

ANNUAL COLLISION REPORT

2022





Table of Contents

Executive Summary	1
General Collision Trends	1
Temporal Trends	2
Spatial Trends	2
Vulnerable Road Users	2
Driver Behaviour	3
Disclaimer and Explanation	4
Self-Reporting of Collisions	4
Collision Data Accuracy and Completeness	4
COVID-19 Pandemic and Traffic Patterns	4
Introduction	5
SECTION 1	
Collision Trends (2018 to 2022)	8
Frequency and Severity	9
Month, Day, and Time of Collisions	12
Collisions By Road Surface and Lighting Conditions	14
Collision Impact Type by Site Type and Traffic Control	15
Collisions by Road Classification	16
Collisions by Vehicle Type	17
High Frequency Locations	19
Drivers	21
Pedestrian and Cyclist Collisions	23
SECTION 2	
Lincoln M. Alexander Parkway and Red Hill Valley Parkway Collision Trends (2018 to 2022)	35
Background	36
Frequency and Severity	36
Month, Day, and Time of Collisions	37
Collisions by Road Surface and Lighting Conditions	37
Collisions by Impact Type	39
Drivers	40

Executive Summary

This report presents an overview of road safety in the City of Hamilton based on the last five years (2018–2022). The analysis was conducted for collisions occurring on the City road network. Ten years of collision data (2013–2022) was used where necessary to provide the bigger picture. The COVID-19 pandemic declared in March 2020 has continued to have an impact on traffic volumes and patterns and as such, the 2020 and 2021 collision statistics should be viewed with this in mind. In 2022, it does appear that traffic volumes have been gradually returning to pre-pandemic levels. The highlights of this report are listed below.

General Collision Trends

The following general collision trends were noted:

- The City of Hamilton experiences around 8,180 collisions per year on average. There were 8,087 collisions in 2022.
- The collision data shows that the total number of collisions has increased over the years, but has been impacted by the pandemic. The total collisions in 2022 increased by 18.7% over 2021; however, they remain lower than pre-pandemic levels (18.3% lower than 2019).
- Fatal and injury collisions in 2022 were 1.5% lower than in 2021, 0.5% higher than in 2020, and 21.8% lower than in 2019. There were 16 fatal collisions in 2022, the same number as in 2021.
- There were 7 fatal pedestrian collisions in 2022, in which 9 pedestrians were fatally injured.
- In 2022, the Lincoln M. Alexander Parkway (LINC) showed a rebound from the pandemic, with 3.9% more collisions and 44% more injury collisions than in 2019. There were no fatal collisions on the LINC in any of the years from 2018 to 2022.
- In 2022, the Red Hill Valley Parkway (RHVP) also showed a rebound from the pandemic, but performed better than in 2019 with 4% lower collisions and 60% lower injury collisions. There was one fatal collision on the RHVP in 2022 and one fatal collision in 2021.
- In 2022, 1,144 people were injured in 1,160 collisions. Among those, 20 people were fatally injured.
- Male drivers were involved in more collisions than female drivers across all age groups. Male drivers constituted 63% of all drivers involved in collisions.
- The majority of collisions (78%) occurred during dry surface conditions. Collisions occurring during wet and snow/ice covered conditions were 14.8% and 6.9% respectively. This is consistent and even better than provincial averages.
- Collisions during wet and snow/ice conditions on the RHVP in 2018–2022 was 31.5%. This is lower than in 2017–2021 (45.7%) and is significantly reduced from 2016–2020 (57.8%) and 2015–2019 (64.1%).
- The majority of collisions occurred during daylight condition (68.1%). This percentage is slightly less than provincial averages (approximately 72%).
- On road sections, Single Motor Vehicle (SMV) collisions constituted 41.8% of total collisions, followed by rear-end collisions (22.7%).
- At signalized intersections, rear-end collisions were the largest type of collisions (42.9%). This is consistent with other jurisdictions. The second largest type of collision is sideswipe (20%).
- The vehicle type in the majority of intersection-related collisions was car (72%), followed by pick-up truck

(8.5%), and van (4.9%)

- The vehicle type in the majority of collisions that occurred on road segments was car (68.2%), followed by pick-up truck (10.2%), heavy truck (5.7%), and van (4.8%).

Temporal Trends

The following temporal trends were noted:

- The largest number of collisions occurred during October, November, December, and January.
- June, October, and December experienced the highest numbers of fatal and injury collisions.
- More collisions and most fatal and injury collisions occurred during Fridays compared to any other day of week, which is consistent with Provincial observations.
- During weekdays, there is a strong correlation between the peak periods of traffic and the number of collisions. Most collisions regardless of their severity occurred in the PM peak of traffic (3:00 PM – 5:00 PM), mid-day peak of traffic (around noon), and AM peak of traffic (8:00 AM – 9:00 AM).
- The pattern of collisions during weekends are different from weekdays. The number of collisions during weekends was much lower than weekdays and the hours with the largest number of collisions were distributed from 10:00 AM to 6:00 PM.

Spatial Trends

The following spatial trends were noted:

- The intersection of John Street South and Main Street East experienced the highest number of fatal and injury collisions from 2018–2022 (28). Of the 28 collisions, none were fatal.
- The road section of Queenston Road between Nash Road and 533 Queenston Road, experienced the largest number of fatal and injury collisions from 2018–2022 (20). Of the 20 collisions, none were fatal.
- 55.4% of all collisions occurred at intersections. Among those, 66.4% occurred at signalized intersections and 29.1% occurred at stop-controlled intersections.
- 32.2% of intersection-related collisions occurred at intersections of two arterial roads (arterial-arterial intersections) followed by arterial-local (28.9%) and arterial-collector (18.2%). The same trend was observed for fatal and injury collisions. The fatal and injury collisions that occurred at intersections were mostly split between arterial-arterial (32%), arterial-local (30%), and arterial-collector (19%) intersections.
- 30.9% of all collisions that occurred on road segments were on major arterial roads followed by minor arterial roads (29%), and local roads (18.8%). 37% of fatal and injury collisions that occurred on road sections were on major arterial roads followed by minor arterial roads (32%), major collector roads (11.4%), and local roads (10.9%).

Vulnerable Road Users

The following trends and observations were noted for pedestrian and cyclist collisions:

- The number of pedestrian collisions has fluctuated between 172 and 246 in the past 5 years. In 2022, the City experienced 212 pedestrian collisions, which is 23.3% more than in 2021 and 10.4% more than 2020, but 13.5% fewer than 2019. There were 7 fatal pedestrian collisions in 2022.

- The number of cyclist collisions has fluctuated between 128 and 176 in the past 5 years. In 2022 the City experienced 128 cyclist collisions, which is 8% fewer than 2021, 2.3% fewer than 2020, and 0% change from 2019. There was one fatal cyclist collision in 2022.
- The largest number of pedestrian collisions occurred in the month of October. In most Ontario municipalities, the largest number of pedestrian collisions occur in November. The largest number of cyclist collisions occurred between the months of June and August.
- The largest number of pedestrian and cyclist collisions occurred on Thursdays.
- 89.2% of all pedestrian collisions resulted in an injury in 2018–2022 while 2.7% resulted in a fatality.
- 77.8% of all cyclists involved in a collision sustained injury (including 0.4% fatal injury).
- 68.4% of pedestrian collisions occurred at intersections, and among those, 70.5% occurred at signalized intersections.
- 65.5% of cyclist collisions occurred at intersections, and among those, 50% occurred at signalized intersections.
- A review of driver actions involved in pedestrian and cyclist collisions showed that 42.4% and 30.5% of drivers failed to provide the right of way to pedestrians and cyclists respectively. Additionally, in 13.5% of collisions with cyclists, drivers committed an improper turn.
- 32.5% of intersection-related pedestrian collisions occurred at intersections of two arterial roads, followed by arterial-local (31.8%), and arterial-collector (16.9%) intersections. Intersection-related pedestrian fatal and injury collisions followed the same trend, with 32.1% at the intersection of two arterial roads, 31.9% at arterial-local intersections, and 16.9% at arterial-collector intersections.
- 36.4% of intersection-related cyclist collisions occurred at arterial-local intersections, followed by 23.6% at the intersection of two arterial roads, and 12.6% at the intersection of two local roads. Intersection-related cyclist fatal and injury collisions followed the same trend with 32.5% of collisions occurring at arterial-local intersections, followed by 23.2% at the intersection of two arterial roads and 12.8% at the intersection of two local roads.
- The vehicle type of most intersection-related pedestrian collisions was car (76%) followed by pick-up truck (9.9%) and van (5.6%). The vehicle type of most intersections fatal and injury pedestrian collisions was car (76.5%) followed by pick-up truck (9.5%) and van (6%).
- The vehicle type of most intersection-related cyclist collisions was car (83.3%) followed by pick-up truck (6.3%) and van (5.9%). The vehicle type of most intersection-related fatal and injury cyclist collisions was car (83.1%) followed by pick-up truck (7%) and van (5.2%).
- The vehicle type of most pedestrian collisions that occurred on road segments was car (74.4%) followed by pick-up truck (8.6%) and van (4.8%). The vehicle type of most fatal and injury pedestrian collisions on road segments was car (74.8%) followed by pick-up truck (8.1%) and van (5.2%).
- The vehicle type of most cyclist collisions that occurred on road segments was car (78.6%) followed by pick-up truck (8.9%) and van (4.3%). The vehicle type of most fatal and injury cyclist collisions on road segments was car (82.2%) followed by pick-up truck (9.2%) and van (2.9%).

Driver Behaviour

The following road user collision trends were noted:

- Distracted driving was a contributing factor in 19.4% of fatal and injury collisions.
- Impairment / alcohol consumption was a contributing factor in 4.1% of fatal and injury collisions.
- In 2018-2022, loss of control was a factor in 19.4% of police-reported collisions, which is a 5.4% increase from 2017-2021.
- Speeding accounted for 17% of all police-reported collisions. The percentages of speed-related collisions on the LINC and the RHVP were 27.9% and 18.2% respectively.

Disclaimer and Explanation

Self-Reporting of Collisions

The use of the term “reported” or “police reported” collision refers to a collision attended by a member of the Hamilton Police Service who filled out the standard Provincial collision reporting form. The term “self-reported” refers to a collision reported by citizens involved in property damage collisions that does not involve damage to private, municipal, or highway property. Self-reported collisions are filed at Collision Reporting Centres (CRC) based on the information provided by the parties involved in the collision. In this report, all charts and statistics are based on the total collisions (police reported and self-reported collisions), unless otherwise stated.

Collision Data Accuracy and Completeness

The City of Hamilton maintains a database together with Hamilton Police Services of collisions involving motorized vehicles, cyclists, and pedestrians. The database contains information on all recorded collisions from 2008 onward. The data and information in this report is for informational purposes only. While the City strives to provide accurate information, errors may be present, and information may not be complete. Accordingly, the City makes no representation as to the accuracy of the information or its suitability for any purpose and disclaim any liability for omissions or errors that may be contained therein.

Between the preparation of the 2018 and 2019 Annual Collision Reports, the City of Hamilton transitioned to a new collision data management system. This effort included an in-depth review of the quality and accuracy of past data. As a result of this process, some statistics of the past years in this report may differ from the same statistic reported in the past documents.

COVID-19 Pandemic and Traffic Patterns

On March 17, 2020, the Government of Ontario declared a state of emergency due to the COVID-19 pandemic and ordered 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 Hamilton, similar to other jurisdictions in Ontario, experienced reduction in vehicular traffic volumes, resulting in a reduction in the number of collisions. With the gradual removal of travel restrictions, traffic volumes have increased since July 2021. Due to the pandemic related travel restrictions, the number of collisions in 2020 and 2021 were significantly lower than the pre-pandemic levels.

The travel time and travel pattern data show that the traffic volumes and delay have increased in 2022 compared to 2021. Hamiltonians, on average, have spent 22 hours extra time in traffic during evening rush hours which is 5 h 24 min more than in 2021¹. However, the provincial data suggests that traffic volumes are close to pre-pandemic levels but have not yet reached the 2019 levels in most of the province. The City of Hamilton data suggests that traffic volumes increased between 10% and 16% in 2022 compared to 2021.

¹ <https://www.tomtom.com/traffic-index/hamilton-traffic/>

Introduction

The City of Hamilton is situated in Southern Ontario at the westerly end of Lake Ontario. The population of the City of Hamilton is 569,355 (2021 Statistics Canada Census).

The City of Hamilton road system contains the full spectrum of road types: multi-lane, one-way and two-way arterials, residential local and collector streets, medium-speed and high-speed rural two-lane roads and an 80/90 km/h limited access parkway system. The City road network includes 2,990 kilometers of roads where 66% are in urban areas and 34% are in rural areas.

The geographic area for analysis in this report includes all roads within the Hamilton municipal boundaries, excluding provincially controlled roadways: Queen Elizabeth Way (mainline), Highway 6, Highway 8 from Highway 5 northerly, Highway 5 between Highway 6 and Highway 8/52, Highway 403, on-ramps and off-ramps to Highway 403. Collisions occurring on service roads to the Queen Elizabeth Way are included. Only collisions on City streets or sidewalks are recorded; private property collisions are not included. This report provides insight into the trends, patterns, and characteristics of collisions that occurred on the City road system. This report can assist in identifying potential safety issues and initiating the conversation to identify mitigative actions to improve safety for all road users of all ages.

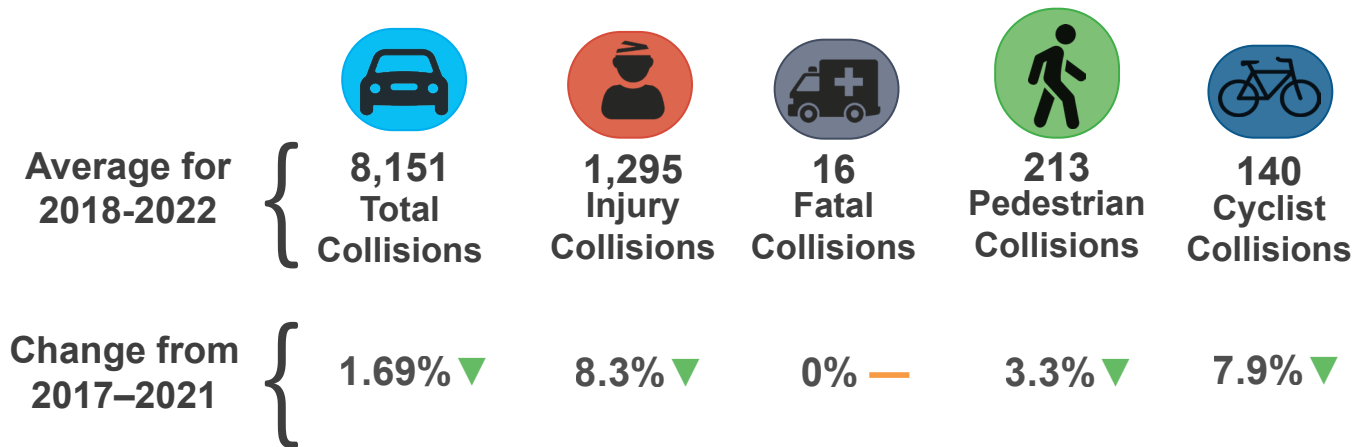
Road safety is a complex and multidisciplinary subject. In the City of Hamilton, many professionals work together to provide a safe transportation system to our residents. These professionals include law enforcement, engineers, planners, public health nurses, student transportation services, transit operators, and educators who work together to provide a safe transportation system to our residents. The Hamilton Strategic Road Safety Program and Vision Zero Action Plan 2019–2025 was approved in 2019, which is a holistic data-driven approach to improve road safety through evaluation, engineering, enforcement, education, and engagement. This report provides statistics based on 2018 to 2022 collision data.

