ATTACHMENT 1

2022 TRAVELLER SAFETY REPORT

A focus on Regional road collision statistics based on 2021 and preceding years

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York Region

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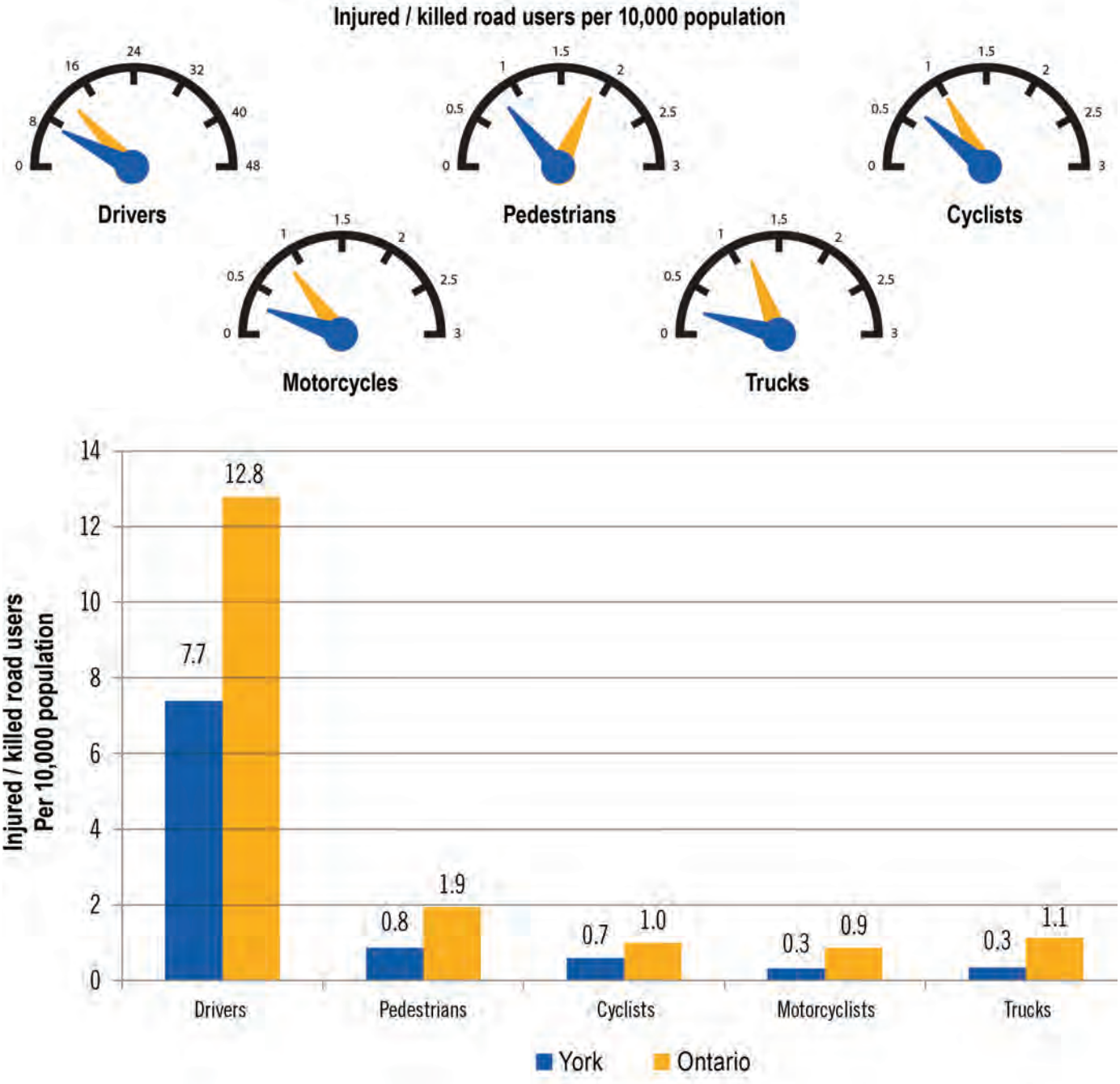
Acronyms and Abbreviations

AADT: Average Annual Daily Traffic
ASE: Automated Speed Enforcement
CAA: Canadian Automobile Association
MTO: Ministry of Transportation Ontario
MVA: Motor Vehicle Accident
PCS: Permanent Counting Station
PDO: Property Damage Only
PXO: Pedestrian Crossover
SMV: Single Motor Vehicle
TTS: Transportation Tomorrow Survey
YR: York Region
YRP: York Regional Police
YRT: York Region Transit

Executive Summary

York Regional roads are planned, designed, constructed and operated according to Ontario provincial guidelines. Compared to the latest provincial average, York Regional roads have lower injury/fatality rates for all major types of road users including motor vehicle drivers, pedestrians, cyclists, motorcyclists and truck drivers in 2021. This may be attributed to improved road engineering and operations, stricter traffic legislation and enforcement and systematic road safety initiatives in the Region.

2021 YORK REGION VS. ONTARIO PROVINCIAL AVERAGE INJURY/FATALITY RATES



*York Region collisions on Regional roads reported by York Regional Police
*The population data is based on census data from Statistics Canada
*Ontario collision data is from the most recent 2020 MTO Ontario Road Safety Annual Reports

Motorists Collisions ↓ 31% *

Travellers were involved in 13% less collisions and 15% less injuries each year, even with a 2% increase annually in trips made by all travellers in the Region. The motor vehicle collision rate (annual number of motor vehicle collisions over annual motor vehicle trips) in 2021 was 31% lower than the 2017-2020 average. A reduction of 10-35% in annual traffic volume in 2021 on Regional roads due to public health restrictions during the COVID-19 pandemic likely contributed to this significant decrease in the annual collision rate.

Of all motor vehicle collisions, 87% are caused by improper driving behaviours. It is well-documented that higher speeds lead to higher injury severity in a collision.

While the COVID-19 pandemic has not impacted perceptions of road safety overall, there is evidence showing an increase in risky driving behaviours. About one-third of Ontario residents believe all forms of distracted driving have increased since March 2020**, and a similar proportion believe all forms of impaired driving have also increased. Nearly 50% believe speeding has increased and 40% believe aggressive driving has increased. This perception is consistent with the fact that stunt driving offences in 2020 have doubled compared to those in 2019 across York Region. The stunt driving offences further increased by nearly 20% in 2021 compared to 2020.

Pedestrians Collisions ↓ 37% *

While motor vehicles are the most common mode of travel in the Region, the number of people choosing active transportation modes, such as walking and cycling has increased quickly. During the COVID-19 pandemic, rates increased further as residents turned to recreation and outdoor activities. The rates of pedestrian collisions (annual number of pedestrian collisions divided by annual walk trips) and cyclist collisions (annual number of cyclist collisions divided by annual bike trips) in 2021 were respectively 37% and 16% lower than the average of 2017-2020. Improving pedestrian and cyclist safety continues to be a priority as almost all pedestrian collisions (93%) resulted in pedestrian injury or death, and cyclists sustained injuries in more than 87% of all cyclist collisions, while 25% of motor-vehicle only collisions resulted in injuries or fatalities.

Cyclists Collisions ↓ 16% *

Motorcyclists Collisions ↓ 28% *

Sales of new motorcycles in Canada rose by 11% in 2020, and this likely resulted in increased motorcycle trips, especially those for recreation, during the COVID-19 pandemic. The Canadian motorcycle market statistic showed 56,700 units were sold in 2019, and projections show motorcycles will maintain popularity, reaching approximately 79,400 units sold in 2027. However, while the overall motorcycle collision rate in 2021 is 28% lower than the 2017-2020 average, the injury-related collision rate increased by 21%.

This means that motorcycle collision resulted in more injuries than property damage only. Like pedestrians and cyclists, motorcyclists are vulnerable road users because they are unprotected by a shell and metal frame like four-wheeled vehicles. While 25% of motor vehicle collisions resulted in injuries or fatalities, for motorcycles, it was 72%. Motorcyclists were found at higher risk for single vehicle collisions due to losing control of their motorcycles.

Trucks Collisions ↓ 41% *

The truck collision rate in 2021 was 41% lower than the average from 2017-2020. Fatality rates have remained at low levels and injury collision rates have remained steady. More than half of truck traffic and collisions occurred in the City of Vaughan where trucking distribution centres are predominant. Major trucking corridors like Highway 7, Highway 27, Weston Road and Keele Street provide key connections for goods movement to provincial highways (Highways 400, 407 and 427).

Transit Collisions ↓ 49% *

Transit operations in the Region, including the number of service hours and kilometres travelled has increased by 3% since 2017. However, there was a significant reduction in transit ridership in 2021 due to the public health restrictions related to the COVID-19 pandemic.

The collision rate of all public transit vehicles on Regional and local municipal roads in 2021 was 49% lower than the 2017-2020 average, and the collision rate of York Region Transit (YRT) vehicles exclusively was 14% lower.

Buses are slower, longer and require more space. A pattern of motorists failing to provide buses ample space has led to a spike in the number of sideswipe collisions over the past few years. However, sideswipe collisions involving private and public buses decreased by 46% in 2021 when compared to the previous four years.

* Trend percentage change indicates 2021 collision rate compared to 2017-2020

** Ontario MTO Road Safety Attitudes and Behaviours Survey Final Report April 9, 2011

Introduction

York Region is home to 1.2 million people in nine local cities and towns, bounded by Steeles Avenue in the south, Highway 50 in the west, York-Durham Line in the east and Lake Simcoe in the north. The Region continues to experience growth and is expected to reach 2 million people by 2051.

The Regional Road network consists of approximately 4,400 lane-kilometres of urban and rural arterial roads, 2,200 intersections and approximately 900 traffic signals that help travellers get to where they live, work and play. Regional roads carry more than six billion vehicle-kilometres of travel annually and more than 2.6 million vehicle trips daily.

York Region's Roads and Traffic Operations branch maintains and manages the Region's traffic data system. The database contains information on all motor vehicle collisions that were reported on Regional roads, and resulted in property damage of $2,000 or greater, as well as any collisions resulting in minor or serious injuries or fatalities. Collision information is collected from the provincial Motor Vehicle Accident (MVA) Report Form, completed by York Regional Police. Copies of all MVA reports are provided to the Roads and Traffic Operations branch for records and to conduct analyses. Currently, York Region's traffic data system does not include collisions that occur on local municipal roadways and provincial highways because local municipalities and the Province manage their own data.

To help identify trends and support decision-making, the 2022 York Region Annual Collision Statistics Report contains collision statistics on Regional roads, based on causes, temporal information, high collision locations, injury severity and modes of travel. The 2022 report includes data collected from 2017 to 2021. Daily trip volumes of modes of travel such as motor vehicles, walking and cycling shown throughout the report are sourced and forecasted from the 2016 Transportation Tomorrow Survey (TTS).

The report provides a detailed breakdown of traveller experience on Regional roads, using collision statistics and other data such as traffic volume, weather, and population. York Regional Police motor vehicle collision reports are used to analyze collision data to identify local issues at specific locations and Regional trends. The report also supports coordinated law enforcement and helps when developing programs to improve road safety, including public education and awareness campaigns for all travellers in York Region.

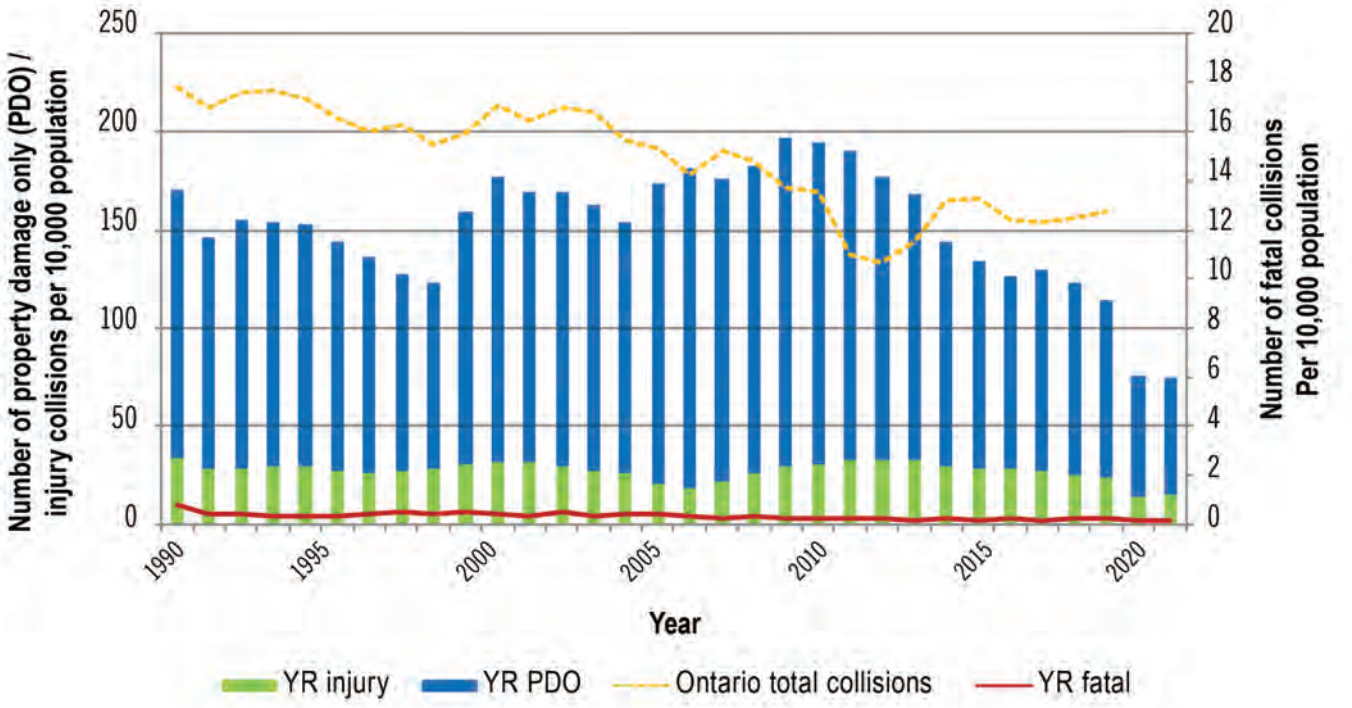
The report is part of a proactive approach in helping make Regional roads safer for all travellers and responding to various trends. This includes the Region's current or upcoming road safety initiatives in road engineering, intersection operations, pavement/signage improvements, bus rapidway construction, automated speed enforcement, and other speed management initiatives.

Overview

As a result of stricter legislation, advancements in technologies and the success of road safety initiatives, injury and fatal collision rates for all road users have decreased significantly over the past 50 years, as shown in the figure below.

York Region has lower collision rates than those of Ontario for most years. Both injury and fatal collision rates in York Region have long-term decreasing trends and total collision rates have dropped by 46% from 197 per 10,000 population in 2010 to 107 per 10,000 population in 2019. Due to the COVID-19 pandemic, volumes decreased between 20% and 50% from mid March to December 2020. This resulted in less collisions, reducing the overall collision rate likely due to lower volume. In 2021, daily traffic volumes on Regional roads remained at approximately 70-80% in comparison to pre-pandemic levels.

COLLISIONS ACROSS YORK REGION, 1990-2021



*York Region collisions on Regional and local municipal roads reported by York Regional Police
*The population data is based on census data from Statistics Canada
*Ontario collision numbers is from MTO Ontario Road Safety Annual Reports
*2019 Ontario Road Safety Annual Report is the latest available version.

Did you know?

Approximately 87% of collisions were a result of improper driving.

Overall, collisions at a 10-year low

Collisions are a result of numerous factors, often unique to specific events. A review of collisions over the past 10 years shows motor vehicle collisions have decreased. In 2021, there was a 10-year low in total collisions, with just over 4,000 collisions occurring on Regional roads. This may be attributed to public health restrictions during the COVID-19 pandemic. Most collisions were a direct result of improper driving actions.

An overview of collision statistics on Regional roads from 2019 to 2021 shows collisions occurred most frequently on Friday, during the winter months and the evening rush hour (5 to 6 p.m.).

The most common were rear-end collisions at signalized intersections due to motorists following too close. Consistent with past years, most high-collision intersections are situated on high-volume roads in urban areas. The table on the next page compares collision data for the years 2019, 2020 and 2021.

Overall, there has been a reduction in collisions. In 2021, the intersection of Weston Road and Rutherford Road was identified as the location within York Region with the highest collision frequency. To help improve safety and to address this concern, Automated Speed Enforcement has been used in the area and a red-light camera is currently installed.

ANNUAL COMPARISON OF COLLISIONS, 2019-2021

Statistics	2019	2020	2021	Change (2020 2021)
Number of collisions	7,038	4,538	4,236	-7%
Number of fatal collisions	19	15	10	-40%
Number of injury collisions	1,876	1,085	881	-19%
Number of collisions involving pedestrians	140	100	94	-6%
Percentage of collisions involving pedestrians resulting in injury or fatality	94%	91%	94%	3%
Number of collisions involving cyclists	110	81	95	17%
Percentage of collisions involving cyclists resulting in injury or fatality	86%	88%	86%	-2%
Collision rate per 100,000 population	571	378	361	-4%
Fatal collision rate per 100,000 population	1.5	1.2	1.2	0%
Day with highest number of collisions	Friday	Friday	Friday	–
Month with highest number of collisions	November	February	November	–
Hour with the highest number of collisions	5 to 6 p.m.	5 to 6 p.m.	5 to 6 p.m.	–
Most common collision type	Rear-end	Rear-end	Rear-end	–

ANNUAL COMPARISON OF COLLISIONS, 2019-2021 (CONTINUED)

Statistics	2019	2020	2021	Change (2020 2021)
Most frequently recorded improper driving action	Following Too Close	Following Too Close	Following Too Close	–
Location with the highest number of collisions	Highway 7 and Weston Road	Islington Avenue and Rutherford Road	Weston Road and Rutherford Road	–
Mid-block crossing with the highest number of collisions	Highway 7 between Huntington Road and Highway 427 - Highway 7 Ramp	Highway 7 between Huntington Road and Highway 427 - Highway 7 Ramp	Major Mackenzie Drive West between Highway 400 NB Off-Ramp and Jane Street	–
Percentage of collisions occurring at intersections	68.24%	63.55%	65.06%	2%
Percentage of collisions occurring during winter driving (snow/icy road surface conditions)	9.80%	8.15%	4.39%	-4%
Number of daily vehicle trips	2,650,351	2,155,155	2,309,781	7%
Number of daily walk trips	102,045	104,192	106,339	2%
Number of daily cycle trips	11,770	12,181	12,592	3%
Injury collision rate per million vehicle trips	2.31	1.65	1.25	-24%
Injury collision rate per million walk trips	4.06	2.8	2.27	-19%
Injury collision rate per million cycle trips	21.82	15.01	19.15	28%

Notes:

> York Region collisions on Regional roads reported by York Regional Police

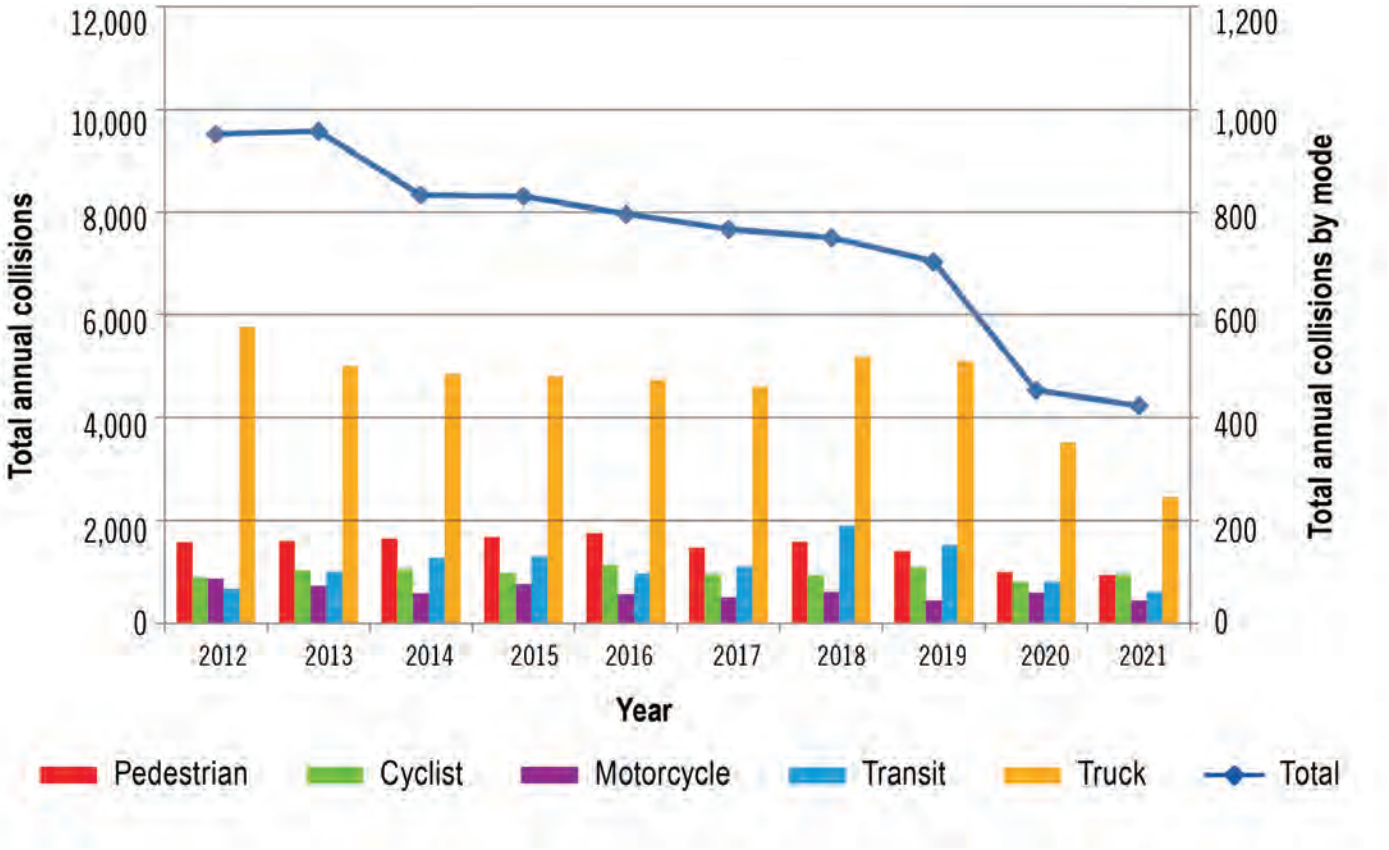
> The population data is based on census data from Statistics Canada

> Number of trips is based on Transportation Tomorrow Survey (TTS) studies and Region's permanent count station (PCS) data

In 2021, there was a 10-year low in the number of collisions on Regional roads

There was a significant decrease in collisions in 2020, likely partially due to public health restrictions related to the COVID-19 pandemic and associated reduction in traffic and the trend has continued in 2021. The number of cyclist collisions have a long-term increasing trend as active transportation is becoming more prevalent in York Region. The growth in trips outpaced the growth of collisions and the rate of collisions is decreasing. Pedestrians and cyclists are most vulnerable to injuries, with 94% of pedestrians and 86% of cyclists sustaining injuries during collisions. Most collisions occurred when vehicles are making turns at signalized intersections.

ANNUAL COLLISIONS BY ROAD USER MODES, 2012-2020

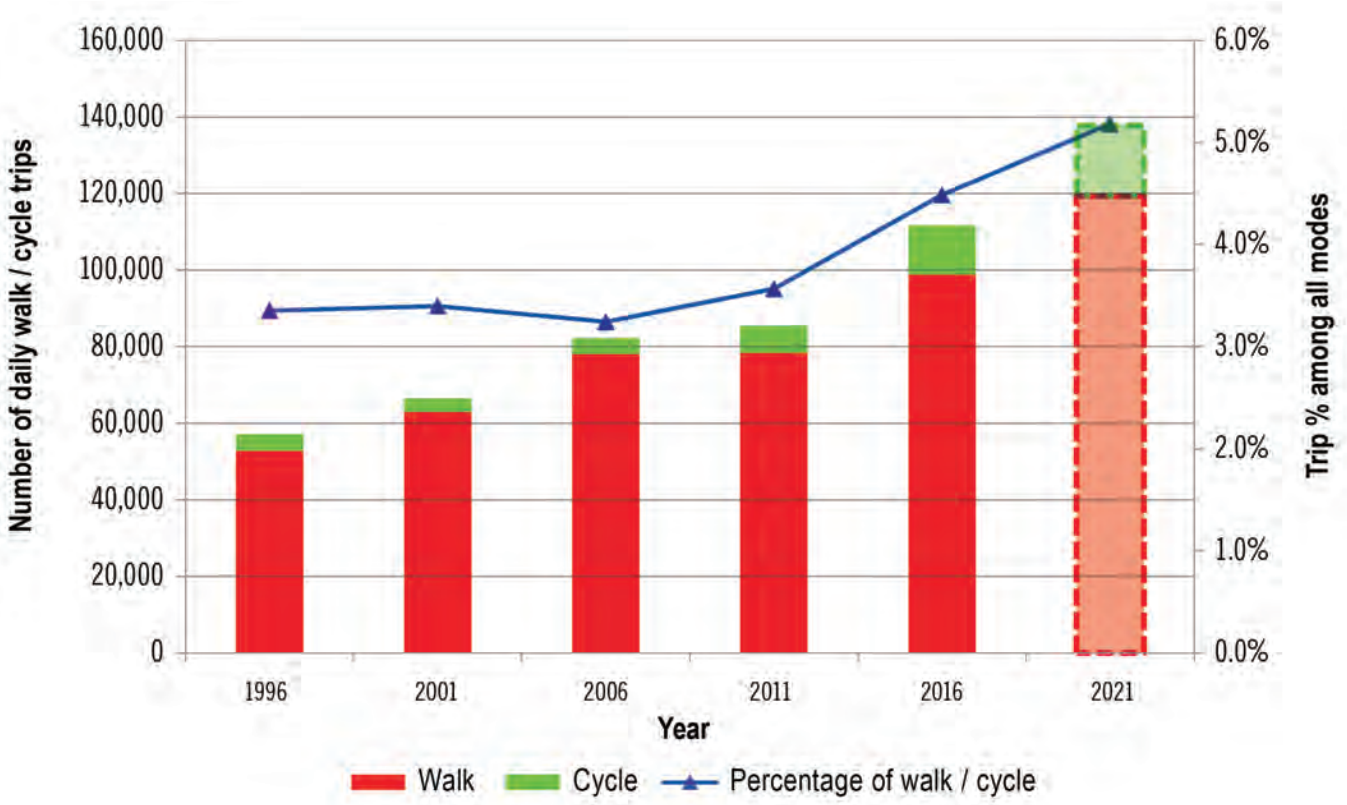


*York Region collisions on Regional roads reported by York Regional Police

A review of collision statistics over the last decade shows overall collisions on Regional roads continue to decrease with just over 4,000 collisions in 2021.

Collisions involving all road users dropped by 36% in 2021 when compared to the 2017 to 2020 average, likely partially due to public health restrictions related to the COVID-19 pandemic and associated reduction in overall traffic.

YORK REGION DAILY WALK/CYCLE TRIPS, 1996-2021



*Number of trips is based on TTS studies
*2021 daily walk/cycle trip estimates are adjusted with the impact of COVID-19 lockdown

New measures to help enhance vulnerable road users safety

Based on the Tomorrow Transportation Survey (TTS) studies, more people have chosen to walk or cycle over the last 20 years. From 1996 to 2016, the total number of daily walking or cycling trips has increased 5% annually. In comparison, driving has increased by only 2%. It is estimated daily walking and cycling trips within or crossing York Region boundaries will exceed 140,000 at the end of 2022.

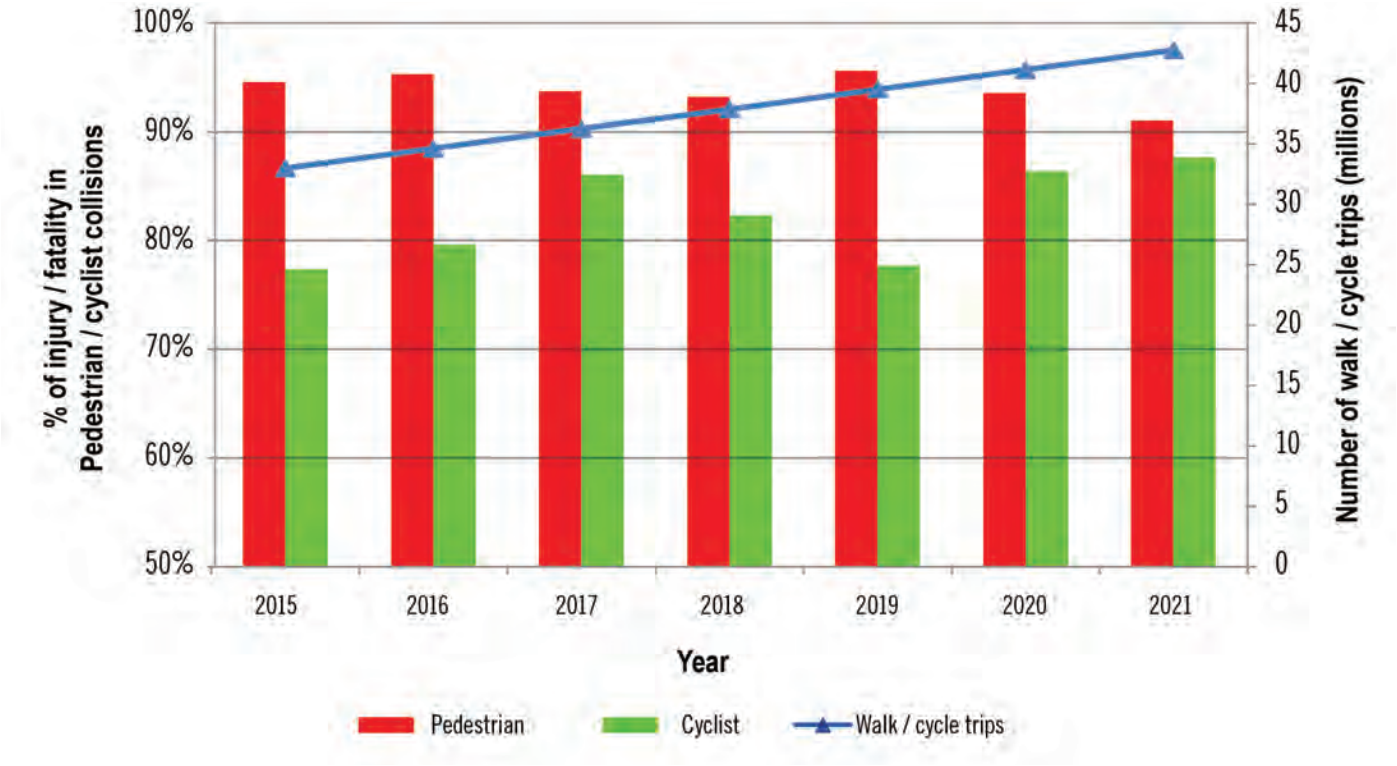
The 2021 Ministry of Transportation Road Safety Survey indicates the COVID-19 pandemic affected the frequency of walking and cycling trips. More than one-third of Ontario residents said they walk outdoors more and almost one-quarter said they rode a bicycle more often as their leisure/recreational activities during the COVID-19 pandemic.

Pedestrians and cyclists are the most vulnerable travellers on the Regional transportation system and lack protection compared to travellers in enclosed vehicles. While 24% of vehicle-only collisions resulted in injuries or fatalities, more than 80% of pedestrian and cycling collisions resulted in injuries or fatalities. In 2021, there were 1 fatal and 170 injury collisions involving a pedestrian or cyclist. The increase in pedestrian and cycling trips across the Region and high rates of injuries sustained make these modes of travel a key area of focus for safety improvements.

To help enhance vulnerable road user safety, York Region has implemented pedestrian and cycling safety measures at select signalized intersections. Measures included leading pedestrian intervals (pedestrian gets a head start in crossing the road), right turn on red signal restrictions, fully protected left turns and advisory signage. The Region was recognized for these initiatives by receiving the 2021 Ministry of Transportation Ontario Road Safety Initiative of the Year Award and 2022 Transportation Association of Canada Road Safety Achievement Award. The Region is evaluating success to support future enhancements, while building strong partnerships with road safety partners.

In addition to existing safety programs, including red light cameras, speedWATCH and speed reduction in school zones, the Region launched a two-year automated speed enforcement pilot with the goal of increasing safety in school areas and helping to influence positive changes in drivers behaviour.

PEDESTRIAN AND CYCLIST INJURY/FATALITY RATES



*Number of trips is based on TTS studies

In addition, the Region, in collaboration with road safety partners, is developing a multi-year (2023-2027) Traveller Safety Plan to encourage a traveller safety culture. Implementation actions will be developed for each type of road user using a data-driven approach. Residents will also be informed of the Plan and provided engagement opportunities through both an online public opinion survey and an open house with a mapping portal, where residents can provide input during development of the Plan.

Motorists

Driving is the most common mode of travel on Regional roads, accounting for nearly 87% of total trips. Based on an average of the last three years, there are more than 700 million motor vehicle trips made annually with more than 5,200 annual collisions involving motor vehicles. In 2021, the motor vehicle collision rate (annual number of motor vehicle collisions divided by annual motor vehicle trips) was 31% lower than the 2017-2020 average. A reduction of 10-35% in annual traffic volume in 2021 on Regional roads due to public health restrictions during the COVID-19 pandemic likely contributed to a significant decrease in the annual collision rate.

There have been approximately 13% fewer collisions involving motorists and 15% fewer injuries reported each year. This is encouraging and can be attributed to advancements in car technologies (airbags, antilock brakes, electronic stability control, etc.), road safety programs legislation and enforcement.

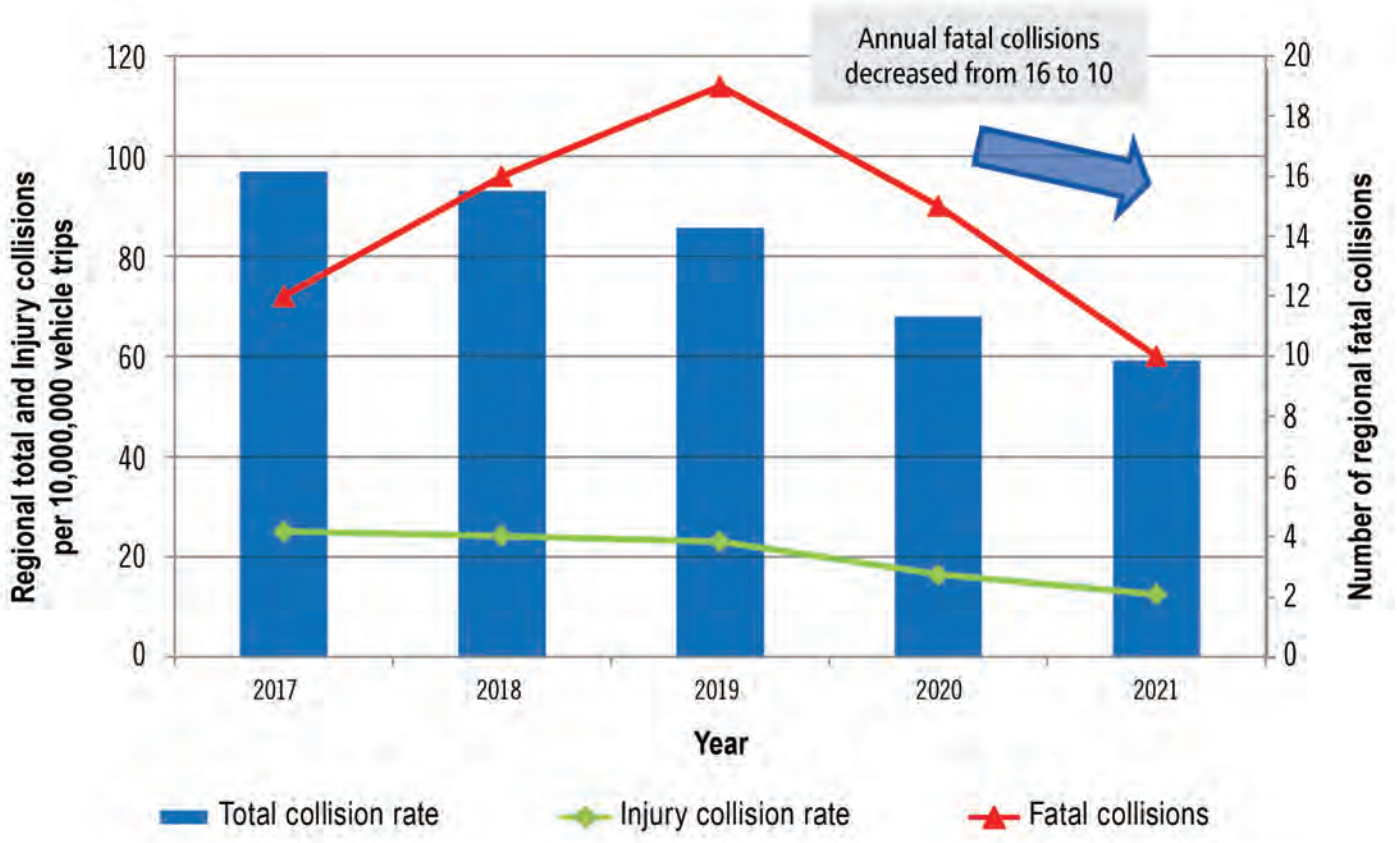
Did you know?

