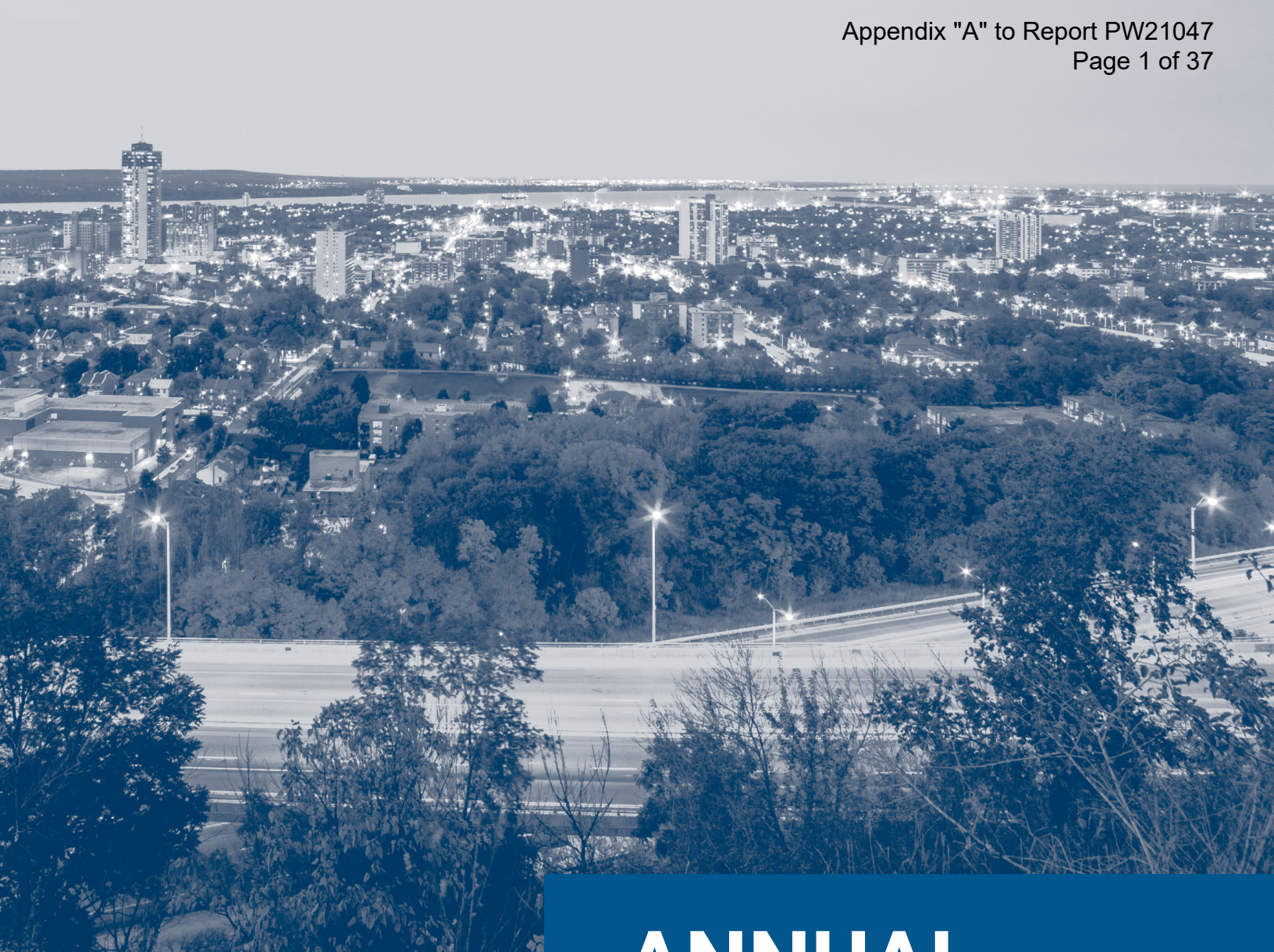




Hamilton
Public Works

ANNUAL COLLISION REPORT 2020

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Executive Summary

This report presents an overview of road safety in the City of Hamilton based on the latest five years (2016 - 2020). Where necessary, ten years of collisions (2011-2020) were used to provide the bigger picture. The analysis was conducted for collisions occurring on the City road network. The 2020 collision statistics should be viewed with the COVID-19 pandemic 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 past 10 years (except for 2020) while the number of fatal and injury collisions has decreased since 2016.
- There was a reduction of 33.2% in the total number of collisions and a reduction of 22.5% in fatal and injury collisions in 2020 compared to 2019.
- There was a reduction of collisions of 54% and 41% on the Lincoln M. Alexander Parkway (LINC) and Red Hill Valley Parkway (RHVP) respectively and a reduction of 83.3% and 60.0% in fatal and injury collisions in 2020 compared to 2019.
- While the City of Hamilton experiences around 8576 collisions per year on average, there were 6612 in 2020.
- The number of fatal collisions has fluctuated between 11 and 20 in the past 10 years without any patterns.
- In 2020, 1,558 people were injured in 1,149 collisions, and among those 13 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 (74%) occurred on dry surface conditions. Collisions occurred on wet and snow/ice covered road surfaces were 18.8% and 6.9% respectively. This is consistent and even better than provincial averages.
- Percentage of collisions occurred during non-dry conditions on the Red Hill Valley Parkway in 2016-2020 (57.8%) has significantly reduced from 2015-2019 (64.1%). The number of collisions during non-dry conditions on the LINC are consistent with provincial averages and did not reveal any unusual trends.
- The majority of collisions occurred during daylight condition (64.7%). This percentage is less than provincial averages (approximately 72%).
- Single Motor Vehicle (SMV) collisions constituted 42.8% of total collisions on road sections followed by rear-end collisions (22.4%).
- Rear-end collisions were the largest type of collisions (43%) at signalized intersections. This is consistent with other jurisdictions. The second largest type of collision is sideswipe (20.6%).

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 June, July, August, September, and October experienced the highest numbers of fatal and injury collisions based on 2016-2020 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. In Hamilton, 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 the weekend are different from the 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.

Spatial Trends

The following spatial trends were noted:

- Urban areas experienced 92% of all collisions and 66% of all fatal collisions based on 2016-2020 data.
- The intersection of King Street East and Victoria Avenue South experienced the highest number of fatal and injury collisions (29 fatal and injury collisions from 2016-2020).
- The section of the Red Hill Valley Parkway Northbound, within the King Street interchange, experienced the largest number of fatal and high injury collisions from 2016-2020.
- The road section along Queenston Road between plaza entrance and Nash Road experienced the second largest number of fatal and injury collisions (22 fatal and injury collisions from 2016-2020).
- The intersection of Dundurn Street South and King Street West experienced the highest number of fatal and injury pedestrian collisions (11 fatal and injury collisions from 2016-2020).
- 60.1% of all collisions occurred at intersections. Among those, 65.8% occurred at signalized intersections and 29.6% 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 192 and 295 in the past 10 years. In 2020, the City experienced 192 pedestrian collisions which is 21.7% fewer than 2019 pedestrian collisions.

- The number of cyclist collisions has fluctuated between 128 and 193 in the past 10 years with a generally decreasing trend starting from 2016. In 2020, the number of cyclist collisions increased by 2% compared to 2019. For context, all other collisions decreased in 2020 compared to 2019.
- The largest number of pedestrian collisions occur in the month of January. In most Ontario municipalities, the largest number of pedestrian collisions occurs in November.
- The largest number of cyclist collisions occurred from June to August.
- The largest number of pedestrian and cyclist collisions occur on Tuesdays.
- 90.7% of all pedestrian collisions resulted in an injury in 2016-2020 while 1.7% resulted in a fatality.
- 78.7% of all cyclists involved in a collision sustained injury (including 0.2% fatal injury).
- 71.7% of pedestrian collisions occur at intersections, and among those, 70.9% occur at signalized intersections.
- 65.4% of cyclist collisions occur at intersections among those, 51.9% occur at signalized intersections.
- A review of driver actions involved in pedestrian and cyclist collisions show that 42.8% and 26.5% of drivers failed to provide the right of way to pedestrians and cyclists respectively. Additionally, 12.2% of drivers committed improper turns in cyclist collisions.
- In 25.8% 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 to 17.1% of fatal and injury collisions.
- Drug and alcohol was a contributing factor in 3.4% of fatal and injury collisions.
- Speeding accounted for 17.2% of all police reported collisions. The percentages of speed related collisions on the Lincoln M. Alexander Parkway and the Red Hill Valley Parkway are 41% and 31% respectively.
- The average operating speed along the Red Hill Valley Parkway and the LINC are similar with slight increase in speed in 2020.
- The Hamilton Police Services (HPS) initiated a supplementary voluntary paid duty program in 2019 to increase enforcement on the Red Hill Valley Parkway. This program resulted in 6,554 tickets including 4,706 tickets for speeding in the 80 km/h posted speed limit zone and 625 tickets in the 90 km/h zone.