The graphic below presents an overview of the City of Hamilton's road safety performance for the year 2022:



The graphic below provides the average total collisions, injuries, fatalities, pedestrian collisions, and cyclist collisions for 2018–2022 and compares them to the averages for 2017–2021.

The City has improved in all categories except fatalities, which stayed constant at an average of 14 fatalities per year.





EXPLORE
KING WEST
EMBRACE

Papagayo RESTAURANT

SUNRISE RESTAURANT
DINING LOUNGE
FULLY LICENSED UNDER 21

Costa's Shawarma

SECTION 1

Collision Trends

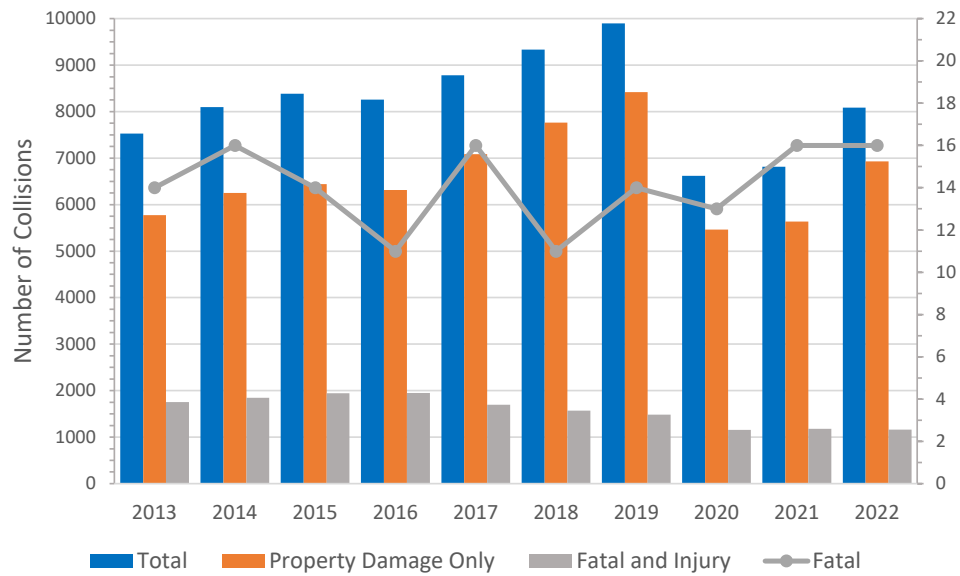
(2018 to 2022)



Frequency and Severity

A review of the City’s collision data shows that the total number of collisions has increased over the years, but has been impacted by the COVID-19 Pandemic. The City on average experiences 8,180 collisions each year. Total collisions in 2022 have increased over 2021 (18.7%); however, they remain lower than pre-pandemic levels. Total collisions were 18.3% lower than in 2019. While the total number of collisions increased by 18.7% compared to 2021, the fatal and injury collisions increased by 1.5%.

In 2022, the City of Hamilton experienced 16 fatal collisions, which is the same number as 2021. The average number of fatal collisions over the past five years remains at 14 annually.



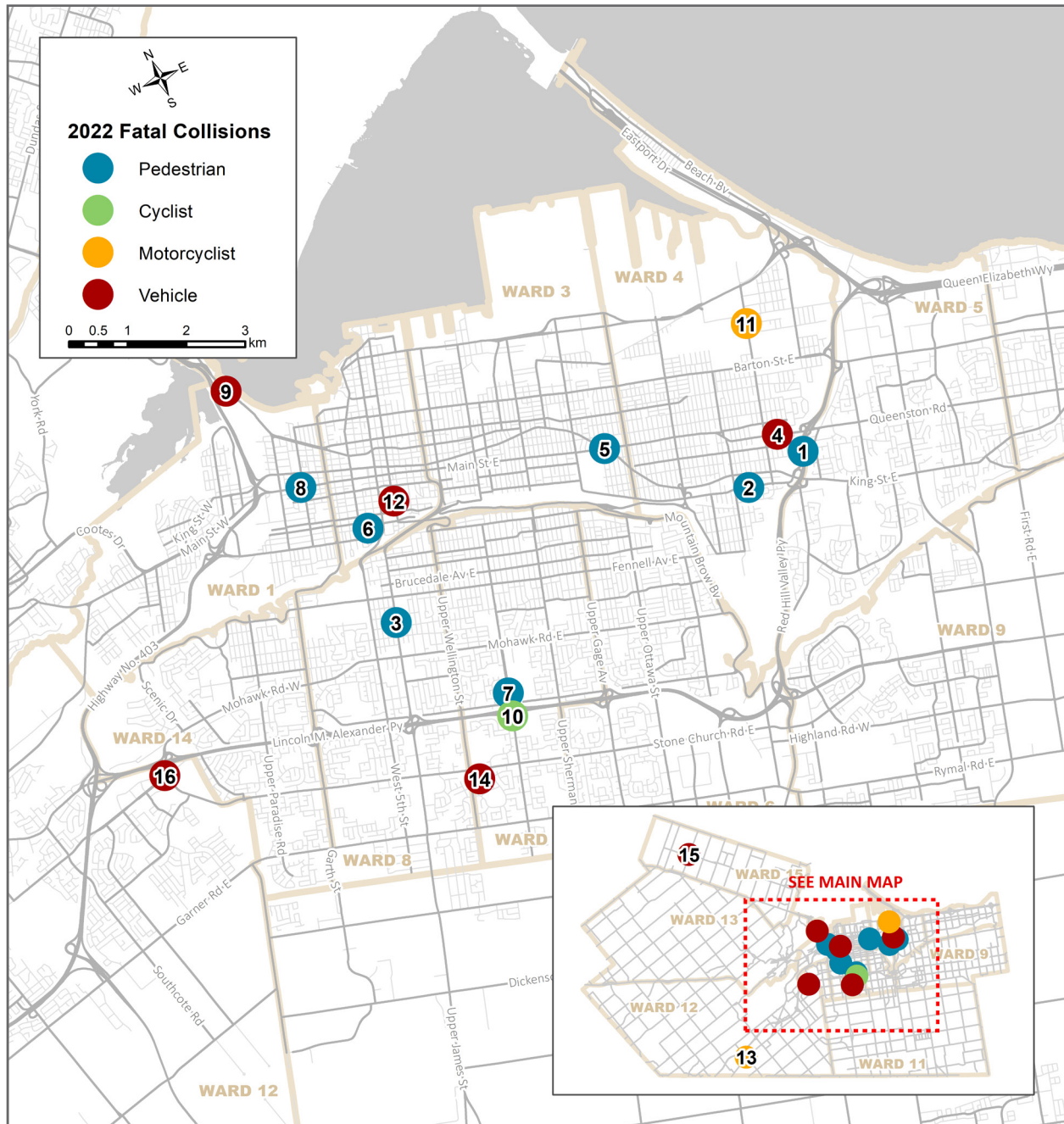
Collision Frequency (2012–2021)

Year	Total Collisions	Fatal Collisions	Fatal and Injury Collisions	Property Damage Only Collisions
2013	7,529	14	1,754	5,775
2014	8,095	16	1,846	6,249
2015	8,385	14	1,945	6,440
2016	8,259	11	1,947	6,312
2017	8,781	16	1,698	7,083
2018	9,333	11	1,572	7,761
2019	9,900	14	1,483	8,417
2020	6,619	13	1,154	5,465
2021	6,815	16	1,178	5,637
2022	8,087	16	1,160	6,927

In 2022, fatal collisions included six occupants of vehicles, nine pedestrians, one cyclist, and two motorcyclists spread across the City. Six fatal collisions occurred at intersections and ten fatal collisions occurred on road sections.

In 2022, 1,144 people were injured in 1,160 collisions. Among those, 20 people were fatally injured and 116 suffered from a major injury, defined as hospital admission including for observation. The number of major injuries has increased compared to 2021 (71).

Map of Locations of Fatal Collisions in 2022

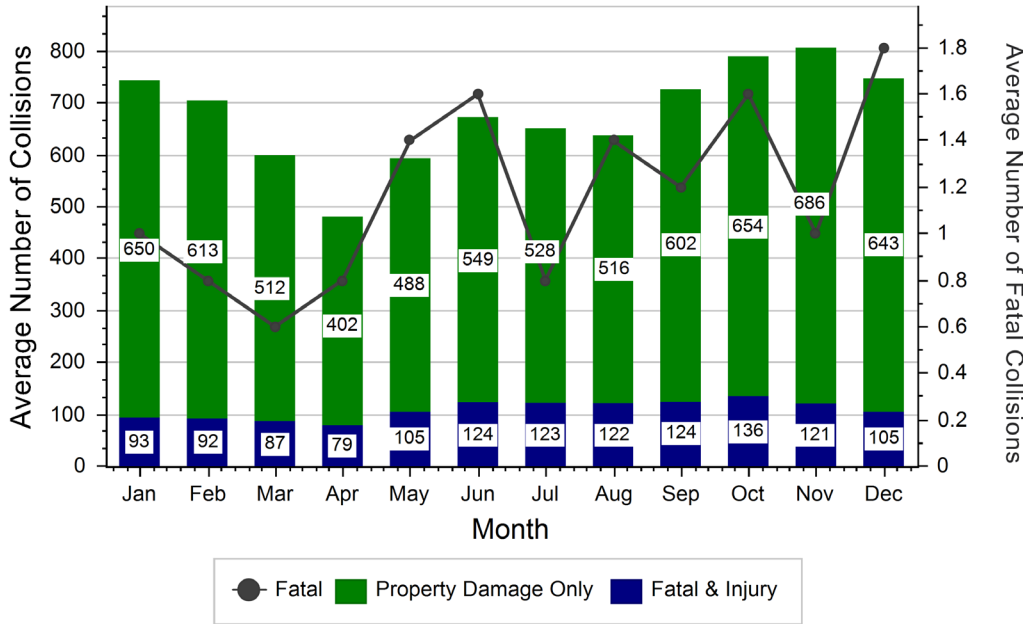


Locations and Dates of Fatal Collisions in 2022

2022 Fatal Collisions	
1	Red Hill Valley Parkway Northbound between ramp Queenston Road Westbound to Red Hill Valley Parkway Northbound and ramp Red Hill Valley Northbound to Queenston Road • January 17, 2022
2	Lawrence Road between Charlotte Street and Hillside Avenue • January 30, 2022
3	Upper James Street between McElroy Road and Walmart Plaza Entrance/Exit • February 5, 2022
4	Queenston Road between Adair Avenue South and Delena Avenue South • Feb 22, 2022
5	King Street East at Main Street East • March 19, 2022
6	Markland Street at Park Street South • April 5, 2022
7	Upper Wentworth Street between Limeridge Mall Entrance/Exit and ramp Upper Wentworth SB to Lincoln Alexander Parkway WB • April 8, 2022
8	Main Street West between Locke Street South and Margaret Street • May 5, 2022
9	York Boulevard between Cemetery Entrance/Exit and Cemetery Entrance/Exit • June 11, 2022
10	Upper Wentworth Street between ramp Lincoln Alexander Parkway EB to Upper Wentworth and ramp Upper Wentworth • July 5, 2022
11	Burland Crescent at Parkdale Avenue North • September 13, 2022
12	John Street South at Young Street • September 25, 2022
13	Alberton Road South at Wilson Street West • October 11, 2022
14	Dragoon Drive between Fusilier Drive and Vennio Lane • December 2, 2022
15	Centre Road between Concession 11 and Concession Road 12 • December 8, 2022
16	Mohawk Road at Stone Church Road • December 13, 2022

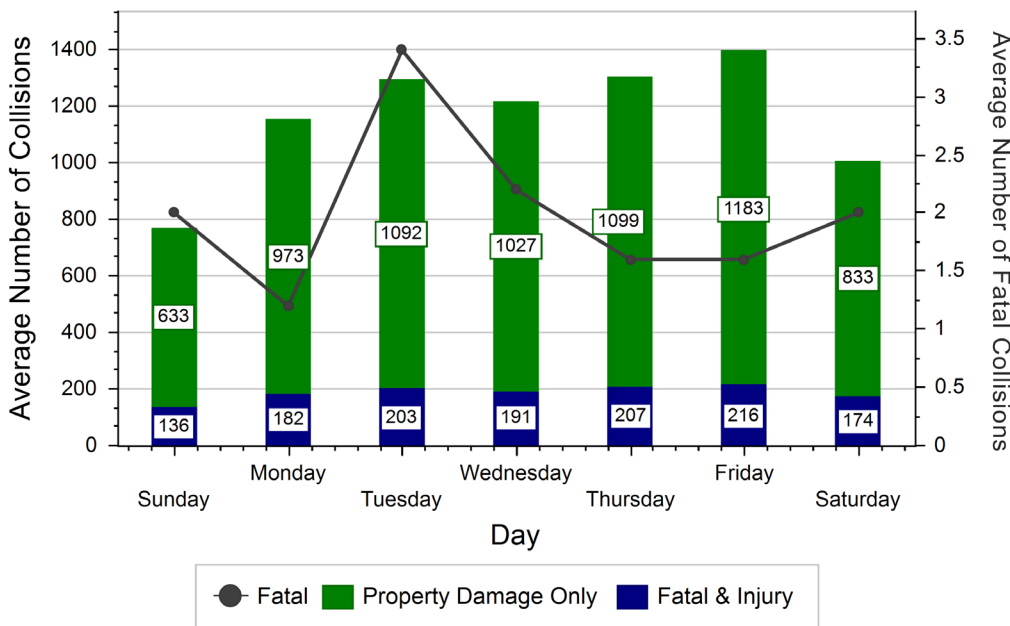
Month, Day, and Time of Collisions

The largest number of collisions occurred during the months of October, November, December, and January. Of the total collisions from 2018 - 2022, 38% took place during these four months which is consistent with Provincial averages. The months of June, October, and December experienced the highest numbers of fatal and injury collisions based on 2018 - 2022 collision data.



