

2016-2020 Collision Report

Background

This report provides an overview of road safety in the City of Guelph using collision data from Guelph Police Services for the last 5 years (2016 – 2020). The analysis presented includes collisions that occurred on municipal roads (city streets and expressways) within the city limits. Collisions that occurred on county roads and provincial highways outside of the city limits are not included in this report. To ensure anonymity, no results with a cell size less than 5 will be included in this report.

All collisions are sent to the Ministry of Transportation (MTO) by Guelph Police Services. The Engineering and Transportation Services department at the City of Guelph accesses these collisions by downloading them from the Authorized Requestor Information System (ARIS). This agreement between the City and the MTO has been in place since February 2020. Collisions included in this report have been queried back to 2016.

COVID-19 pandemic

On March 17, 2020, the Government of Ontario declared a state of emergency due to the COVID-19 pandemic and ordered the gradual closure of businesses and facilities. As a result of the state of emergency and subsequent stay at home orders from the Province, the City of Guelph, like other jurisdictions in Ontario experienced a reduction in vehicular traffic volumes, resulting in a reduction in the number of collisions.

The pandemic resulted in significant restrictions through spring 2020 and again with various stages of more restrictions as fall turned into winter. School was out from March to June 2020. The implications of the pandemic on traffic patterns are not yet fully understood but are being monitored by city staff.

Summary

The City of Guelph road network consists of 598 lane-km of urban and rural roads. There are approximately 2000 intersections in the City of which 7% (149) are controlled by traffic signals. Between 2016 and 2020, there were a total of 10,639 collisions in the City of Guelph. Reported collisions on private property are not included in this report. A total of 4.3% of collisions occurred on the Hanlon Expressway within the city limits of Guelph. On average, 2,128 collisions have occurred within Guelph annually over the past 5 years. Of these, 15% resulted in an injury. The total number of collisions and injury-related collisions decreased in 2020 which can be attributed reduced volumes as a result of the COVID-19 pandemic (see [Figure 1](#)).

On average, the societal cost of collisions in the City of Guelph amounted to \$96,197,396 annually. Societal costs are estimated through Transport Canada's costs of collisions for various severity levels. Estimated costs of collisions for each severity level were calculated using values from the Bank of Canada. Direct costs

include property damage, emergency response services, medical and insurance costs and traffic delays. Examples of indirect costs include disability and workdays lost by the victims, as well as pain and suffering.

In Guelph:

- 1 collision occurs every 247 minutes
- 1 person is injured in a collision every 11 hours
- 1 road fatality occurs every 114 days
- 1 pedestrian collision occurs every 9 days
- 1 cyclist collision occurs every 13 days

Strategic Plan Connection

As part of the 2019-2023 Guelph Strategic Plan [Guelph. Future ready](#) Navigating our Future strategic priority, the city has identified the percentage of severe and fatal injury collisions as a key performance indicator. For the 5-year period (2016-2020), the percentage of collisions on Guelph municipal roads that resulted in a severe or fatal injury outcome was 1.39%.

During engagement for many plans throughout the City such as the Community Plan, Transportation Master Plan and Community Road Safety Strategy, road safety was identified as a top priority for the Guelph community.

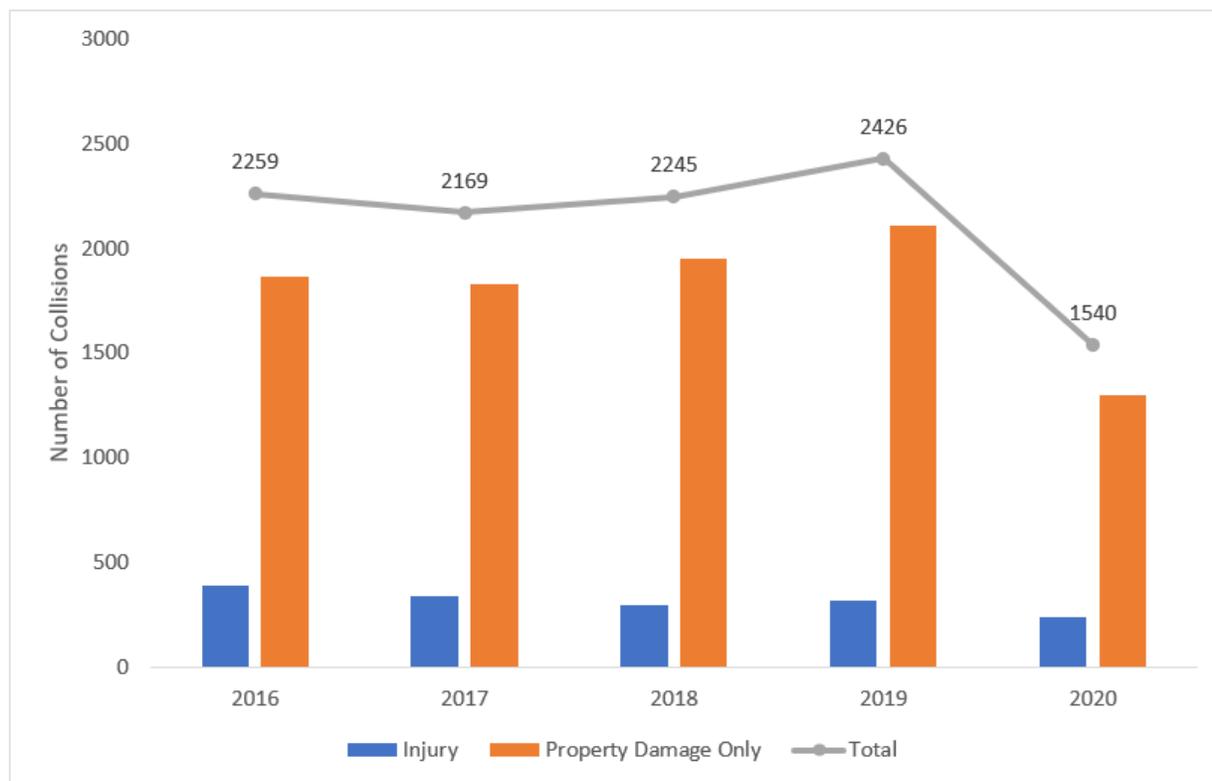
General Collision Trends

Over the past 5 years in the City of Guelph the total number of collisions has decreased from 2,259 in 2016 to 1,540 in 2020. The majority of these collisions involve property damage only (PDO). Injury-related collisions have decreased from 392 in 2016 to 238 in 2020. These reductions can be attributed to reduced travel volumes during the COVID-19 pandemic.

Table 1: Total Collisions in Guelph by City Street vs. Expressway (2016 – 2020)

Location	Total Collisions
Guelph City Streets	10179
Hanlon Expressway	460
Collisions within Guelph’s City Limits	10639

Figure 1: Total number of collisions in Guelph (2016-2020)



Injury Severity

About one quarter of injury-related collisions occur at intersections (see [Table 2](#)). Between 2016 – 2020, a total of 3,911 individuals sustained a minimal (abrasions, bruises, complaint of pain, no emergency room visit), minor (injury required trip to hospital and treatment in the emergency room, no admittance), major (injuries required the person to be admitted to hospital) or fatal (death occurred as a result of injuries sustained within 30 days of the motor vehicle collision) injury (see [Table 3](#)).

