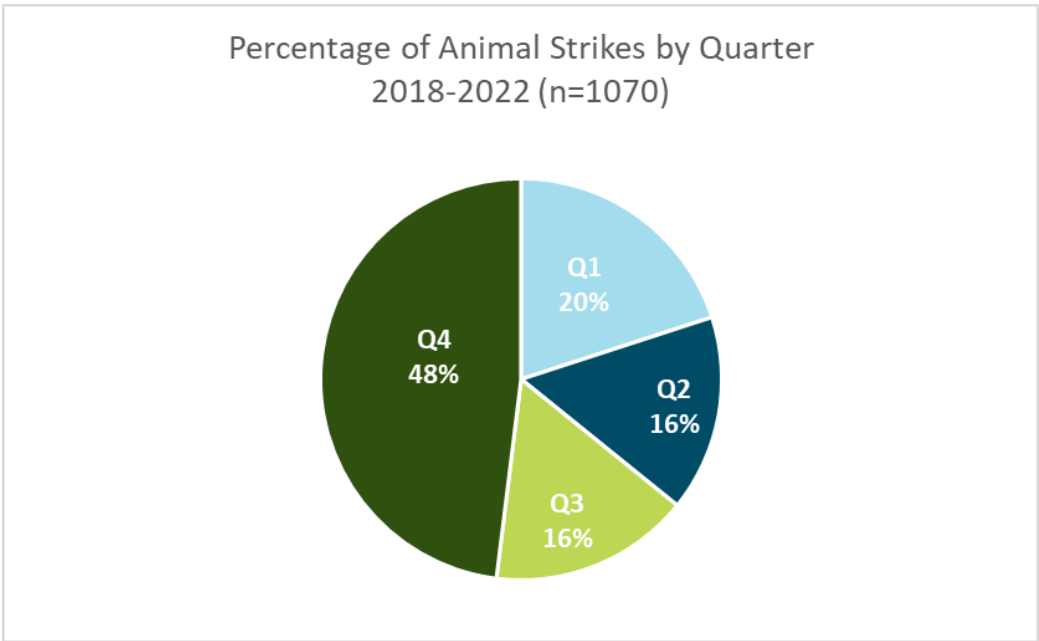


a. Animal Strikes

Between 2018-2022, 1170 animal strikes were reported, accounting for 15% of all collisions on public roads (excluding parking lots). Collisions with animals resulted in one fatality, five major injuries and 142 minor injuries to humans; 97% of animal strikes in the last five years resulted in property damage only.

Eighty-one percent of animal strikes occurred in darkness. November is the most common month for animal strikes, and 48% of all animal-related collisions happened in Q4 (October to December).

Figure 10: Percentage of animal strikes in Strathcona County by quarter 2018-2022

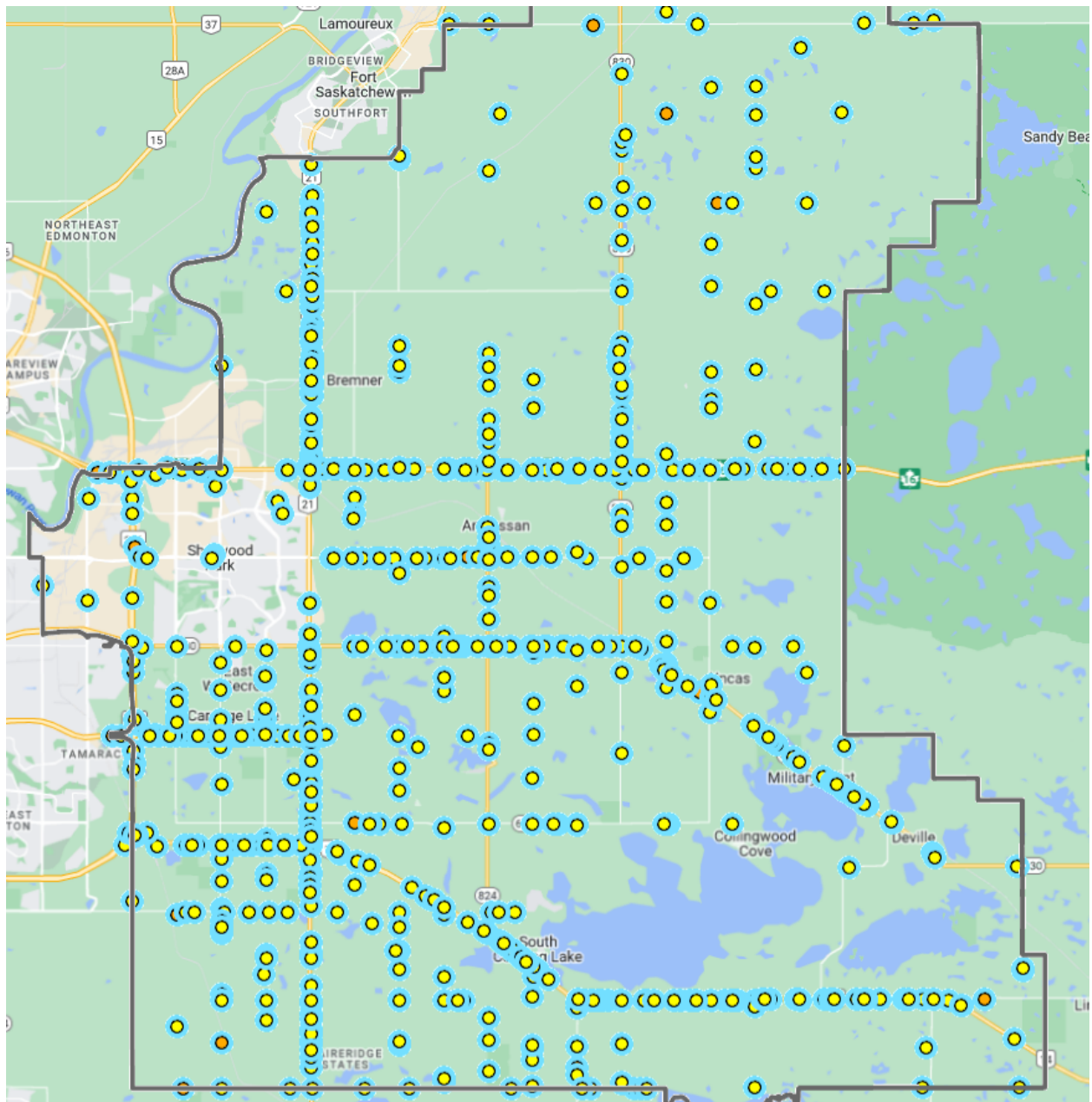


Ninety-three percent of animal strikes happened at a rural location. Sixty-nine percent of collisions with animals occur on a provincial highway. All FMI and 76% of minor injury collisions with an animal happened on a provincial highway.

### *Deer Strikes*

Deer are the most common type of animal strike reported in Strathcona County, accounting for 76% of animal strikes; however, collisions with deer only account for 47% of all injuries attributed to animal strikes and 20% of FMI collisions. There is no discernable geographical pattern to deer strikes, with collisions reported across the rural network, increasing proportionally on roads with higher volumes of traffic.

Figure 11: Deer strikes all public roads in Strathcona County 2018-2022

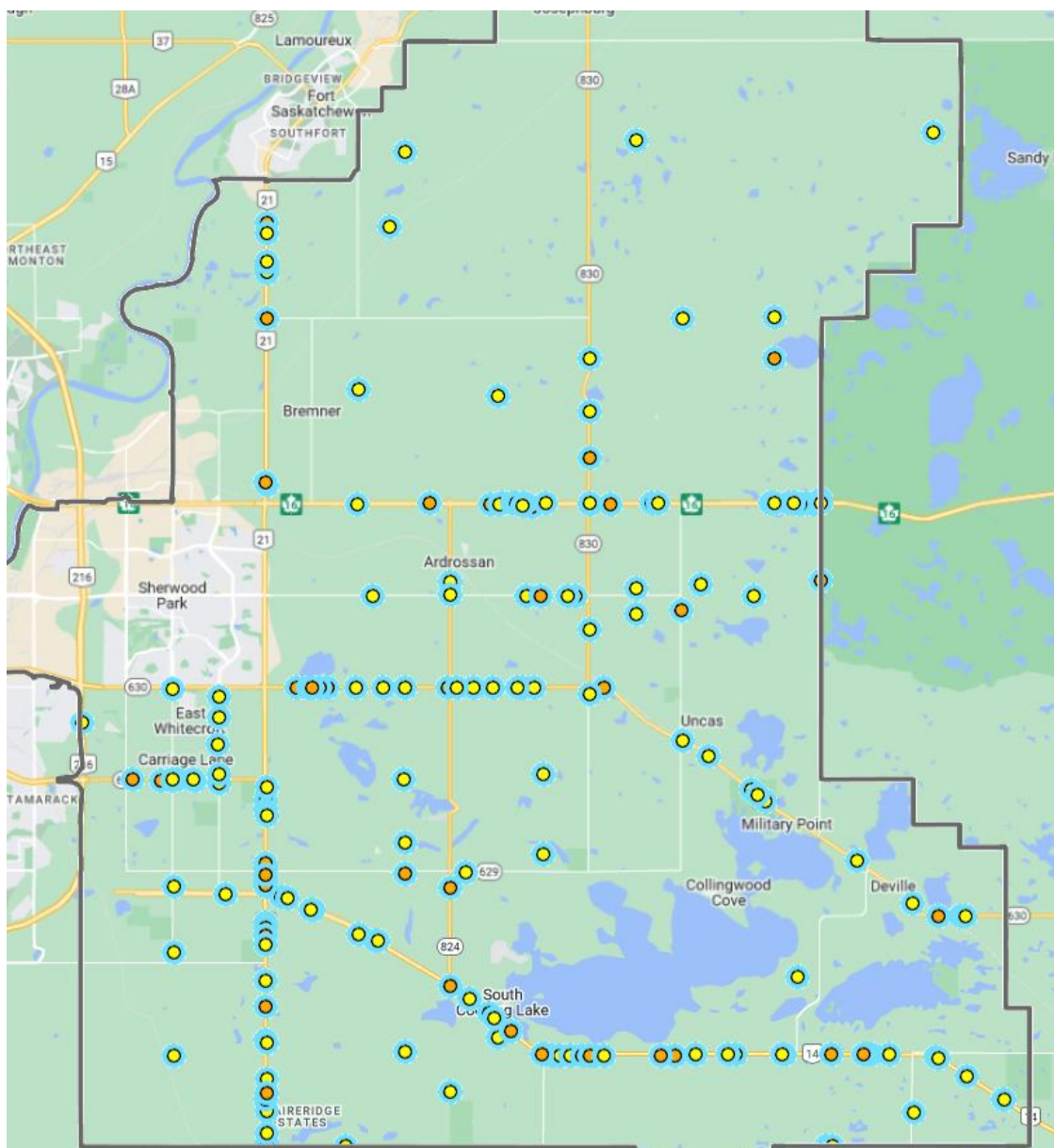


### *Moose Strikes*

Moose strikes are less common than deer strikes accounting for 18% of animal strikes, but more serious, accounting for 60% of FMIs and 40% of all injuries related to animal strikes. Seventy-six percent of moose strikes happened on a provincial highway. Some higher frequency locations can be identified:

- Hwy 21 between Twp 540 and 542
- Hwy 21 south of Twp 522 to the southern boundary
- Hwy 630 between Hwy 21 and Hwy 830
- Hwy 16 between RR 220 and 221
- Hwy 16 between RR 210 and 211
- Hwy 14 from Hwy 824 to eastern boundary

Figure 12: Moose strikes in Strathcona County 2018-2022



### Other Animal Strikes

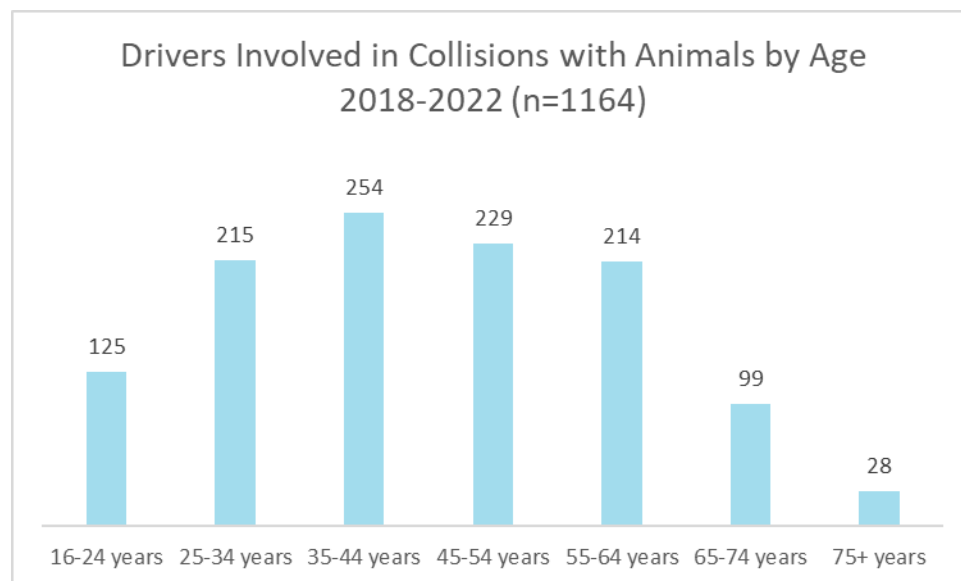
Seven percent of animal strikes involve animals other than deer and moose. Mostly, these animals are smaller, such as coyotes, dogs, geese and porcupines and result in property damage only. However, some involved elk, horses or cows and were more serious. One major injury collision in the last five years involved a horse.

### Drivers involved in collisions with animals

Forty-three percent of all drivers reporting a collision with an animal between 2018-2022 in Strathcona County were County residents. Only 35% of drivers who hit animals on provincial highways were Strathcona County residents. One of five drivers involved in a FMI collision with an animal was a County resident. All animals involved in collisions were County residents.

Sixty-six percent of drivers involved in a collision with an animal was identified as male. The age of drivers involved in animal strikes ranged from 16-87 years old. There was no age group significantly over/underrepresented in collisions.

Figure 13: Drivers involved in a collision with an animal by age 2018-2022



### b. Cyclist collisions

Between 2018-2022, there were 37 collisions involving cyclists reported in Strathcona County. None of the collisions involved a fatal injury. Five of the collisions resulted in major injuries to a total of nine cyclists (five sustained major injuries in one collision on the Sherwood Park Freeway). Twenty-seven of the collisions resulted in a minor injury to the cyclist. Four of the collisions involved property damage only. Twenty-seven percent (10/37) of collisions involved a hit and run; nine drivers did not remain at the scene of the collision and one cyclist. All but one collision took place in an urban area. There has been an increase in the number of collisions involving a cyclist in the last two years.



Figure 14: Number of collisions involving a cyclist 2018-2022

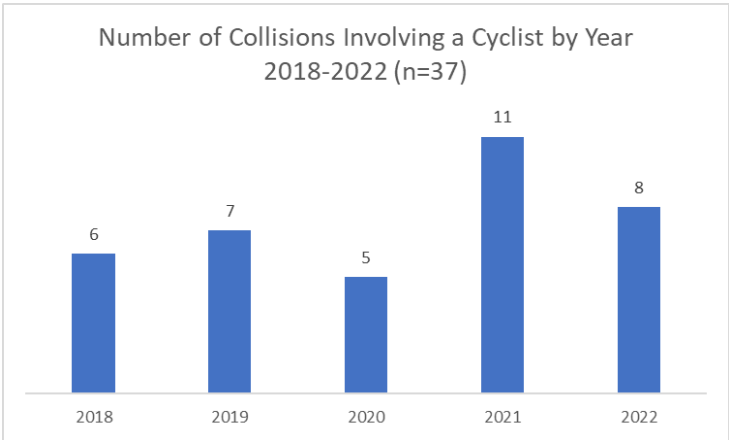


Figure 15: Urban collisions involving a cyclist 2018-2022

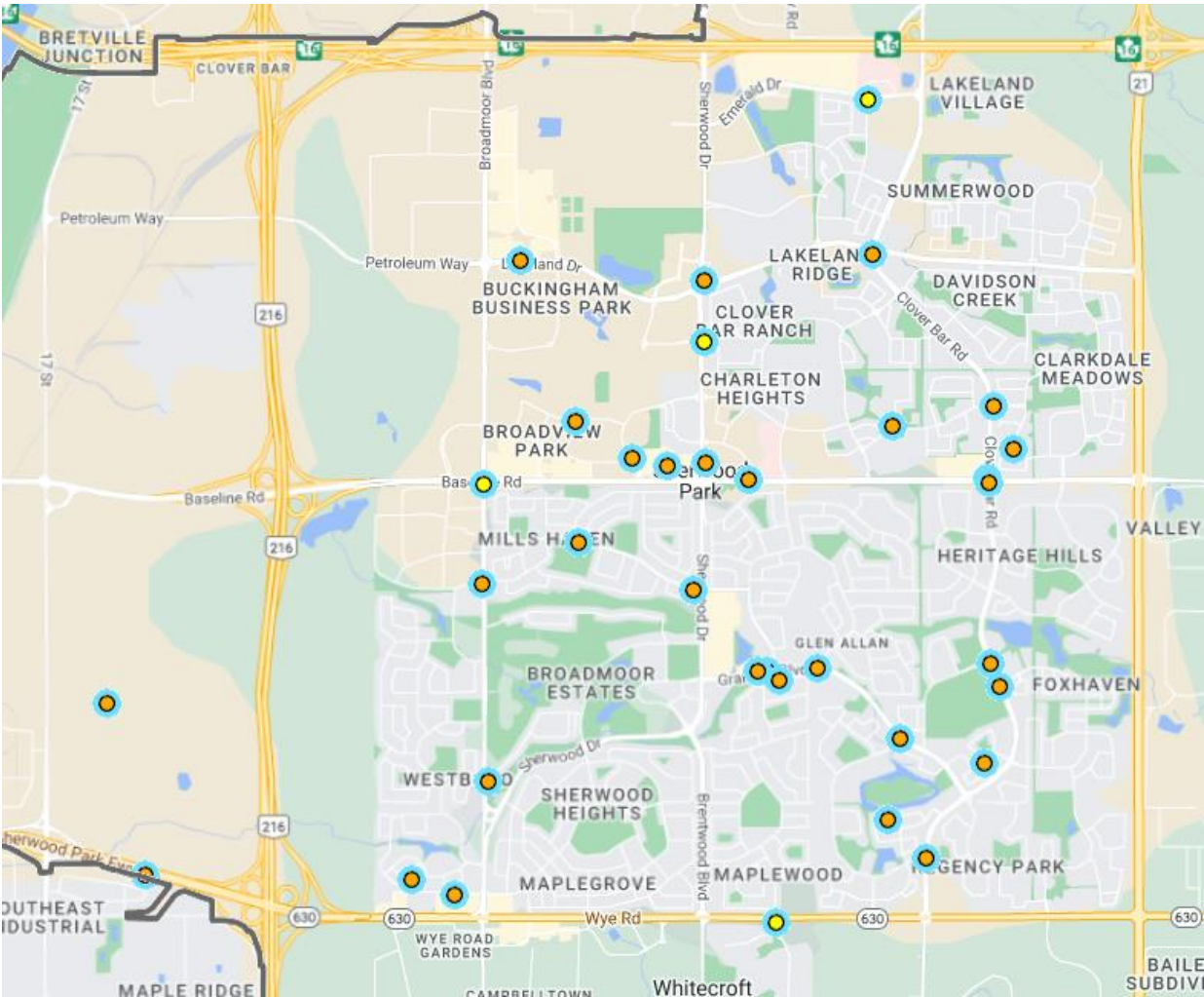
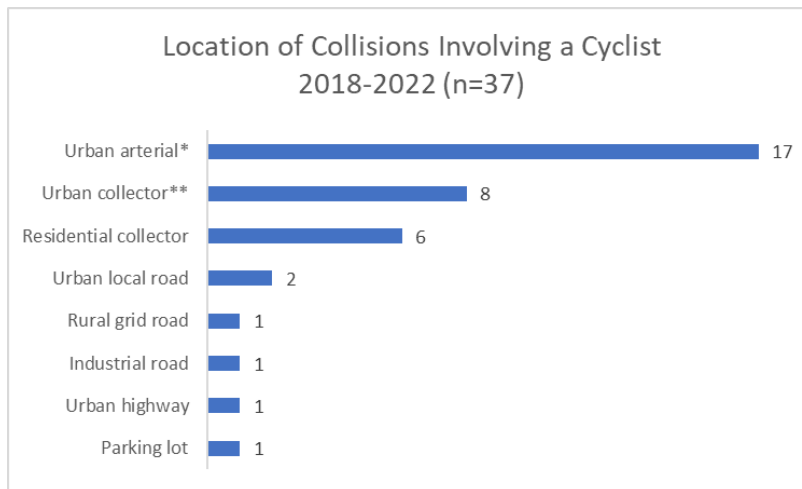




Figure 16: Location of collisions involving cyclists 2018-2022



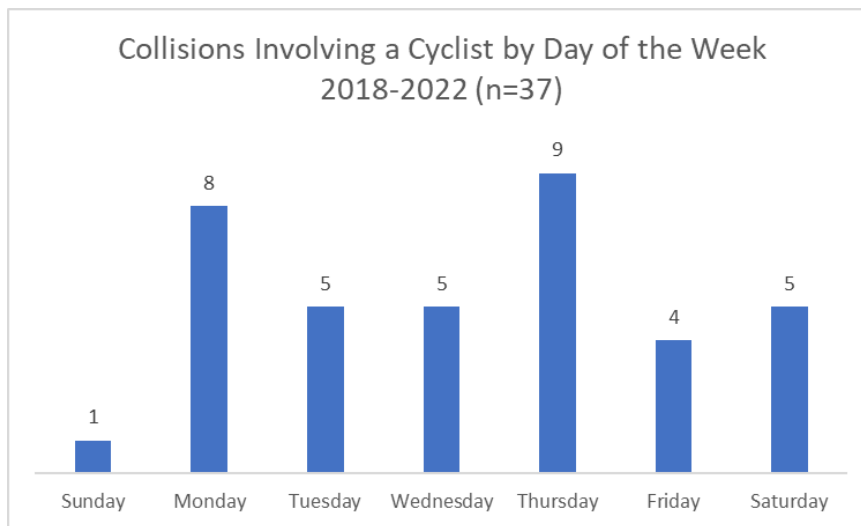
\*Baseline Road, Clover Bar Road, Wye Road, Broadmoor Blvd, Sherwood Drive, Lakeland Drive

\*\*Granada Blvd, Broadway Blvd, Broadview Road, Bethel Drive, Emerald Drive, Fir Street (west of Sherwood Drive)

#### *Time of day/day of week*

Thirty-five percent of collisions involving a cyclist (13/37) took place on a weekday between 3:00-5:00 pm. Mondays and Thursdays were the most common days for collisions involving a cyclist.