Collisions by Month, 5 Year Average (2018-2022)

More collisions and most fatal and injury collisions occurred during Fridays compared to any other day of week, which is similar to Provincial observations.

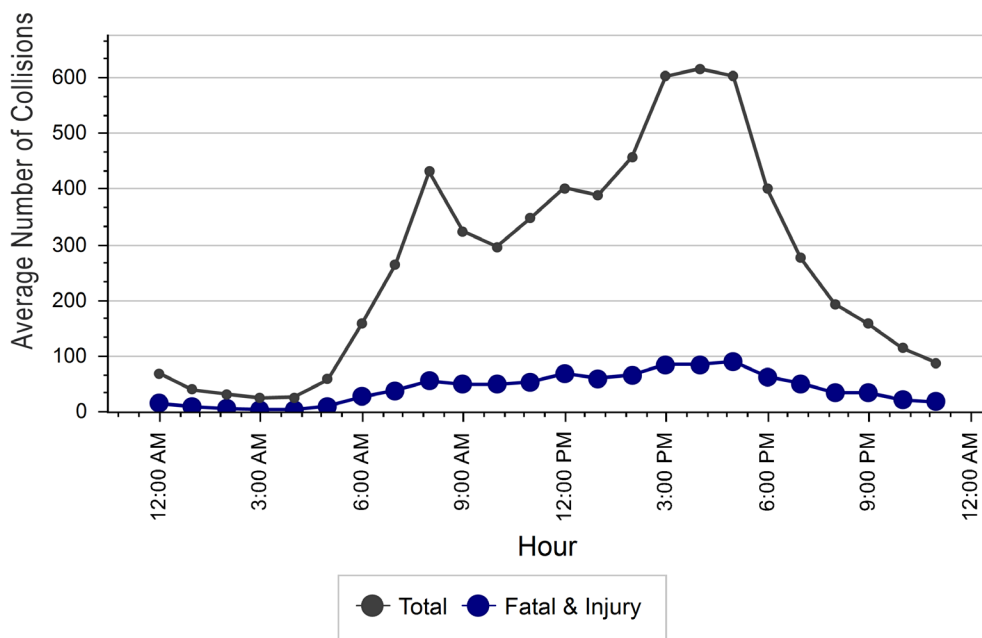


Collisions by Day of Week, 5 Year Average (2018-2022)

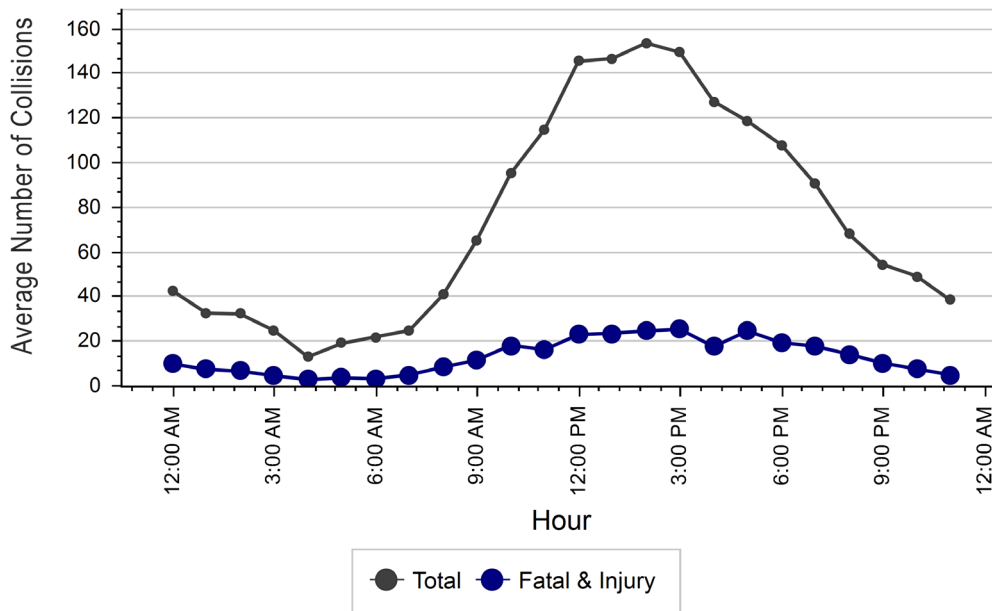
- 38% of collisions occurred during October, November, December and January.
- Most fatal and injury collisions occurred during Fridays.
- The average number of fatal and injury collisions was 1,574 collisions per year over the last 10 years.

During weekdays, there is a strong correlation between the peak periods of traffic and the number of collisions. Most collisions regardless of their severity occurred in the PM peak of traffic (3:00 PM – 5:00 PM), mid-day peak of traffic (around noon), and AM peak of traffic (8:00 AM – 9:00 AM).

The pattern of collisions during weekends are different from weekdays. The number of collisions during weekends was much lower than weekdays and the hours with the largest number of collisions were spread from 10:00 AM to 6:00 PM.



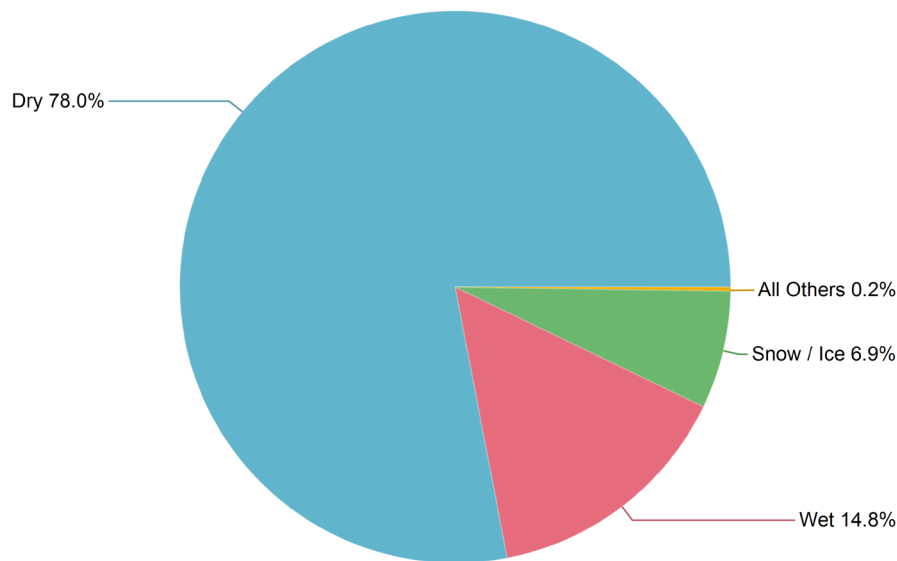
Weekday Collisions by Time-of-Day, 5 Year Average (2018-2022)



Weekend Collisions by Time-of-Day, 5 Year Average (2018-2022)

Collisions By Road Surface and Lighting Conditions

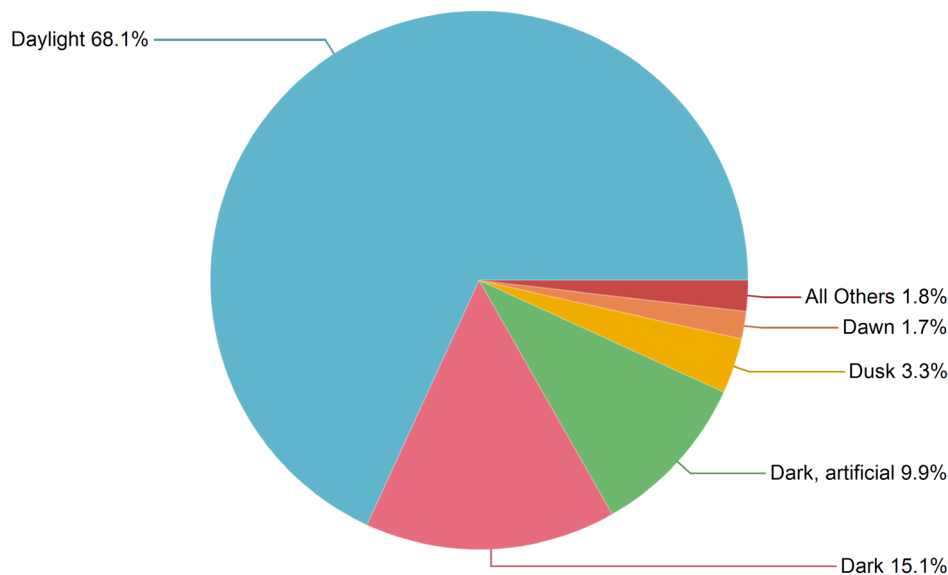
The majority of collisions (78%) occurred on dry surface conditions. Collisions that occurred on wet and snow/ice covered road surfaces were 14.8% and 6.9% respectively. These percentages are similar to Provincial averages.



- The majority of collisions (78%) occurred on dry surface conditions.
- Collisions that occurred on wet and snow/ice covered road surfaces were 14.8% and 6.9% respectively.
- 68.1% of all collisions occurred during day light conditions. This number is smaller than typical values for Ontario.

Collisions by Road Surface Condition, 5 Years (2018 - 2022)

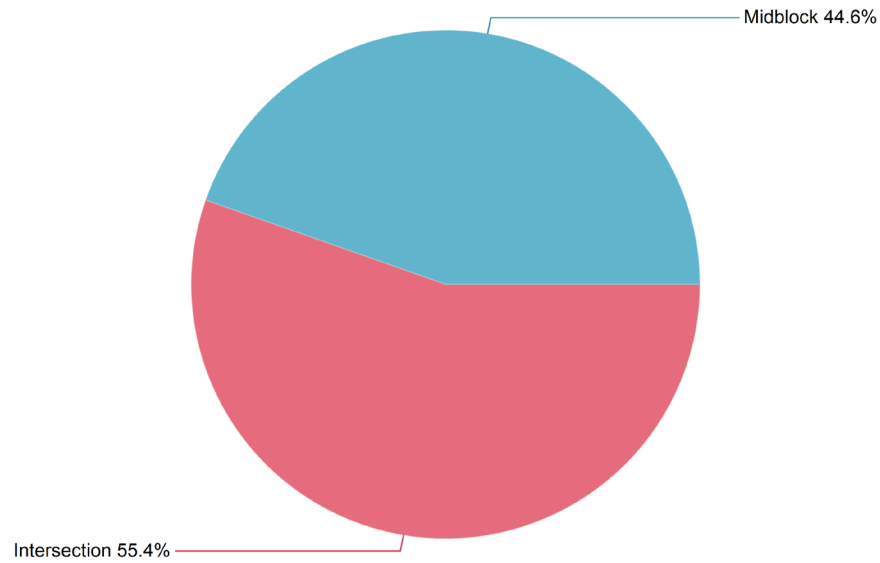
While the majority of collisions occurred during daylight conditions (68.1%) in 2018 - 2022, this percentage is smaller than that of Provincial averages (approximately 72%). Compared to the 2017–2021 period, there was 5.3% reduction in collisions at locations without illumination (dark, artificial).



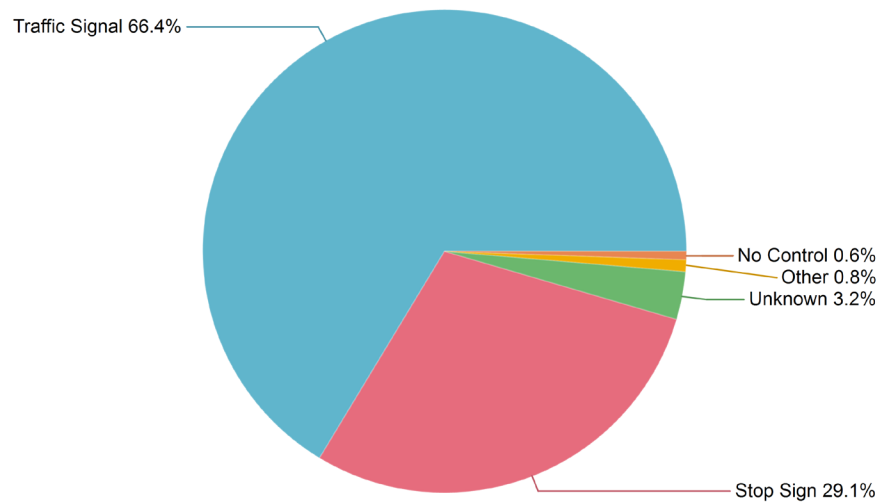
Collisions by Lighting Condition, 5 Years (2017–2021)

Collision Impact Type by Site Type and Traffic Control

Collisions that occurred at intersections or were intersection-related were more than half of total collisions (55.4%). This observation is consistent with other municipalities as intersections are major conflict points in a transportation network. Among those intersection collisions, the majority (66.4%) took place at signalized intersections.



Collisions by Location, 5 Years (2018–2022)



Intersections Collisions by Traffic Control Type, 5 Years (2018–2022)

A review of fatal and injury collisions at intersections and road segments for 2018–2022 shows that the majority of fatal collisions occurred at road segments (51.4%) but the majority of injury collisions occurred at intersections (60.2%).

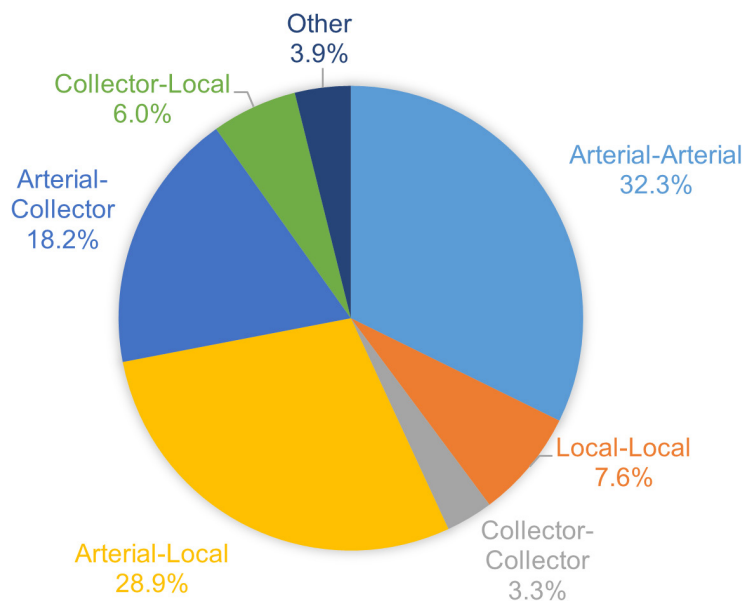
Single Motor Vehicle (SMV) collisions (SMV unattended and SMV other²) constituted 41.8% of total collisions on road segments followed by rear-end collisions (22.7%).