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 reporting form. The term “self-reported” refers to a collision reported by citizens involved in property damage collisions that do 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

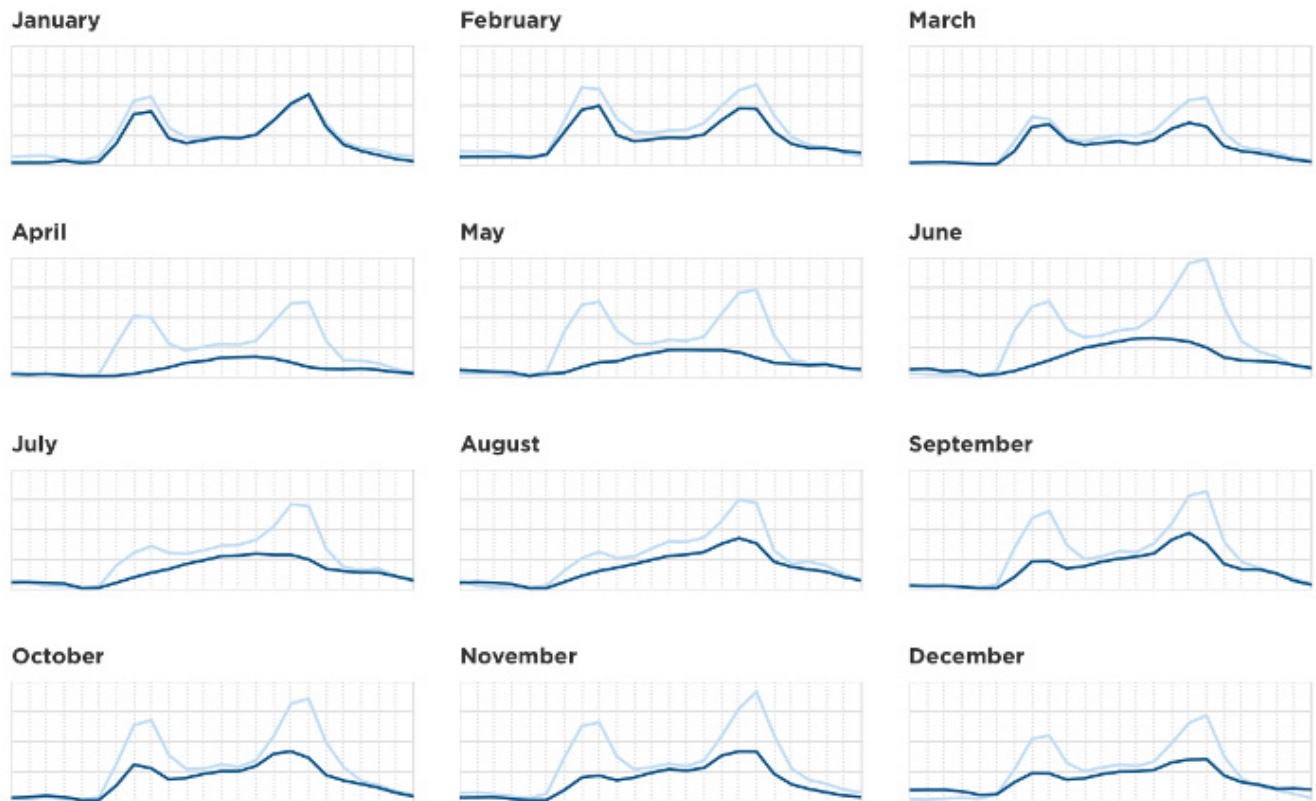
On March 17, 2020, the Government of Ontario declared a state of emergency due to the COVID-19 pandemic and ordered gradual closure of businesses and facilities. As a result of the state of emergency and subsequent stay at home orders from the Province, the City of Hamilton, similar to other jurisdictions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

The official 2020 collision statistics have not yet released by the Province. Ontario Provincial Police (OPP) have announced that “there were fewer traffic collisions in 2020 but fatalities reached historic highs¹.” It appears that the total collisions in 2020 decreased by 26% compared to 2019 but the number of fatalities increased by 22% in 2020 compared to 2019. The OPP believes that the increase in fatalities is attributable to careless and dangerous driving (speeding). It should be noted that at the time of the preparation of this report, the pandemic is an ongoing issue in the Province and the stay-at-home order is in effect. The implications of the pandemic on collisions, traffic volumes, and traffic pattern are not yet fully understood. It is quite conceivable that the pandemic may have had a wide variety of impacts on traffic.

The following figure compares the extent of traffic volumes in 2019 and 2020 for each month of year. This figure supports that the City of Hamilton experienced reductions in traffic volumes during the months of April through December in 2020.

¹ <https://globalnews.ca/news/7699349/ontario-provincial-police-traffic-collisions-fatalities-2020/>

Work Day Travel Patterns by Month



How to read these charts?

— 2019
— 2020

Average congestion level



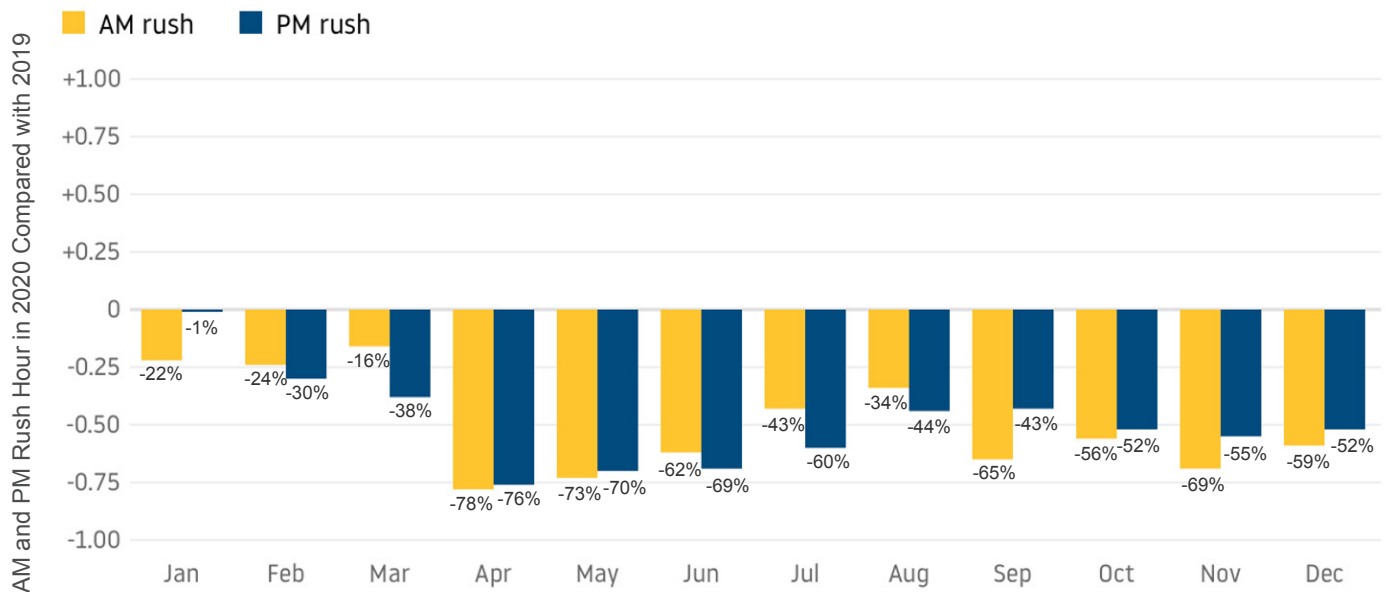
Hour (24h)



How the travel patterns looked during the work days in 2020 and 2019

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

The figure below shows the reduction of AM and PM rush hours traffic for each month in 2020 compared to 2019. The level of congestion in the City of Hamilton decreased significantly during the AM and PM rush hours in 2020 compared to 2019 due to the COVID-19 pandemic and the stay-at-home order from the Province. More reduction in the level of congestion was observed April, May, and June.



AM and PM Rush Hours Traffic in 2020 Compared to 2019



Overall, there was approximately a 50 percent average reduction in traffic during the morning and afternoon rush hour.

Reference: https://www.tomtom.com/en_gb/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 536,930 (2016 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 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 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 2016-2020 collision data. Where necessary, 10-year collision statistics for 2011-2020 are reported.





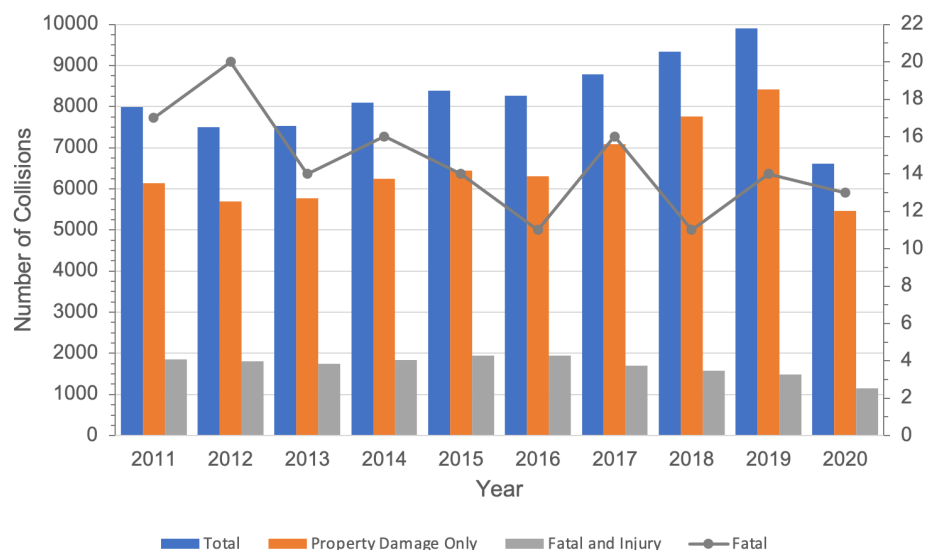


SECTION 1

Collision Trends (2016-2020)

Frequency and Severity

A review of the City's collision data shows that the total number of collisions has continuously increased in the past 10 years (except for 2020) while the number of fatal and injury collisions has decreased since 2016. The number of fatal collisions fluctuated between 11 and 20 in the past 10 years where the highest occurred in 2012. In 2020, there was a reduction of 33.2% in the total number of collisions and a reduction of 22.5% in fatal and injury collisions compared to 2019. In 2020, the City of Hamilton experienced 13 fatal collisions.



