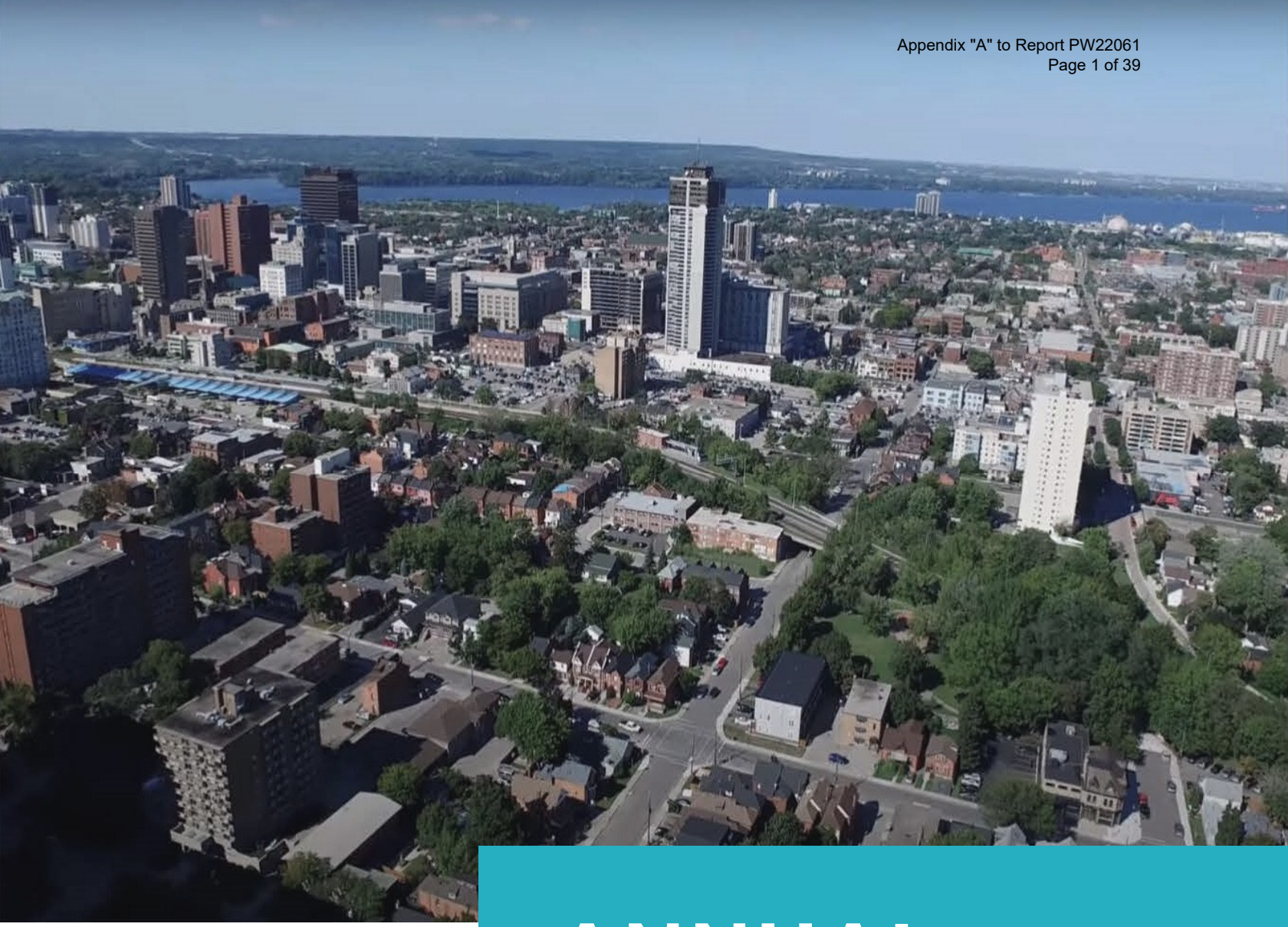

ANNUAL COLLISION REPORT 2021

Hamilton
Public Works

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Executive Summary

This report presents an overview of road safety in the City of Hamilton based on the last five years (2017–2021). The analysis was conducted for collisions occurring on the City road network. Ten years of collision data (2012–2021) 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.

The highlights of this report are listed below.

General Collision Trends

The following general collision trends were noted:

- The collision data shows that the total number of collisions has increased over the years, but has been impacted by the pandemic. While 2020 was the lowest year since 2012, collisions increased by 2.9% in 2021 compared to 2020.
- Total collisions decreased by 31.2% in 2021 compared to pre-pandemic levels (2019) but increased by 2.9% compared to 2020. Fatal and injury collisions also decreased by 20.6% in 2021 compared to 2019 but increased by 2.1% compared to 2020. While 2021 experienced the lowest number of pedestrian collisions in the past 5 years, there were 9 fatal pedestrian collisions in 2021 compared to 4 fatal pedestrian collisions in 2020.
- In 2021, the Lincoln M. Alexander Parkway (LINC) had 26.9% less collisions than in 2019 but 60.5% more collisions than in 2020. Fatal and injury collisions on the LINC were 50% lower than in 2019.
- Total collisions on the Red Hill Valley Parkway (RHVP) in 2021 were 34.3% lower than in 2019 but were 11.2% higher than in 2020. Fatal and injury collisions on the RHVP in 2021 were 40% lower than in 2019.
- While the City of Hamilton experiences around 8,122 collisions per year on average, there were 6,811 collisions in 2021.
- In 2021, 1,644 people were injured in 1,177 collisions. Among those, 16 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 (76.4%) occurred during dry surface conditions. Collisions occuring during wet and snow/ice covered conditions were 16.5% and 6.9% respectively. This is consistent and even better than provincial averages.
- Collisions during wet and snow/ice conditions on the RHVP in 2017–2021 was 45.7%. This is lower than in 2016–2020 (57.8%) and significantly reduced from 2015–2019 (64.1%).
- The majority of collisions occurred during daylight condition (66.4%). This percentage is less than provincial averages (approximately 72%).
- On road sections, Single Motor Vehicle (SMV) collisions constituted 42.5% of total collisions, followed by rear-end collisions (22.4%).
- At signalized intersections, rear-end collisions were the largest type of collisions (42.7%). This is consistent with other jurisdictions. The second largest type of collision is sideswipe (20.5%).

Temporal Trends

The following temporal trends were noted:

- The largest number of collisions occurred during the months of October, November, December, and January.
- The months of June, August, and October experienced the highest numbers of fatal and injury collisions based on 2017–2021 collision data.
- 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:

- Urban areas experienced 92% of all collisions and 66% of all fatal collisions based on 2017–2021 data.
- The intersection of John Street South and Main Street East experienced the highest number of fatal and injury collisions from 2017–2021 (28). Of the 28 collisions, none were fatal.
- The road section of Red Hill Valley Parkway Northbound, within the King Street interchange, experienced the largest number of fatal and injury collisions from 2017–2021 (21). Of the 21 collisions, none were fatal.
- The road section along Queenston Road between 533 Queenston Road and Nash Road experienced the second largest number of fatal and injury collisions from 2017–2021 (20). Of the 20 collisions, none were fatal.
- 57.9% of all collisions occurred at intersections. Among those, 65.9% occurred at signalized intersections and 29.5% occurred at stop-controlled intersections.

Vulnerable Road Users

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

- The number of pedestrian collisions has fluctuated between 173 and 246 in the past 5 years. In 2021, the City experienced 173 pedestrian collisions which is 9.9% fewer than in 2020. Despite this, there were 9 fatal pedestrian collisions in 2021, which is the highest number in the 2017–2021 period.
- The number of cyclist collisions has fluctuated between 128 and 183 in the past 5 years. In 2021, the number of cyclist collisions increased by 5.3% compared to 2020.
- The largest number of pedestrian collisions occured 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 to August.
- The largest number of pedestrian and cyclist collisions occured on Wednesdays.
- 89.7% of all pedestrian collisions resulted in an injury in 2017–2021 while 2.4% resulted in a fatality.
- 77.4% of all cyclists involved in a collision sustained injury (including 0.3% fatal injury).
- 69.7% of pedestrian collisions occured at intersections, and among those, 70.8% occured at signalized intersections.
- 64.7% of cyclist collisions occured at intersections among those, 50.7% occured at signalized intersections.
- A review of driver actions involved in pedestrian and cyclist collisions showed that 42.9% and 29.2% of drivers failed to provide the right of way to pedestrians and cyclists respectively. Additionally, 13.1% of drivers committed improper turns in cyclist collisions.
- In 26.2% of pedestrian collisions at midblocks (non-intersection locations), pedestrians were walking on road shoulders or sidewalks.

Driver Behaviour

The following road user collision trends were noted:

- Distracted driving was a contributing factor in 19.1% of fatal and injury collisions.
- Impairment / alcohol consumption was a contributing factor in 3.9% of fatal and injury collisions.
- Speeding accounted for 17.7% of all police-reported collisions. The percentages of speed-related collisions on the Lincoln M. Alexander Parkway and the Red Hill Valley Parkway were 19.8% and 17.3% 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

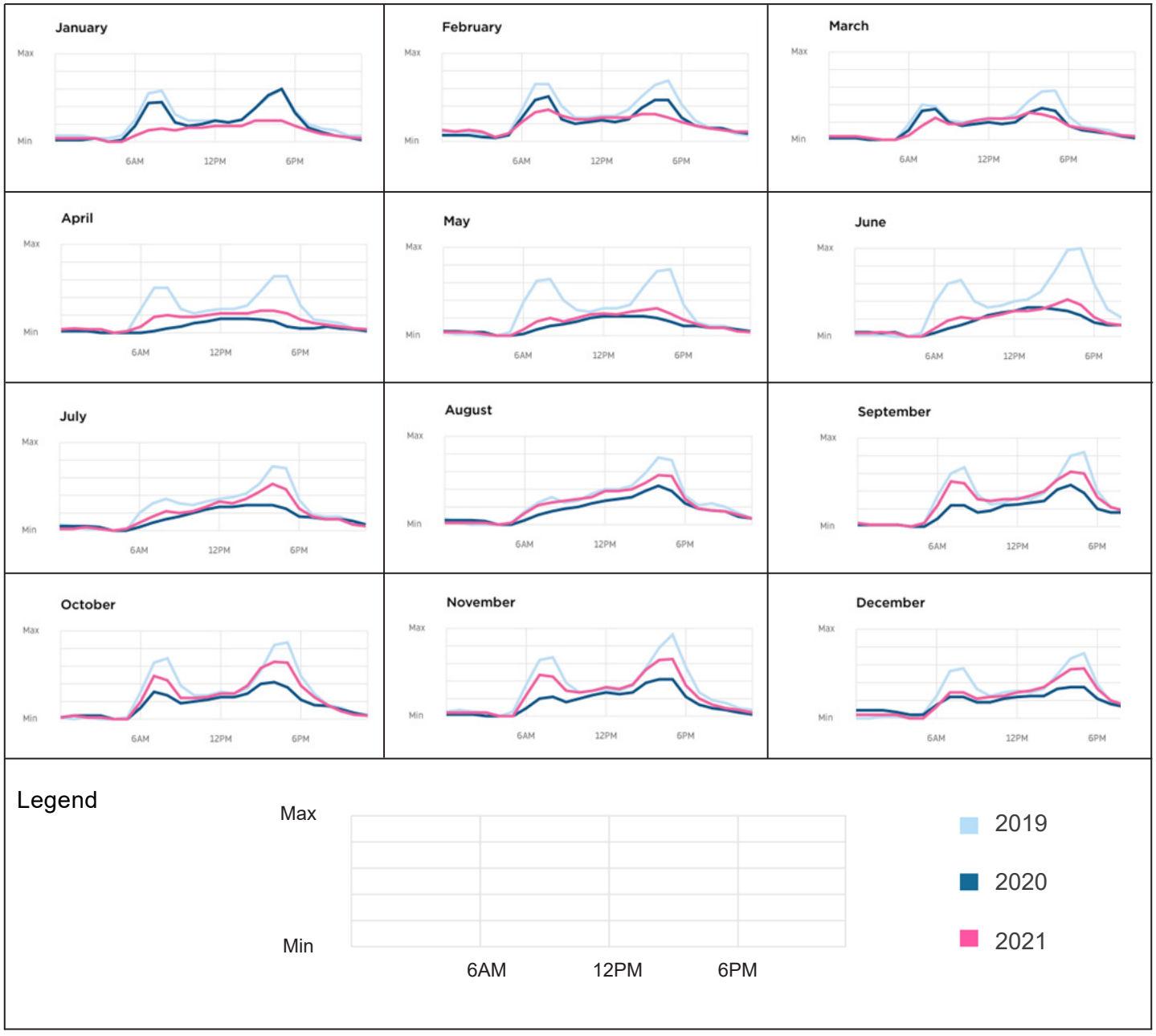
On March 17, 2020, the Government of Ontario declared a state of emergency due to the COVID-19 pandemic and ordered gradual closure of businesses and facilities. As a result of the state of emergency and subsequent stay at home orders from the Province, the City of Hamilton, similar to other jurisdictions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