Table 2: Percentage of injury related collisions at Intersection vs. Midblock locations

Location	Injury (%)	Property Damage Only (PDO)	Total
Intersection	1,148 (23.6%)	3,725 (76.4%)	4,873
Midblock	443 (12.9%)	3,003 (87.1%)	3,446

Table 3: Injury Severity by Year

Year	Minimal/Minor Injury	Major/Fatal Injury	Total Injury
2016	1072 (97.2%)	31 (2.8%)	1103
2017	946 (97.3%)	26 (2.7%)	972
2018	745 (96.4%)	28 (3.6%)	773
2019	691 (95.3%)	34 (4.7%)	725
2020	316 (93.5%)	22 (6.5%)	338
Total	3770	141	3911

Location

Edinburgh Road South at Wellington Street West had the highest frequency of total collisions (122) and injury related collisions (25) between 2016 and 2020. The location with the highest percentage of injury related collisions is Imperial Road North at Speedvale Avenue West at 32.6%. (see [Table 4](#)). The last column in [Table 4](#) depicts the respective intersections percentage of injury collisions from the 2015-2019 collision report.

Table 4: Top 10 Intersection Locations with Highest Percentage of Injury Collisions

Location	Injuries	PDO	Total Collisions	2016-2020 Percentage of Injury Collisions	2015-2019 Percentage of Injury Collisions
Imperial Rd N at Speedvale Ave W	14	29	43	32.6%	28.6%
Macdonell St at Wellington St E	16	42	58	27.6%	31.0%
Imperial Rd N at Woodlawn Rd W	16	48	64	25.0%	27.1%
Stone Rd W at Scottsdale Dr	15	49	64	23.4%	20.6%
Clair Rd at Gordon St	15	50	65	23.1%	23.4%
Edinburgh Rd S at Wellington St W	25	97	122	20.5%	19.3%
Gordon St at Wellington St W	16	72	88	18.2%	14.1%
Woodlawn Rd W at Woolwich St	15	70	85	17.6%	17.9%
Gordon St at Stone Rd W	15	75	90	16.7%	15.3%
Stone Rd W at Edinburgh Rd S	16	92	108	14.8%	15.1%

Woodlawn Road East between Woolwich Street & the Speed River had both the highest frequency of total collisions (45) and the highest frequency of injury-related collisions (14). However, the highest percentage of injury related midblock collisions occurred on Gordon Street between Clair Road West & Clairfields Drive West. (see [Table 5](#)). The last column in [Table 5](#) depicts the respective midblock percentage of injury collisions from the 2015-2019 collision report.

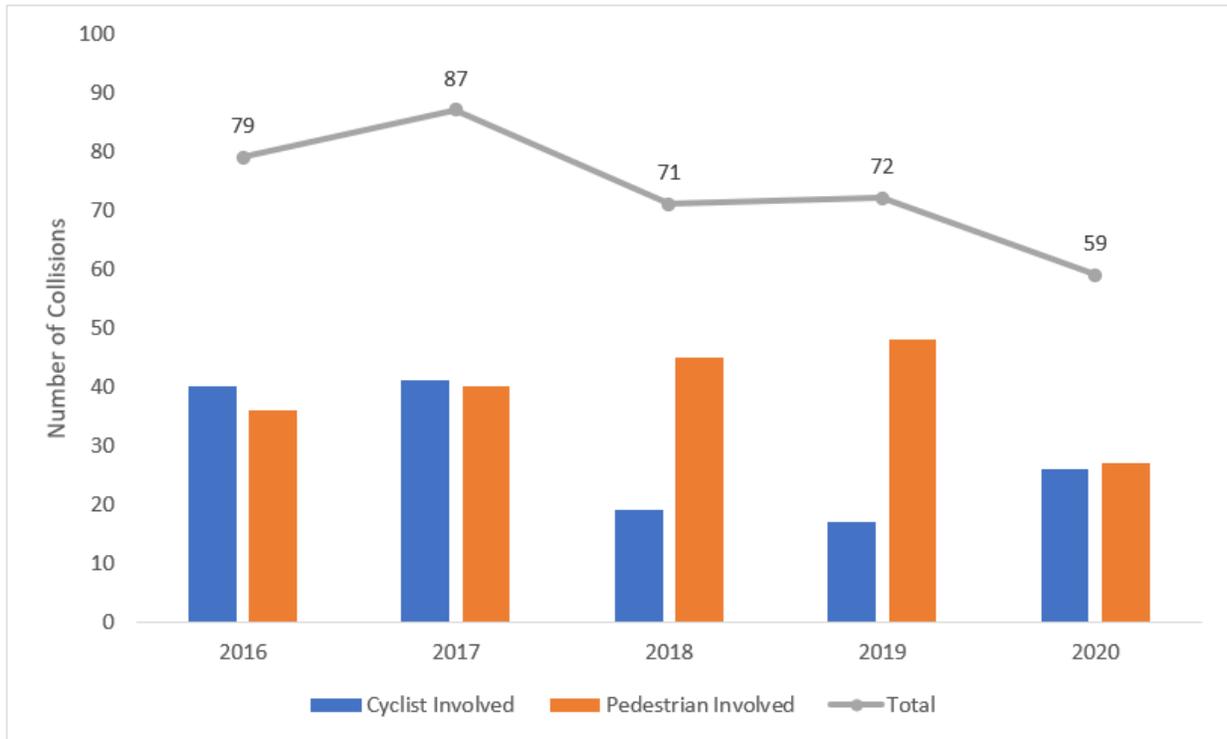
Table 5: Top 10 Midblock Locations with Highest Percentage of Injury Collisions

Location	Injuries	PDO	Total Collisions	2016-2020 Percentage of Injury Collisions	2015-2019 Percentage of Injury Collisions
Gordon St btwn Clair Rd W & Clairfields Dr W	8	12	20	40.0%	50.0%
Gordon St btwn Heritage Dr & Lowes Rd E	4	7	11	36.4%	36.4%
Woodlawn Rd E btwn Woolwich St & Speed River	14	31	45	31.1%	28.3%
Victoria Rd S btwn Arboretum Rd & College Ave E	5	13	18	27.8%	33.3%
Wellington St W btwn Hanlon XY & Imperial Rd S	9	30	39	23.1%	22.5%
Woodlawn Rd W btwn Dawson Rd & Edinburgh Rd N	5	17	22	22.7%	19.2%
Woodlawn Rd W btwn Edinburgh Rd N & Nicklin Rd	5	18	23	21.7%	18.2%
Silvercreek Pkwy N btwn Campbell Rd & Speedvale Ave W	6	24	30	20.0%	29.4%
Gordon St btwn Harts Ln W & Kortright Rd W	5	22	27	18.5%	17.1%
Woodlawn Rd W btwn Imperial Rd N & Royal Rd	6	29	35	17.1%	15.0%

Collision Trends Involving Pedestrians and Cyclists

Collisions involving a cyclist or pedestrian make up 3.6% of total collisions in the City of Guelph. Both cyclist and pedestrian collisions have seen fluctuation over the past 5 years, but a general decline of vulnerable road user related collisions. In 2020, this can be attributed to the COVID-19 pandemic (see [Figure 2](#)).

Figure 2: Total number of collisions in Guelph involving pedestrians and/or cyclists (2016-2020)



Location and Injury Severity – Collisions Involving Pedestrians and/or Cyclists

On average, 41 pedestrians and 29 cyclists sustain an injury per year (see [Table 6](#)). Between 2016 – 2020, 3.7% of injury-related collisions that involved either a pedestrian or cyclist resulted in a major or fatal injury outcome (see [Table 7](#)).