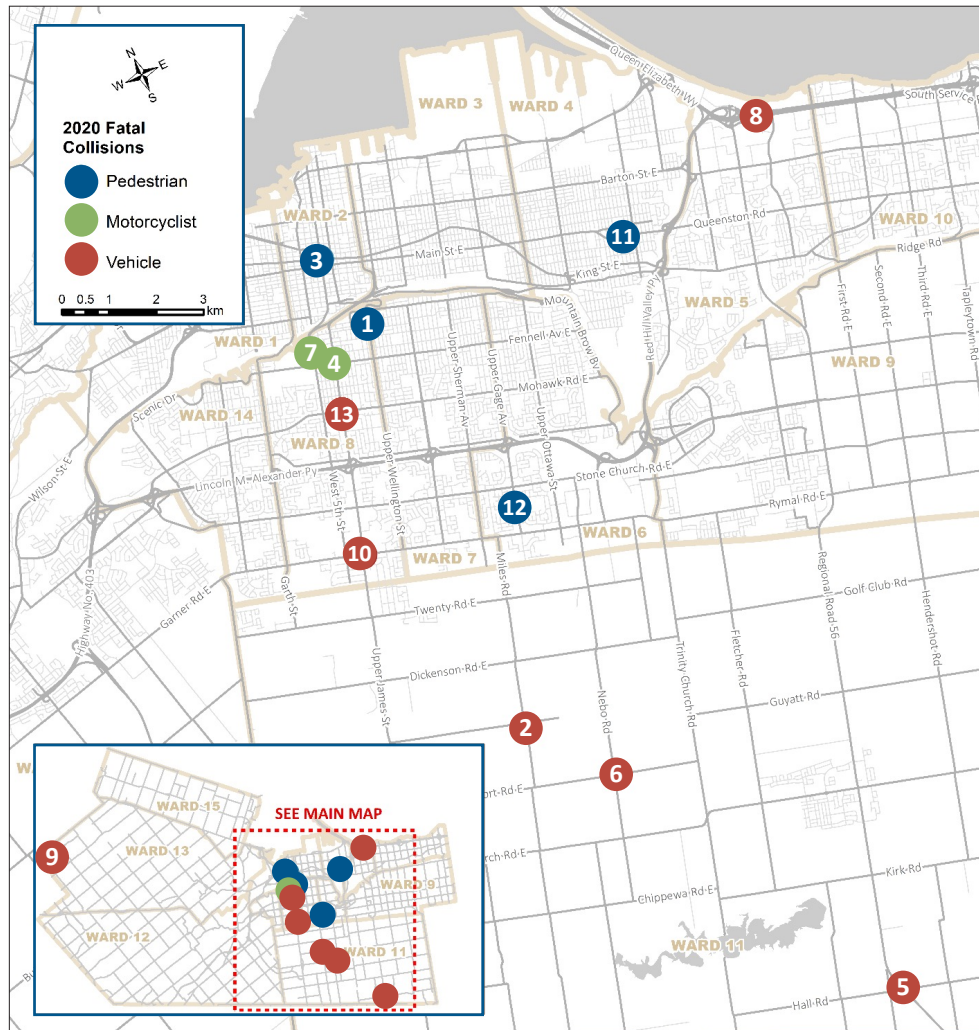
Collisions Frequency (2011-2020)

Year	Total Collisions	Fatal Collisions	Fatal and Injury Collisions	Property Damage Only Collisions
2011	7985	17	1852	6133
2012	7503	20	1815	5688
2013	7529	14	1754	5775
2014	8095	16	1846	6249
2015	8385	14	1945	6440
2016	8259	11	1947	6312
2017	8781	16	1698	7083
2018	9333	11	1572	7761
2019	9896	14	1483	8413
2020	6612	13	1149	5463

In 2020, fatal collisions included seven occupants of vehicles, four pedestrians, and two motorcyclists spread in the City. Eight fatal collisions occurred at intersections and five fatal collisions occurred on road sections. No cyclist experienced fatality in 2020.

The total number of people injured in collisions consistently decreased in the past 5 years. In 2020, 1,558 people were injured in 1,149 collisions and among those, 13 people were fatally injured and 67 suffered from a major injury.

The Map of Locations with Fatal Collisions in 2020



Location and Date of Fatal Collisions in 2020

2020 Fatal Collisions	
1	Upper Wellington Street between Inverness and Vola • January 12, 2020
2	Miles Road between Airport and English Church • March 22, 2020
3	King Street West at Upper James Street • April 7, 2020
4	Fennell Avenue West at Upper James Street • May 16, 2020
5	Hall Road at Regional 56 Road • May 21, 2020
6	Airport Road East at Nebo Road • June 3, 2020
7	Brantdale Avenue at West 5th Street • August 3, 2020
8	South Service Road • August 28, 2020
9	Concession 10 West between Foreman and Pioneer • August 31, 2020
10	Rymal Road West at Upper James Street • October 2, 2020
11	Queenston Road between Isabel and Modena • October 18, 2020
12	Royalvita Drive at Upper Gage Avenue • December 1, 2020
13	Mohawk Road West at Upper James Street • December 22, 2020

Urban areas constituted 92% of all collisions and 66% of fatal collisions based on 2016-2020 data.

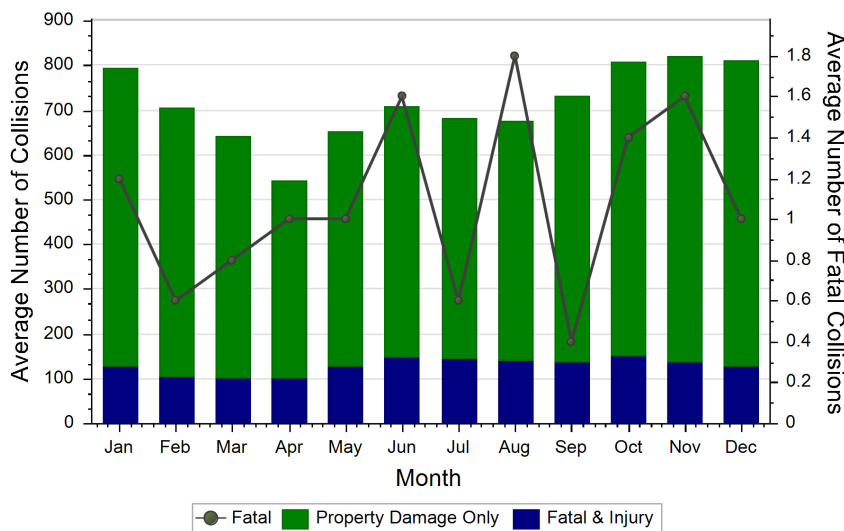
- City of Hamilton experiences around 8576 collisions per year, on average.
- Average number of fatal and injury collisions is 1,570 collisions per year over the last 5 years.
- The number of fatal and injury collisions have been decreasing in the past 5 years on average (1,149).
- The number of people injured in collisions has consistently decreased in the past 5 years.
- The total number of collisions are consistently increasing in Hamilton, 2020 excepted.
- While total number of collisions were reduced by 33.2% in 2020 compared to 2019, the number of fatal and injury collisions were reduced by 22.5%.
- In 2020, 1,558 people injured in 1,149 collisions among those 13 people were fatally injured.

- 39% of collisions occurred during October, November, December and January.
- Most fatal and injury collisions occurred during Fridays.

Month, Day, and Time of Collisions

The largest number of collisions occurred during the months of October, November, December, and January. In fact, 39% of total collisions (2016-2020) took place during these four months which is consistent with Provincial averages.

The months of June, July, August, September, and October experienced the highest numbers of fatal and injury collisions based on 2016-2020 collision data.



Collisions by Month, 5 Year Average (2016-2020)

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

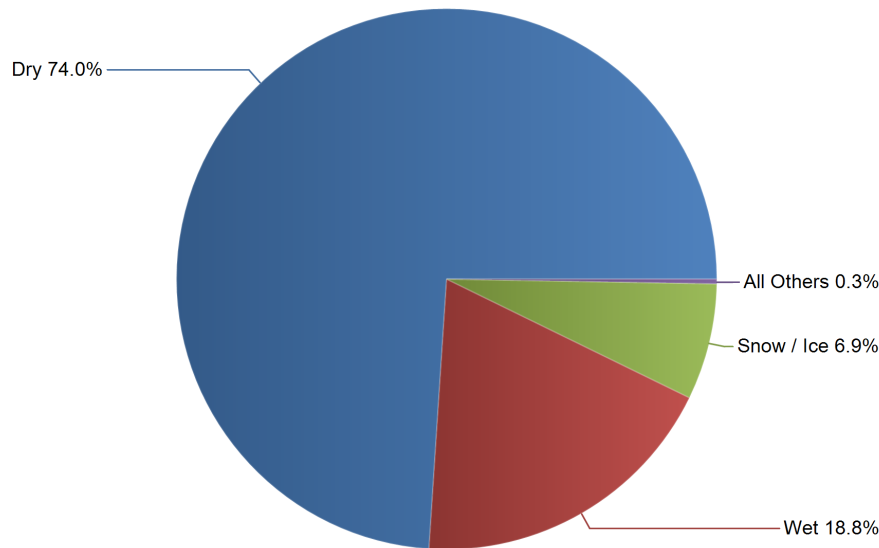
During weekdays, there is a strong correlation between the peak periods of traffic and the number of collisions. Most collisions regardless of their severity occurred in the PM peak of traffic (3:00 PM – 5:00 PM), mid-day peak of traffic (around noon), and AM peak of traffic (8:00 AM – 9:00 AM).

The pattern of collisions during the weekend are different from the 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

Water, ice, or snow reduce the friction between tires and the road surface. The reduced friction can contribute to collisions. A road and drainage designed according to standards in conjunction with proper road maintenance ensures that the rain run-off is quickly drained from the road surface.

The majority of collisions (74%) occurred on dry surface conditions. Collisions that occurred on wet and snow/ice covered road surfaces were 18.8% and 6.9% respectively. These percentages are similar to Provincial averages.