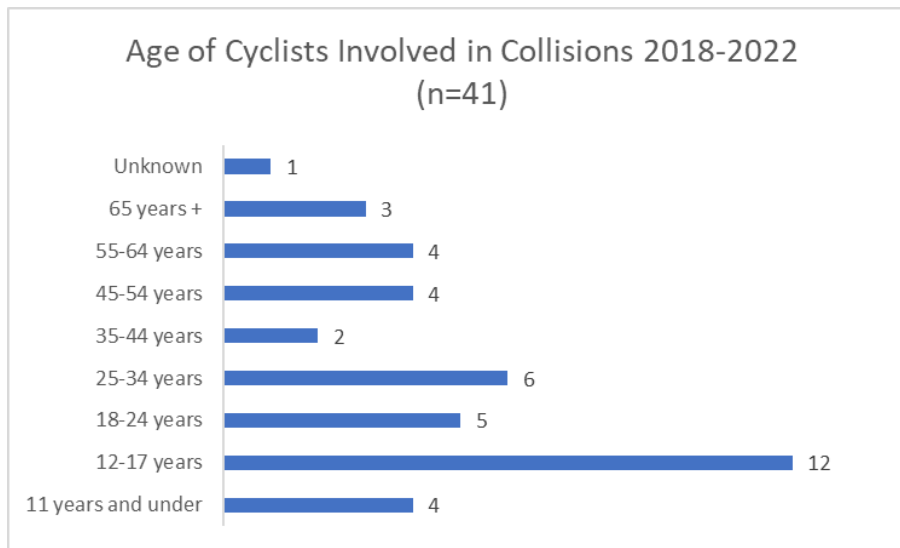
Figure 17: Collisions involving a cyclist by day of the week 2018-2022



#### *Demographics of cyclists and drivers involved in collisions*

Cyclists involved in a collision with a motor vehicle ranged in age from 7-81 years old. Forty-nine percent (20/41) of cyclists involved in collisions are 21 years or younger. All nine cyclists who sustained a major injury in a collision were 21 years or older. Sixty-seven (6/9) percent of seriously injured cyclists were cycling for recreation on the road. Five of the cyclists who sustained a minor injury were not wearing a helmet; ages of the cyclists without helmets were 15, 16, 21, 28 and 42 years old.

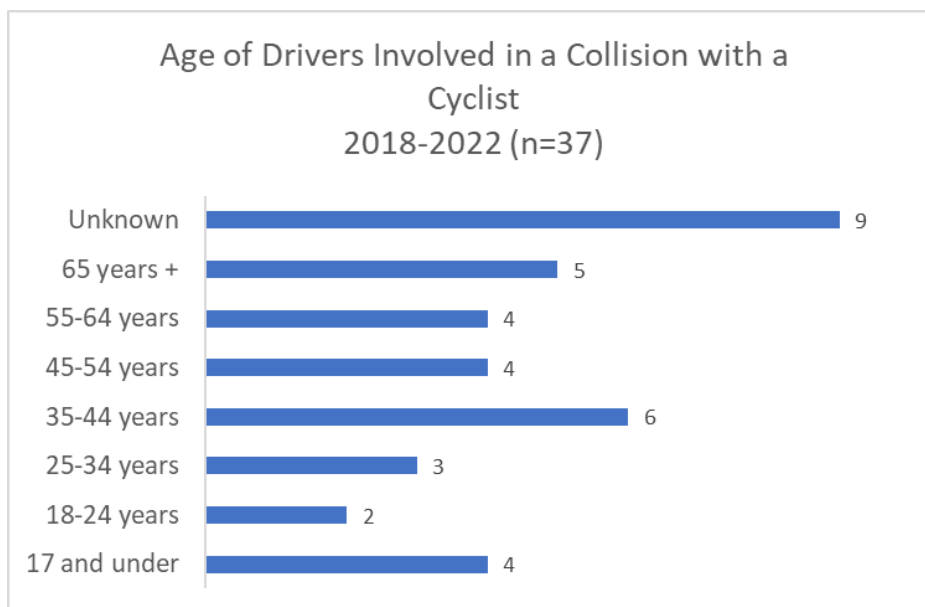
Figure 18: Age of cyclists involved in collisions 2018-2022



Eighty-three percent of identified cyclists (33/40) were from Sherwood Park, and 15% were from Edmonton. All cyclists 21 years and under involved in collisions were from Sherwood Park. Seventy percent of identified cyclists (28/40) were male.

As 24% of drivers are unidentified, it is difficult to identify demographic trends. The ages of identified drivers involved in a collision with a cyclist ranged from 17-87 years old.

Figure 19: Age of drivers involved in a collision with a cyclist 2018-2022



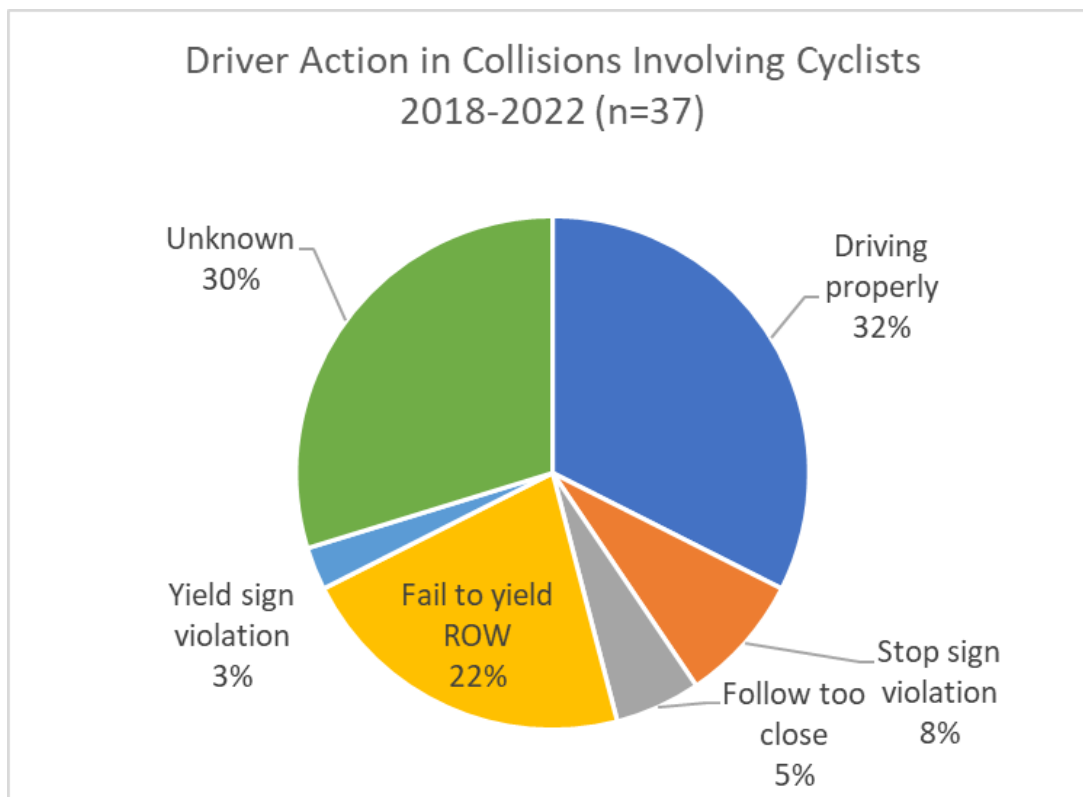
Of the 28 drivers identified in collisions with cyclists, 20 were from Sherwood Park and 2 were from Ardrossan. Three were from Edmonton, and three were from other Alberta locations. Seventeen were male and 11 were female.

### *Actions of drivers and cyclists that resulted in collisions*

In 30% (11/37) of collision reports, there is not enough information to fully understand the cause of the collision. One collision indicated alcohol was a contributing factor, with the cyclist's condition reported as "had been drinking".

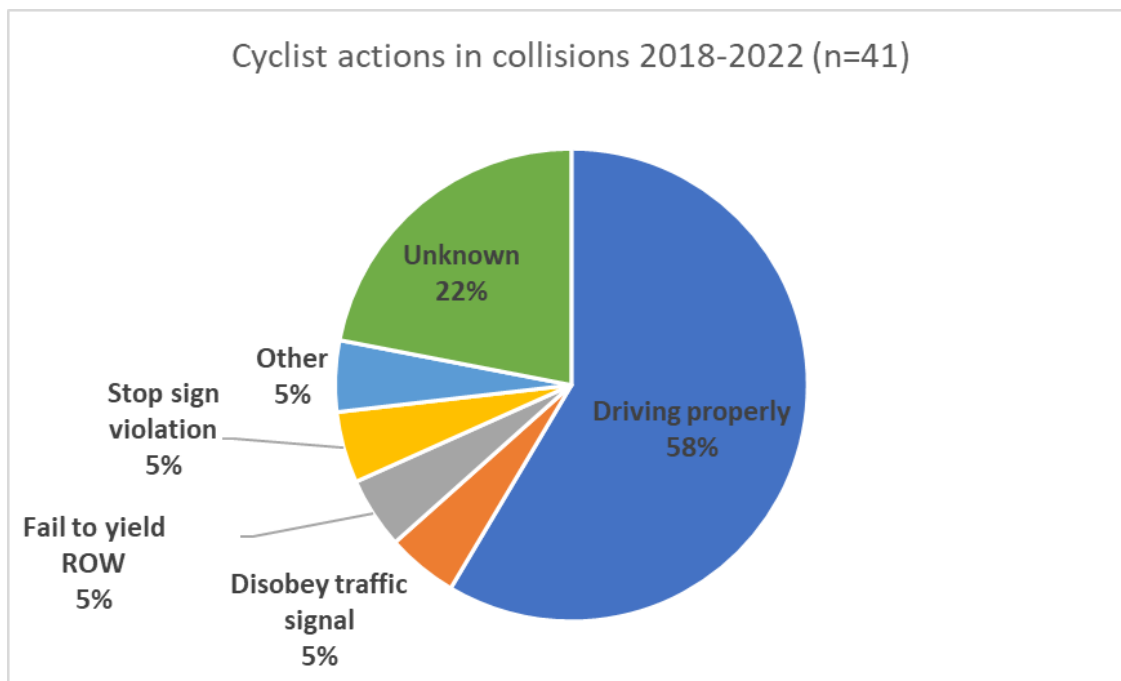
At least 81% (30/37) collisions were intersection related. At least 54% (20/37) of collisions involved a vehicle making a right hand turn conflicting with a cyclist coming off a sidewalk or multiuse trail at a road or access point. Three collisions involved conflict during a left-hand turn. Two collisions involved a sideswipe where a vehicle made contact with a cyclist travelling in the same direction on the road (one with a vehicle mirror and the other deemed the fault of the cyclist). Two were right angle collisions where the vehicle driver did not yield to a cyclist proceeding on the road with the right of way. In the most serious collision involving multiple cyclists, the driver was charged with careless driving, striking the cyclists from behind who were riding on the highway in a peloton format.

Figure 20: Driver actions in collisions involving a cyclist 2018-2022



There are a lot of inconsistencies in the reporting of collisions involving cyclists and motor vehicles. The number of cyclists who are described as driving properly may be inflated due to the high number of hit and runs that are reported by cyclists. Similar incidents result in a variety of driver and cyclist prior actions in reporting.

Figure 21: Cyclist actions in collisions involving a cyclist 2018-2022



### c. Pedestrian collisions

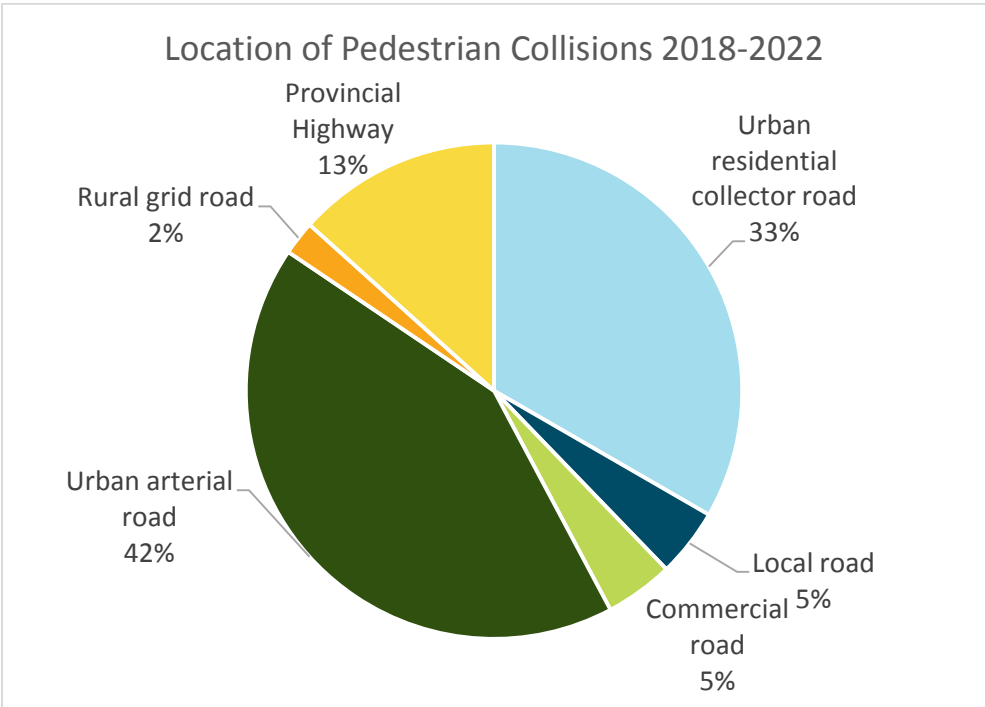
In the last five years, there were 87 collisions involving 93 pedestrians that were reported in Strathcona County. Forty-two (48%) of these took place in a parking lot, two of which involved off-highway vehicles. Twenty-eight (32%) involved a hit and run, where the driver did not remain at the scene of the collision. Only 6% of incidents involved FMI (1 fatal and 4 major injury); 87% resulted in minor injury. Thirty percent of pedestrians involved in collisions were under 18 years old; 17% were over the age of 65 years. The rest of this section will exclude parking lots from the analysis.

#### *Pedestrian collisions on public roads*

Forty-five of the collisions, involving 49 pedestrians, occurred on public roads in the County from 2018-2022. One of these collisions was fatal, involving an adult pedestrian walking on a provincial highway late at night. Two resulted in a major injury to the pedestrian: another involving a pedestrian walking on a provincial highway in darkness and one involving a seven-year-old child who started crossing without right of way on Baseline Road at Cranford Drive. Eighty-nine percent of collisions resulted in minor injury to the pedestrian(s). Two collisions resulted in property damage only.

Urban arterials and residential collector roads are the most common locations for pedestrian collisions, accounting for 75% of collisions in the last 5 years. No pedestrian collisions were reported on a rural residential road between 2018-2022.

Figure 22: Location of pedestrian collision by road type 2018-2022



Sixty-seven of the collisions took place in daylight. October was the most common month for pedestrian collisions (9), followed by January and June, with six each. Over the last five years, we have seen a decreasing incidence of pedestrian collisions.

