

2017-2021 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 (2017 – 2021). 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.

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 2017.

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 subsequently thereafter. However, data from Miovision cameras shows that traffic patterns largely returned to pre-COVID levels by September 2021.

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 2017 and 2021, there were a total of 9,915 collisions in the City of Guelph. A reduction of 724 collisions from the previous 5-year report (10,639). Reported collisions on private property are not included in this report. A total of 5.6% of collisions occurred on the Hanlon Expressway within the city limits of Guelph. On average, 1,983 collisions have occurred within Guelph annually over the past 5 years. Of these, 15% resulted in an injury, there was no statistically significant reduction since the last published report.

On average, the societal cost of collisions in the City of Guelph amounted to \$97,828,274 annually, an increase of \$1,630,878 from the previous 5-year report. 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 265 minutes
- 1 person is injured in a collision every 13 hours
- 1 fatality occurs every 107 days
- 1 pedestrian collision occurs every 9 days
- 1 cyclist collision occurs every 11 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 (2017-2021), the percentage of collisions on Guelph municipal roads that resulted in a major or fatal injury outcome was 0.89%.

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.

In January 2022, council formally adopted a Vision Zero (VZ) framework as part of the update to the Transportation Master Plan. VZ is a global movement based on a safe systems approach to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. VZ largely focuses on reducing major and fatal injury collisions to zero. As such, the data reflected in this report highlights injury collisions and locations where these injuries occur.

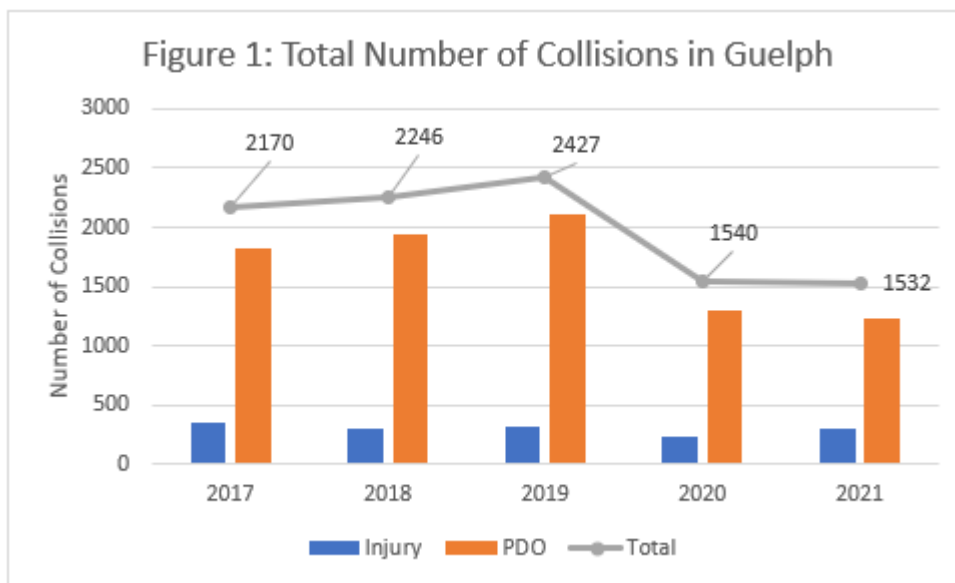
General Collision Trends

Over the past 5 years in the City of Guelph the total number of collisions has decreased from 2,170 in 2017 to 1,532 in 2021. The majority of these collisions involve property damage only (PDO). Injury-related collisions have decreased from 343 in 2017 to 300 in 2021. These reductions can be partially attributed to reduced travel volumes during the COVID-19 pandemic.

Table 1: Total Collisions in Guelph by City Street vs. Expressway (2017 – 2021)

Location	Total Collisions
Guelph City Streets	9361
Hanlon Expressway	554
Collisions within Guelph's City Limits	9915

Figure 1: Total number of collisions in Guelph (2017-2021)



Injury Severity

About 20% of injury-related collisions occur at intersections (see [Table 2](#)). Between 2017 – 2021, a total of 3,279 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	1,106 (19.8%)	4,492 (80.2%)	5,598
Midblock	396 (9.2%)	3,921 (90.8%)	4,317

Table 3: Injury Severity by Year

Year	Minimal/Minor Injury	Major/Fatal Injury	Total Injury
2017	946 (97.2%)	27 (2.8%)	973
2018	745 (96.3%)	29 (3.7%)	774
2019	691 (95.2%)	35 (4.8%)	726
2020	316 (93.5%)	22 (6.5%)	338
2021	441 (94.2%)	27 (5.8%)	468
Total	3139 (95.7%)	140 (4.3%)	3279

Location

The metrics and reporting of top locations have been updated from previous collision reports, as part of our Vision Zero goal to reduce major and fatal injury related collisions in the City of Guelph down to zero. Gordon St at Maltby Rd E had the highest percentage of collisions that resulted in a major/fatal outcome (27%) between 2017 and 2021 (see [Table 4](#)). The location with the highest frequency of injury-related collisions (minimal, minor, major, or fatal) was Edinburgh Road South at Wellington Street West (117) which saw the same number of major/fatal injuries as Gordon St at Maltby Rd E across a greater number of total collisions.