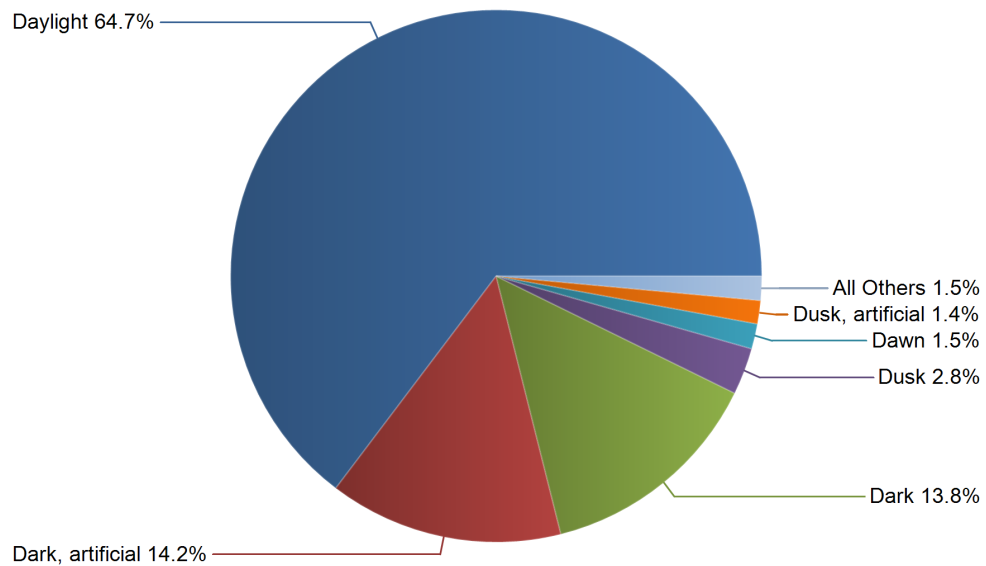
Collisions by Road Surface Condition, 5 Years (2016-2020)

While the majority of collisions occurred during daylight conditions (64.7%) in 2016-2020, this percentage is smaller than that of Provincial averages (approximately 72%).

In urban areas, 16% of all collisions occurred during dark conditions (night or non-illuminated). In rural areas, 35% of all collisions occurred during dark conditions.

- The majority of collisions (74%) occurred on dry surface conditions.
- Collisions occurred on wet and snow/ice covered road surfaces were 18.8% and 6.9% respectively.

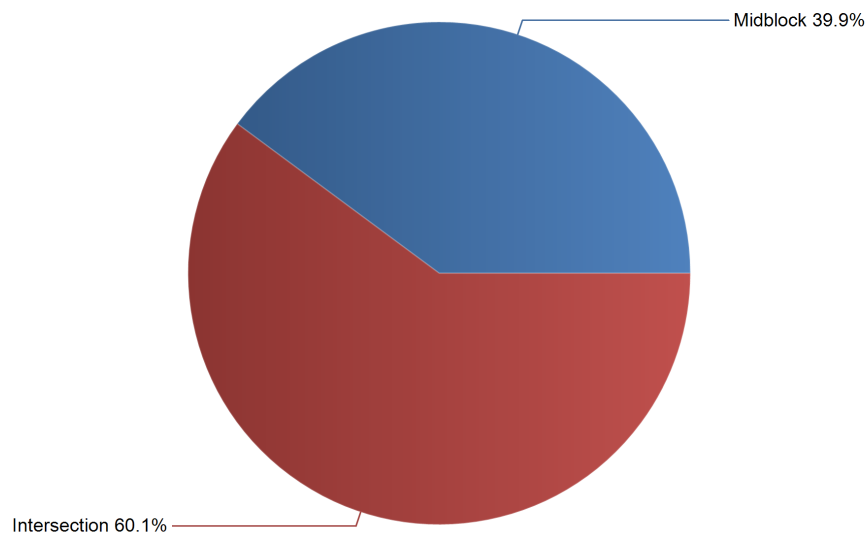
- 64.7% of all collisions occurred during day light conditions. This number is smaller than typical values for Ontario.
- 60.1% of all collisions occurred at intersections. Among those, 65.8% occurred at signalized intersections and 29.6.% occurred at stop controlled intersections.



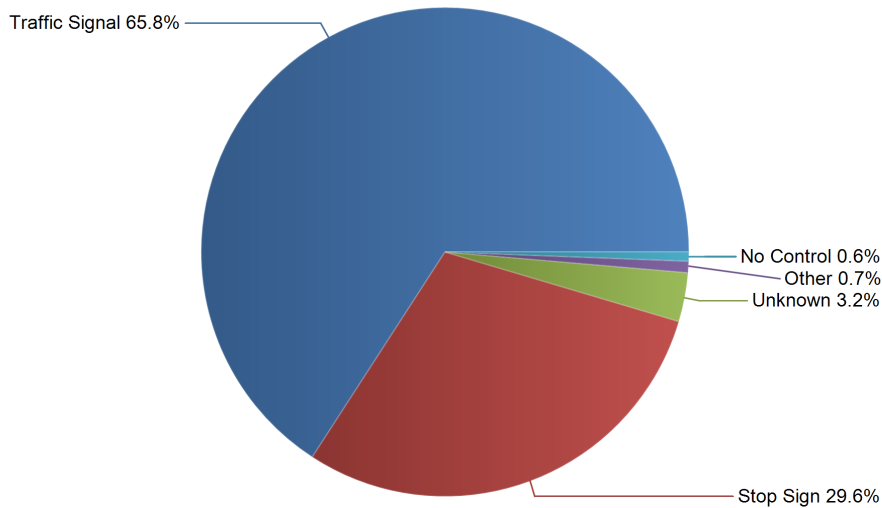
Collisions by Lighting Condition, 5 Years (2016-2020)

Collision Impact Type by Site Type and Traffic Control

Collisions that occurred at intersections or were intersection related constituted more than half of total collisions (60.1%). This observation is consistent with other municipalities as intersections are major conflict points in a transportation network. Among those intersection collisions, more than half took place at signalized intersections.



Collisions by Location, 5 Years (2016-2020)



Intersections Collisions by Traffic Control Type, 5 Years (2016-2020)

A review of fatal and injury collisions at intersections and midblocks shows that more fatal collisions occurred on midblocks but more injury collisions happened at intersections.

Single Motor Vehicle (SMV) collisions (SMV unattended and SMV other¹) constituted 42.8% of total collisions on midblocks followed by rear-end collisions (22.4%).

Rear-end collisions were the largest type of collisions (43.0%) at signalized intersections. This is consistent with other jurisdictions in Ontario. The second largest type of collision is sideswipe at signalized intersections (20.6%) followed by angle collisions (15.2%). In most municipalities, the percentage of angle collisions is the second largest at signalized intersections. It appears that the City of Hamilton experienced usually high proportion of sideswipe collisions at signalized intersection.

At stop controlled intersections, angle collisions were the largest type of collisions (29.2%) followed by rear-end collisions (26.3%).

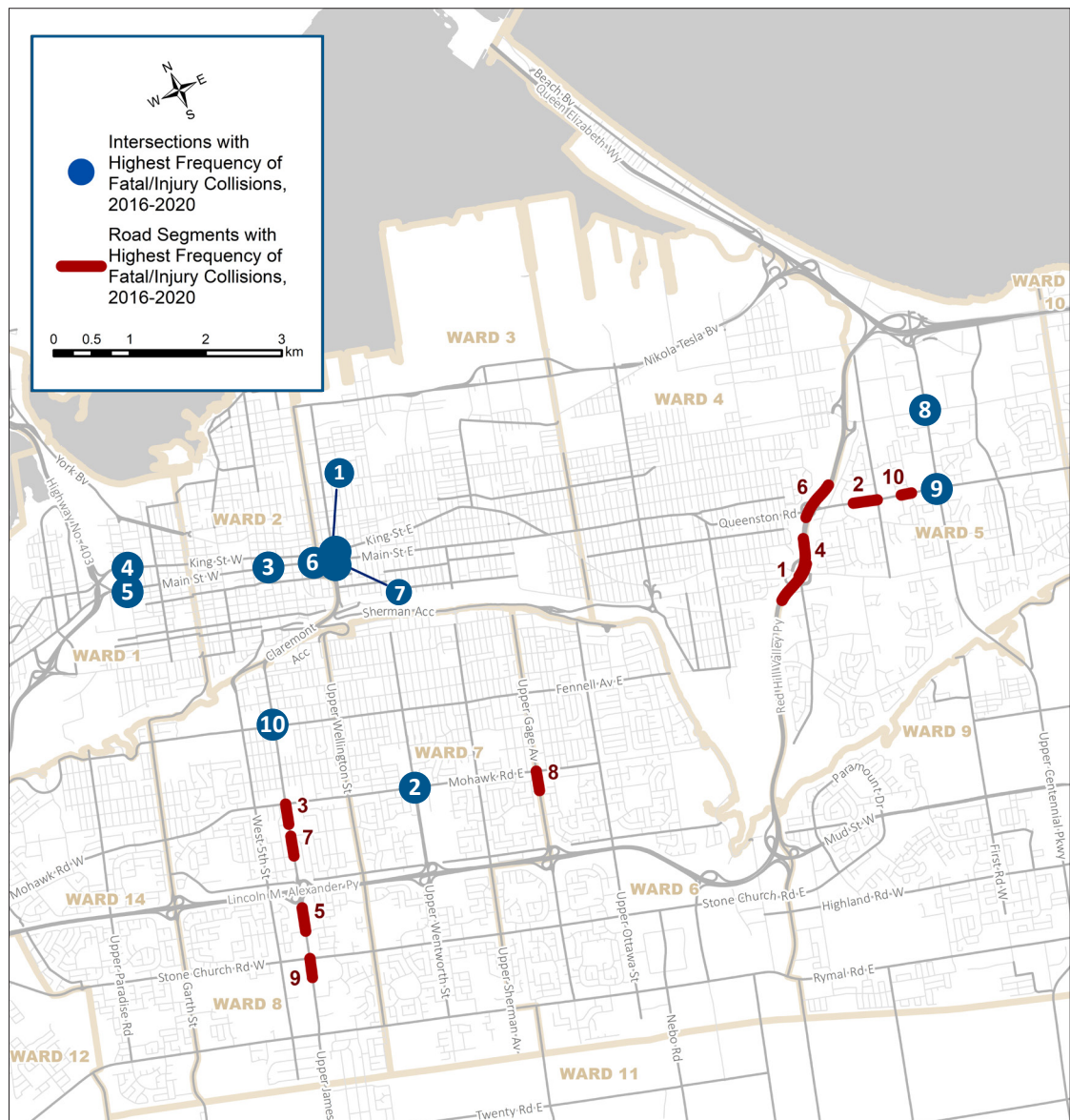
- Rear-end collisions were the largest type of collisions (43.0%) at signalized intersections followed by sideswipe collisions (20.6%). It appears that the proportion of sideswipe collisions at signalized intersections are unusually high.
- Angle collisions were the largest type of collisions (29.2%) at stop controlled intersections followed by rear end collisions (26.3%).
- 42.8 % of total collisions on midblocks are SMV collisions followed by rear-end collisions (22.4%).