Rear-end collisions were the largest type of collisions (42.9%) at signalized intersections. This is consistent with other jurisdictions in Ontario. The second largest type of collision at signalized intersections is sideswipe collisions (20%) followed by angle collisions (15.1%). It appears that Hamilton experiences a high number of sideswipe collisions compared to other similar municipalities in Ontario.

At stop-controlled intersections, angle collisions were the largest type of collisions (32%) followed by rear-end collisions (25.9%). This is consistent with other Ontario municipalities.

Collisions by Road Classification

32.2% of intersection-related collisions occurred at intersections of two arterial roads (arterial-arterial intersections), followed by arterial-local (28.9%), and arterial-collector (18.2%) intersections. The remainder were split between the intersection of two local roads (7.6%), collector-local (6.0%), other (3.9%), and two collector roads (3.3%).



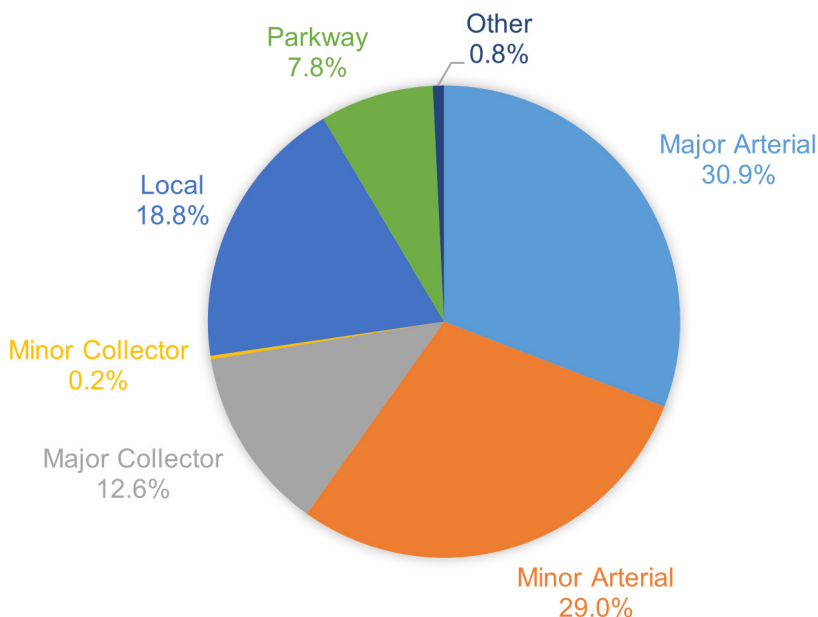
Intersection Collisions by Road Classification, 5 Years (2018–2022) - Police Reported

Intersection-related injury and fatality collisions were similarly split between arterial-arterial intersections (32%), arterial-local intersections (30%), and arterial-collector intersections (19%). The remainder of intersection-related injury and fatality collisions were split between the intersection of two local roads (7%), collector-local intersections (6%), other (3%), and the intersection of two collector roads (3%).

² Single motor vehicle (SMV) unattended collisions occur when a vehicle strikes a vehicle unattended by its driver. Include parked, stopped, disabled, abandoned and runaway vehicles, provided it was not under the car and control of a driver. Does not include vehicles stopped for traffic or standing while loading or unloading passengers or cargo. Single motor vehicle (SMV) other refers to collisions where a single motor vehicle initially collides with a fixed object, pedestrian or animal.



30.9% of collisions that occurred on road sections were on major arterial roads, followed by minor arterial roads (29%), local road (18.8%), and major collector roads (12.6%).

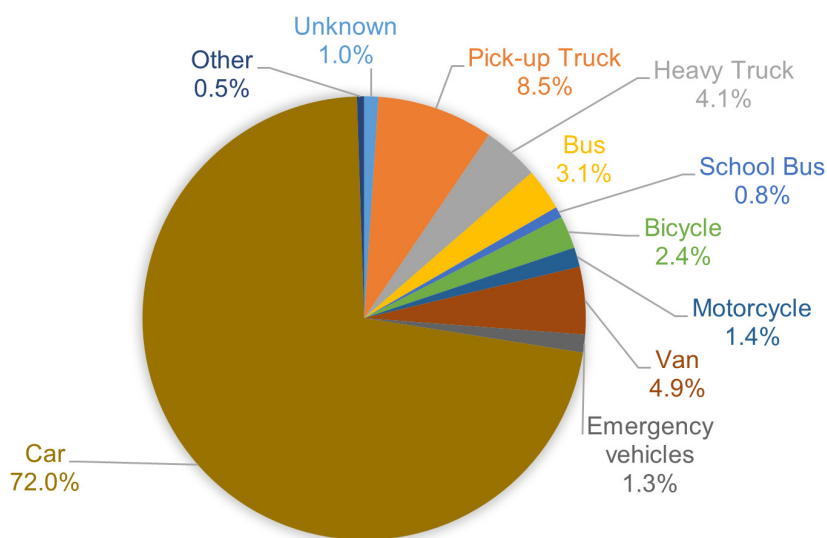


Midblock Collisions by Road Classification, 5 Years (2018–2022) - Police Reported

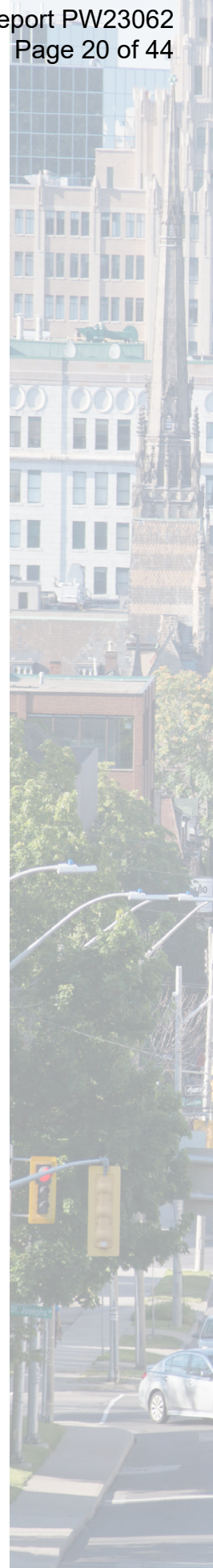
37% of injury and fatality collisions that occurred on road sections occurred on major arterial roads, followed by minor arterial roads (32%). The remainder were split between major collector roads (11.4%), local roads (10.9%) and parkways (8.2%).

Collisions by Vehicle Type

The vehicle type in the majority of intersection-related collisions was car (72%). The other vehicle types of note were pick-up truck (8.5%), van (4.9%), heavy truck (4.1%), bus (3.1%), bicycle (2.4%), motorcycle (1.4%), emergency vehicles (1.3%), unknown (1%), and school bus (0.8%).

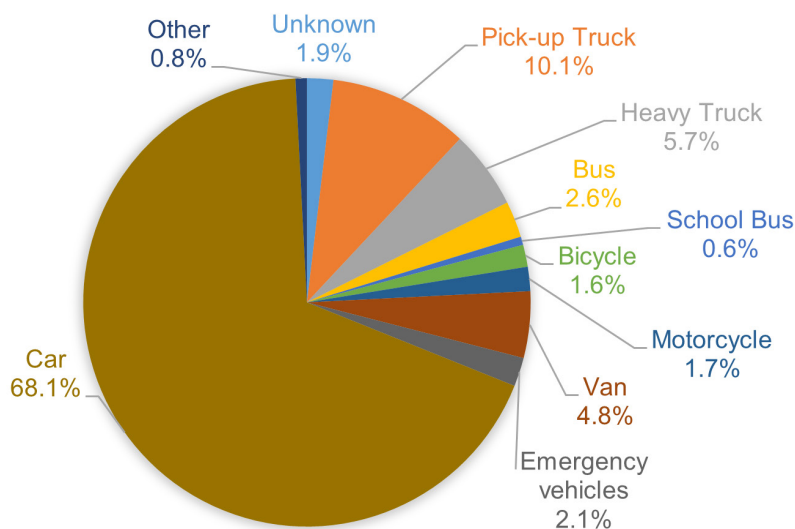


Intersection Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported



The vehicle type in the majority of intersection-related fatal and injury collisions was also car (76%). The other vehicle types of note were pick-up truck (7.9%), van (4.9%), bicycle (3.4%), heavy truck (2.2%), motorcycle (2%), and bus (1.7%).

The vehicle type in the majority of collisions on road segments was car (68.2%). The other vehicle types of note were pick-up truck (10.2%), heavy truck (5.7%), van (4.8%), bus (2.6%), emergency vehicles (2.1%), unknown (1.9%), motorcycle (1.7%), bicycle (1.6%), and school bus (0.6%).



Midblock Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported

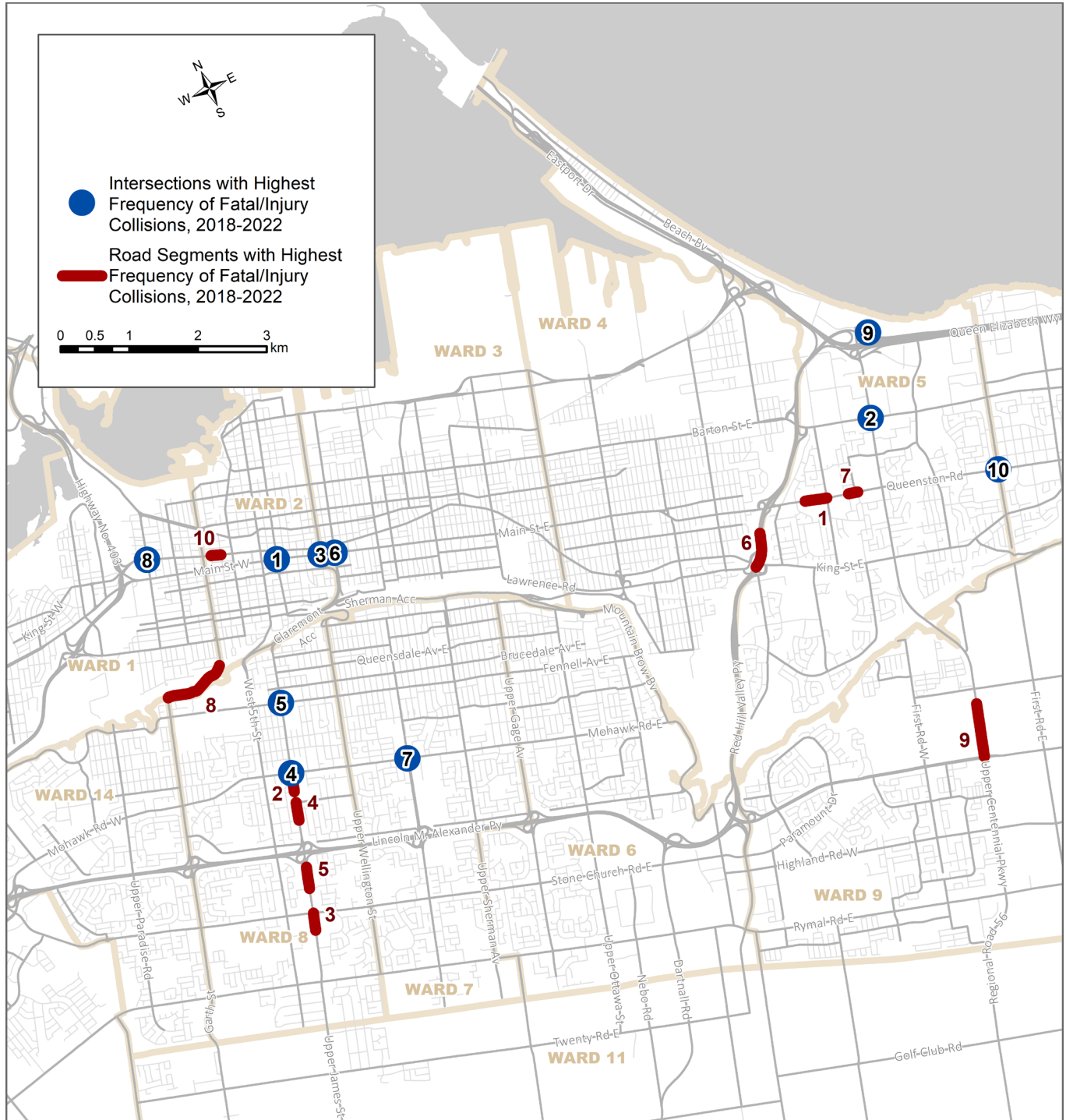
The vehicle type in the majority of fatal and injury collisions on road segments was also car (72.5%). The remainder were split between pick-up truck (9.5%), van (4.7%), motorcycle (3.4%), heavy truck (3.2%), bicycle (2.9%), bus (1.7%), other (1%), unknown (0.8%), and emergency vehicles (0.3%).



High Frequency Locations

A review of the City's collision data shows that the total number of collisions had been increasing in the past 10 years, but was impacted by the COVID-19 pandemic. In 2022, the total number of collisions was 18.7% higher than in 2021, 22.2% higher than in 2020, and 18.3% lower than in 2019.