Figure 23: Number of pedestrian collisions in Strathcona County by year (n=45)

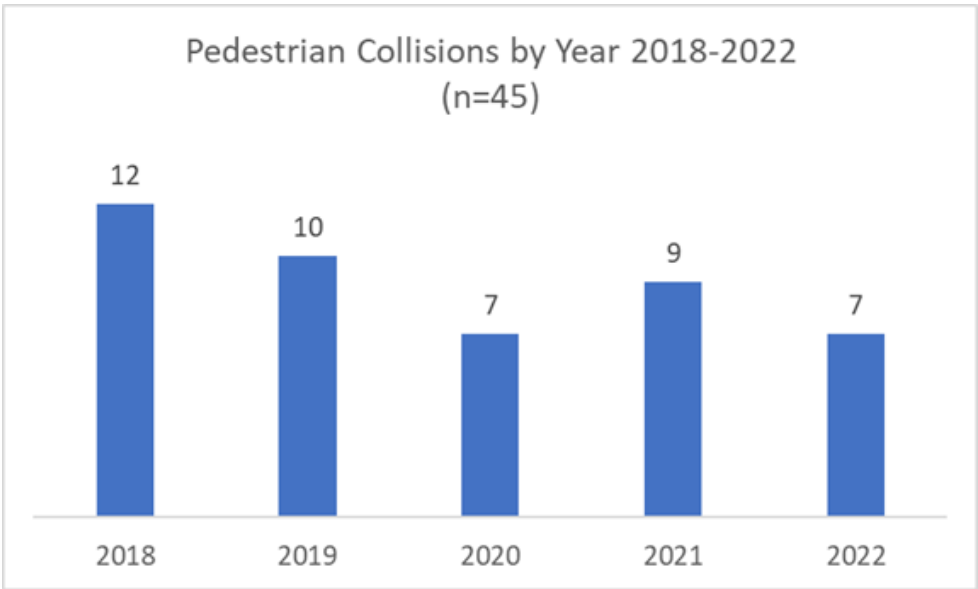
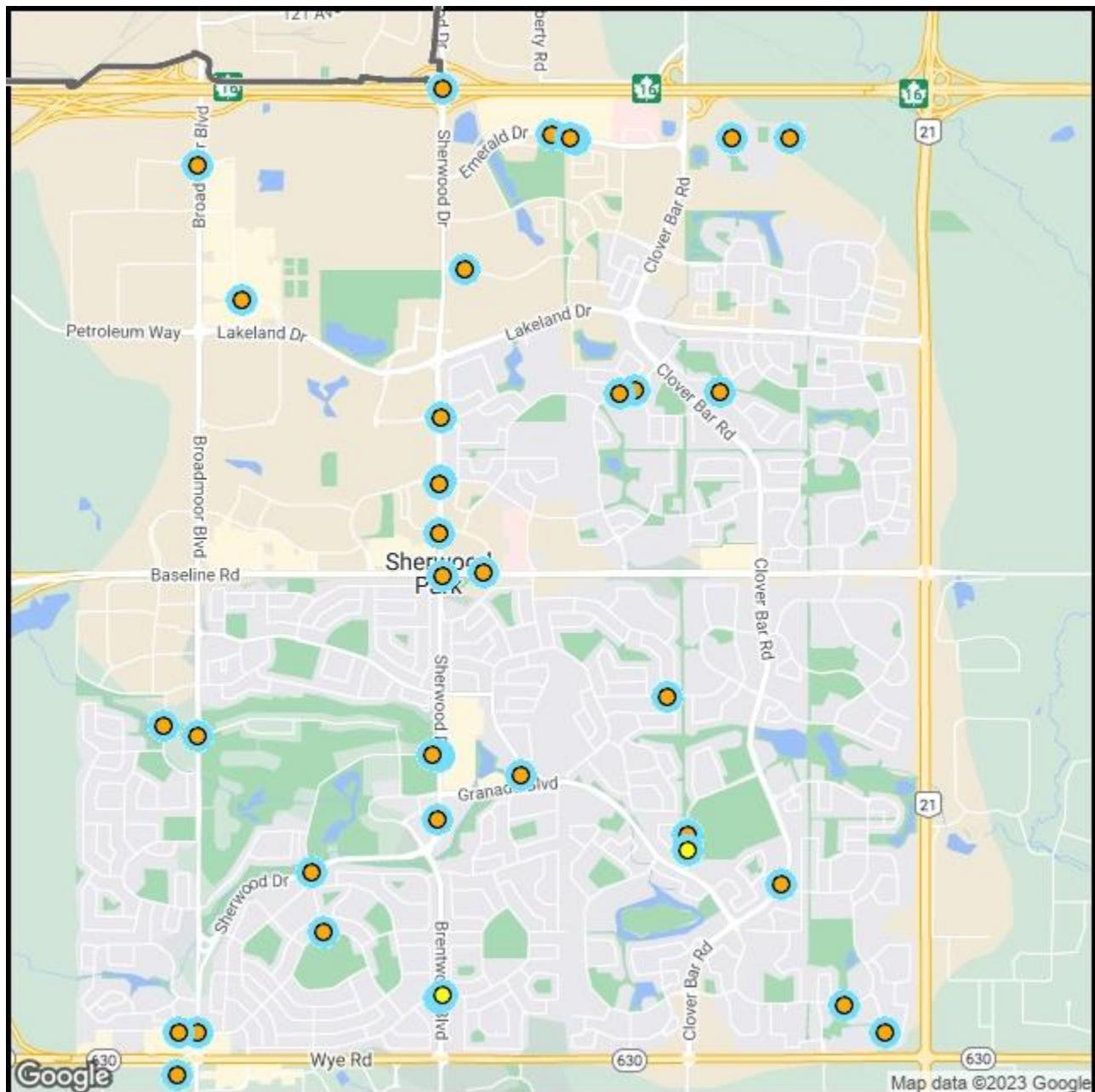


Figure 24: Map of pedestrian collisions in urban area (public roads only) 2018-2022



#### *Road user behaviour leading to pedestrian incidents*

Data on driver actions in pedestrian collisions indicate that drivers fail to yield the right of way to pedestrians 31% of the time. This is misleading due to the high proportion of “unknown” classifications, which are a result of the high number of hit and run collisions (13/45 or 29%) involving pedestrians.

Figure 25: Driver prior actions in pedestrian collisions 2018-2022

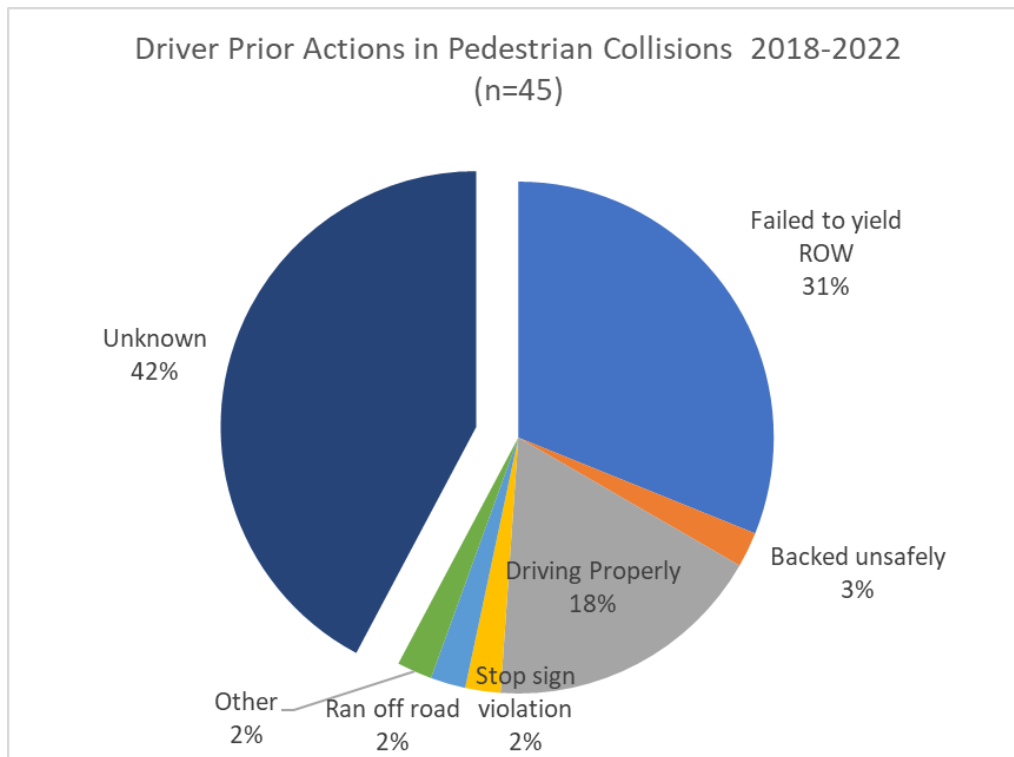
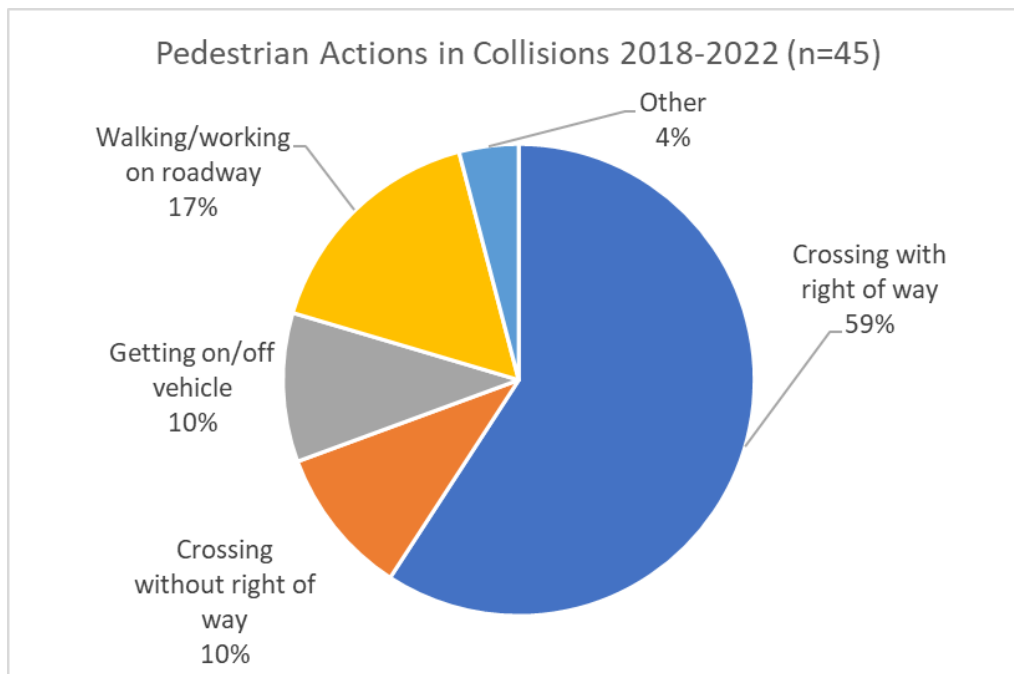


Figure 26: Pedestrian actions in collisions 2018-2022



Data on pedestrian actions in collisions is much clearer. In 59% of cases, pedestrians were crossing with the right of way. Pedestrians are walking/working on the roadway in 17% of collisions and getting on/off the vehicle in ten percent.

Only in 10% of incidents were the pedestrians crossing without the right of way. A detailed reading of each collision report indicates driver error resulted in the collision in at least 73% of incidents. This is consistent with driver action data that indicates drivers were “driving properly” only 18% of the time.

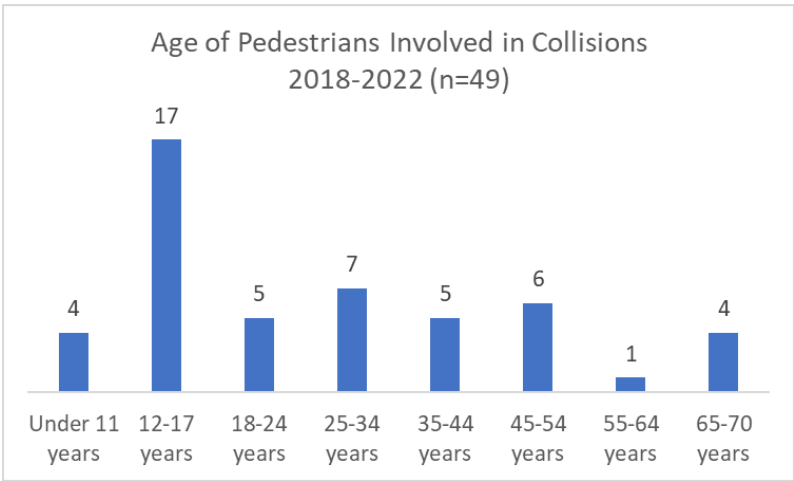
In one collision the driver condition was “medical defect”; one collision specifically identified the driver as distracted. All other driver conditions were “apparently normal”. For pedestrian condition, all but two were “apparently normal”; two were classified as “unknown” including the one pedestrian who was fatally injured. Alcohol was not reported as a contributing factor in any of the pedestrian collisions.

*Demographics of pedestrians and drivers involved in collisions*

Sixty-nine percent of pedestrians involved in collisions in Strathcona County were Sherwood Park residents. Twenty-four percent were Edmonton residents. Forty-one percent were female and 59% were male.

Forty-three percent of pedestrians involved in collisions were under 18 years old. Ten percent were 55 or older. Pedestrians involved in collisions ranged from 7-70 years old.

Figure 27: Age of pedestrians involved in collisions in Strathcona County 2018-2022



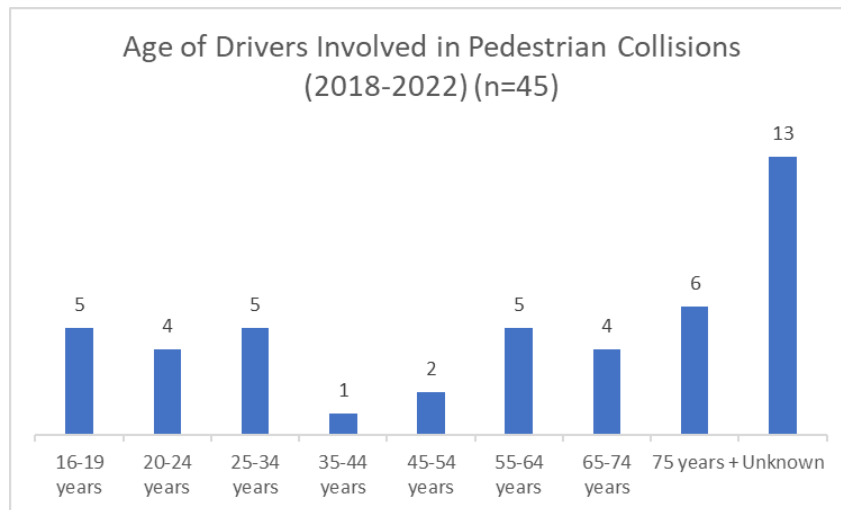
Four pedestrians under the age of 12 were involved in collisions. One involved a seven-year-old child who started crossing without the right of way on Baseline Road at Cranford Drive. One involved a ten-year-old who started crossing without the right of way on Oak Street just west of Sherwood Drive. Two boys, seven and eleven, were struck crossing Crimson Drive with the right of way.

For the 17 pedestrians aged 12-17, 14 (82%) were struck when crossing with the right of way. One was crossing Colwill Boulevard without the right of way, and two were walking/working on roadway (one on a rural grid road).

For drivers involved in pedestrian collisions, ages ranged from 16-81 years. With no driver information available for 29% of collisions, it is not possible to identify any demographic trends with confidence. Forty-seven percent of drivers identified were from Sherwood Park (21/45). One was from Ardrossan and 10/45 were from other Edmonton-area municipalities.



Figure 28: Age of drivers involved in pedestrian collisions in Strathcona County 2018-2022



#### *School and playground-related pedestrian incidents*

There were seven pedestrian incidents reported between 2018-2022 that happened near a school during school zone effective hours. Two happened on Colwill Boulevard near Bev Facey. One happened on Festival Avenue near Salisbury Composite and one was on Emerald Drive near Archbishop Jordan High School. There were two incidents near Lakeland Ridge/Holy Spirit Schools, both to the northwest of the school. One was near the traffic circle at Crimson Drive/Cranberry Way (involving a 15-year-old) and one was on Crimson Drive at Codette Way (involving two children, 7 and 11 years old). One incident happened on Oak Street south of Sherwood Drive near the St. Theresa School site outside of the school zone, but close to the site at 1525 hrs involving a 10-year-old. Six of the incidents resulted in minor injury to the pedestrian(s). One involved property damage only.

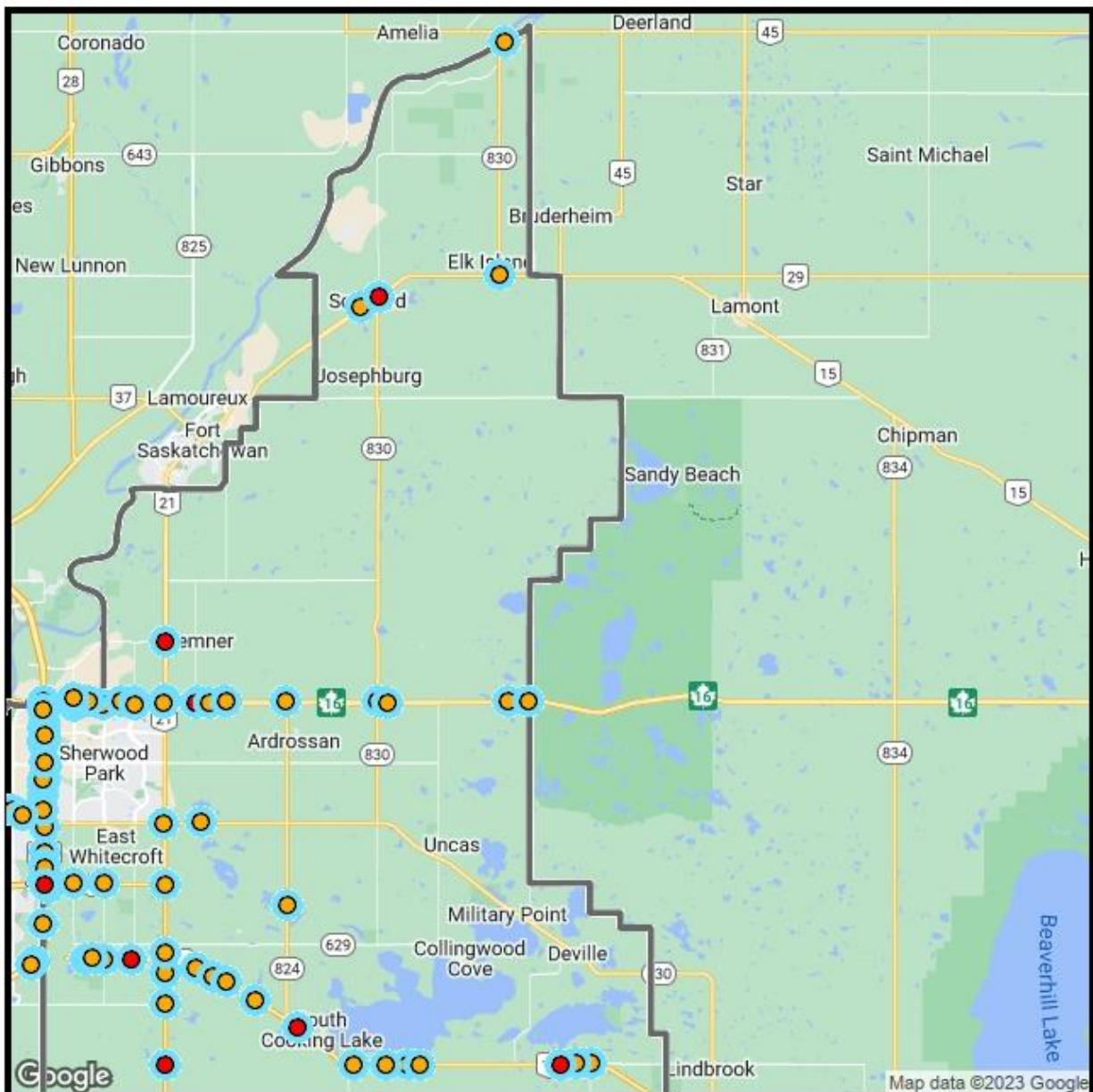
No incidents were reported in a playground zone involving a pedestrian under 18 years old.

#### *d. Commercial vehicle collisions (trucks>4500 kg and tractor trailers)*

Between 2018-2022, 143 injury collisions (fatal, major and/or minor) in the County involved one or more commercial vehicles. Of those collisions:

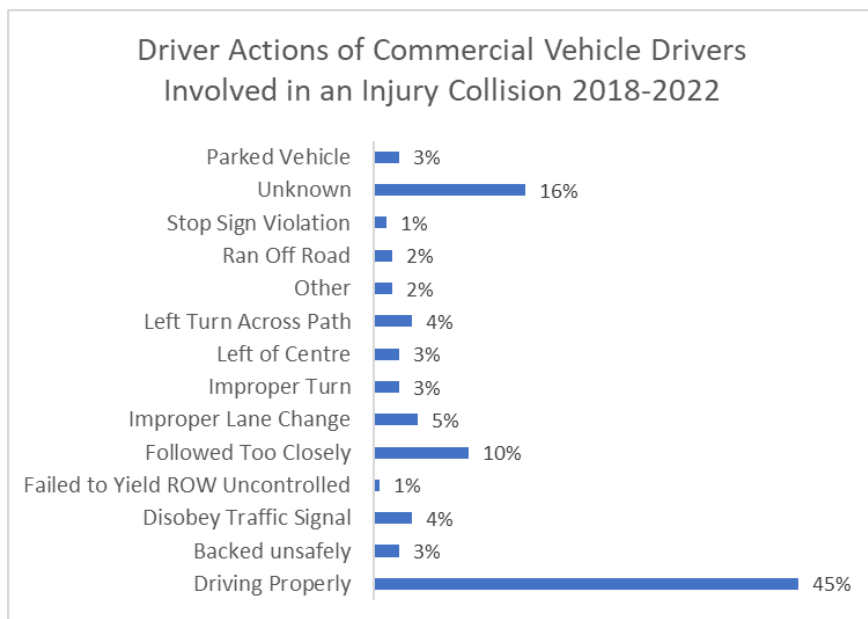
- 69% happened on provincial highways and 31% happened on County-owned roads
- 64% were rural and 36% were urban
- 77% happened in daylight
- Condition of commercial vehicles involved in collisions were reported as: 94% “No Apparent Defect”; 2% (3 vehicles) “Improper Load/Shift” and 4% (6 vehicles) “Unknown”
- About half of the commercial vehicle drivers were identified as engaging in a prior action that resulted in the collision; the most common was follow too close.