Table 6: Pedestrian/Cyclist Injuries by Year (2016 – 2020)

Person Involved	2016	2017	2018	2019	2020	Total
Pedestrians Injured	36	42	48	50	28	204
Cyclists Injured	40	42	19	17	26	144

Table 7: Pedestrian/Cyclist Collisions by Injury Type

Person Involved	Minimal/Minor Injuries	Major/Fatal Injuries	Total Injuries
Pedestrians	195	9	204
Cyclists	140	<5	141-145

Gordon Street and Surrey Street had both the highest collision frequency and the highest injury-related collisions (7). All cyclists who were involved in a collision at this intersection sustained injuries. The exact midblock locations where a cyclist was involved in a collision cannot be reported as the cell size is less than 5. (see [Table 8](#)).

Table 8: Top Intersection Location (Cyclist Involved) with Highest Percentage of Injury Collisions

Location	Intersection /Midblock	Injuries	PDO	Total Collisions	Percentage of Injury Collisions
Gordon St @ Surrey St W	Intersection	7	0	7	100.0%

Macdonell Street at Wellington Street/Woolwich Street had both the highest collision frequency and the highest pedestrian injury-related collisions (6). All pedestrians who were involved in a collision at this intersection sustained injuries (see [Table 9](#)). The exact midblock locations where a pedestrian was involved in a collision cannot be reported as the cell size is less than 5.

Table 9: Top Intersection Location (Pedestrian Involved) with Highest Percentage of Injury Collisions

Location	Injuries	PDO	Total Collisions	Percentage of Injury Collisions
Macdonell St @ Wellington St E	6	0	6	100.0%

Collision Impact Type

Of all collisions that occurred at an intersection, the majority resulted in a rear-end (2,360, 40%). Whereas, single-motor vehicle (SMV) unattended, which can include hitting a parked car, fixed object or running off the road accounted for 1,291 (27%) of midblock-related collisions (see [Figure 3](#)). Overall, rear-end collisions accounted for the highest frequency regardless of location (3,354, 32%) see [Table 10](#).

Figure 3: Initial impact type by intersection vs. midblock

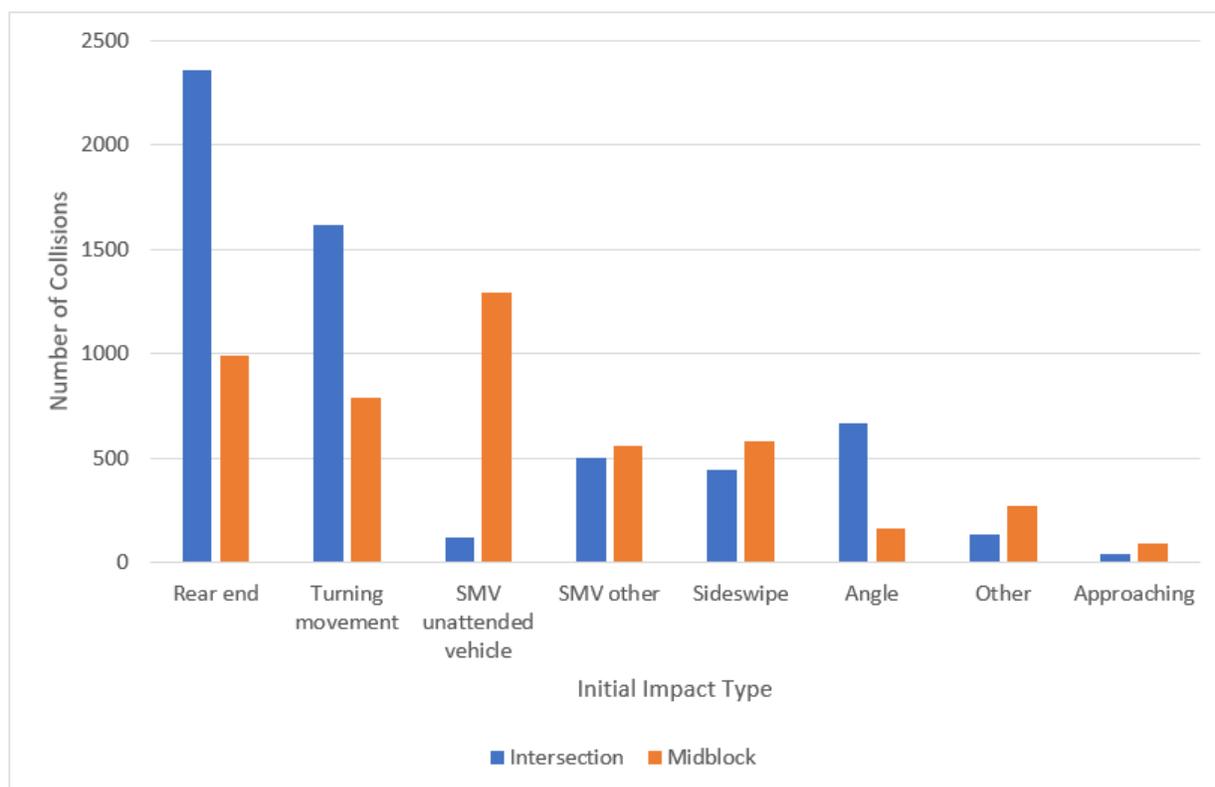


Table 10: Initial Impact Type by Intersection vs. Midblock

Initial Impact Type	Intersection	Midblock	Total
Rear end	2360	994	3354
Turning movement	1620	789	2409
SMV unattended vehicle	120	1291	1411
SMV other	502	557	1059
Sideswipe	442	578	1020
Angle	669	163	832
Other	139	274	413
Approaching	40	93	133

Rear-end collisions resulted in the highest frequency impact type for both signalized and unsignalized intersections (see [Figure 4](#)). These made up 1,640 (45%) and 720 (33%) of signalized and unsignalized collisions respectively (see [Table 11](#)). The majority of intersection-related collisions occur in areas where no traffic control device is present (54.3%), see [Figure 5](#).

