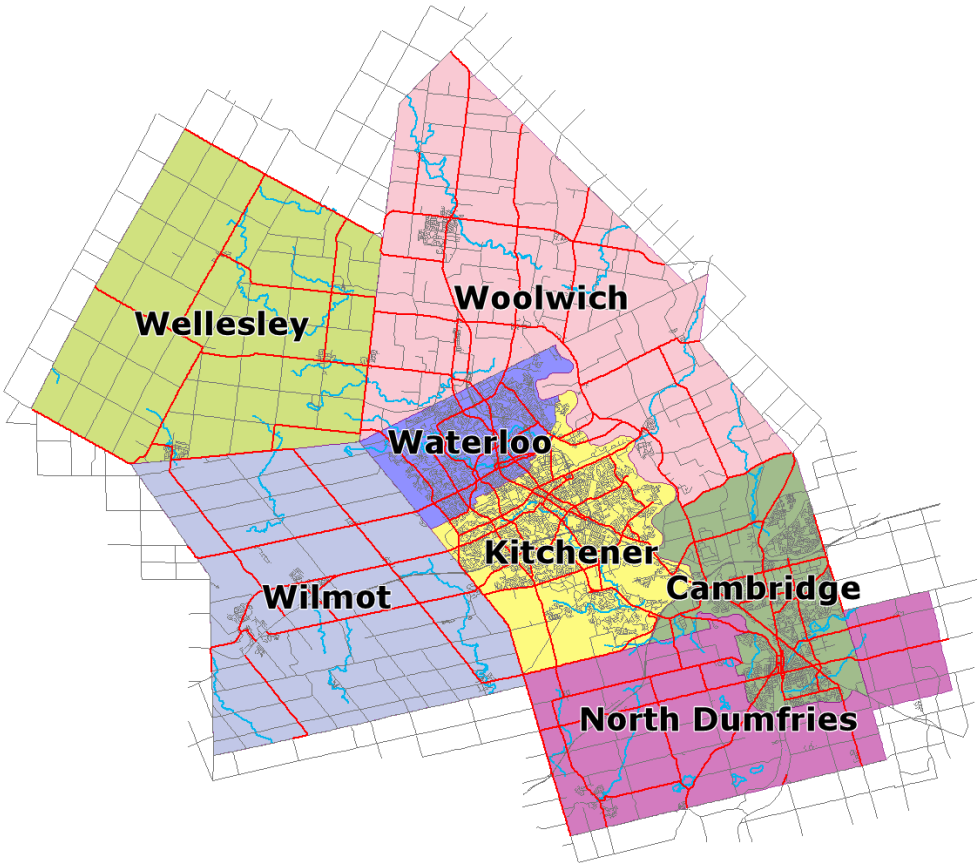
Region of Waterloo

2020 Collision Report



Prepared by:

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Introduction

This annual report is a summary of factors associated with traffic collisions that occurred in 2020. Also presented are comparison factors for the years 2016 to 2020. The information presented in this report is based on vehicle collisions occurring on roads under the jurisdiction of the Regional Municipality of Waterloo or occurring at signalized intersections (including pedestrian and mid-block signals) under the jurisdiction of local municipalities and either investigated by Regional Police or reported at the Collision Reporting Centre.

The following local municipalities fall within the Region of Waterloo:

- Township of North Dumfries;
- Township of Wellesley;
- Township of Wilmot;
- Township of Woolwich;
- City of Cambridge;
- City of Kitchener; and
- City of Waterloo.

The estimated total population within the Region, including post-secondary students, was 623,930 in 2020 estimated from 2020 published statistics.

The intention of this report is to provide factual information to those agencies and persons concerned with the safety of the roadway transportation system within the Regional Municipality of Waterloo.

Traffic collisions frequently involve complex interactions between human behaviour, vehicle characteristics, and environmental conditions. The factor or factors responsible for causing a collision are not always the most obvious nor are they always readily apparent. Caution should be exercised in drawing conclusions from the statistics presented in this report and conclusions should be drawn only with appropriate qualifications and supportive information.

The arrival of COVID-19 in January 2020 resulted in a dramatic decrease in motor-vehicle volumes on Regional roads due to the implementation of widespread public safety measures. Traffic volumes were observed to be reduced by approximately 30%. As a result, collisions in 2020 also decreased.