¹ 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.

High Frequency Locations

A review of the City's collision data shows that the total number of collisions have been increasing in the past 10 years (except for 2020) while the number of fatal and injury collisions started to decrease from 2016. In 2020, a reduction of 33.2% in total number of collisions compared to 2019 was observed.

Map of Intersections and Road Segments with Highest Frequency of Fatal and Injury Collisions, 5 Year Average (2016-2020)



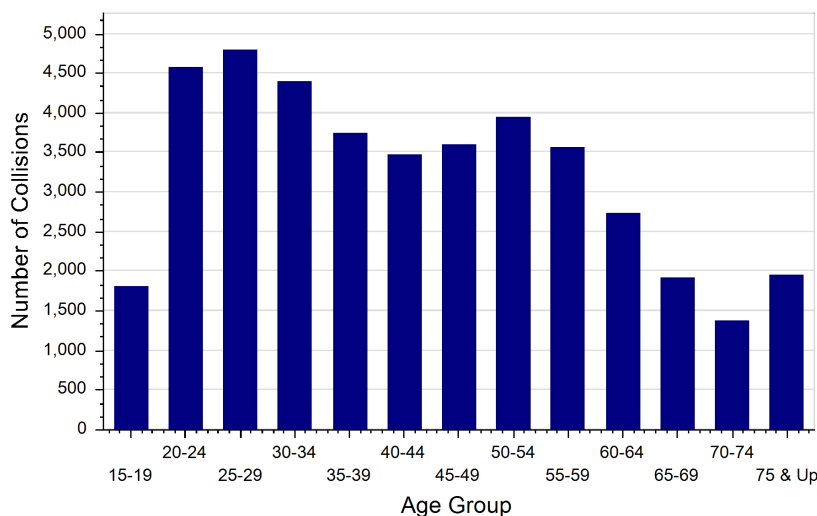
**Intersections and Road Segments with Highest Frequency of
Fatal and Injury Collisions, 5 Year Average (2016-2020)**

Intersection		Collision Frequency
1	King Street East at Victoria Avenue South	29
2	Mohawk Road East at Upper Wentworth Street	28
3	John Street South at Main Street East	27
4	Dundurn Street South at King Street West	26
5	Dundurn Street South at Main Street West	25
6	Main Street East at Wellington Street South	25
7	Main Street East at Victoria Avenue South	24
8	Barton Street East at Centennial Parkway North	23
9	Centennial Parkway South at Queenston Road	23
10	Fennell Avenue West at Upper James Street	23
Road Segments		Collision Frequency
1	Red Hill Valley Parkway Northbound between Ramp King to Red Hill Valley Parkway Northbound and Ramp Red Hill Valley Parkway Northbound to King	26
2	Queenston Road between Nash Road North and Plaza Entrance	22
3	Upper James Street between Lotus Avenue and Mohawk Road East	20
4	Red Hill Valley Parkway Southbound between Ramp King to Red Hill Valley Parkway Southbound and Ramp Red Hill Valley Parkway Southbound to King	18
5	Upper James Street between Blossom Lane and Ramp Upper James Northbound to the Lincoln M. Alexander Parkway Eastbound	14
6	Red Hill Valley Parkway Southbound between Ramp Queenston to Red Hill Valley Parkway Southbound and Ramp Red Hill Valley Parkway Southbound to Queenston Road	13
7	Upper James Street between Hester Street and Jameston Avenue	13
8	Upper Gage Avenue between Foley Street and Mohawk Road East	12
9	Upper James Street between Plaza Entrance and Stone Church Road East	12
10	Queenston Road between Clapham Road and Greenford Drive	11

- 33% of all drivers were 20-34 years old.
- Drug and alcohol contributed to 6% of all collisions in 2016-2020.
- Drug and alcohol contributed to 3.4% of fatal and injury collisions in 2016-2020.

Drivers

Research shows that among the three factors of drivers, roads, and vehicles, drivers have the largest contribution to collisions. A review of the ages of all drives involved in collisions show that 33% of all drivers age were between 20 and 34 years old. Also, significantly more number of male drivers are involved in collisions than female drivers.

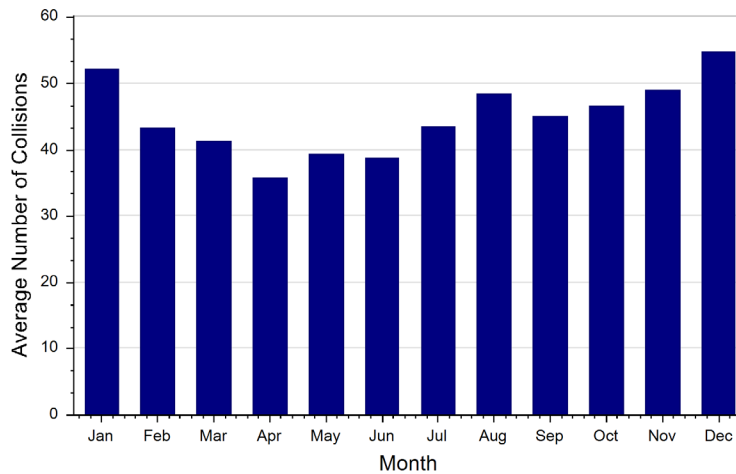


Collisions by Driver Age, 5 Years (2016-2020)

Distracted driving is one of the leading contributing factors to collisions in many jurisdictions including the Province of Ontario. It is difficult to identify whether a driver, cyclist, or pedestrian was distracted at the time of a collision. Based on the observations made by the police officers, in 16.7% of all collisions and in 17.1% of fatal and injury collisions, drivers were inattentive (distracted) in 2016-2020. It is quite conceivable that the actual percentage of distracted driving collisions is likely higher.

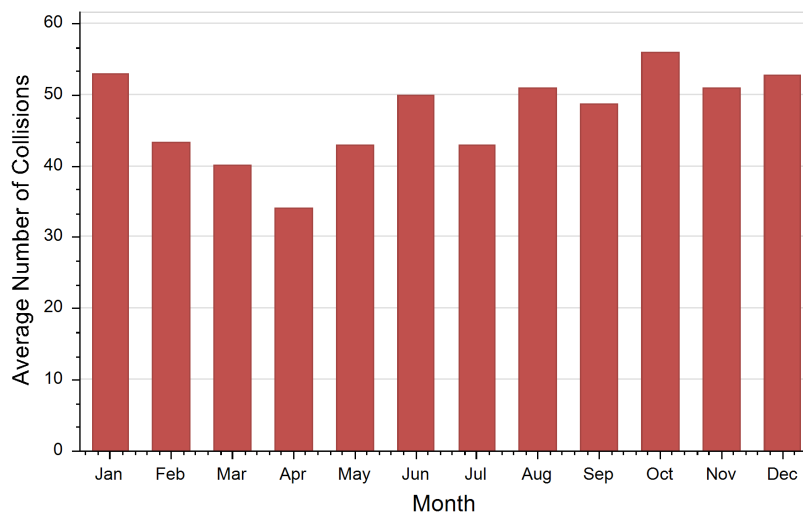
A review of driver conditions show that drug and alcohol likely contributed to 6% of total collisions and 3.4% of fatal and injury collisions.

Several factors might contribute to drivers losing control and resulting in collisions including distraction, speeding too fast for conditions, road surface conditions, lack of adequate warnings, vehicles mechanical deficiencies, among others. It appears that the winter months (January and December) experienced the largest number of collisions resulting from drivers losing control. Overall, the lost control type collisions constituted 16% of all police reported collisions.



**Lost Control Collisions by Month,
5 Year Average (2016-2020) - 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) speed too fast, or (3) exceeding speed limit, the collision is categorized as speed related. These factors are all an indication of aggressive driving where drivers choose speeds too fast for road surface conditions, congestion, or road geometry. Speeding related collisions were 17.2% of police reported collisions in 2016-2020. The months of January and October experienced the largest number of speeding related collisions.



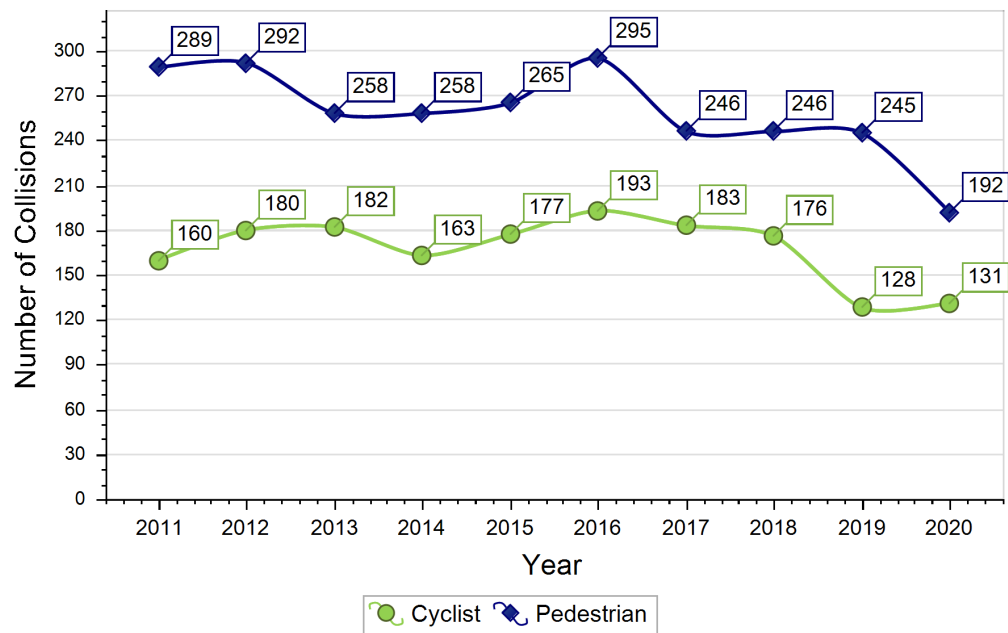
Speed Related Collisions by Month, 5 Year Average (2016-2020)

- 17.1% of fatal and injury collisions, drivers were inattentive (distracted).
- Months of January and December experienced the largest number of lost control type collisions.
- 16% of police reported collisions, drivers lost control of their vehicle.
- Speeding related collisions account for 17.2% of all police reported collisions.