Figure 4: Initial impact type by signalized vs. unsignalized intersections

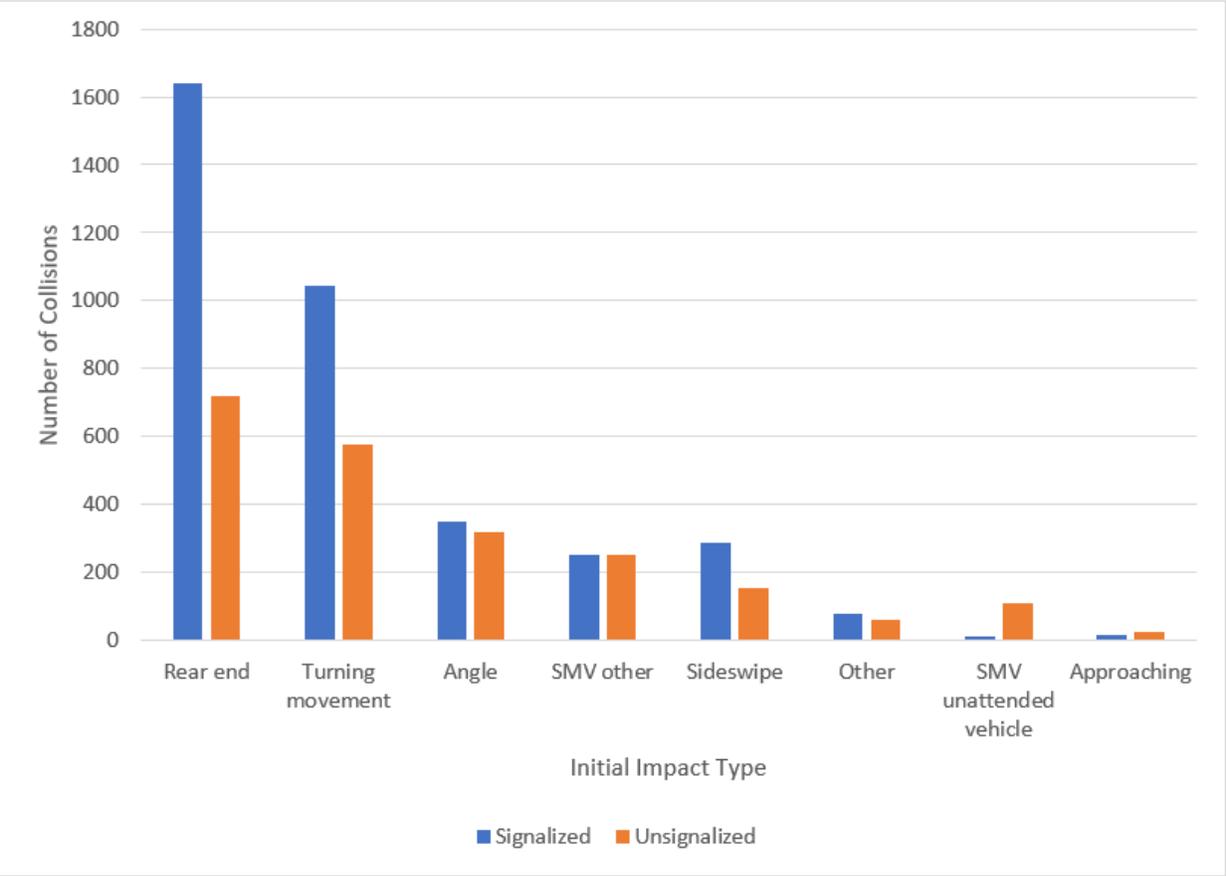
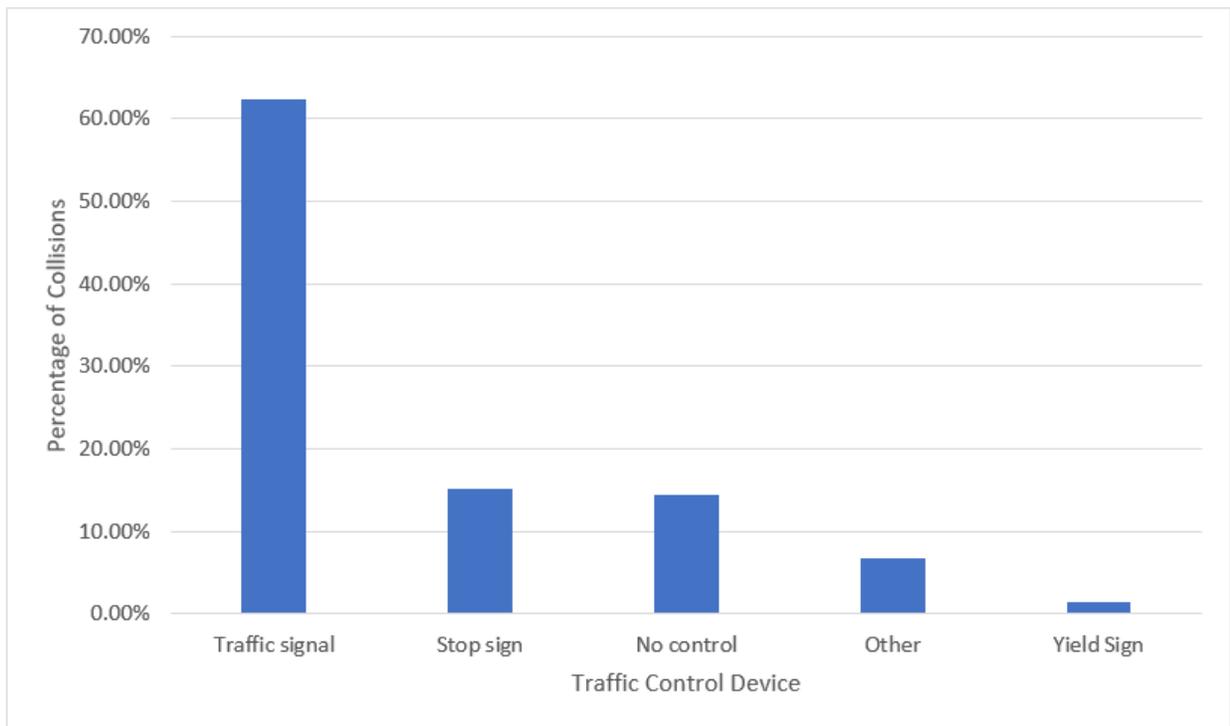


Table 11: Initial Impact Type by Signalized vs. Unsignalized Intersections

Initial Impact Type	Signalized	Unsignalized	Total
Rear end	1640	720	2360
Turning movement	1042	578	1620
Angle	352	317	669
SMV other	251	251	502
Sideswipe	289	153	442
Other	80	59	139
SMV unattended vehicle	10	110	120
Approaching	17	23	40

Figure 5 Percentage of collisions by traffic control device (2016-2020)



Demographics and Driver Behaviour

Age Groups

Novice drivers between the ages of 20 – 29 years are more likely to be involved in a collision in the City of Guelph. Between 2016 – 2020, nearly 3000 collisions involved a young driver (see [Figure 6](#)). Similarly, individuals ages 20-29 who are involved in a collision sustained most of the injuries (441 injuries in 5 years), see [Figure 7](#).

Figure 6: Number of collisions by age group (2016-2020)