The pandemic resulted in a 10-35% reduction in traffic volume on Regional roads in 2021. The motor vehicle collision rate also dropped by 31% compared to 2017-2020 annual average in 2021.

Key trends observed include:

- The COVID-19 pandemic resulted in a reduction in annual traffic volume on Regional roads of 10-35%
- The reduction of traffic volume in 2021 likely contributed to a 31% decrease in the annual collision rate (when compared to 2017-2020 annual average)
- Approximately 13% fewer collisions and 15% fewer injuries each year while fatal collisions decreased from 16 to 10% in 2021 (when compared to 2017-2020 annual average)
- In 2021, one out of 10 fatal collisions was speed-related
- Young drivers are more likely than other age groups to be at-fault and be involved in fatal collisions
- Snow and rain increases collision risk
- Majority of collisions occur at intersections (66%) because of a high occurrence of conflict points with vehicles travelling in different directions and making turns
- Improper driving actions result in 87% of collisions
- Following too close is the top driver action (28%) causing collisions
- Inattentive behaviour while driving is an increasing cause of collisions (17%)
- Top impact types are rear-end (low severity, 37%) followed by angle and turning movement collisions (high severity, 32%)

MOTOR VEHICLE COLLISION RATES, 2017-2021



*Average annual rate of 16 fatal collisions for the years 2017-2020 compared to the actual rate of 10 for 2021
*Collision data is from YRP MVA reports
*Number of trips is based on TTS studies

Fatal collisions fluctuate annually, with an average of about 15 per year. Higher speeds lead to higher injury severity in a collision. Statistics in 2021 show more than 30% of all fatal collisions were related to speeding. Enforcement statistics over the past five years also identify speeding as the top violation in the Region, representing more than 60% of all traffic offences.

A slower rate of speed and allowing space between vehicles creates more time for motorists to react. Large vehicles like trucks and buses need extra room to stop, turn and have many blind spots. By driving safely, keeping a safe distance and being more careful around large trucks and buses, motorists can significantly reduce the risk of being involved in a serious collision.

The Region continues to implement measures to address safety concerns including:

- Pavement rehabilitation programs such as microsurfacing (adhesive mixture containing small stones applied to roads) which not only extends the life of the road but also improves traction leading to a reduction in rear-end collisions
- Implementing fully protected left turns which reduces conflicts at high-volume urban intersections
- Creating buffer zones between left-turn and through lanes for improved visibility
- Enhancing control measures to traffic signals or all-way stops which significantly reduces the frequency of angle collisions

Collisions by month, day and time

A greater understanding of when collisions are occurring

Collision statistics by month indicate a seasonal trend. There are more collisions occurring during the fall months while spring has the least number of occurrences.

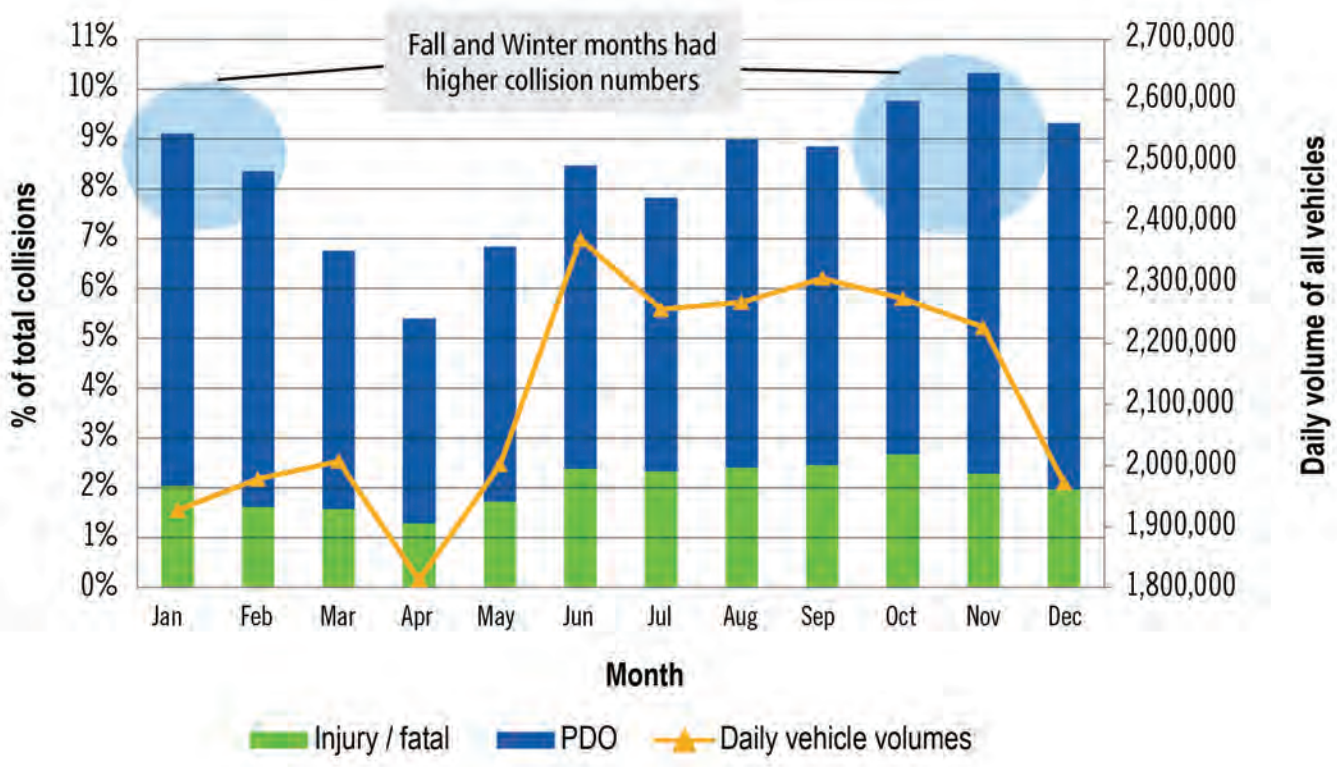
November and January had the highest number of overall collisions and property damage collisions. This is likely due to the impact of shorter daylight hours when evenings are darker and weather conditions are less favourable for road users.

June had the highest number of injury/fatal collisions and the third highest collision rate overall. June also had the highest daily vehicle volumes as weather conditions were more favourable and the summer vacation period had not begun.

During the winter months, adverse or winter weather makes driving more dangerous by reducing tire traction and impairing visibility. Drivers typically adjust to road conditions and drive more slowly and carefully in winter weather conditions and many people avoid or postpone unnecessary travel. The data shows less severe collisions (those producing only property damage) increase during winter, while more severe collisions (those resulting in injuries and fatalities) decrease.

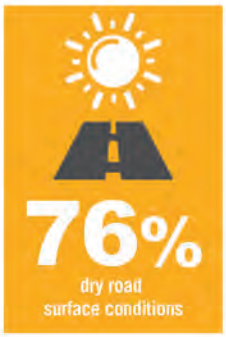
During spring, which has the lowest number of collisions, drivers typically continue to drive in winter driving mode even though weather conditions are more favourable.

COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Approximately 76% of all collisions occurred during dry road surface conditions, 17% during wet road surface conditions and 7% during snow-covered or icy road surface conditions. These observations are consistent with ongoing driver education campaigns noting the need to drive safely and slowing down even on dry road surface conditions. During 2021, the Region experienced 104 rainy days (about three and a half months) and 47 snowy days (about one and a half months), representing 40% of calendar days. Although most collisions occur during dry conditions, adverse weather conditions contribute to peak collision days. The top 10 high-frequency collision days from 2019 to 2021 experienced a winter event or its aftermath. The number of collisions occurring on the highest days was about three times higher than York Region's average of 15 collisions per day. The top 10 calendar days experiencing the most collisions in York Region are highlighted in the following table.



TOP 10 HIGH FREQUENCY COLLISION DAYS, 2019-2021

Date	Day of Week	Number of Collisions	Rain	Snow
2019-11-11	Monday	58		●
2020-02-28	Friday	51		●
2019-02-27	Wednesday	51		●
2019-12-06	Friday	49		●
2019-01-19	Saturday	45		●
2019-12-02	Monday	44		●
2020-12-01	Tuesday	44		●
2019-12-19	Thursday	43		●
2019-10-30	Wednesday	39	●	
2019-12-18	Wednesday	38		●

*Collision data is from YRP MVA reports
*Weather data is from Environment Canada

During all winter months, collision rates on snowy days were significantly higher than days without rain or snow. February has the highest daily collision numbers for snowy days, mainly due to the unfavourable winter events and winter driving conditions.

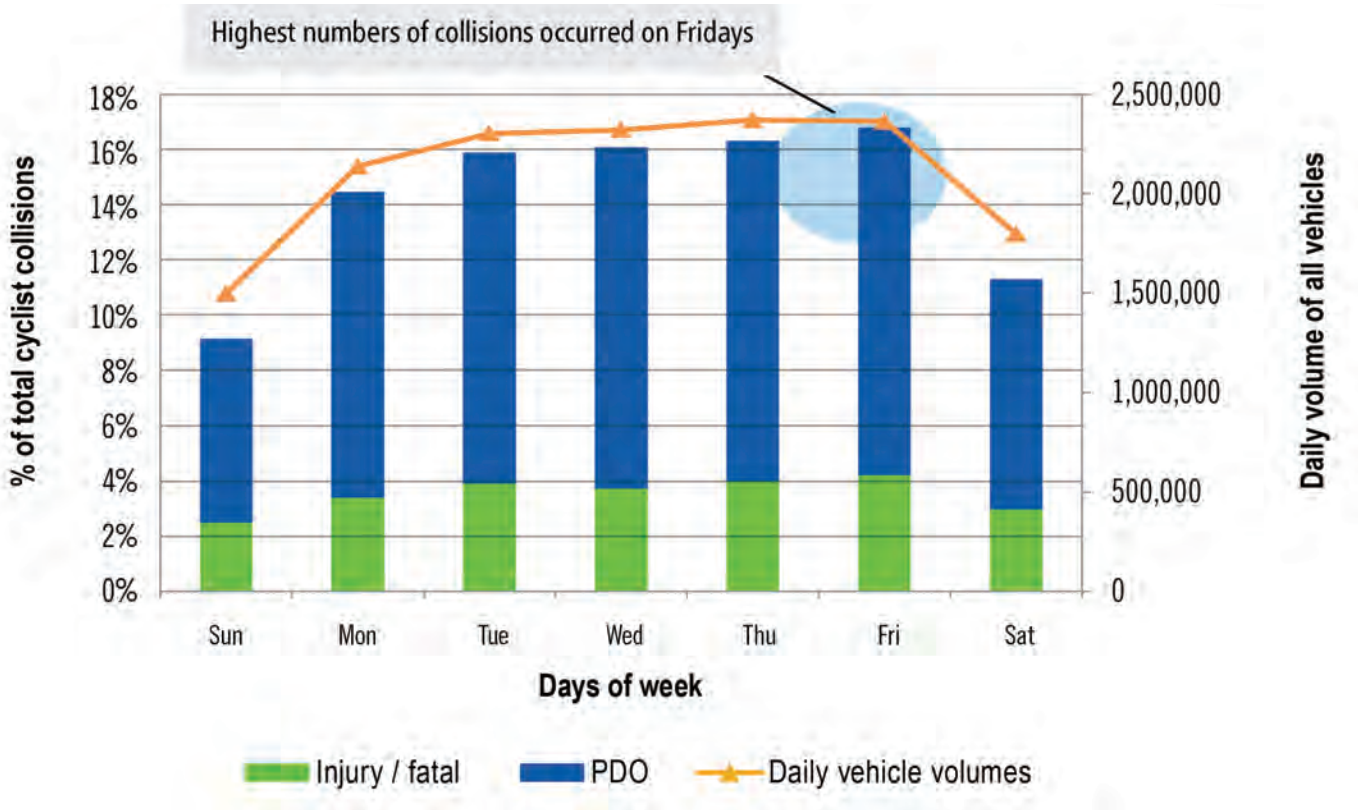
During warmer months (May to September), daily collision rates on rainy days are higher than those with no rain.

Repaving increases tire grip and reduces collisions

New pavement can increase vehicle tire grip on the road surface, giving drivers better control, reducing rear-end collisions and collisions relating to aging pavement, inclement weather and slippery road surfaces. Three examples of repaved intersections, Yonge Street and Green Lane, Green Lane and 2nd Concession Road, and Kennedy Road and Helen Avenue/YMCA Boulevard, have experienced an overall collision reduction ranging from 23% to 79% and a collision reduction in adverse weather events ranging from 42% to 89%.

Day-of-week collision patterns correlate closely with typical day-of-week traffic volume patterns, with the highest number of collisions occurring on Friday when people travel more often.

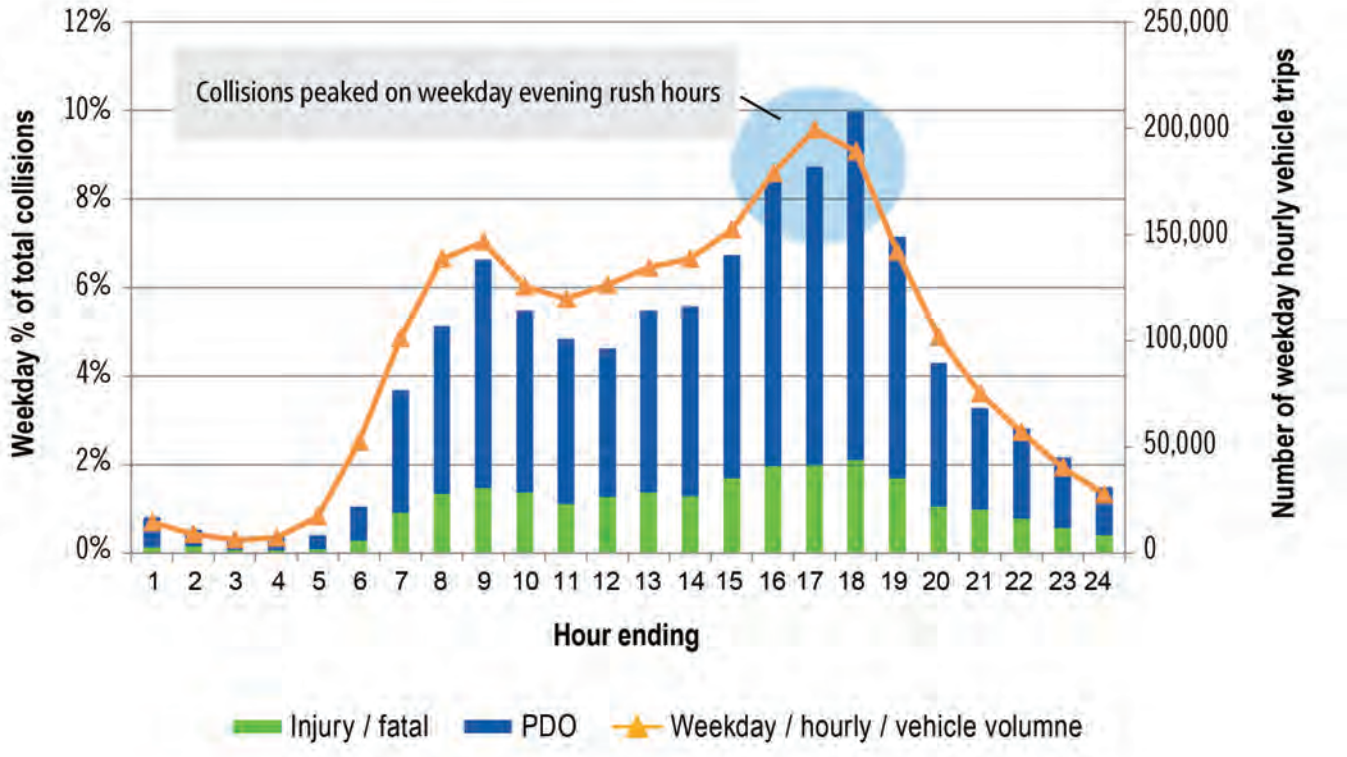
COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021

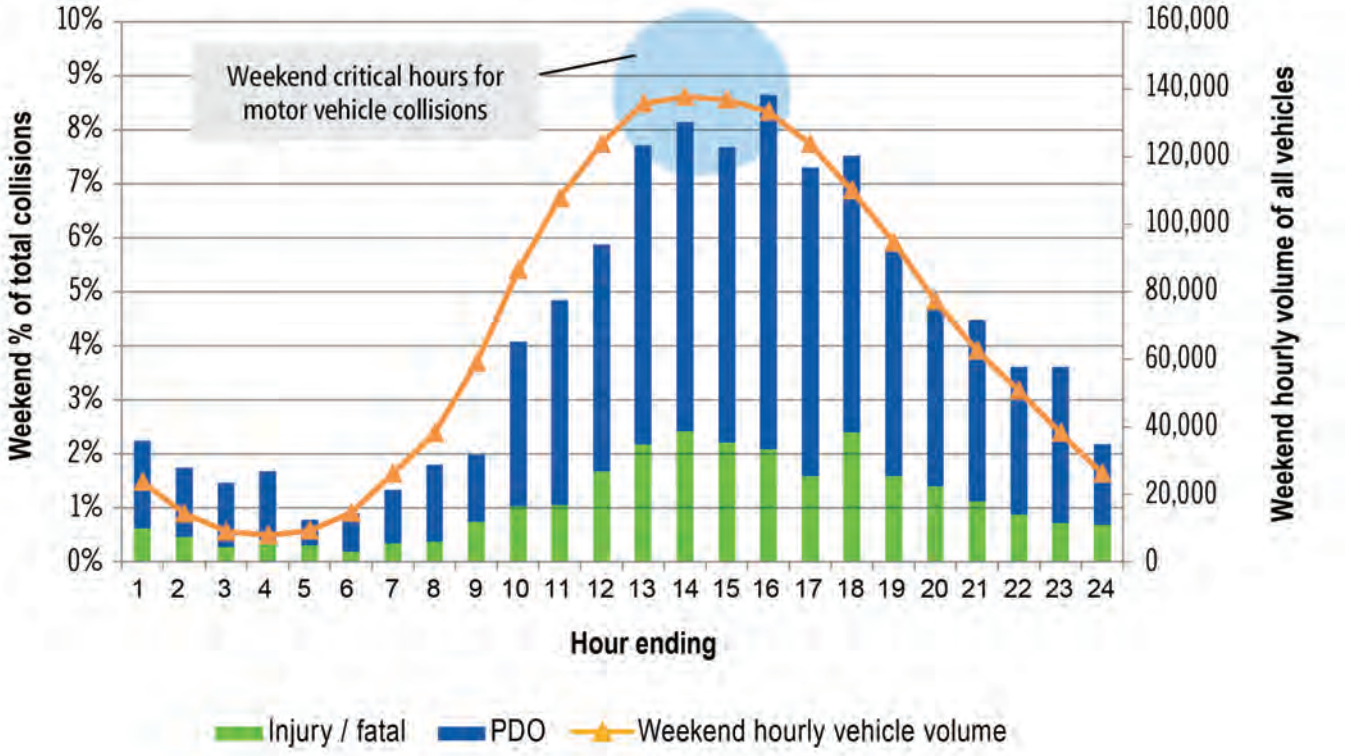


*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Time-of-day collision trends also correlate closely with typical daily traffic volume patterns (i.e., high numbers of collisions occur during highest traffic volume times). The highest number of collisions occurred on weekdays, between 7 a.m. and 10 a.m., and 3 p.m. and 7 p.m., accounting for half of all collisions. Collisions were higher during the afternoon on weekends, which is consistent with the distribution of weekend daily vehicle trips.

COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021

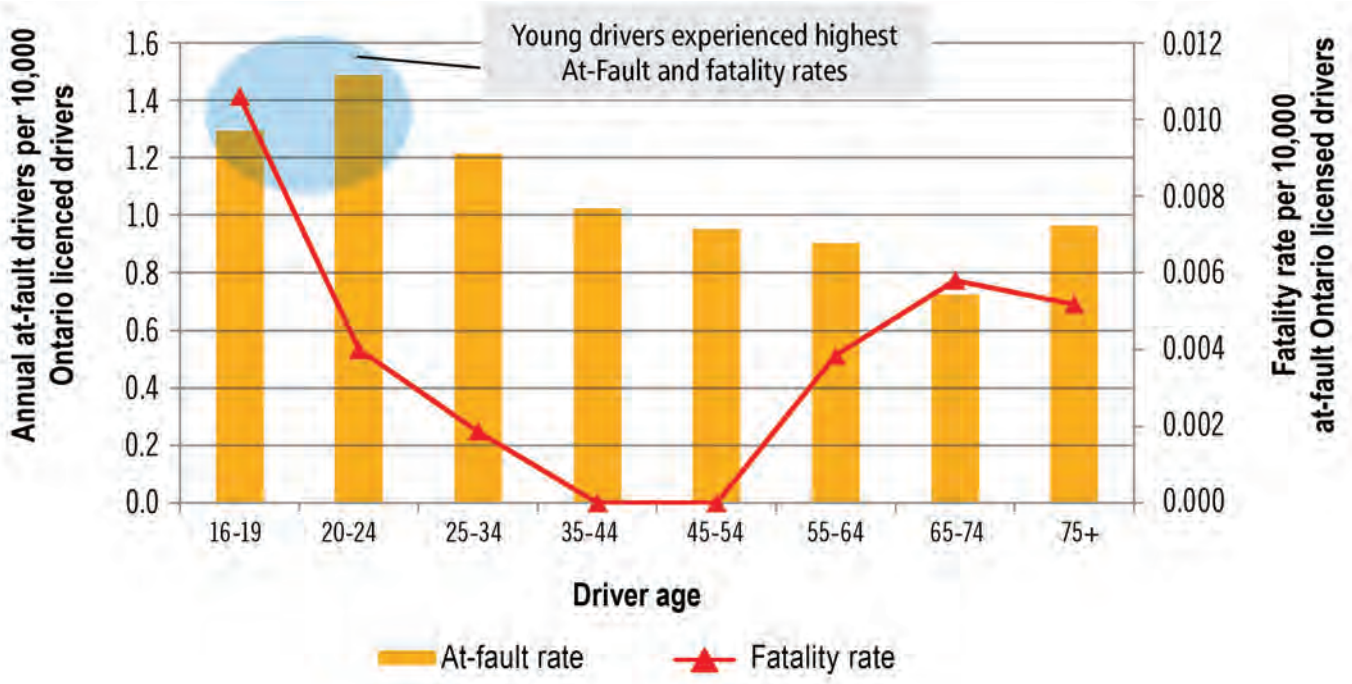




*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Age profile

AGE AND FATALITY RATE OF AT-FAULT DRIVERS

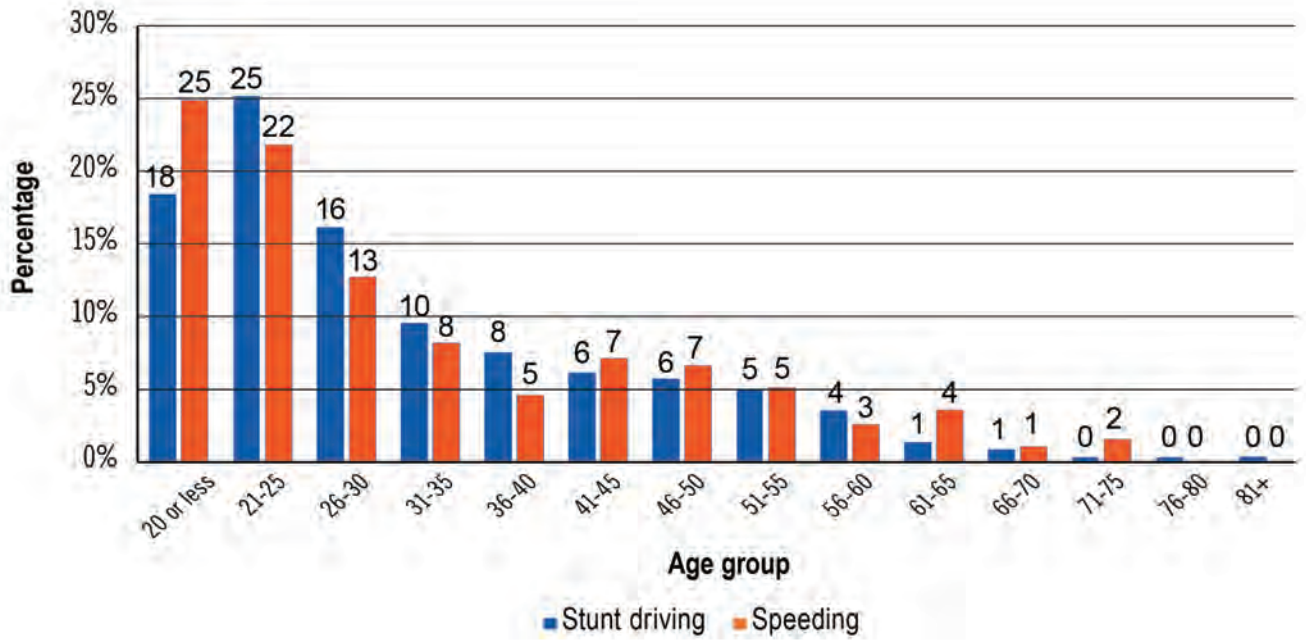


*Collision data is from YRP MVC reports
*Licensed drivers statistics and age distribution are from MTO 2017 Ontario Road Safety Annual Report

Data shows a need to reach drivers 16 to 25 years of age

The age distribution of at-fault drivers compared to drivers fatally injured is shown in the figure above. The graph indicates teenagers and young adults below the age of 25 are most likely to be at-fault in a collision, and to be fatally injured in a collision. Based on 2021 hospitalization data from York Region Public Health, 16 to 29-year-olds have the highest rate of emergency department visits for traffic-related injuries compared to other age groups. The 2021 MTO Road Safety Survey also indicates teenagers and young drivers are more likely to believe speeding is not dangerous for skilled drivers and driving fast is fun. This correlates with young drivers' overrepresented stunt driving and speeding violations reported by YRP, as shown in the figure below. These findings stress the importance of continuing to focus on education and enforcement with this age group.

YORK REGION STUNT DRIVING AND SPEEDING VIOLATIONS BY AGE GROUP

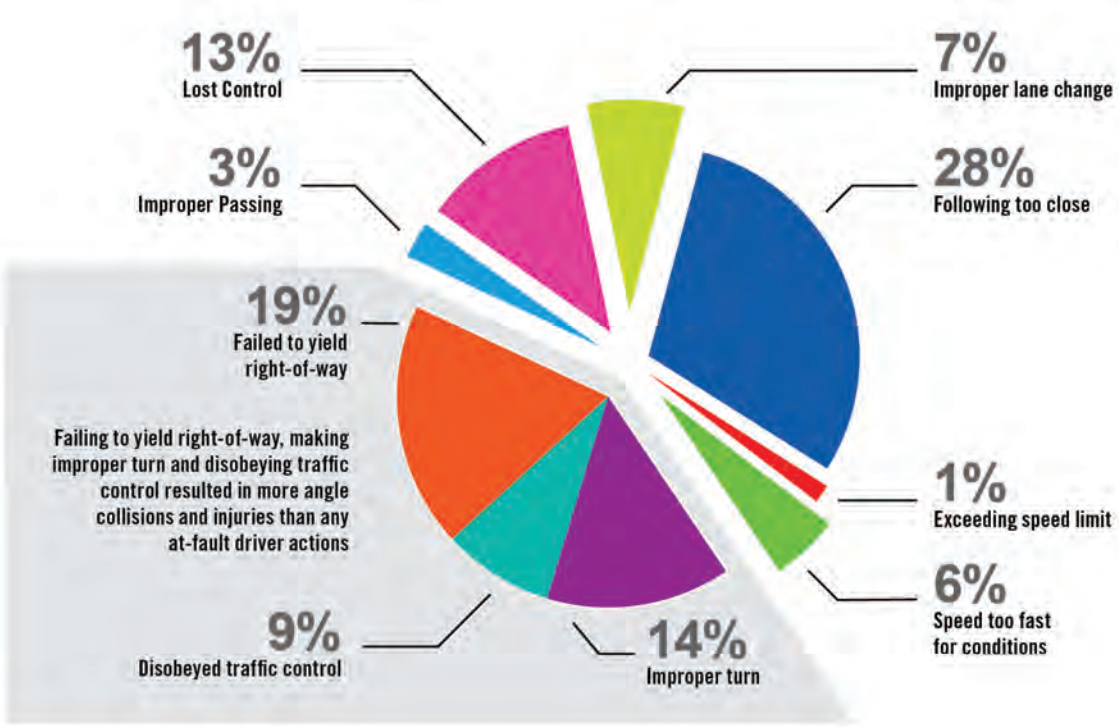


*Data is from YRP Road Safety Bureau, Programs and Partnerships

Young male drivers and motorcyclists were most likely to speed and perceive speeding as fun and not dangerous. This is consistent with YRP data which shows that approximately 60% of stunt driving and speeding infractions are caused by drivers 30 years of age or younger.

Driver actions and collision impact types

DRIVER ACTIONS IN COLLISIONS, 2019-2021



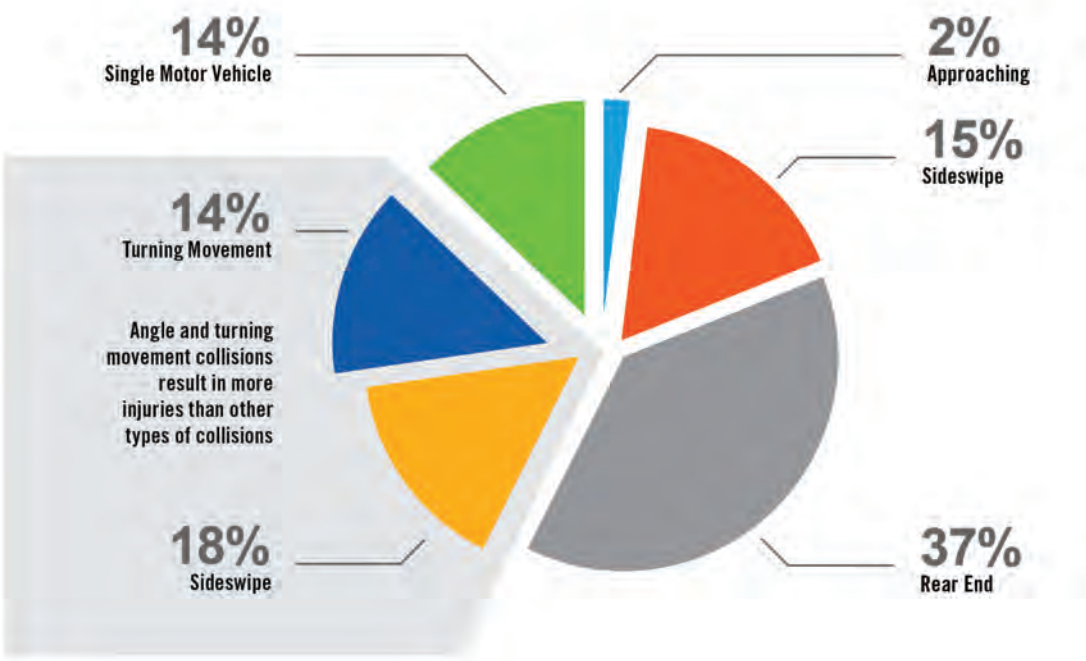
*Collision data is from YRP MVC reports

One of the most important collision diagnostics is driver behaviour. The top at-fault action (28%) is following too close; however, the frequency of this is declining. This decreasing frequency could be due to improved vehicle safety technologies, such as brake assist and improvements in roadway safety technologies, such as road surface treatments.

Did you know?

The Region is implementing protected left turns, no right turns on red, and red light cameras to reduce collisions caused by failing to yield the right-of-way.

COLLISION IMPACT TYPES, 2019-2021



*Collision data is from YRP MVC reports

Following too close is a driver behaviour that can lead to rear-end collisions, which is the most common collision impact type (37%). Rear-end collisions are declining and may soon be surpassed by angle and turning movement collisions as the predominant collision type. Angle and turning movement collisions (32%) are also a declining trend, although not as pronounced.

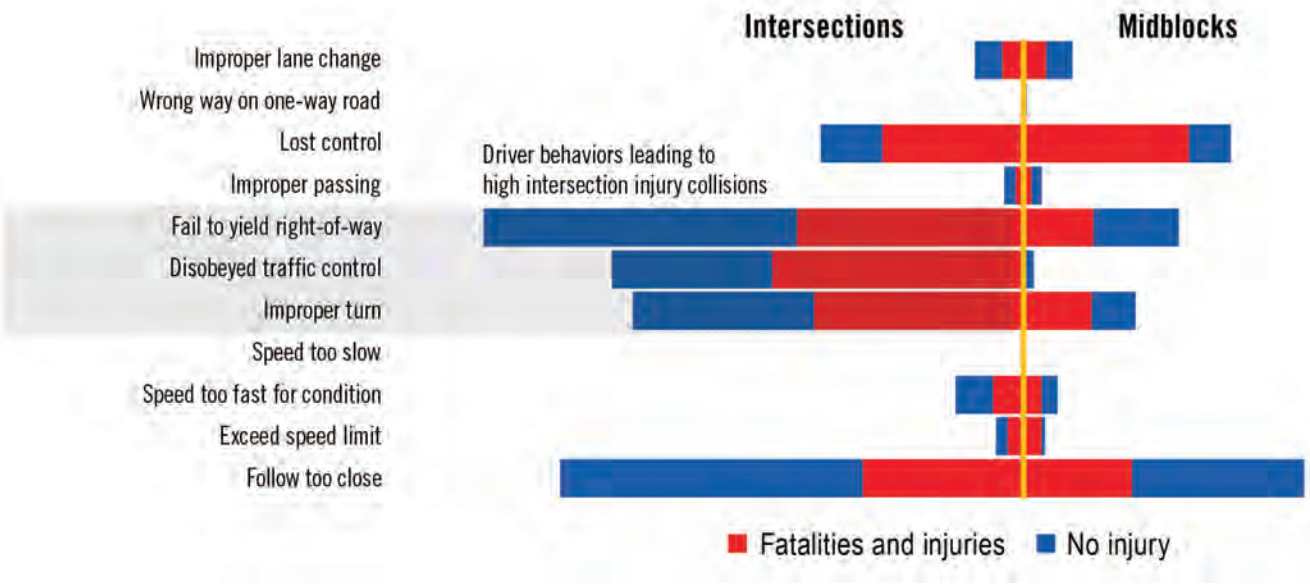
Reducing angle collisions is a priority for the Region, as evidenced by continued investment in the Red Light Camera program. York Region also adheres to industry standards in conversion to intersection controls like all-way stops and traffic signals. The Region's before-and-after analysis found installing all-way stops and traffic signals could reduce angle collisions by as much as 100% in some cases.

Did you know?

Before-after analysis found installing all-way stops and traffic signals can reduce angle collisions by as much as 100%.

Driver actions

DRIVER ACTIONS AND COLLISION LOCATIONS, 2019-2021



*Collision data is from YRP MVC reports

A focus on reducing conflict points

In addition to following too close (28%), three major unsafe driver actions at intersections include failing to yield the right-of-way (19%), making an improper turn (14%) and disobeying traffic control (9%). More than one-third of collisions caused by these three actions resulted in injury or fatality.