The official Ontario-wide 2021 collisions statistics have not yet been released by the Ontario Ministry of Transportation. The Ontario Provincial Police (OPP) have released 2021 statisitcs for OPP-patrolled roadways. There was a total of 315 fatalities in 288 collisions in Ontario in 2021[1]. Speeding and aggressive driving contributed to 81 fatalities, the highest in the past 10 years. The numbers of persons killed in alcohol/drug related collisions was 31, which presented a 46% reduction when compared to 2020.

The following figure compares the extent of traffic volumes in 2019, 2020, and 2021 for each month of year. This figure supports that the City of Hamilton experienced significant reductions in traffic volumes during the months of April through December in 2020, due to pandemic response. Atypically low traffic volumes continued into 2021, and were very low for the months of January to June. In July 2021 traffic volumes began to increase to above 2020 levels, but remained below 2019 levels for the remainder of the year.

1 https://www.bayshorebroadcasting.ca/2022/03/23/142629/

Week Day Travel Patterns by Month for 2021, 2020, and 2019



Reference: https://www.tomtom.com/en_gb/traffic-index/hamilton-traffic/

In 2019, the number of fatal and personal injury collisions in Ontario was 34,130[2]. In 2020, the impact of the COVID-19 pandemic on traffic volumes resulted in a reduction of fatal and injury collisions in Ontario by 30.6%, with numbers down to 23,689[3].

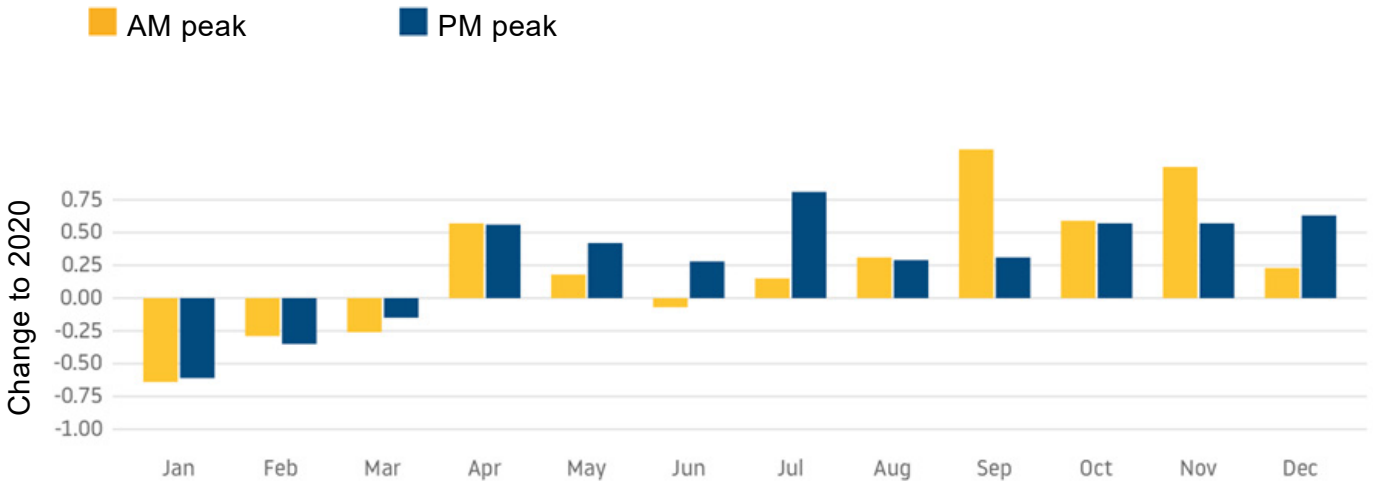
Although the 2021 collision statistics have not yet been released by the Province of Ontario, based on the observed traffic volumes it is expected that 2021 collisions will be higher than in 2020 but fewer than in 2019.

The figures below show the changes in AM and PM rush hours traffic for each month in 2021 compared to

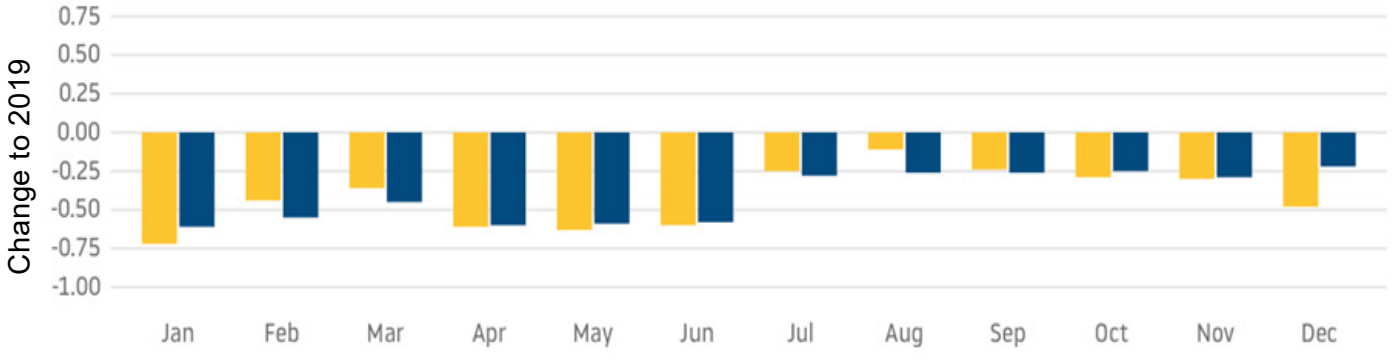
2 https://files.ontario.ca/mto-3/mto-preliminary-orsar-2019-en-2021-11-18.pdf
3 https://files.ontario.ca/mto-3/mto-preliminary-orsar-2020-en-2021-11-18.pdf

2020 and 2019. The level of congestion in the City of Hamilton started to increase in April of 2021 compared to 2020. However, the congestion levels were still significantly lower than the 2019 pre-pandemic levels in 2021.

The impact of the COVID-19 pandemic has changed traffic volumes and patterms, and must be considered when comparing traffic safety performance for the years of 2019, 2020, and 2021. As a result, it is expected that the number of collisions in 2021 will be higher than 2020 but fewer than the 2019 pre-pandemic collisions.



AM and PM Rush Hour Traffic - Comparison of 2021 to 2020



AM and PM Rush Hour Traffic - Comparison of 2021 to 2019

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.

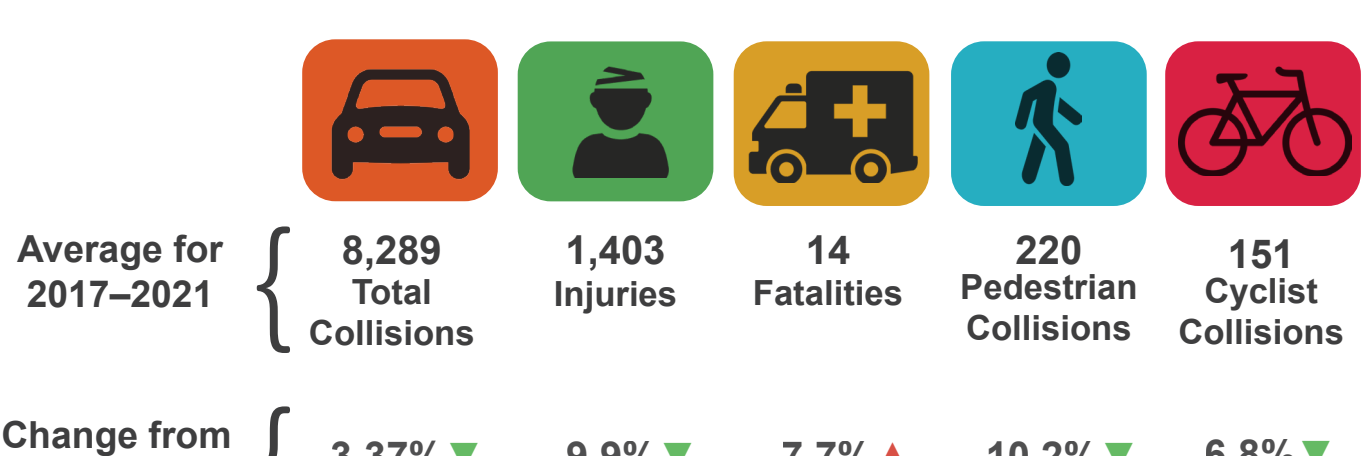
The geographic area for analysis in this report includes all roads within the Hamilton municipal boundaries, excluding provincially controlled roadways: Queen Elizabeth Way (mainline), Highway 6, Highway 8 from Highway 5 northerly, Highway 5 between Highway 6 and Highway 8/52, Highway 403, on-ramps and 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 2017–2021 collision data.

The graphic below provides the average total collisions, injuries, fatalities, pedestrian collisions, and cyclist collisions for 2017–2021 and compares them to the averages for 2016–2020.

The City has improved in all categories except fatalities, which showed a 7.7% increase (14 average fatalities for 2017–2021 compared to 13 average fatalities for 2016–2020).