Map of Intersections and Road Segments with Highest Frequency of Fatal and Injury Collisions, 5 Year Average (2018–2022)

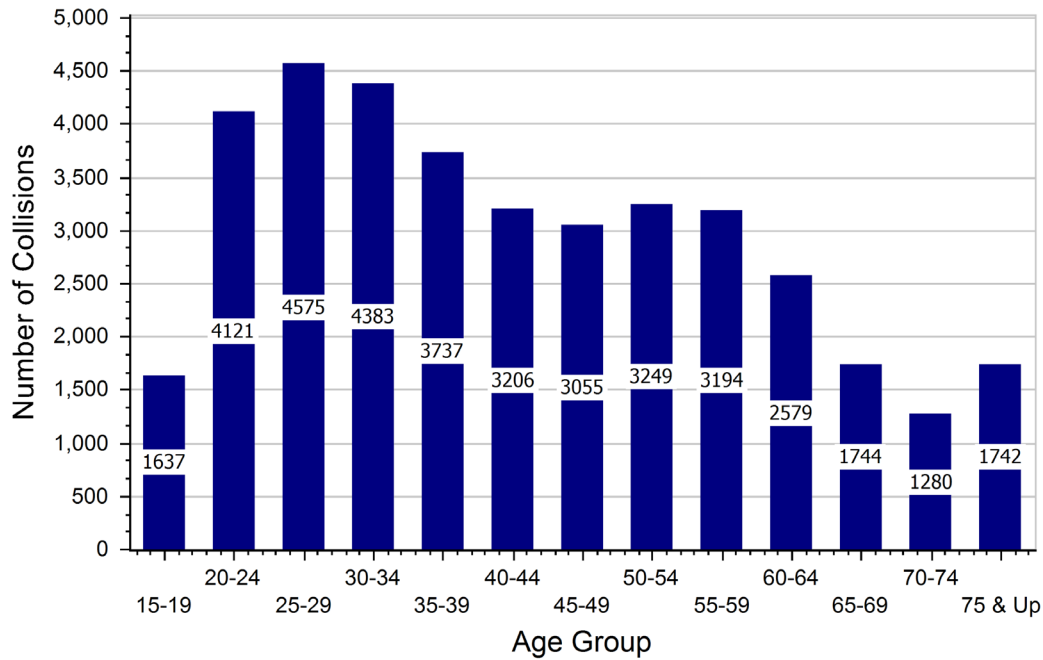


**Intersections and Road Segments with Highest Frequency of
Fatal and Injury Collisions, 5 Year Average (2018–2022 and 2017–2021)**

Intersections		Collision Frequency 2018–2022	Collision Frequency 2017–2021
1	John Street South at Main Street East	28	28
2	Barton Street East at Centennial Parkway North	26	23
3	Main Street East at Wellington Street South	25	26
4	Mohawk Road West at Upper James Street	24	22
5	Fennel Avenue West at Upper James Street	22	24
6	Main Street East at Victoria Avenue South	21	22
7	Mohawk Road East at Upper Wentworth Street	19	21
8	Dundurn Street South at King Street West	19	18
9	North Service Road at Ramp North Service to QEW Toronto	18	16
10	Gray Road at Highway No. 8	18	12
Road Segments		Collision Frequency 2018–2022	Collision Frequency 2017–2021
1	Queenston Road between Nash Road and Red Rose Motel Plaza Entrance/Exit	18	20
2	Upper James Street between Lotus Avenue and Mohawk Road	17	17
3	Upper James Street between Plaza Entrance and Stone Church Road	11	12
4	Upper James Street between Hester Street and Jameston Avenue	11	10
5	Upper James Street between Blossom Lane and Ramp Upper James Street Northbound to Lincoln Alexander Parkway Eastbound	11	13
6	Red Hill Valley Parkway Southbound between Ramp King Street to Red Hill Valley Parkway Southbound and Ramp Red Hill Valley Parkway Southbound to King Street	11	21
7	Queenston Road between Clapham Road and Greenford Drive	11	12
8	Beckett Drive between Amelia Street and top of escarpment	11	10
9	Upper Centennial Parkway between Mud Street East and Terrapure Regional Facility	10	9
10	King Street West between Caroline Street and Hess Street	10	9

Drivers

Research shows that among the three factors of drivers, roads, and vehicles, drivers have the largest contribution to collisions. A review of drivers showed that 34% of drivers involved in collisions were between 20 and 34 years old. Also, significantly more number of male drivers are involved in collisions than female drivers (63%), which is consistent with the Province of Ontario.



Collisions by Driver Age, 5 Years (2018–2022)

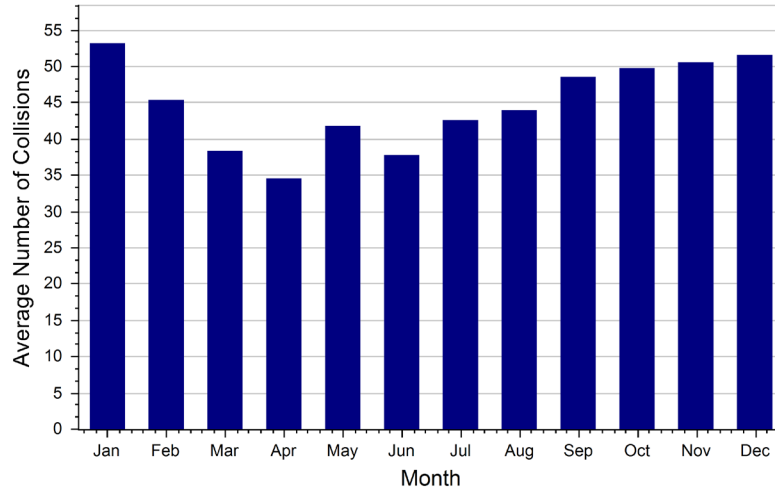
Distracted driving is one of the leading contributing factors to collisions in many jurisdictions including the City of Hamilton. It is difficult to identify whether a driver, cyclist, or pedestrian was distracted at the time of a collision. Based on observations made by police officers, in 19% of all collisions and in 19.4% of fatal and injury collisions, drivers were inattentive (distracted) in 2018–2022. It is possible that the actual percentage of distracted driving collisions is higher.

A review of driver conditions show that driver impairment / alcohol consumption likely contributed to 6.8% of total collisions and 4.1% of fatal and injury collisions in 2018–2022, which is slightly higher than the 2017–2021 statistics.

Several factors might contribute to collisions related to drivers losing control such as: distraction, speed too fast for road conditions, road surface conditions, lack of adequate warnings, and vehicle mechanical deficiencies among others. It appears that the winter months (January and December) experienced the largest number of collisions resulting from drivers losing control of their vehicle. Overall, the lost control type of collisions constituted 19.4% of all police-reported collisions, which shows a 5.4% increase from 2017–2021.

- 34% of all drivers involved in collisions were 20-34 years old.
- Driver impairment / alcohol consumption contributed to 6.8% of all collisions in 2018–2022.
- Driver impairment / alcohol consumption contributed to 4.1% of fatal and injury collisions in 2018–2022.
- In 19.4% of fatal and injury collisions, drivers were inattentive (distracted).

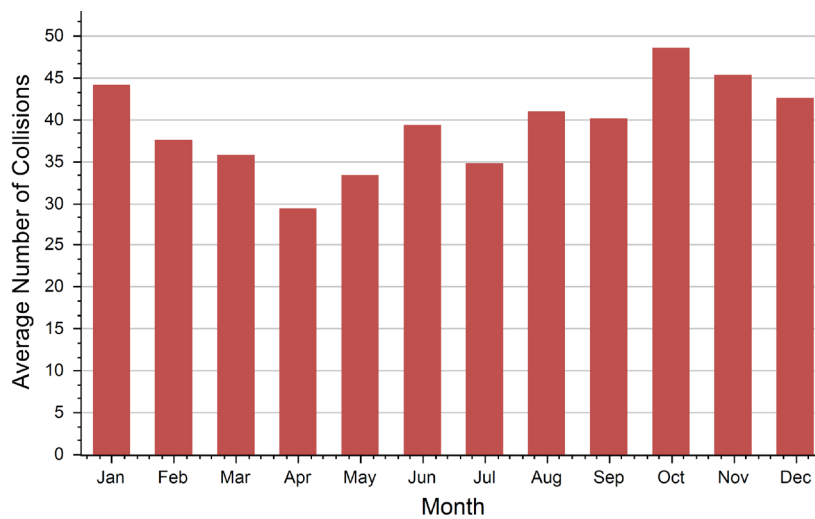
- The months of January and December experienced the largest number of lost control type collisions.
- In 19.4 % of police reported collisions, drivers lost control of their vehicle.
- Speeding related collisions account for 17% of all police reported collisions.



Lost Control Collisions by Month, 5 Year Average (2018–2022) - Police Reported

If the police officer attending to a collision scene reported that at least one of the drivers involved in the collision committed (1) following too close, (2) speeding too fast for conditions, or (3) exceeding the speed limit, then the collision is categorized as speed-related.

The three factors noted above are an indication of aggressive driving where drivers choose speeds that are too fast for the road surface conditions, for the traffic congestion, or for the road geometry. Speeding related collisions were 17% of police-reported collisions in 2018–2022. The Ontario Provincial Police (OPP) reported that speeding/aggressive driving contributed to 81 fatalities in Ontario, the highest in the past 10 years. In Hamilton, the months of October and November experienced the highest number of speeding-related collisions.



Speed Related Collisions by Month, 5 Year Average (2018–2022)

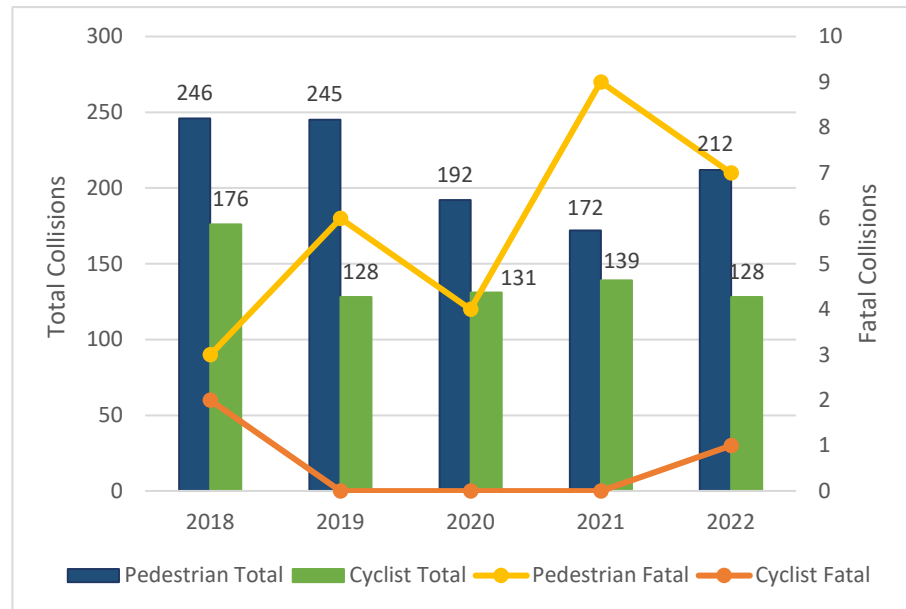
- 212 pedestrian collisions occurred in 2022.
- 128 cyclist collisions occurred in 2022.
- October experienced the largest number of pedestrian collisions.
- June to August experienced the largest number of cyclist collisions.

Pedestrian and Cyclist Collisions

Pedestrian and cyclist collisions often result in injury or fatality. The number of pedestrian collisions fluctuated between 172 and 246 in the past 5 years, with an average of 213 collisions. In 2022, the City experienced 212 pedestrian collisions, which is 23.3% more than in 2021 and 10.4% more than 2020, but 13.5% fewer than 2019.

There were seven pedestrian fatalities in 2022. The average number of pedestrian fatalities was 6 in 2018–2022.

The number of cyclist collisions has fluctuated between 128 and 176 in the past 5 years, with an average of 140 collisions. In 2022 the City experienced 128 cyclist collisions, which is 8% fewer than 2021, 2.3% fewer than 2020, and 0% change from 2019. There was one cyclist fatality in 2022.

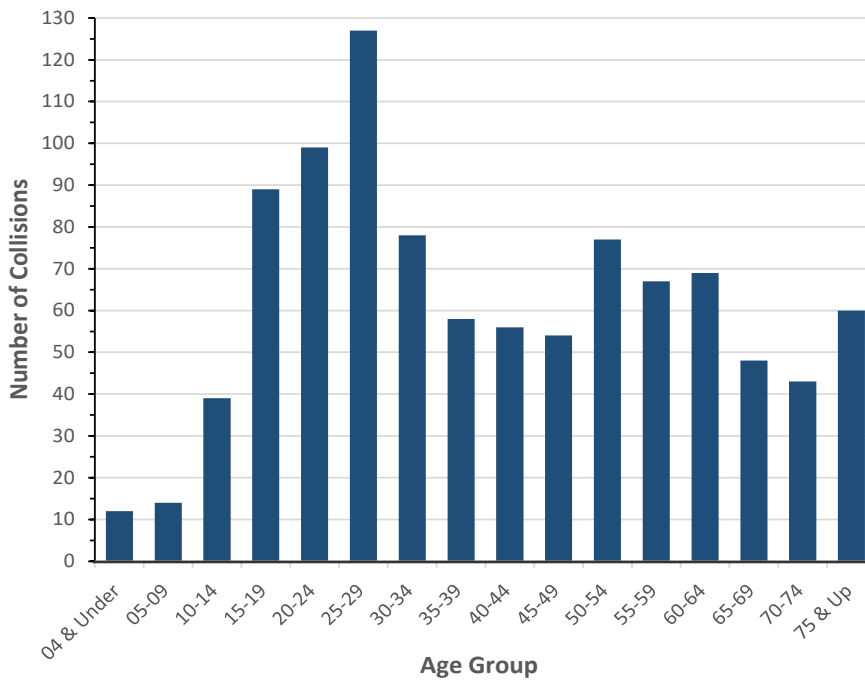


Collisions Involving Pedestrians and Cyclists (2017–2021)

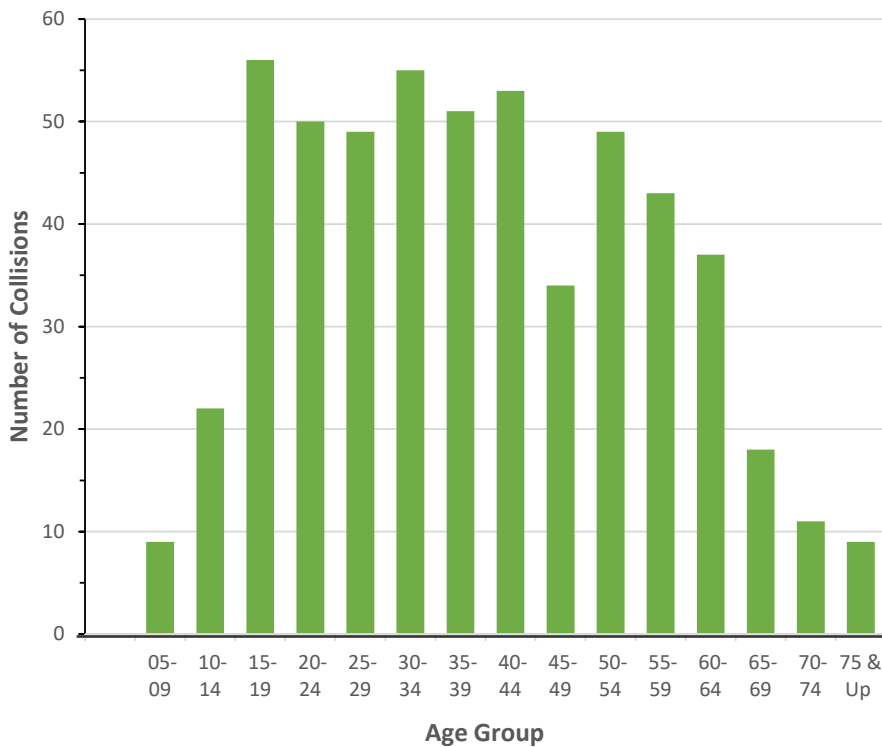
The largest number of pedestrian collisions occurred in the month of October in 2018–2022. In most Ontario municipalities, the largest number of pedestrian collisions occurs in November. The largest number of cyclist collisions occurred from June to August when cycling is generally a more frequent form of transportation compared to other months. This is consistent with other Ontario municipalities.