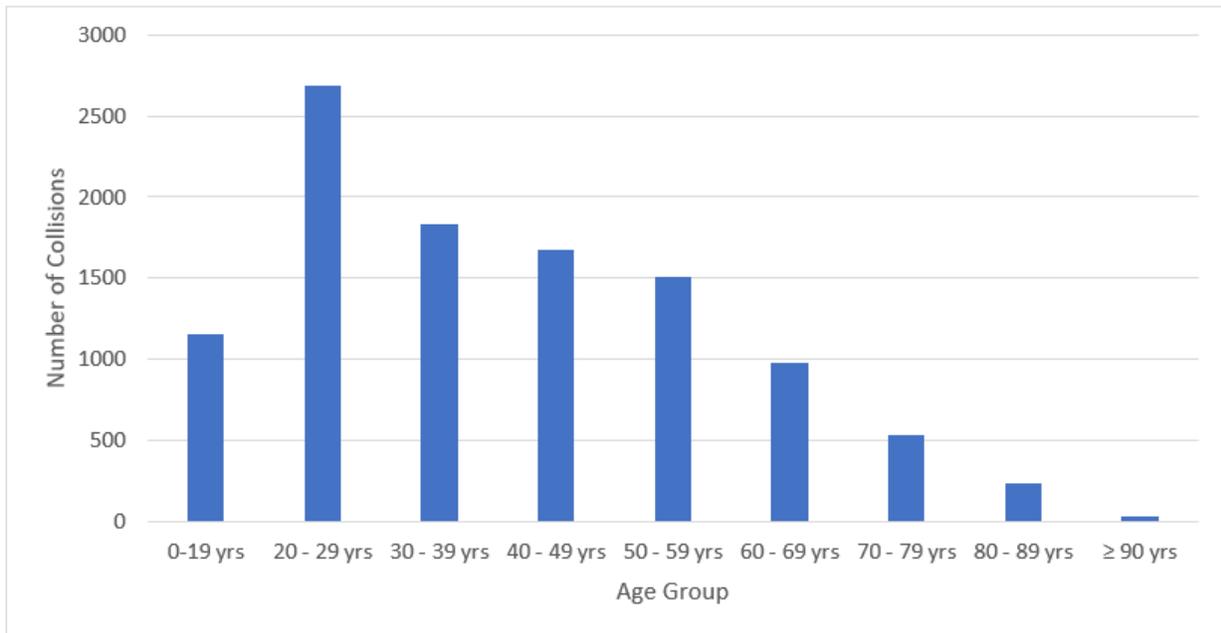
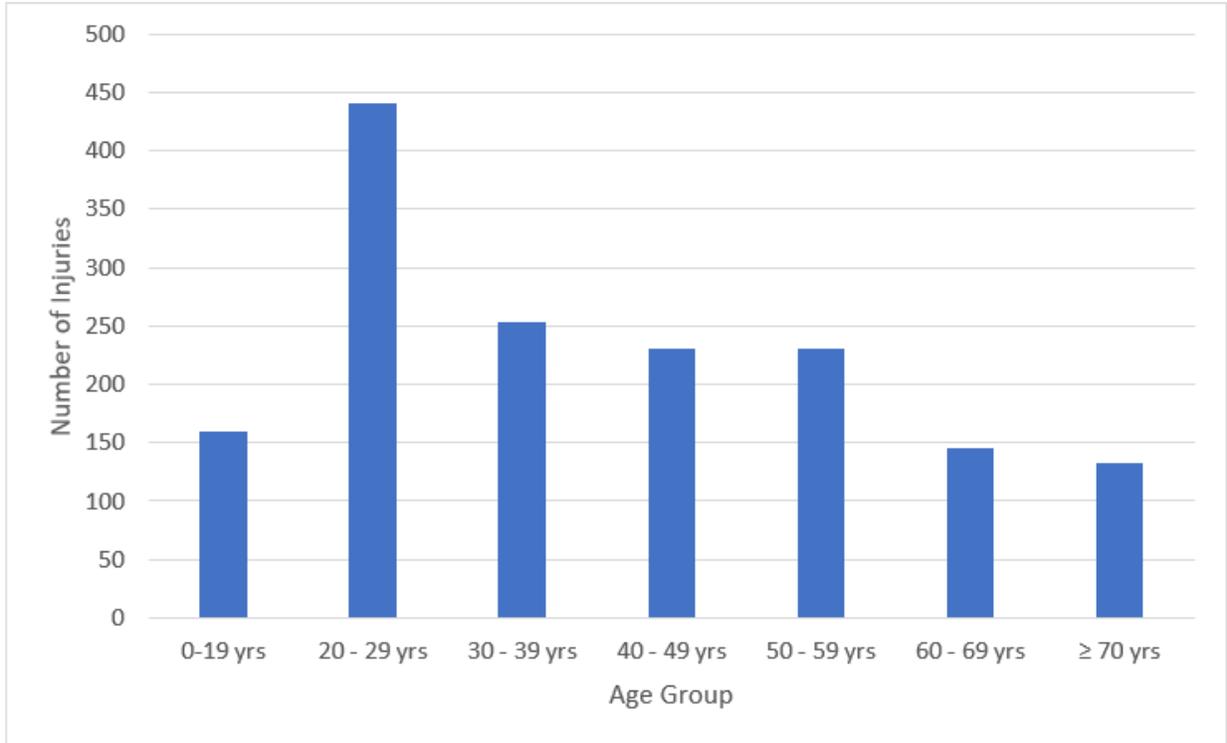


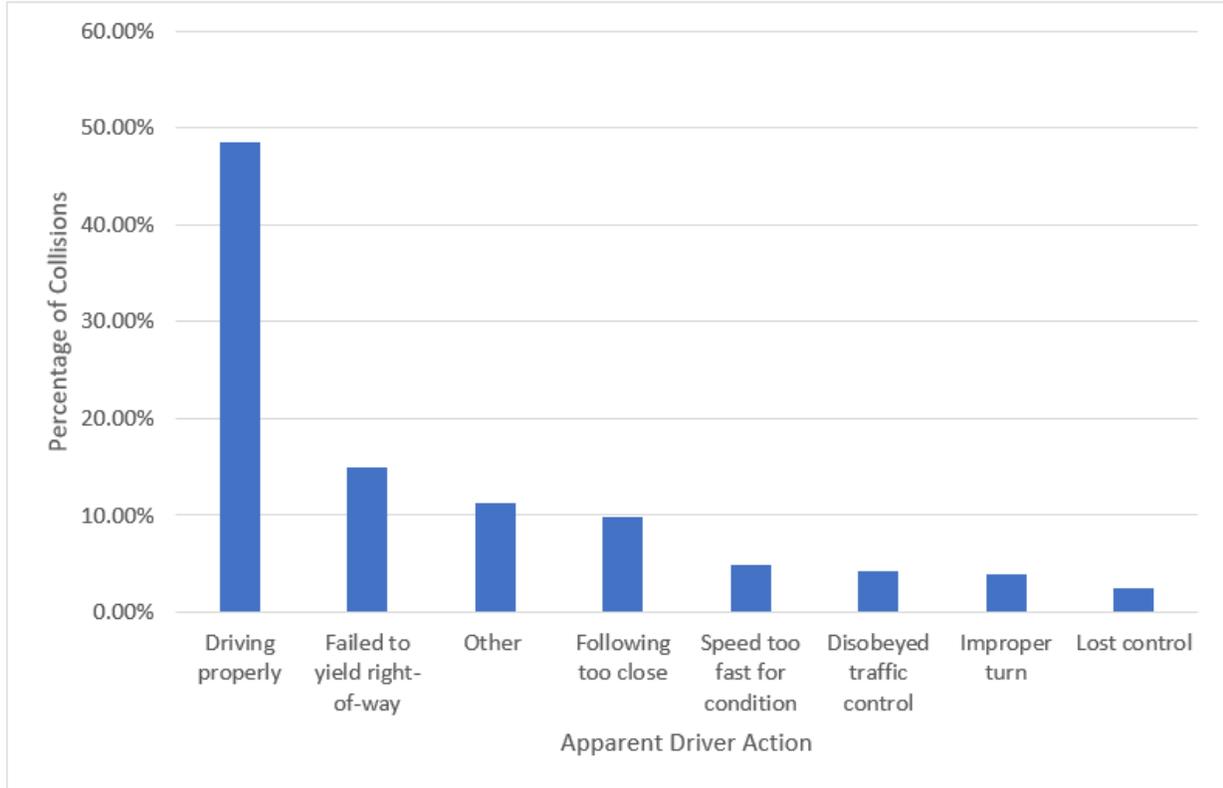
Figure 7: Number of injuries by age group (2016-2020)



Driver Action, Maneuver, and Condition

In nearly half of all collisions (48.5%), the driver was coded as driving properly by the police. The other half of collisions involved drivers failing to yield right-of-way (15.0%), other (11.3%), following too closely (9.8%), speed too fast for condition (4.8%), disobeyed traffic control (4.3%), improper turn (3.8%), and lost control (2.4%), see [Figure 8](#).

Figure 8: Percentage of collisions by apparent driver action (2016-2020)



Over one third of collisions involved a driver going ahead on a road (37.9%). Another 15.8% of drivers were involved in a collision while the vehicle was stopped (see [Figure 9](#)).

Just under half of the collisions involving a cyclist occur when a driver was going ahead (49.1%). Turning movements are also heavily involved in collisions with pedestrians and cyclists. Just under one quarter of collisions that involve a cyclist occur when the driver is turning right. Drivers making a left turn make up 15.6% of collisions with a cyclist. Most collisions involving a pedestrian occur when a driver is making a left turn (37.6%), see [Figure 10](#).