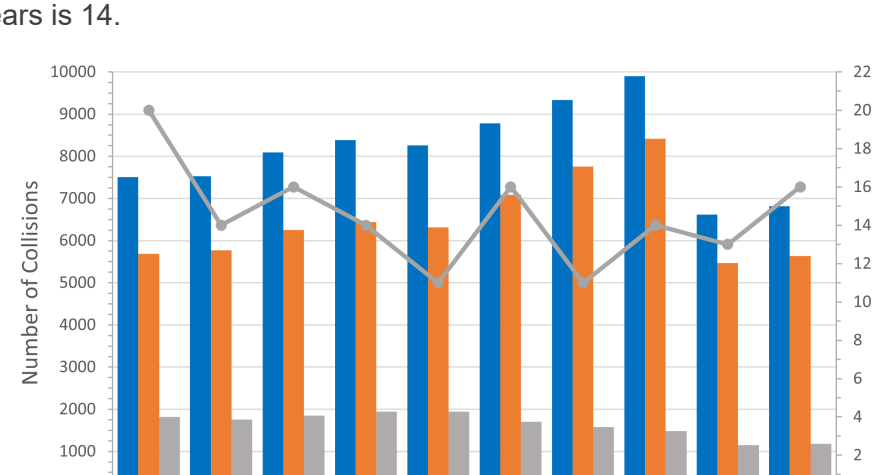


SECTION 1
Collision Trends
(2017 to 2021)

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. Although collisions in 2021 have increased slightly over 2020 (2.9%), they remain significantly lower than pre-pandemic levels. Total collisions decreased by 33.2% in 2020 and by 31.2% in 2021, compared to 2019. Fatal and injury collisions decreased by 22.3% in 2020 and by 20.6% in 2021, compared to 2019.

In 2021, the City of Hamilton experienced 16 fatal collisions, which is a 23.1% increase compared to 2020, and tied for the highest in the past 5 years. The average number of fatal collisions over the past five years is 14.



Collision Frequency (2012–2021)

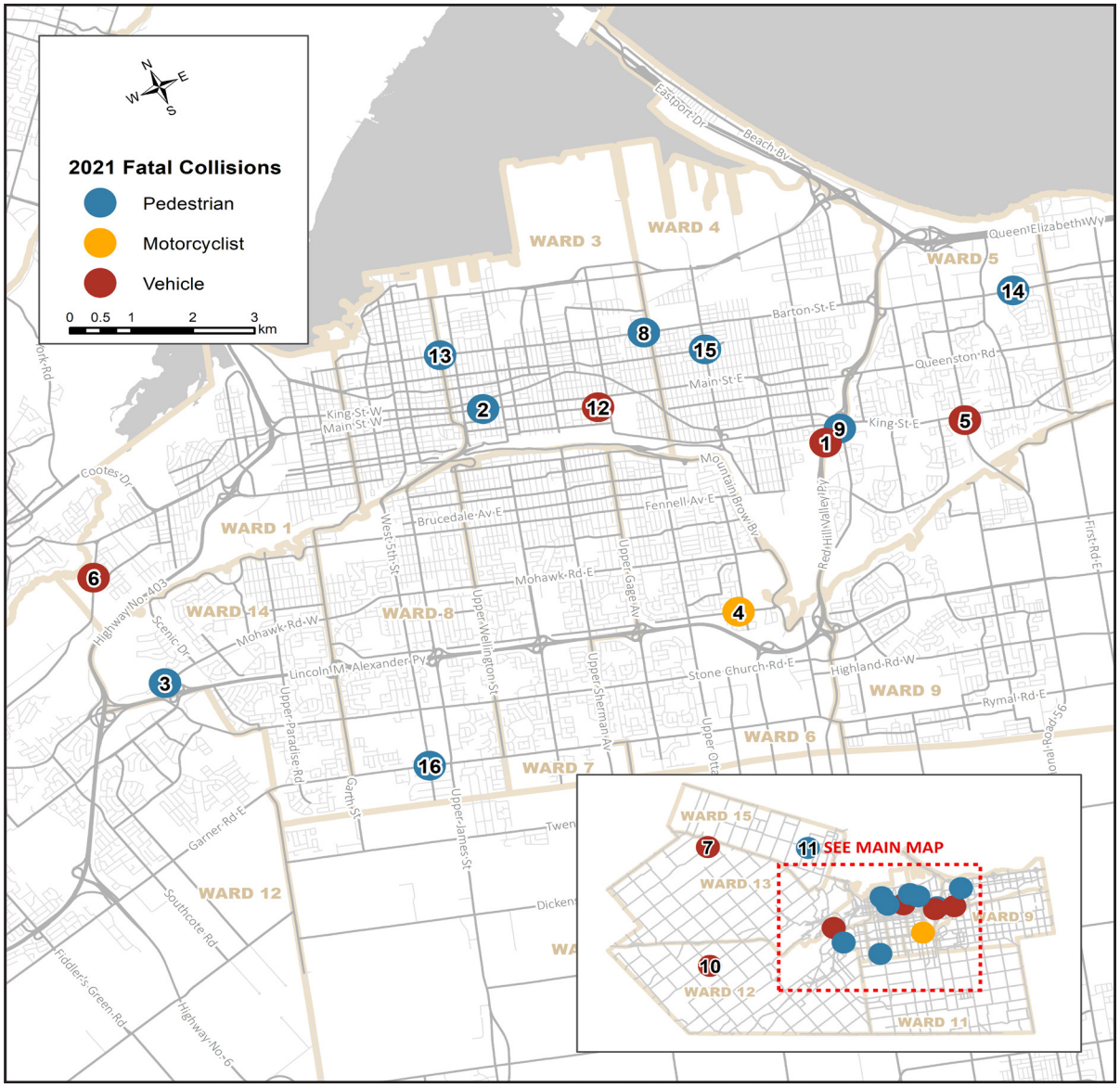
Year	Total Collisions	Fatal Collisions	Fatal and Injury Collisions	Property Damage Only Collisions
2012	7,505	20	1,815	5,690
2013	7,529	14	1,754	5,775
2014	8,095	16	1,846	6,249
2015	8,385	14	1,945	6,440
2016	8,259	11	1,947	6,312
2017	8,781	16	1,698	7,083
2018	9,333	11	1,572	7,761
2019	9,900	14	1,483	8,417
2020	6,619	13	1,153	5,466
2021	6,813	16	1,177	5,636

In 2021, fatal collisions included six occupants of vehicles, nine pedestrians, and one motorcyclists spread across the City. Nine fatal collisions occurred at intersections and seven fatal collisions occurred on road sections. No cyclist fatalities occurred in 2019, 2020 or 2021.

In 2021, 1,644 people were injured in 1,177 collisions. Among those, 16 people were fatally injured and 71 suffered from a major injury, defined as hospital admission including for observation.

- The City of Hamilton experiences around 8,122 collisions per year, on average.
- While the total number of collisions increased by 2.9% in 2021 compared to 2020, they decreased by 31.2% compared to 2019.
- In 2021, 1,644 people were injured in 1,177 collisions. Among those, 16 people were fatally injured.

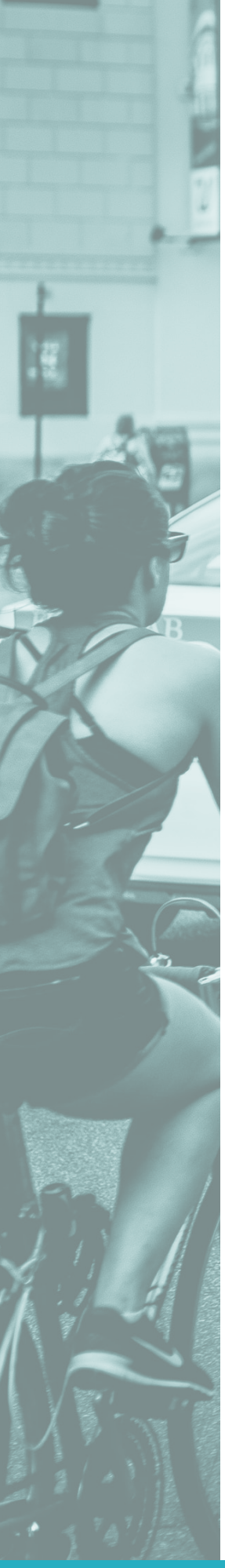
Map of Locations of Fatal Collisions in 2021



Location and Date of Fatal Collisions in 2021

2021 Fatal Collisions	
1	Red Hill Valley Parkway between Railway Bridge and Ramp Greenhill WB to Red Hill Valley Parkway Northbound • **January 1, 2021**
2	Main Street East at Tisdale Street South • **January 9, 2021**
3	Old Mohawk Road between Old Mohawk Westbound to Lincoln M. Alexander Parkway Westbound WB • **April 25, 2021**
4	Limeridge Road East between Jamie Ann Street and Upper Kenilworth Ave • **May 17, 2021**
5	Centennial Parkway at King Street West • **May 26, 2021**
6	Main Street West at Whitney Avenue • **June 13, 2021**
7	Regional Road No. 97 between Brock Road and Middletown Road • **July 10, 2021**
8	Barton Street East at Grosvenor Avenue North • **August 11, 2021**
9	Mount Albion Road at the Red Hill Valley Parkway • **September 14, 2021**
10	Highway No. 5 West at Woodhill Road • **September 15, 2021**
11	Centre Road bewteen Concession 5 and Wigood Drive • **September 17, 2021**
12	Balsam Street East at Maplewood Avenue • **September 29, 2021**
13	Barton Street East at Wellington Street North • **October 28, 2021**
14	Barton Street East between Bow Valley Drive and Brockley Drive • **October 30, 2021**
15	Cannon Street East at Kenilworth Avenue North • **December 13, 2021**
16	Christie Street at West 5th Street • **December 17, 2021**

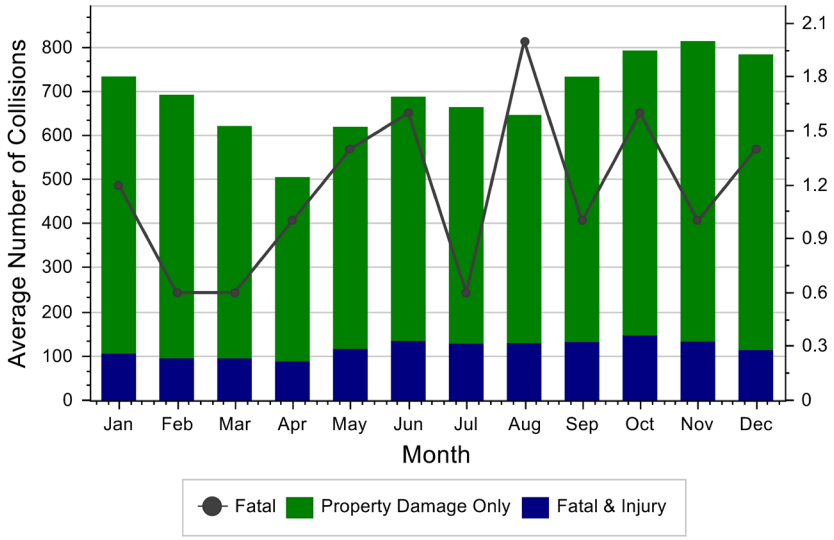
Urban areas constituted 92% of all collisions and 81% of all fatal collisions based on 2021 data.



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 2017–2021, 38% took place during these four months which is consistent with Provincial averages.

The months of June, October, and November experienced the highest numbers of fatal and injury collisions based on 2017–2021 collision data.