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

Location	Injuries	PDO	Total Collisions	% of Major/Fatal Injuries	% of Minimal/Minor Injuries
Gordon St at Maltby Rd	11	10	21	27%	73%
Macdonell St at Wellington St E	17	41	58	18%	82%
Arkeil Rd at Gordon St	17	38	55	18%	82%
Victoria Rd N at Woodlawn Rd E	12	26	38	17%	83%
Edinburgh Rd S at Wellington St W	23	94	117	13%	87%
Edinburgh Rd N at Speedvale Av W	9	54	63	11%	89%
Elizabeth St at Victoria Rd S	11	32	43	9%	91%
Imperial Rd N at Speedvale Av W	12	25	37	8%	92%
Stone Rd W at Scottsdale Dr	13	42	55	8%	92%
Gordon St at Wellington St	13	63	76	8%	92%

Woolwich St between Guelph Junction Railway & Marilyn Dr was the midblock location that had the highest percentage of collisions that resulted in a major/fatal outcome (20%) between 2017 and 2021 (see [Table 5](#)). Gordon St between Arkeil Rd & Edinburgh Rd S had the same percentage of major/fatal injuries however the distribution of major injuries was higher at this location. The location with the highest frequency of injury-related collisions (minimal, minor, major, or fatal) was Woodlawn Rd E between Woolwich St & Country Club Dr (53) but the majority of these (93%) resulted in a minimal/minor injury.

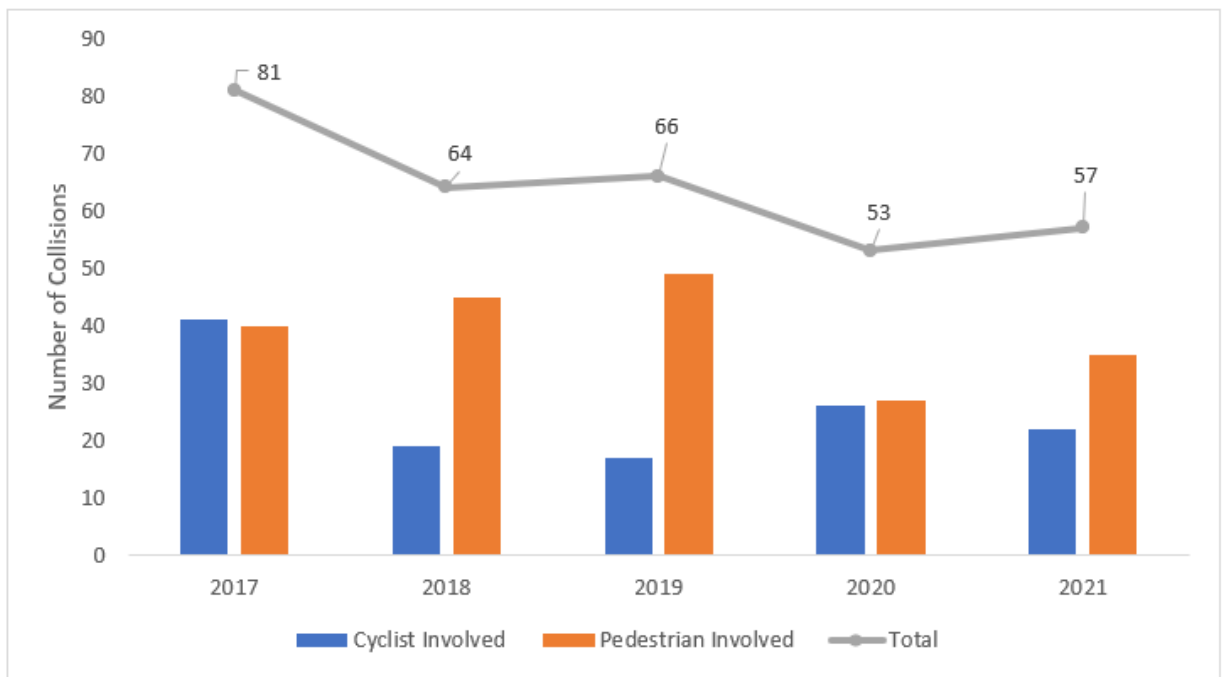
Table 5: Top 10 Midblock Locations with Highest Percentage of Major/Fatal Injury Collisions

Location	Injuries	PDO	Total Collisions	% of Major/Fatal Injuries	% of Minimal/Minor Injuries
Woolwich St btwn GJR & Marilyn Dr	5	21	26	20%	80%
Gordon St btwn Arkell Rd & Edinburgh Rd S	5	16	21	20%	80%
Wellington St W btwn Hanlon XY & Imperial Rd S	9	27	36	11%	89%
Woodlawn Rd E btwn Woolwich St & Country Club Dr	15	38	53	7%	93%
Gordon St btwn Heritage Dr & Lowes Rd	5	7	12	0%	100%
Gordon St btwn Clair Rd & Clairfields Dr	7	12	19	0%	100%
Silvercreek Py N btwn Greengate Rd & Speedvale Av W	6	22	28	0%	100%
Silvercreek Py N btwn Campbell Rd & Speedvale Av W	7	27	34	0%	100%
Gordon St btwn Harts Ln & Kortright Rd	7	27	34	0%	100%
Woodlawn Rd W btwn Imperial Rd N & Royal Rd	6	27	33	0%	100%

Collision Trends Involving Pedestrians and Cyclists

Collisions involving a cyclist or pedestrian make up 3.2% 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 (2017-2021)



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

On average each year, 39 pedestrians and 25 cyclists were involved in a collision where an injury was sustained (see [Table 6](#)). Between 2017 – 2021, 14% 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 Collisions by Year (2017 – 2021)

	2017	2018	2019	2020	2021	Total
Pedestrian Collisions	40	45	49	27	35	196
Cyclist Collisions	41	19	17	26	22	125

Table 7: Pedestrian/Cyclist Collisions by Injury Type

Person Involved	Minimal/Minor Injuries	Major/Fatal Injuries	Total Injuries
Pedestrian Injuries	171	35	206
Cyclist Injuries	118	12	130

Gordon Street at Surrey Street had the highest cyclist-related collision frequency with 6 collisions occurring at this location over the 5-year time frame. Additionally, Gordon St at Wellington St and Macdonell St at Wellington St E both saw 6 collisions that involved pedestrians at these locations respectively. All cyclists and pedestrians involved in a collision were injured to some degree. Based on a Vision Zero framework, vulnerable road users' safety must be prioritized.