Figure 29: Location of collisions on provincial highways involving commercial vehicles and any level of injury 2018-2022 (red dots indicate a fatal collision)



Collisions on provincial highways involving commercial vehicles were concentrated on Hwy 216, Hwy 16, Hwy 21 and Hwy 14. For FMI collisions, 41% (12/29) of fatal collisions and 10% (8/82) of major injury collisions in the County involved a commercial vehicle. Ninety-two percent of fatal collisions (11/12) happened on a provincial highway and 75% of these were rural highways (9/12). Five of the rural highway collisions involved a vehicle left of centre being struck by a semi. Three involved right-angle collisions. One fatal collision involving a train happened on a Strathcona County-owned road.

Figure 30: Driver Actions of Commercial Vehicle Drivers Involved in an Injury Collision 2018-2022



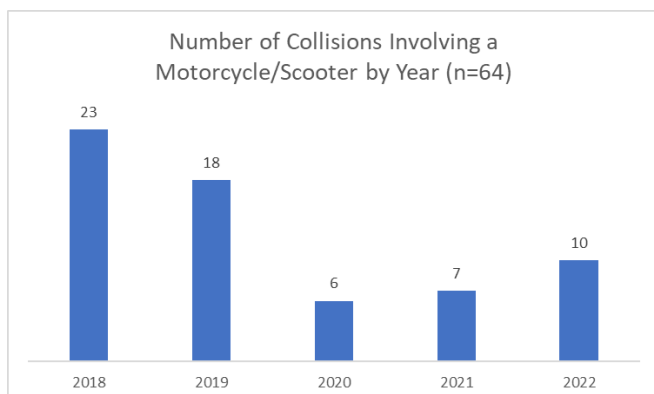
In 9/12 fatal collisions (75%) the commercial vehicle driver was not at fault. Where the commercial vehicle driver did commit an error, one was a run off road involving only the truck. One was a train collision where the truck was stopped on the tracks and the driver was deceased. One driver disobeyed a traffic signal, resulting in a right-angle collision where the other driver was deceased.

For major injury collisions involving a commercial vehicle, half (4/8) involved commercial driver error. Improper actions included a stop sign violation, left turn across path, left of centre (vehicle condition “unknown”, and ran off road (due to “Improper Load/Shift”).

#### e. Motorcycle collisions

Between 2018 and 2022, 64 collisions involving 66 motorcycles/scooters were reported on public roadways in Strathcona County. Twenty of the collisions involved FMI. Motorcycle collisions resulted in four fatalities, 17 major injuries and 39 minor injuries in this five-year period. One motorcyclist who sustained a major injury was not wearing a helmet. Generally, there is a decreasing trend in the number of collisions involving a motorcycle/scooter.

Figure 31: Number of collisions involving a motorcycle/scooter by year- 2018 to 2022



Four collisions identified alcohol as a contributing factor. One impaired driver was charged in a head on collision that resulted in two motorcyclist fatalities. One impaired motorcyclist sideswiped a parked car on a local road resulting in a minor injury. Two impaired motorcyclists went off the road, one resulting in a minor injury and one a major injury to the rider.

Sixty-three percent (40/64) of motorcycle collisions happened in an urban area; 38% (24/64) happened at a rural location. Twenty percent (13/64) happened on a Bridge/Overpass or Interchange Ramp, including one fatal collision. Fifty-two percent of motorcycle collisions happened on a provincial highway, including all three fatal collisions and 59% of major injury collisions.

Figure 32: Map of urban motorcycle collisions 2018-2022 (n=40)

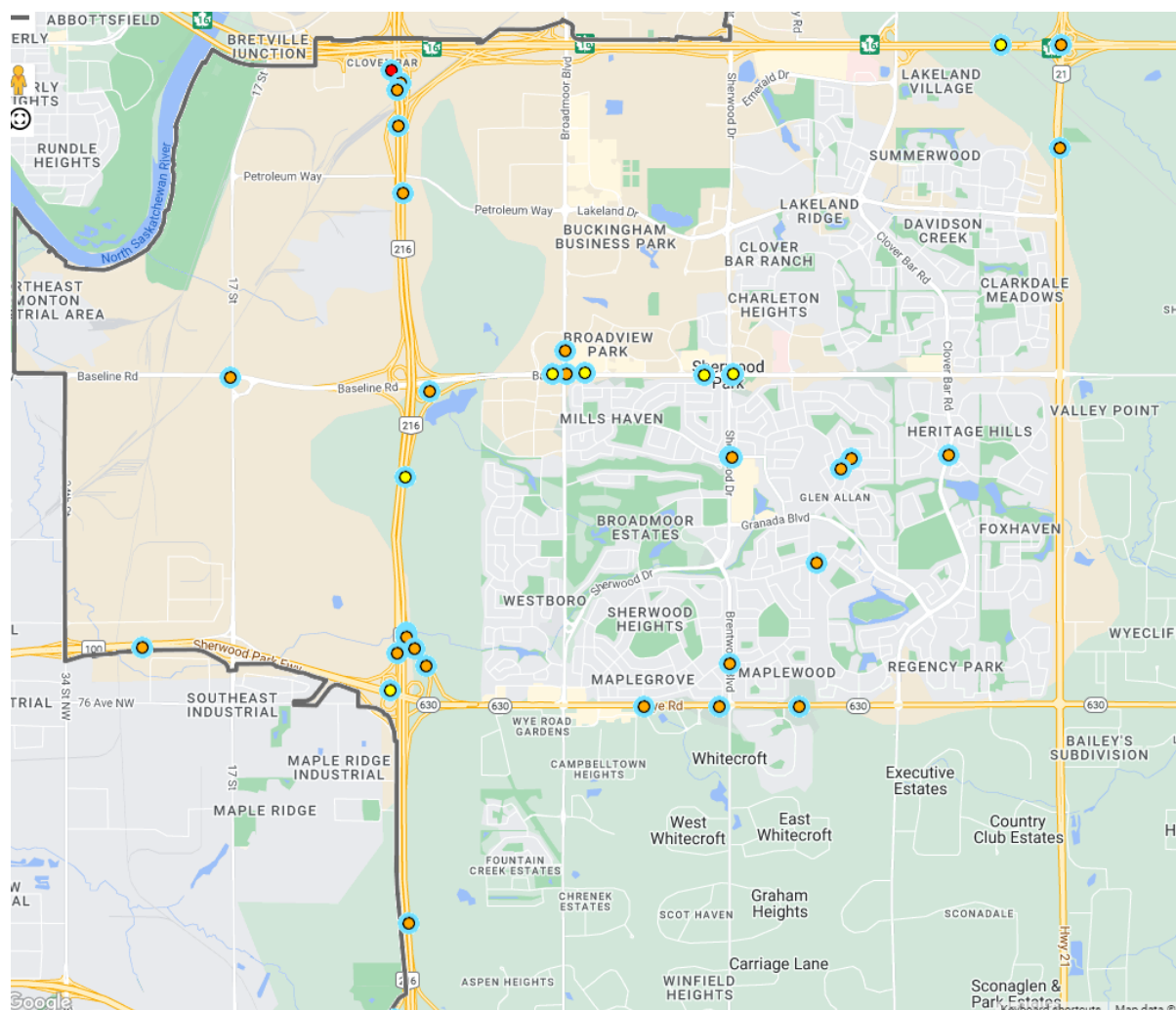
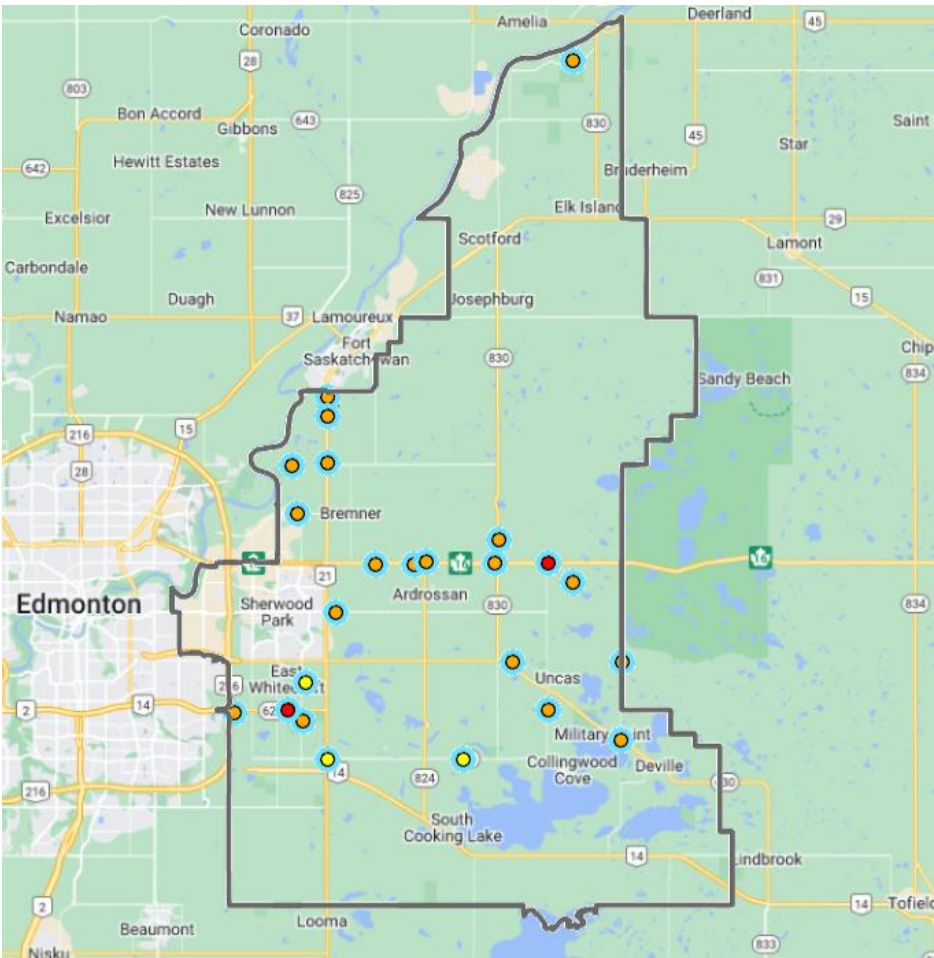


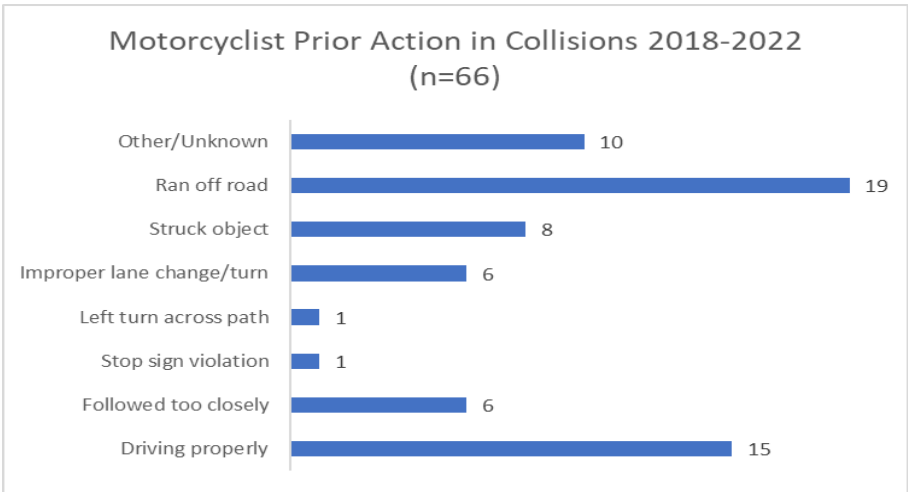
Figure 33: Map of rural motorcycle collisions 2018-2022 (n=24)



*Actions of motorcyclists/drivers that resulted in collisions*

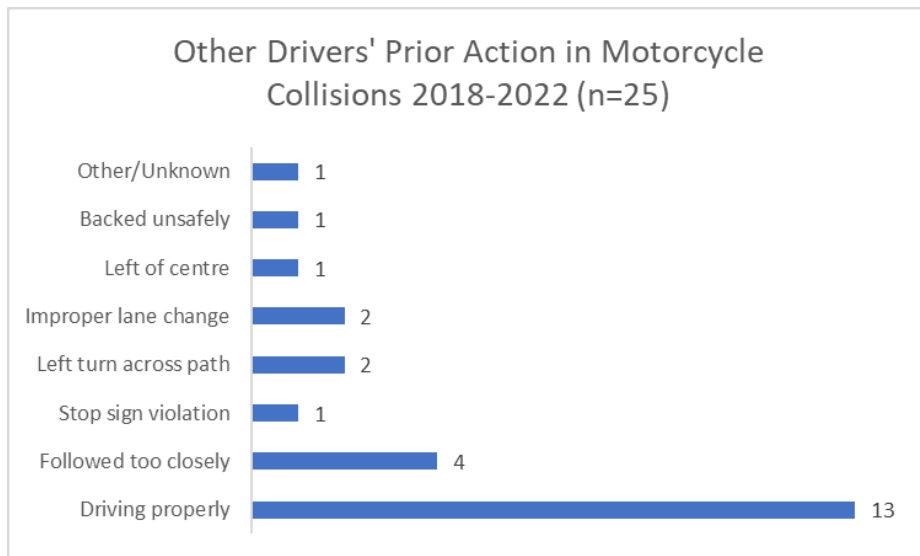
Sixty-one percent of motorcycle collisions (39/64) were single vehicle collisions. Four involved an animal strike. The most common driver action prior to a collision was ran off road.

Figure 34: Motorcyclist prior action in collisions 2018-2022



For the 39% of motorcycle collisions that involved another vehicle driver, 52% of the drivers were deemed to be driving properly. For the remainder, followed too closely was the action that contributed most to collisions with motorcycles.

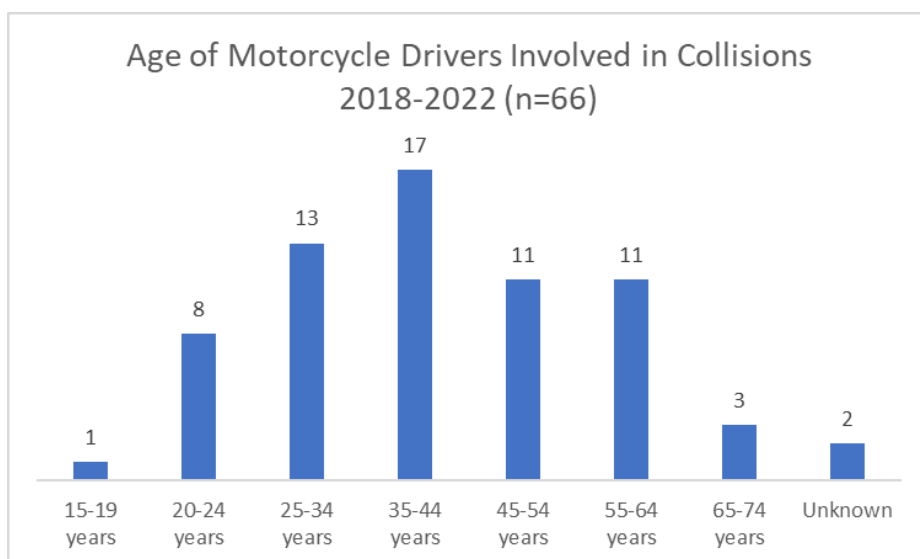
Figure 35: Other driver prior actions in collisions involving motorcycles 2018-2022



#### *Demographics of motorcycle drivers involved in collisions*

Sixty-six motorcycle drivers were involved in collisions between 2018-2022. Eighty-nine percent identified as male; 8% identified as female.

Figure 36: Age of motorcycle drivers involved in collisions 2018-2022





#### f. Off-highway vehicle (OHV) collisions

Between 2018 and 2022, eight collisions were reported that involved OHVs. All collisions happened in a parking lot or on private property, and all were single vehicle events. Six involved minor injury, and two involved major injury. Both major injury incidents involved drivers hitting a tree, both in darkness. In three of the OHV collisions, drivers and passengers were identified as not wearing helmets. One of the collisions resulted in two minor injuries and another in two major injuries.

Three of the collisions involved children 10 and under. Two of these involved children being struck as pedestrians, both resulting in minor injury. Two involved children operating the OHV, with one of these being a 10-year-old who struck a tree and incurred a major injury. Another seven-year-old driver struck an 8-year-old pedestrian.

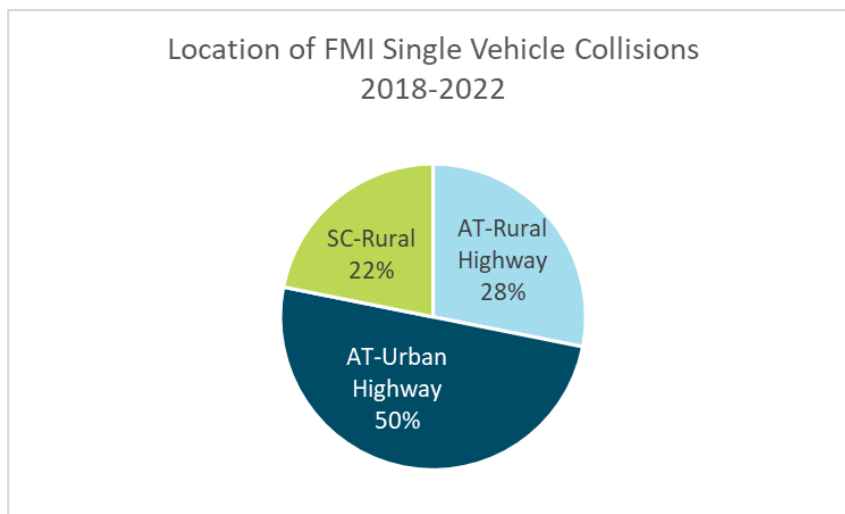
Two of the collisions involved alcohol. In both cases, the impaired driver rolled the OHV, causing minor injury to themselves and their impaired passengers.

#### g. Single vehicle collisions

Single vehicle collisions, which involved only one moving vehicle (excluding animals and pedestrians), account for 29% of FMI and 24% of fatal collisions between 2018 and 2022 on public roads in the County. Thirty-eight percent of single vehicle collisions involve motorcycles. Twenty-eight percent of single vehicle collisions happened on an exit ramp/interchange. Seventy-five percent of them took place on dry roads, 22% on snow/slush/ice and 3% on a loose road surface.

None of the collisions took place in Sherwood Park. Seventy-eight percent of collisions took place on a provincial highway.

Figure 37: Location of FMI single vehicle collisions in Strathcona County 2018-2022



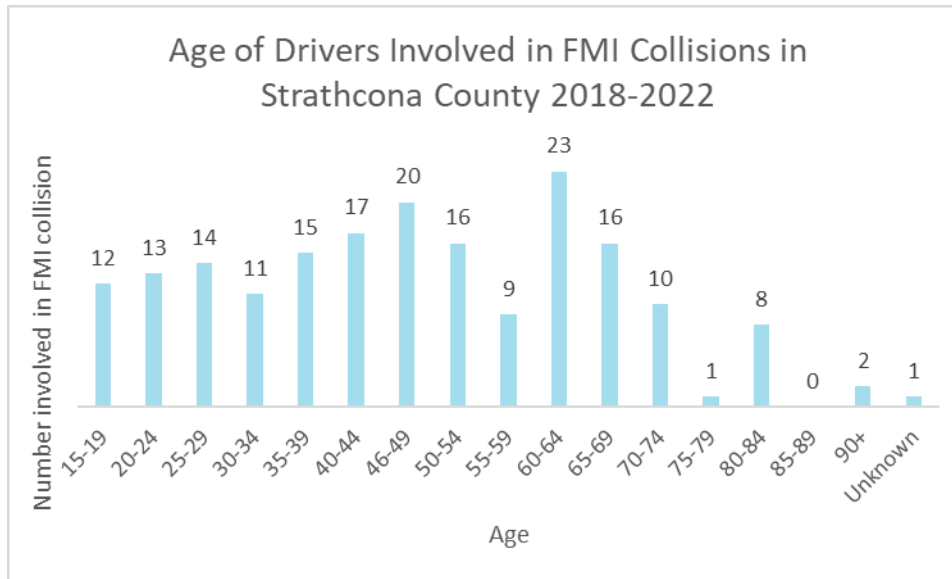
All of the collisions involved a driver prior action of run off road/lost control except one which involved the driver hitting a hay bale that fell off a preceding vehicle. Three involved impaired drivers: one by alcohol, one by alcohol and drugs and one who was asleep/fatigued.