Collisions by Month, 5 Year Average (2017–2021)

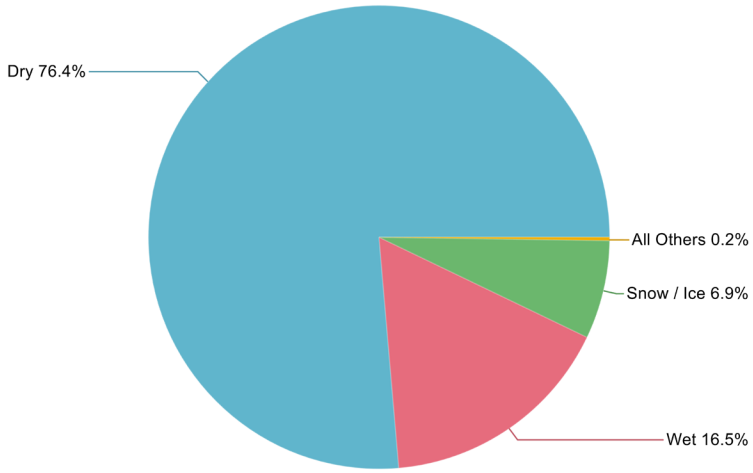
More collisions and most fatal and injury collisions occurred during Fridays compared to any other day of week, which is similar to Provincial observations.

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 spread from 10:00 AM to 6:00 PM.

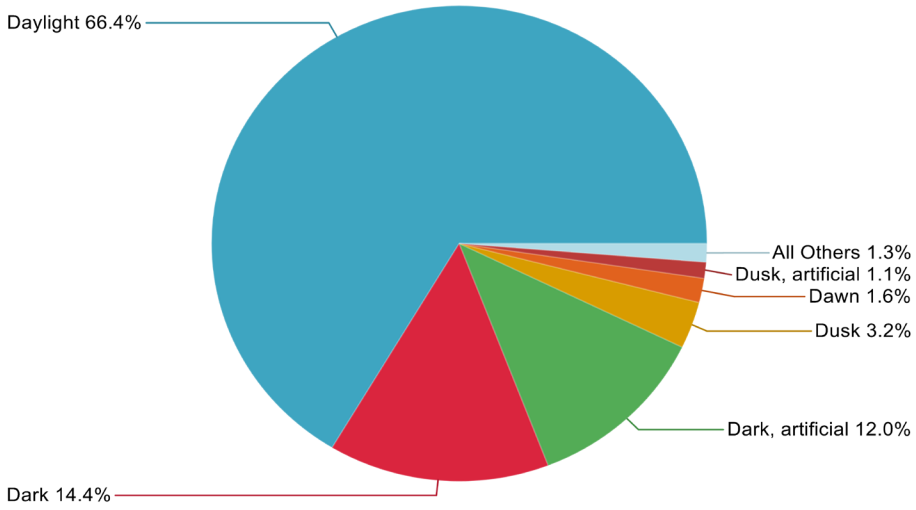
Collisions By Road Surface and Lighting Conditions

The majority of collisions (76.4%) occurred on dry surface conditions. Collisions that occurred on wet and snow/ice covered road surfaces were 16.5% and 6.9% respectively. These percentages are similar to Provincial averages.



Collisions by Road Surface Condition, 5 Years (2017–2021)

While the majority of collisions occurred during daylight conditions (66.4%) in 2017–2021, this percentage is smaller than that of Provincial averages (approximately 72%). Comparing to the 2016–2020 period, there is a 2.2% reduction in collisions at locations with illumination (dark, artificial).



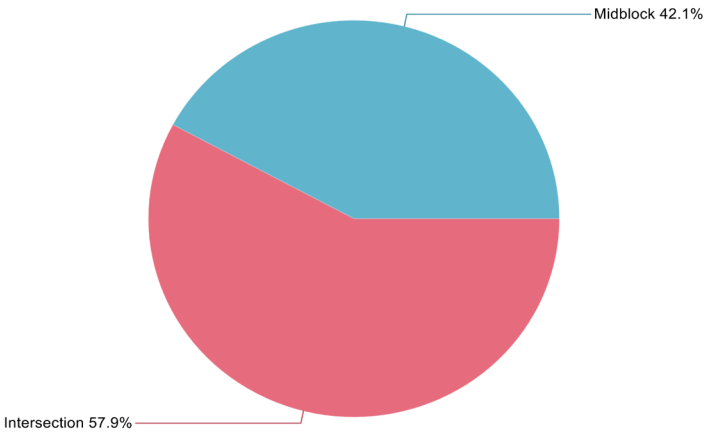
Collisions by Lighting Condition, 5 Years (2017–2021)

- 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 is 1,639 collisions per year over the last 10 years. The majority of collisions (76.4%) occurred on dry surface conditions.
- Collisions occurred on wet and snow/ ice covered road surfaces were 16.5% and 6.9% respectively.
- 66.4% of all collisions occurred during day light conditions. This number is smaller than typical values for Ontario.

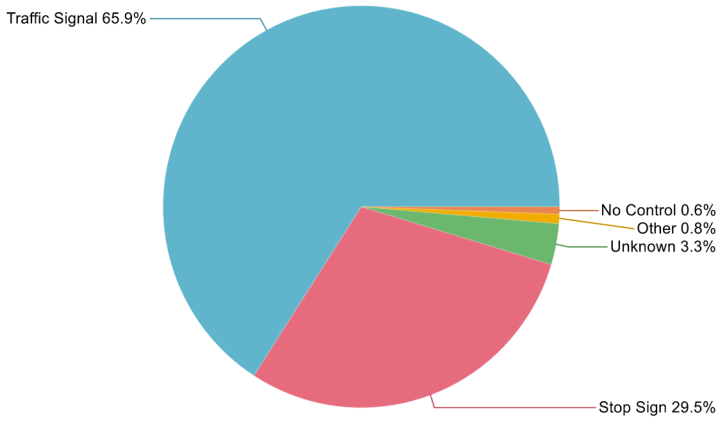
- 57.9% of all collisions occurred at intersections. Among those, 65.9% occurred at signalized intersections and 29.7% occurred at stop controlled intersections.
- Rear-end collisions were the largest type of collisions (42.7%) at signalized intersections followed by sideswipe collisions (20.5%). It appears that the proportion of sideswipe collisions at signalized intersections are unusually high.
- Angle collisions were the largest type of collisions (30.8%) at stop-controlled intersections followed by rear end collisions (25.9%).
- 42.5% of total collisions on midblocks are SMV collisions followed by rear-end collisions (22.4%).

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 (57.9%). This observation is consistent with other municipalities as intersections are major conflict points in a transportation network. Among those intersection collisions, the majority (65.9%) took place at signalized intersections.



Collisions by Location, 5 Years (2017–2021)



Intersections Collisions by Traffic Control Type, 5 Years (2017–2021)

A review of fatal and injury collisions at intersections and midblocks for 2017–2021 shows that the majority of fatal collisions occurred at midblocks (54.3%) but the majority of injury collisions occurred at intersections (60.7%).

Single Motor Vehicle (SMV) collisions (SMV unattended and SMV other[4]) constituted 42.5% of total collisions on midblocks followed by rear-end collisions (22.4%).

4 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.

Rear-end collisions were the largest type of collisions (42.7%) at signalized intersections. This is consistent with other jurisdictions in Ontario.

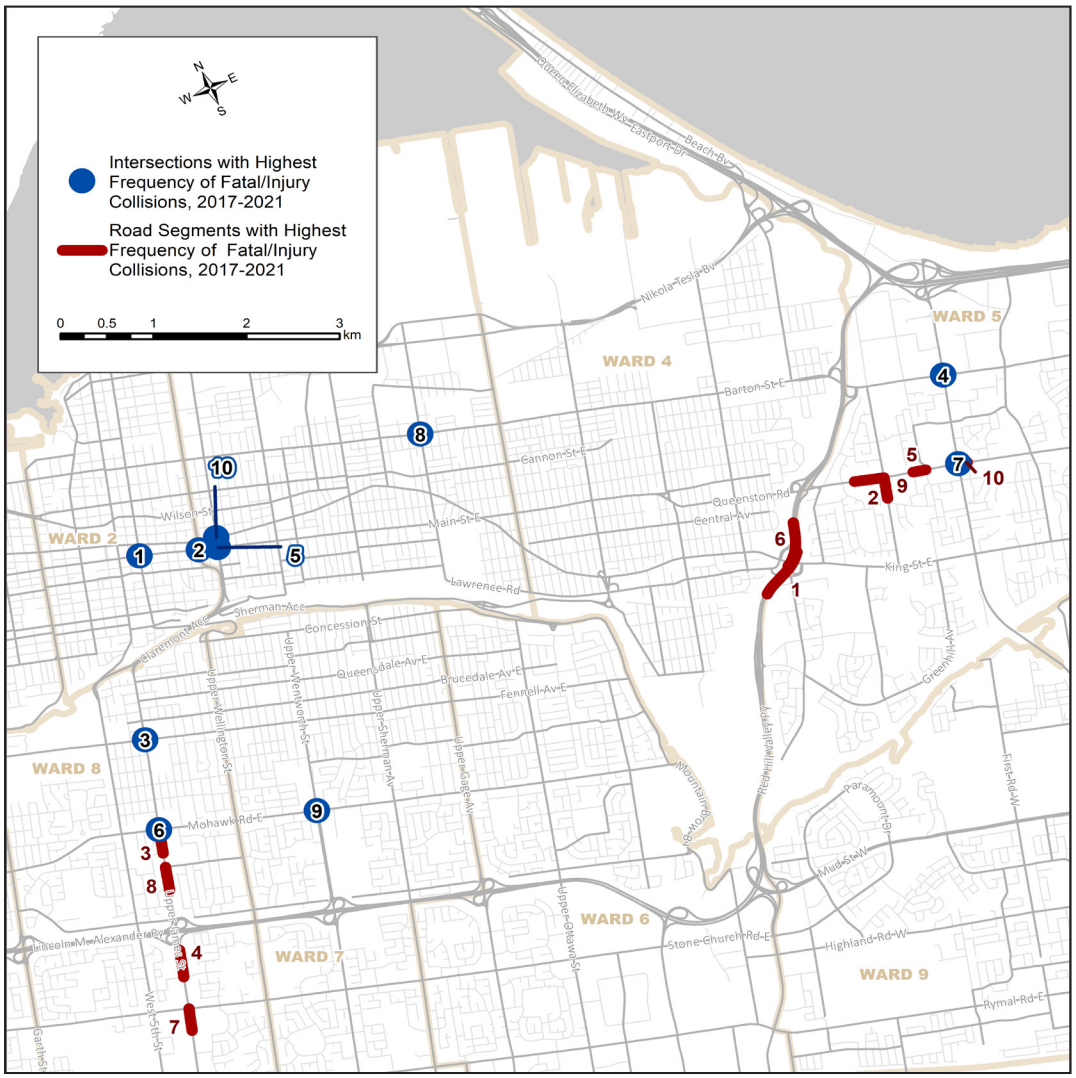
The second largest type of collision at signalized intersections is sideswipe collisions (20.5%) followed by angle collisions (15.3%). It appears that Hamilton experiences a high number of sideswipe collisions compared to other similar municipalities in Ontario.

At stop-controlled intersections, angle collisions were the largest type of collisions (30.8%) followed by rear-end collisions (25.9%). This is consistent with other Ontario municipalities.

High Frequency Locations

A review of the City's collision data shows that the total number of collisions has been increasing in the past 10 years, until the COVID-19 Pandemic started in 2020. In 2021, the total number of collisions increased 2.9% compared to 2020 but decreased by 31.2% compared to 2019.