Pedestrian and Cyclist Collisions

Pedestrians and cyclist collisions often result in injury or fatality. The City strives to create a safe road network for pedestrians and cyclists. The number of pedestrian collisions fluctuated between 192 and 295 in the past 10 years. In 2020, the City experienced 192 pedestrian collisions which is 21.7% less than 2019. It should be noted that total collisions reduced 33.2% in 2020 compared to 2019. The number of pedestrian collisions were not reduced as much as the total number of collisions.

The number of cyclist collisions has fluctuated between 128 and 193 in the past 10 years with a generally decreasing trend starting from 2016. In 2020, the number of cyclist collisions increased by 2% compared to 2019. All other collisions decreased in 2020 compared to 2019.

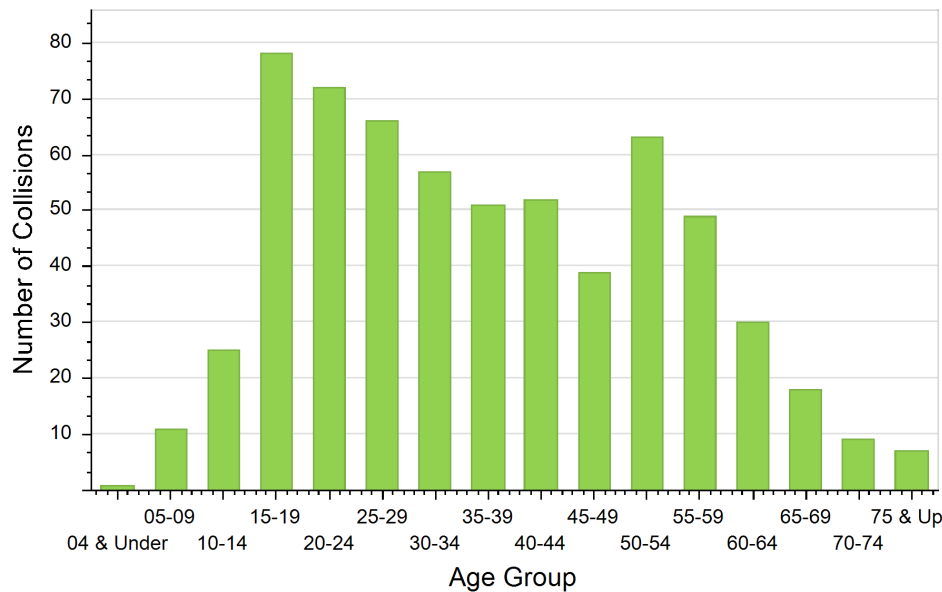


Collisions Involving Pedestrians and Cyclists (2011-2020)

The largest number of pedestrian collisions occurred in the month of January followed by October in 2016-2020. 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.

Tuesdays experienced the largest numbers of pedestrian and cyclist collisions among all days of a week in 2016-2020.

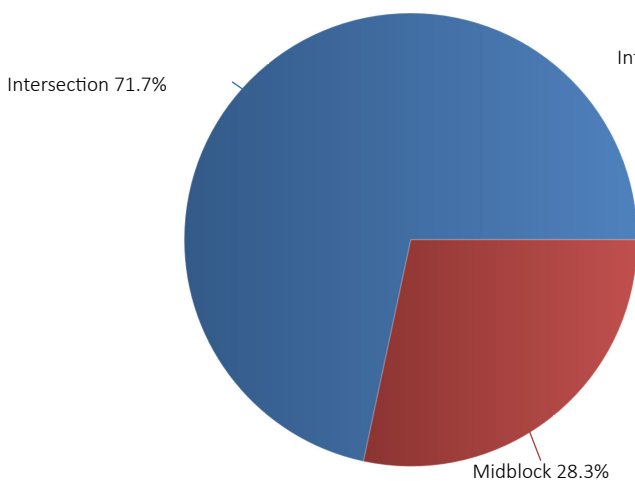
Cyclists in the age group of 15-19 experienced the largest number of cyclist collisions followed by 20-24 age groups.



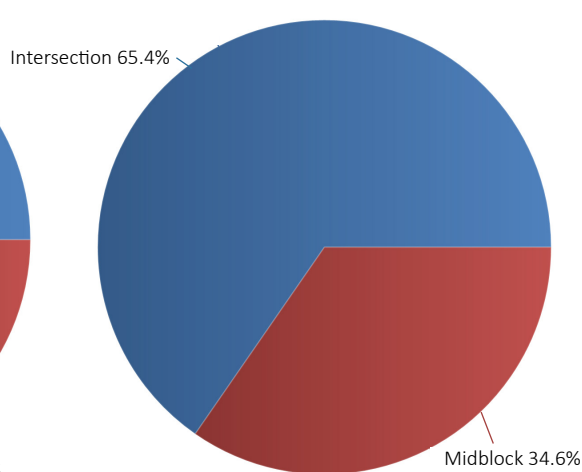
Cyclist Collisions by Cyclist Age, 5 Years (2016-2020)

90.7% of all pedestrian collisions resulted in injury in 2016-2020 while 1.7% resulted in fatality. 78.7% of all cyclists involved in a collision sustained injury (including 0.2% fatal injury).

A majority of pedestrian and cyclist collisions occurred at intersections (71.7% and 65.4% respectively). Among those pedestrian collisions occurred at intersections, 70.9% occurred at signalized intersections while 28.2% took place at stop controlled intersections. 51.9% of cyclist collisions occurred at intersections happened at signalized intersections. This percentage for those occurred at stop controlled intersections is 45.3%.



Collisions Involving Pedestrian by Location, 5 Year Average (2016-2020)



Collisions Involving Cyclist by Location, 5 Year Average (2016-2020)

A review of driver actions involved in pedestrian and cyclist collisions show that 42.8% and 26.5% of drivers failed the right of way to pedestrians and cyclists respectively. Additionally, 12.2% of drivers committed improper turns in cyclist collisions.

- 192 pedestrian collisions occurred in 2020
- 128 cyclist collisions occurred in 2019, the lowest in the past 5 years
- The number of cyclist collision increased in 2020 compared to 2019 during the pandemic.
- January and October experienced the largest number of pedestrian collisions
- June to August experienced the largest number of cyclist collisions

In 25.8% of pedestrian collisions at midblocks (non-intersection locations), pedestrians were walking on road shoulders or sidewalks. This observation can potentially be used to add or improve sidewalks. Also, in 17.7% of pedestrian collisions at midblock locations, the pedestrian did not have right of way (i.e. jay walking). 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, 5 Year Average (2016-2020)



Intersections and Road Segments with the Highest Frequency of Pedestrian Fatal and Injury Collisions, 5 Year Average (2016-2020)

Intersections		Collision Frequency
1	Dundurn Street South at King Street West	11
2	Fennell Avenue West at Upper James Street	9
3	Barton Street East at Lottridge Street	8
4	Main Street East at Wentworth Street South	7
5	Dundurn Street South at Main Street West	7
6	John Street South at Main Street East	7
Road Segments		Collision Frequency
1	Barton Street East between Ferguson and Wellington Street North	4
2	King Street West between Caroline Street South and Hess Street South	4
3	Queenston Road between Nash Road North and Plaza Entrance	4
4	Barton Street East between East Avenue North and Victoria Avenue North	3
5	King Street East between Ashley and Steven Street	3
6	King Street West between Dundurn and New Street	3
7	Macnab Street South between King Street West and Main Street West	3
8	Wentworth Street North between Bristol Street and Cannon Street East	3



Intersections with Highest Frequency of Cyclist Fatal/Injury Collisions, 2016-2020

Road Segments with Highest Frequency of Cyclist Fatal/Injury Collisions, 2016-2020

0 0.5 1 2 3 km

**Intersections and Road Segments with the Highest Frequency
of Cyclist Fatal and Injury Collisions, 5 Years (2016-2020)**

Intersections		Collision Frequency
1	Cannon Street East at Wellington Street North	9
2	Barton Street East at Centennial Parkway North	6
3	Queenston Road at Ramp Queenston Eastbound to Red Hill Valley Parkway Northbound	5
4	Cannon Street East at Gibson Avenue	5
5	Cannon Street East at Mary Street	5

Road Segments		Collision Frequency
1	Cannon Street East between Wellington Street North and West Avenue North	3
2	Barton Street East between Bellmanor Street and Brockley Drive	2
3	Barton Street East between Centennial Parkway North and Covington Street	2
4	Barton Street East between Connaught Avenue North and Gage Avenue North	2
5	Barton Street East between Elgin Street and Ferguson Avenue North	2
6	Barton Street East between Lottridge Street and Melrose Avenue North	2
7	Barton Street East between Parkdale Avenue North and Woodward Avenue	2
8	Bay Street South between George Street and Main Street West	2
9	Cootes Drive between Main Street West and Ramp Main Westbound to Cootes Northbound	2
10	King Street East between Ferguson Avenue North and Spring Street	2
11	King Street West between Breadalbane Street and Dundurn Street South	2
12	King Street West between Dundurn Street South and New Street	2
13	Main Street West between Macklin Street South and Hwy 403 Bridge	2
14	Queenston Road between Lake Avenue Drive and Club entrance	2
15	Twenty Road West between Garth Street and Silverbirch Blvd.	2
16	Wilson Street between Catharine Street North and Mary Street	2





SECTION 2

Lincoln M. Alexander Parkway and Red Hill Valley Parkway Five Year Collision Trends (2016 – 2020)

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 the posted speed limit of 90 km/hr.