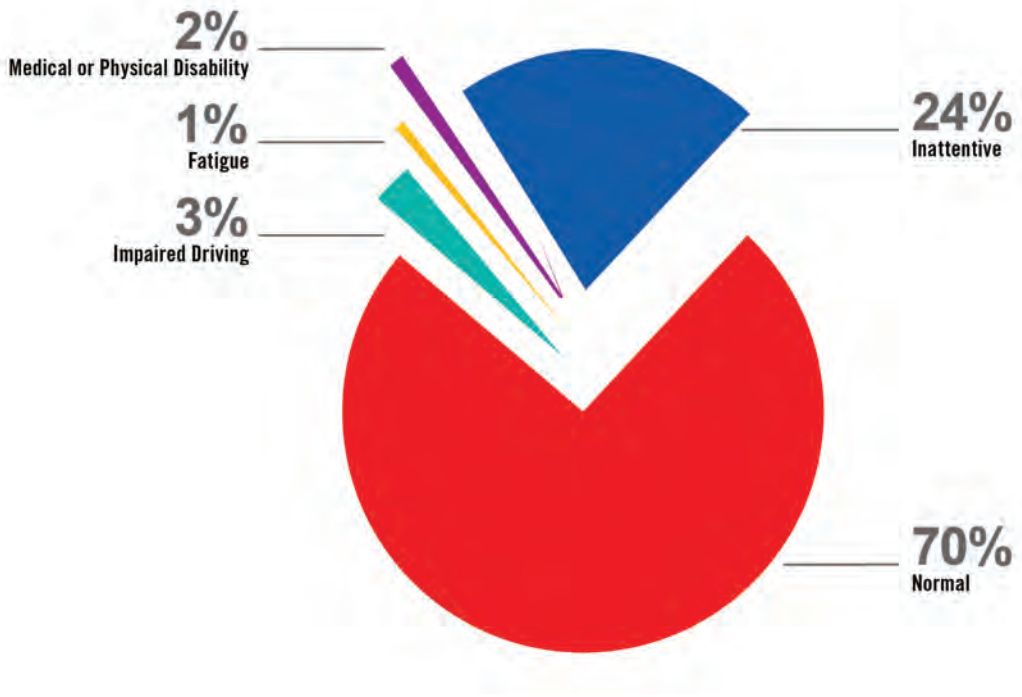
Did you know?

Fully protected left turn movements (left turns only allowed on advanced green arrow) can reduce vehicle-to-vehicle conflicts by as much as 80%.

The Region has been focusing on reducing conflict points and frequency at intersections. An ongoing initiative is the conversion from protected/permissive left turn phases (advanced green signal before changing to green signal) to fully protected left turn phases (left turns only allowed on advanced green arrow). This reduces conflicts between left turning vehicles with through-moving vehicles in the opposite direction. Preliminary data that suggests that protected left turn movements reduce vehicle-to-vehicle conflicts by as much as 80%.

Distracted driving

COLLISIONS BY AT-FAULT DRIVER CONDITION, 2019-2021



*Collision data is from YRP MVC reports

Distracted driving remains a top concern

Collisions where the condition of at-fault driver was recorded as "normal" or "unknown" accounted for 70% of all collisions. Of the remaining, most were identified as distracted (inattentive) driving.

New distracted driving laws banning cell phone use while driving came into effect in Ontario on January 1, 2019. Drivers caught holding, talking, texting, dialing or emailing using a hand-held device, such as a cell phone or other entertainment device, could be fined up to $1,000 with a three-day license suspension and three demerit points.

Even with the new law, 24% of at-fault drivers are driving distracted, based on York Regional Police MVA reports.

According to the Canadian Automobile Association:

- Drivers talking on mobile devices, either hands-free or hand-held, are up to four times more likely to be involved in a collision
- 80% of collisions and 65% of near collisions have some form of driver inattention as a contributing factor
- Distraction was a factor in nearly 6 out of 10 moderate-to-severe collisions involving teenagers (American Automobile Association Foundation for Traffic Safety, 2015)
- Almost half of all people fatally injured in distraction-affected crashes involved teenagers 15 to 19 years of age. (National Highway Traffic Safety Administration, 2013).

Based on the MTO 2021 Road Safety Survey, approximately 20% of Ontario residents report having read or sent text messages while driving, stopped or slowed at a traffic light or held a cell phone while driving at least once a week. This is an increase since 2017. Within this group, the Survey shows 30-40% are young male drivers and motorcyclists who regularly engage in distracted driving behaviours, the highest of all age groups.

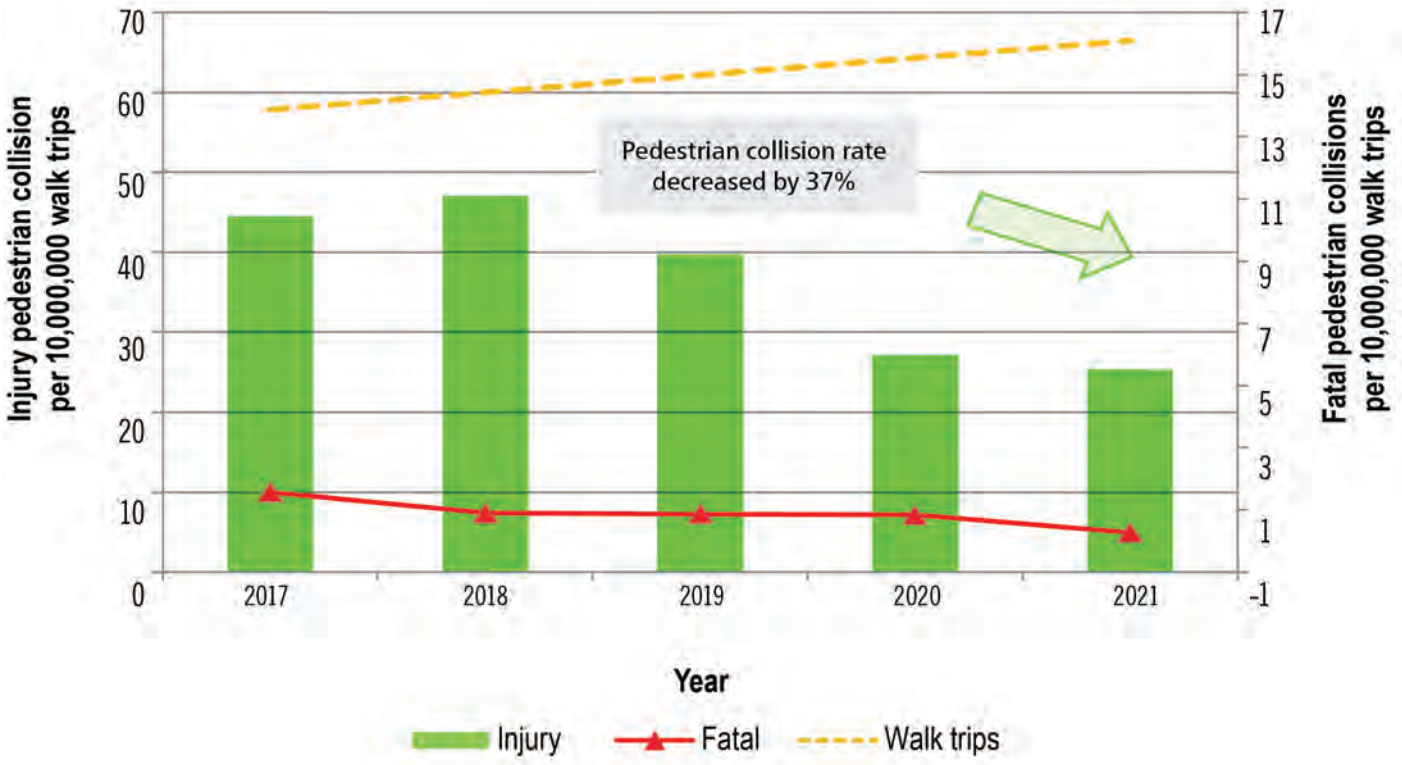
While the COVID-19 pandemic has not impacted perceptions of road safety overall, there is evidence showing an increase in risky driving behaviours.

Did you know?

York Region's Pledge to Ignore campaign focuses on distracted driving.

Pedestrians

PEDESTRIAN COLLISION RATES, 2017-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies

Pedestrians are the most vulnerable road users

Pedestrians are the most vulnerable travellers on the Regional transportation system and lack personal protection compared to travellers in enclosed vehicles. The pedestrian collision rate in 2021 is 37% lower than the previous four-year average, as shown in the chart above. As the number of walking trips on Regional roads increased, the injury collision rate decreased.

Annual fatal collision numbers are steady, but proportionately lower (at 2.1%) among total collisions. While 25% of motor-vehicle only collisions resulted in injuries or fatalities, almost all pedestrian collisions (93%) resulted in pedestrian injury or death.

Key trends observed:

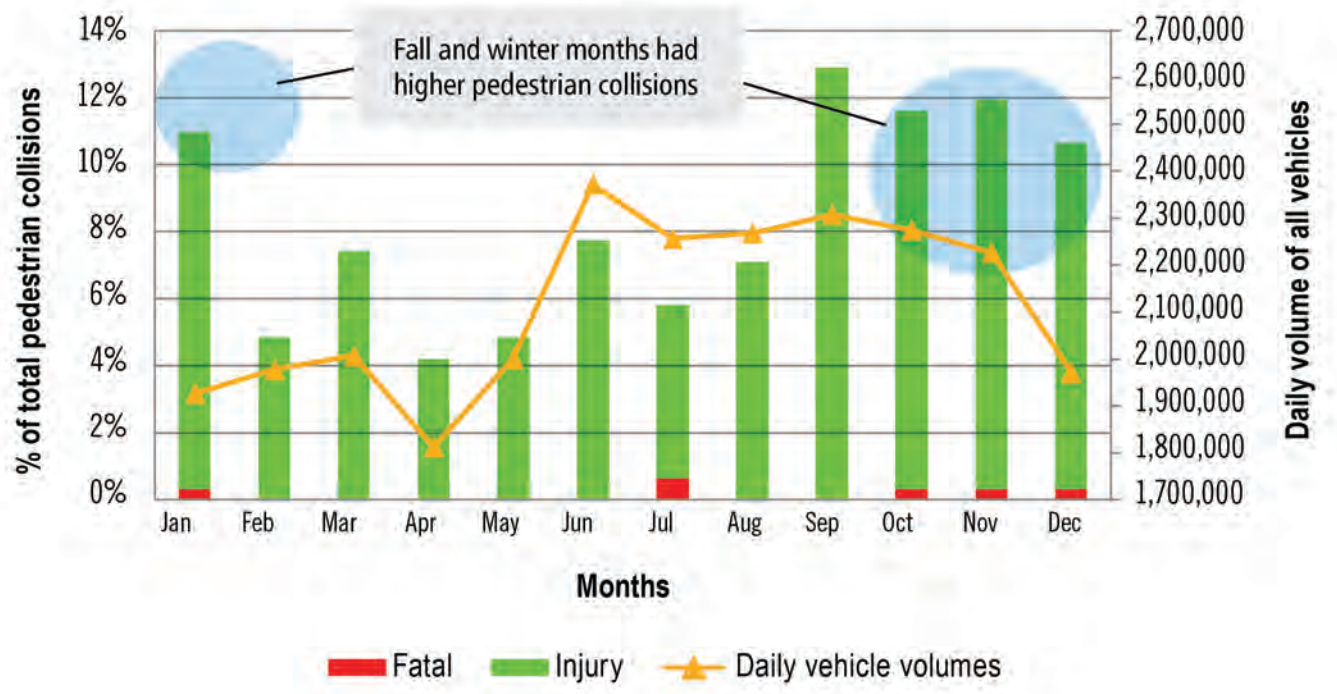
- In 2021, the pedestrian collision rate has decreased by 37% likely due to the traffic reduction seen during the COVID-19 pandemic because of public health restrictions (when compared to 2017-2020 annual average)
- Almost all pedestrian collisions (93%) resulted in pedestrian injury or death
- Young pedestrians were most likely to be injured in collisions and senior pedestrians over 75 years old were most likely to be fatally injured compared to other age groups
- Pedestrian safety was affected by environmental factors like daylight hours
- Most pedestrian collisions occurred at intersections (82%) because of high presence and a high occurrence of conflict points between vehicles and pedestrians
- Right-of-way conflicts between pedestrians and motor vehicles and associated driver human errors were the cause of most pedestrian collisions, especially at intersections
- Enhancing traffic control measures to traffic signals or all-way stops, significantly reduces the frequency of angle collisions

The Region continues to implement measures to address priority pedestrian safety concerns:

- Implementing community safety zones in all school locations to encourage compliance with the rules of the road
- Expanding automated speed enforcement in select school zones
- Implementing leading pedestrian intervals, right turn on red signal restrictions, fully protected left turns and signage at priority intersections using a data-driven approach
- Installing pedestrian crossing devices in accordance with provincial criteria
- Educational campaigns, including the award-winning Pledge to Ignore campaign and the Be visible. Be seen. campaign

Pedestrian collisions by month, day and time

PEDESTRIAN COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021



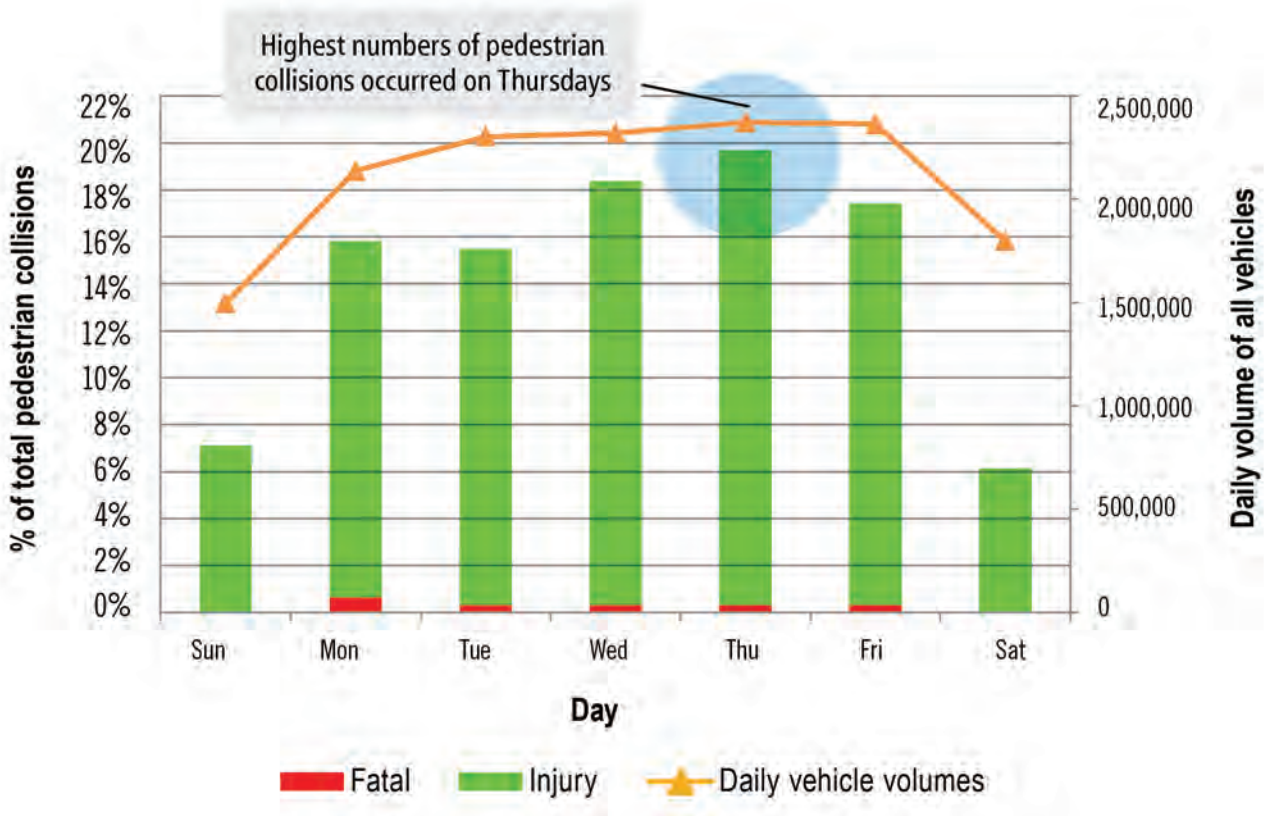
*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Pedestrian collisions occurred throughout the year, with the highest number of these collisions occurring in the fall and winter from October to January, despite the average daily vehicle volumes being low. This is likely the result of daylight hours becoming shorter and pedestrians being less visible. The daily volumes on Regional roads for April and May were lower for 2020 and 2021 than typical travel patterns due to public health restrictions relating to the COVID-19 pandemic.

Did you know?

York Region's Be visible. Be seen. campaign targets motorists and pedestrians to be more visible to each other in the fall.

PEDESTRIAN COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

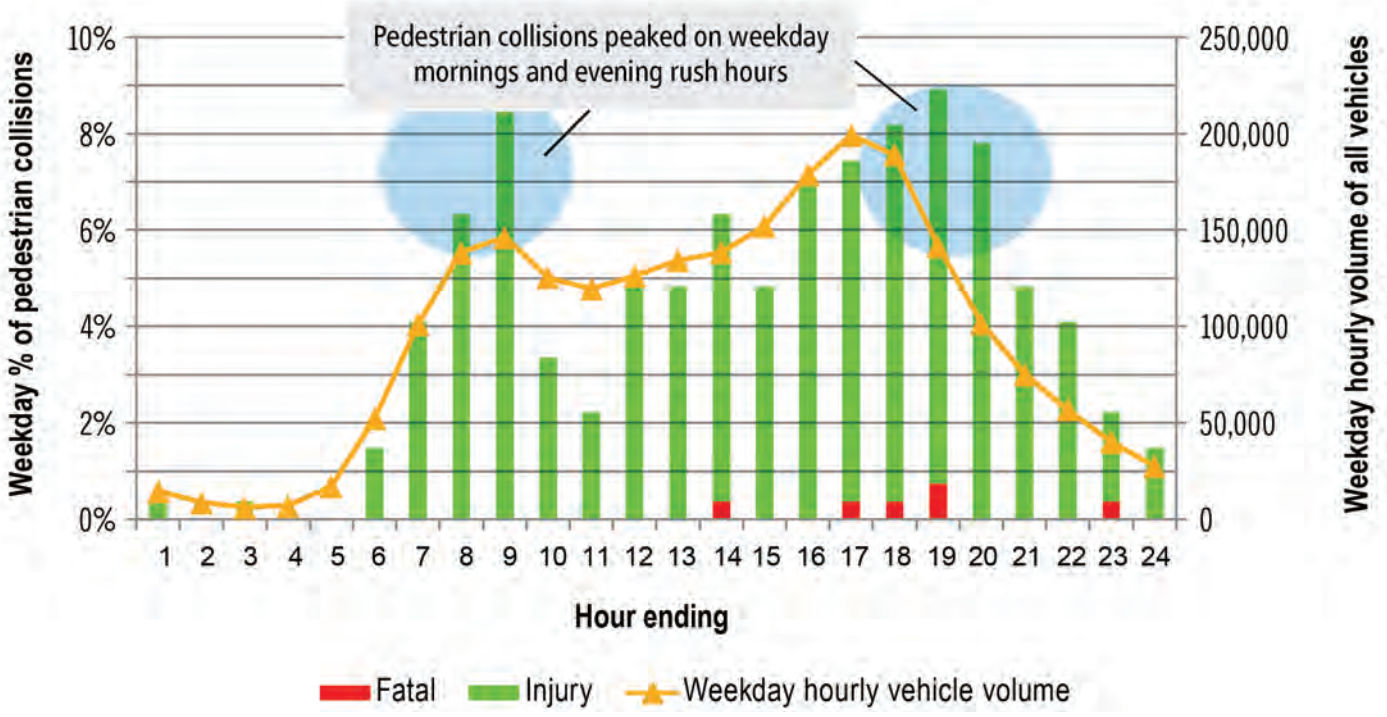
Pedestrian collisions were more likely to occur on Thursday and Friday, correlating closely with typical weekly traffic patterns.

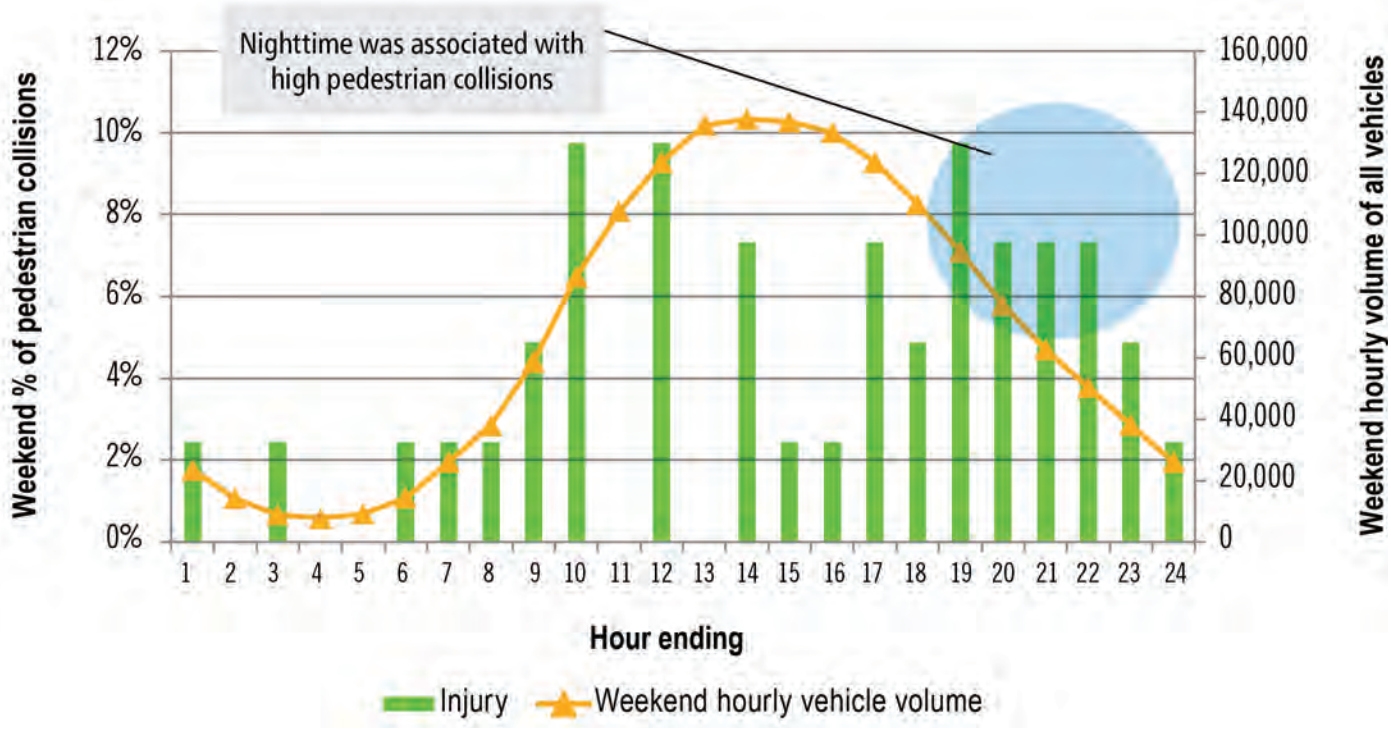
Be visible. Be seen.

The highest number of pedestrian collisions occurred between 7 a.m. and 9 a.m., and 5 p.m. and 7 p.m. on weekdays. Traffic and pedestrian volumes are typically highest during these times, due to morning and evening commutes to work and school. On weekends, pedestrian collisions are more likely to occur in the evening, between 6 p.m. and 7 p.m., and 9 p.m. and 10 p.m. when the road environment is darker and pedestrians are less visible.

The annual fall campaign, Be visible. Be seen, reminds travellers that shorter daylight hours, changing weather and reduced visibility make pedestrians less visible to motorists. The campaign raises awareness about how to stay visible and encourages all travellers to look out for each other.

PEDESTRIAN COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021





*Collision data is from YRP MVC reports

*Number of trips is based on TTS studies and Region's PCS data

Age profile

Pedestrians, cyclists, and motorcycle riders are all vulnerable road users who are most at risk when a collision occurs. They do not have the protection of seatbelts, airbags and the shell and metal frame of four-wheeled vehicles.

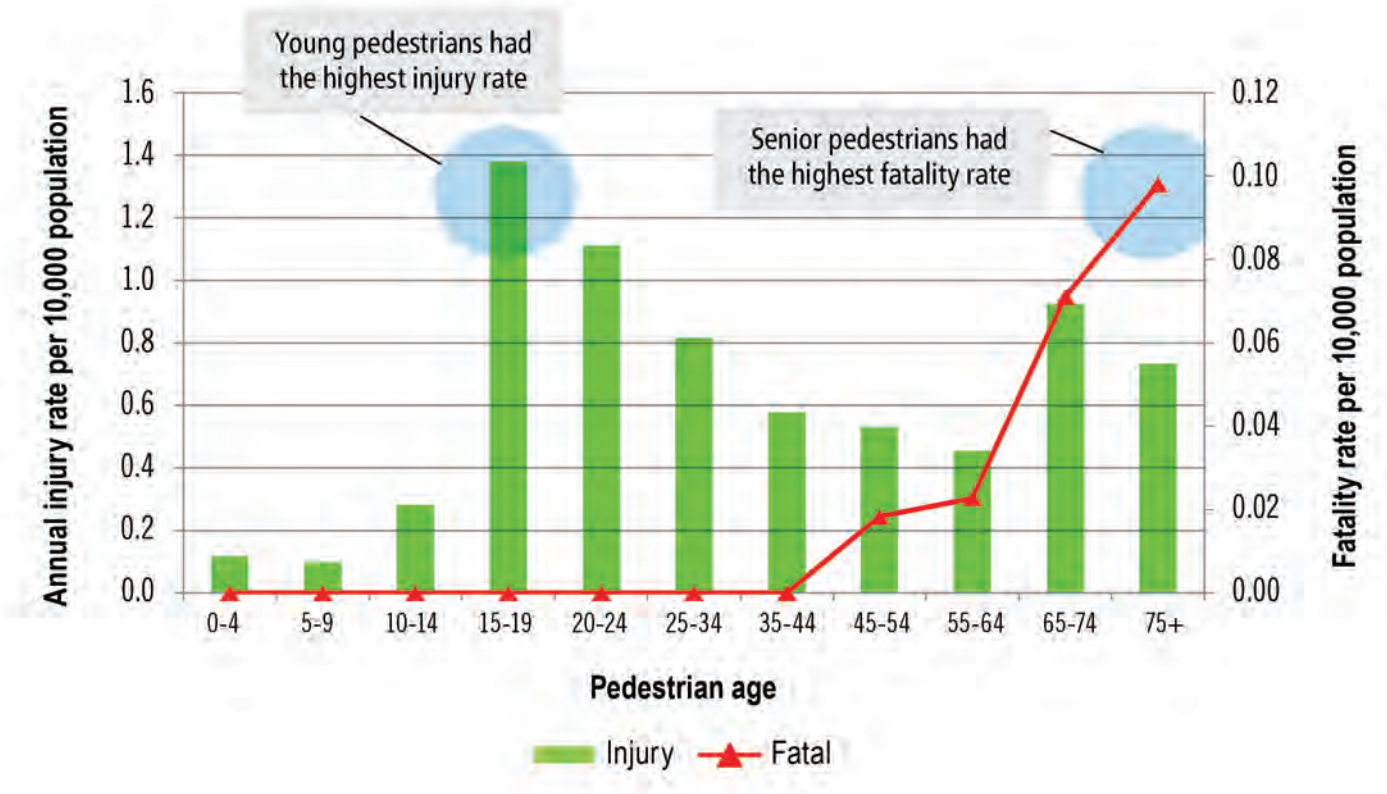
Children may put themselves at risk because of inexperience. The elderly and those with mobility issues are especially vulnerable due to decreased ability to take evasive actions.

Pedestrians ages 15 to 19 years are most likely to get injured in a collision. Senior pedestrians 75 years and older who are involved in a collision have the highest fatality rate.

Based on 2021 hospitalization data from York Region Public Health, collisions resulted in:

- 16 to 29-year-old pedestrians having the highest rate of emergency department visits
- Pedestrians 70 years of age and older having the highest rate of hospitalization

INJURED OR FATALLY INJURED PEDESTRIANS AGE DISTRIBUTION



*Collision data is from YRP MVC reports
*Population data is from Statistics Canada

Pedestrian collision locations

Most pedestrian collisions occur at intersections with traffic signals

Intersections have the highest pedestrian presence and a high rate of conflict points between vehicles and pedestrians. More than 80% of collisions involving pedestrians occur at signalized intersections.

The top 10 pedestrian collision locations, based on 10-year totals, are listed in the table below.

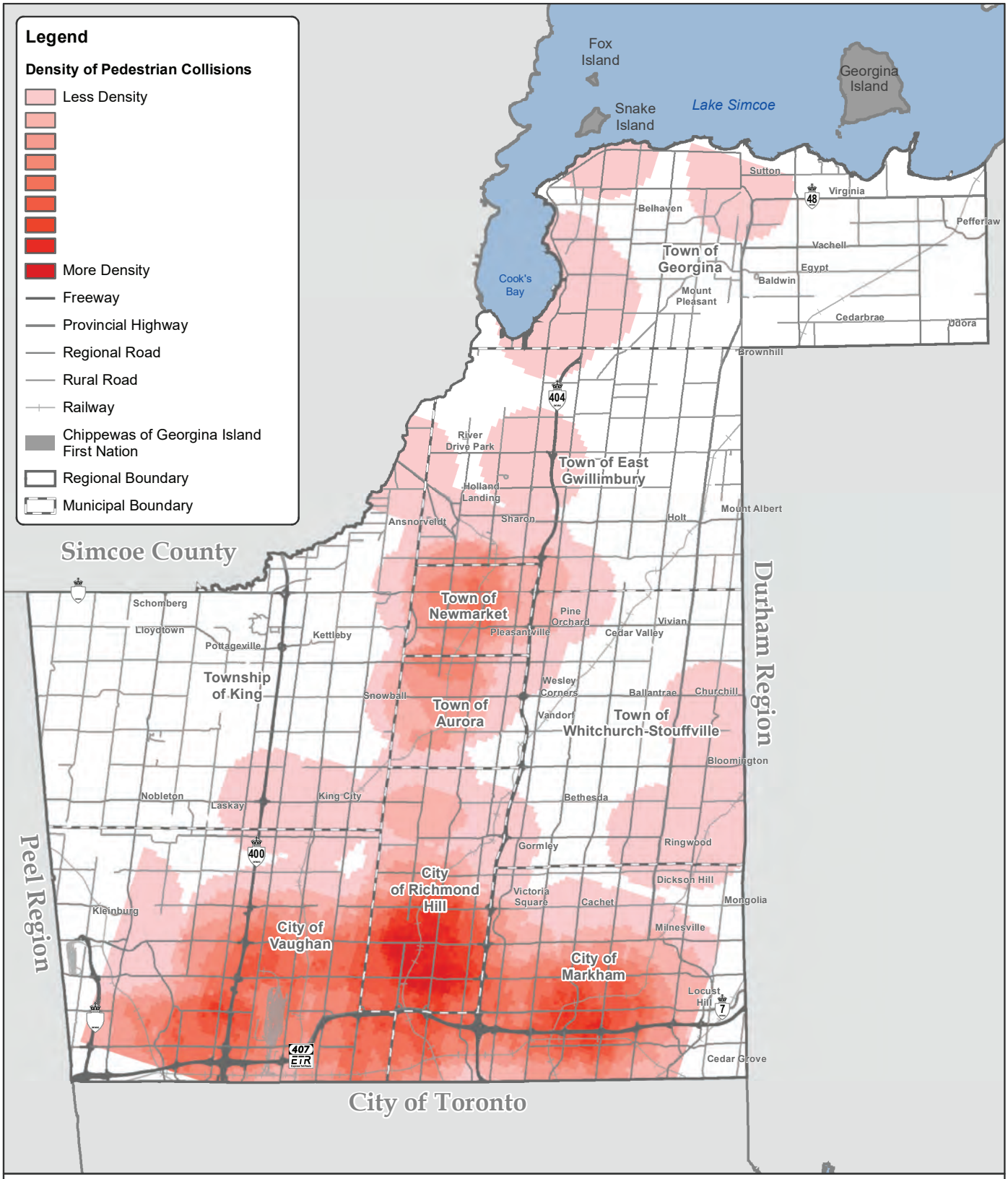
TOP 10 HIGHEST PEDESTRIAN COLLISION FREQUENCY LOCATIONS, 10-YEAR TOTAL 2012-2021

Location	Municipality	Ten Year Injury	Ten Year Total
Yonge Street and Carrville Road/16th Avenue	Richmond Hill	14	17
Highway 7 and McCowan Road	Markham	13	16
Major Mackenzie Drive West and Jane Street	Vaughan	14	15
Wellington Street East and Yonge Street/ Wellington Street West	Aurora	13	14
Yonge Street and Clark Avenue/Clark Avenue West	Markham	13	13
Highway 7 and Weston Road	Vaughan	12	13
Highway 7 and Pine Valley Drive	Vaughan	11	12
Yonge Street and Mulock Drive	Newmarket	10	11
Centre Street and North Promenade/Disera Drive	Vaughan	10	11
Major Mackenzie Drive East and Bayview Avenue	Richmond Hill	9	10

*Collision data is from YRP MVC reports

Locations of all reported pedestrian collisions on Regional roads from 2019 to 2021 are shown on the collision density map on the next page.

Pedestrian collisions overwhelmingly occur in urban areas. Many of these intersections have been rebuilt as part of vivaNext Rapidway corridors with enhanced pedestrian safety features, such as two-stage pedestrian crossings, protected left turn movements, enhanced crosswalk pavement markings and reduced curb space designed to slow down right-turning vehicles. Others have been included as priority intersections for implementation of pedestrian safety measures.



2019-2021 Pedestrian collision hot spot locations map

2022 Annual collision statistics report

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York Region

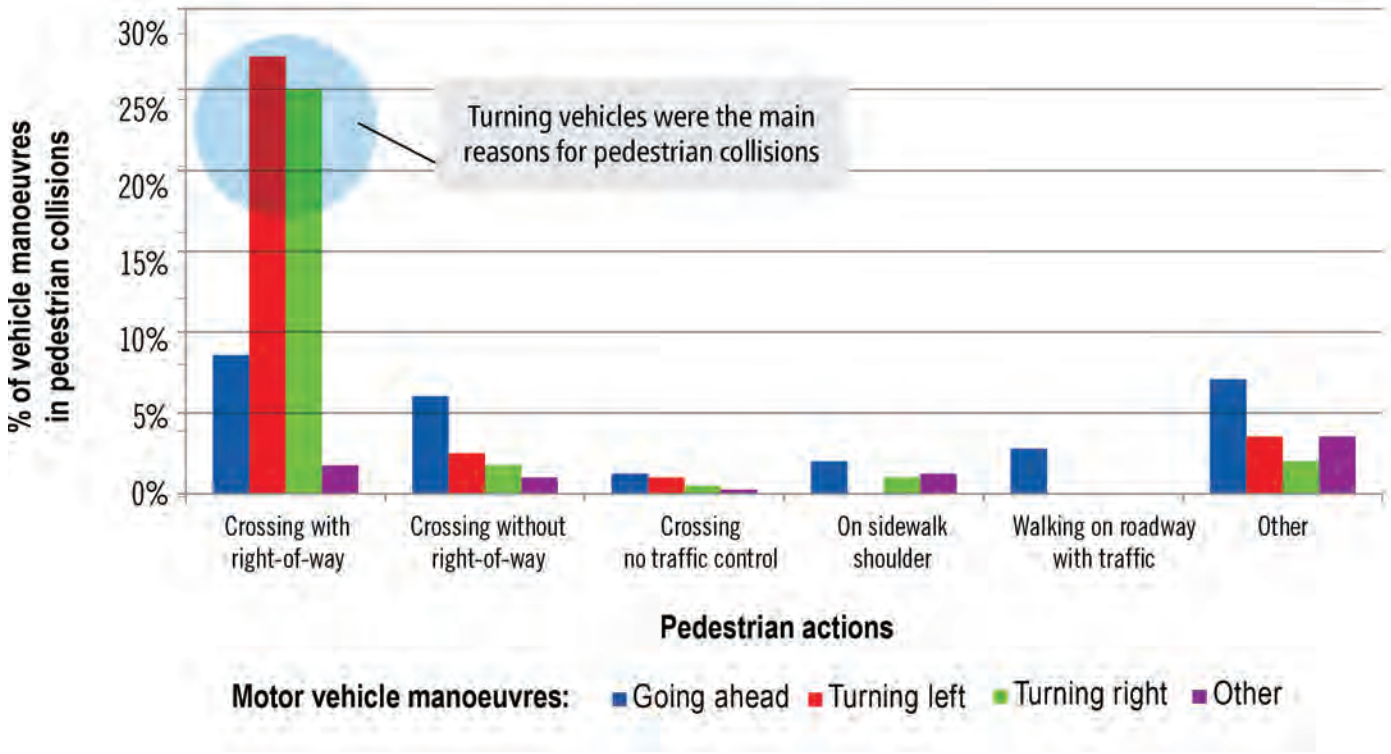
Produced by:
Transportation and Infrastructure Planning
Transportation Operations, Public Works

Driver and pedestrian action

Collisions between pedestrians and vehicles were found to be a direct result of improper driving actions. Pedestrians were considered at-fault in 31% of all pedestrian collisions. Of all collisions involving pedestrians and resulting from improper driving actions, 73% were a direct cause of drivers failing to yield the right-of-way; 8% were a result of drivers making improper turns.