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



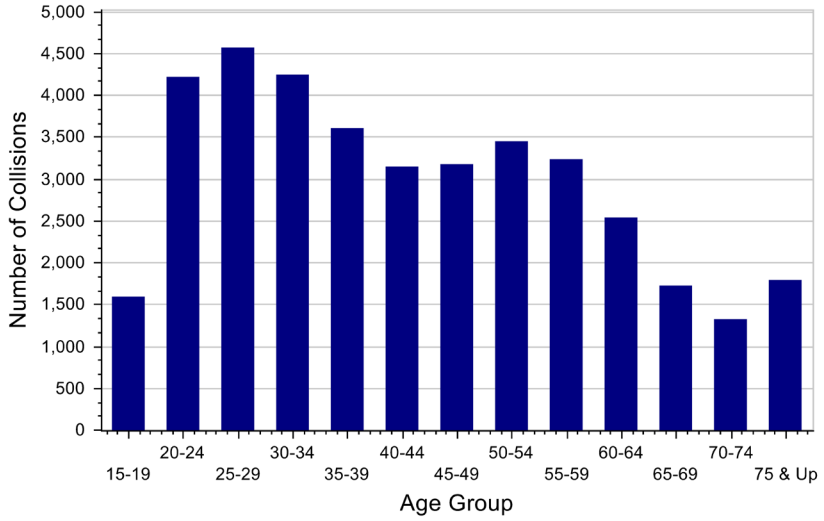
Intersections and Road Segments with Highest Frequency of Fatal and Injury Collisions, 5 Year Average (2017–2021 and 2016–2020)

Intersections	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1 John Street South at Main Street East	28	27
2 Main Street East at Wellington Street South	26	25
3 Fennel Avenue West at Upper James Street	24	23
4 Barton Street East at Centennial Parkway North	23	23
5 Main Street East at Victoria Avenue South	22	24
6 Mohawk Road West at Upper James Street	22	22
7 Cenntenial Parkway South at Queenston Road	21	23
8 Barton Street East at Gage Avenue North	21	21
9 Mohawk Road East at Upper Wentworth Street	21	28
10 King Street East at Victoria Avenue South	19	29

Road Segments	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1 Red Hill Valley Parkway Northbound between Ramp King to Red Hill Valley Parkway Northbound and Ramp Red Hill Valley Parkway Northbound to King Street	21	26
2 Queenston Road between Nash Road and 533 Queenston Road	20	22
3 Upper James Street between Lotus Avenue and Mohawk Road East	17	20
4 Upper James Street between Blossom Lane and Ramp Upper James Street Northbound to LINC Eastbound	13	14
5 Queenston Road between Clapham Road and Greenford Drive	12	11
6 Red Hill Valley Parkway Southbound between Ramp King to Red Hill Valley Parkway Northbound and Ramp Red Hill Valley Parkway Southbound to King Street	12	13
7 Upper James Street between Plaza Entrance and Stone Church Road East	12	12
8 Upper James Street between Hester Street and Jameston Avenue	10	13
9 Nash Road South between Glen Echo Drive and Queenston Road	10	10
10 Queenston Road between Centennial Parkway and Irene Avenue	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 with the Province of Ontario.



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

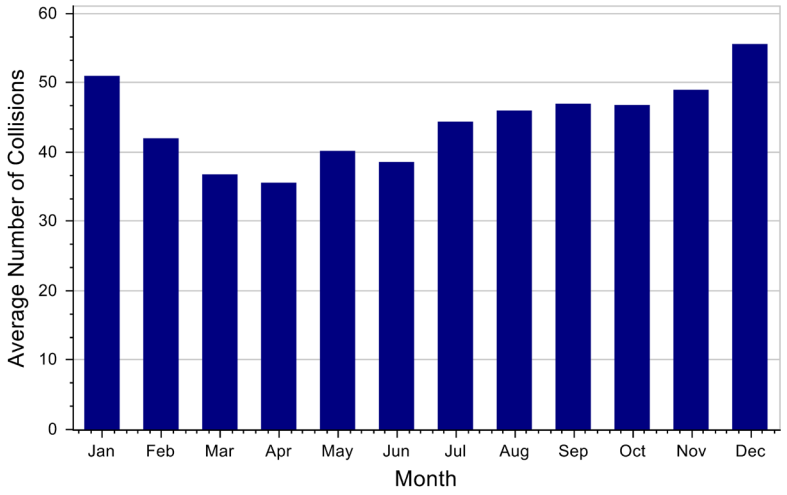
Distracted driving is one of the leading contributing factors to collisions in many jurisdictions including the City of Hamilton. It is difficult to identify whether a driver, cyclist, or pedestrian was distracted at the time of a collision. Based on observations made by police officers, in 18.4% of all collisions and in 19.1% of fatal and injury collisions, drivers were inattentive (distracted) in 2017–2021. It appears that distracted driving related collisions have increased by 2.4% compared with the 2016–2020 collisions. 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 6.3% of total collisions and 3.9% of fatal and injury collisions in 2017–2021, which is similar to the 2016–2020 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 18.4% of all police-reported collisions, which shows a 2.4% increase from 2016–2020.

- 34% of all drivers involved in collisions were 20-34 years old.
- Driver impairment / alcohol consumption contributed to 6.3% of all collisions in 2017–2021.
- Driver impairment / alcohol consumption contributed to 3.9% of fatal and injury collisions in 2017–2021.
- In 19.1% of fatal and injury collisions, drivers were inattentive (distracted).

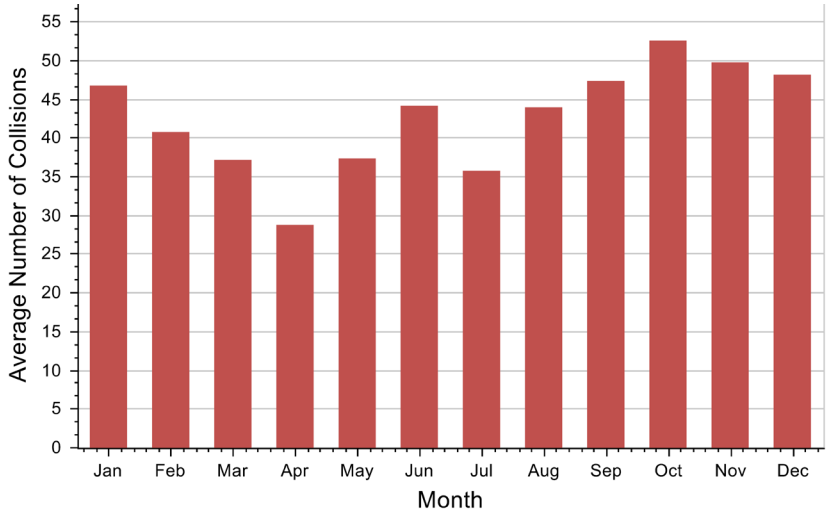
- The months of January and December experienced the largest number of lost control type collisions.
- In 18.4 % of police reported collisions, drivers lost control of their vehicle.
- Speeding related collisions account for 17.7% of all police reported collisions.



Lost Control Collisions by Month, 5 Year Average (2017–2021) - 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 agressive 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 17.7% of police-reported collisions in 2017–2021. 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.



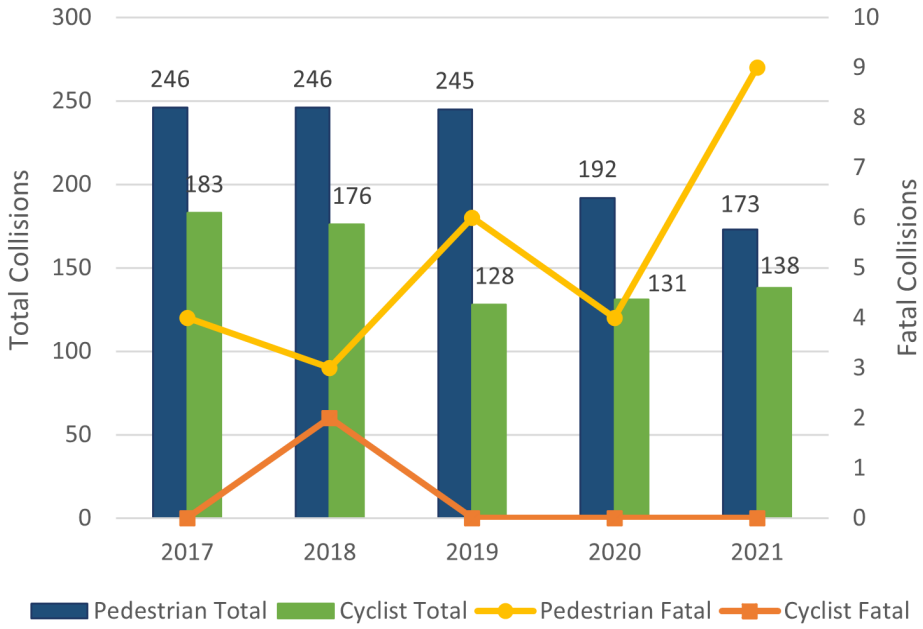
Speed Related Collisions by Month, 5 Year Average (2017–2021)

Pedestrian and Cyclist Collisions

Pedestrian and cyclist collisions often result in injury or fatality. The number of pedestrian collisions fluctuated between 173 and 246 in the past 5 years, with an average of 220 collisions. In 2021, the City experienced 173 pedestrian collisions which is 9.9% less than 2020, despite an increase in total collisions in 2021 by 2.9%.

Although the total pedestrian collisions decreased by 9.9%, there were 9 pedestrian fatalities in 2021, which is the highest number in the 2017–2021 period. The average number of pedestrian fatalities was 5 in 2017–2021.

The number of cyclist collisions has fluctuated between 128 and 183 in the past 5 years, with an average of 151 collisions. Since the historical low of 128 in 2019, cyclist collisions have been on the increase. In 2021, the number of cyclist collisions increased by 5.3% compared to 2020.



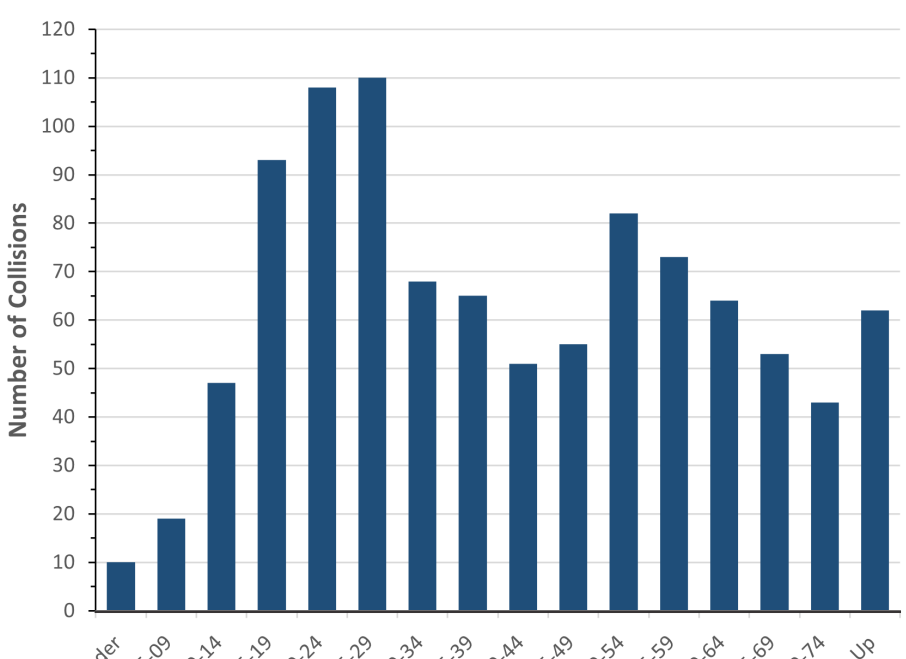
Collisions Involving Pedestrians and Cyclists (2017–2021)

The largest number of pedestrian collisions occurred in the month of October followed by January in 2017–2021. 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.