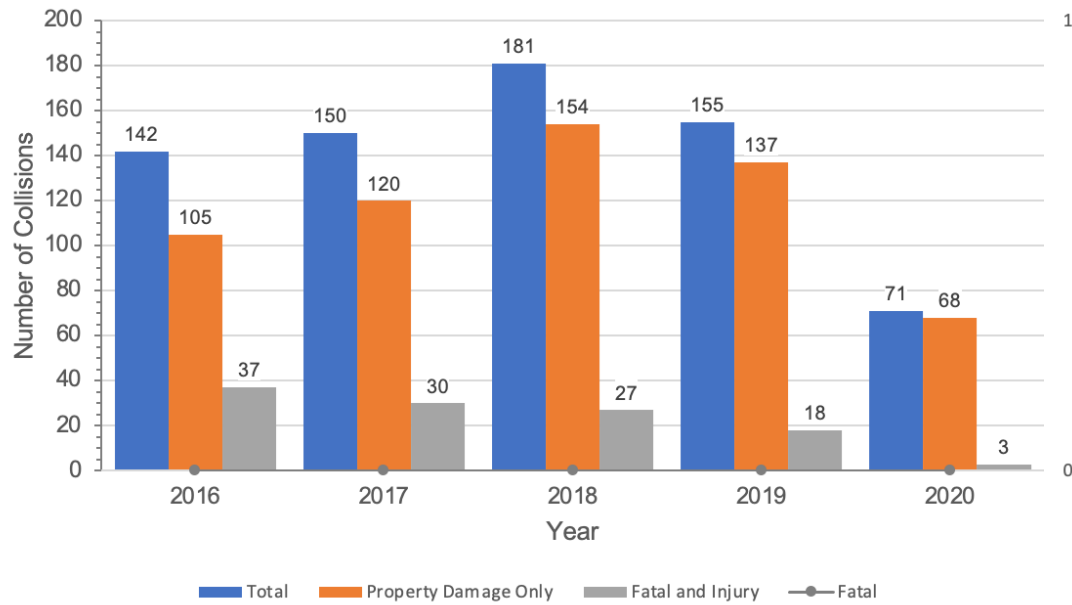
The Red Hill Valley Parkway (RHVP) forms part of a continuous connection from Highway 403 and the QEW in conjunction with the LINC. The RHVP was opened to traffic in 2007. The RHVP serves both intra-city traffic and inter-city traffic connecting the City to Niagara Region and South West Ontario. The RHVP includes six full access interchanges of various design types. In February, 2019, the City reduced the posted speed limit from 90 km/ hr to 80 km/hr on the RHVP between the QEW and Greenhill Avenue.

Frequency and Severity

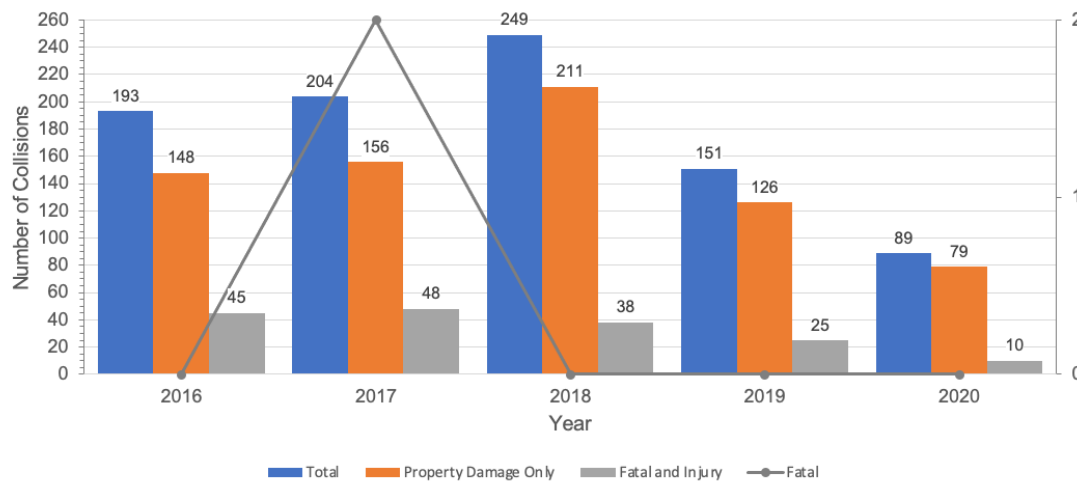
A review of the severity of collisions over the latest five years (2016-2020) identified that the frequency of fatal and injury collisions has decreased on the LINC and the RHVP. It should be noted that in 2019 the RHVP was resurfaced and road safety enhancements were implemented. The number of collisions on the LINC and the RHVP during 2019 should be treated within this context.

The reduction of collisions both on the LINC and the RHVP in 2020 is higher than the reduction of collisions in the entire City. There was a reduction of collisions of 54% and 41% on the LINC and RHVP respectively and a reduction of 83.3% and 60.0% in fatal and injury collisions compared to 2019. There are likely a multitude of factors contributing to these reductions including:

- Hamilton Police Services significantly increased their presence and enforcement activities on the LINC and the RHVP in 2019 and 2020,
- It is quite conceivable that the traffic volumes along the LINC and RHVP decreased more than the average traffic volume within the City of Hamilton due to the reduction of the inter-city traffic on Provincial Highways, and
- The City of Hamilton implemented a number of engineering enhancement measures on the RHVP (resurfacing, guide rail upgrades, delineation signage, lane markings), changed the speed limit to 80 km/hr on a portion of the RHVP and undertook a number of community education campaigns including speeding and distracted driving to increase public awareness regarding roadway safety on the LINC and RHVP.



Collisions Frequency - LINC (2016-2020)

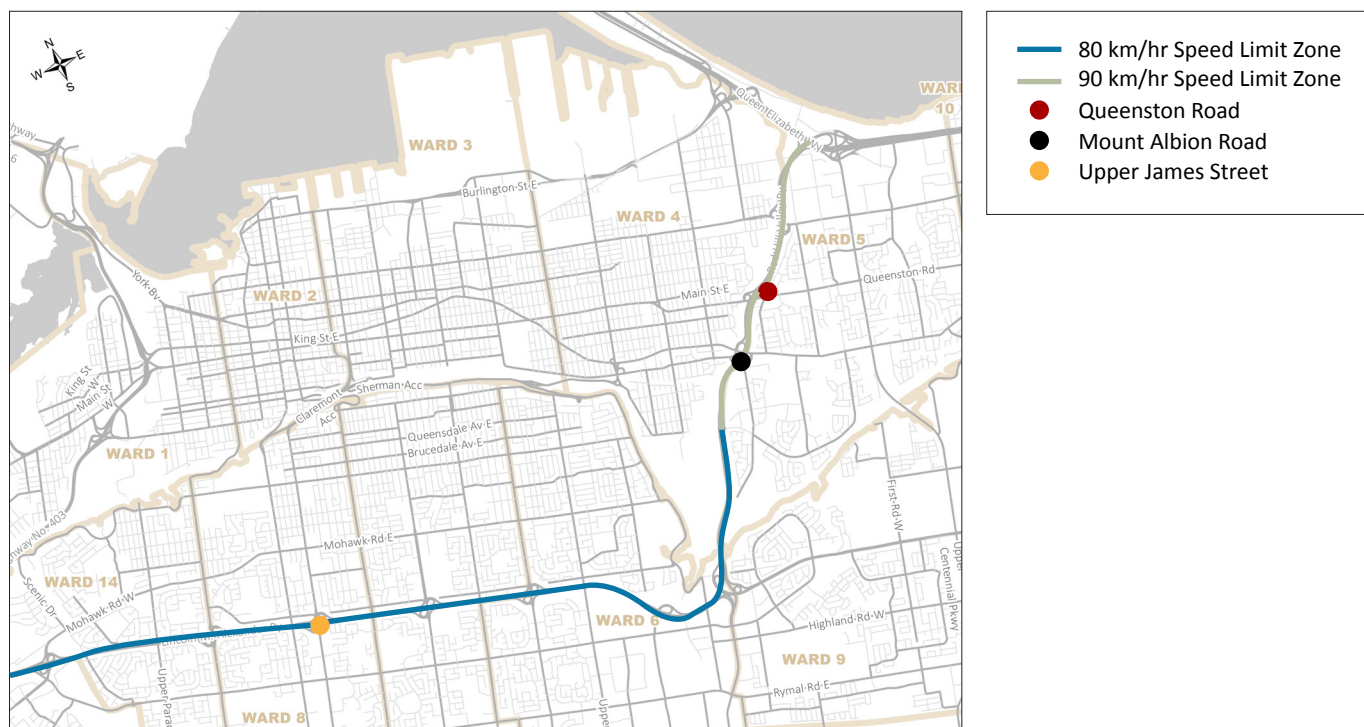


Collisions Frequency - Red Hill Valley Parkway (2016-2020)

Speed and Enforcement

The following figure shows the average operating speed of vehicles¹ in 2019 and 2020 for each direction of travel at specific locations along the LINC and RHVP where the City has installed sensors. In February, 2019, the posted speed limit was reduced from 90 km/hr to 80 km/hr on the RHVP between the QEW and Greenhill Avenue.

A review of speed data collected on the LINC in 2018 revealed that the average operating speeds on the LINC for the westbound and eastbound directions were 98.39 km/h and 98.73 km/h, respectively. The average operating speeds in 2018 on the RHVP for the northbound and southbound directions were 106.08 km/h and 103.87 km/h, respectively. A comparison between the 2018 and 2020 operating speed data on the RHVP shows that the operating speeds for both directions have decreased by more than 15 km/h.