Collision Impact Type

Of all collisions that occurred at an intersection, the majority resulted in a rear-end (2,174, 38.9%). Whereas single-motor vehicle (SMV) unattended, which can include hitting a parked car, fixed object or driving off the road accounted for 1,174 (27.2%) of midblock-related collisions (see [Figure 3](#)). Overall, rear-end collisions accounted for the highest frequency regardless of location (3,054, 30.8%) see [Table 8](#).

Figure 3: Initial impact type by intersection vs. midblock

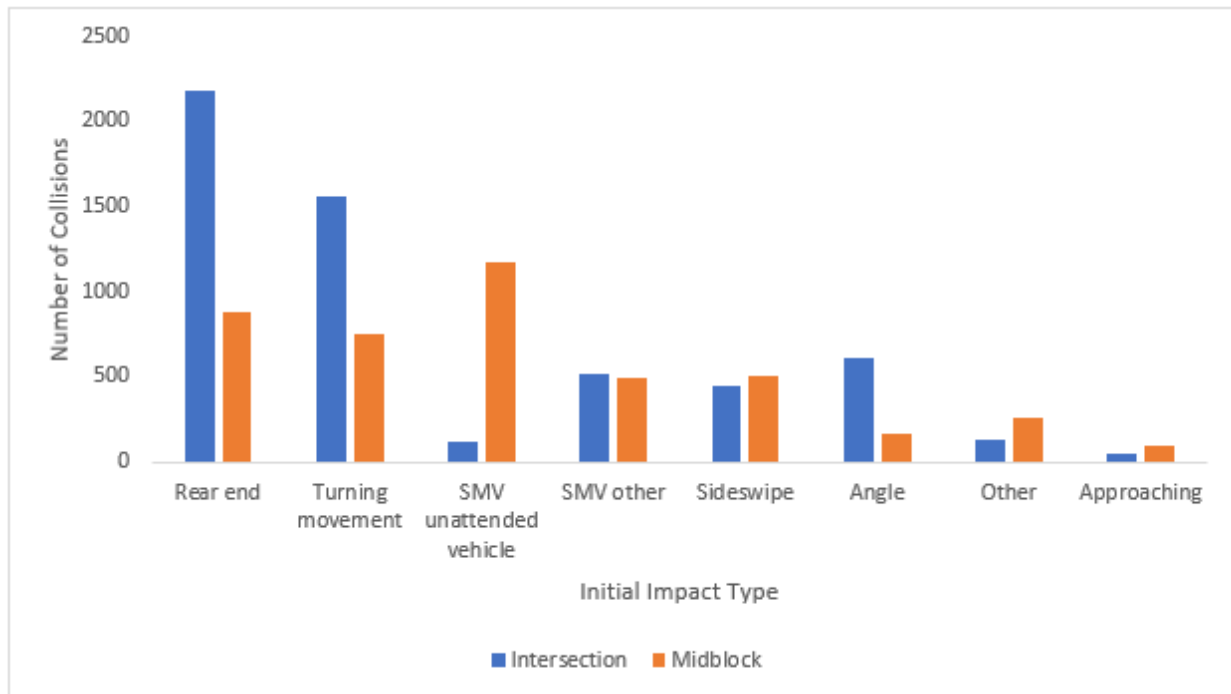


Table 8: Initial Impact Type by Intersection vs. Midblock

Initial Impact Type	Intersection	Midblock	Total
Rear end	2174	880	3054
Turning movement	1559	755	2314
SMV unattended vehicle	123	1174	1297
SMV other	510	495	1005
Sideswipe	441	504	945
Angle	608	163	771
Other	133	252	385
Approaching	43	90	133

Rear-end collisions resulted in the highest frequency impact type for both signalized and unsignalized intersections (see [Figure 4](#)). These made up 1,628 (43.4%) and 1426 (23.2%) of signalized and unsignalized collisions respectively (see [Table 9](#)). The majority of intersection-related collisions occur in areas where no traffic control device is present (51%), see [Figure 5](#).