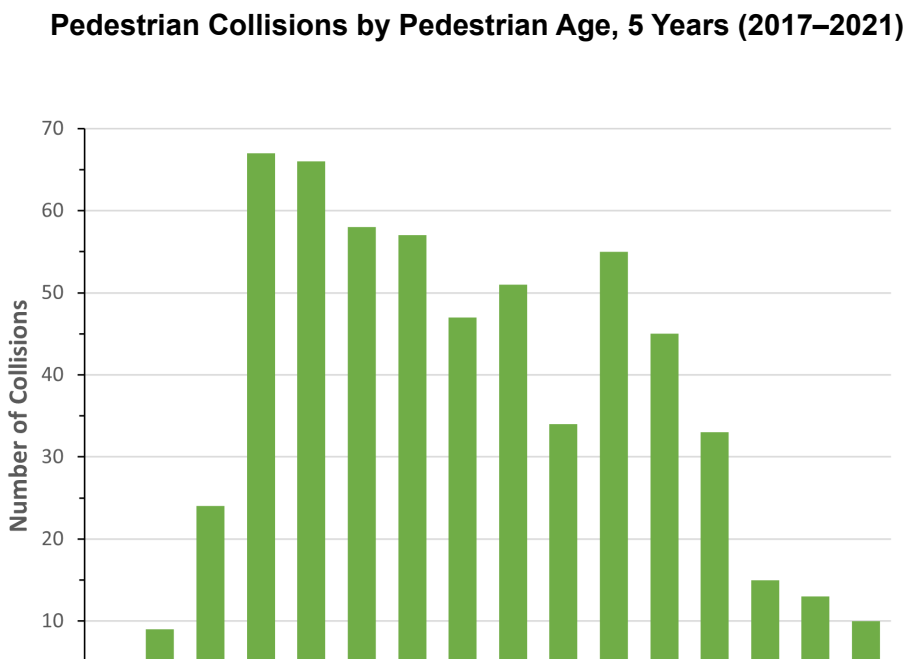
Wednesdays experienced the largest numbers of pedestrian and cyclist collisions among all days of a week in 2017–2021.

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.

- 173 pedestrian collisions occurred in 2021.
- 138 cyclist collisions occurred in 2021.
- January and October experienced the largest number of pedestrian collisions.
- June to August experienced the largest number of cyclist collisions.



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



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

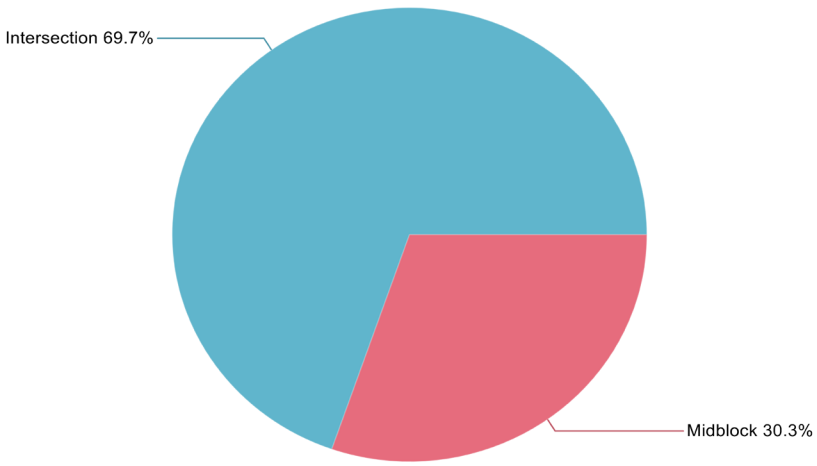
89.7% of all pedestrian collisions resulted in injury in 2017–2021 and 2.4% resulted in fatality. 77.4% of all cyclists involved in a collision sustained injury (including 0.3% fatal injury).

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:[5]

Percentage of Fatality Among Injury Collisions for Pedestrians and Cyclists

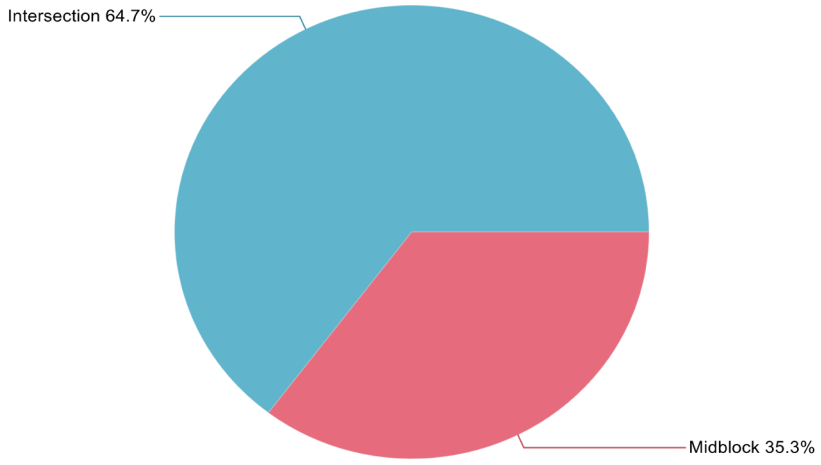
Jurisdiction	Pedestrians	Cyclists
Hamilton	2.5%	0.3%
Ontario	4%	1.4%

A majority of pedestrian and cyclist collisions occurred at intersections (69.7% and 64.7% respectively). Among those, 70.8% occurred at signalized intersections while 28.3% took place at stop-controlled intersections. 50.7% of cyclist collisions occurred at signalized intersections. 46.2% of cyclist collisions occurred at stop-controlled intersections.



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

5 https://www.ontario.ca/document/ontario-road-safety-annual-reports-orsar

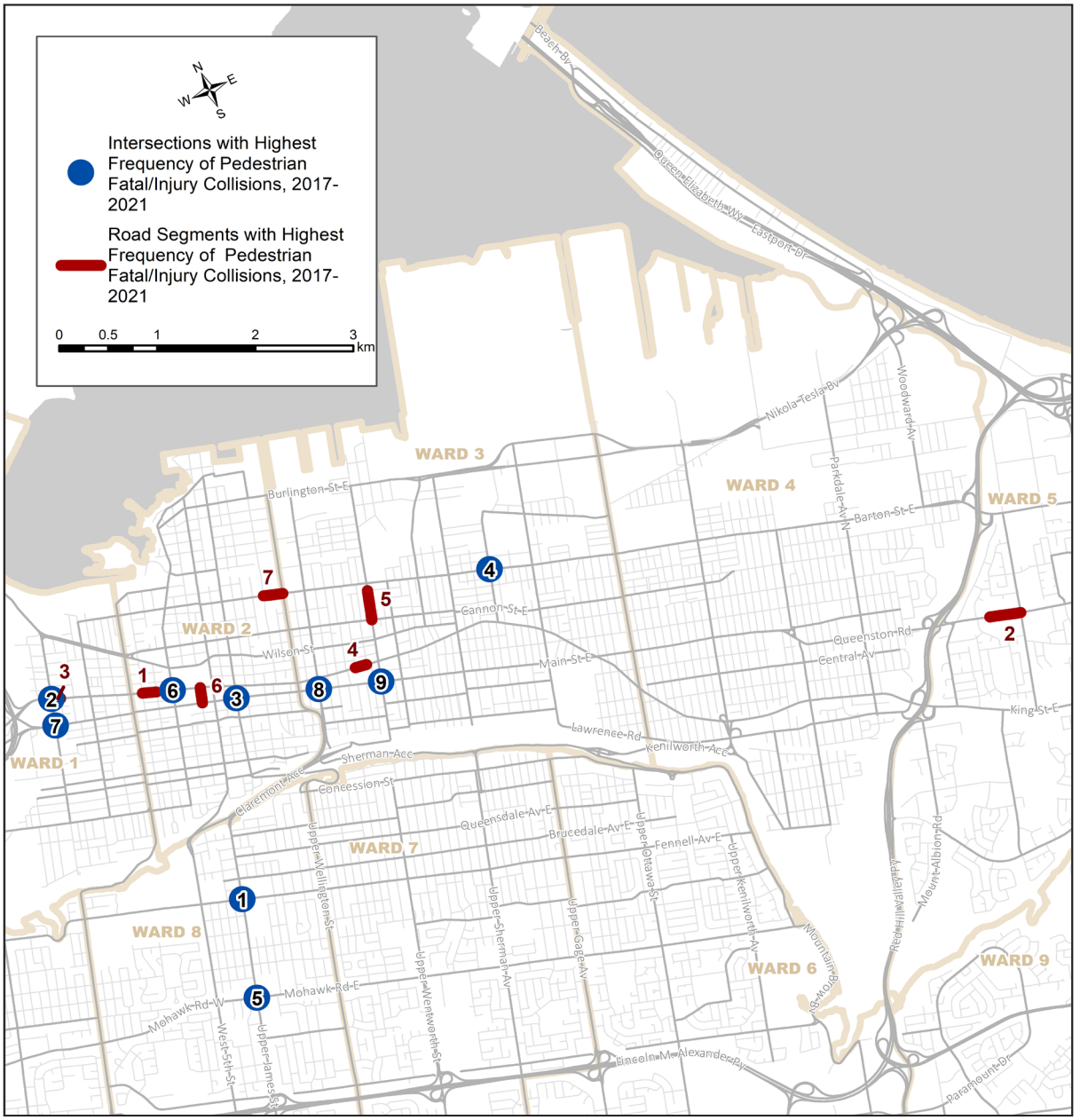


Collisions Involving Cyclists by Location, 5 Year Average (2017–2021)

A review of driver actions involved in pedestrian and cyclist collisions show that 42.9% and 29.2% of drivers failed the right of way to pedestrians and cyclists respectively. Additionally, 13.1% of drivers committed improper turns in cyclist collisions.

In 26.2% of pedestrian collisions at midblocks (non-intersection locations), pedestrians were walking on road shoulders or sidewalks. Also, in 18.4% of pedestrian collisions at midblock locations, the pedestrian did not have right of way (i.e., jaywalking). In 10.9% of cyclist collisions, the cyclists failed to yield the right of way to vehicles.