## C. FMI Collisions: Driver Demographics

### 1. Age

Figure 38 shows the age of all drivers involved in FMI collisions in Strathcona County. Only persons driving a motor vehicle were included in this analysis. Those experiencing a medical event or on private property were excluded.

Figure 38: Age of Drivers Involved in FMI collisions in Strathcona County

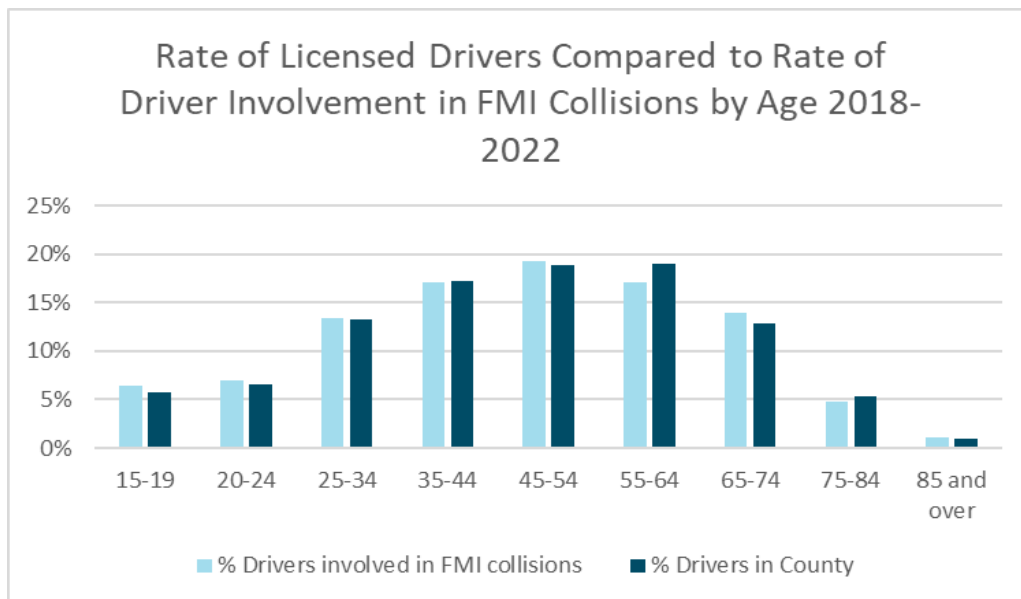


Drivers 46-49 and 60-64 were most frequently involved in FMI collisions in Strathcona County in the last five years.

Information from the 2018 census provides data on age group populations as well as rates of population with a driver's license. This data was used to plot the rate of driver involvement in FMI collisions by age to the rate of licensed drivers by age in Strathcona County. When compared, the rates of involvement in FMI collisions closely mirror the rates of licensed drivers in each age group. The only notable difference is that drivers 55-64 may be involved slightly less than expected in FMI collisions.

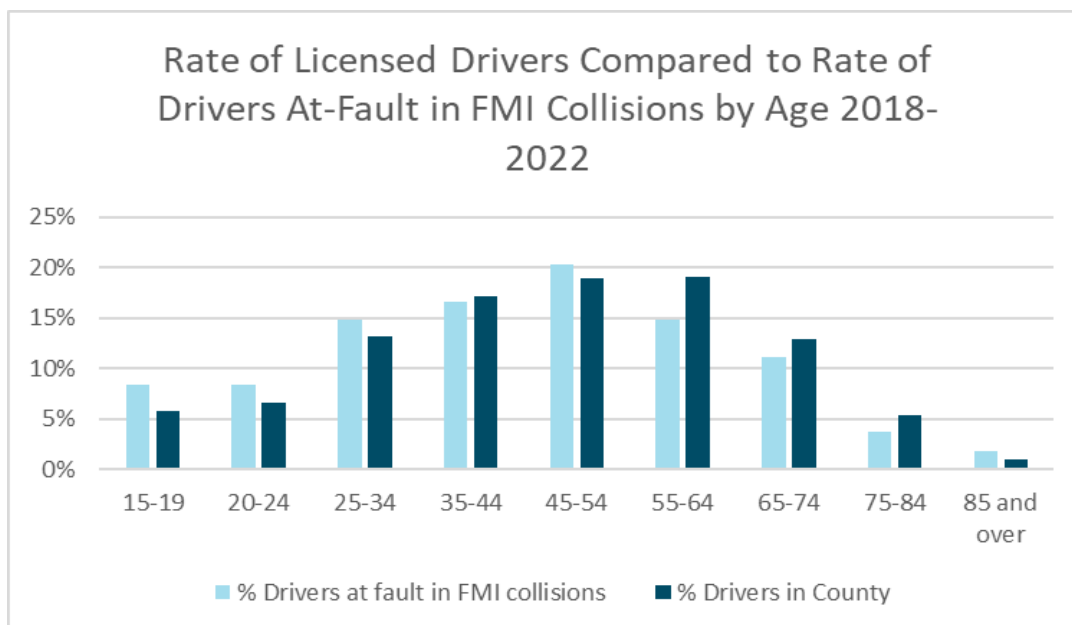


Figure 39: Comparison of rate of licensed drivers (based on 2018 Municipal Census) to rate of driver involvement in FMI collisions in Strathcona County by Age 2018-2022



However, when drivers whose prior action was anything other than “Driving Properly” (for the purposes of this report, “at-fault” drivers) are considered separately, drivers under 34 and 45-54 emerge as overrepresented in FMI collisions, whereas those 55-84 are underrepresented. Drivers over 85 years old are also somewhat overrepresented.

Figure 40: Comparison of rate of licensed drivers (based on 2018 Municipal Census) to rate of at-fault driver in FMI collisions in Strathcona County by age 2018-2022



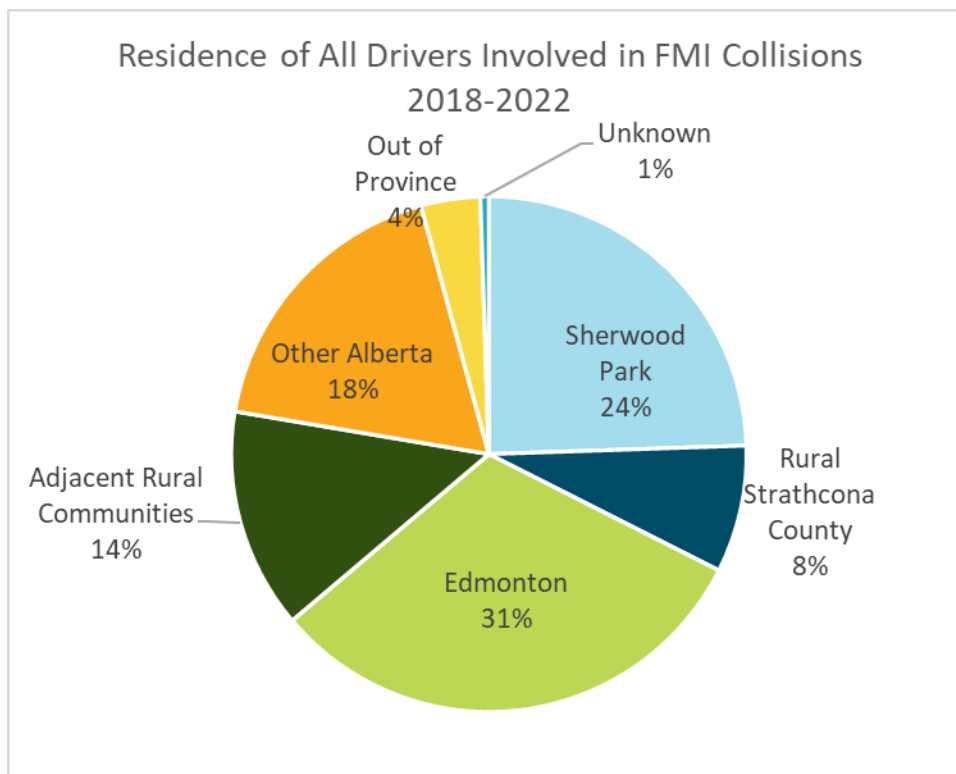
## 2. Gender

When all drivers involved in FMI collisions between 2018-2022 are considered, 74% are identified as male and 25% as female. When the analysis is limited to only at-fault drivers, 76% are identified as male and 24% as female.

## 3. Place of Residence

When the location of residence was examined for all drivers involved in FMI collisions in the last five years, only 32% of drivers were Strathcona County residents. Edmonton residents make up almost an equal proportion (31%). Fourteen percent were from adjacent communities, including Fort Saskatchewan, Bruderheim, Lamont, Beaumont, Leduc and Beaver Counties. Another 18% were residents of more distant Alberta communities and 4% came from out of province.

Figure 41: Residence of all drivers involved in FMI collisions in the last five years



When the sample is limited to only at-fault drivers in FMI collisions, 30% were from Strathcona County, while 37% were from Edmonton.

Figure 42: Residence of drivers at-fault in FMI collisions in the last five years

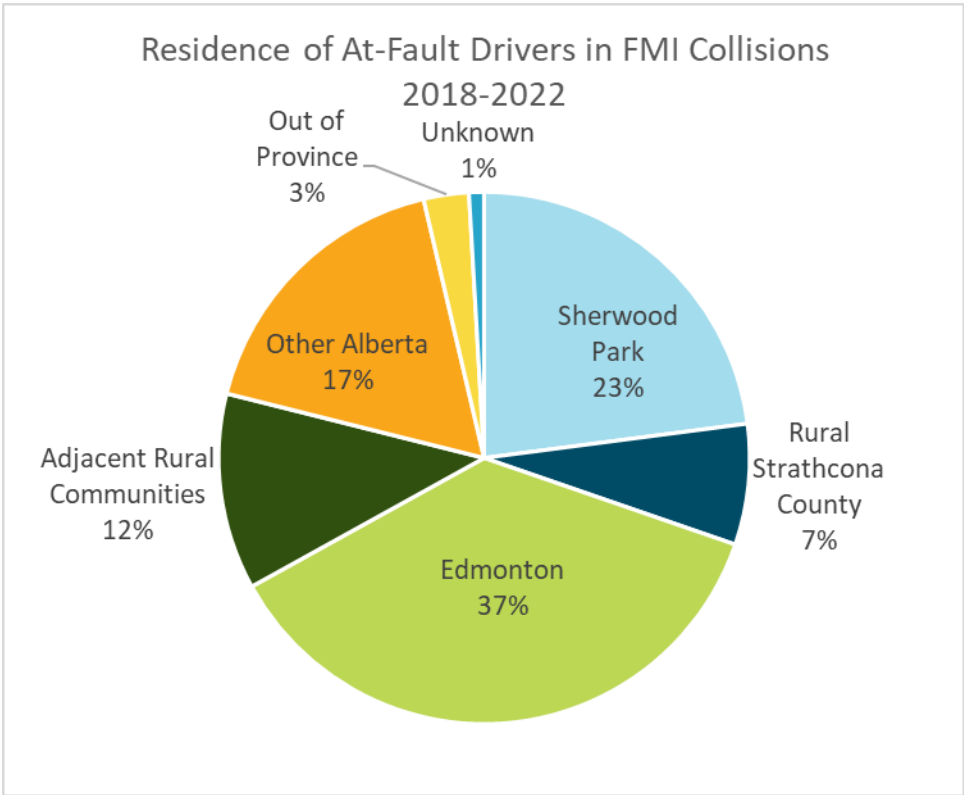


Figure 43: Residence of at-fault drivers in FMI collisions on Provincial highways in last 5 years

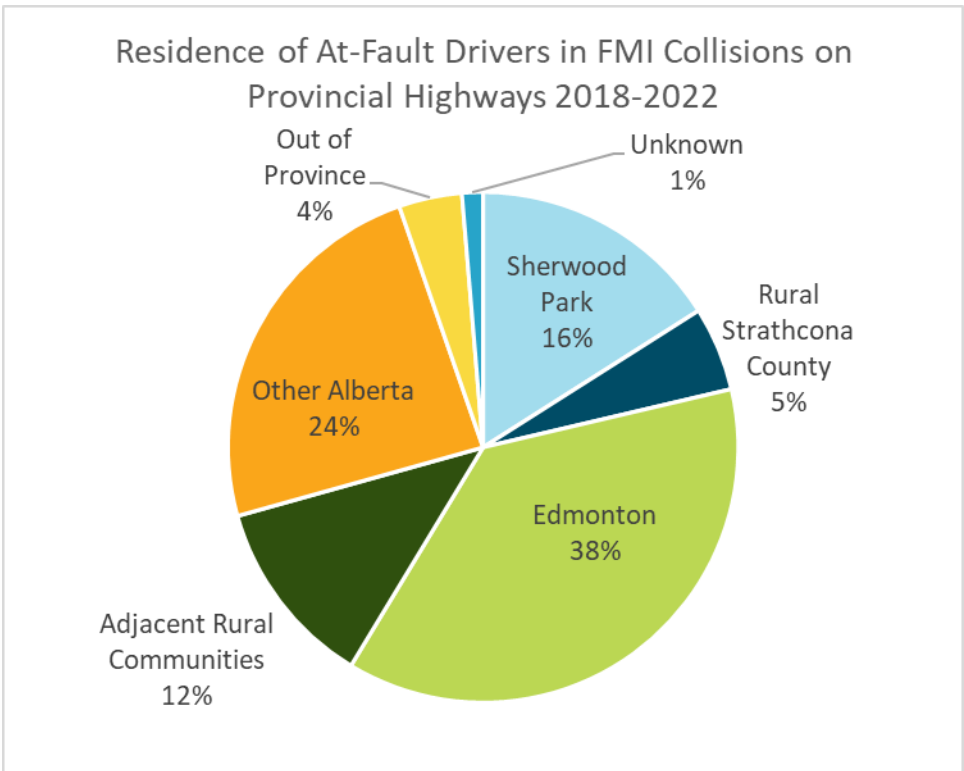
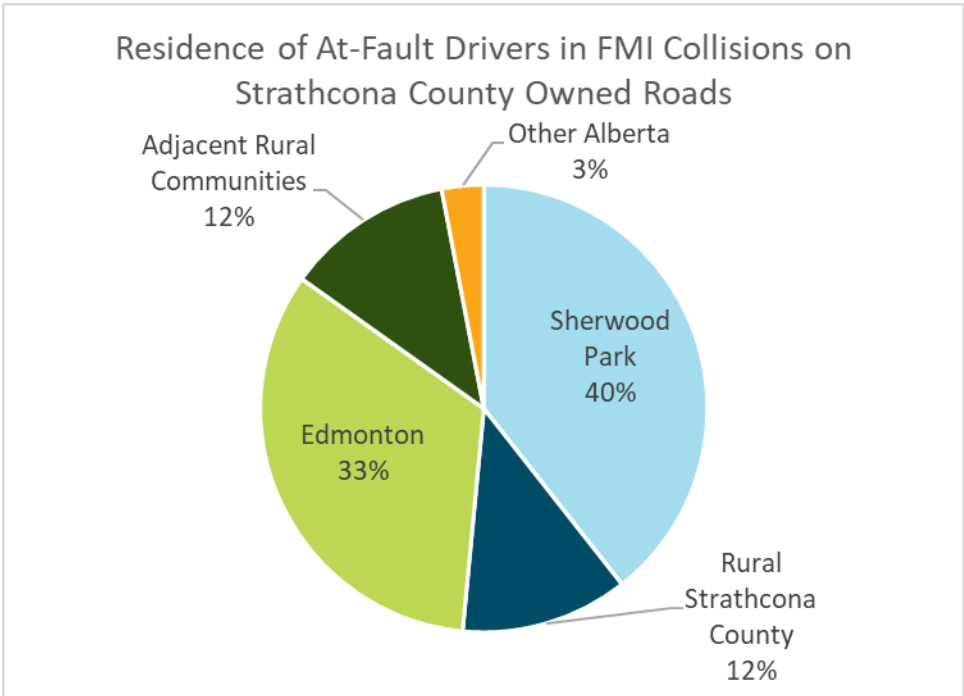


Figure 44: Residence of at-fault drivers in FMI collisions on County owned roads in last five years



D. Driver Actions Leading to Injury Collisions 2018-2022

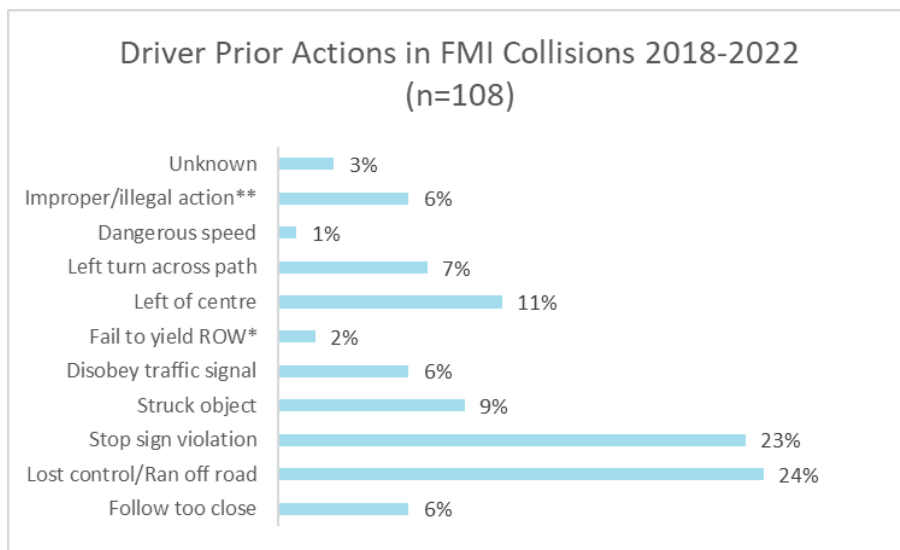
This section will examine actions of drivers whose prior action was anything other than “Driving Properly” on the collision report with the purpose of identifying common driver errors that may benefit from intervention (enforcement, education, engagement, engineering). For the purposes of this report and brevity, the term “at-fault” drivers will be used, with the recognition that our goal is not to assign blame, but rather to understand weak links in the system. Ideally, a safe system is forgiving of driver error.

1. Prior driver actions leading to FMI collisions in Strathcona County

Figure 45 below categorizes the actions of drivers that resulted in all FMI collisions that happened in the County between 2018 and 2022. Two actions accounted for almost half of the serious collisions in the County in the last five years: Stop sign violations and Ran off Road. Left of centre is the only other action accounting for more than 10% of collisions.

However, deeper analysis reveals the cause of FMI collisions varies greatly depending on the location.

Figure 45: Driver Actions - All FMI collisions in Strathcona County 2018-2022

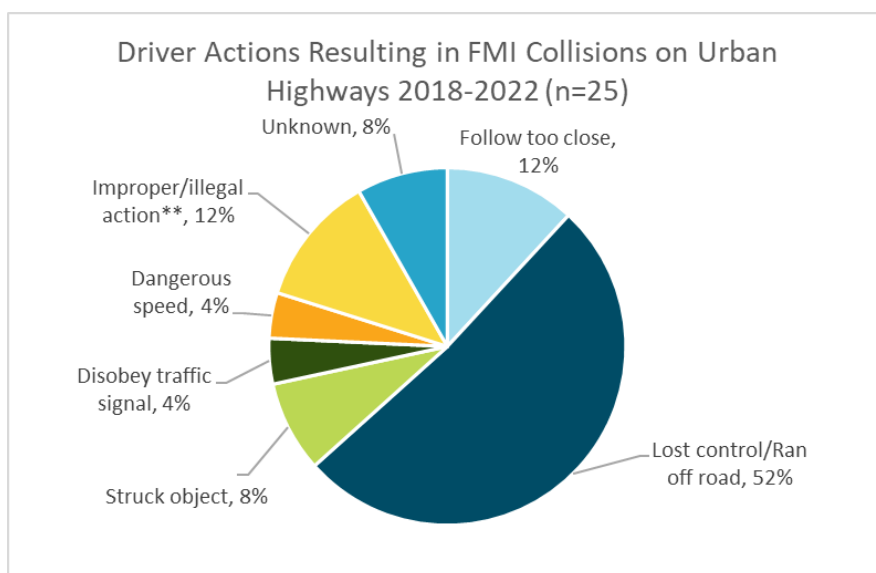


\* Right of way \*\*Includes improper lane changes, turns, passing, U-turns and driving the wrong way

## 2. Driver actions resulting in FMI collisions on urban Provincial highways

Provincial highways are classified according to their engineering as “urban” (divided with controlled accesses/interchanges) and “rural” (those with uncontrolled, grade level accesses). The higher level of engineering on urban highways effectively eliminates stop signs, right angle collisions and left of centre collisions. As a result, despite heavy traffic volumes, the safety of these highways is much better than rural highways. From Figure 46 below, collisions related to speed are the most common cause of injury collisions on urban highways, with lost control/ran off road/dangerous speed identified as the most common action of at-fault drivers. Both struck object collisions on urban highways involved hitting road infrastructure (guard rails), which could have alternatively been categorized as run off road.