Figure 9: Percentage of collisions by manoeuvre (2016-2020)

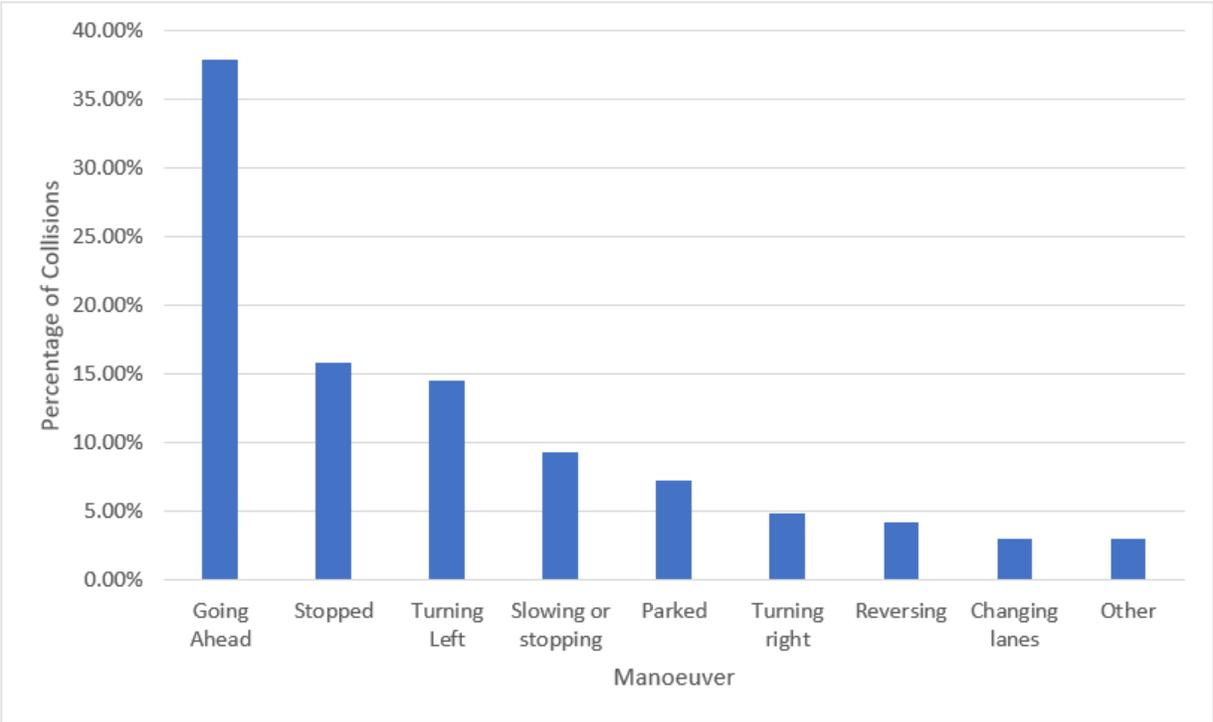
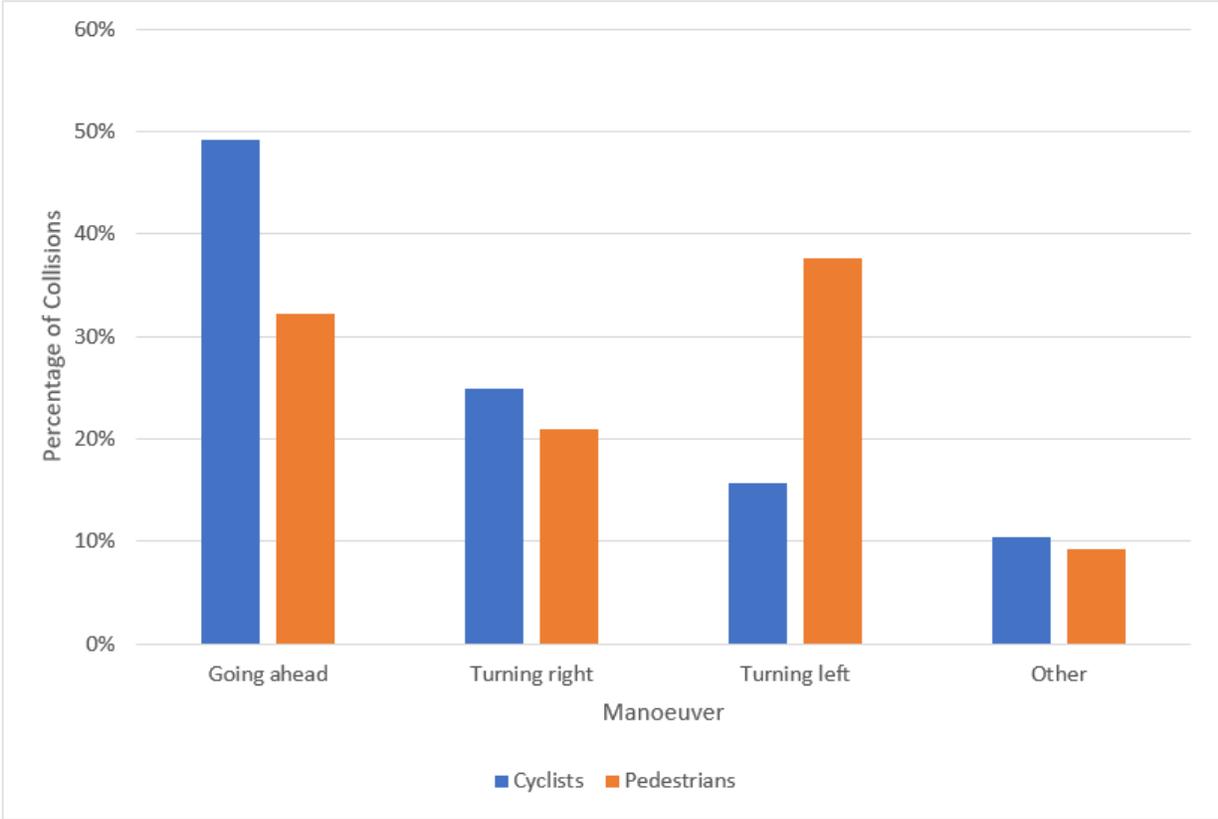
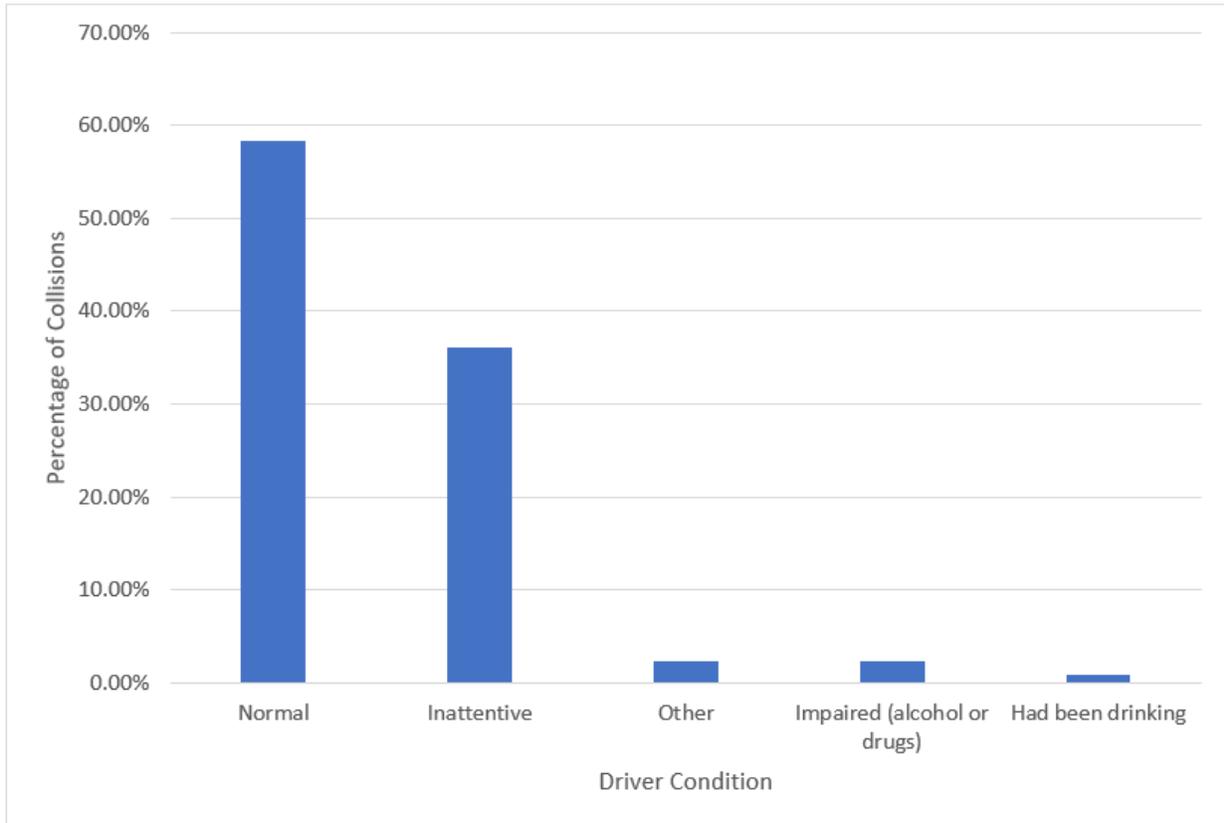