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

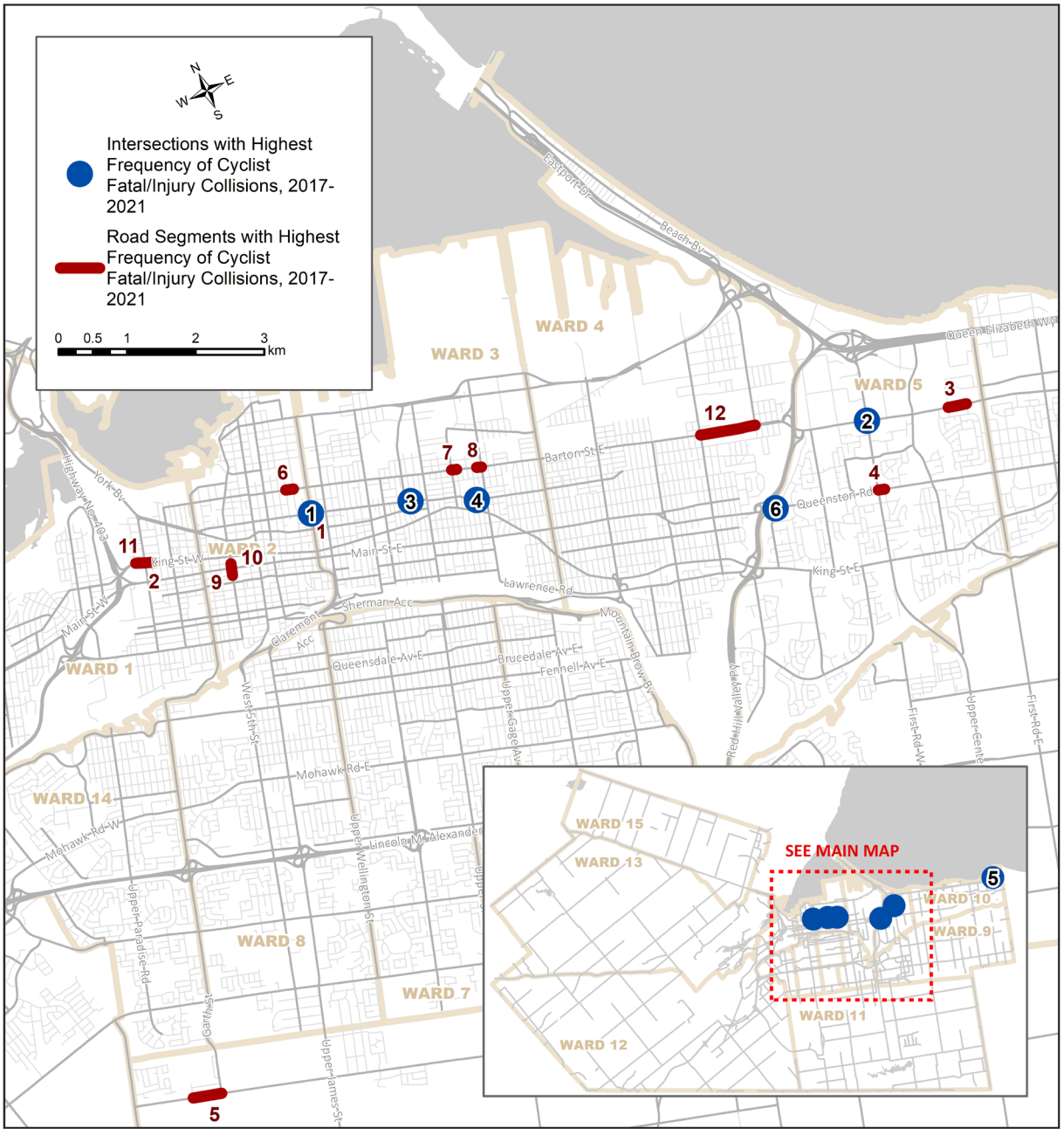


Intersections and Road Segments with the Highest Frequency of Pedestrian Fatal and Injury Collisions (2017–2021 and 2016–2020)

	Intersection	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1	Fennel Avenue West at Upper James Street	12	9
2	Dundurn Street South at King Street West	9	11
3	John Street South at Main Street East	7	7
4	Barton Street East at Lottridge Street	7	8
5	Mohawk Road West at Upper James Street	6	4
6	Bay Street North at King Street West	6	5
7	Dundurn Street South at Main Street West	6	7
8	Main Street East at Victoria Avenue South	6	6
9	Main Street East at Wentworth Street South	6	7

	Road Segment	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1	King Street between Caroline Street South and Hess Street South	4	4
2	Queenston Road between Nash Road North and 533 Queenston Rd	4	4
3	King Street West between Dundurn Street and New Street	3	3
4	King Street East between Ashley Street and Steven Street	3	3
5	Wentworth Street North between Bristol Street and Cannon Street East	3	3
6	MacNab Street South between King Street and Main Street West	3	3
7	Barton Street East between Ferguson Avenue North and Wellington Street North	3	4

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



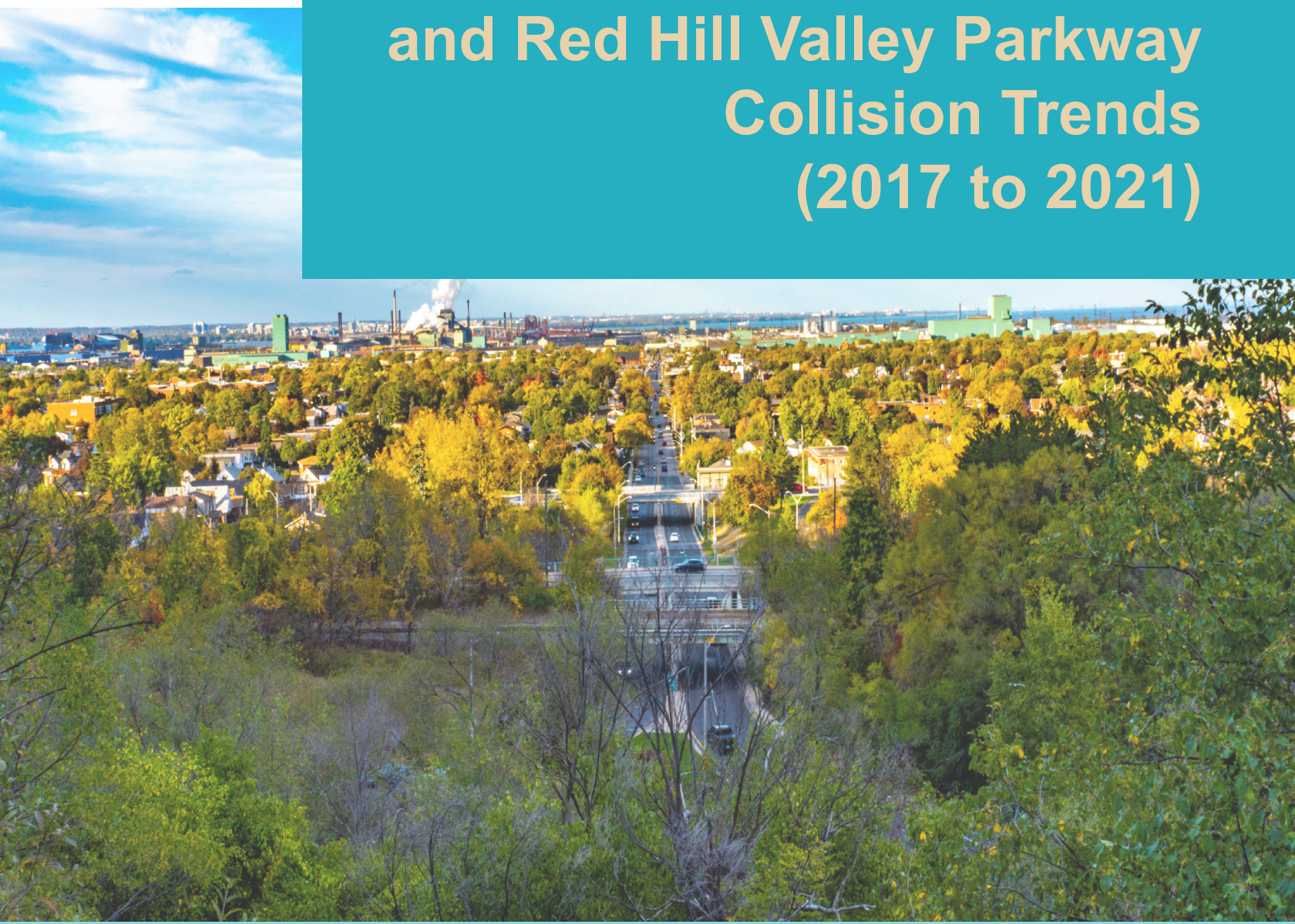
Intersections and Road Segments with the Highest Frequency of Cyclist Fatal and Injury Collisions (2017–2021 and 2016–2020)

	Intersection	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1	Cannon Street East at Wellington Street North	10	9
2	Barton Street East at Centennial Parkway North	6	6
3	Cannon Street East at Gibson Avenue	5	5
4	Balsam Avenue North at Cannon Street East	4	3
5	Fifty Road at North Service Road	4	4
6	Queenston Road at Ramp Queenston Eastbound to RHVP Northbound	4	5

	Road Segment	Collision Frequency 2017–2021	Collision Frequency 2016–2020
1	Cannon Street East between Wellington Street North and West Avenue North	5	3
2	King Street West between Dundurn Street and New Street	3	2
3	Barton Street East between Bell Manor Street and Brockley Drive	2	2
4	Queenston Road between Centennial Parkway and Irene Avenue	2	1
5	Twenty Road West between Garth Street and Siverbirch Boulevard	2	2
6	Barton Street East between Elgin Street and Ferguson Avenue	2	2
7	Barton Street East between Lottridge Street and Melrose Avenue	2	2
8	Barton Street East between Connaught Avenue and Gage Avenue	2	2
9	Bay Street South between Jackson Street and Main Street	2	1
10	Bay Street South between George Street and Main Street	2	2
11	King Street West between Breadalbane Avenue and Dundurn Street	2	2
12	Barton Street East between Parkdale Avenue North and Woodward Avenue	2	2

SECTION 2

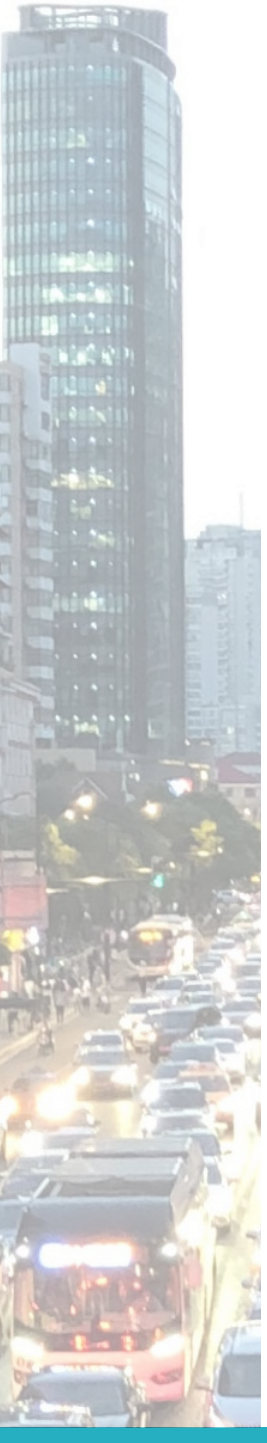
Lincoln M. Alexander Parkway and Red Hill Valley Parkway Collision Trends (2017 to 2021)



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.