Figure 46: Driver actions resulting in FMI collisions on urban provincial highways 2018-2022



\*\*Includes improper lane changes, passing and driving the wrong way

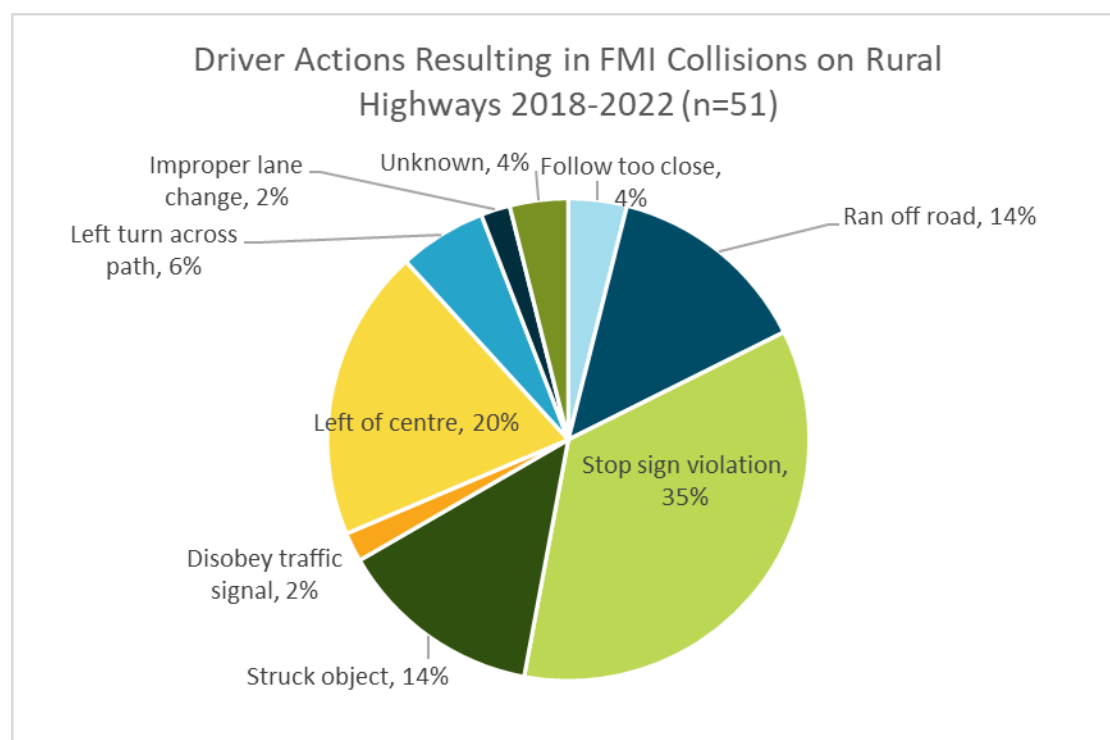
### 3. Driver actions resulting in FMI collisions on rural Provincial highways

Rural highways are the most dangerous roads in Strathcona County. All have uncontrolled, grade level access and many are undivided, meaning right angle and head-on collisions, the most dangerous kinds of collisions, are possible with driver error. Understanding driver behaviours/actions that lead to FMI collisions on rural provincial highways is particularly important as 69% of fatal crashes in the County in the last five years (and 91% in the last two years) happened on a rural highway.

From Figure 47 below, collisions related to stop sign violations and drivers straying left of centre are the most common cause of FMI collisions on rural highways. Upon deeper analysis, collisions related to stop sign violations are almost always related to drivers failing to proceed in safety, rather than from drivers completely missing the stop sign.

Of the seven struck object collisions, five involved animal strikes, one struck a pedestrian, and one struck a hay bale that fell off a preceding vehicle.

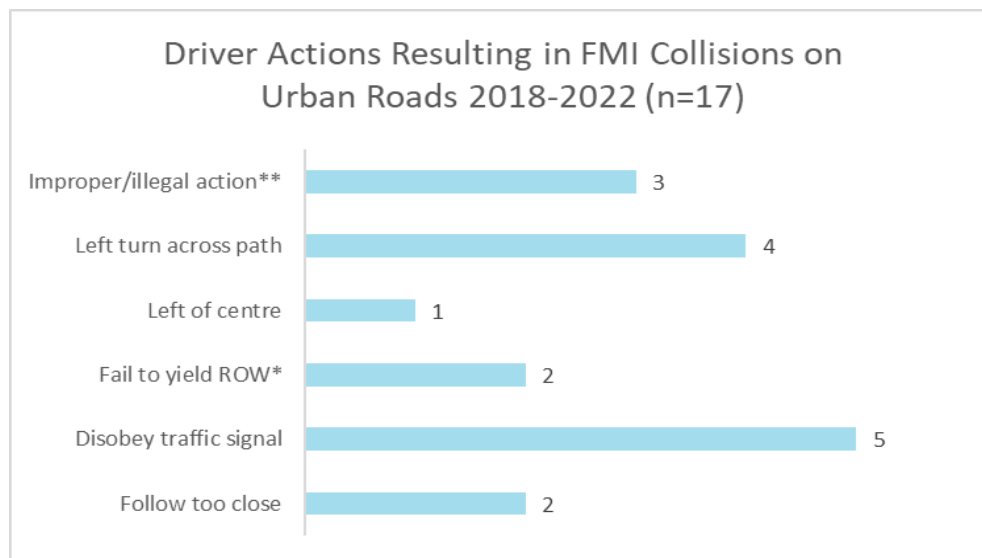
Figure 47: Driver actions resulting in FMI collisions on rural provincial highways 2018-2022



### 4. Driver actions resulting in injury collisions on Strathcona County-owned urban roads

In the last five years, there were 18 FMI collisions on Strathcona County-owned urban roads where an improper driver action was reported. Figure 48 below summarizes these actions. The two actions which resulted in the most FMI collisions were left turn across path and disobey traffic signal.

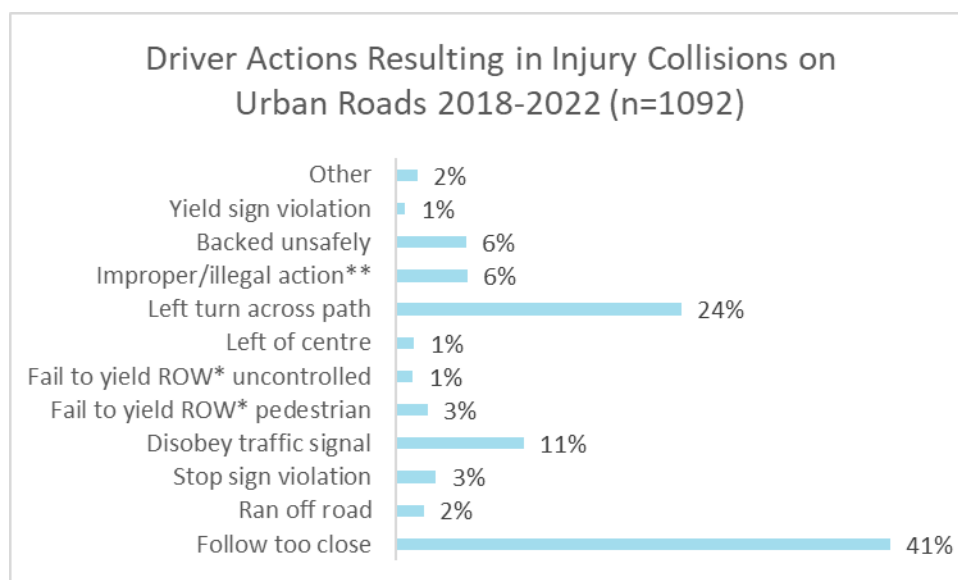
Figure 48: Driver actions resulting in FMI collisions on Strathcona County-owned urban roads 2018-2022



\* Right of way \*\*Includes improper lane changes, turns, passing, U-turns.

In order to increase the power of the analysis of driver actions leading to injury, the sample was expanded from FMI collisions to all collisions resulting in any level of injury (fatal, major and/or minor) that occurred on the County's urban network and summarized in Figure 49 below. In this sample, the top three driver actions leading to injury: follow too close, left turn across path and disobey traffic signal.

Figure 49: Driver Actions Resulting in Injury Collisions on County-owned urban roads 2018-2022

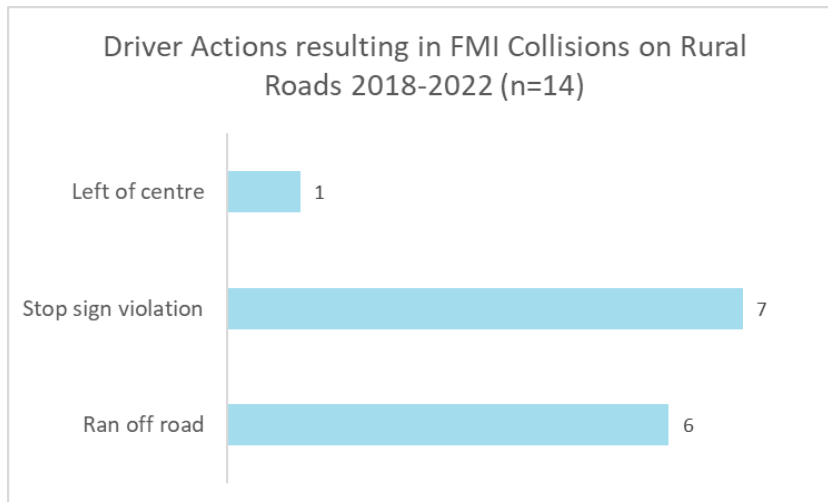


\* Right of way \*\*Includes improper lane changes, turns, passing, U-turns.

## 5. Driver actions resulting in injury collisions on Strathcona County-owned rural roads

In the last five years, there were 14 FMI collisions on Strathcona County-owned rural roads where an improper driver action was reported. Figure 50 below summarizes these actions. The two actions which resulted in the most FMI collisions were stop sign violations and ran off road.

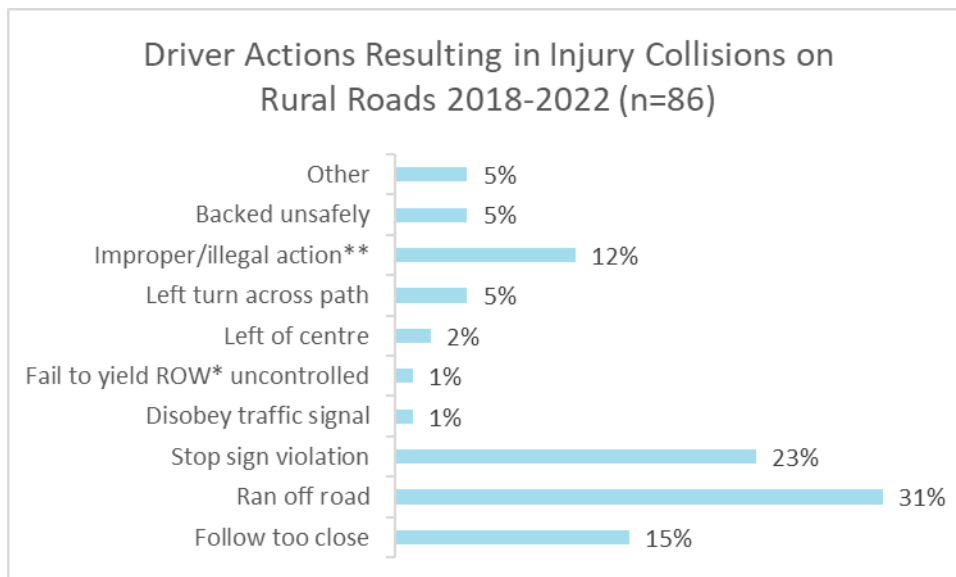
Figure 50: Driver Actions Resulting in FMI Collisions on Strathcona County-owned rural roads 2018-2022



Similar to urban collisions, the low number of FMI collisions on rural roads does not lend itself to detailed analysis, so the sample was expanded to include all injury collisions in the last five years.

As seen in Figure 51, two actions led to over half of the injury collisions on the rural network: stop sign violations and ran off road. Detailed analysis of stop sign violations reveals about half occurred when a driver failed to stop, and half when the driver stopped by failed to proceed in safety.

Figure 51: Driver Actions Resulting in Injury Collisions on County-owned rural roads 2018-2022



\*\*Includes improper lane changes, turns, passing, U-turns.



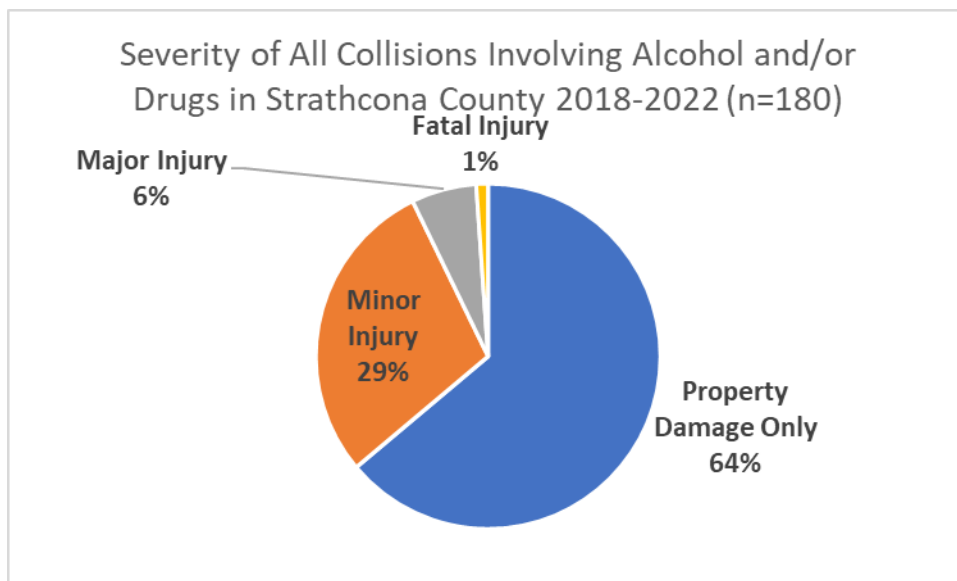
## E. Driver Conditions and Contributing Factors

As there are very few collisions in the County each year that are directly attributed to a specific driver condition (alcohol/drug use, medical defects, fatigue, or distraction), data has been gathered for all collisions (including PDO, minor injury, major injury and fatal) in the last five years related to each condition. This analysis will be followed by information related to each condition's contribution to FMI collisions in the County.

### 1. Alcohol/drug impaired drivers

Between 2018-2022, 168 drivers were identified as “had been drinking” or “impaired by alcohol”, who were involved in 167 collisions anywhere in Strathcona County (including parking lots). Another 11 were identified as impaired by drugs and alcohol and four as “impaired by drugs”, involved in another 15 collisions. Two of the drivers were motorcyclists and one was a bicyclist. These drivers were included in the analysis. Two of the drivers were driving off-highway vehicles on private property. These collisions have been removed from the analysis. See section B.3.f for detailed information on off-highway vehicles. Twenty of the collisions took place in parking lots. For the overall analysis (n=180), these collisions have been included.

Figure 52: Severity of all alcohol/drug related collisions in Strathcona County 2018-2022



Generally, there has been a reduced incidence of collisions involving alcohol/drugs over the last five years. With the significant drop in traffic in 2020, the number of alcohol/drug-related collisions is higher than expected, but we did not return to pre-pandemic levels in 2022.

Over the past five years, August has been the month with the highest number of alcohol/drug-related crashes, but there is no strong trend. There is a clear trend of a higher incidence of alcohol/drug-related crashes on the weekend, with Fridays reporting the most crashes, followed by Sunday and Saturday. Sixty-nine percent of collisions took place between noon and midnight.

Figure 53: Total number of alcohol/drug-related collisions 2018-2022

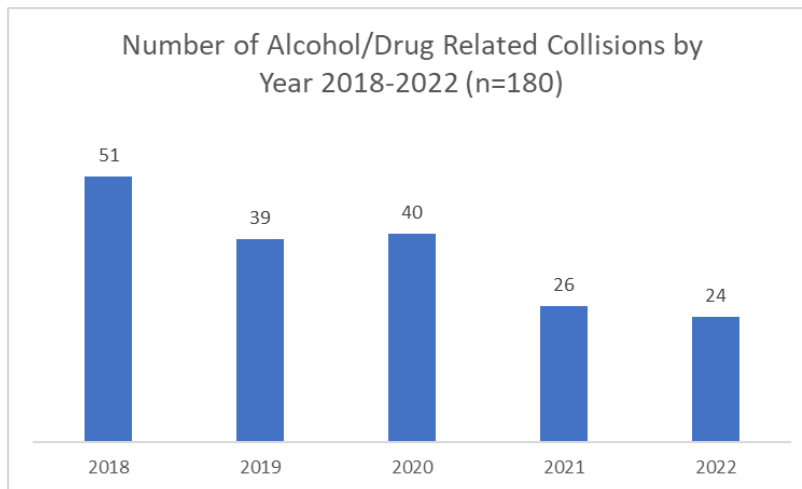


Figure 54: All alcohol/drug-related collisions by month 2018-2022

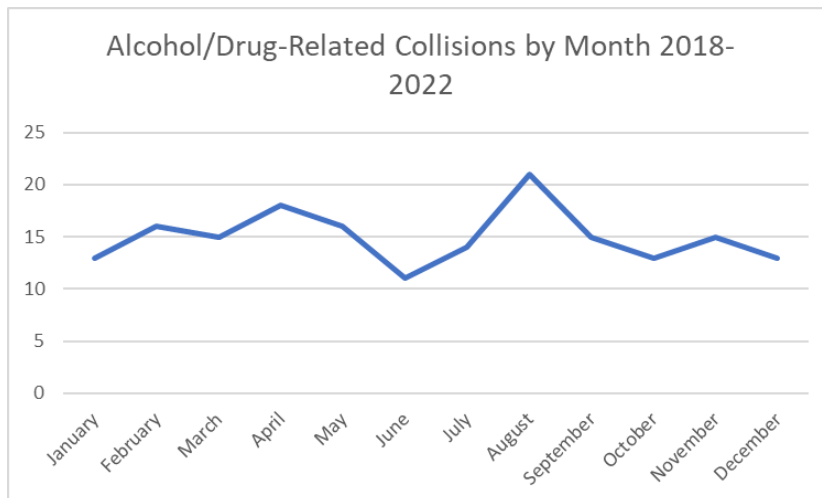


Figure 55: All alcohol/drug-related collisions by day of week 2018-2022

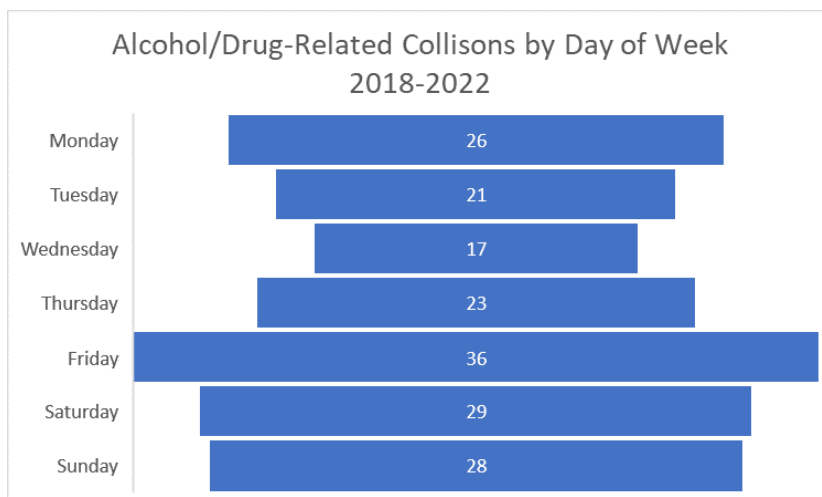
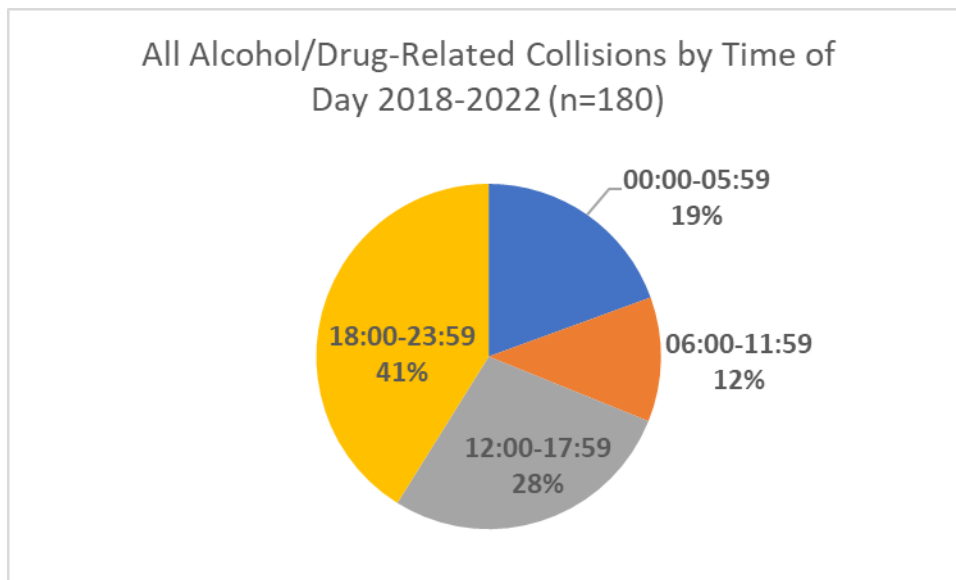