Figure 10: Percentage of Collisions by Manoeuvre Involving Cyclists or Pedestrians (2016 – 2020)



The condition of most drivers (58.4%) who are involved in a collision are normal (i.e. not impaired or distracted), however driver inattention still accounts for over one third of collisions (36.1%) and driver impairment accounts for 2.4% of all collisions (see [Figure 11](#)).

Figure 11: Percentage of collisions by driver condition (2016-2020)



Temporal Trends

On average, over the past 5 years, most collisions happened during the winter months: November (222), December (219), and January (236), see [Figure 12](#). These collisions can likely be explained by poor weather conditions and slippery road surfaces. Most collisions also happen during the weekdays on Friday (367), see [Figure 13](#). Finally, collisions typically occur in the morning at 8:00 AM (137), around 12:00 PM (147), and 3:00 PM (198), see [Figure 14](#). These times coincide with pick-up and drop-off times for elementary and high-school students and may also coincide with lunch hours for University of Guelph students.

Figure 12: Average number of collisions by month (2016-2020)

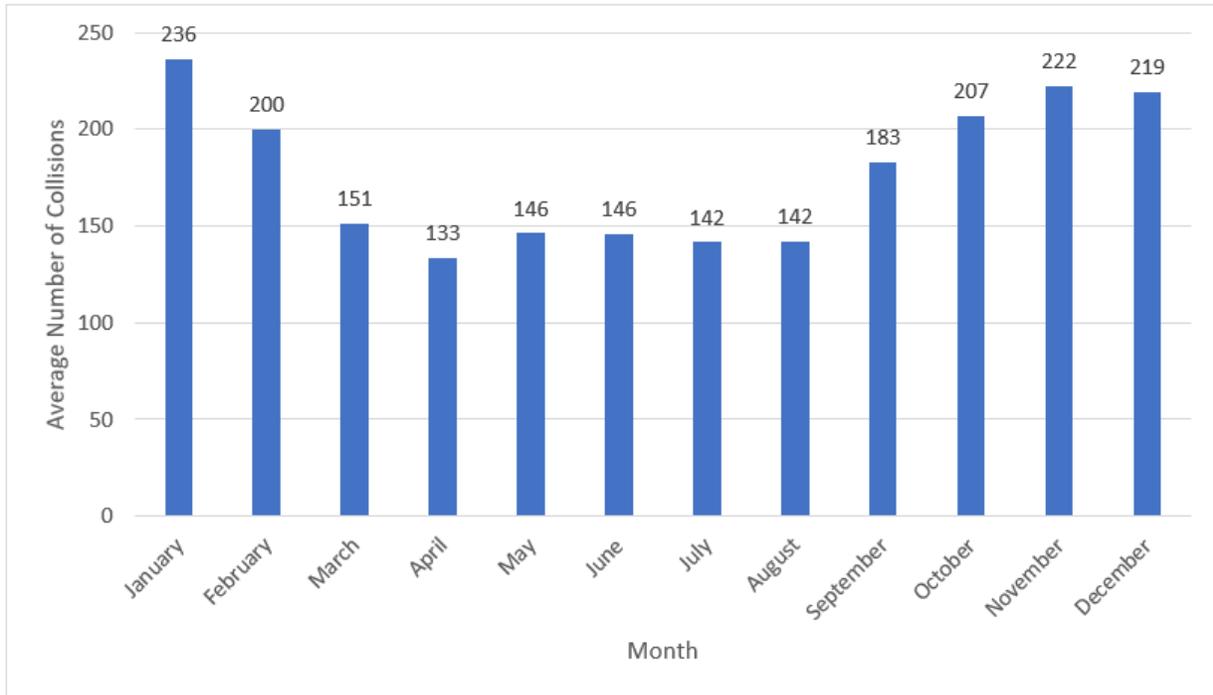


Figure 13: Average number of collisions by day of week (2016-2020)