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

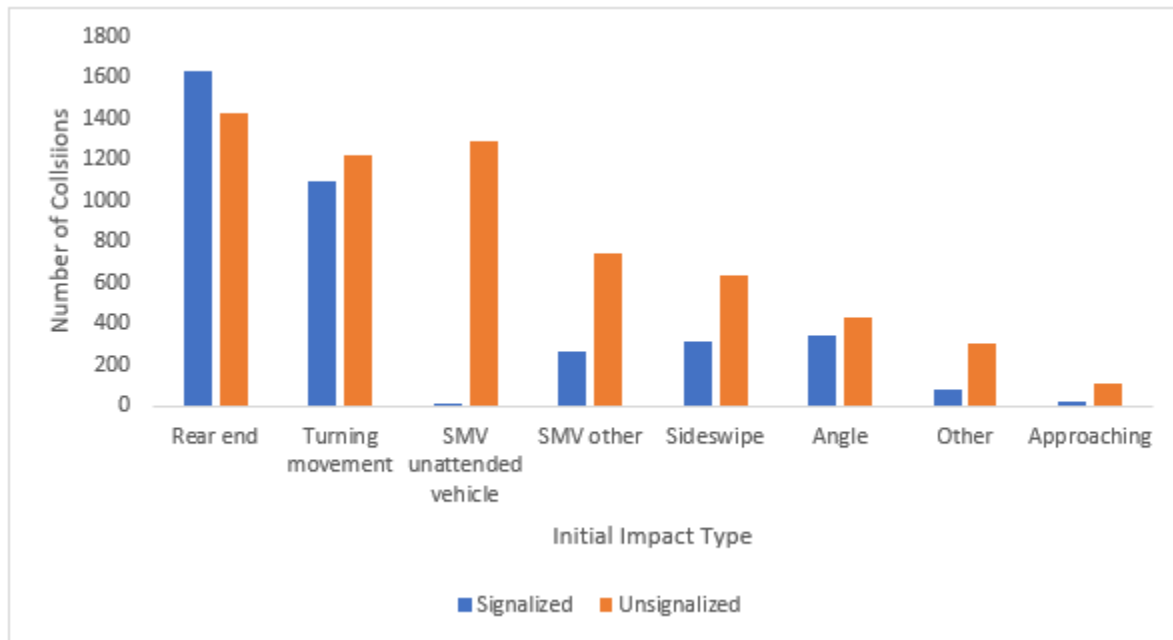
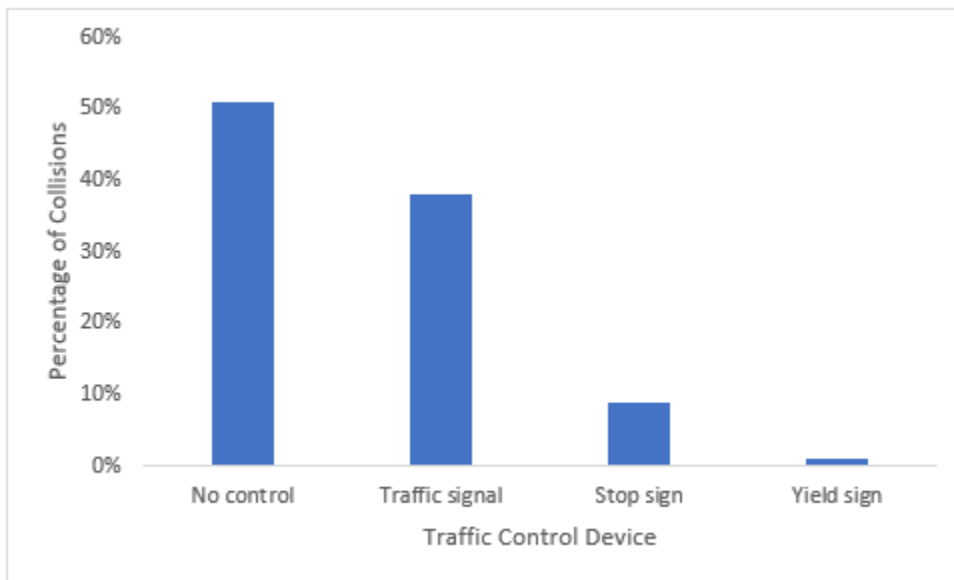


Table 9: Initial Impact Type by Signalized vs. Unsignalized Intersections

Initial Impact Type	Signalized	Unsignalized	Total
Rear end	1628	1426	3054
Turning movement	1095	1219	2314
SMV unattended vehicle	11	1286	1297
SMV other	260	745	1005
Sideswipe	312	633	945
Angle	339	432	771
Other	83	302	385
Approaching	21	112	133

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 2017 – 2021, approximately 2200 collisions involved a young driver (see [Figure 6](#)). Similarly, individuals ages 20-29 who are involved in a collision sustained most of the injuries (335 injuries in 5 years), see [Figure 7](#).

Figure 6: Number of collisions by age group (2017-2021)