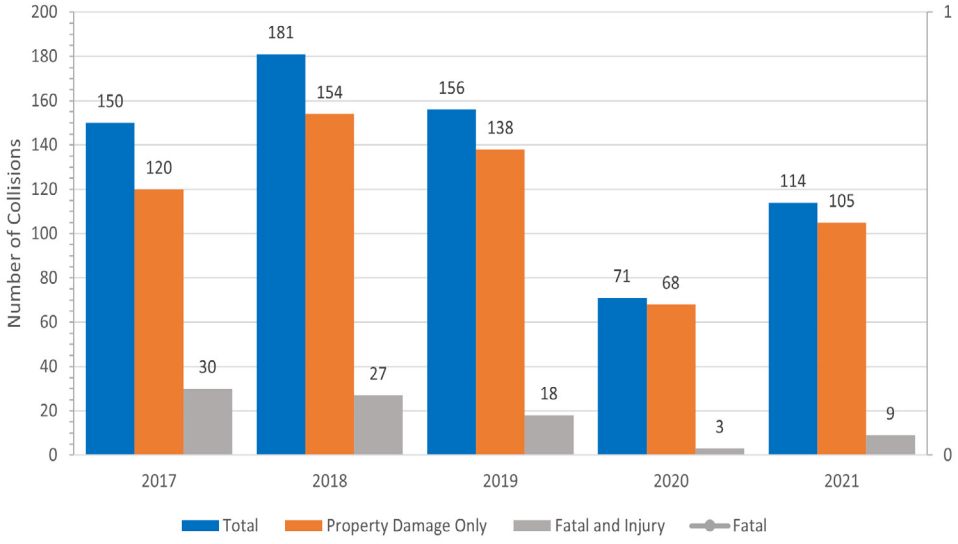


Frequency and Severity

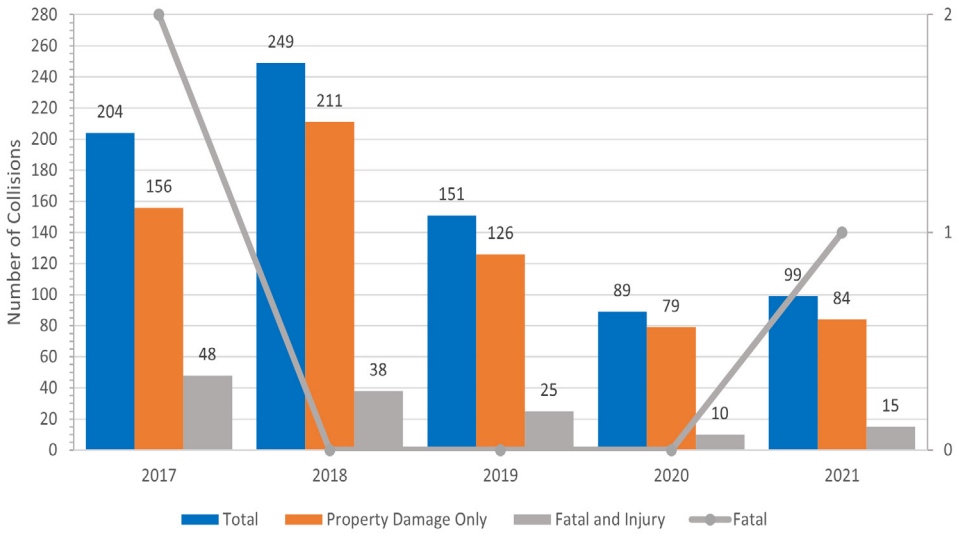
The severity of collisions on the LINC and on the RHVP over the last five years (2017–2021) was reviewed. Similarly to other municipalities, Hamilton experienced a decrease in traffic volumes due to the impact of the COVID-19 pandemic.

Total collisions on the LINC in 2021 were 26.9% lower than in 2019 but were 60.5% higher than in 2020. Injury collisions on the LINC in 2021 were 50% lower than in 2019 (9 and 18 collisions respectively). There were no fatal collisions on the LINC in any year from 2017 to 2021.

Total collisions on the RHVP in 2021 were 34.3% lower than in 2019 but were 11.2% higher than in 2020. Fatal and injury collisions on the RHVP in 2021 were 40% lower than in 2019 (15 and 25 collisions respectively). There was one fatal collision on the RHVP in 2021 and two fatalities in 2017.



Collisions Frequency - LINC (2017–2021)



Collisions Frequency - Red Hill Valley Parkway (2017–2021)

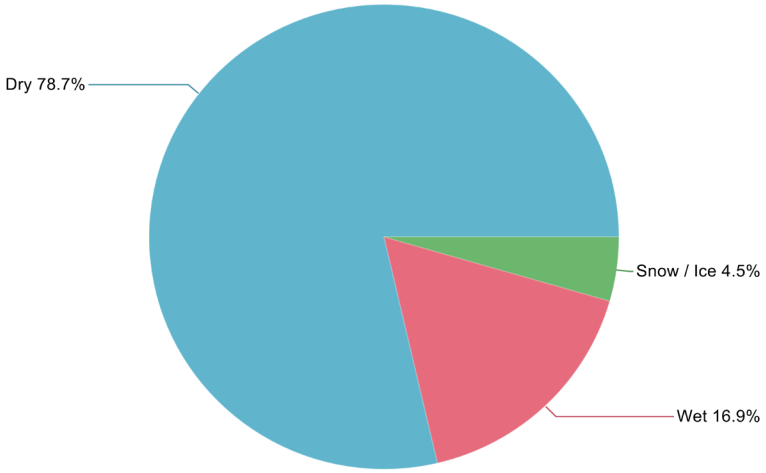
Month, Day, and Time of Collisions

From 2017–2021, 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 both the LINC and the RHVP from 2017–2021. 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.

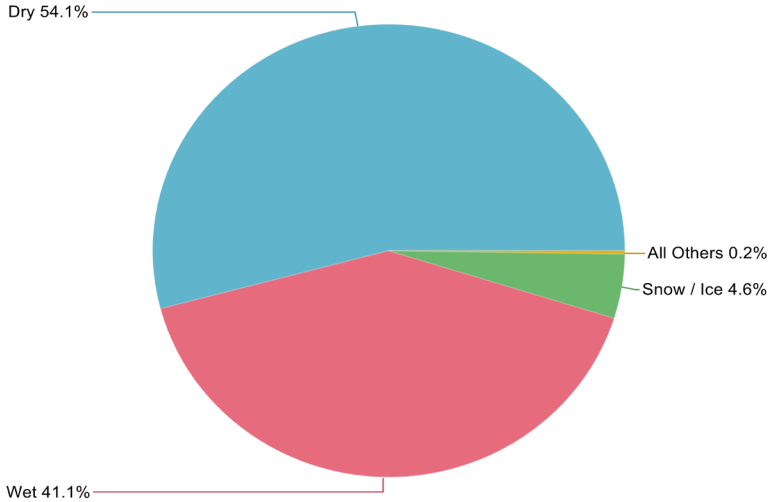
Collisions by Road Surface and Lighting Conditions

The number of collisions during non-dry conditions on the LINC is 21.4% of all collisions for 2017–2021, which is consistent with Provincial averages. The number of collisions during non-dry conditions has been steady in 2017–2021 compared to 2016–2020.



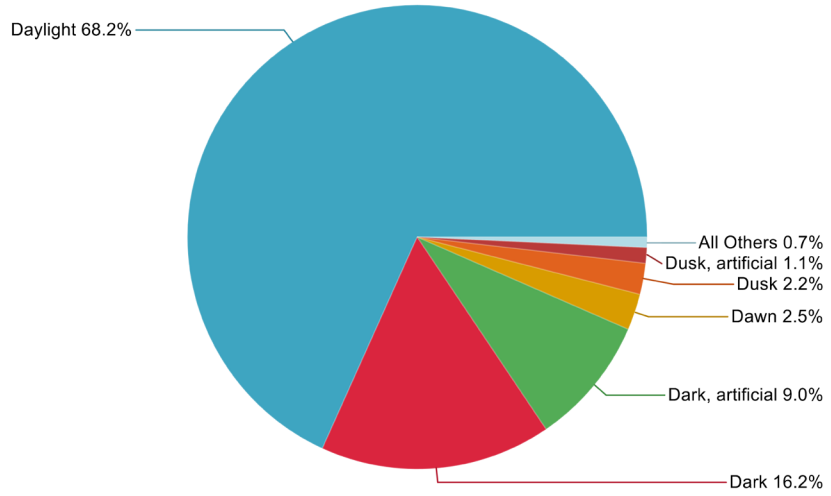
Collisions by Road Surface Condition, 5 Years - LINC (2017–2021)

The number of collisions during non-dry conditions on the RHVP for 2017–2021 is 45.7% of all collisions. This is higher than Provincial averages, but lower than in 2016–2020 (57.8%) and significantly reduced from 2015–2019 (64.1%).

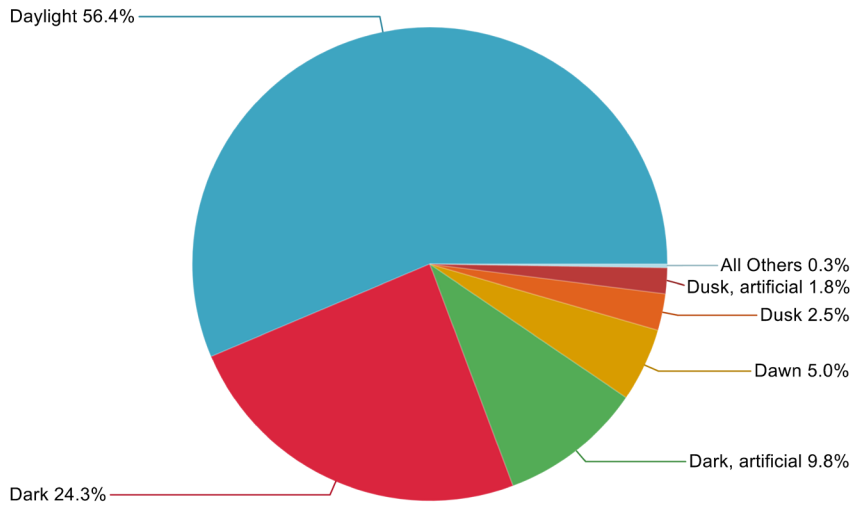


Collisions by Road Surface Conditions - Red Hill Valley Parkway (2017–2021)

The percentage of collisions during daylight hours on the LINC is 68.2%, which is consistent with the rest of the City (66.4%). The percentage of collisions during daylight hours on the RHVP is 56.4%.



Collisions by Lighting Conditions, 5 Years - LINC (2017–2021)



Collisions by Lighting Conditions, 5 Years - Red Hill Valley Parkway (2017–2021)

Collisions by Impact Type

The prominent collision type on the LINC and the RHVP was rear end (68.1% and 46.7% 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 (18.9%). On the RHVP, single motor vehicle collisions constitute the second highest collision type (29.9%).

Drivers

In 7.2% of all collisions reported by police on the LINC at least one driver lost control during 2017–2021. By comparison, in 15.8% of all collisions reported to police on the RHVP, at least one driver lost control. These precentages have remained the same compared to the 2016–2020 period.

On the LINC and RHVP, 19.8% and 17.3% of collisions respectively were speed-related during 2017–2021. The months with the highest number of speed-related collisions on the LINC and the RHVP were December and November respectively.