Thursdays experienced the largest numbers of pedestrian and cyclist collisions among all days of a week in 2018–2022, closely followed by Wednesday.

Pedestrians in the age group of 25–29 experienced the largest number of pedestrian collisions followed by the 20–24 age group. Cyclists in the age group of 15–19 experienced the largest number of cyclist collisions followed by the 20–24 age group.



Pedestrian Collisions by Pedestrian Age, 5 Years (2017–2021)



Cyclist Collisions by Cyclist Age, 5 Years (2017–2021)

89.2% of all pedestrian collisions resulted in injury in 2018–2022 and 2.7% resulted in fatality. 77.8% of all cyclists involved in a collision sustained injury (including 0.4% fatal injury).

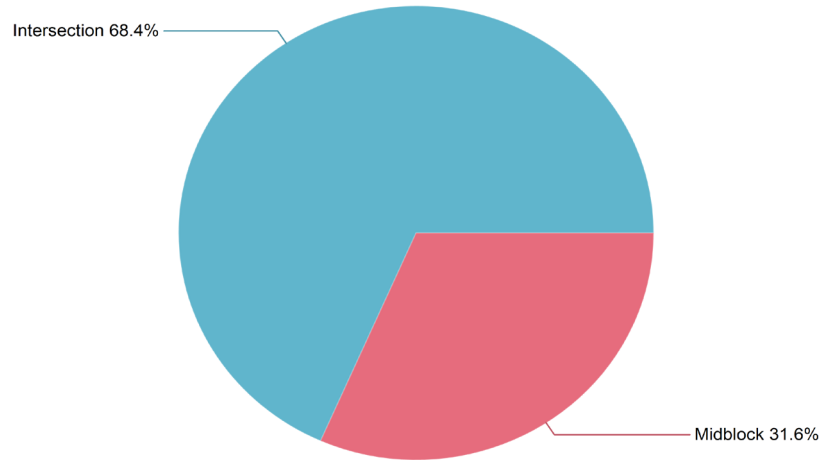


In the City of Hamilton, a smaller percentage of pedestrians and cyclists are fatally injured in collisions involving pedestrians and cyclists compared to the Province.³

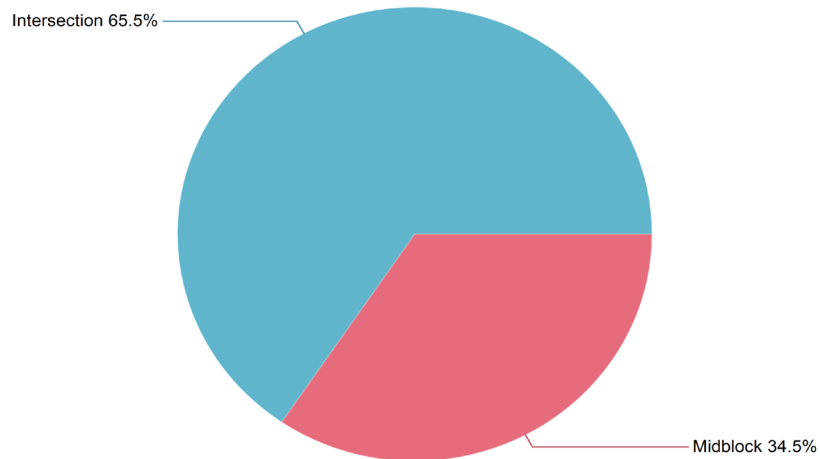
Percentage of Fatality Among Injury Collisions for Pedestrians and Cyclists

Jurisdiction	Pedestrians	Cyclists
Hamilton	2.5%	0.3%
Ontario	4.0%	1.4%

A majority of pedestrian and cyclist collisions occurred at intersections (68.4% and 65.5% respectively). Among those pedestrian collisions, 70.5% occurred at signalized intersections while 28.4% took place at stop-controlled intersections. Among those cyclist collisions, 50% of them occurred at signalized intersections and 47.4% of them occurred at stop-controlled intersections.



Collisions Involving Pedestrians by Location, 5 Year Average (2018–2022)



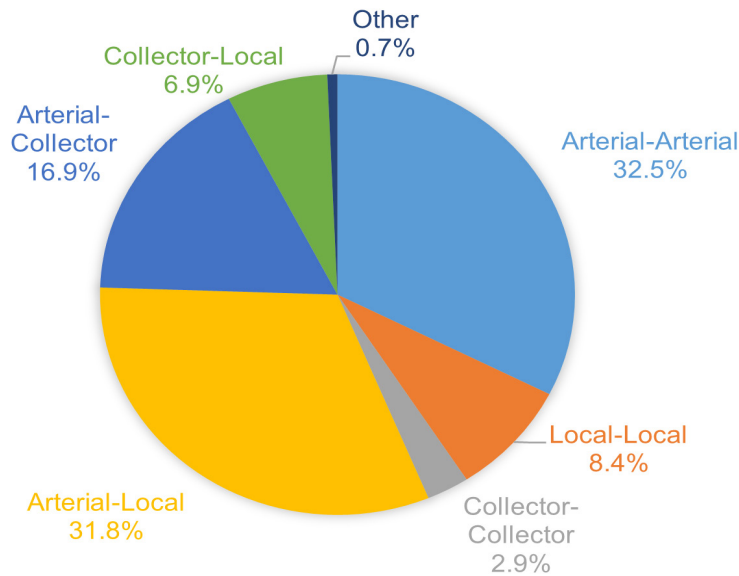
Collisions Involving Cyclists by Location, 5 Year Average (2017–2021)

³ <https://www.ontario.ca/document/ontario-road-safety-annual-reports-orsar>

A review of driver actions involved in pedestrian and cyclist collisions show that 42.4% and 30.5% of drivers failed the right of way to pedestrians and cyclists respectively. Additionally, 13.5% of drivers committed improper turns in cyclist collisions.

In 26.4% of pedestrian collisions at road segments (non-intersection locations), pedestrians were walking on road shoulders or sidewalks. Also, in 16.3% of pedestrian collisions at midblock locations, the pedestrian did not have right of way (i.e., jaywalking). In 8.7% of cyclist collisions, the cyclist failed to yield the right of way to vehicles.

32.5% of intersection-related pedestrian collisions occurred at the intersection of two arterial roads (arterial-arterial intersections), followed by arterial-local intersections (31.8%), and arterial-collector intersections (16.9%). The remainder were split between the intersections of two local roads (8.4%), collector-local intersections (6.9%), and the intersections of two collector roads (2.9%)

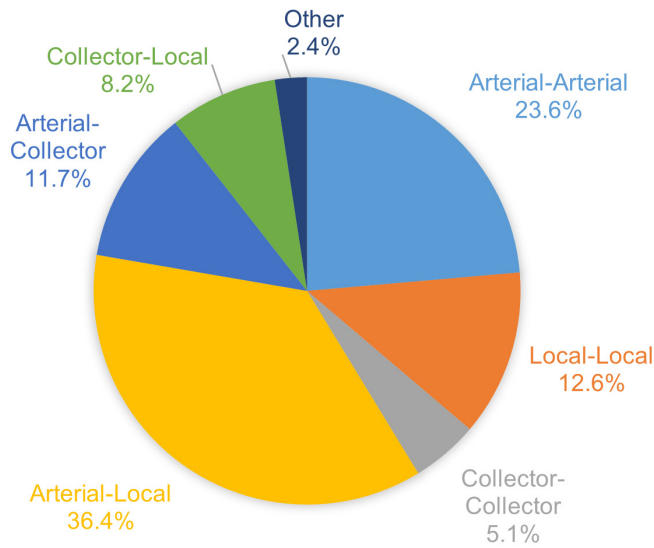


**Intersection Pedestrian Collisions by Road Classification,
 5 Years (2018–2022) - Police Reported**

32.1% of intersection-related pedestrian injury and fatality collisions occurred at the intersection of two arterial roads, followed by arterial-local intersections (31.9%), and arterial-collector intersections (16.9%). The remainder were split between the intersections of two local roads (8.4%), collector-local intersections (7.5%), and the intersections of two collector roads (2.5%).



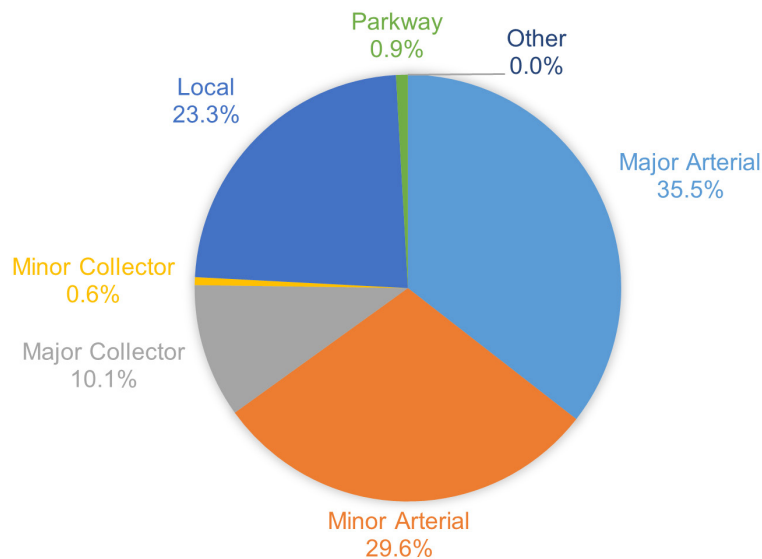
36.4% of intersection-related cyclist collisions occurred at the intersections of arterial and local roads, followed by the intersections of two arterial roads (23.6%). The remainder were split between the intersections of two local roads, arterial-collector intersections (11.7%), collector-local intersections (8.2%), and the intersections of two collector roads (5.1%).



Intersection Cyclist Collisions by Road Classification, 5 Years (2018–2022) - Police Reported

35.2% of intersection-related cyclist injury and fatality collisions occurred at intersections of arterial and local roads, followed by the intersections of two arterial roads (23.2%). The remainder were split between the intersections of two local roads (12.8%), arterial-collector intersections (11.7%), collector-local intersections (8.7%), and the intersections of two collector roads (5.6%).

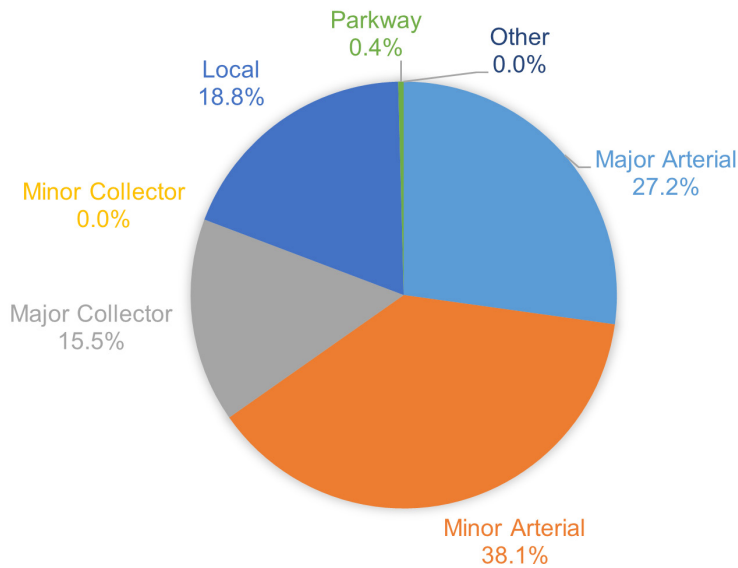
35.5% of pedestrian collisions that occurred on road segments were on major arterial roads, followed by minor arterial roads (29.6%), local roads (23.3%), and major collector roads (10.1%).



Midblock Pedestrian Collisions by Road Classification, 5 Years (2018–2022) - Police Reported

37.1% of pedestrian injury and fatality collisions that occurred on road segments occurred on major arterial roads, followed by minor arterial roads (28.4%), local roads (23.5%), and major collector roads (9.4%).

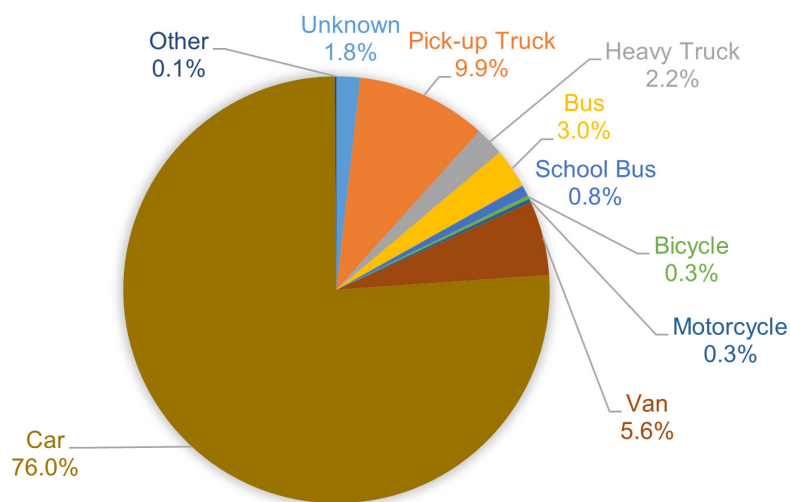
38.1% of cyclist collisions that occurred on road segments were on minor arterial roads, followed by major arterial roads (27.2%), local roads (18.8%), and major collector roads (15.5%).



Midblock Cyclist Collisions by Road Classification, 5 Years (2018–2022) - Police Reported

Cyclist injury and fatality collisions that occurred on road segments were similarly split between minor arterial roads (38.2%), major arterial roads (25.7%), local roads (18.3%), and major collector roads (17.8%).

The vehicle types of most intersection-related pedestrian collisions was car (76%). The remainder were split between pick-up truck (9.9%), van (5.6%), bus (3%), heavy truck (2.2%), unknown (1.8%), school bus (0.8%), motorcycle (0.3%), bicycle (0.3%), and other (0.1%).