Pedestrians crossing without the right-of-way, including crossing mid-block without a marked crosswalk or crossing against the flow of traffic at a signalized intersection, accounted for 47% of all pedestrian at-fault collisions.

MOTOR VEHICLE MANOEUVRES IN PEDESTRIAN COLLISIONS



*Collision data is from YRP MVC reports

Overall, 64% of pedestrian collisions involved vehicles making left or right turns. Most occurred when pedestrians were crossing with the right-of-way.

Did you know?

73% of pedestrian collisions were a direct cause of drivers failing to the yield right-of-way.

Pedestrian safety measures

Pilot programs to help change driver behaviour

Improving pedestrian safety remains a priority. As part of a pilot, we are implementing leading pedestrian intervals (pedestrian gets a head start in crossing the road), right turn on red signal restrictions, fully protected left turns and signage, to help reduce conflicts between drivers and pedestrians and increase driver awareness of pedestrians. Operational measures implemented at the pilot intersections have been successful in reducing conflicts and collisions for all road users. Vehicle-to-pedestrian conflicts have been reduced by more than 90%, total collisions reduced by more than 60% and angle collisions, which typically result in serious injury, by 75%. Based on positive results in reducing conflicts and collisions for all road users, these measures will remain in place at the following four intersections:

- Bathurst Street and Carrville Road/Rutherford Road, City of Richmond Hill
- Bathurst Street and Clark Avenue, City of Vaughan
- Major Mackenzie Drive and Bayview Avenue, City of Richmond Hill
- Yonge Street and Clark Avenue, City of Vaughan

Given the success in reducing collisions at these four intersections, the same measures will be implemented in 2022/2023 at six additional intersections in the cities of Markham and Vaughan. These have been identified and selected as having the best opportunity to improve pedestrian and cyclist safety, using a data-driven approach:

- 16th Avenue and Woodbine Avenue, City of Markham
- 16th Avenue and Main Street Markham/ Highway 48, City of Markham
- Highway 7 and Martin Grove Road, City of Vaughan
- Highway 7 and McCowan Road, City of Markham
- Highway 7 and Kennedy Road, City of Markham
- McCowan Road and Carlton Road/Raymerville Drive, City of Markham

Did you know?

York Region's Pedestrian and Cycling Intersection Safety pilot is the 2022 Transportation Association of Canada Road Safety Achievement award winner.

The Region is also implementing other improvements, including installation of Pedestrian Crossovers (PXOs), which consist of new signs and pavement markings that help to enhance the mobility of pedestrians. A PXO is ideal for a location where some pedestrian demand exists, but volumes are not enough to warrant traditional traffic or pedestrian signal installations. A PXO can be converted to a pedestrian signal in the future if it meets the warrant criteria. York Region Council approved a PXO policy in 2021, including the installation of three PXOs on Regional roads:

- Yonge Street at Holland Landing Community Centre (2021), Town of East Gwillimbury
- Baseline Road west of Dalton Road (2022), Town of Georgina
- Ninth Line and Elm Road (2022), Town of Whitchurch-Stouffville

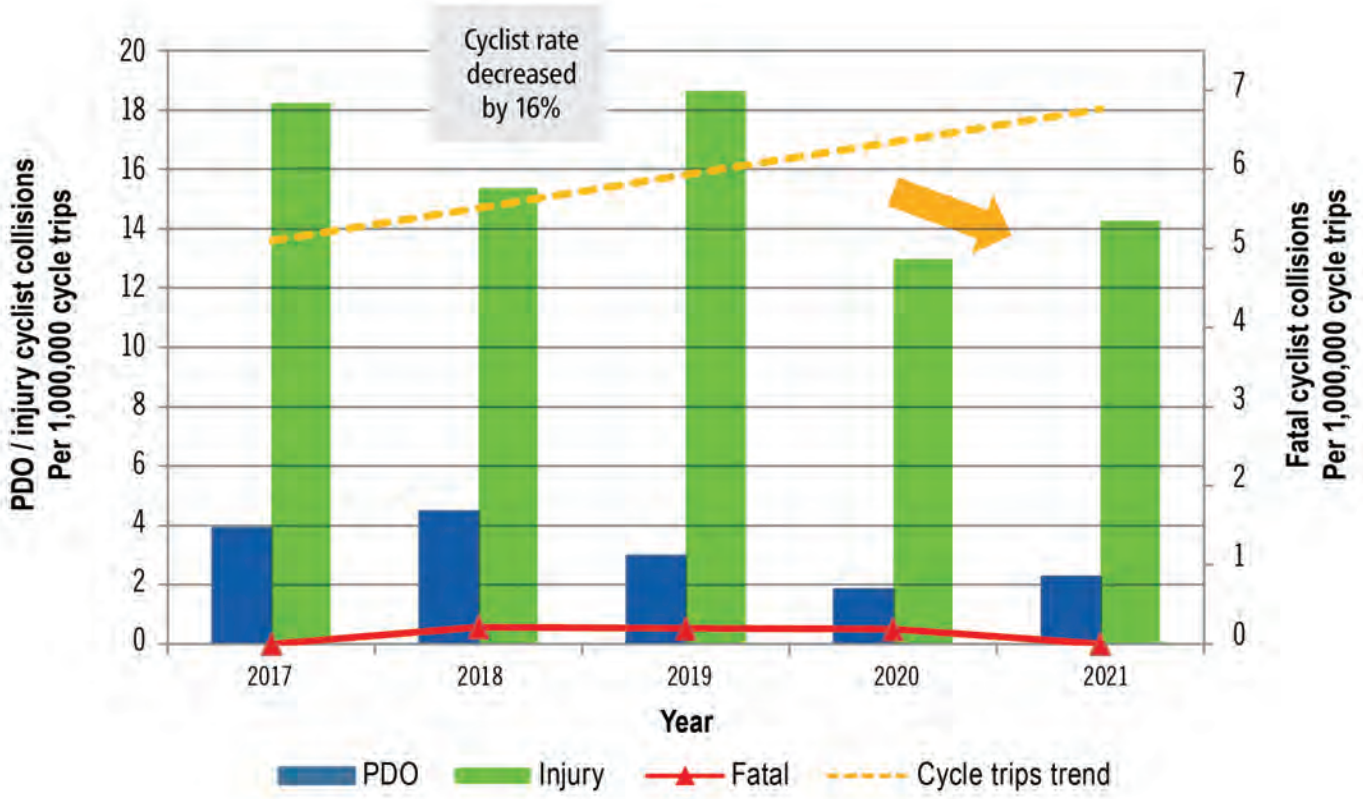
In 2021, PXOs were also installed at the channelized right-turn lanes for the locations below to improve pedestrian safety:

- Islington Avenue and Rutherford Road, City of Vaughan
- Major Mackenzie Drive and Bathurst Street, City of Richmond Hill
- Highway 7 and Highway 27, City of Vaughan

On May 27, 2021, Regional Council approved changes to the Region's speed limit policy to allow speed limits to be reduced by 10 km/h in more than 60 school zones. New school zone maximum speed limit signs introduced by the MTO were installed and all signs show reduced speed limits in effect from 7 a.m. to 5 p.m., September to June. This initiative creates consistency and enhances safety during peak commute periods when children are walking and cycling, being dropped off or picked up and during school and after-school activities.

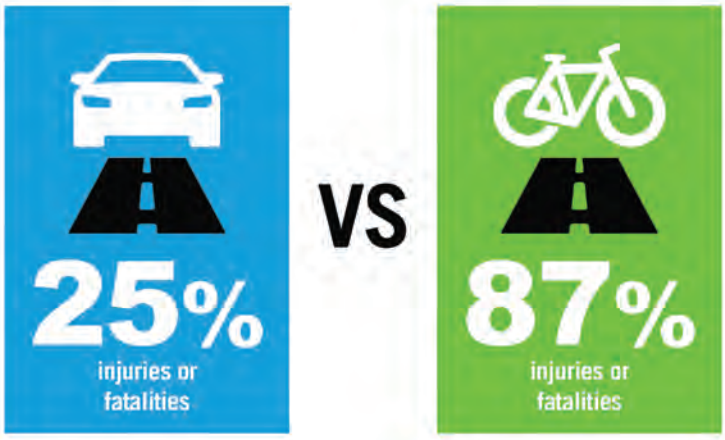
Cyclists

CYCLIST COLLISION RATES, 2017-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies
*Cyclist collisions include e-scooters and e-bikes, as these vehicles are coded as bikes in YRP MVC reports

Although the number of cycle trips being made on Regional roads has increased, injury collision rates have decreased. However, cyclists sustained injury in more than 87% of all cyclist collisions, while 25% of motor-vehicle only collisions resulted in injuries or fatalities.



Key trends observed in 2021:

- Cyclist collisions saw a decrease of 16% likely due to reduced traffic as a result of COVID-19 pandemic public health restrictions (when compared to 2017-2020 annual average)
- Majority (87%) of cycling collisions resulted in injury or death
- Young cyclists were found to be most likely to get injured or fatally injured in collisions
- Cyclist collisions were highly seasonal and mostly in summer months when cyclist activity is highest
- Majority of collisions involving cyclists occurred at intersections (78%) because of high cyclist presence and conflict points between vehicles and cyclists
- Motor vehicle drivers were most likely to be at-fault (71%) in cyclist collisions
- Cyclists were found to be at the greatest risk crossing signalized intersections with right-turning vehicles

Promoting safe cycling

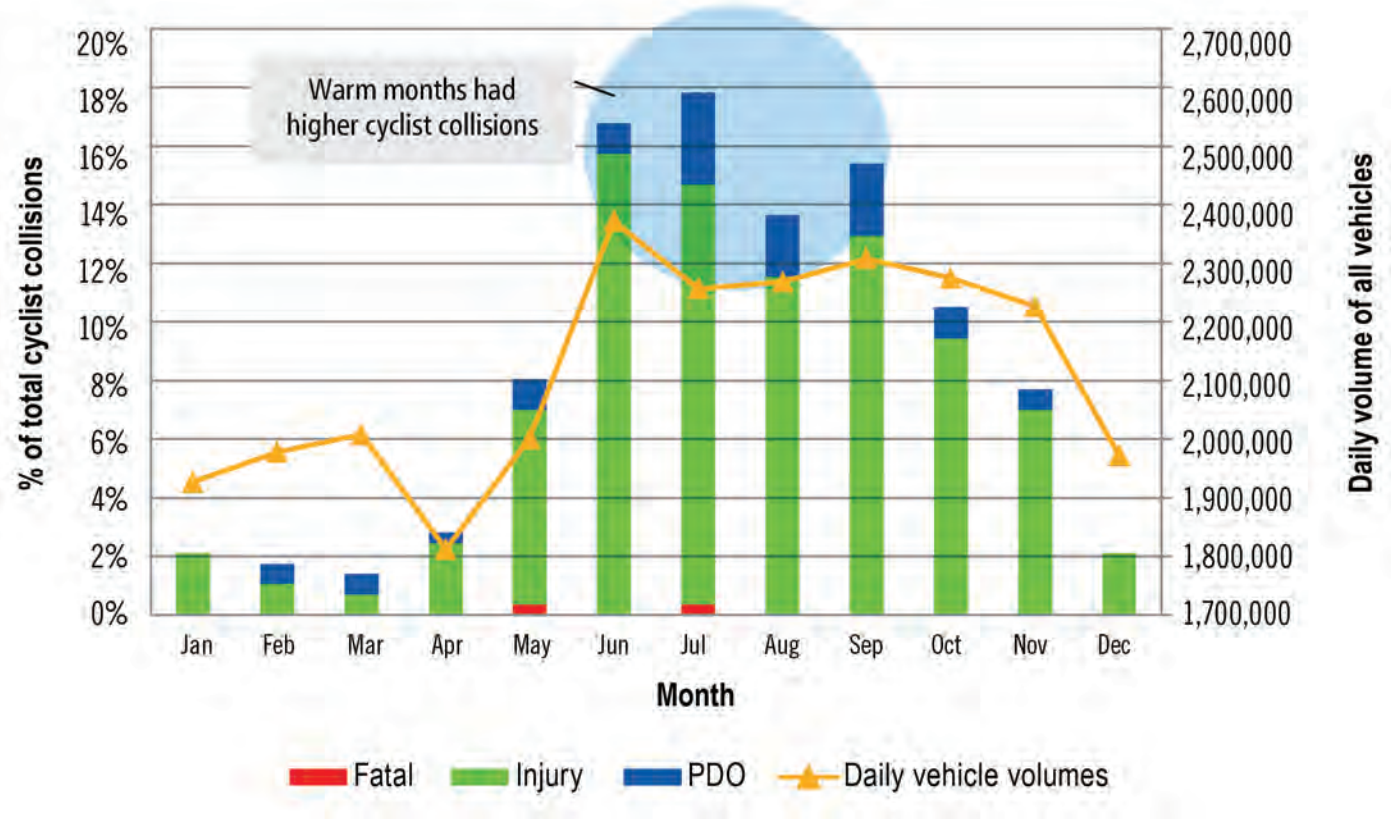
Through the york.ca/cycling web page and various initiatives, the Region continually provides cycling safety education and promotes safe cycling

Many of the Region's safety measures are jointly aimed at pedestrian and cycling safety, including:

- Piloting leading pedestrian intervals, right turn on red restrictions, fully protected left turns and signage at intersections with high conflict rates between cyclists and motorists
- Reducing speed limits in all school zones on Regional roads to protect vulnerable road users
- Bike lanes and multi-use pathways (MUPs) at major cycling corridors
- Continued expansion of the Region's trail network including advancing the Lake to Lake Cycling Route and Walking Trail and the South York Greenway Cycling, Pedestrian and Micromobility Corridor
- Cycling safety and education resources, including the award-winning Pledge to Ignore campaign and the Be visible. Be seen campaign are available at york.ca/cycling

Cyclist collisions by month, day and time

CYCLIST COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021

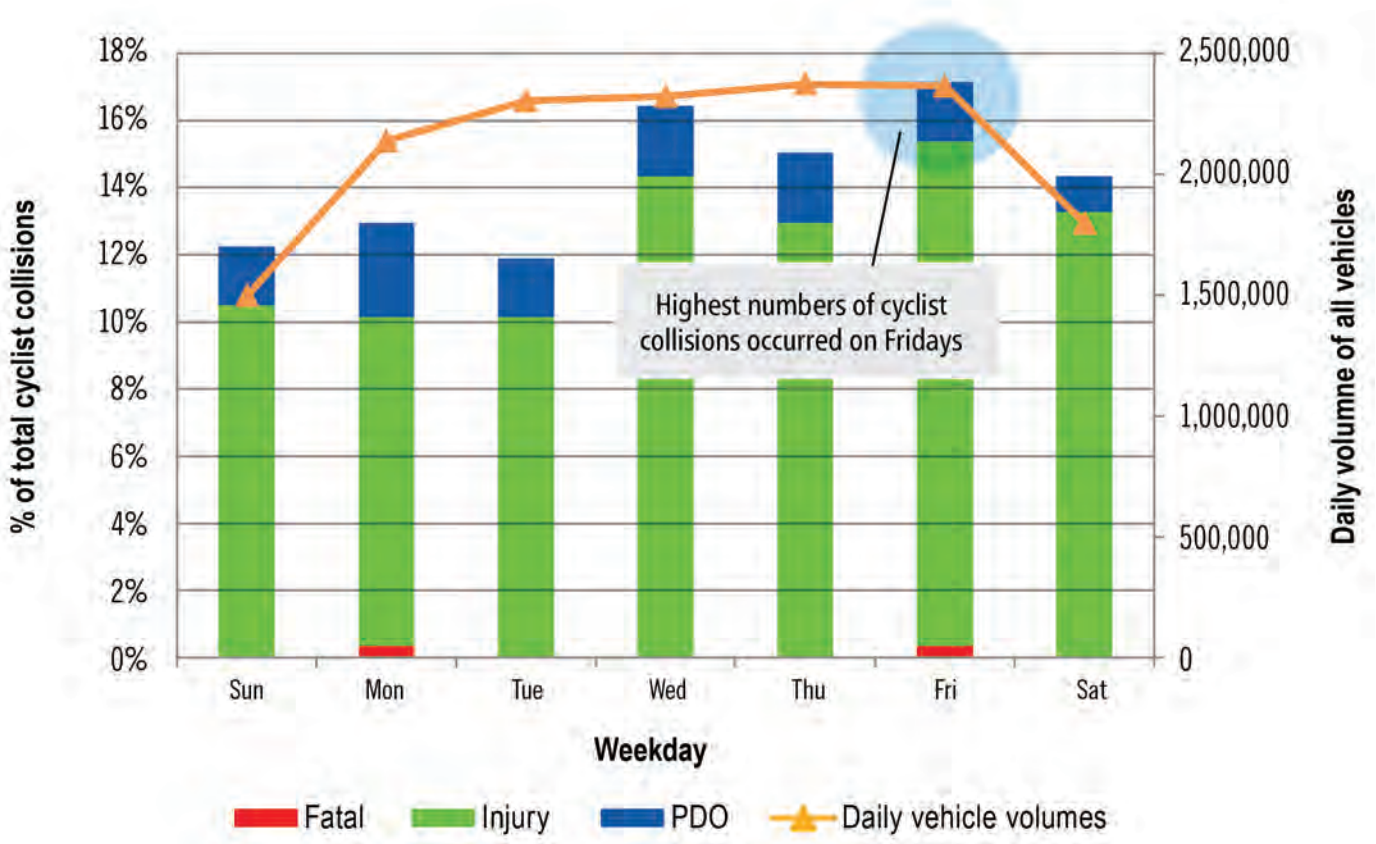


*Collision data is from YRP MVA reports
*Number of trips is based on TTS studies and the Region's PCS data

Cyclist collisions occurred in nearly every month of the year, with most occurring in the summer (June to September), accounting for 64% of the total.

In contrast, only 5% of cyclist collisions occurred in the winter (January to March) as fewer cyclists tend to be on the roads when the weather is less favourable.

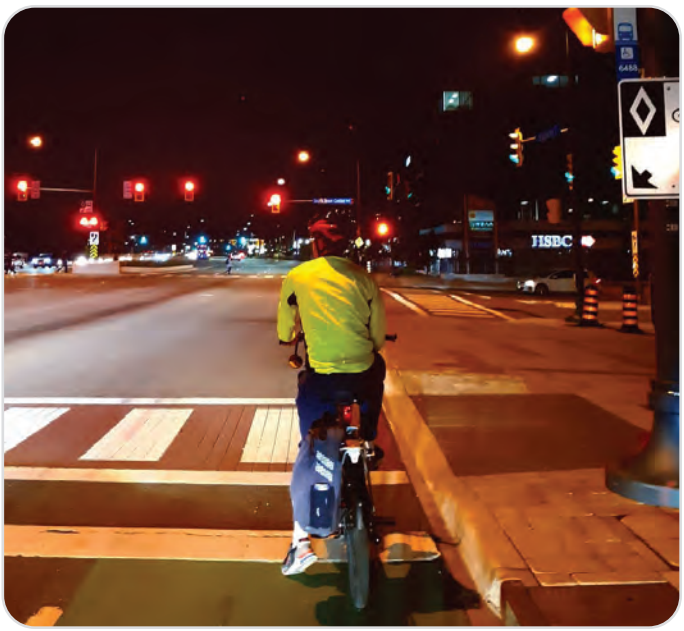
CYCLIST COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021



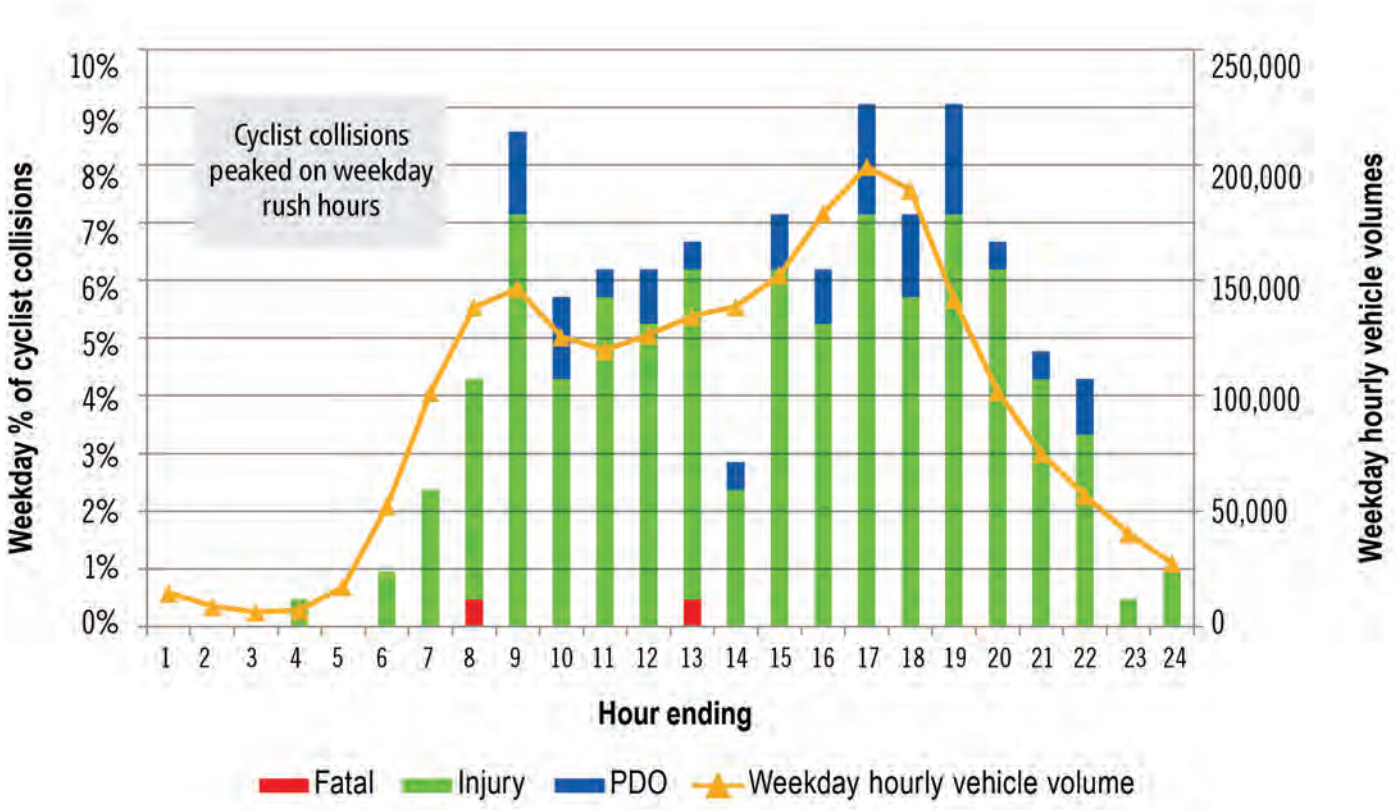
*Collision data is from YRP MVA reports
*Number of trips is based on TTS studies and the Region's PCS data

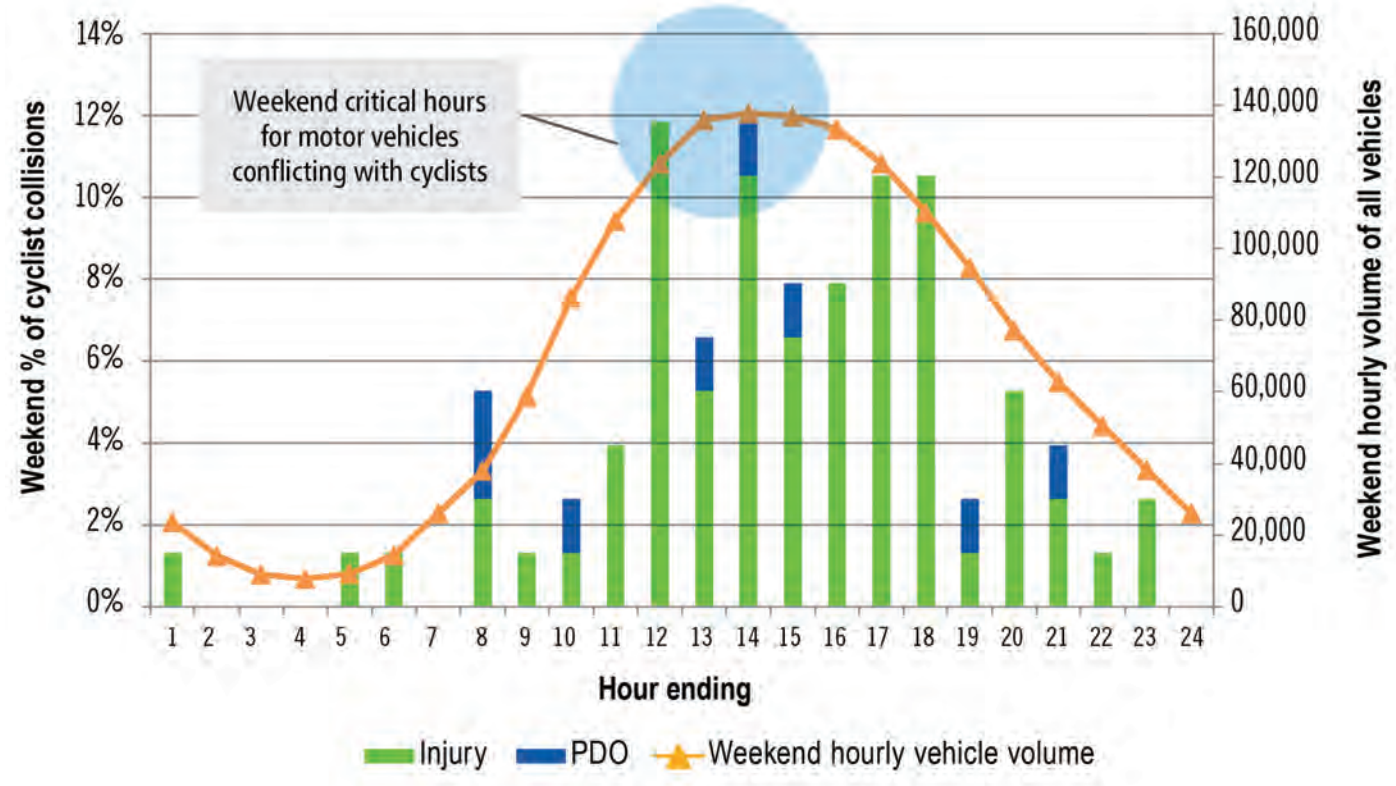
Cyclist collisions were more likely to occur near the end of the week, correlating closely with typical weekly traffic and pedestrian patterns.

Cyclist collisions generally follow traffic volume trends, similar to pedestrians, with peaks generally in the morning and evening periods on weekdays and mid-day on weekends.



CYCLIST COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021

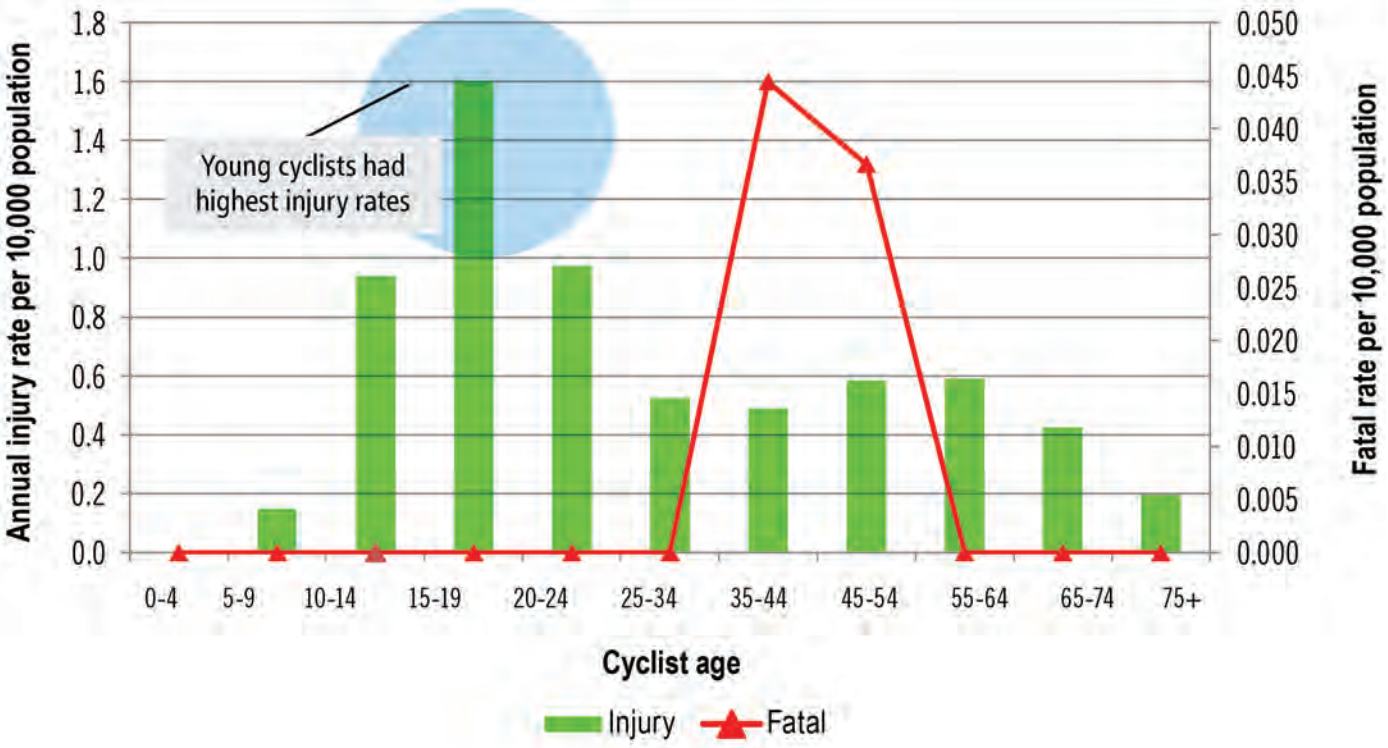




*The collision data is from YRP MVC reports
*The number of trips is based on TTS studies and Region's PCS data

Age profile

AGE OF INJURED OR FATALLY INJURED CYCLISTS, 2019-2021



*Collision data is from YRP MVC reports
*Population data is from Statistics Canada

As shown in the figure above, cyclists ages 15 to 19 years are most likely to be injured from a cyclist collision. This is the same age group for pedestrian collisions that are associated with high injury risks. Measures and campaigns that benefit pedestrian safety can improve cyclist safety as well.

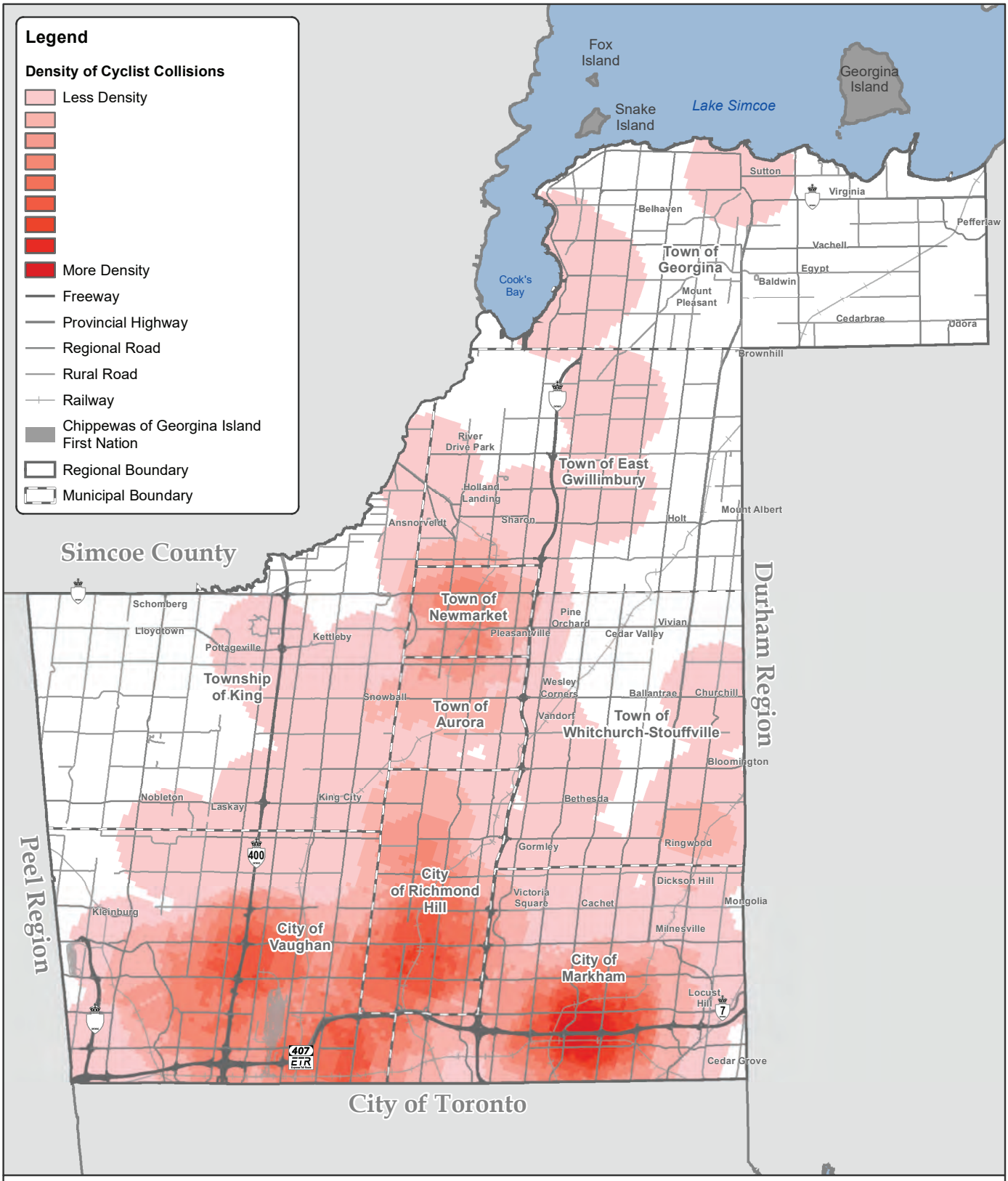
Cyclist collision locations

Most cyclist collisions occur at intersections with traffic signals

A collision density map showing the locations of all reported cyclist collisions on Regional roads from 2019 to 2021 is illustrated on the next page.

Did you know?

78% of all cyclist collisions occurred at signalized intersections.