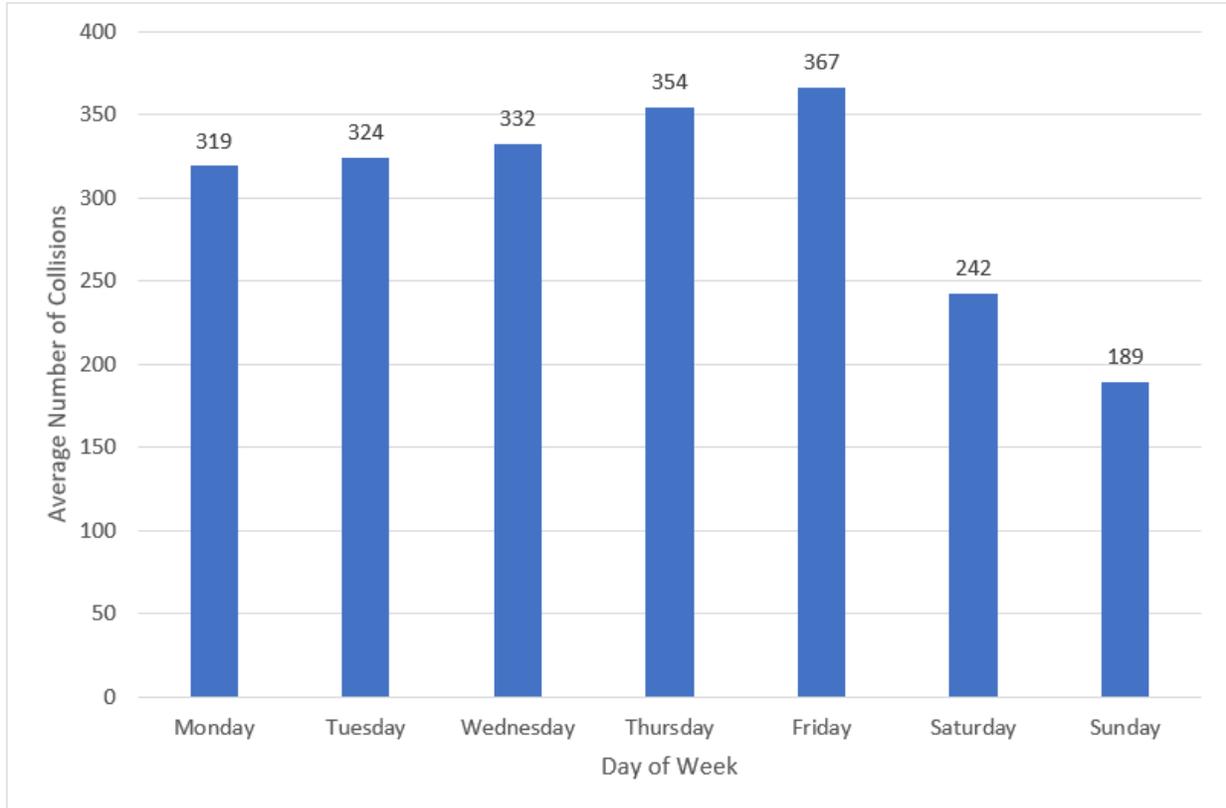
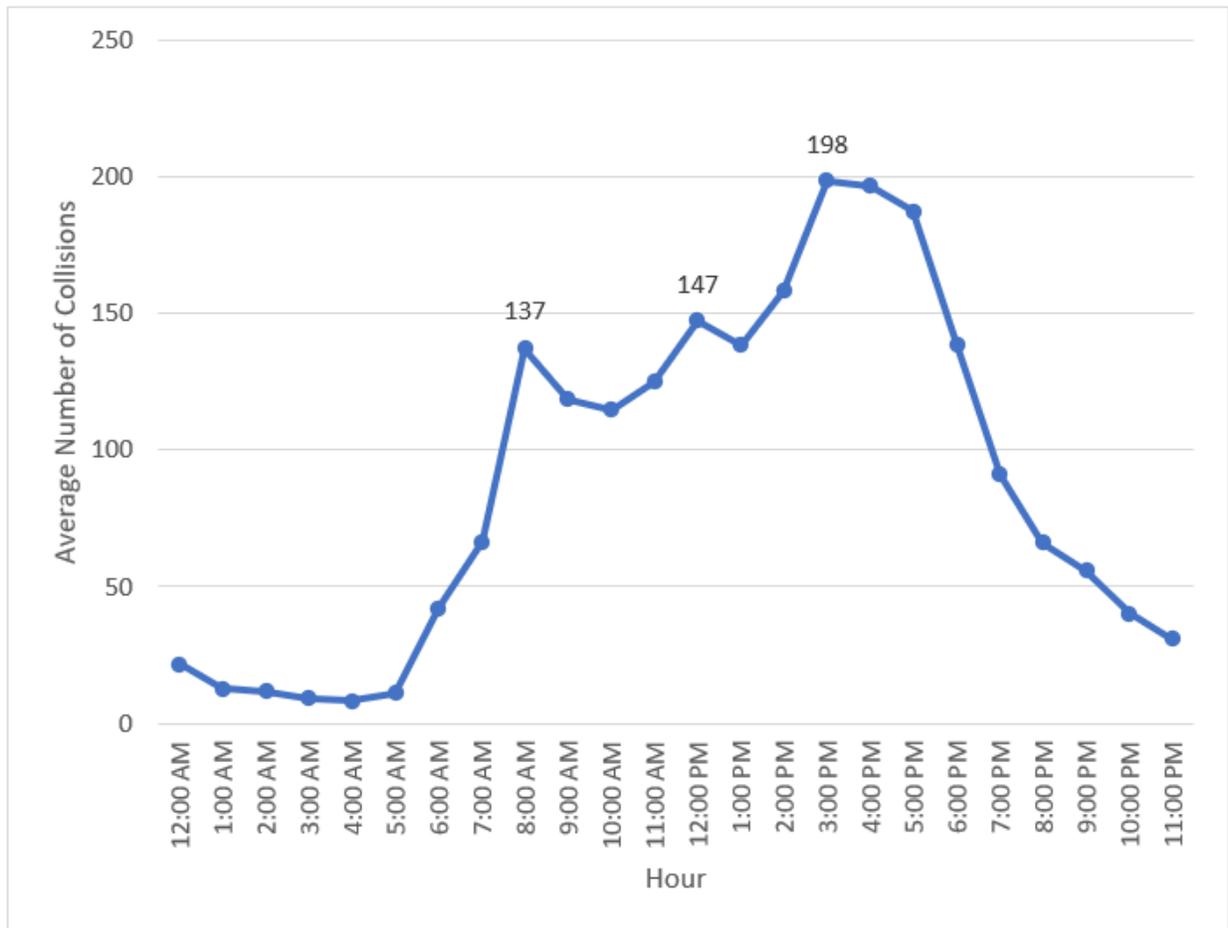


Figure 14: Average number of collisions by hour (2016-2020)



Road safety measures

In July 2020 the Community Road Safety Strategy (CRSS) and updated Traffic Calming policy were approved by Council. The following are road safety measures under the CRSS and Traffic Calming policy that were deployed across the City in 2020 by the Transportation Engineering team with the goal of improving road safety by reducing collision severity.

Leading pedestrian intervals

Leading pedestrian intervals are signalized intersections where pedestrians have a 5-second head start to cross the street before vehicles get a green signal. Leading pedestrian intervals were installed at the following intersections:

- Eramosa Road at Metcalfe Street
- Eramosa Road at Meyer Drive
- Woolwich Street at the Evergreen Seniors Community Centre
- Paisley Road at Alma Street North
- Imperial Road South at Stephanie Drive
- College Avenue West at Janefield Avenue
- Downey Road at Ptarmigan Drive

Slow Streets

Slow Streets was a pilot program which intended to help protect people walking, biking or using mobility devices. Streets selected for the pilot remained open and the speed limits went unchanged. Signs and temporary barriers directing drivers to slow down, avoid passing and share the road were installed. Slow Streets were piloted along the following road segments:

- Alice Street from Arthur Street South to Stevenson Street South
- Bowen Drive from Wideman Boulevard to Victoria Road North
- Applewood Crescent from Willow Road to Greengate Road
- Stephanie Drive from Elmira Road South to Imperial Road South
- Devere Drive from College Avenue West to Flanders Road
- Doyle Drive from Gosling Gardens to Clairfields Drive West

Ladder crosswalk pavement markings

The purpose of ladder (or zebra) crosswalk pavement markings is to make the pedestrian crossing area more visible by defining the pedestrian path of travel across the roadway and to alert drivers approaching a crossing that they must watch for and yield to pedestrians in the crosswalk. Ladder crosswalk pavement markings were installed at the following locations this year:

- Edinburgh Road South at Wellington Street West
- Edinburgh Road North at Willow Road
- Edinburgh Road South at Stone Road South
- Clair Road at Gordon Street
- Victoria Road North at Woodlawn Road East
- Eastview Road at Victoria Road North
- Westwood Road at Willow Road
- Woolwich Street at the Evergreen Seniors Community Centre
- Norfolk Street at Paisley Street, Quebec Street and Yarmouth Street
- Eramosa Road and Wyndham Street North at Woolwich Street
- Macdonell Street at Wellington Street East and Woolwich Street
- Paisley Road at Stephanie Drive

Next Steps

The findings from this report will guide the road safety reviews and initiatives that staff will focus on. Intersections and midblocks in [Table 4](#), [Table 5](#), [Table 8](#) and [Table 9](#) will be individually reviewed to determine if any mitigation measures can be implemented to improve road safety and reduce collision severity.

Other trends from this report will be used to guide future educational campaigns to target driver age groups, driver behaviour, collision timing and road conditions.

The City will produce the 2017-2021 Collision Report in June 2022. The report will include all road safety initiatives completed in 2021.