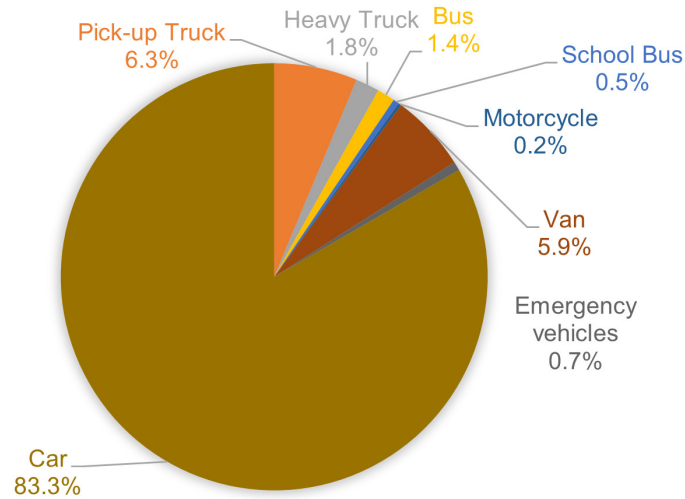


Intersection Pedestrian Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported



The vehicle type of intersection-related injury and fatality pedestrian collisions were mostly car (76.5%), followed by pick-up truck (9.5%), van (6%), bus (2.8%), heavy truck (1.9%), unknown (1.6%), school bus (0.9%), motorcycle (0.3%), bicycle (0.3%), and other (0.1%).

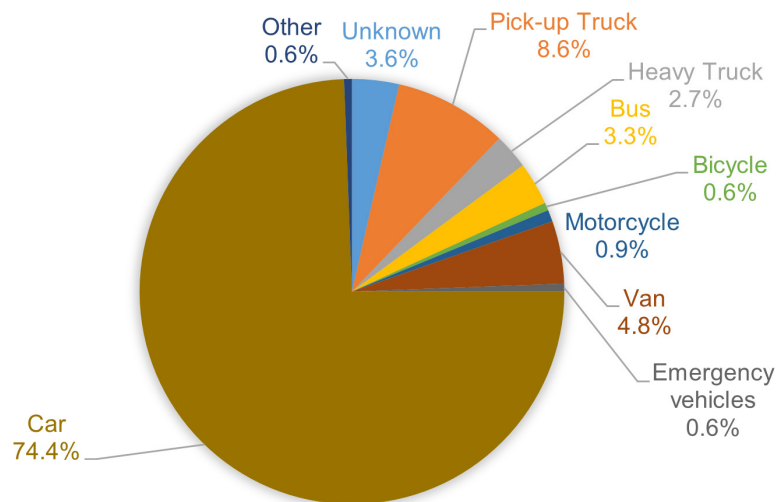
The vehicle type of most intersection-related cyclist collisions was car (83.3%). The remainder were split between pick-up truck (6.3%), van (5.9%), heavy truck (1.8%), bus (1.4%), emergency vehicle (0.7%), school bus (0.5%), and motorcycle (0.2%).



Intersection Cyclist Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported

The vehicle type of most intersection-related injury and fatality cyclist collisions was car (83.1%), pick-up truck (7%), van (5.2%), heavy truck (2.3%), bus (1.5%), school bus (0.6%), and motorcycle (0.3%).

The vehicle type of most pedestrian collisions that occurred on road segments was car (74.4%). The remainder were split between pick-up truck (8.6%), van (4.8%), unknown (3.6%), bus (3.3%), heavy truck (2.7%), motorcycle (0.9%), bicycle (0.6%), emergency vehicle (0.6%), and other (0.6%).

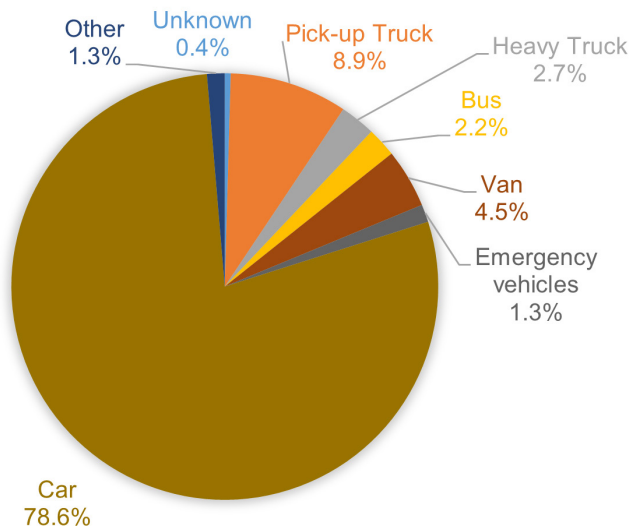


Midblock Pedestrian Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported



The vehicle type of most injury and fatality pedestrian collisions that occurred on road segments was car (74.8%), pick-up truck (8.1%), van (5.2%), bus (3.5%), unknown (3.5%), heavy truck (2.9%), motorcycle (1%), other (0.6%), and bicycle (0.3%).

The vehicle type of most cyclist collisions that occurred on road segments was car (78.6%). The remainder were split between pick-up truck (8.9%), van (4.3%), heavy truck (2.7%), bus (2.2%), emergency vehicle (1.3%), and other (1.3%).

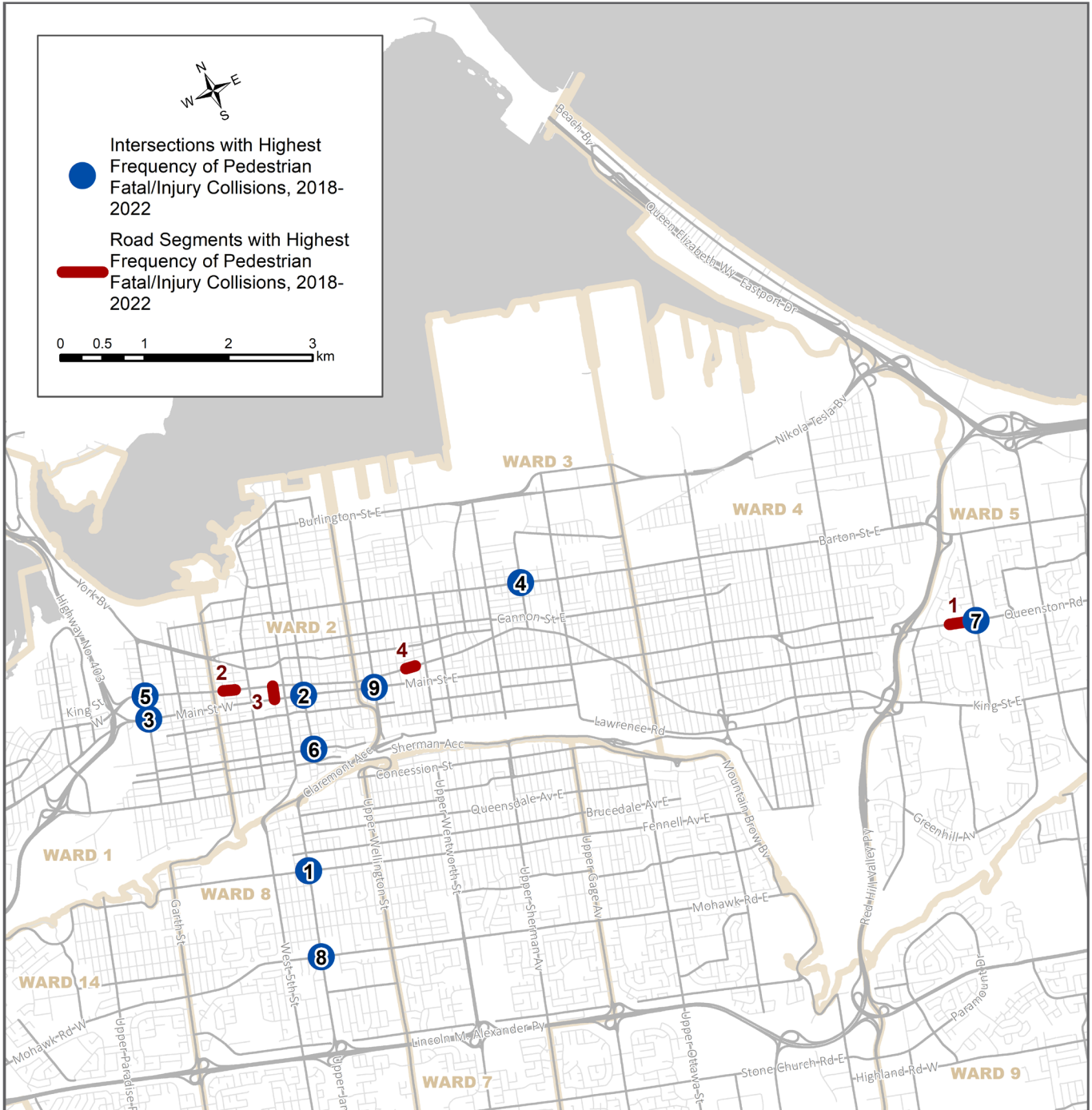


Midblock Cyclist Collisions by Vehicle Type, 5 Years (2018–2022) - Police Reported

The vehicle type of most injury and fatality cyclist collisions that occurred on road segments was car (82.2%), pick-up truck (9.2%), van (2.9%), heavy truck (2.3%), other (1.7%), bus (0.6%), and emergency vehicle (0.6%).



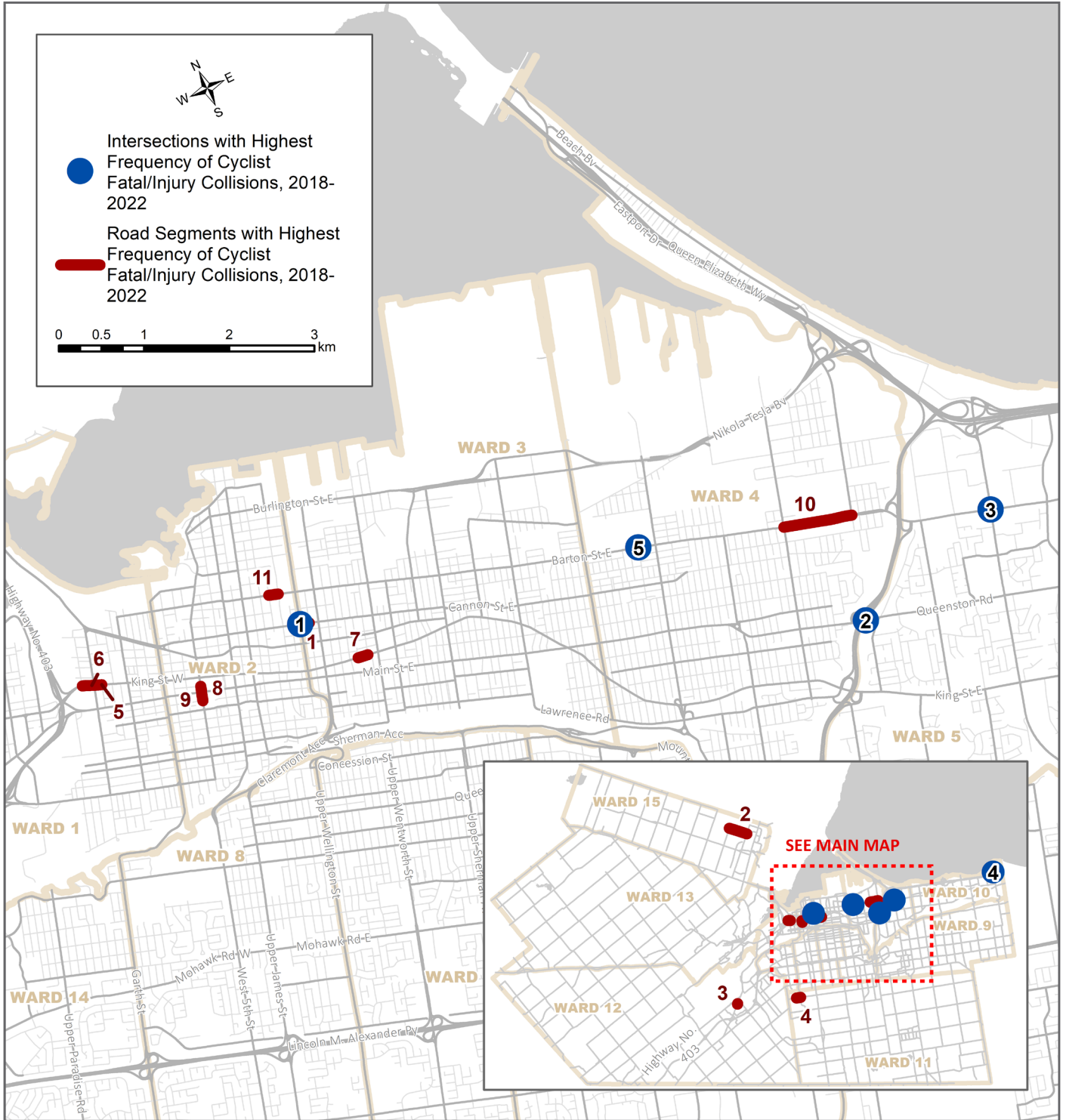
Map of Intersections and Road Segments with the Highest Frequency of Pedestrian Fatal and Injury Collisions (2018–2022)



Intersections and Road Segments with the Highest Frequency of Pedestrian Fatal and Injury Collisions (2018–2022 and 2017–2021)

	Intersection	Collision Frequency 2018–2022	Collision Frequency 2017–2021
①	Fennel Avenue West at Upper James Street	10	12
②	John Street South at Main Street East	8	7
③	Dundurn Street South at Main Street West	8	6
④	Barton Street East at Lottridge Street	8	7
⑤	Dundurn Street South at King Street West	7	9
⑥	Charlton Avenue East at John Street South	7	4
⑦	Nash Road South at Queenston Road	6	4
⑧	Mohawk Road West at Upper James Street	6	6
⑨	Main Street East at Victoria Avenue South	6	6
	Road Segment	Collision Frequency 2018–2022	Collision Frequency 2017–2021
1	Queenston Road between Nash Road North and 533 Queenston Rd	4	4
2	King Street West between Caroline Street South and Hess Street South	4	4
3	MacNab Street South between King Street and Main Street West	3	3
4	King Street East between Ashley Street and Steven Street	3	3

Map of Intersections and Road Segments with the Highest Frequency of Cyclist Fatal and Injury Collisions (2018–2022)



Intersections and Road Segments with the Highest Frequency of Cyclist Fatal and Injury Collisions (2018–2022 and 2017–2021)

	Intersection	Collision Frequency 2018–2022	Collision Frequency 2017–2021
①	Cannon Street East at Wellington Street North	9	10
②	Queenston Road at Ramp Queenston Eastbound to RHVP Northbound	5	4
③	Barton Street East at Centennial Parkway North	5	6
④	Fifty Road at North Service Road	4	4
⑤	Barton Street East at Robins Avenue	4	3
	Road Segment	Collision Frequency 2018–2022	Collision Frequency 2017–2021
1	Cannon Street East between Wellington Street North and West Avenue North	5	5
2	Robson Road between Concession 5 and Parkside Drive	3	1
3	Wilson Street West between Private Driveway and Todd Street	2	1
4	Twenty Road West between Garth Street and Siverbirch Boulevard	2	2
5	King Street West between Dundurn Street and New Street	2	3
6	King Street West between Breadalbane Avenue and Dundurn Street	2	2
7	King Street East between Ashley Street and Steven Street	2	1
8	Bay Street South between Jackson Street and Main Street	2	2
9	Bay Street South between George Street and Main Street	2	2
10	Barton Street between Parkdale Avenue North and Woodward Avenue	2	2
11	Barton Street East between Elgin Street and Ferguson Avenue	2	2

SECTION 2

Lincoln M. Alexander Parkway and Red Hill Valley Parkway Collision Trends (2018 to 2022)



Background

The Lincoln M. Alexander Parkway (LINC) is an important inter-city commuter connection between several major north/south arterials in the upper City's road network. The road also serves as a connection between Highway 403 and the Red Hill Valley Parkway (RHVP) / the Queen Elizabeth Way (QEW). The LINC was opened to traffic in 1997 with five full access interchanges and a posted speed limit of 90 km/h.