2019-2021 Cyclist collision hot spot locations map

2022 Annual collision statistics report

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York Region

Produced by:
Transportation and Infrastructure Planning
Transportation Operation, Public Works

The top 10 cyclist collision locations, based on 10-year totals, are listed in the table below:

TOP 10 HIGHEST CYCLIST COLLISION FREQUENCY LOCATIONS, 10-YEAR TOTAL, 2012-2021

Location	Municipality	10 year Injury	10 year Total
14th Avenue and Markham Road	Markham	9	9
Dufferin Street and Glen Shields Avenue	Vaughan	5	9
Kennedy Road and 14th Avenue	Markham	5	7
Kennedy Road and Denison Street	Markham	5	7
Major Mackenzie Drive West and Highway 400 NB Off-Ramp	Vaughan	4	7
Kennedy Road and Highway 407 EB Off-Ramp	Markham	6	6
Kennedy Road and Clayton Drive	Markham	6	6
Dufferin Street and Centre Street	Vaughan	6	6
Dufferin Street and Clark Avenue West	Vaughan	5	6
Kirkham Drive/Highglen Avenue at Markham Road	Markham	5	6
McCowan Road and Carlton Road/ Raymerville Drive	Markham	5	5

*Collision data is from YRP MVC reports

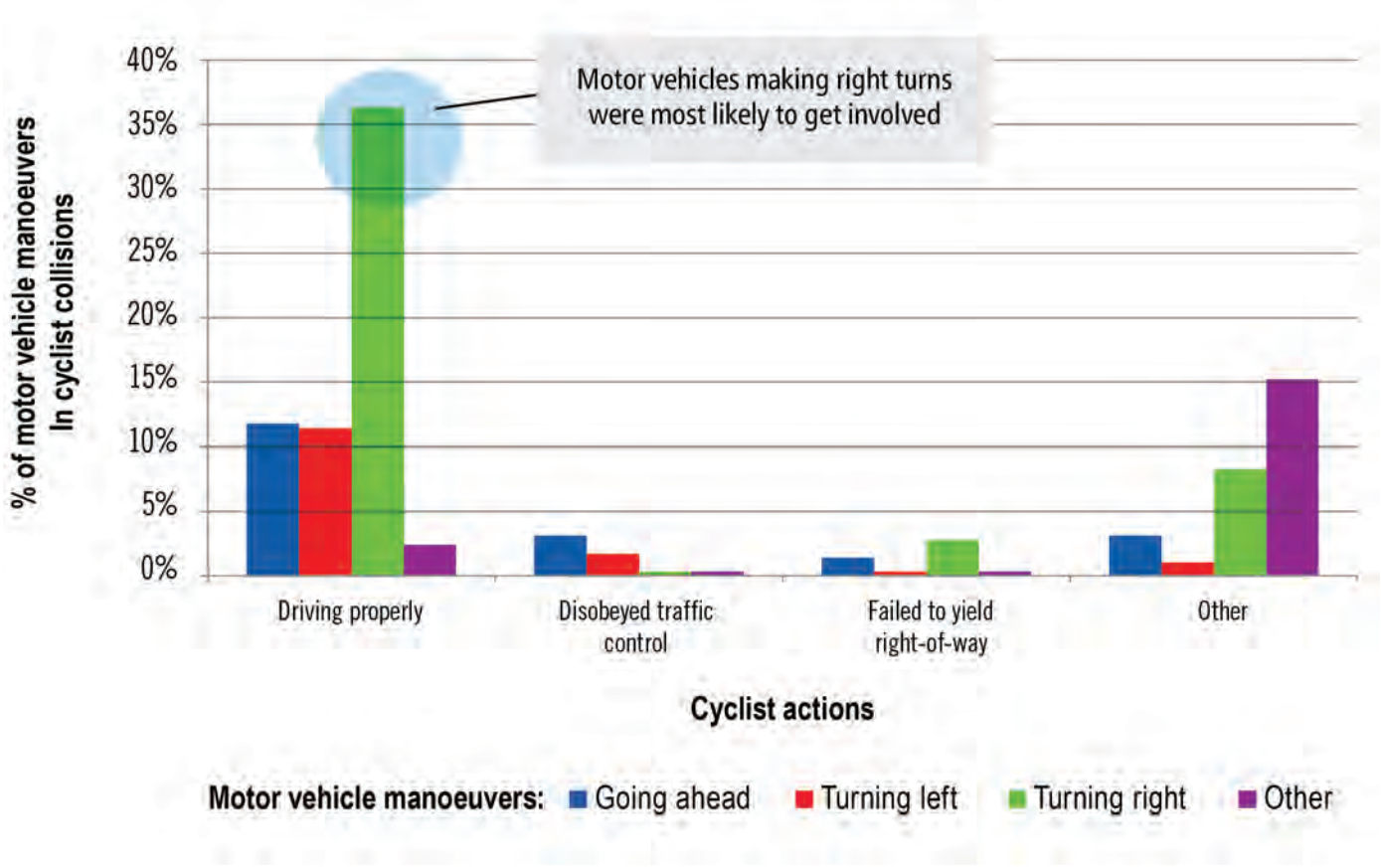
York Region has undertaken an Environmental Assessment (EA) Study to review the current and future transportation needs on Kennedy Road between Steeles Avenue and Major Mackenzie Drive in the City of Markham. The proposed Kennedy Road improvements project will include road widening, turning lanes and a multi-use path to expand the cycling network across the Region. An independent road safety audit will also be undertaken on Dufferin Street in the City of Vaughan to improve safety.

Driver and cyclist actions

Improper driver action is the main cause of cyclist collisions

Cyclist collisions were found to be predominantly attributed to improper driving actions by motorists. Cyclists were considered at-fault in only 29% of all cyclist collisions. Of all cyclist collisions resulting from improper actions by motorists, the majority were a direct cause of drivers failing to yield the right-of-way, followed by making improper turns. Cyclists failing to yield the right-of-way is the top cyclist at-fault action (19%).

MOTOR VEHICLE MANOEUVRES IN CYCLIST COLLISIONS



*Collision data is from YRP MVC reports

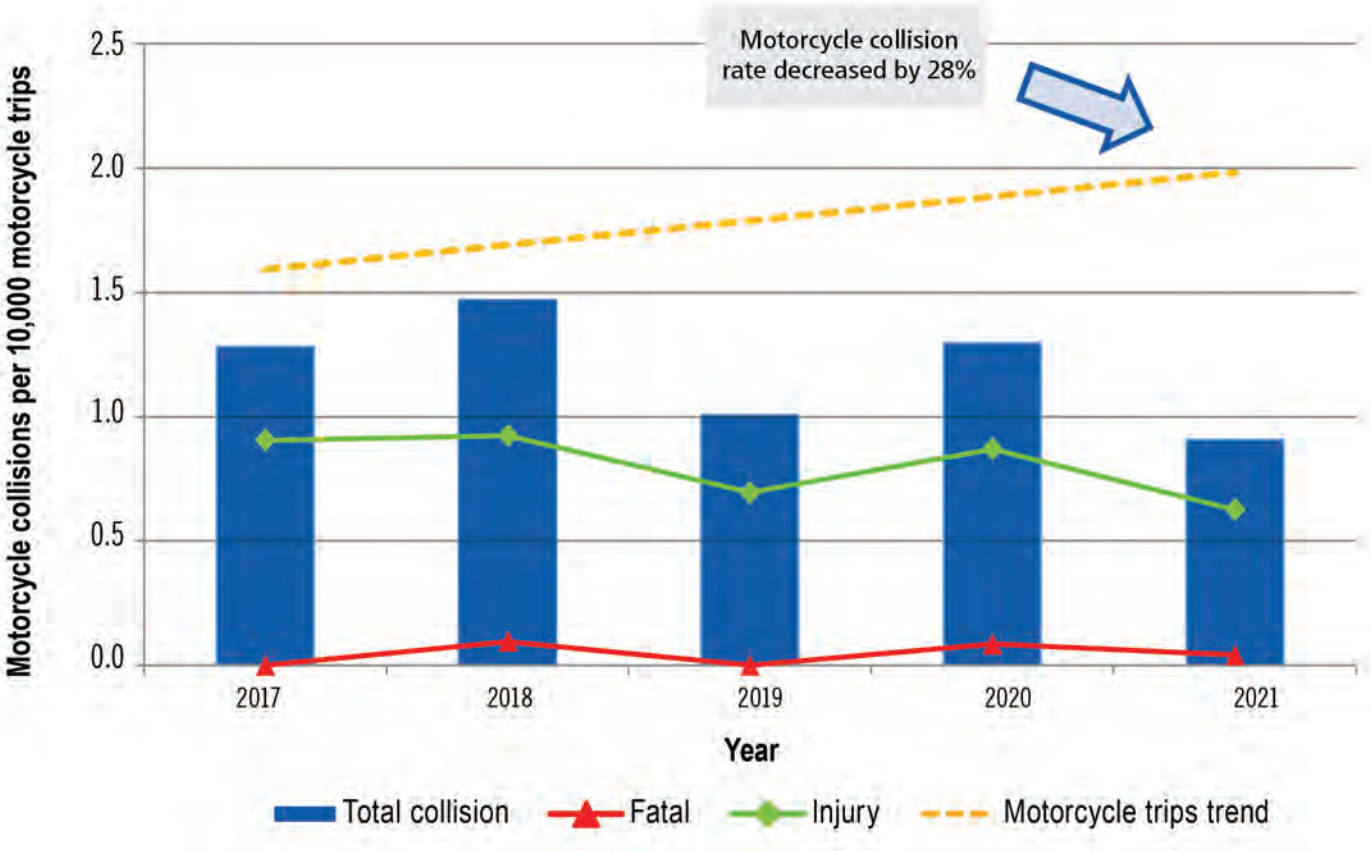
Overall, 55% of cyclist collisions involved motor vehicles making right turns and only 17% involved left-turning vehicles. Most of these collisions occurred when cyclists were crossing with the right-of-way. For collisions where cyclists failed to the yield right-of-way, right-turning vehicles were also more likely to get involved than forward-moving or left-turning vehicles.

Did you know?

Overall, 55% of cyclist collisions involved motor vehicles making right turns.

Motorcyclists

MOTORCYCLE COLLISION RATES, 2017-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies. 2020 trip adjustment based on data collected during pandemic.

Travel by motorcycle is growing in popularity

Sales of new motorcycles in Canada rose by 11% in 2020, and this likely resulted in increased motorcycle trips, especially those for recreation, during the COVID-19 pandemic. The Canadian motorcycle market statistics showed that 56,700 units were sold in 2019 and projects that motorcycles will maintain popularity, with sales reaching approximately 79,400 units in 2027. However, the motorcycle collision rate in 2021 is 28% lower than the 2017-2020 average.

Fatal collision rates for motorcycles have stayed at a very low level, but injury collision rates increased by 21%. Like pedestrians and cyclists, motorcyclists are vulnerable road users because they are unprotected by a shell and metal frame like four-wheeled vehicles. While 25% of motor vehicle collisions resulted in injuries or fatalities, the rate for motorcyclists was much higher at 72%.

Key trends observed:

- Traffic volume on Regional roads was reduced by about 10-35% in 2021 likely due to public health restrictions related to the COVID-19 pandemic, decreasing the motorcycle collision rate by 28% when compared to 2017-2020 annual average
- Most motorcycle collisions occurred in the warmer months of the year; weekdays and weekends had similar levels of daily motorcycle collisions and late night hours may be associated with increased motorcycle collision risk
- In multi-vehicle collisions involving motorcyclists, motorcyclists were most likely to be at-fault (55%)
- Motorcyclists were at higher risk to be involved in single vehicle collisions, mostly due to losing control of their motorcycles

The Region continues to put measures in place to address motorcycle safety including:

- York Regional Police and York Region motorcycle safety and awareness programs in the spring and summer

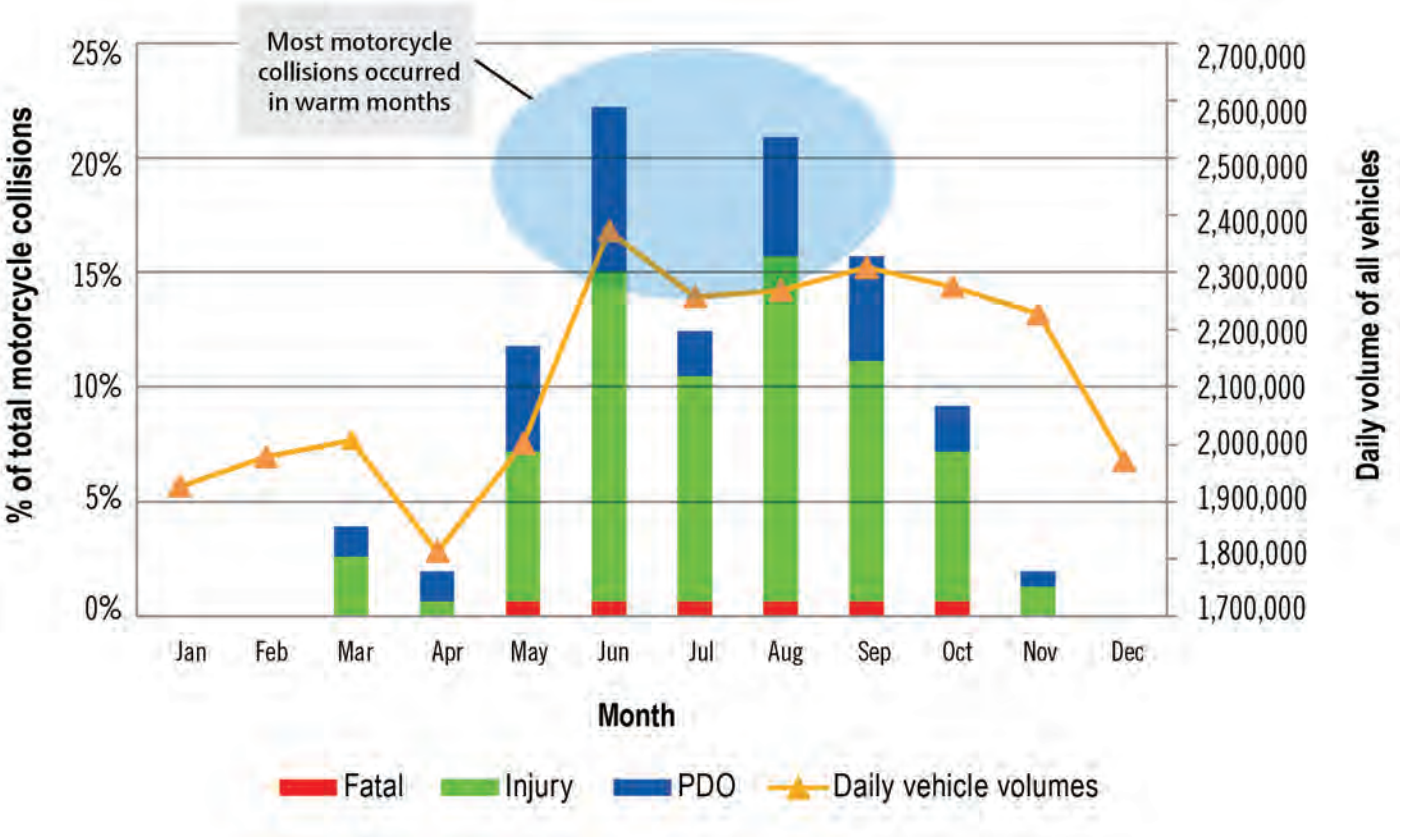
Did you know?

Motorcycle collision rates have decreased by 28% in 2021.

Motorcycle collisions by month, day and time

Approximately 92% of motorcycle collisions occurred from May to October, which are warmer months and associated with motorcycle activities.

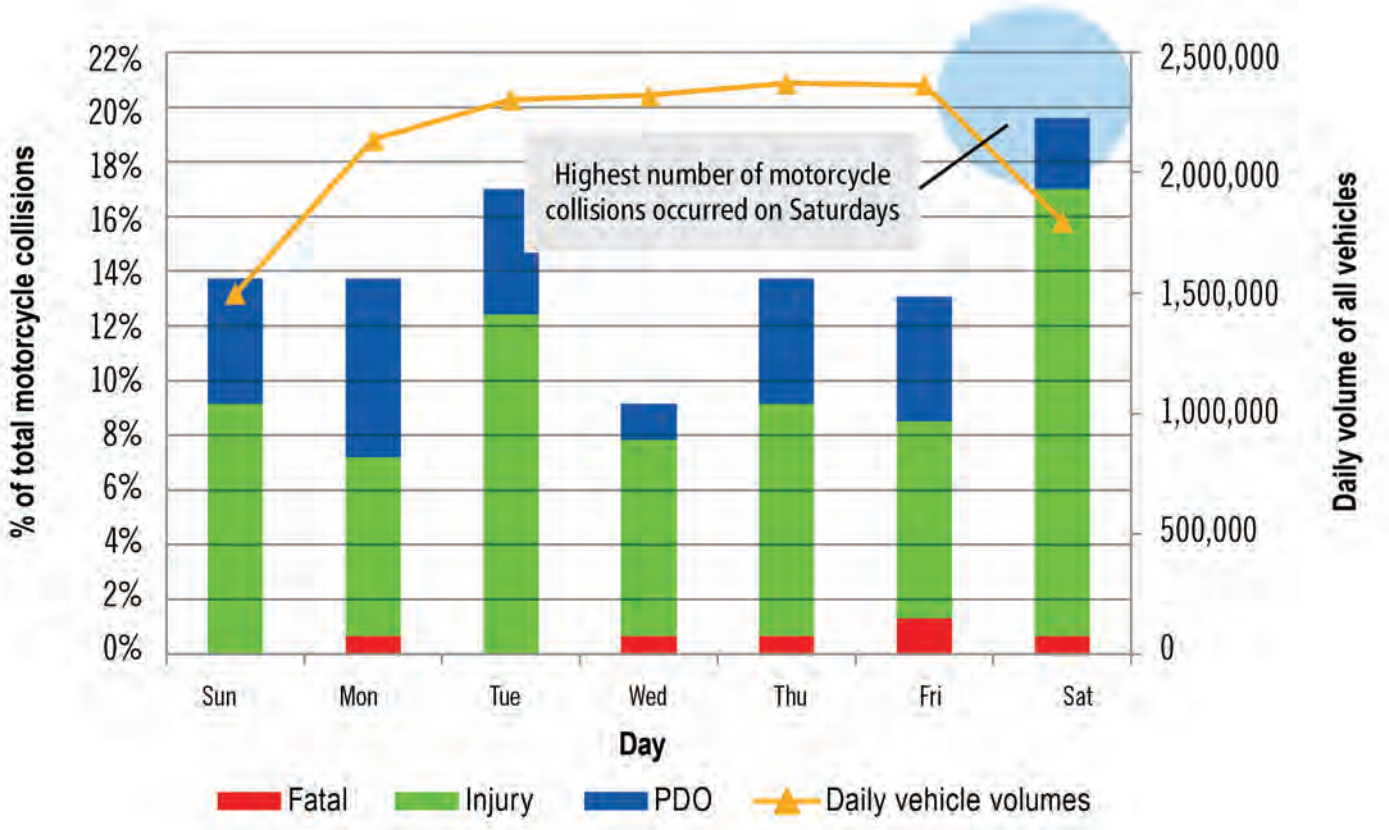
MOTORCYCLE COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

The daily number of motorcycle collisions on Saturdays was slightly higher than on weekdays. Motorcycle trips appear to be evenly distributed throughout the week, with more recreational motorcycle trips on Saturdays, while motor vehicle volumes were significantly lower during weekends.

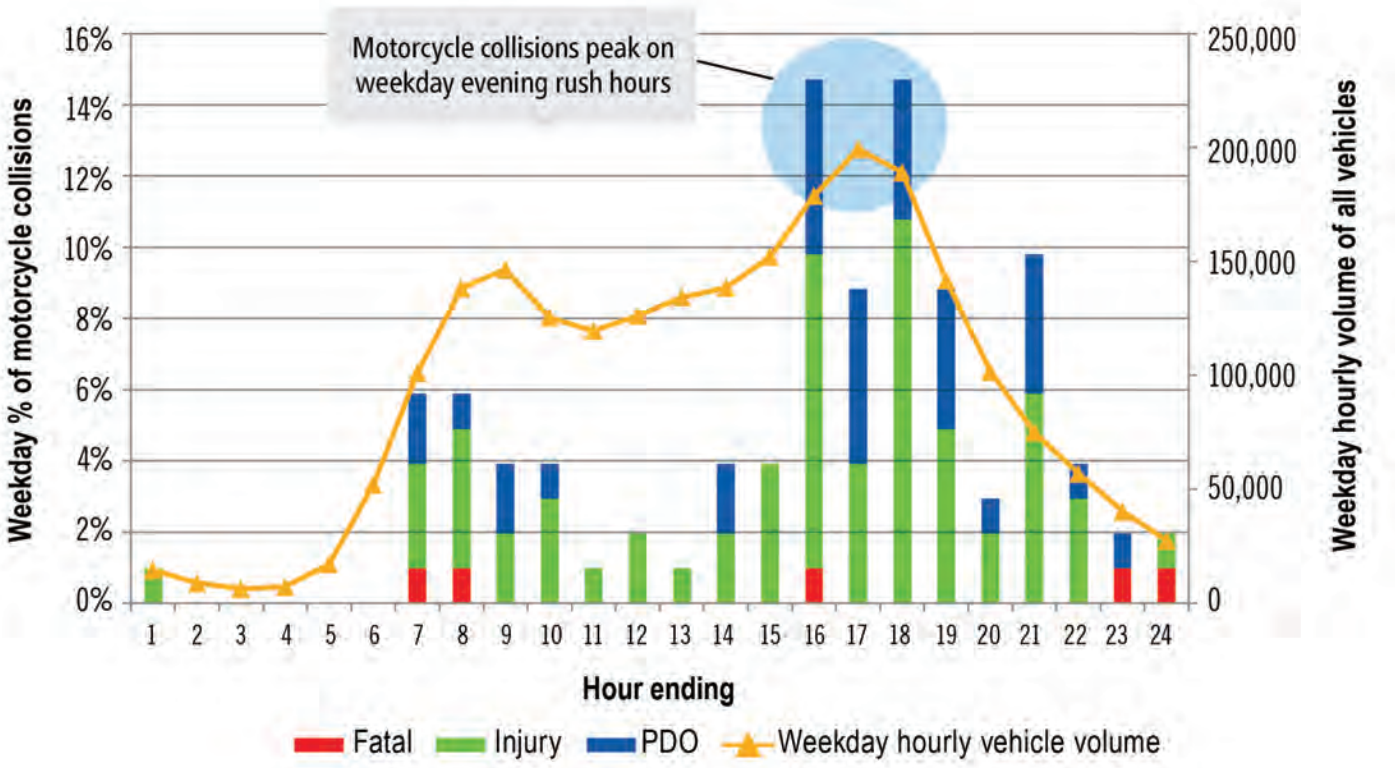
MOTORCYCLE COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021

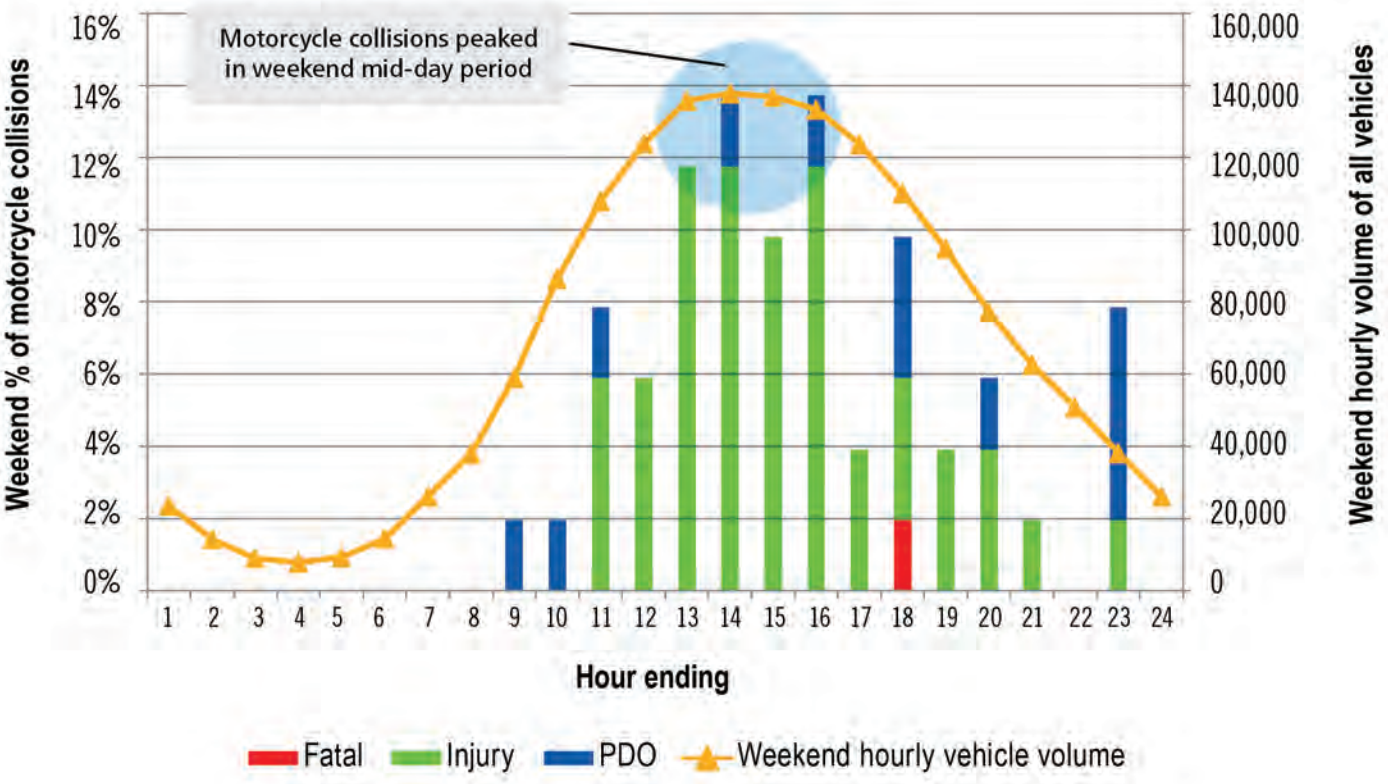


*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Motorcycle collisions generally correlate with recorded daily traffic volumes, with peaks in morning and evening rush hours on weekdays and mid-day on weekends. It is worth noting that motorcycle collisions increased around 9 p.m. on weeknights and around 11 p.m. on weekends, which could be due to risky behaviours in the late evening hours.

MOTORCYCLE COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021

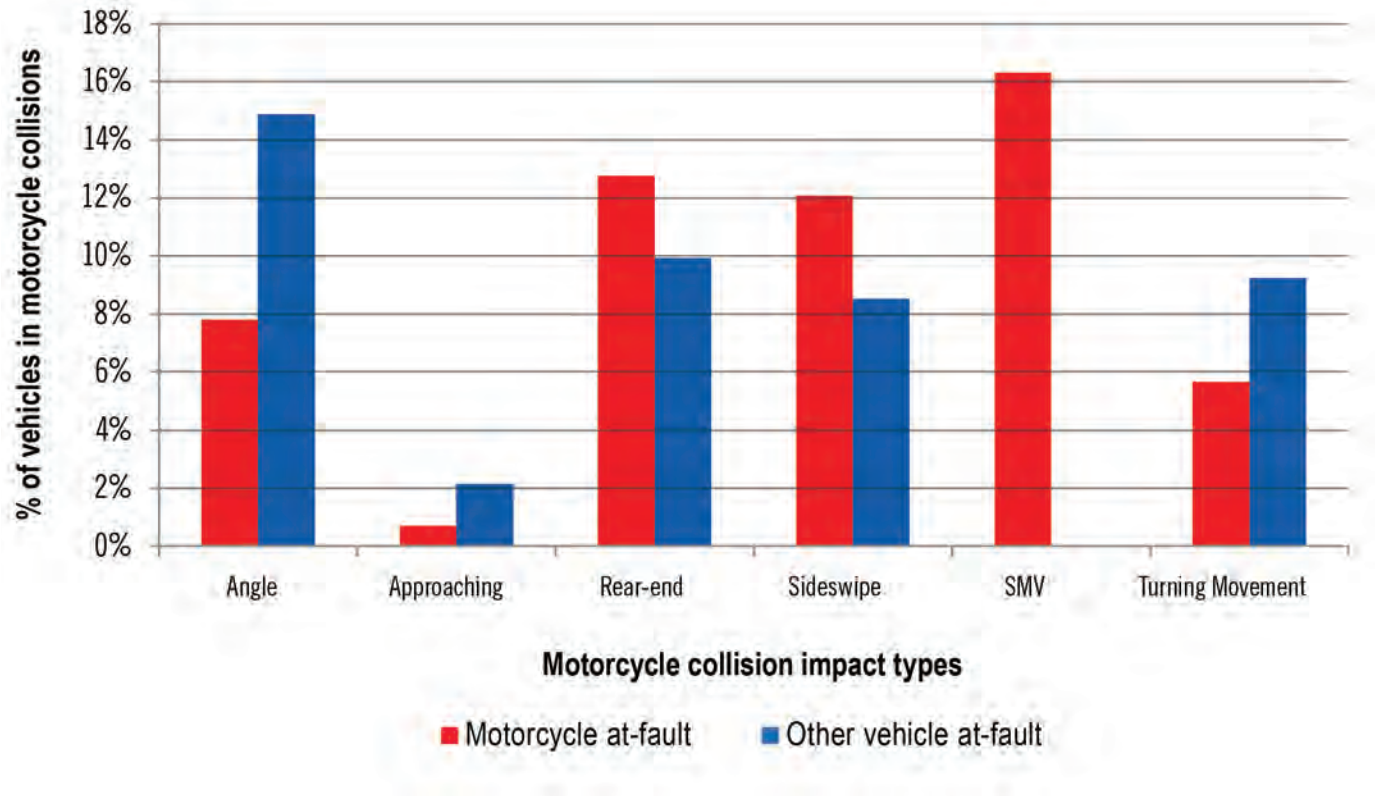




*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Driver actions and impact types

MOTORCYCLE COLLISION IMPACT TYPES AND DRIVER ACTIONS

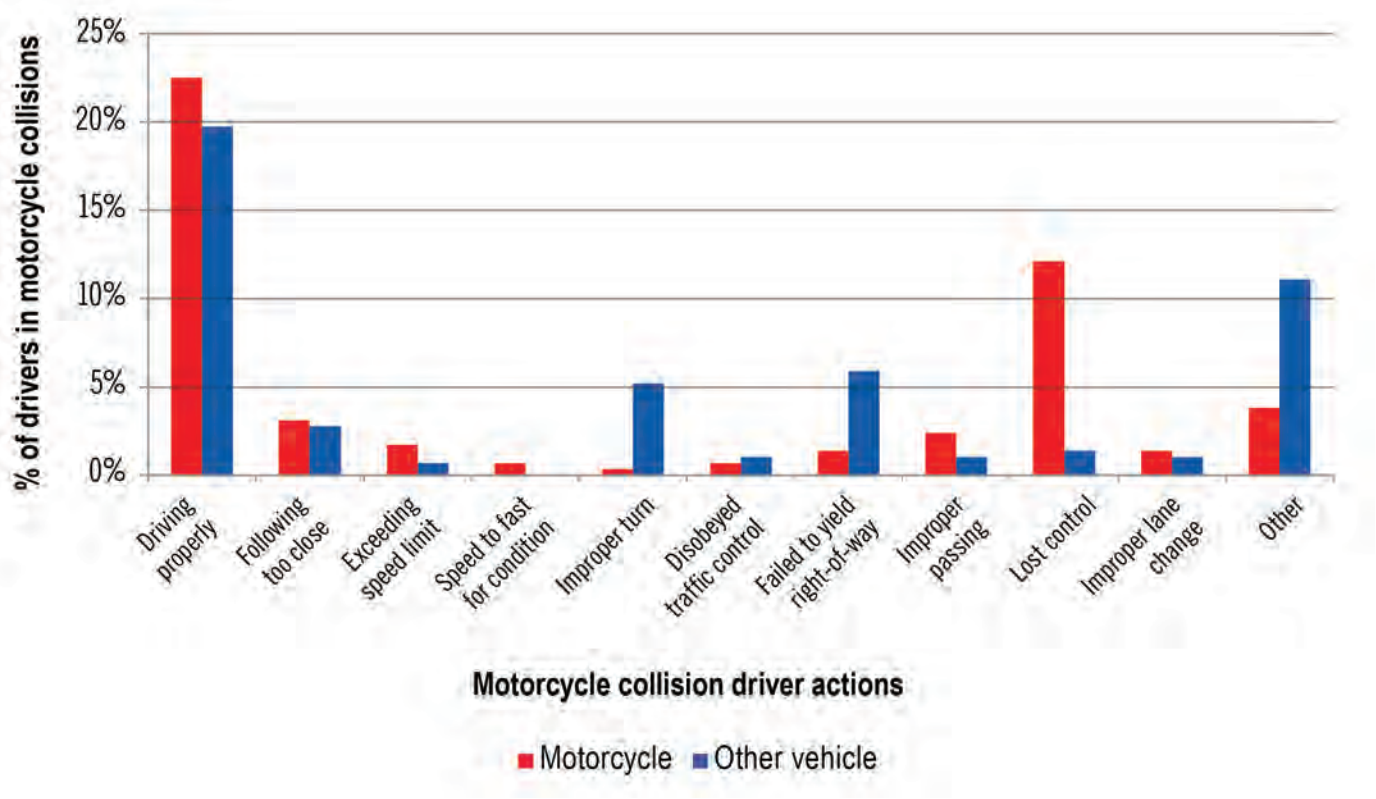


*Collision data is from YRP MVC reports

Motorcyclist actions can be difficult to predict due to the motorcycle's maneuverability or difficult to see due to their relatively small size. This explains why other types of vehicles are more likely to be at-fault in angle and turning movement collisions. The most common driver error made by other vehicles was improper turns, followed by failing to yield the right-of-way.

Motorcyclists tend to cause single motor vehicle collisions when they lose control of their motorcycles, and by rear-ending and sideswiping other vehicles due to improper lane changes or following too closely.

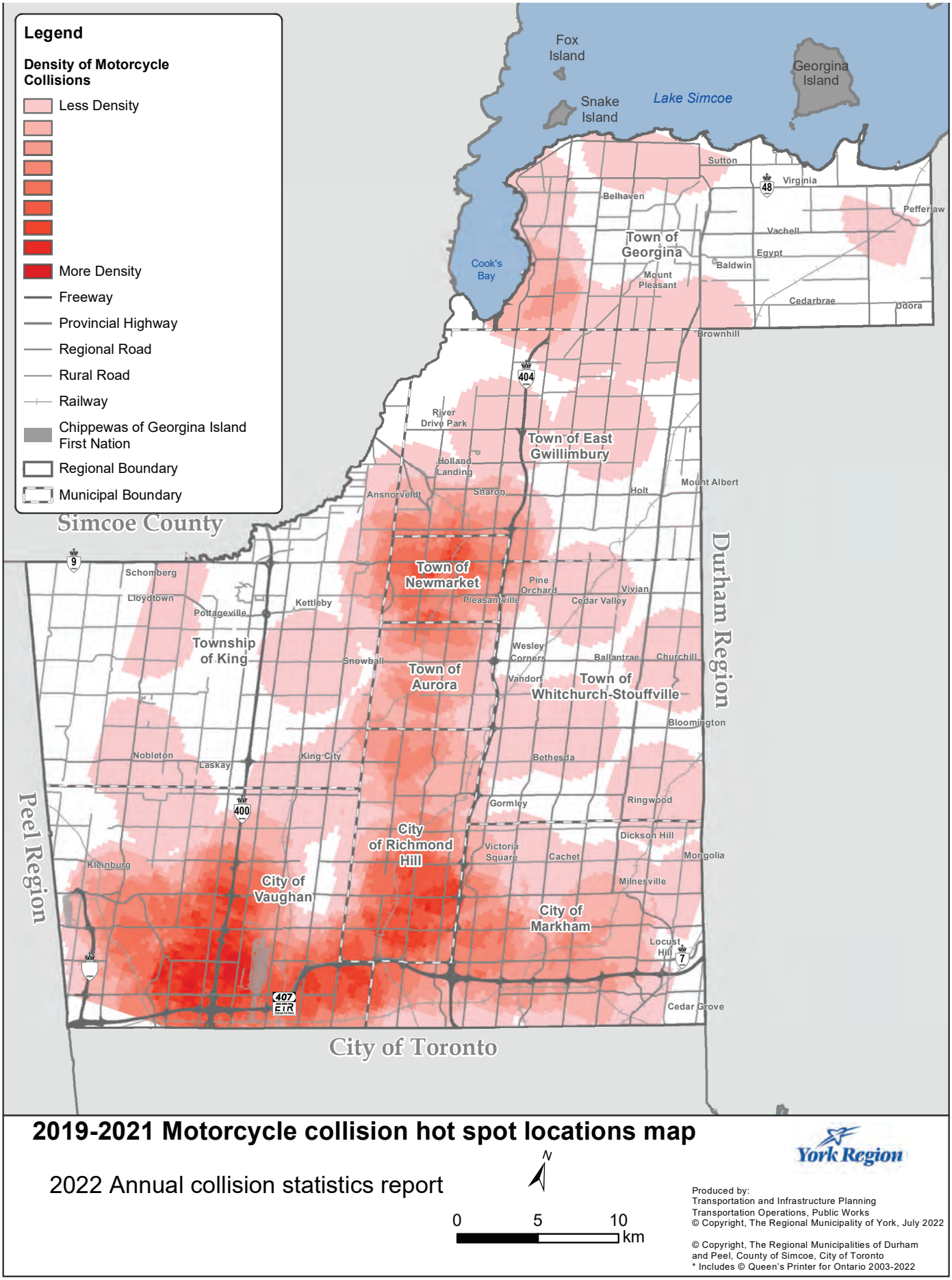
DRIVER ACTIONS IN MOTORCYCLE COLLISIONS



*Collision data is from YRP MVC reports

Motorcycle activity and collision locations

The collision density map that follows shows the location of all reported motorcycle collisions on Regional roads from 2019 to 2021.