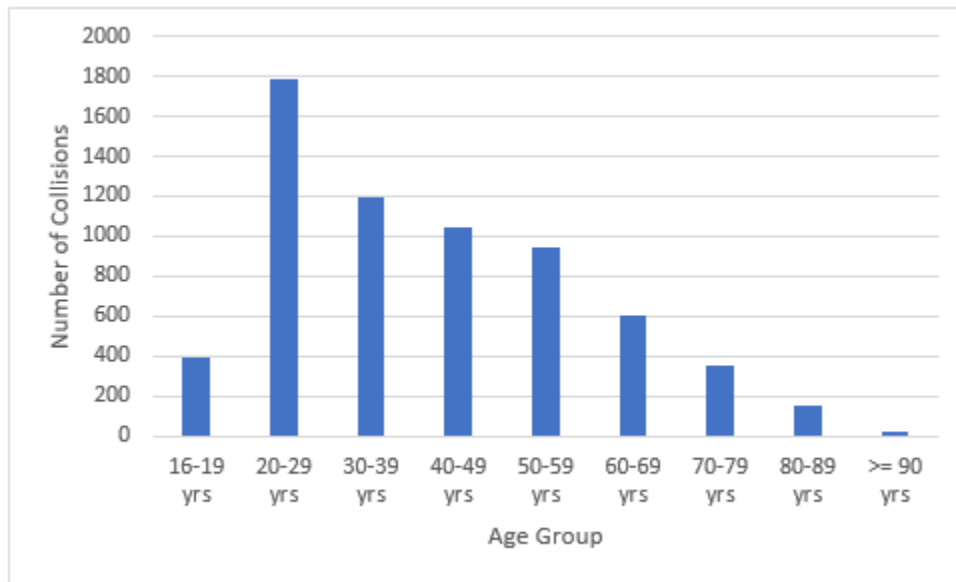
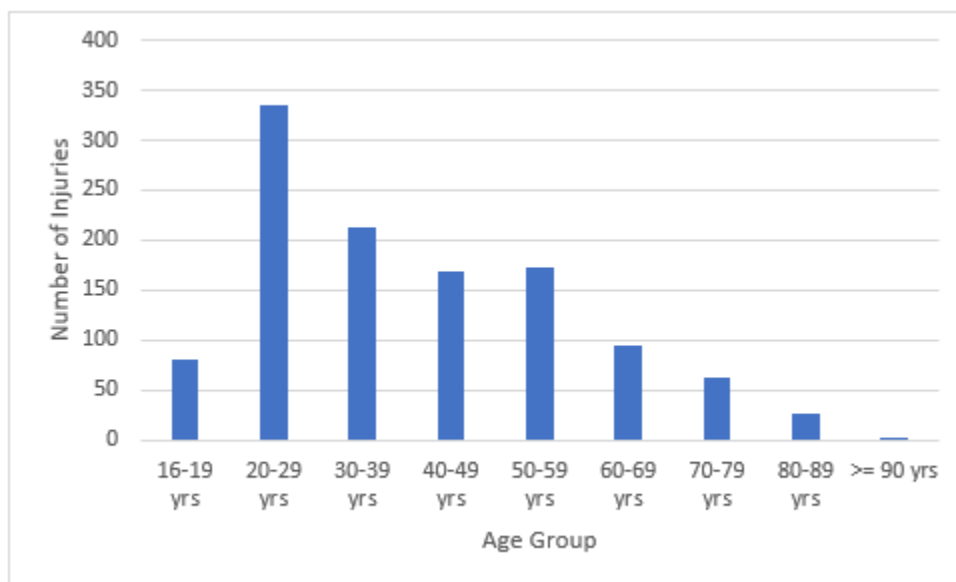


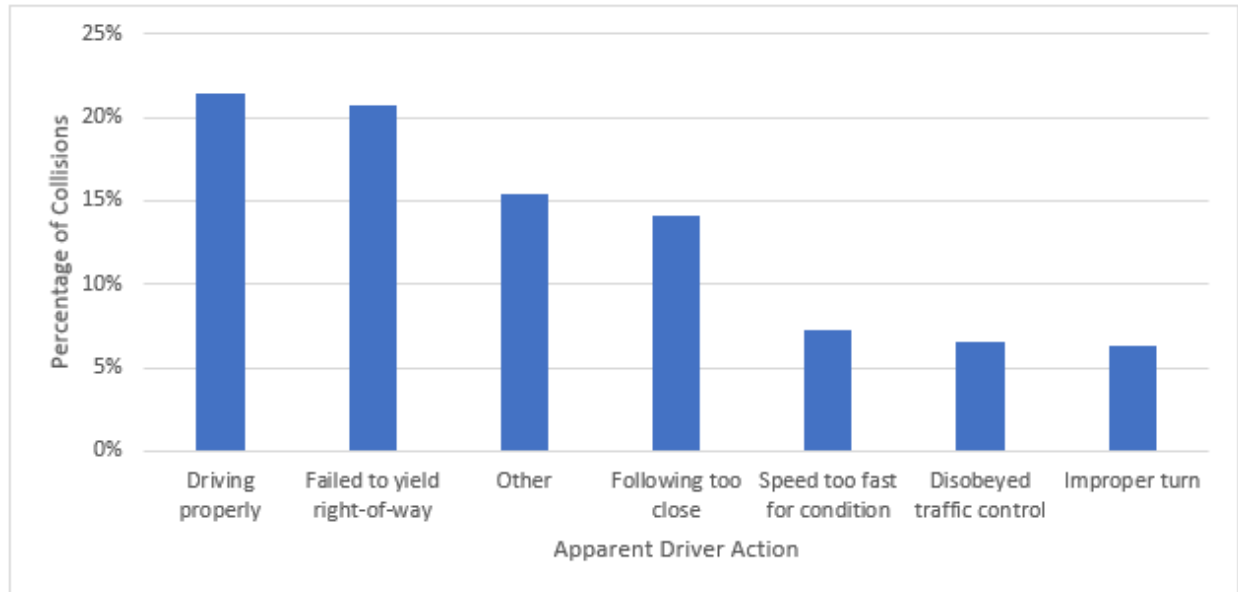
Figure 7: Number of injuries by age group (2017-2021)



Driver Action, Maneuver, and Condition

Over 40% of collisions involved drivers who were either driving properly according to police (21%) or who failed to yield the right-of-way (21%) see [Figure 8](#).

Figure 8: Percentage of collisions by apparent driver action (2017-2021)



Over one third of collisions involved a driver going ahead on a road (38%). Another 16% 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%). Turning movements are also heavily involved in collisions with pedestrians and cyclists. One quarter of collisions that involve a cyclist occur when the driver is turning right. Drivers making a left turn make up 16% of collisions with a cyclist. Most collisions involving a pedestrian occur when a driver is making a left turn (39%), see [Figure 10](#).

