

Information Report



Service Area	Infrastructure, Development and Enterprise Services
Date	Friday, June 26, 2020
Subject	2015 - 2019 Collision Report

Executive Summary

Purpose of Report

To provide an overview of the 2015 – 2019 Collision Report including general collisions trends, injury severity for drivers, pedestrians, and cyclists, locations with the highest percentage of injury-related collisions, impact type, demographics and driver behavior in the City of Guelph that will inform future road safety improvements.

Key Findings

- Although total collisions have slightly increased on Guelph's roads in 2019, injury-related collisions have decreased over the past 5 years.
- It is important to track injury-related collision history. Without knowing the exact volume of drivers at any given location it is difficult to pinpoint whether the increase in collisions is due to more people driving or the roads becoming more dangerous. A better indicator of a successful road safety program is the outcome of those collisions (i.e. property damage only vs. injury-related collisions).
- Collisions involving a cyclist or pedestrian make up 3.3% of total collisions in the City of Guelph.
- All cyclist and pedestrian related collisions resulted in an injury, with 8.1% of these collisions resulting in a major or fatal injury outcome.
- The societal costs of collisions in Guelph average just over \$100,000,000 annually.
- At locations where an injury-related collision occurs, approximately one quarter happen at an intersection.
- Edinburgh Road South at Wellington Street West had the highest frequency of total collisions and injury related collisions between 2015 – 2019.
- Victoria Road South between Florence Lane & York Road had the highest frequency of total midblock collisions, whereas Woodlawn Road East between Speed River & Woolwich Street had the highest frequency of midblock injury-related collisions.
- The findings from this report will be used to help inform future road safety improvements.

Financial Implications

There are no financial implications with this report.

Report

Details

The 2015-2019 Collision Report can be used to make evidence informed decisions on how to allocate safety resources on Guelph's roads. By reviewing the findings of this collision report, the upcoming Community Road Safety Strategy (CRSS) can prioritize which locations require road safety improvements on a proactive basis. Recommended interventions such as leading pedestrian intervals and red-light cameras for example can be applied to intersections with greater conflicts between pedestrians and turning drivers, and intersections with a greater number of angle collisions respectively. Additionally, educational campaigns can be targeted towards distracted driving given that 37% of drivers involved in a collision were inattentive. Detailed statistics can be found in Appendix 1: 2015 – 2019 Collision Report.

Data Source

This report provides an overview of historical collisions in the City of Guelph (the City) using data from Guelph Police Services (GPS) for the last 5 years (2015 – 2019). The analysis presented includes collisions that occurred on municipal roads within the city limits. Collisions that occurred on county roads and provincial highways outside of the city limits and private property collisions within the city limits are not included in this report.

GPS send all collisions to the Ministry of Transportation (MTO). The City's Engineering and Transportation Services department accesses collision reports 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 2015.

GPS also produces an annual collision report through Accident Support Services International (ASSI), which includes private property collisions. Any discrepancies between the ASSI report and City's collision report may be attributed to these additional private property collisions.

Summary

Traffic collisions are a primary cause of death, injury, and property damage. On average, the societal costs of collisions in Guelph between 2015 – 2019 was \$103,579,992 annually. Additionally, on the City's roads:

- 1 collision occurs every 230 minutes
- 1 person is injured in a collision every 9 hours
- 1 road fatality occurs every 130 days
- 1 pedestrian collision occurs every 10 days
- 1 cyclist collision occurs every 10 days

The City's road network consists of 598 lane-kilometres of urban and rural roads. There are approximately 2000 intersections in the City of which 7% (144) are controlled by traffic signals.

Why focus on injury-related collisions?

While the total number of collisions have increased in 2019, the number of injury-related collisions have decreased over time. The total number of collisions may

increase for a number of reasons. According to Statistics Canada, every year the number of licensed drivers increases in Canada. Without knowing the exact volume of drivers at any given location it is difficult to pinpoint whether the increase in collisions is due to more people driving or the roads becoming more dangerous. A better indicator of a successful road safety program is the outcome of those collisions (i.e. property damage only vs. injury-related collisions).

Major injuries require the individual to be admitted to a hospital. Injury outcomes can be attributed to the type of collision (i.e. angle vs. rear end), speed, and seatbelt use among other factors. At lower speeds for example, drivers are able to react quicker which increases their stopping distance and decreases the likelihood of being involved in a collision. This becomes even more important when considering collisions between a driver and a pedestrian or cyclist. Not only do lower speeds reduce the risk of a collision happening, they also increase the chances of surviving if struck. The likelihood of surviving a collision as a pedestrian increases to 90% if struck at 30 km/h compared to 20% at 50 km/h.¹

General collision trends

Intersection-related collisions

The intersection of Edinburgh Road South at Wellington Street West had the highest frequency of total collisions and injury related collisions between 2015 – 2019. The highest injury rate intersection location is Gordon Street at Surrey Street where over 50% of the total collisions resulted in an injury. On average, 941 individuals are injured per year in a collision, with the majority of these injuries taking place at an intersection location.