2019-2021 Motorcycle collision hot spot locations map

2022 Annual collision statistics report

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York Region

Produced by:
Transportation and Infrastructure Planning
Transportation Operations, Public Works

The top 10 motorcycle collision locations based on a 10-year total are listed in the following table:

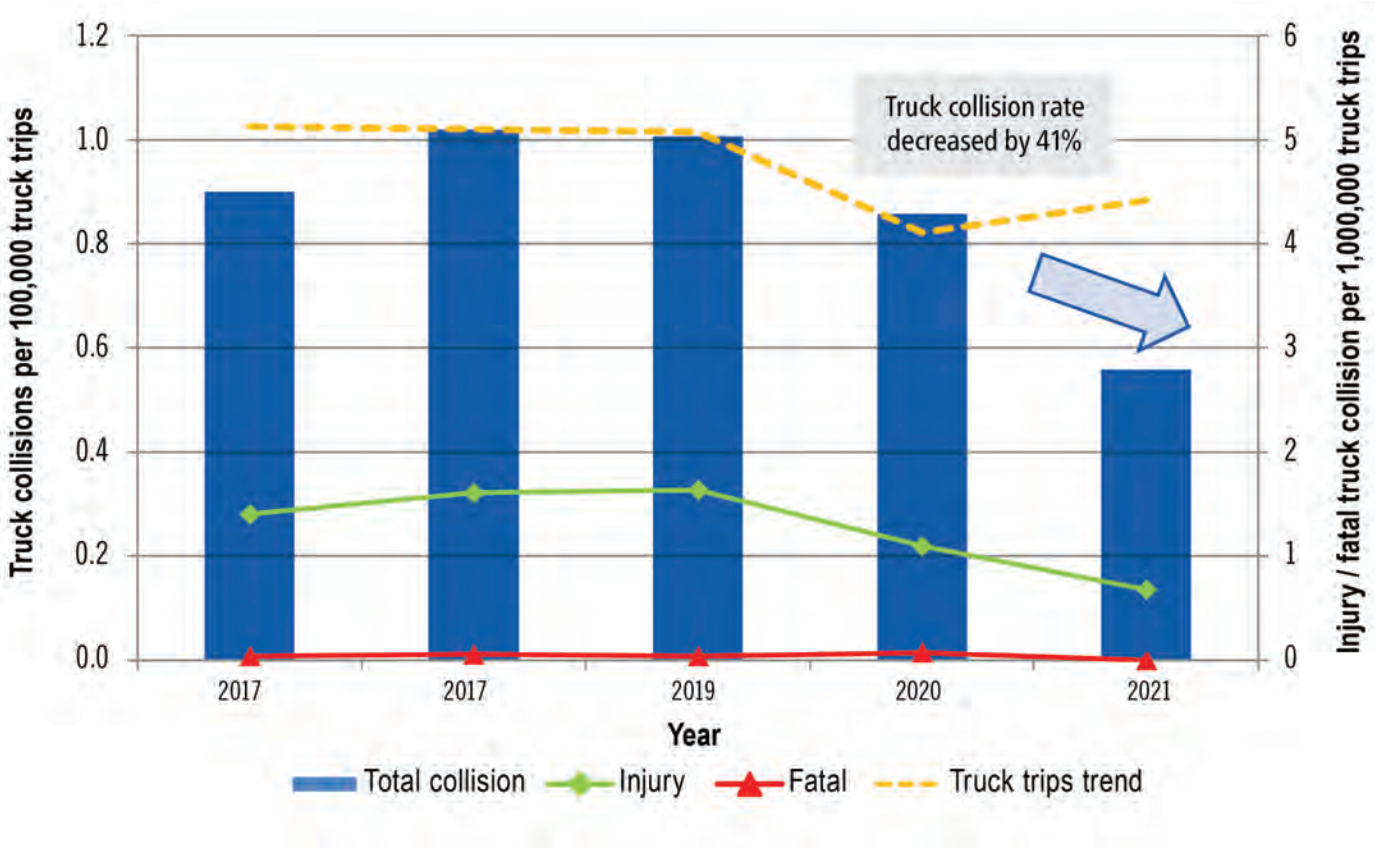
TOP 10 HIGHEST MOTORCYCLE COLLISION FREQUENCY LOCATIONS, 10-YEAR TOTAL, 2012-2021

Location	Municipality	10 year Injury	10 year total
16th Avenue and Main Street Markham North/ Highway 48	Markham	5	6
Davis Drive West and Bathurst Street	King/ Newmarket	5	6
Keele Street and Highway 7	Vaughan	5	6
Highway 7 and Vaughan Valley Boulevard	Vaughan	3	5
Highway 7 and Warden Avenue	Markham	2	5
Yonge Street and Carrville Road/16th Avenue	Richmond Hill	1	5
Highway 27 and Rutherford Road	Vaughan	3	5
Highway 7 and Leslie Street	Markham	3	4
Highway 7 and Jane Street	Vaughan	2	4
Islington Avenue and Kiloran Avenue	Vaughan	3	3

*Collision data is from YRP MVC reports

Trucks

TRUCK COLLISION RATES AND PROPORTIONS, 2017-2021



*Collision data is from YRP MVA reports
*Number of trips is based on TTS study data

Based on research, Canada operated at approximately 84% of normal commercial transportation activity in 2020 due to the COVID-19 pandemic. Truck traffic volume in York Region is estimated to have had a similar level of decrease since the pandemic started. Similar public health restrictions related to the pandemic occurred in 2021.

The truck collision rate in 2021 was 41% lower than the average of the previous four years, as shown in the figure above. Fatality rates remained at low levels and injury collision rates decreased in 2021. Sideswipe collisions were the most predominant collision type for trucks at 41%.

Over the past 10 years, fatal truck collision rates have remained at a very low level and injury truck collision rates were also study. The percentage of truck collisions among all collisions remain at a low and constant rate, from 6.0% in 2016 to 7.8 % in 2020 and down to 5.9% in 2021. However, while 25% of motor vehicle-only collisions resulted in injuries or fatalities, only 15% of truck collisions contributed to injuries and fatalities.

Key trends observed:

- Truck collision rates in 2021 were 41% lower than the average of the previous four years (2021 compared to 2017-2020 annual average)
- There were more truck collisions in summer and fall than in winter and spring, predominantly occurring on weekdays
- Weekday truck collisions occurred mostly during daytime without obvious morning or evening peaks. This is likely due to commercial truck trips distributed more evenly during daytime compared to common commuter trips
- Sideswipe collisions were the most predominant collision type for trucks at 41%
- Trucks were more likely to rear-end other vehicles, while the top at-fault action for other vehicles was sideswiping trucks
- More than half of truck traffic and collisions occurred in the City of Vaughan where trucking distribution centres are predominant
- The road segments connecting major Regional trucking destinations to major provincial highways (Hwy. 400, 401, 404, 407 and 427) were associated with the highest truck volumes and truck collision occurrences

Did you know?

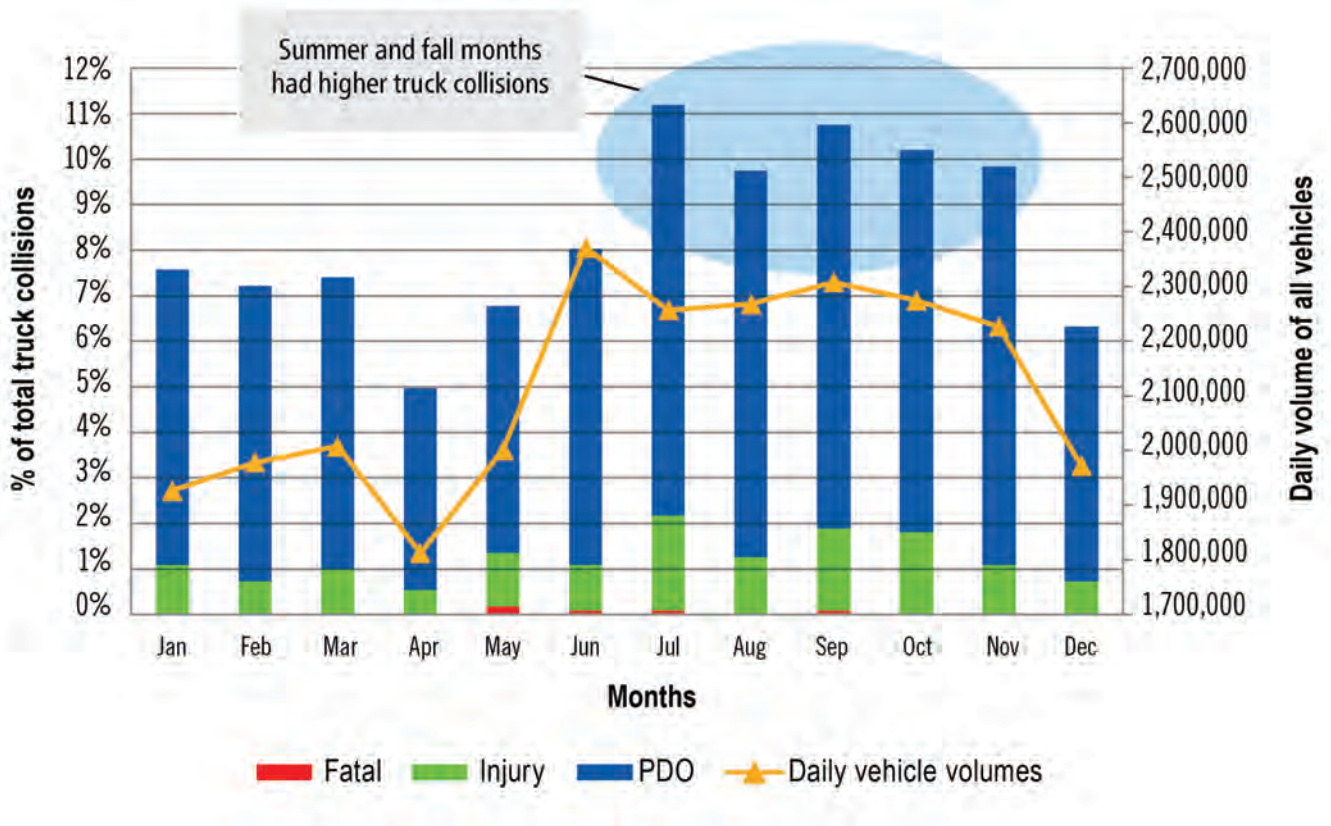
25% of motor vehicle collisions resulted in injuries or fatalities, while only 15% of collisions involving trucks resulted in injuries or fatalities.

Truck collisions by month, day and time

The highest number of truck collisions occurred in July. From June to October, there were higher numbers of truck collisions when compared with other months, which is due to the high vehicle volumes on roads.

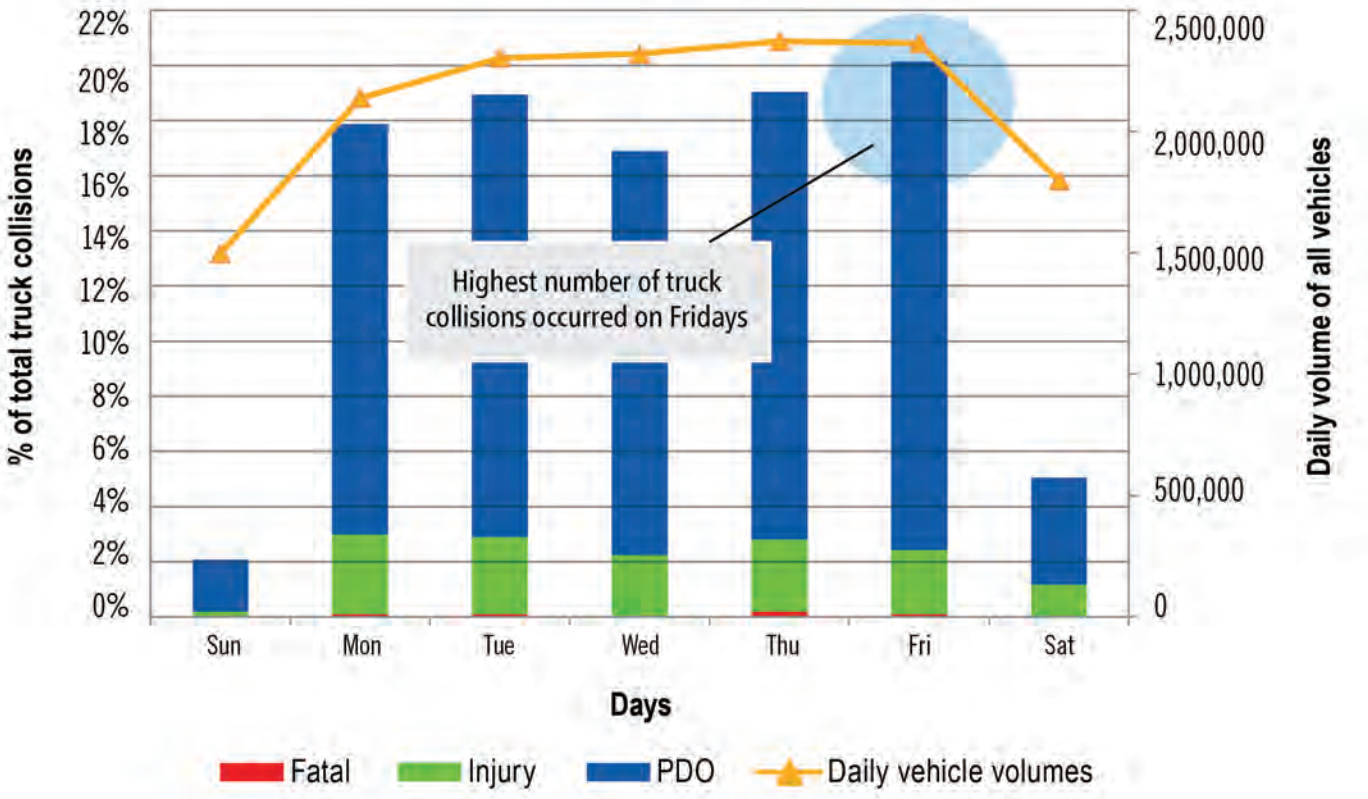
The number of truck collisions peaked on Fridays and 93% of truck collisions occurred on weekdays, which aligns with most commercial trucking activities.

TRUCK COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

TRUCK COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

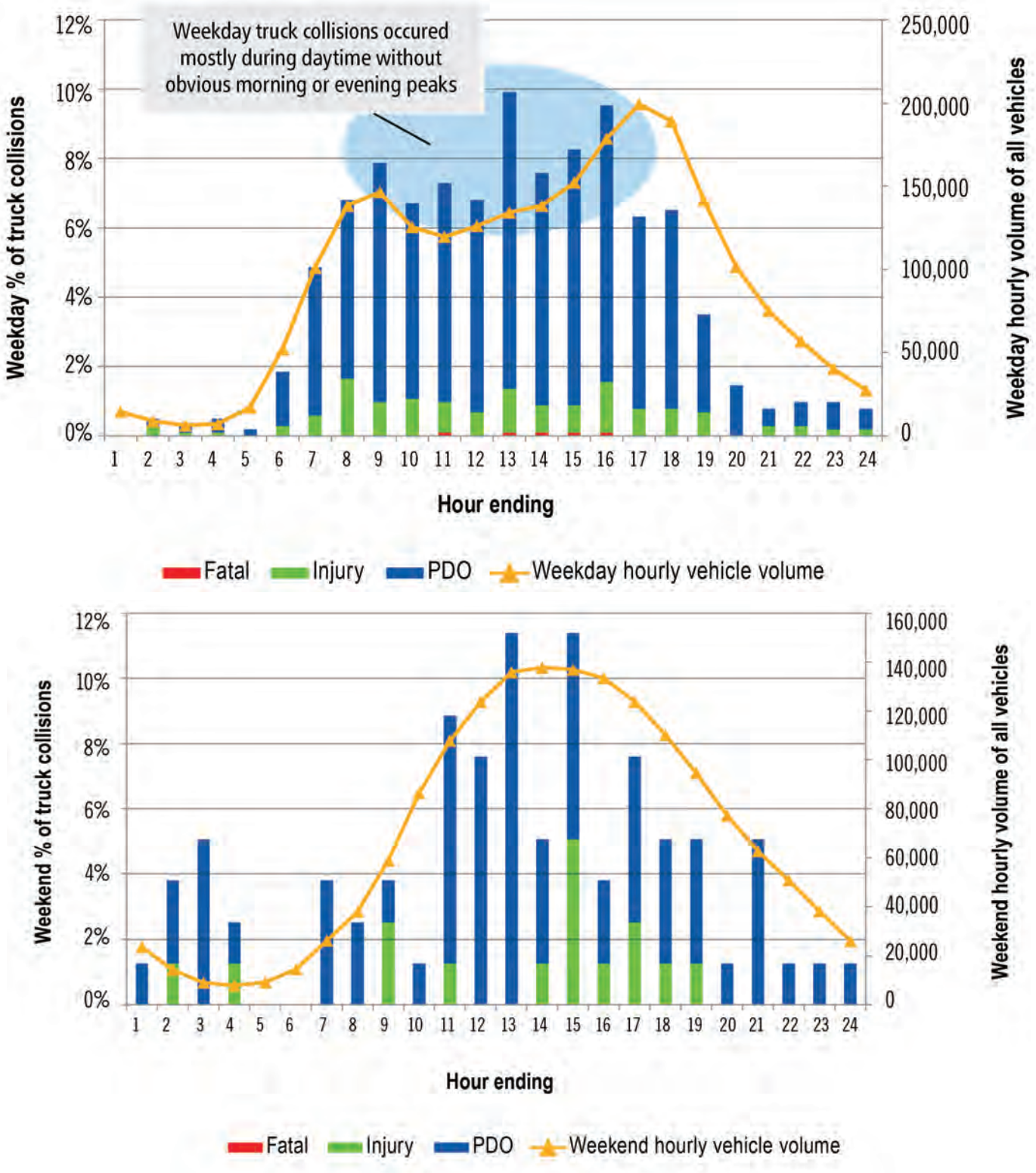
During weekdays, truck collisions mostly occurred during the 7 a.m. to 7 p.m. period, without obvious morning or evening peaks, which implies commercial truck trips differed from common commuting trips in that they were distributed more evenly during daytime.

On weekends, truck collision distribution generally correlated with traffic volumes, with a spike in early mornings (midnight to 3 a.m.).

TRUCK TYPES INVOLVED IN COLLISIONS (2012-2021)

*Collision data is from YRP MVC reports

TRUCK COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports

*Number of trips is based on TTS studies and Region's PCS data

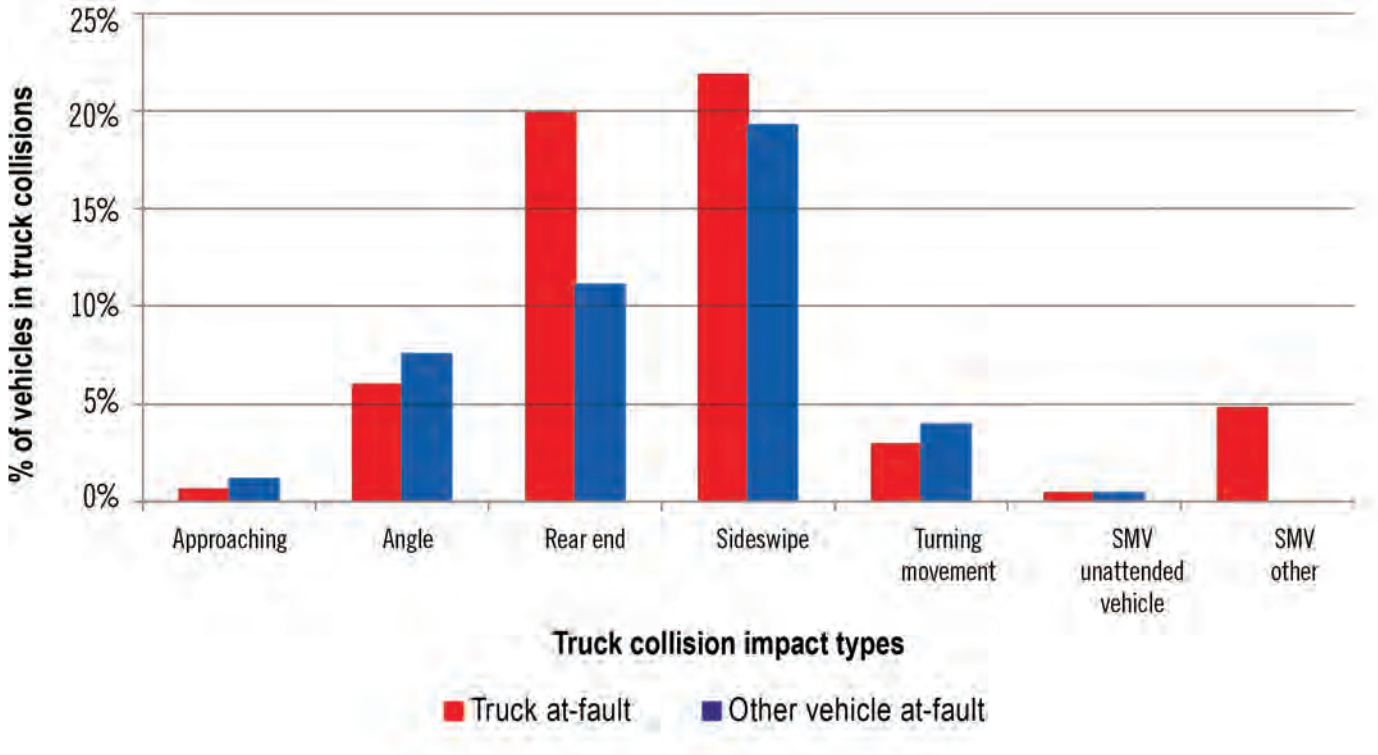
Truck collision impact types

Trucks need more space

The most common collision types involving trucks were sideswipe (41%) and rear-end (31%). Trucks are much longer than other vehicles, move slower and require more space. Truck drivers also require more reaction time, and this is evidenced in the case of rear-end collisions, when the truck driver was more often at fault for following too close. In sideswipe collisions, the chance of being at-fault was similar for truck and motor vehicle drivers.

Truck drivers were more often at fault (53%) when compared to other vehicles (43%) involved in truck collisions. The top at-fault truck driver action was following too close, accounting for 26% of total truck driver at-fault actions. The top at-fault action of other vehicles was improper lane changes, followed by failure to yield the right-of-way, accounting for 20% and 17% of other total vehicle at-fault actions.

TRUCK COLLISION IMPACT TYPES AND DRIVER ACTION



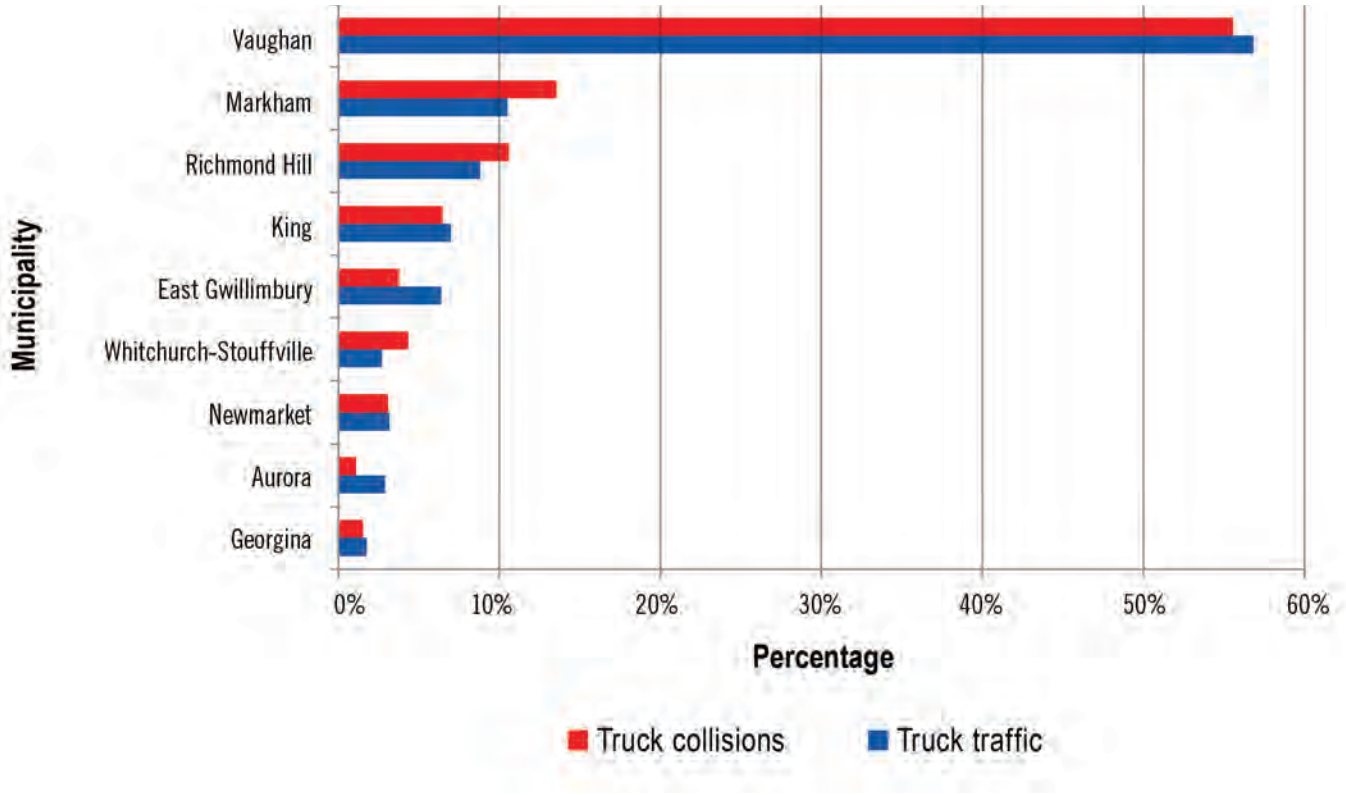
*Collision data is from YRP MVC reports

Did you know?

More than 40% of collisions involving trucks were sideswipe collisions.

Truck activity and collision locations

TRUCK TRAFFIC AND COLLISIONS BY MUNICIPALITY



*Collision data is from YRP MVC reports
*Truck traffic data is from MTO 2016 Commercial Vehicle Study

The above figure shows truck activities and number of collisions were proportionally correlated. Of the nine York Region municipalities, more than half of both truck traffic and collisions were in the City of Vaughan.

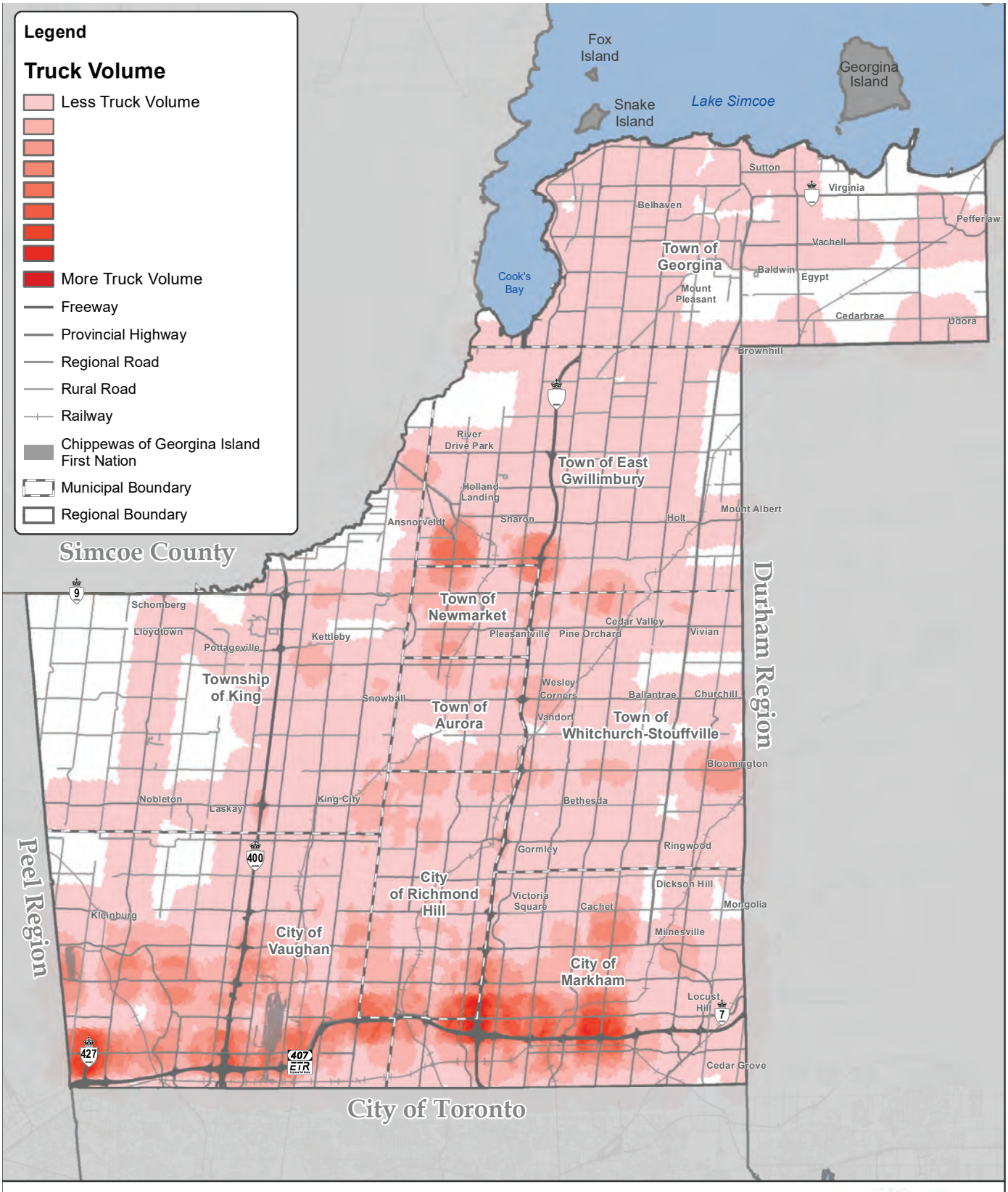
Typical truck traffic volumes and locations of all reported truck collisions on Regional roads from 2019 to 2021 were highlighted on the following two density maps.

Did you know?

Top at-fault truck driver action was following too close.

Provincial highways are major trucking destinations

Regional road segments with the highest truck volumes in the City of Vaughan are Highway 7 between Jane Street and Weston Road, Highway 7 between Highway 427 and Highway 50 and Keele Street between Highway 7 and Steeles Avenue. These roads connect major trucking destinations, such as the CN MacMillan Yard at Highway 7 and Keele Street, to major provincial highways, including highways 400, 427 and 407.