Figure 9: Percentage of collisions by maneuver (2017-2021)

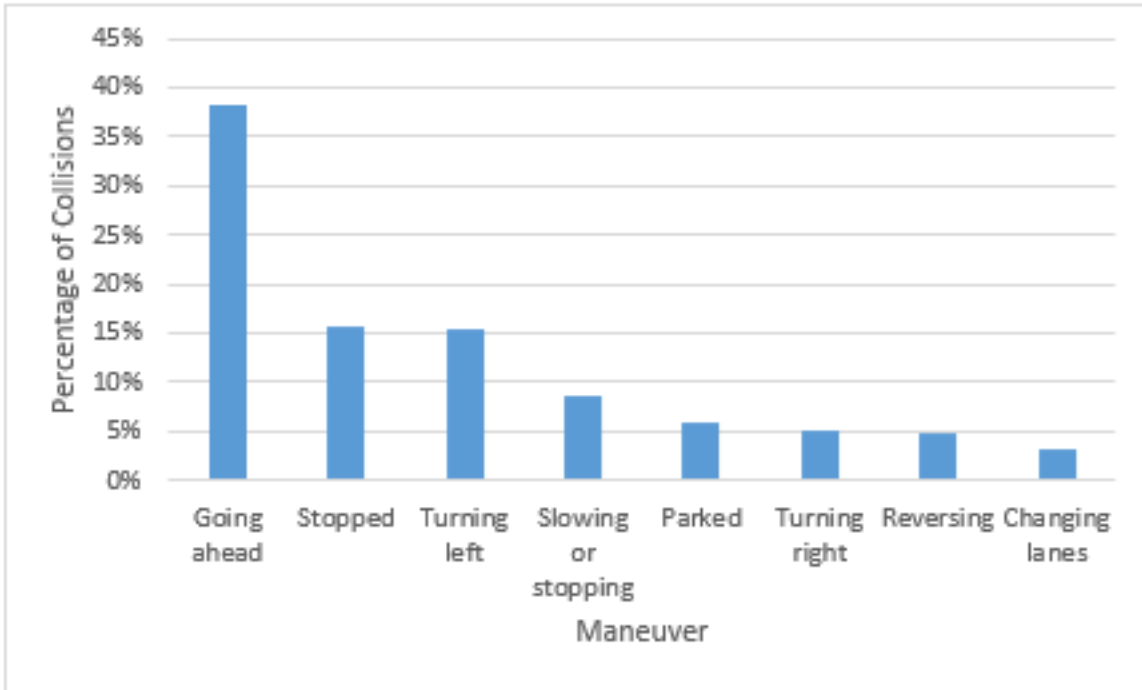
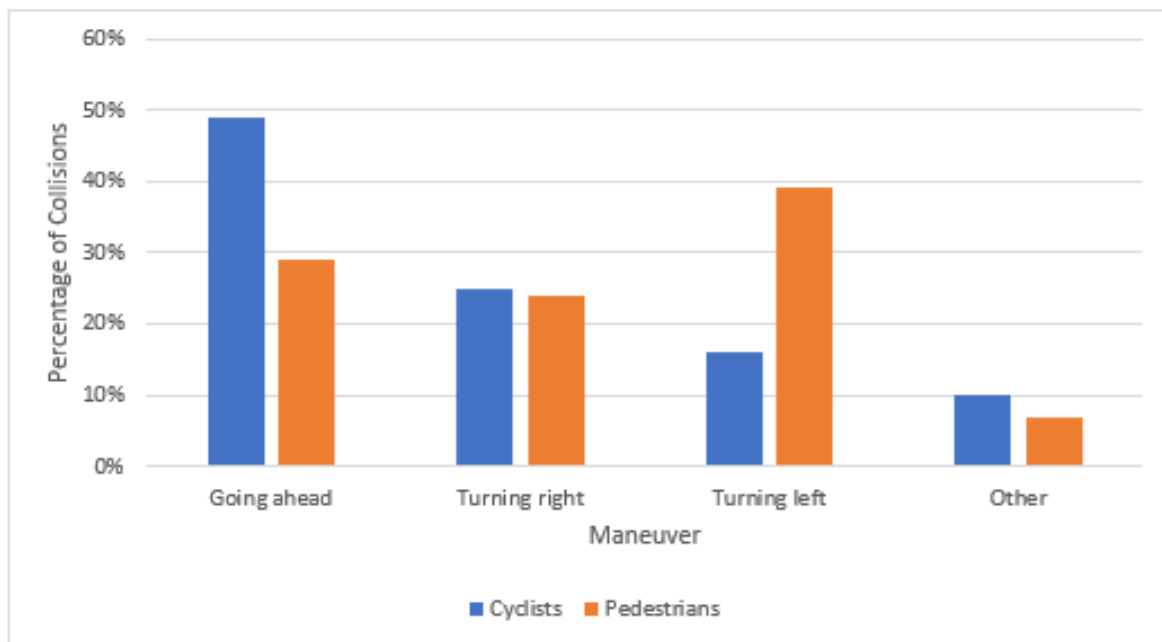
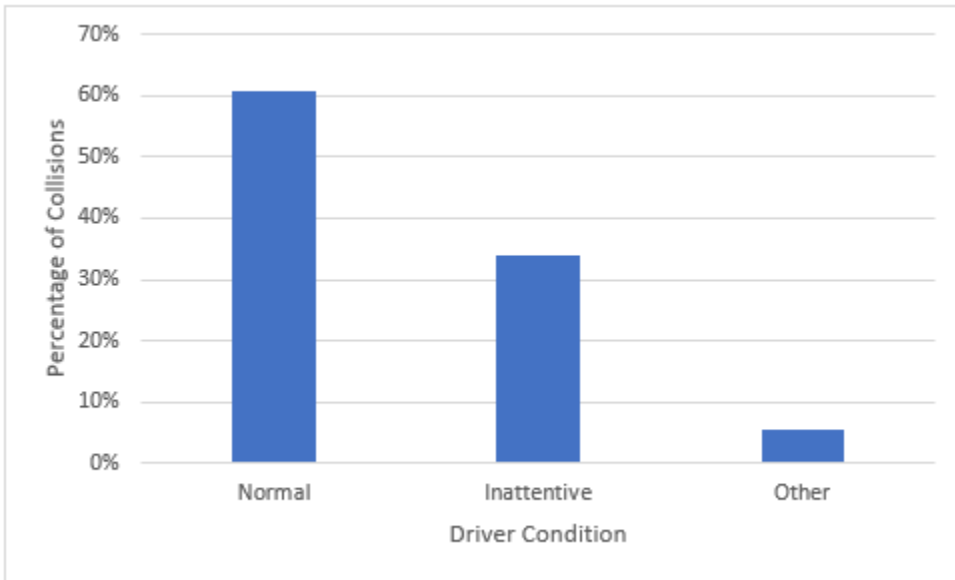