Average Operating Speeds on RHVP and LINC

Location	Average Speed in 2019 (km/h)	Average Speed in 2020 (km/hr)
 RHVP Southbound at Queenston Road	91.32	89.58
 RHVP Southbound at Mount Albion Road	90.90	89.78
 LINC Westbound at Upper James Street	92.19	91.86

Average Operating Speeds on RHVP and LINC

Location	Average Speed in 2019 (km/h)	Average Speed in 2020 (km/hr)
 LINC Eastbound at Upper James Street	100.12	100.64
 RHVP Northbound at Mount Albion Road	87.43	88.27
 RHVP Northbound at Queenston Road	85.68	88.94

¹ Operating speed is referred to the speed at which 15% of drivers choose to exceed per day (85th percentile speed)

The Hamilton Police Services (HPS) commenced a targeted enforcement program along the RHVP on March 25, 2019, in conjunction with City's engineering road safety enhancements and educational campaigns. This initiative was a voluntary paid duty enforcement program funded by the City of Hamilton to supplement the ongoing planned enforcement of the HPS. This program utilized two officers per day, working up to 6 hours, covering 9:00 AM to 9 PM. During this program, 4,300 hours of additional enforcement were used on the RHVP resulting in 6,554 tickets (provincial offence notices) issued. Among those tickets, 4,706 were issued for speeding in the 80 km/h zone (RHVP between the QEW and Greenhill Avenue) and 625 in the 90 km/h zone of the RHVP. Notwithstanding the conclusion of the voluntary paid duty program on April 28, 2020, the HPS continues to have a more prominent presence on the LINC and RHVP by deploying support from Division 20 and Division 30 of the HPS.

Provincial Offence Notices Issued - 2019 and 2020 Voluntary Paid Duty Program along RHVP

Offences	Provincial Offence Notices Issued
Speeding in the 80 km/h Zone	4,706
Speeding in the 90 km/h Zone	625
Distracted Driving	18
Racing/Stunting	26
Suspended Drivers	53
No Insurance	34
Other Provincial Offences	1,092
Total	6,554

Month, Day, and Time of Collisions

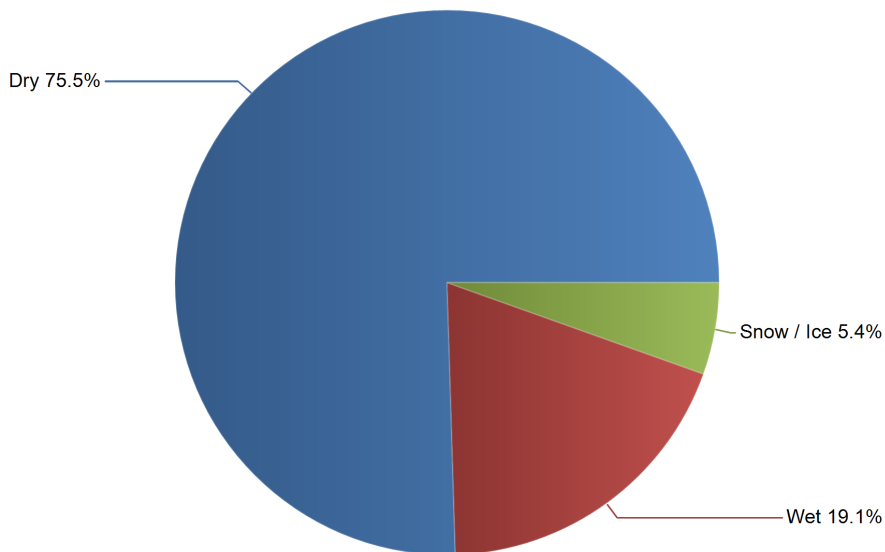
The largest number of collisions on the LINC took place in the month of November while the largest number of collisions occurred during the month of October on the RHVP from 2016-2020.

Thursdays and Fridays had the largest number of collisions on the LINC the RHVP respectively.

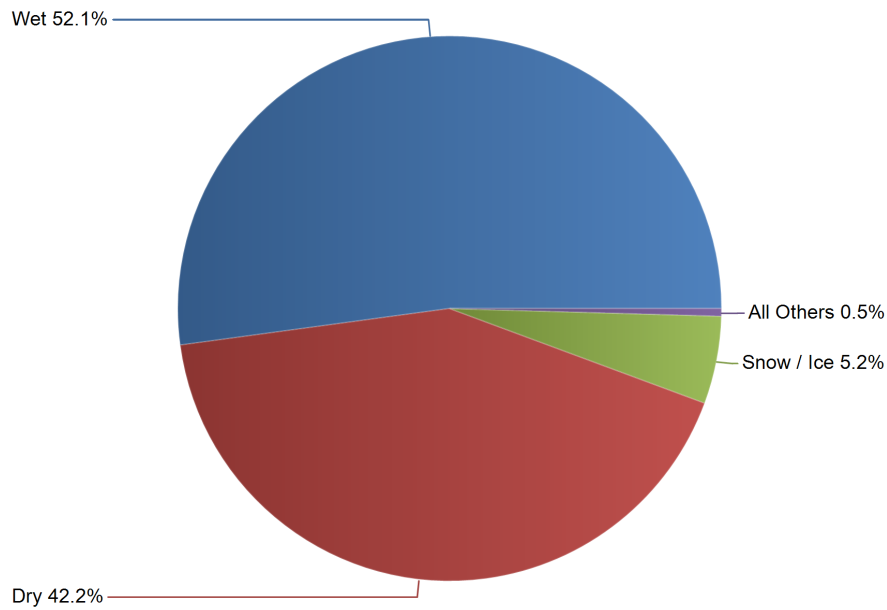
There was a clear correlation between the time of collisions and the typical peak hours of traffic during weekdays on the LINC and the RHVP. The time of collisions during weekend did not follow any particular pattern. This observation is consistent with other roadways in the City of Hamilton.

Collisions by Road Surface Condition

A review of collisions based on their road surface conditions clearly show an unusually high number of collisions during wet and snow/ice (non-dry) conditions on the RHVP. In fact the majority of collisions on the RHVP occurred on non-dry road surface condition. The City resurfaced the RHVP in the summer of 2019. The number of collisions during the non-dry conditions has significantly dropped in 2019 and 2020 following the resurfacing of the parkway. The number of collisions during non-dry conditions on the LINC are consistent with Provincial averages and did not reveal any unusual trends.

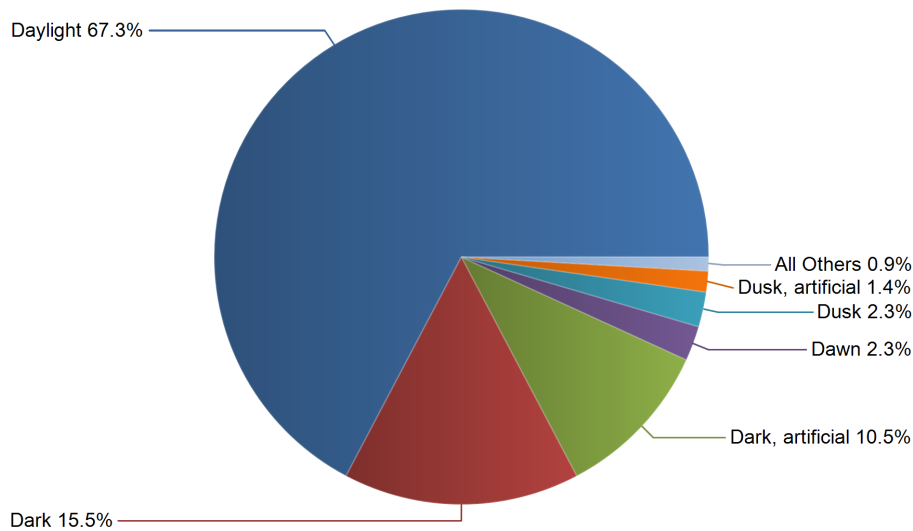


Collisions by Road Surface Condition, 5 Years - LINC (2016-2020)

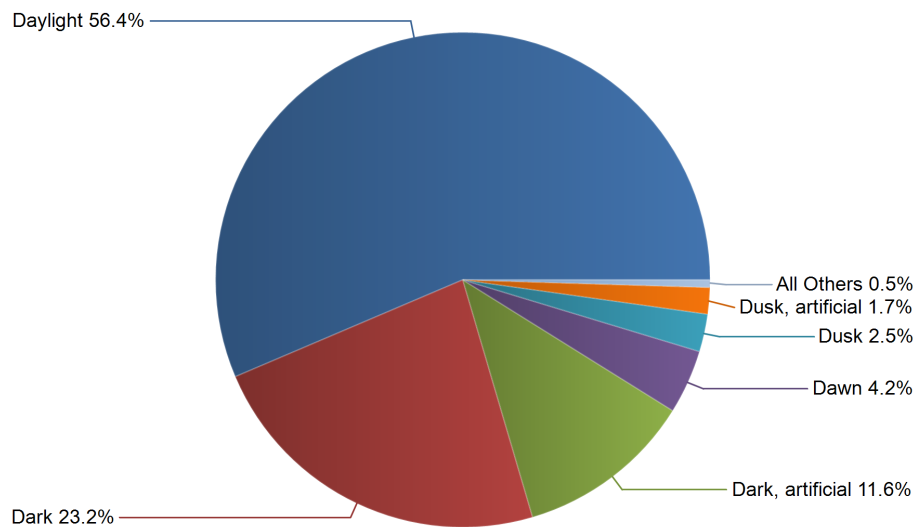


Collisions by Road Surface Condition, 5 Years - Red Hill Valley Parkway (2016-2020)

The percentage of collisions occurred during daylight conditions on the LINC is 67% which is similar to the rest of the City of Hamilton (64.7%). The collisions occurred on the RHVP during daylight condition constituted 56.4% of all collisions.



Collisions by Lighting Condition, 5 Years - LINC (2016-2020)



Collisions by Lighting Condition, 5 Years - Red Hill Valley Parkway (2016-2020)

Collisions by Impact Type

The prominent collision impact type on the LINC and the RHVP was rear end (70.1% and 47.8% 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 can be the result of the congestion. On the RHVP the single motor vehicle collisions constitute the second highest collision types.

Drivers

In 23% of all police reported collisions on the LINC at least one driver lost control from 2016-2020. On the RHVP, however, in 31% of all police reported collisions, at least one driver lost control.

On the LINC and RHVP, 41% and 31% of collisions respectively are speed related.