2010-2019 Truck volume map

2022 Annual collision statistics report

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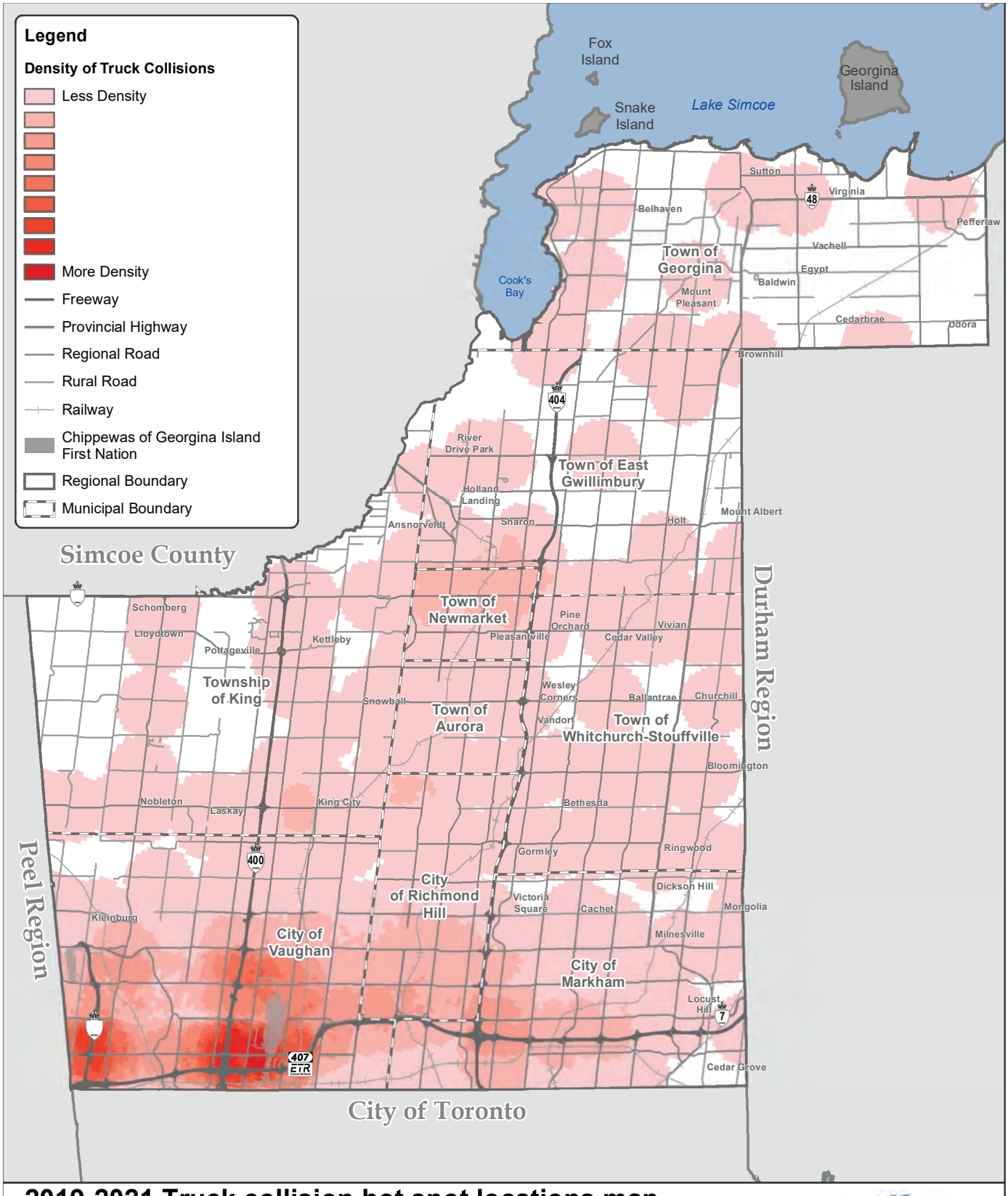
Transportation Operations, Public Works



2019-2021 Truck collision hot spot locations map

2022 Annual collision statistics report

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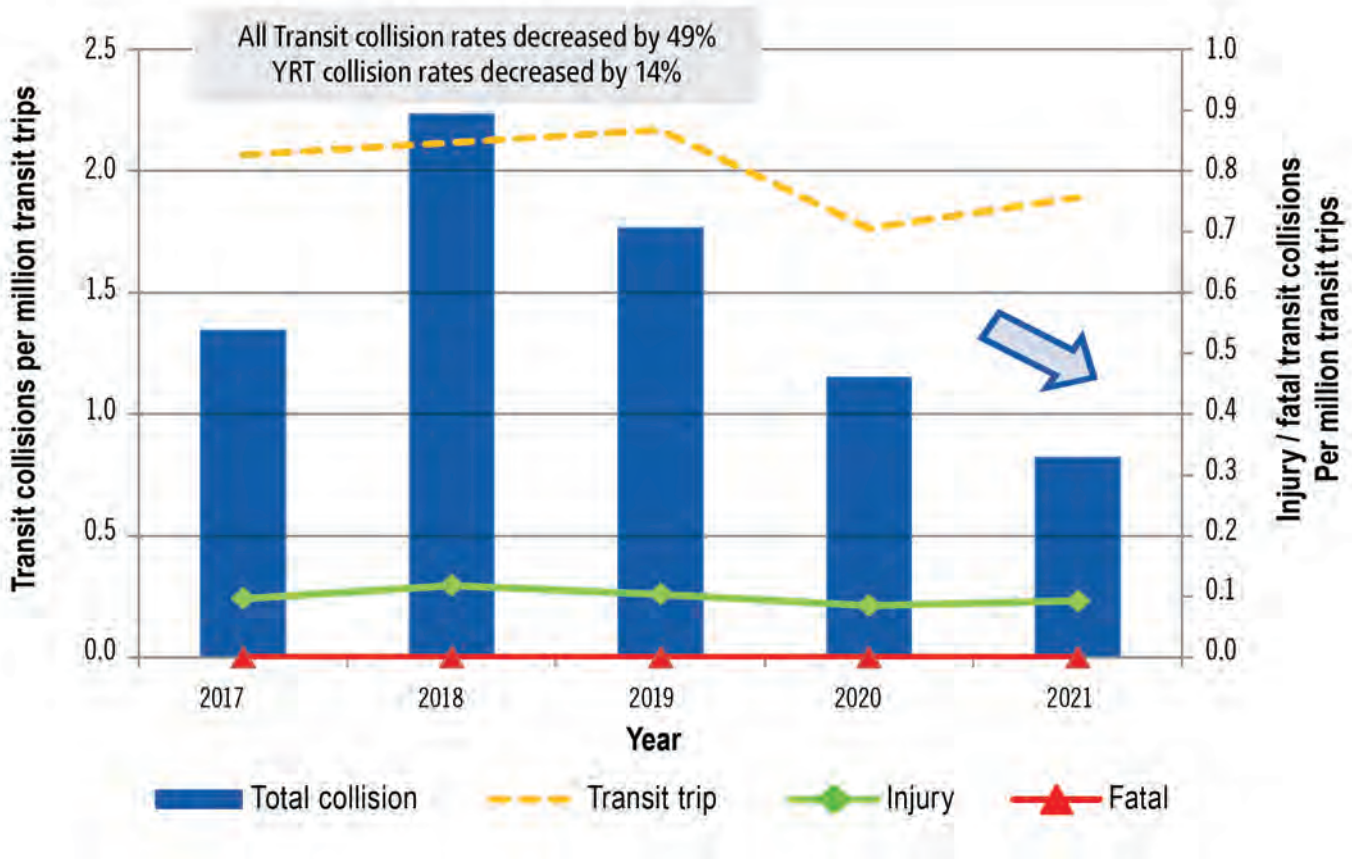
Transportation Operations, Public Works

TRANSIT (PRIVATE AND PUBLIC) COLLISION RATES, 2017-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies

Collisions involving all public and private transit vehicles combined decreased by about 49% in 2021 compared to the previous four years (2017-2020 annual average). This was largely likely due to reduced transit operations in the Region relating to COVID-19 pandemic public health restrictions. The 2021 MTO Road Safety Survey indicates 71% of Ontario residents say they are taking public transit less often than before the COVID-19 pandemic.

The collision rate for York Region Transit (YRT) vehicles in 2021 was 14% lower than the average for the period between 2017 to 2020.

The injury rate of transit (public and private) collisions decreased as well and the fatality rate stayed at zero during the last five years. Sideswipe transit collisions decreased 46% in 2021 compared to the previous four years. The majority (more than 60%) of transit collisions were a result of the other vehicle driver being at-fault.

Did you know?

There have been no fatalities resulting from collisions involving YRT vehicles in the past five years.

Key trends observed:

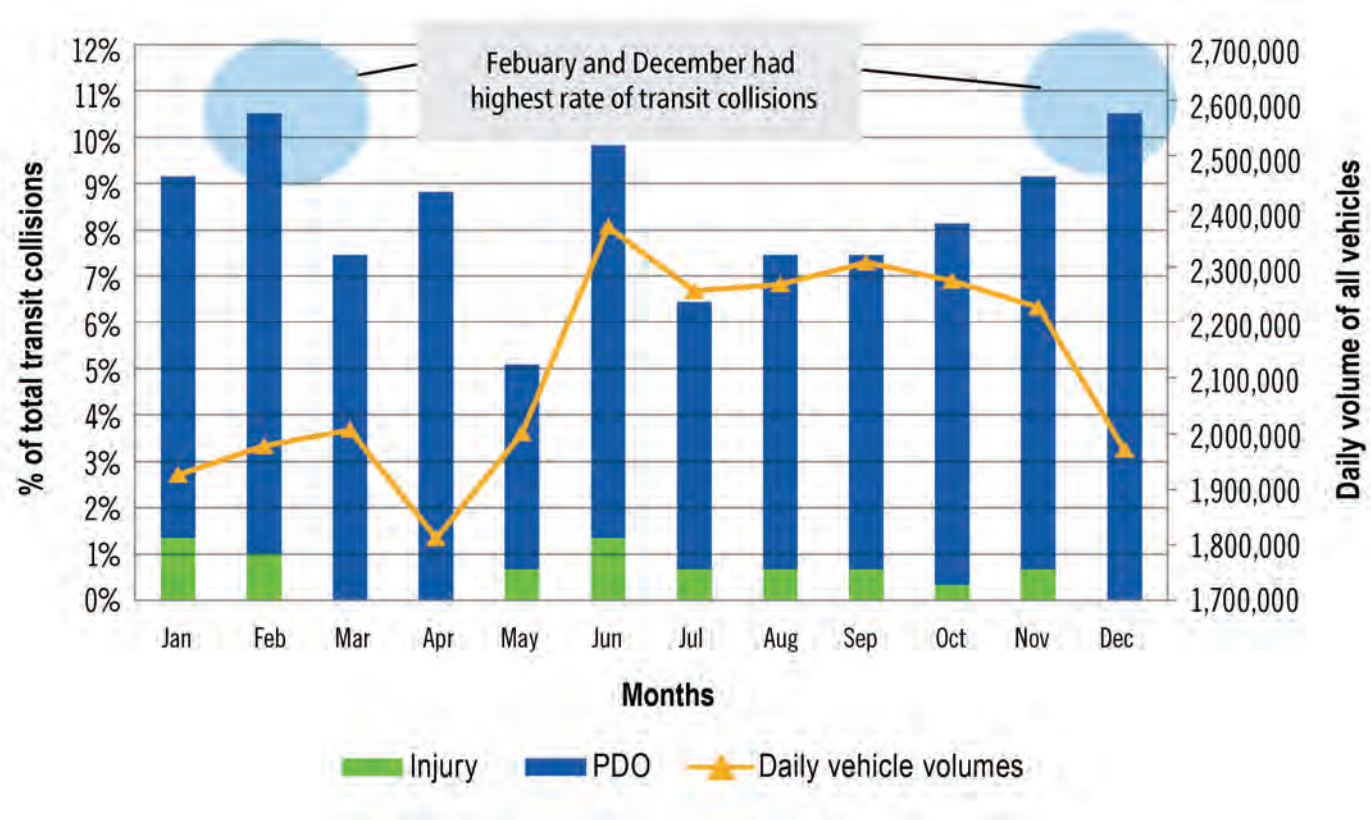
- Transit collision rate in 2021 was 49% lower than the previous four years (when compared to 2017-2020 annual averages)
- There have been no fatal transit collisions since 2016
- There were more transit collisions in the winter than summer which occurred predominantly on weekdays
- Sideswipe collisions involving private and public buses decreased by 46% in 2021 compared to the previous four years
- In multi-vehicle collisions involving transit buses, drivers of the other vehicles were mainly at fault (more than 60%)

Transit collisions by month, day and time

There was a higher number of transit collisions in the winter, attributed to shorter daylight hours and adverse weather.

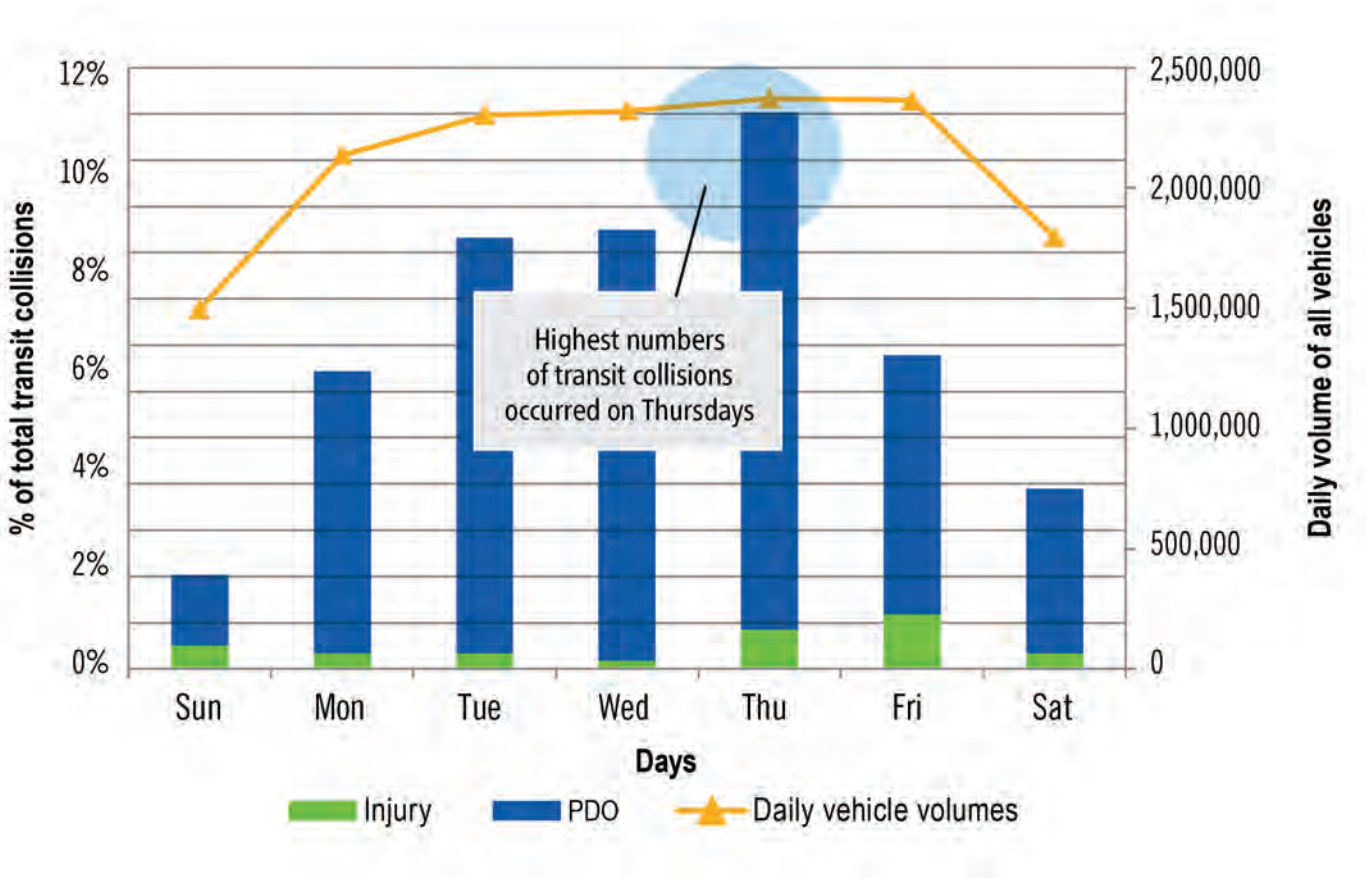
The number of transit collisions peaked on Thursdays and more than 88% of transit collisions occurred on weekdays, which is associated with busier transit bus schedules and heavier ridership.

TRANSIT COLLISIONS BY MONTH, THREE-YEAR AVERAGE, 2019-2021



*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

TRANSIT COLLISIONS BY DAY-OF-WEEK, THREE-YEAR AVERAGE, 2019-2021

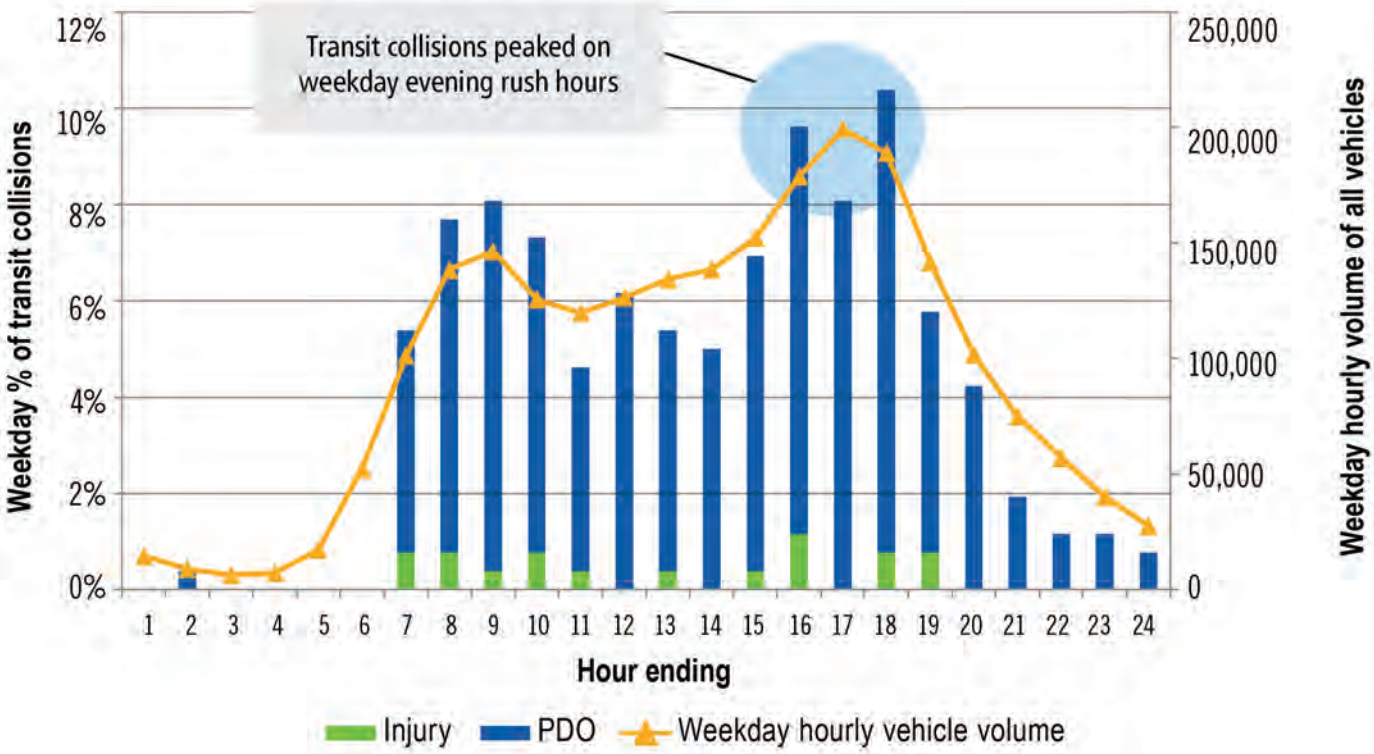


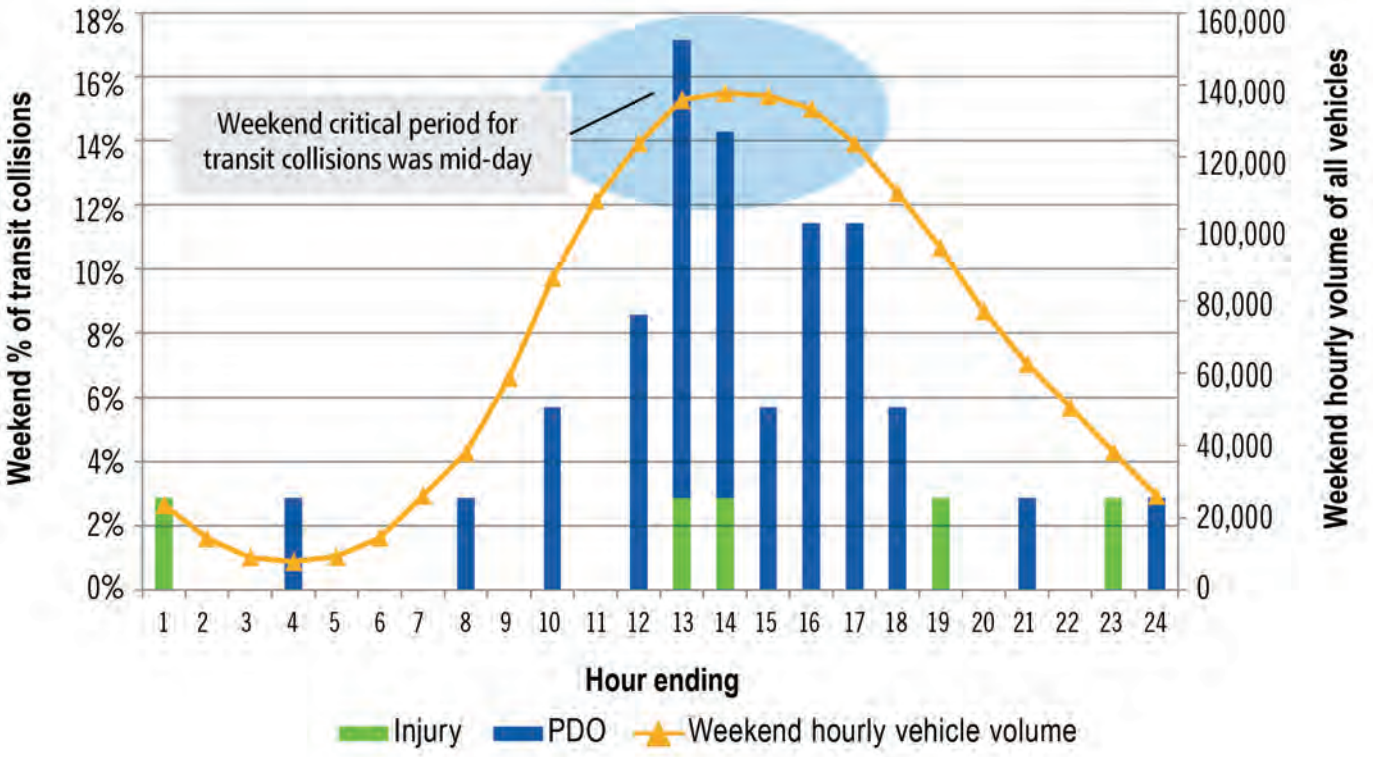
*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

During weekdays, the time-of-day transit collision trend correlates closely with typical daily traffic volume patterns (i.e. high rates of collisions occurring during times of highest traffic volumes). The highest number of collisions occurred on weekdays, between 7 a.m. and 10 a.m., and 3 p.m. and 6 p.m., accounting for about 51% of all collisions. Collisions were higher during the afternoon on weekdays and this is consistent with number of daily vehicle trip patterns.

On weekends, the highest number of collisions occurred between 10 a.m. and 5 p.m.

TRANSIT COLLISIONS BY TIME-OF-DAY, THREE-YEAR AVERAGE, 2019-2021





*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

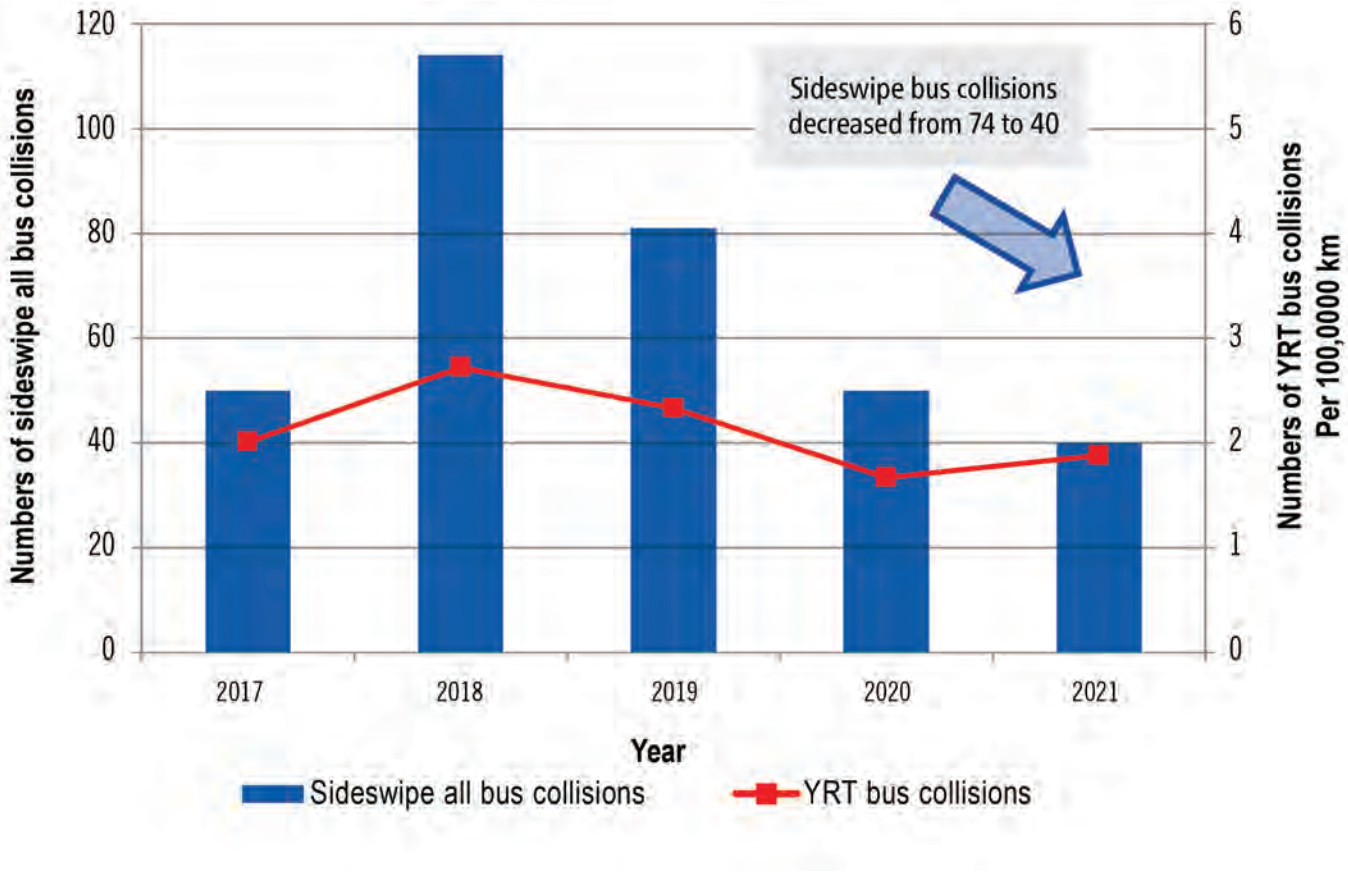
Transit collision impact types

Sideswipe collisions involving all private and public buses have decreased from 74 to 40

Buses are slower, longer and require more space. A pattern of motorists failing to provide buses with enough space led to a spike in the number of sideswipe collisions in 2018.

As shown in the graph below, sideswipe collisions involving all private and public buses have decreased from 74 to 40 in 2021 when compared to the previous four years, likely as a result of the reduction in traffic volume during COVID-19 pandemic.

BUS COLLISION IMPACT TYPES



*Collision data is from YRP MVC reports and YRT
*Bus mileage data is from YRT

Bus rapidways benefit all travellers

To promote sustainable transportation and growth, York Region has built bus rapidways on select road segments of its major transit corridors, including Highway 7, Davis Drive and Yonge Street. Safety measures associated with bus rapidway operations have improved overall traffic safety, reducing collisions by 49%.

Did you know?

Total collisions and injury collisions have decreased by 49% and 37% respectively on rapidway corridors since the rapidways were built.

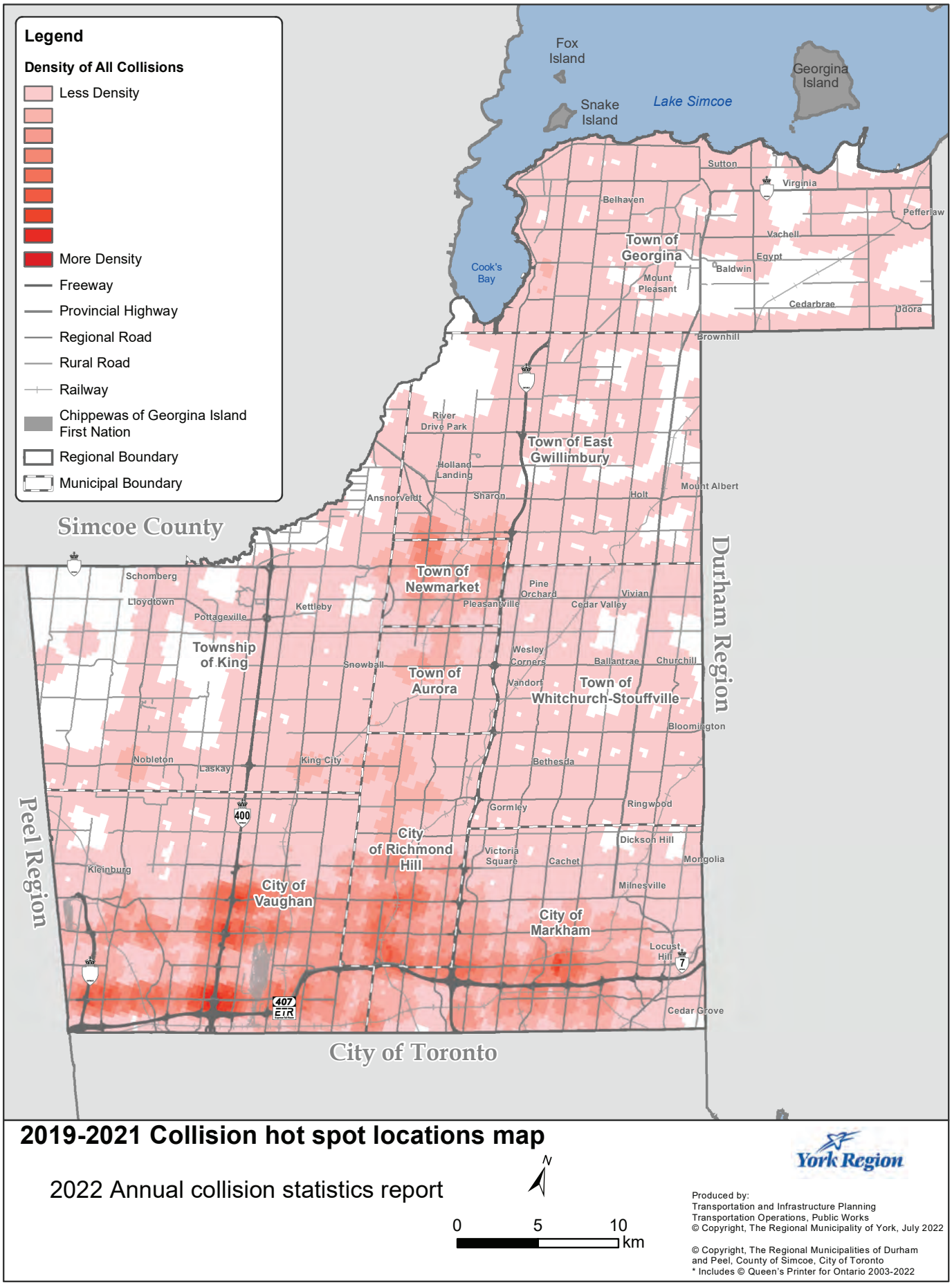
Yonge North Subway Extension

The planned Yonge North Subway Extension will extend north from Finch Station in Toronto to the Richmond Hill/Langstaff Urban Growth Centre in York Region. It will link Toronto's subway network with bus rapidways along Highway 7, providing seamless travel between York Region and Toronto while reducing travel times, managing traffic congestion and getting more people moving. Long-term safety benefits include reducing the number of vehicles and buses with more transit riders using Yonge Street and intersection improvements along Yonge Street. Safety of transit riders and vulnerable road users within the extension area is a long-term priority for the Region.

Collision frequency and severity

York Region's collision statistics show a continued decreasing trend in total collisions since 2011, with just over 4,000 motor vehicle collisions in 2021. Public health restrictions related to the COVID-19 pandemic resulted in a reduction of 10-35% in annual traffic volumes on Regional roads in 2021. These restrictions likely also contributed to the 31% decrease in annual collision rate in 2021 when compared to the average from the previous four years (2017-2020 annual average).

A collision density map showing locations of all reported motor vehicle collisions on Regional roads from 2019 to 2021 follows.



2019-2021 Collision hot spot locations map

2022 Annual collision statistics report

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York Region

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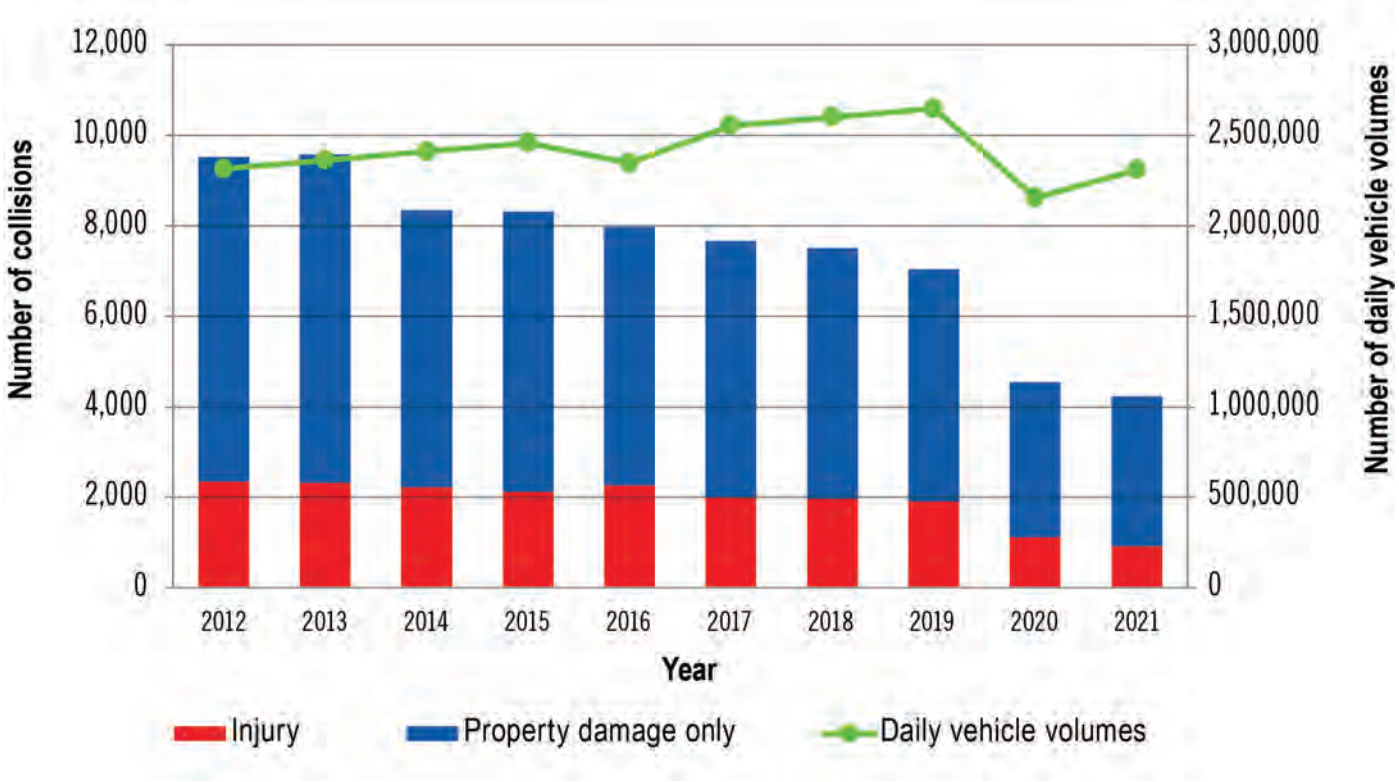
Transportation and Infrastructure Planning
Transportation Operations, Public Works

COLLISION FREQUENCY, 2012-2021



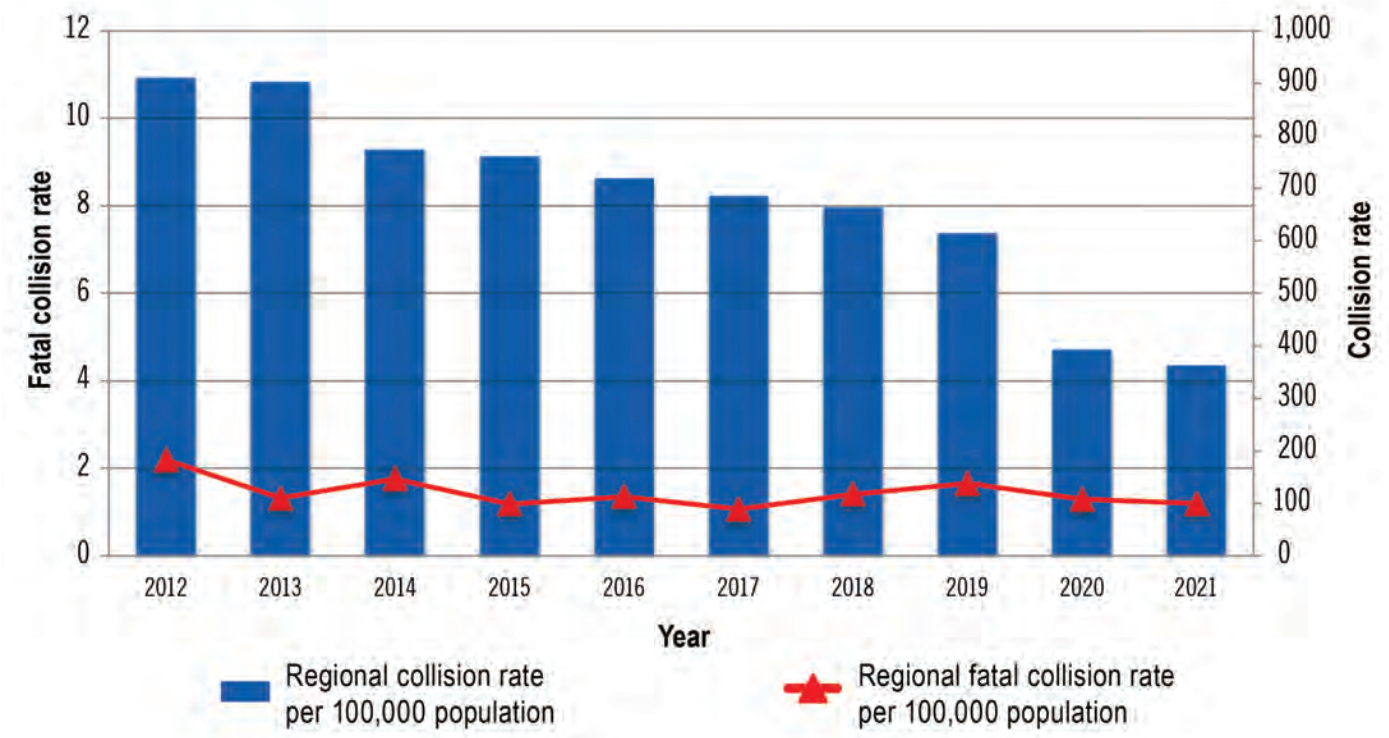
*Collision data is from YRP MVC reports
*Number of trips is based on TTS studies and Region's PCS data

Injury collisions have decreased

While total collision statistics show a decreasing trend, the number of injury collisions has also decreased since 2011, despite a spike in 2016 of more than 2,200. In 2021, the number of injury collisions dropped to a decade low of less than 900. Public health restrictions relating to the COVID-19 pandemic resulted in a reduction of 10-35% in annual traffic volume on Regional roads, leading to less exposure, contributing to less risk of collisions on the road network, and likely thereby contributing to the significant decrease in injury collisions.