Figure 10: Percentage of Collisions by Maneuver Involving Cyclists or Pedestrians (2017 - 2021)



The condition of most drivers (61%) 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 (34%) (see [Figure 11](#)).

Figure 11: Percentage of collisions by driver condition (2017-2021)



Temporal Trends

On average, over the past 5 years, most collisions happened during the winter months: November (219), December (199), and January (202), see [Figure 12](#). These collisions can likely be explained by poor weather conditions and decreased visibility. Most collisions also happen during the weekdays on Friday (341), see [Figure 13](#). Finally, collisions typically occur in the morning at 8:00 AM (118), around 12:00 PM (138), and 4:00 PM (195), see [Figure 14](#). These times coincide with pick-up and drop-off times for elementary and high-school students and correspond to typical business lunch hours.

Figure 12: Average number of collisions by month (2017-2021)

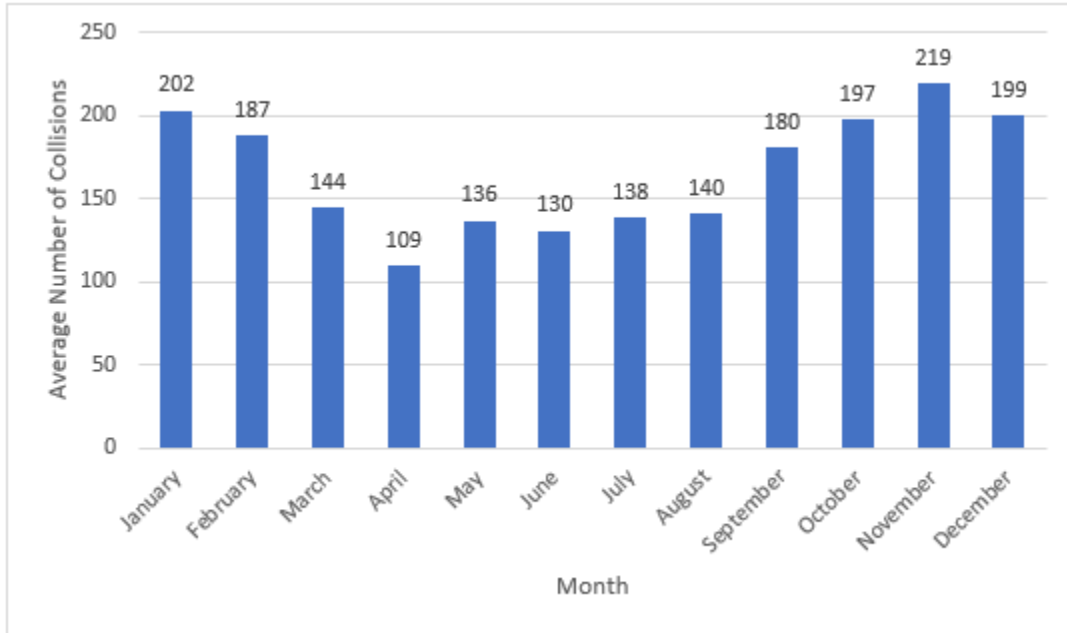


Figure 13: Average number of collisions by day of week (2017-2021)