Figure 56: All alcohol/drug-related collisions by time of day 2018-2022

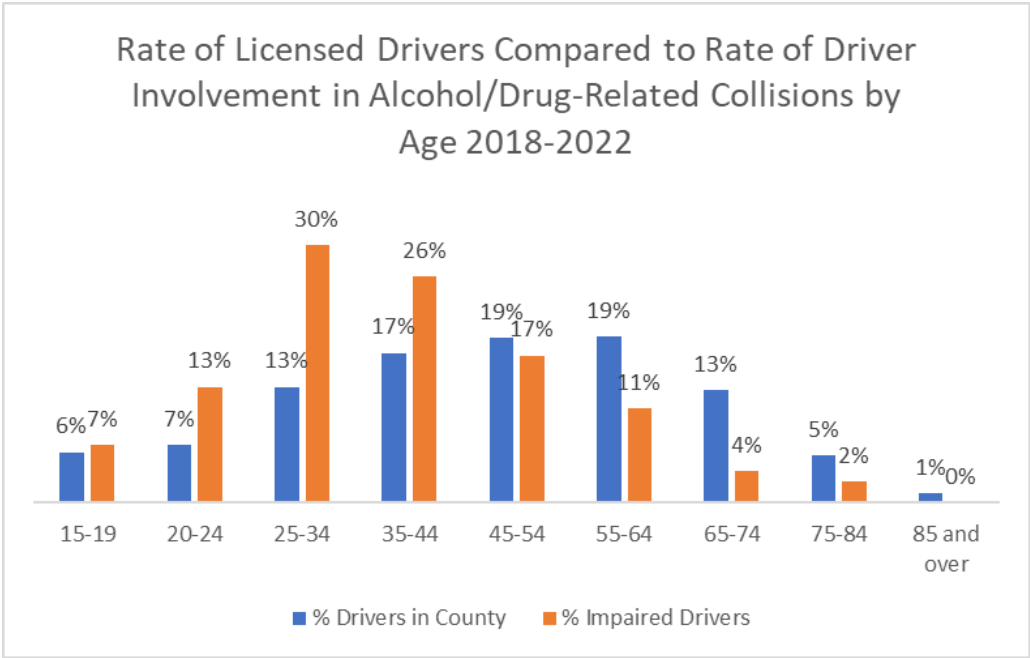


Eleven percent (20/180) of all alcohol/drug-related collisions took place in parking lots, and 89% (160/180) took place on public roads. For collisions on public roads, 64% occurred on County-owned roads and 36% on provincial highways; 30% occurred on a rural road/highway and 70% were urban.

#### a. Demographics of alcohol/drug-impaired drivers

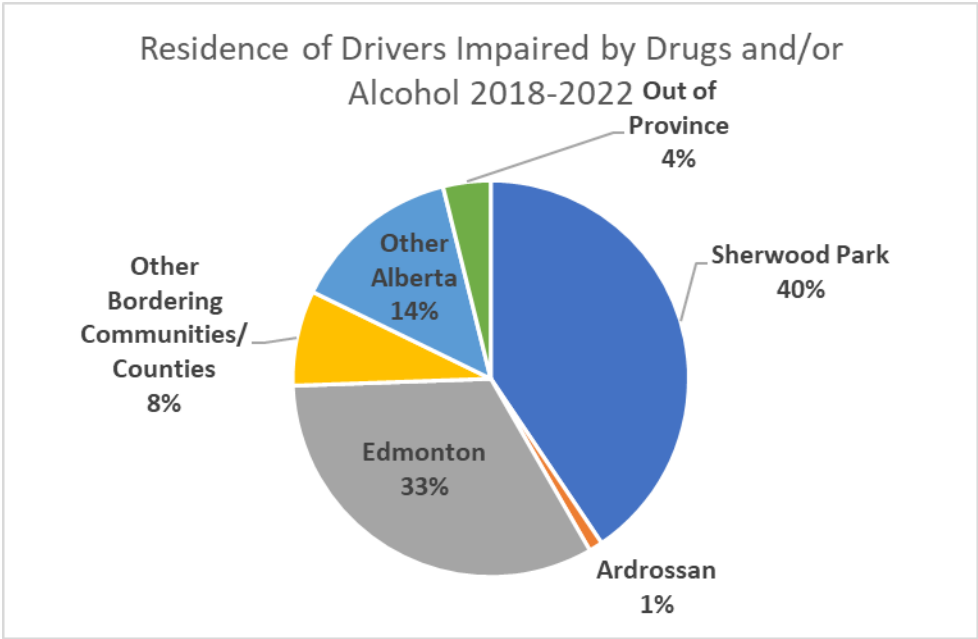
One hundred eighty-one drivers were identified as impaired by alcohol/drugs in collisions between 2018-2022. Seventy-one percent (71%) of these drivers identified as male and 29% as female. Drivers under 44 years of age are over-represented in alcohol/drug-related collisions, whereas drivers 45 years and older are under-represented (see Figure 56).

Figure 57: Rate of licensed drivers compared to rate of driver involvement in alcohol/drug-related collisions in Strathcona County (all locations) by age 2018-2022



Forty percent of drivers involved in a collision who were impaired by alcohol/drugs were residents of Sherwood Park. Two of the 181 drivers were from rural Strathcona County (Ardrossan). Forty-one percent were from Edmonton or another bordering municipality (Fort Saskatchewan, Lamont, Leduc or Beaver County). Another 14% were from a more distant Alberta community, and 4% were from out of province.

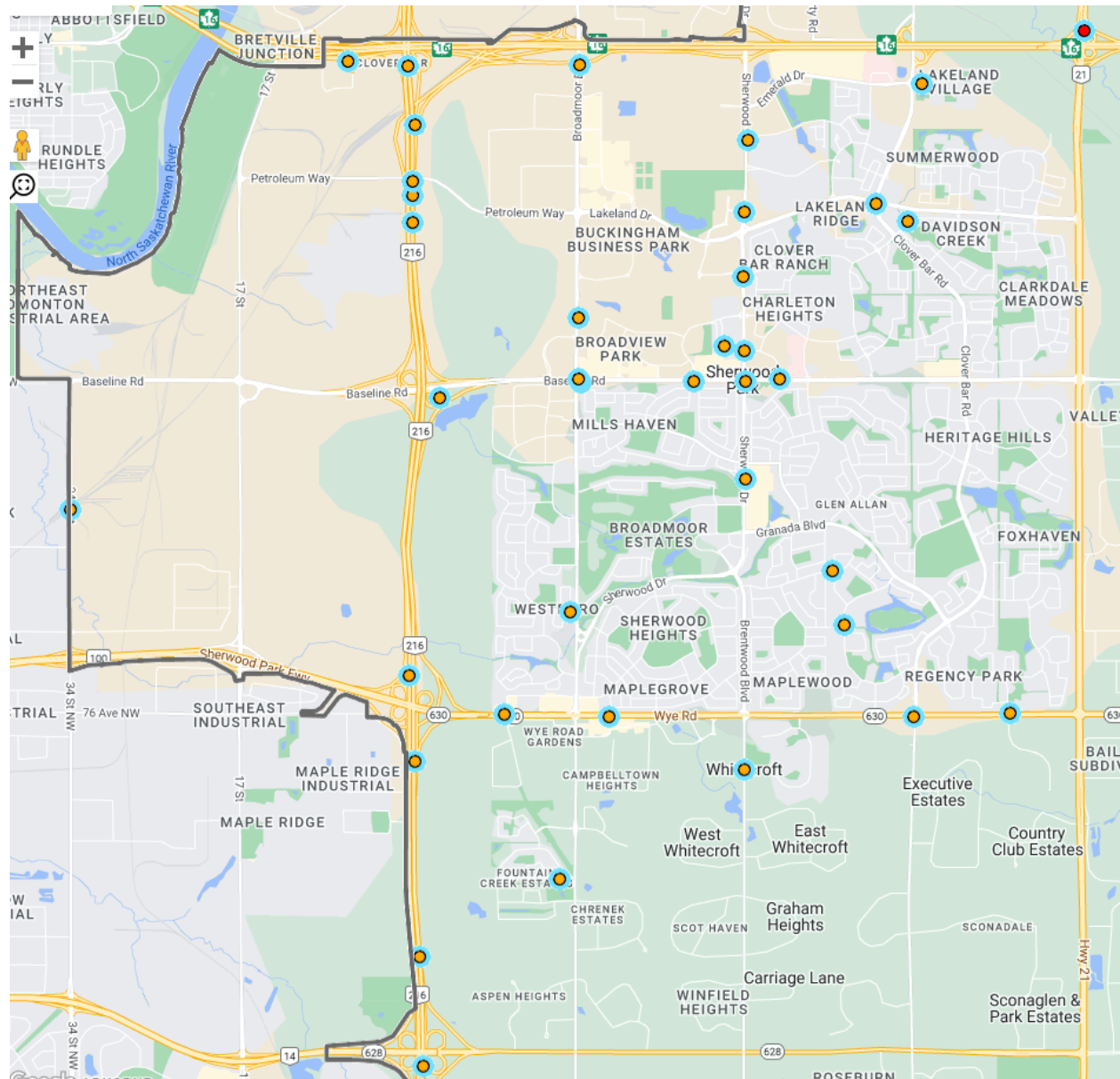
Figure 58: Residence of drivers involved in a collision who were impaired by alcohol/drugs



### b. Alcohol/drug-related collisions and injury

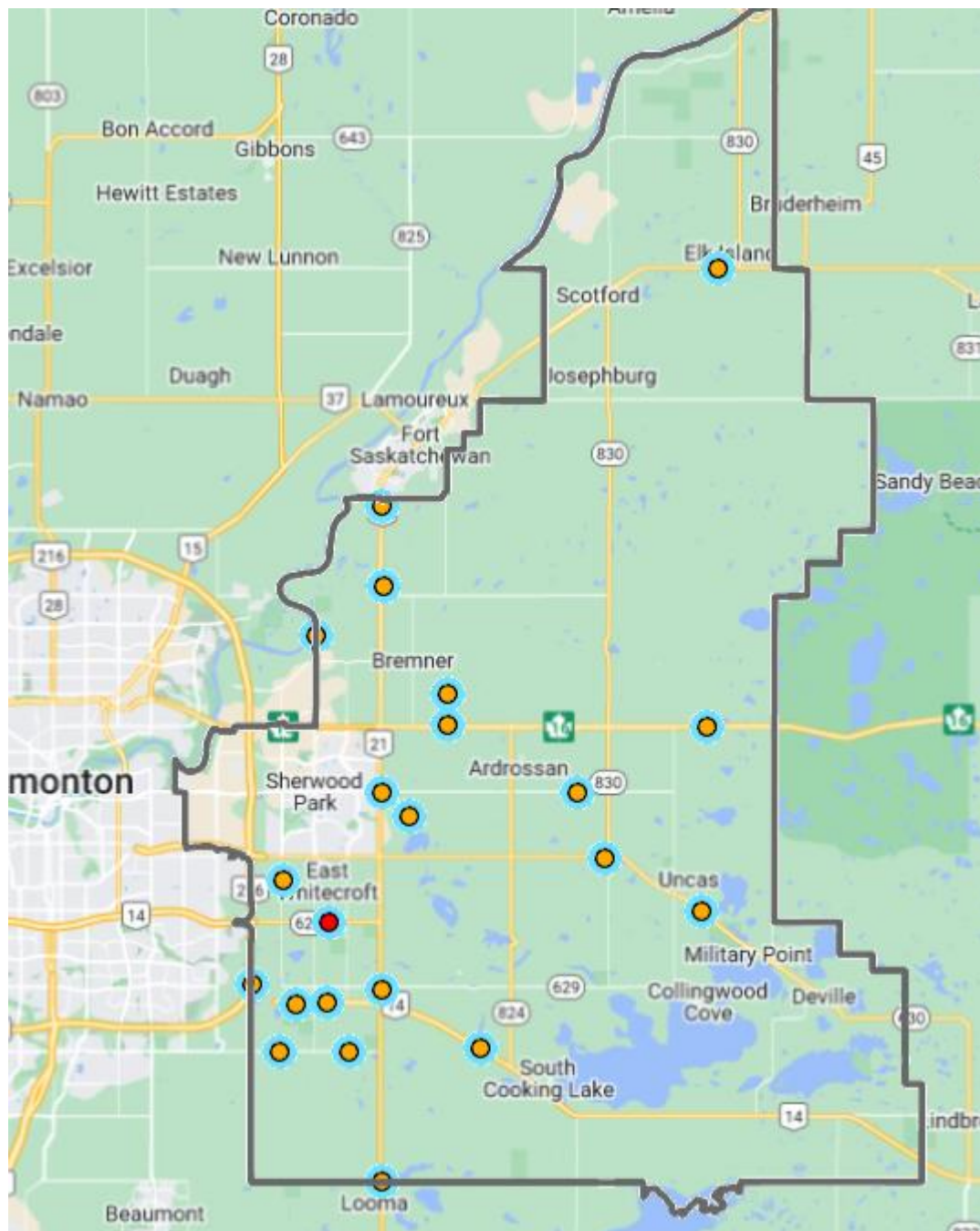
Fifty-two alcohol/drug-related collisions involved minor injury, eleven resulted in major injuries and two resulted in fatal injury. Sixty-two percent of the injury collisions took place in the urban area (including urban highways and County-owned urban roads). Figure 59 below illustrates the location of these collisions. Five of them took place on residential roads, and all of these involved minor injury.

Figure 59: Map of alcohol-related injury collisions in urban area 2018-2022



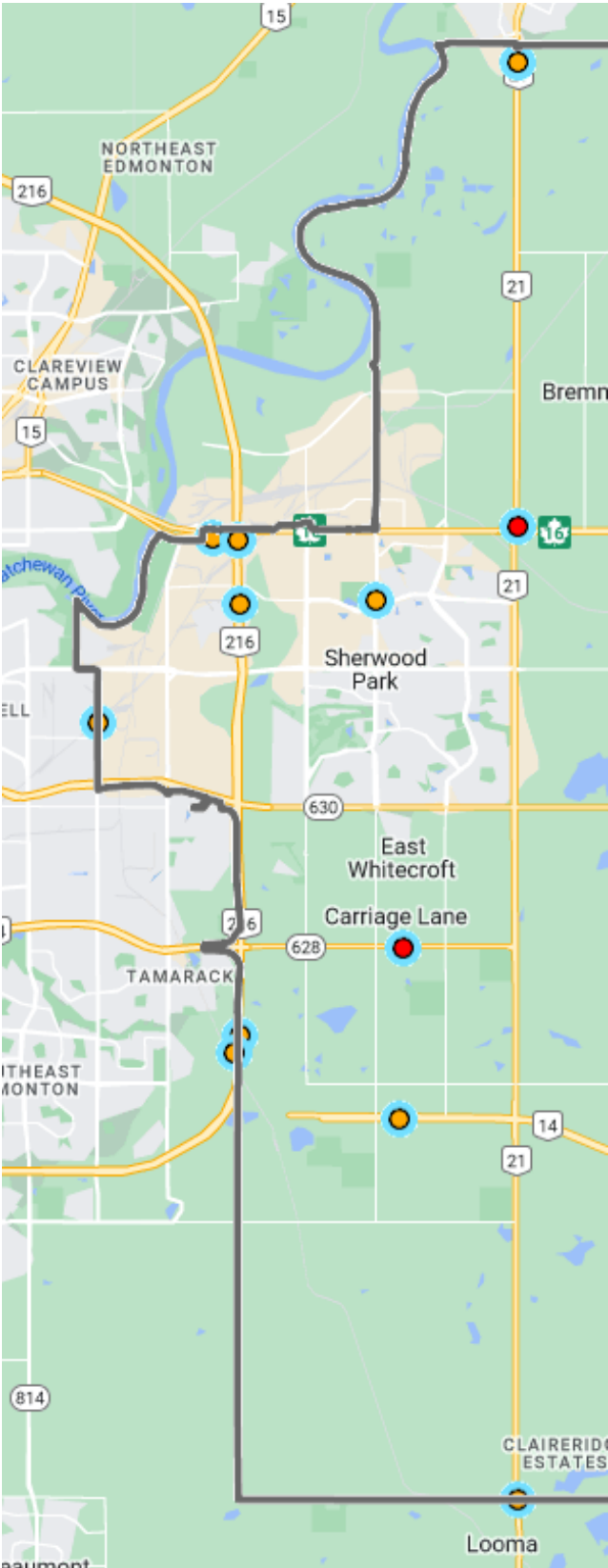
Twenty-one of the injury collisions took place in the rural area (12 on rural highways, 9 on rural grid roads). All but three of these collisions happened on or south of Highway 16.

Figure 60: Map of alcohol-related injury collisions in rural area 2018-2022



Overall, alcohol and drugs contributed to 13% of major injury crashes (11/82) and 7% (2/29) fatal crashes in Strathcona County on public roads between 2018-2022. The age range of drivers was 24-65 years. Eleven of the thirteen alcohol/drug impaired drivers (85%) were male, including both involved in fatal collisions. Only one driver was a Strathcona County resident (Sherwood Park). Ten of the thirteen alcohol/drug-related FMI collisions (77%) took place on a provincial highway, including both fatal collisions. All collisions took place on Hwy 21 or west to the County border.