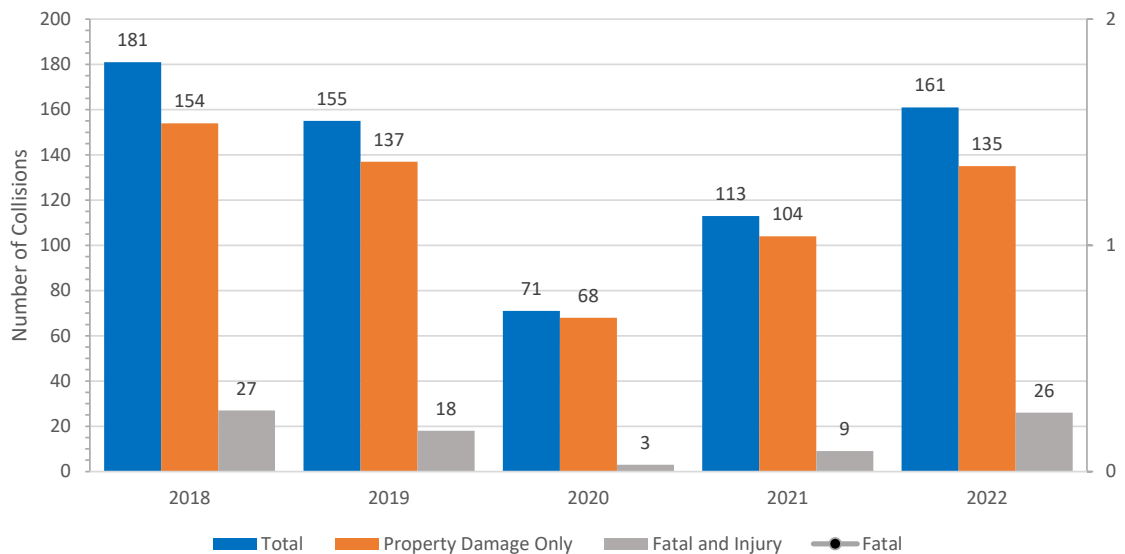
The Red Hill Valley Parkway (RHVP) forms part of a continuous connection from Highway 403 and the QEW in conjunction with the LINC. The RHVP was opened to traffic in 2007. The RHVP serves inter-city traffic similarly to the LINC, but also serves intra-city traffic connecting the City to Niagara Region and Southwest Ontario. The RHVP includes six full access interchanges of various design types. In February 2019, the City reduced the posted speed limit from 90 km/h to 80 km/h on the RHVP between the QEW and Greenhill Avenue. Other engineering enhancement measures were also implemented including resurfacing, guide rail upgrades, delineation signage, and lane markings.

Frequency and Severity

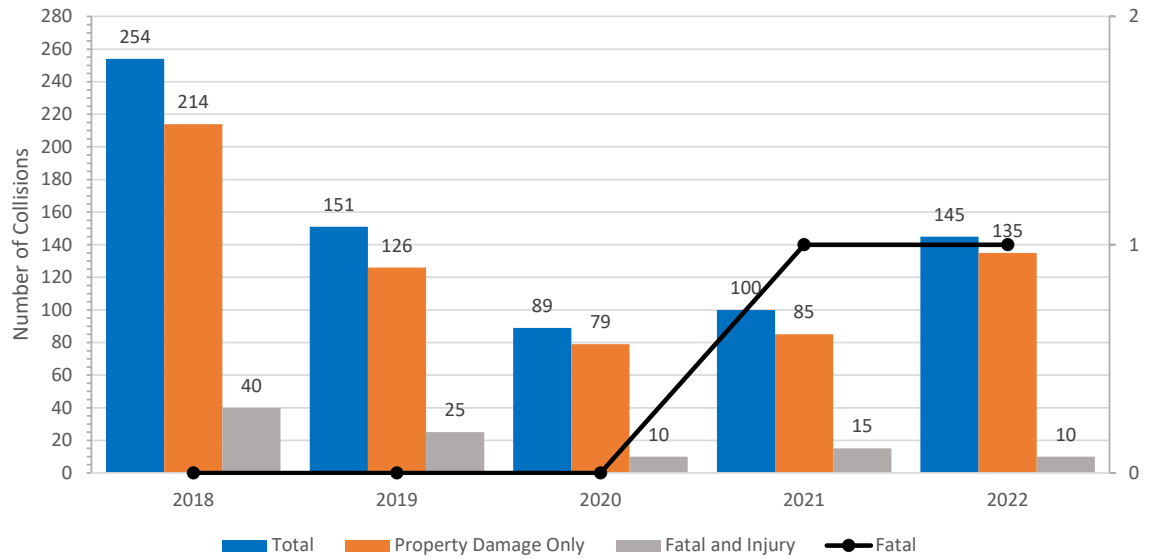
The severity of collisions on the LINC and on the RHVP over the last five years (2018–2022) was reviewed. Similarly to other municipalities, Hamilton experienced a decrease in traffic volumes due to the impact of the COVID-19 pandemic during the years of 2020 and 2021. In 2022, traffic volumes have returned to pre-pandemic levels.

In 2022, the Lincoln M. Alexander Parkway (LINC) showed a rebound from the pandemic, with 3.9% more collisions and 44% more injury collisions than in 2019. There were no fatal collisions on the LINC in any of the years from 2018 to 2022.

In 2022, the Red Hill Valley Parkway (RHVP) also showed a rebound from the pandemic, but performed better than in 2019 with 4% lower collisions and 60% lower injury collisions. There was one fatal collision on the RHVP in 2022 and one fatal collision in 2021.



Collisions Frequency - Lincoln Alexander Parkway (2018–2022)



Collisions Frequency - Red Hill Valley Parkway (2018–2022)

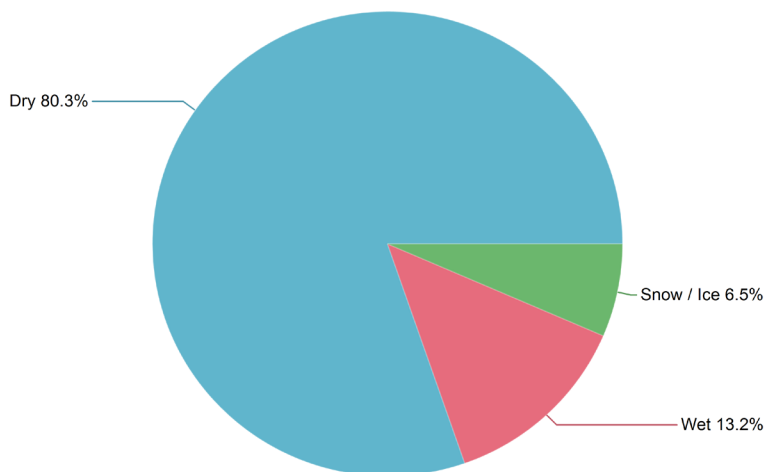
Month, Day, and Time of Collisions

From 2018–2022, the largest number of collisions on the LINC took place in the month of November while on the RHVP the largest number of collisions occurred during the month of October.

Fridays had the largest number of collisions on the LINC, whereas Tuesdays had the largest number of collisions on the RHVP from 2018–2022. There was a clear correlation between the time of collisions and the typical peak hours of traffic during weekdays on the LINC and the RHVP. The time of collisions during weekends did not follow any particular pattern. These observations are consistent with other roadways in the City.

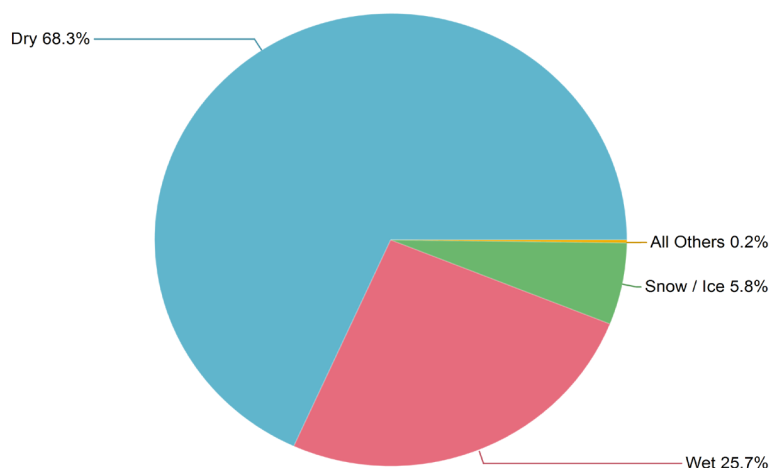
Collisions by Road Surface and Lighting Conditions

The number of collisions during non-dry conditions on the LINC is 19.7% of all collisions for 2018–2022, which is consistent with Provincial averages. The number of collisions during non-dry conditions has been steady in 2018–2022 compared to 2017–2021.



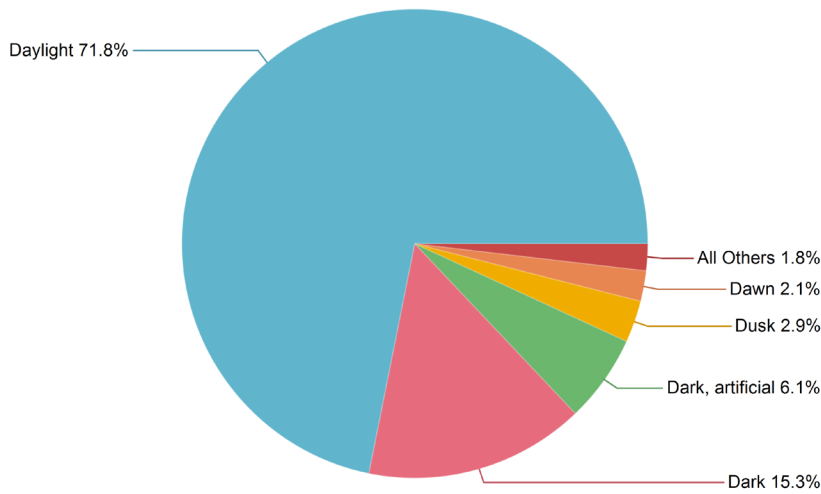
Collisions by Road Surface Condition, 5 Years - Lincoln Alexander Parkway (2018–2022)

The number of collisions during non-dry conditions on the RHVP for 2018–2022 is 31.5% of all collisions. This is higher than Provincial averages, but lower than in 2017–2021 (45.7%) and significantly reduced from 2016–2020 (57.8%).

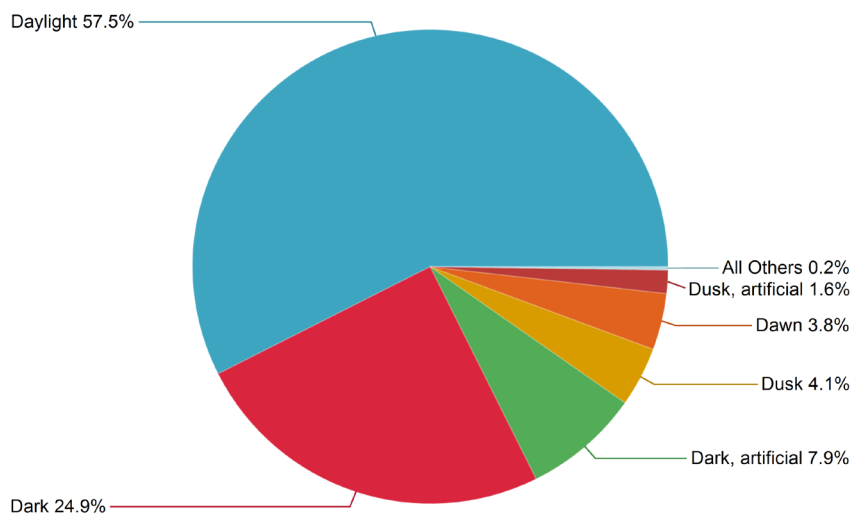


Collisions by Road Surface Conditions - Red Hill Valley Parkway (2018–2022)

The percentage of collisions during daylight hours on the LINC is 71.8%, which is consistent with the province of Ontario (72%). The percentage of collisions during daylight hours on the RHVP is 57.5%.



Collisions by Lighting Conditions, 5 Years - Lincoln Alexander Parkway (2018–2022)



Collisions by Lighting Conditions, 5 Years - Red Hill Valley Parkway (2018–2022)

Collisions by Impact Type

The prominent collision type on the LINC and the RHVP was rear end (66% and 49.9% respectively). The difference between the percentage of rear end type collisions on the LINC and the RHVP clearly shows the difference between operations of these two highways. The LINC experiences recurring congestion and the high percentage of rear end collisions can be the result of traffic congestion.

On the LINC, sideswipe collisions constitute the second highest collision type (20.1%). On the RHVP, single motor vehicle collisions constitute the second highest collision type (25.6%).

Drivers

In 9.5% of all collisions reported by police on the LINC at least one driver lost control during 2018–2022. By comparison, in 17.7% of all collisions reported to police on the RHVP, at least one driver lost control. These percentages have remained similar compared to the 2017–2021 period.

On the LINC and RHVP, 27.9% and 18.2% of collisions respectively were speed-related during 2018–2022. This represents an increase in speed-related collisions of 41% on the LINC and 5.2% on the RHVP compared to 2017–2021. The months with the highest number of speed-related collisions on the LINC were March and December (tied). The month with the highest number of speed-related collisions on the RHVP was November.