Although the City can't alter an existing driveway, these findings help us determine access requirements for new site plans.

Midblock-related collisions

Between 2015 – 2019, midblock collisions accounted for 45% of total collision locations. Victoria Road South between Florence Lane & York Road had the highest frequency of total collisions, whereas Woodlawn Road East between Speed River & Woolwich Street had the highest frequency of injury-related collisions. The highest injury rate midblock location is Gordon Street between Clairfields Drive West & Clair Road West where 50% of the total collisions resulted in an injury.

These findings, in particular the highest percentage of injury related collisions will help staff identify areas that require infrastructure improvements in the future.

Cyclist/Pedestrian related collisions

Between 2015 – 2019, 381 cyclists and pedestrians were involved in a collision.

Cyclist Collision Locations

Gordon Street at Surrey Street had both the highest collision frequency and the highest injury-related collisions. Similarly, Gordon Street between Surrey Street & Wellington Street was the midblock location with the highest frequency of total and injury-related collisions for cyclists. On average, 39 pedestrians and 33 cyclists

¹ World Health Organization. Global status report on road safety 2018.
<https://www.who.int/publications-detail/global-status-report-on-road-safety-2018>

sustain an injury per year. Between 2015 – 2019, 8.1% of injury-related collisions that involved either a pedestrian or cyclist resulted in a major or fatal injury outcome.

Pedestrian Collision Locations

Macdonell Street at Wellington Street/Woolwich Street had both the highest collision frequency and the highest pedestrian injury-related collisions.

Collision Impact Type

The majority of intersection-related collisions result from a rear-end, whereas midblock collisions typically result from a single motor vehicle collision unattended, which can include hitting a parked car or fixed object or running off the road.

Understanding collision impact types at both intersections and midblock locations may help inform upcoming road safety strategies such as red-light cameras.

Demographics and Driver Behaviour

Age

Young drivers (20 – 29 years old) are more likely to be involved in a collision. Consequently, these drivers are also most likely to sustain an injury on Guelph's roads.

Future educational interventions can target young drivers and use methods such as social media campaigns to help reach this particular demographic.

Driver Action, Maneuver, and Condition

Nearly half of all drivers are driving properly when a collision occurs. These collisions can be partially attributed to external factors including weather conditions, road surface conditions and daylight. Nearly 15% of drivers failed to yield the right-of-way when the collision occurred. Cyclists and pedestrian who are involved in a collision with a driver are often related to turning movements. More than one quarter of collisions that involve a cyclist occur when the driver is turning right. Drivers making a left turn make up an additional 14% of collisions with a cyclist. Most collisions involving a pedestrian occur when a driver is making a left turn. Additionally, over one third of collisions involve an inattentive driver.

These findings may help the City determine priority locations for solutions such as a leading pedestrian interval where pedestrians are given a head start to cross the street while drivers remain stopped at a red light.

Temporal Trends

On average, over the past 5 years, most collisions happened during the winter months, November through January. These collisions can likely be explained by poor weather conditions and slippery road surfaces. Most collisions happen on Fridays. Collisions also typically occur in the morning at 8:00 AM, around 12:00 PM, and 3:00 PM.

Although temporal trends cannot be directly influenced by a road safety intervention, this information can be helpful in determining days/times for targeted enforcement and educational campaigns. Additionally, collisions occurring at peak hours appear to 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. These findings will help inform strategies that can be implemented to enhance school safety.

Societal Costs of Collisions

On average, the societal cost of collisions in the City of Guelph amounted to \$103,579,992 annually. 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.

Next Steps: Network Screening

Network screening is a tool that municipalities can use to identify sites that may benefit from a safety intervention. As part of network screening, safety performance functions (SPFs) are developed that produce a potential for safety improvement (PSI) ranking based on a variety of factors including total number of collisions, collision severity, average daily traffic volume, impact type (e.g. rear end, side swipe), and the type of intersection (e.g. stop sign vs. signal for intersection locations). Future locations that require a safety improvement will be ranked and prioritized based on network screening results.

Financial Implications

There are no current or forecasted financial impacts that will occur directly or indirectly as a result of this report.

Consultations

Guelph Police Services was consulted on this report. Staff will work with police to align collision reporting efforts in the future.

Strategic Plan Alignment

The 2015 – 2019 Collision Report Strategy aligns with the city’s “Navigating our future” strategic priority by improving the safety, efficiency and connectivity of the transportation system. By reviewing the collision trends, the City can highlight locations that require safety improvements through infrastructure modifications and signal timing.

Attachments

Attachment-1 2015 – 2019 Collision Report

Departmental Approval

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