Figure 61: Location of alcohol/drug related FMI collisions in the County 2018-2022



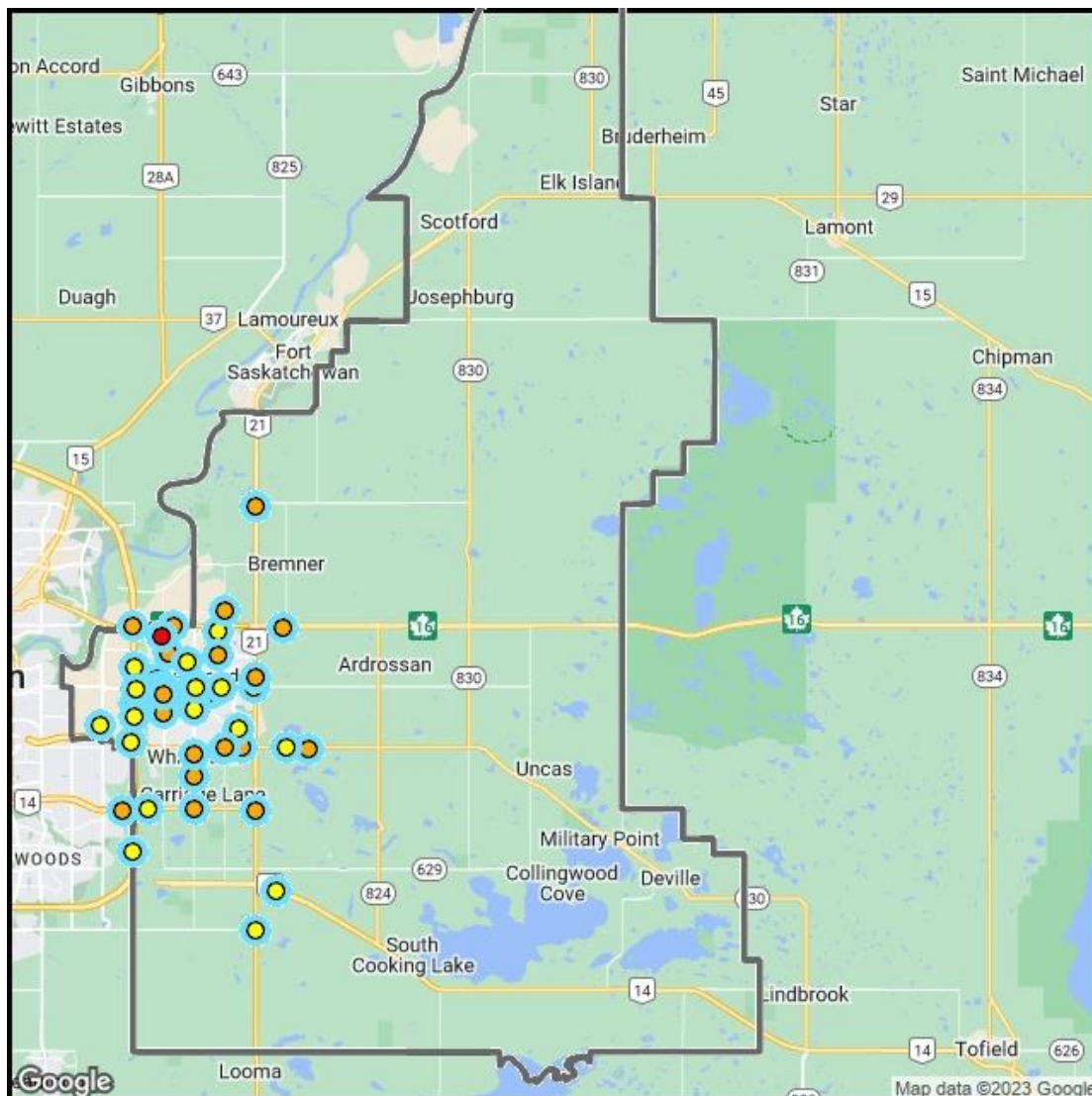


## 2. Medical Defects

A total of 49 collisions were reported between 2018-2022 where the driver condition was reported as “medical defect”. Five of the collisions took place in a parking lot. For the most part, these were not serious collisions, with 55% resulting in property damage only and 39% resulting in minor injury. Two of the collisions resulted in a major injury to the medically compromised drivers only. It is unclear how much the medical event itself contributed to the need to be hospitalized. There was one fatal collision, but the fatality was due to the medical condition, not a result of injuries sustained in the collision.

In 63% of collisions, the vehicle being driven by the person with the medical defect was the only vehicle in motion, with most drivers striking objects or running off the road. In two instances, a pedestrian was struck, but both resulted in only minor injury. Seventy-one percent of collisions took place in the urban area. Collisions in the rural areas tended to be close to Sherwood Park (see Figure 62).

Figure 62: Collisions involving a driver with a medical defect – 2018-2022





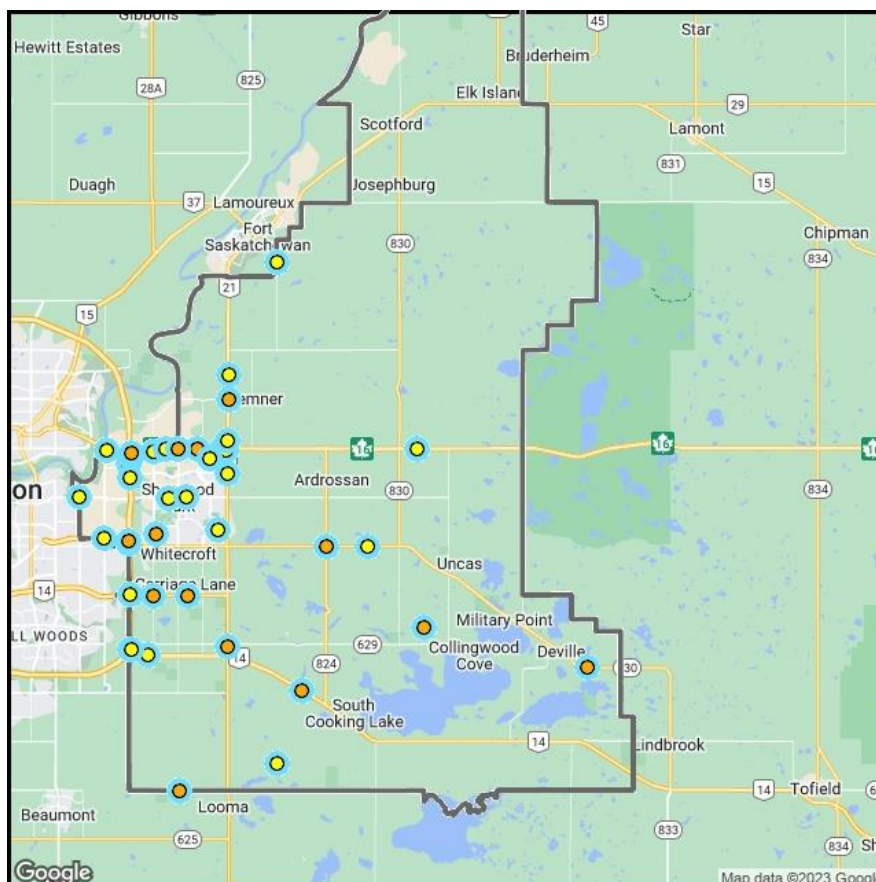
Sixty-seven percent of drivers were male and 33% were female. The average age of drivers experiencing a medical defect was 51.5 years. Only 29% were 65 years or older. Women experiencing medical events when driving tended to be younger with an average age of 45.3 years. All but one of the female drivers were under 65, and the lone senior was just 66. Men experiencing medical events tended to be older than the women with an average age of 54.5 years. Only 39% of male drivers were 65 years or older. Almost all drivers experiencing medical events in Strathcona County while driving were from either Sherwood Park (47%) or Edmonton (41%).

### 3. Fatigued/Asleep

A total of 42 collisions were reported between 2018-2022 where the driver condition was reported as “fatigued/asleep”. For the most part, these were not serious collisions, with 64% resulting in property damage only and 31% resulting in minor injury. Two of the collisions resulted in major injury. In one case, the injury was to the fatigued/asleep driver only, and in the other another party sustained a major injury. No fatal collisions were attributed to a fatigued/asleep driver.

Fifty-two percent of crashes happened during daylight conditions and 45% happened in darkness. Eighty-three percent happened at non-intersection locations. In 74% of collisions, the vehicle being driven by the fatigued/asleep driver was the only vehicle in motion, with most drivers striking objects or running off the road. Not surprisingly, 74% of collisions happened on provincial highways, with Highway 16 in the urban area and Highway 216 experiencing a particularly high proportion of the crashes.

Figure 63: Collisions involving fatigued/asleep drivers- 2018-2022



Eighty-three percent of fatigued/asleep drivers were male, and 17% were female. Over 70% of drivers were from the Metro Edmonton region, including 31% from Sherwood Park and 40% from Edmonton; 20% were from more distant locations.

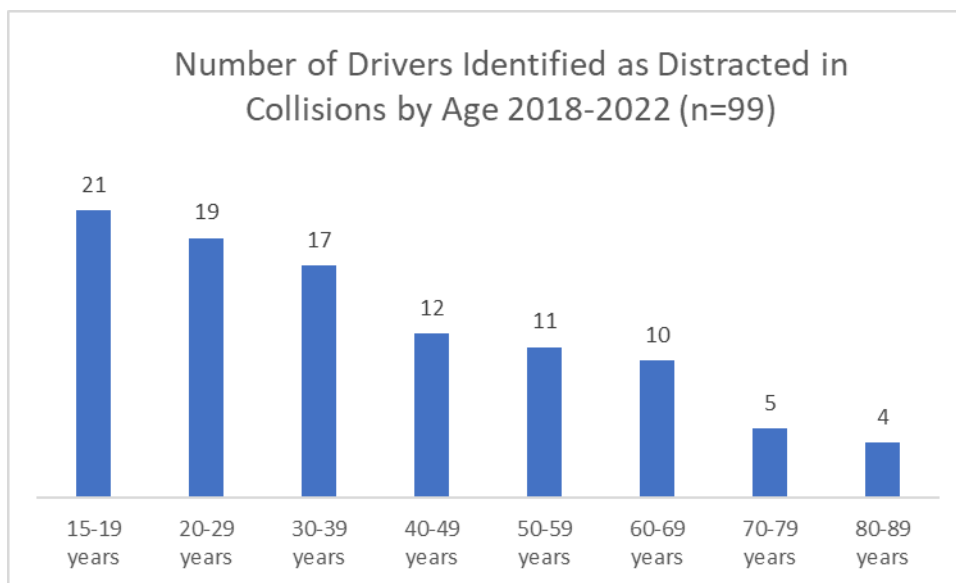
#### 4. Distraction

Between 2018 and 2022, there were 99 collisions where a driver involved in a collision in Strathcona County on a public road was specifically identified as being distracted. Only one of the collisions resulted in major injury, while 35 resulted in minor injury. Sixty-four percent of the collisions (63/99) resulted in property damage only. Eighty percent of the collisions took place in an urban area, and 75% of the collisions took place on a Strathcona County-owned road.

Most commonly, driver distraction resulted in a rear end (47%) or struck object (22%) collision. Little information is available as to the type of distraction, as 73% of the reports classify the distraction as “Other - driver distraction not listed above”. Twenty-two reports classify the distraction as “Using HAND-HELD cell phone or other HAND-HELD electronic device”.

The age of drivers identified as distracted ranged from 15-88 years old. Younger drivers were more commonly identified as distracted than older drivers. Sixty-one percent of distracted drivers were identified as male.

Figure 64: Age of drivers identified as distracted in collisions 2018-2022



#### 5. Restraint Use

Between 2018-2022, there were 29 collisions on public roads where one or more vehicle occupants were identified as being unrestrained (including heavy trucks, excluding buses). Three of the collisions resulted in a fatal injury to an unrestrained occupant, accounting for 10% of fatal collisions in the five year period. Three of the collisions resulted in a major injury to an unrestrained occupant, accounting for four percent of major injury collisions in this timeframe. Ten of the collisions resulted in a minor injury to an unbelted occupant, accounting for less than one half of a percent of minor injury collisions in this timeframe (10/2086).

Table 2 summarizes the location of collisions involving unrestrained occupants. All three fatal collisions happened on a provincial highway.

Table 2: Location of collisions in Strathcona County involving unrestrained occupants 2018-2022

Location	Jurisdiction	Number of Collisions	Fatal Injury	Major Injury	Minor Injury	No Injury
Urban	Alberta Transportation	11	2	1	3	5
	Strathcona County	8	0	0	3	5
Rural	Alberta Transportation	5	1	0	2	2
	Strathcona County	5	0	2	2	1
Total		29	3	3	10	13

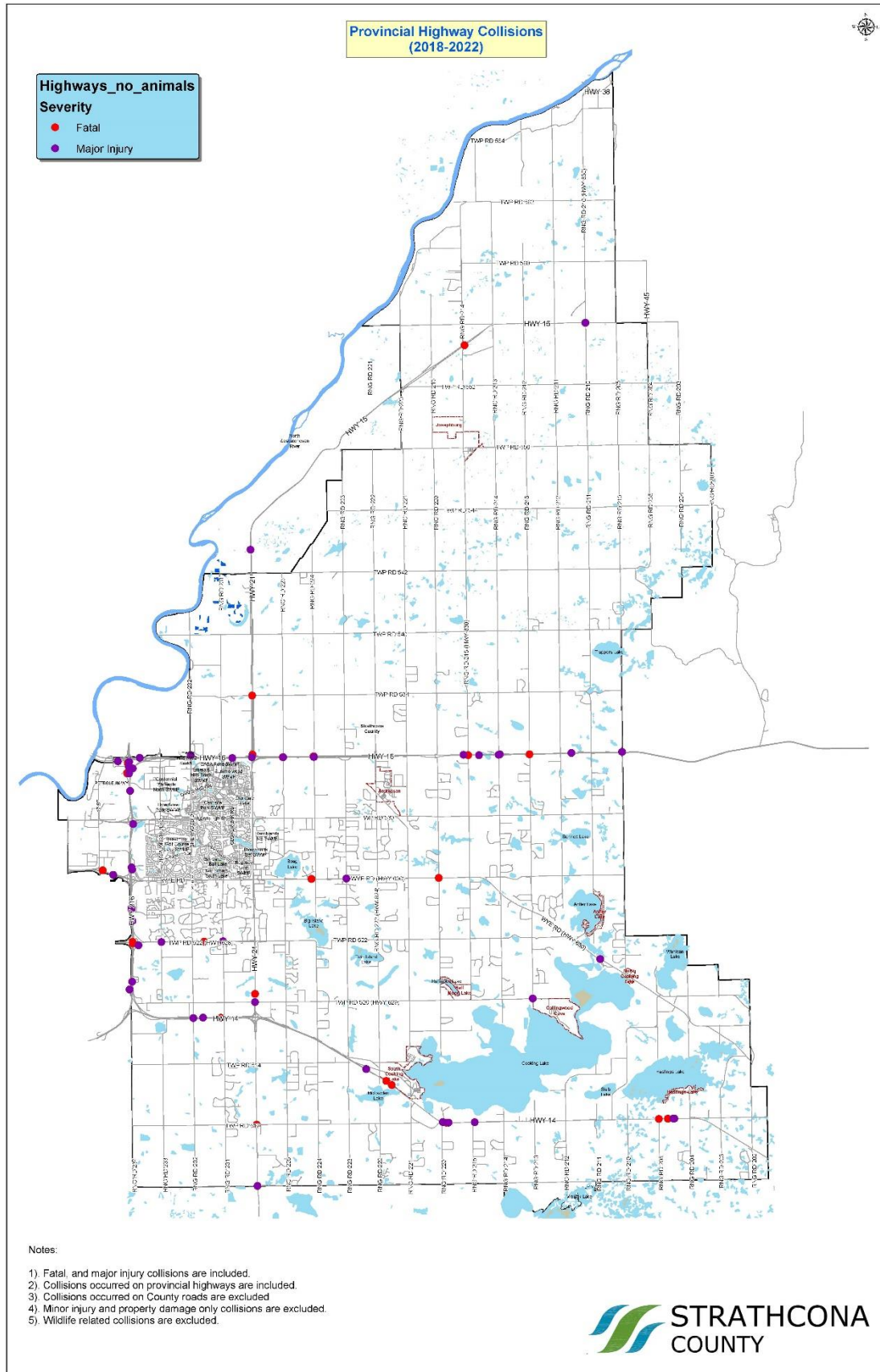
Bus collisions were considered separately in this analysis, as generally, passengers do not have the option and are not required to wear a restraint. Seven bus collisions were reported on public roads in Strathcona County between 2018-2022 where there were one or more unbelted passengers riding the bus. Four of the collisions involved a Strathcona County Transit bus, two involved a school bus and one involved an intercity bus. None involved a major or fatal injury.

Six of the collisions took place in an urban location and one in a rural location. Two were on provincial highways, and five took place on Strathcona County-owned roads. Three collisions on Strathcona County Transit in Sherwood Park resulted in a minor injury to one unbelted passenger each. No other injuries were reported to unbelted passengers riding a bus.

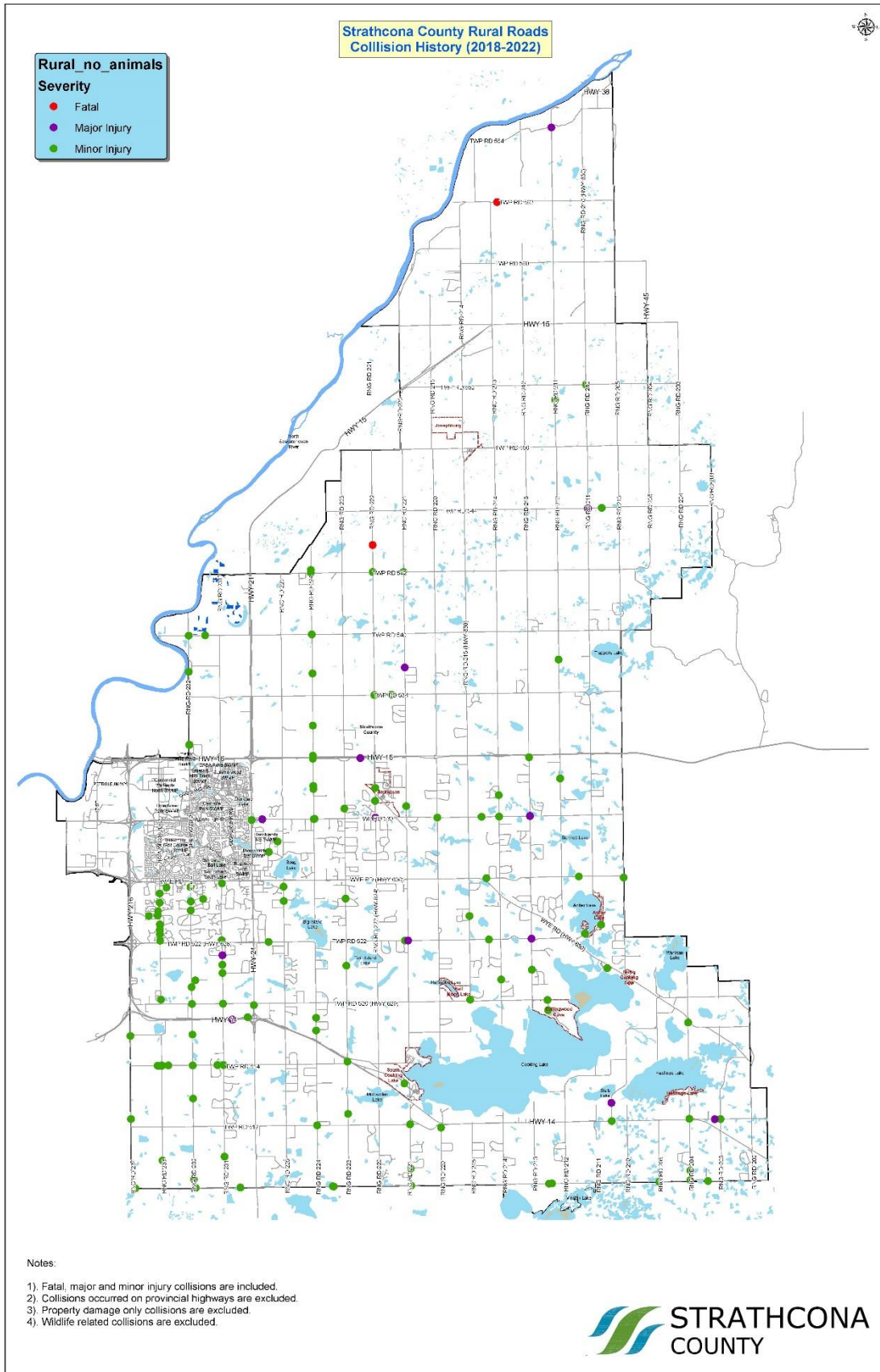
## 6. Speed

Between 2018-2022, speed was identified as a contributing factor in 164 of all collisions (10705) that took place in Strathcona County. Nine FMI collisions specifically identified speed as a contributing factor. One driver identified was a cyclist. Speed was identified as a factor in 3/29 (10%) of fatal collisions and 6/82 (7%) of major injury collisions.

## Appendix One: Map of all fatal and major injury collisions on Provincial highways (excluding animal strikes) 2018-2022



## Appendix Two: Map of all injury collisions on Strathcona County-owned rural roads 2018-2022 (excluding animal strikes)





## Appendix Three: Map of all injury collisions on Strathcona County-owned urban roads 2018-2022