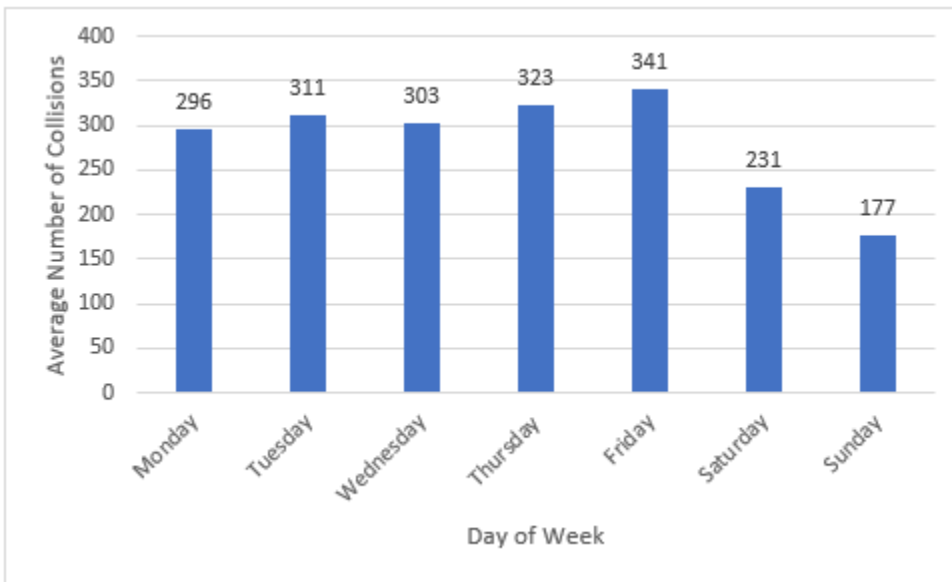
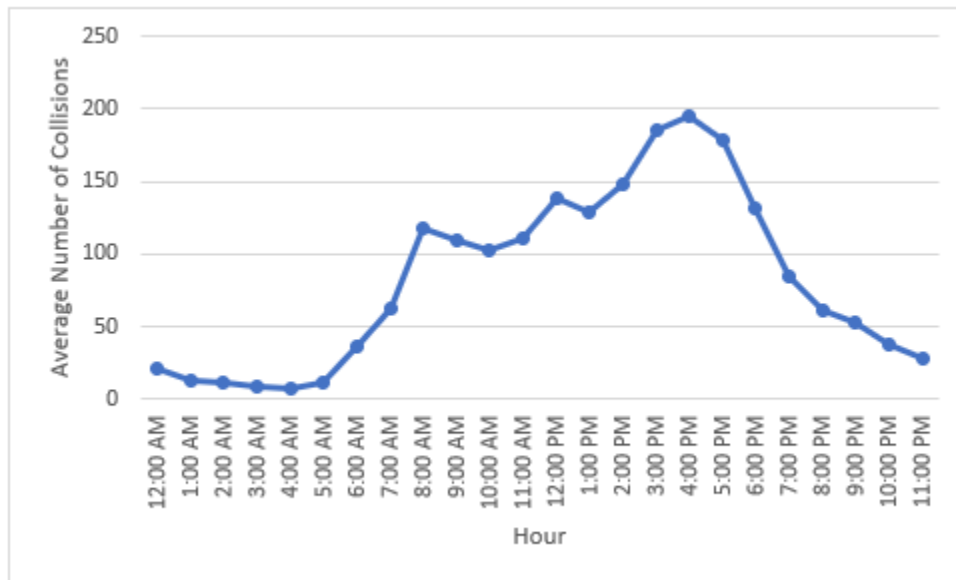


Figure 14: Average number of collisions by hour (2017-2021)



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 2021 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 intersection:

- Kortright Road West at Scottsdale Drive and Ironwood Drive

Permanent radar speed boards

Radar speed boards are a safety initiative that displays the operating speed of drivers and brings awareness about speed limits on residential roads. Radar speed boards were permanently installed in the following locations last year:

- Elmira Road North near Chillico Drive
- Fife Road near Gateway Drive
- Arkell Road near Amos Drive
- Kortright Road West near Ironwood Road
- Metcalfe Street near Balsam Drive
- Fleming Road near Frasson Drive

Traffic calming measures

The use of traffic calming measures can reduce the speed and volume of traffic thereby increasing safety for all road users. Additional benefits include the

reduction of vehicular traffic, occurrence of excessive speeding, noise, vibration, air pollution and collisions, while providing a safer environment for all road users. The following roadways received temporary traffic calming measures last year:

- Downey Road between Niska Road and Teal Drive
- Niska Road between Downey Road and Ptarmigan Drive

Red light cameras

The City of Guelph uses red light cameras as a tool to help reduce the number of vehicles running red lights. Running a red light is more likely to cause significant injury than any other type of collision. Red light cameras help decrease the severity of injuries from collisions by reducing right-angle collisions and cars running red lights. Red light cameras were installed at the following locations last year:

- Wellington Street West at Wyndham Street
- Eramosa Road at Stevenson Street North
- Speedvale Avenue West at Dawson Road
- Imperial Road at Willow Road
- Stone Road West at Scottsdale Drive

Smart channel

Smart channels are an alternative design for channelized right turn lanes. Approaching vehicles must yield to pedestrians who are using the crossover and wait until they have fully crossed to or from a pedestrian island before proceeding. Smart channels prioritize pedestrian safety and provide improved traffic flow for drivers. Installing smart channels will:

- Improve visibility of pedestrians
- Reduce vehicle speeds for drivers making right turns
- Reduce the angle of shoulder check for drivers

Smart channels were installed on all 4 channelized right turn lanes at the intersections of Edinburgh Road South and Wellington Street West in 2021.

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:

- Starwood Drive at Lee Street
- Gordon Street at Kortright Road
- Imperial Road South at Paisley Road
- Norfolk Street at Macdonell Street
- Stone Road West at Scottsdale Drive
- Imperial Road South at Stephanie Drive
- Imperial Road at Willow Road
- College Avenue at Gordon Street
- College Avenue West at Janefield Avenue

- Gordon Street at Harvard Road

Flexible bollards

Flexible bollards are installed on various roadways through-out the City to create a visual narrowing effect with the goal of slowing down traffic by placing one centre bollard and two bollards close to each curb. Flexible bollards were installed along the following streets last year:

- Callander Drive between Eramosa Road and Ottawa Crescent
- Windsor Street between Inverness Drive and Balmoral Drive
- Arkell Road between Gordon Street and Victoria Road South

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 2018-2022 Collision Report in June 2023. The report will include all road safety initiatives completed in 2022.