The general decreasing trend in injury collisions is likely partially attributed to advancements in vehicle safety features and technology, such as brake assist, forward collision warning, automated emergency braking, blind spot warning, lane departure warning, lane keep assist, as well as strengthened legislation, increased fines and road safety programs.

FREQUENCY OF FATAL COLLISIONS, 2012-2021

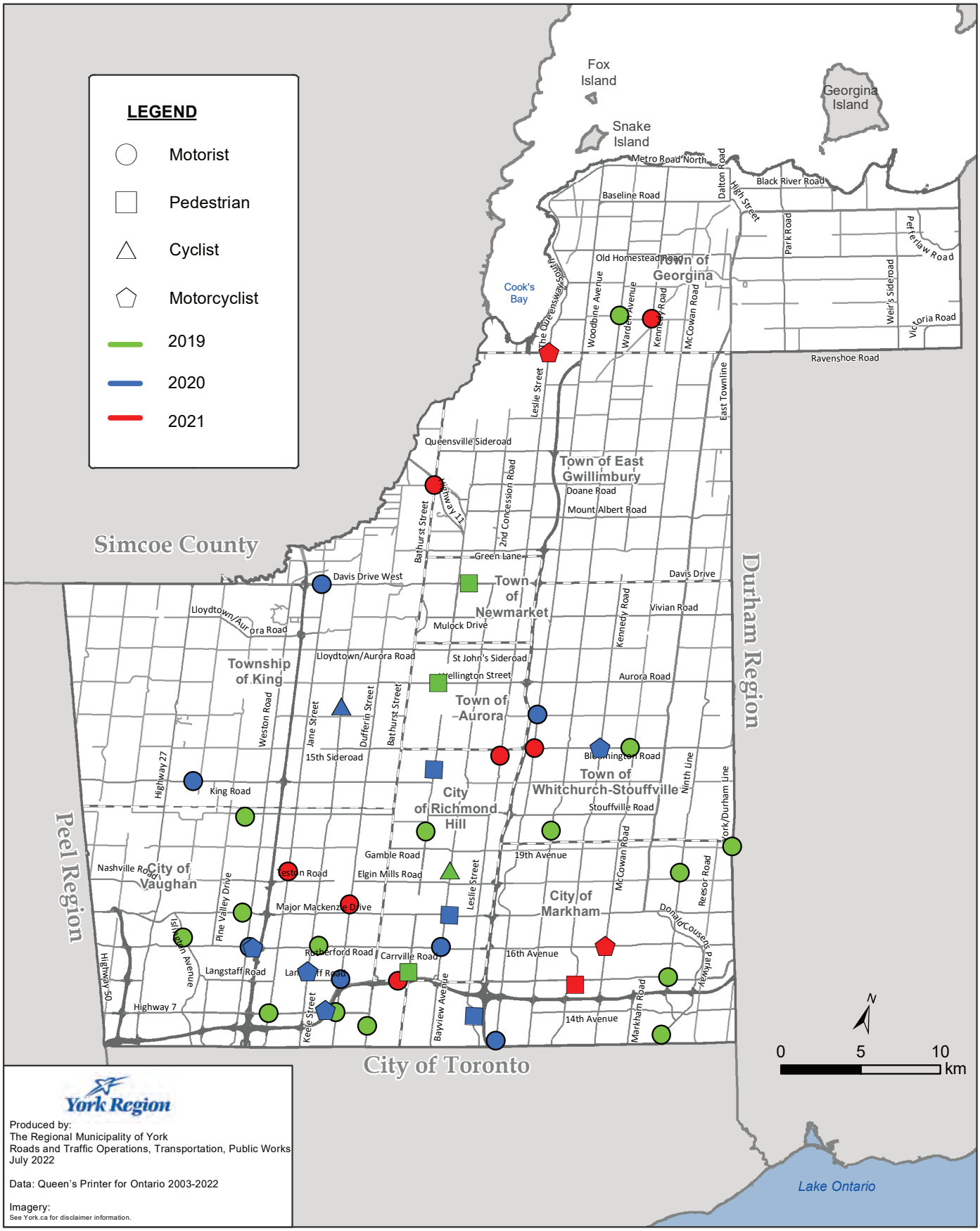


*Collision data is from YRP MVC reports
*Population data is from Statistics Canada

Fatal collisions have spiked randomly between 2012-2021

The number of fatal collisions has fluctuated year over year. Following a 10-year low in fatal collisions in 2017 across the Region, with a total of 12, the number rose to 19 in 2019, the highest since 2012. In 2021, a total of 10 fatal collisions occurred. This is likely partially due to reduced annual traffic volumes resulting from public health restrictions relating to the COVID-19 pandemic. The 2019-2021 fatal collision locations map is shown on the next page.

York Region | 2019 - 2021 Fatal Collision Locations



Top 10 high collision locations by town/city

Locations that experienced the highest collision frequency from 2019 to 2021 were intersections along high volume arterial roads, including Highway 7, Jane Street and Rutherford Road.

These are York Region's most travelled roadways providing continuous links to Peel Region, Durham Region and Simcoe County and connecting to provincial highways 11, 427, 400, 404 and 407.

TOP 10 HIGHEST COLLISION FREQUENCY LOCATIONS, THREE-YEAR TOTAL, 2019-2021

Description	Three Year Injury Collisions	Three Year Total Collisions
Islington Avenue and Rutherford Road	13	73
Keele Street and Highway 7	8	68
Highway 7 and Weston Road	12	62
Yonge Street and Green Lane East/Green Lane West	11	60
Highway 7 and McCowan Road	10	58
Major Mackenzie Drive West and Jane Street	9	57
Highway 27 and Rutherford Road	17	56
Highway 7 between Huntington Road and Highway 427	13	56
Highway 7 and Martin Grove Road	19	54
Highway 7 and Jane Street	6	53

*Collision data is from YRP MVC reports

With the support of Regional Council, the Region has invested millions of dollars over the past few years into road capital projects along these roadways. Projects include road reconstruction, road widening, bus rapid transit lanes and vivaNext station construction, intersection upgrades and improvements to enhance traffic operations and safety for all road users. York Region is investing $3.1 billion in the Regional transportation network over the next 10 years.

Maps

Top 10 collision locations in York Region

The following maps illustrate the top 10 collision locations in York Region and for each of nine local municipalities for the three-year period between 2019 and 2021.

- York Region
- Town of Aurora
- Town of East Gwillimbury
- Town of Georgina
- Township of King
- City of Markham
- Town of Newmarket
- City of Richmond Hill
- City of Vaughan
- Town of Whitchurch-Stouffville

Top 10 collision locations York Region

1. Islington Avenue and Rutherford Road (73)
2. Keele Street and Highway 7 (68)
3. Highway 7 and Weston Road (62)
4. Yonge Street and Green Lane East/Green Lane West (60)
5. Highway 7 and McCowan Road (58)
6. Major Mackenzie Drive West and Jane Street (57)
7. Highway 27 and Rutherford Road (56)
8. Highway 7 between Huntington Road and Highway 427 - Highway 7 Ramp (56)
9. Highway 7 and Martin Grove Road (54)
10. Highway 7 and Jane Street (53)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

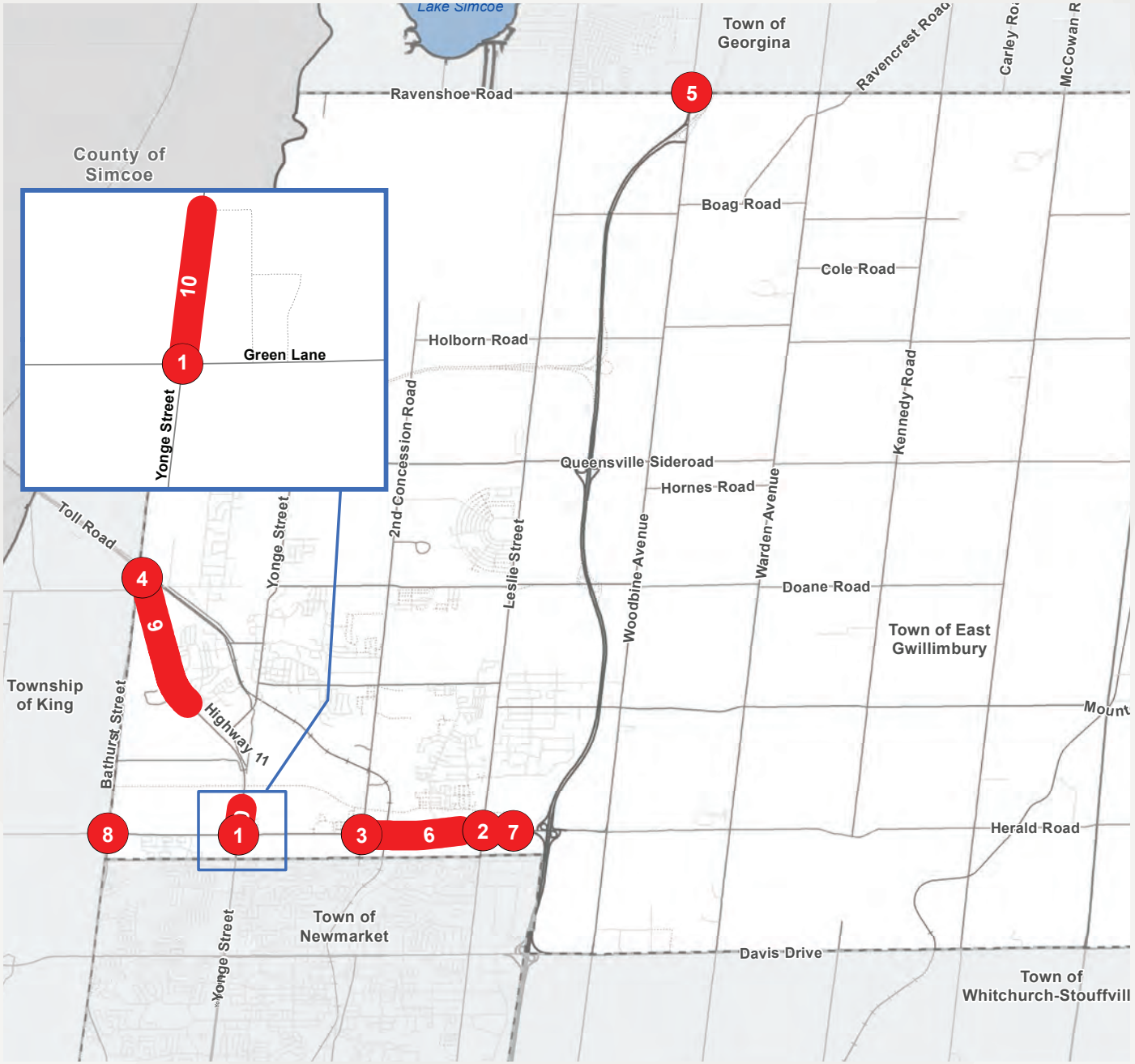
Town of Aurora

1. Wellington Street East and Yonge Street/Wellington Street West (41)
2. Bathurst Street and 18th Sideroad/St John's Sideroad (27)
3. Yonge Street and St John's Sideroad (24)
4. Bathurst Street and 15th Sideroad/Bloomington Road (22)
5. Leslie Street and Wellington Street East (20)
6. St John's Sideroad and Bayview Avenue (19)
7. Wellington Street East and Mary Street/John West Way (19)
8. Wellington Street West and Bathurst Street (16)
9. Wellington Street East and Bayview Avenue (16)
10. Leslie Street and St John's Sideroad (12)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

Town of East Gwillimbury

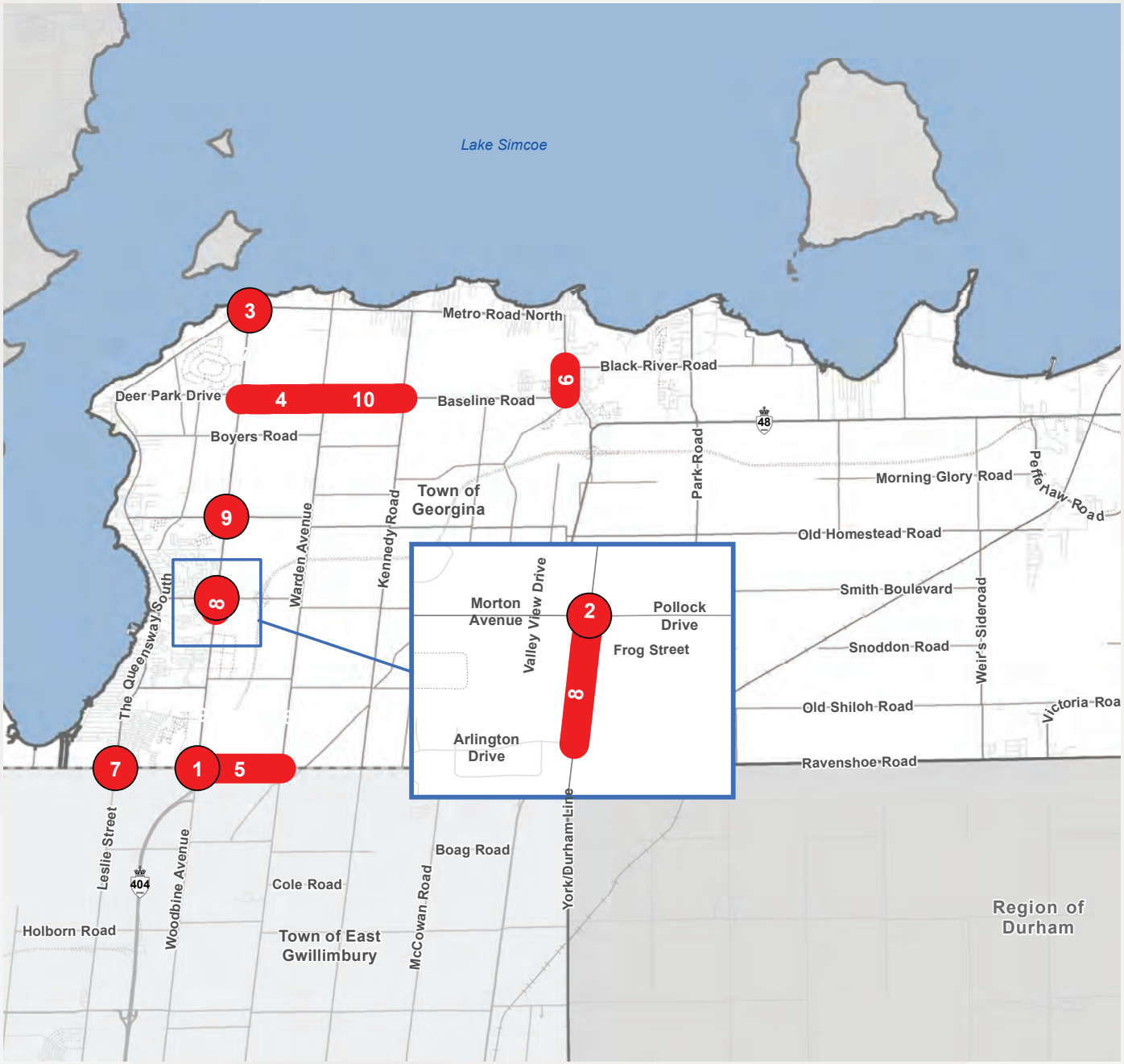


1. Yonge Street and Green Lane East/Green Lane West (60)
2. Leslie Street and Green Lane East (40)
3. Green Lane East and Main Street North/2nd Concession Road (30)
4. Highway 11 and Bathurst Street (16)
5. Woodbine Avenue and Ravenshoe Road (16)
6. Green Lane East between East Gwillimbury GO Station and Old Green Lane (16)
7. Green Lane East and Harry Walker Parkway (14)
8. Green Lane West and Miller's Sideroad/Bathurst Street (12)
9. Highway 11 between Sherwood Glen and Bathurst Street (11)
10. Yonge Street between Green Lane East/Green Lane West and Commercial Plaza (Lowes)/ Church Entrance (11)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

Town of Georgina

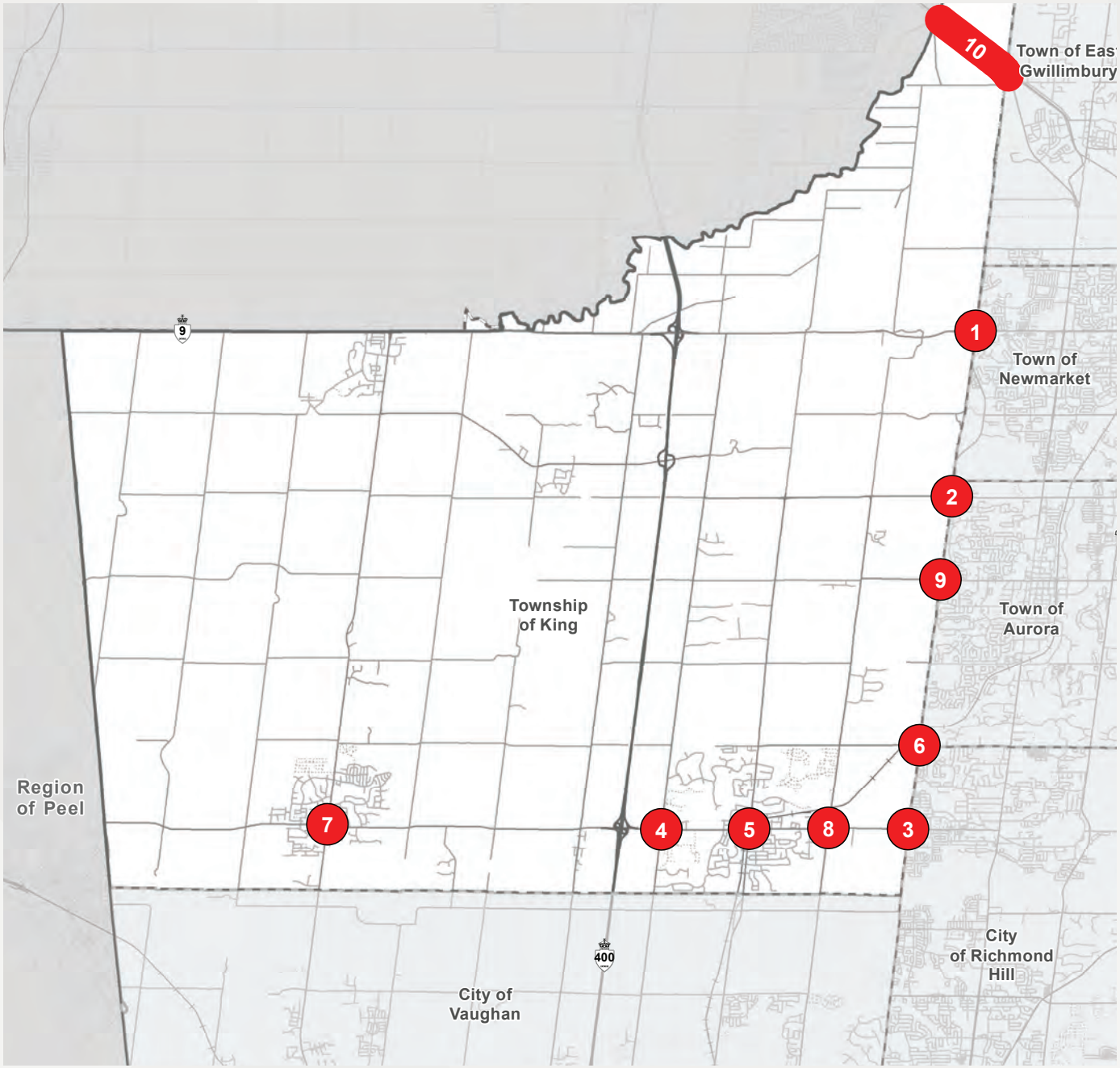


1. Woodbine Avenue and Ravenshoe Road (16)
2. Woodbine Avenue and Morton Avenue/Pollock Road (14)
3. Woodbine Avenue and Metro Road North (12)
4. Baseline Road between Woodbine Avenue and Civic Centre Road (11)
5. Ravenshoe Road between Woodbine Avenue and Warden Avenue (9)
6. Dalton Road between McDonough Avenue/High Street and Black River Road (7)
7. Leslie Street and Ravenshoe Road/The Queensway South (7)
8. Woodbine Avenue between Arlington Drive and Morton Avenue/Pollock Road (7)
9. Woodbine Avenue and Old Homestead Road (7)
10. Baseline Road between Warden Avenue and Kennedy Road (7)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

Township of King

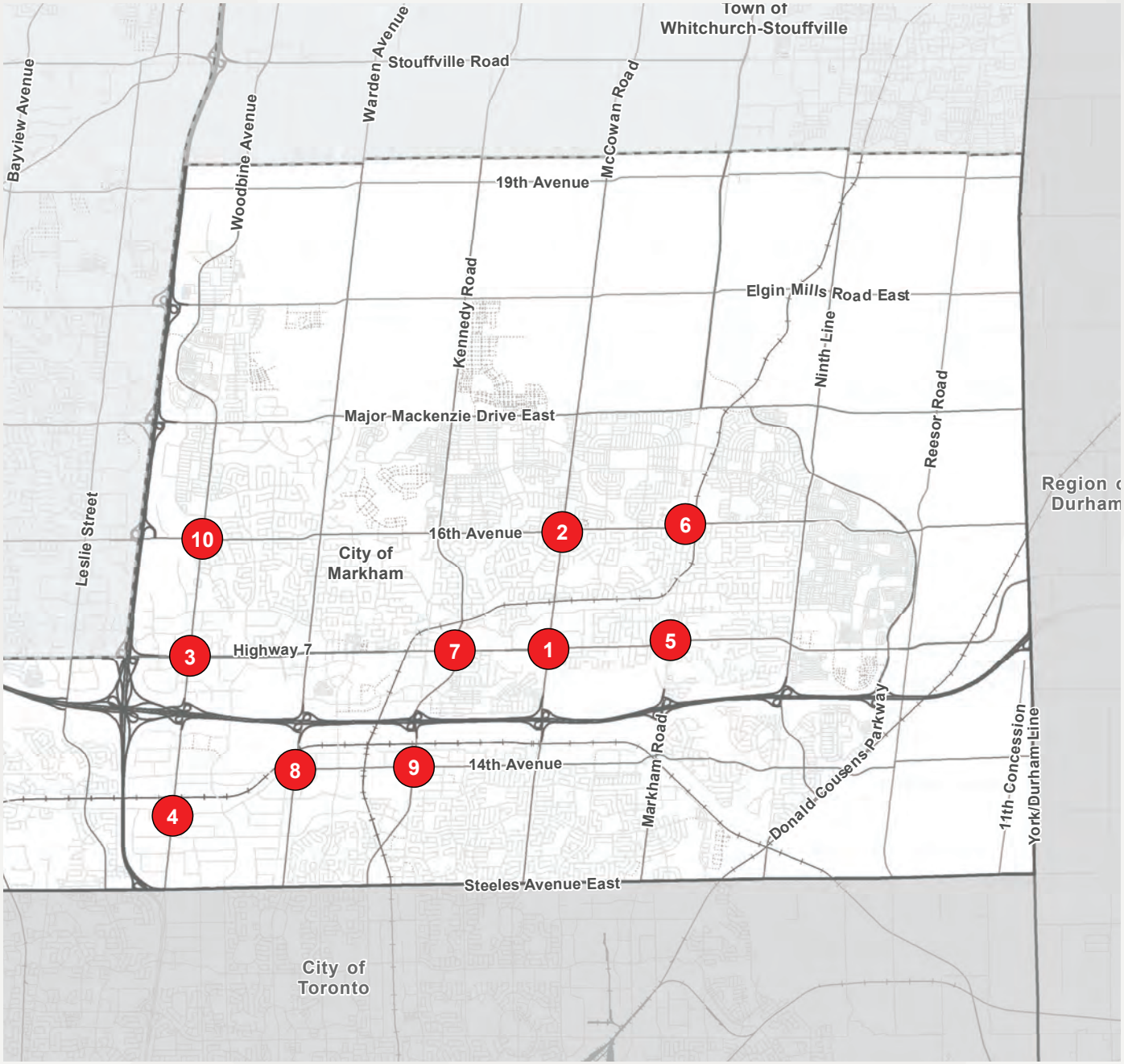


1. Davis Drive West and Bathurst Street (27)
2. Bathurst Street and 18th Sideroad/St John's Sideroad (27)
3. King Road and Bathurst Street (27)
4. King Road and Jane Street (23)
5. Keele Street and King Road (23)
6. Bathurst Street and 15th Sideroad/Bloomington Road (22)
7. King Road and Highway 27 (19)
8. King Road and Dufferin Street (18)
9. Wellington Street West and Bathurst Street (16)
10. Highway 11 between Bathurst Street and Kalvers Street (15)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

City of Markham



1. Highway 7 and McCowan Road (58)
2. McCowan Road and 16th Avenue (46)
3. Highway 7 and Woodbine Avenue (43)
4. Woodbine Avenue and John Street/Esna Park Drive (43)
5. Highway 7 and Main Street Markham South/Main Street Markham North (42)
6. 16th Avenue and Main Street Markham North/Highway 48 (42)
7. Highway 7 and Kennedy Road (41)
8. Warden Avenue and 14th Avenue/Alden Road (38)
9. Kennedy Road and 14th Avenue (37)
10. 16th Avenue and Woodbine Avenue (36)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

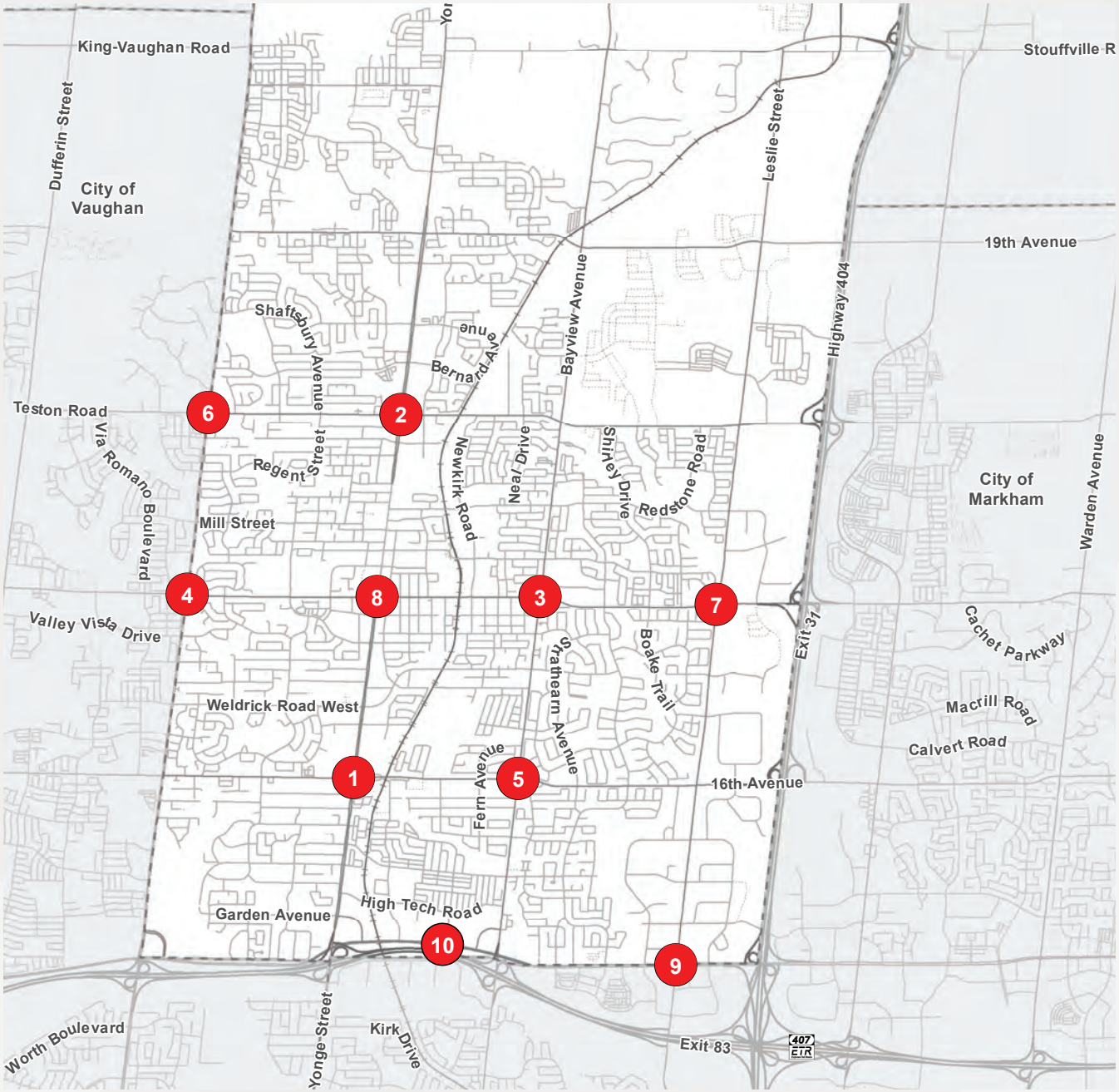
Town of Newmarket

1. Davis Drive West and Bathurst Street (27)
2. Leslie Street and Davis Drive (26)
3. Yonge Street and Davis Drive/ Davis Drive West (25)
4. Yonge Street and Kingston Road/Dawson Manor Boulevard (23)
5. Yonge Street and Mulock Drive (23)
6. Prospect Street and Bayview Avenue/Mulock Drive (21)
7. Yonge Street and London Road/Bonshaw Avenue (17)
8. Yonge Street and Eagle Street/Eagle Street West (16)
9. Yonge Street and Millard Avenue (27)
10. Leslie Street and Mulock Drive (16)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

City of Richmond Hill



1. Yonge Street and Carrville Road/16th Avenue (48)
2. Yonge Street and Elgin Mills Road West/Elgin Mills Road East (44)
3. Major Mackenzie Drive East and Bayview Avenue (41)
4. Major Mackenzie Drive West and Bathurst Street (40)
5. Bayview Avenue and 16th Avenue (35)
6. Bathurst Street and Elgin Mills Road West/Teston Road (34)
7. Leslie Street and Major Mackenzie Drive East (33)
8. Yonge Street and Major Mackenzie Drive West/Major Mackenzie Drive East (33)
9. Highway 7 and Leslie Street (32)
10. Highway 7 and Silver Linden Drive (29)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

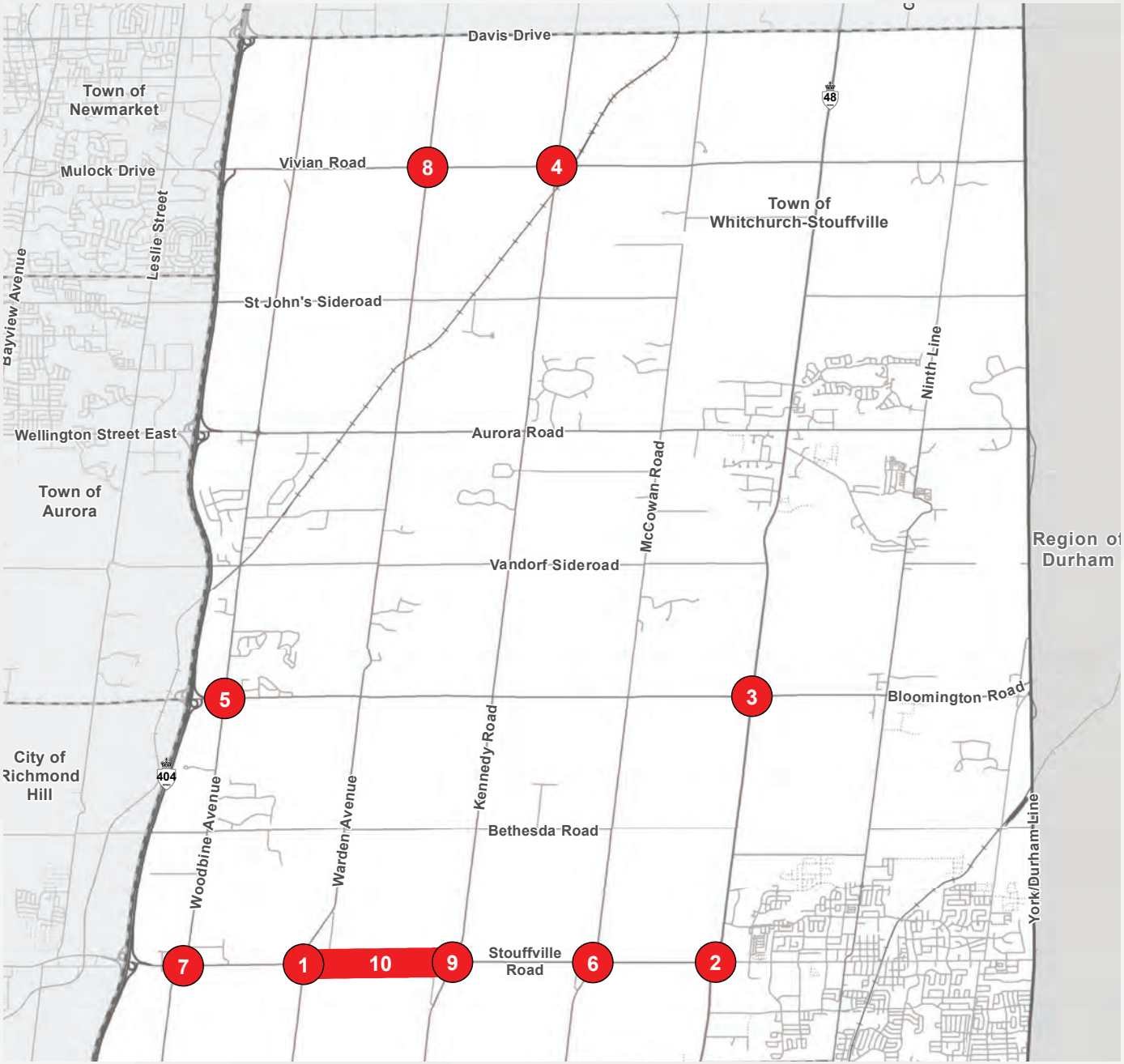
City of Vaughan

1. Islington Avenue and Rutherford Road (73)
2. Keele Street and Highway 7 (68)
3. Highway 7 and Weston Road (62)
4. Major Mackenzie Drive West and Jane Street (57)
5. Highway 27 and Rutherford Road (56)
6. Highway 7 between Huntington Road and Highway 427 - Highway 7 Ramp (56)
7. Highway 7 and Martin Grove Road (54)
8. Highway 7 and Jane Street (53)
9. Weston Road and Rutherford Road (48)
10. Highway 7 and Highway 27 (47)

Value in the parentheses represents number of collisions between 2019 and 2021

Top 10 Collision Locations

Town of Whitchurch-Stouffville



1. Stouffville Road and Warden Avenue (22)
2. Stouffville Road and Main Street/ Highway 48 (14)
3. Bloomington Road and Highway 48 (13)
4. Kennedy Road and Vivian Road (12)
5. Woodbine Avenue and Bloomington Road (11)
6. Stouffville Road and McCowan Road (11)
7. Woodbine Avenue and Stouffville Road (11)
8. Warden Avenue and Vivian Road (10)
9. Kennedy Road and Stouffville Road (10)
10. Stouffville Road between Warden Avenue and Kennedy Road (10)

Value in the parentheses represents number of collisions between 2019 and 2021

Transportation, Public Works

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York Region

Accessible formats or communication supports are available upon request.09-22