Executive Summary

A total of 4715 reported traffic collisions occurred on roads under the jurisdiction of the Regional Municipality of Waterloo or at signalized intersections (including pedestrian and mid-block signals) under the jurisdiction of local municipalities during 2020. At the time of publishing this report these collisions resulted in the following statistics:

Statistic	2020	2019	2018	2017	2016
Number of Collisions	4715	6942	6370	6263	5791
Number of Fatal Collisions	7	2	6	9	6
Number of Injury Collisions	493	460	1338	1424	1371
Number of Collisions Involving Pedestrians	67	107	110	139	120
Number of Collisions Involving Cyclists	79	85	79	101	95
Number of Persons Injured in Collisions (includes drivers, passengers, cyclists and pedestrians)	673	598	1893	1949	1851
Number of Persons Sustaining Fatal Injuries in Collisions (includes drivers, passengers, cyclists and pedestrians)	7	2	6	9	6
Percentage of Collisions Occurring at Intersections	75%	72%	70%	66%	64%
Day with Highest Number of Collisions	Friday	Wednesday	Friday	Friday	Thursday
Month with Highest Number of Collisions	February	November	November	November	December
Time of Day with Highest Number of Collisions	17:00	16:00	17:00	17:00	17:00
Most Common Collision Type	Rear End	Rear End	Rear End	Rear End	Rear End
Most Frequently Recorded Improper Driving Action	Following Too Close	Following Too Close	Following Too Close	Following Too Close	Following Too Close
Percentage of Alcohol-Related Collisions	1.59%	1.31%	1.20%	1.70%	1.70%
Horse-Drawn Vehicle Collisions	*N/A	*N/A	3	3	0

*Horse-Drawn Vehicle Collisions not available beyond 2018

Glossary of Terms

Motor Vehicle Collision:
Any incident in which bodily injury or damage to property is sustained as a result of the movement of a motor vehicle, or of its load while a motor vehicle is in motion.

Driver:
Unless specified otherwise, any person, whether licensed or not, considered to be in care and control of a motor vehicle at the time of a collision.

Cyclist:
Any person considered to be in the care and control of a bicycle at the time of a collision.

Pedestrian:
Any person not riding in or on a vehicle involved in a motor vehicle collision including person on roller blades, scooters, wheelchair, etc.

Fatal Collision:
A motor vehicle collision in which at least one person sustains bodily injuries resulting in death within 30 days of the date of the motor vehicle collision.

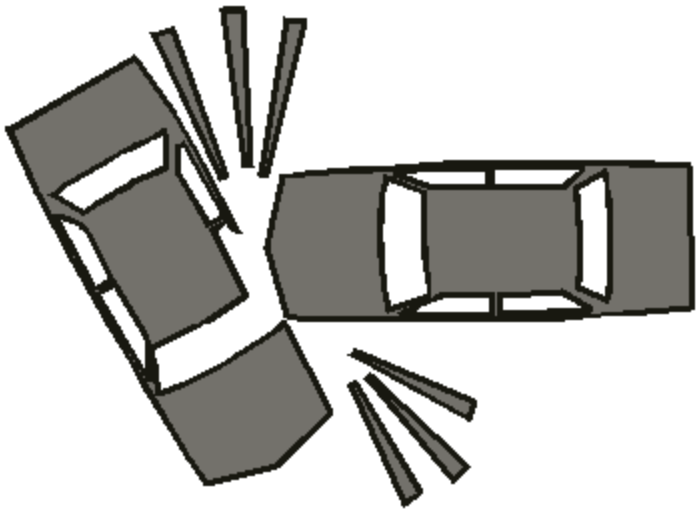
Personal Injury Collision:
A collision involving a motorist, cyclist or pedestrian in which at least one person involved sustains bodily injuries not resulting in death.

Property Damage Collision:
A collision involving a motorist, cyclist or pedestrian in which no person sustains bodily injury, but in which there is damage to any public property or damage to private property.

Had Been Drinking:
Driver had consumed alcohol but their physical condition was not legally impaired.

Ability Impaired Alcohol >80 mg:
Driver had consumed alcohol, and upon testing, was found to have a blood-alcohol level in excess of 80 milligrams in 100 milliliters of blood.

Ability Impaired Alcohol:
Driver had consumed sufficient alcohol to warrant being charged with a drinking and driving offence in the judgment of the investigating officer.



Chapter One

Selected Characteristics

1.0 Selected Characteristics

1.1 Motor Vehicle Collision History

Exhibit 1.1.1 provides historical trends of motor vehicle collisions from 1998 to 2020 inclusive.

Exhibit 1.1.1 Motor Vehicle Collision History

Year	Fatal Collisions	Injury Collisions	Property Damage	Total Collisions	Estimated Population	Collisions Per 1,000 Pop.
1998	15	1130	3699	4844	435,700	11.1
1999	7	1167	3964	5138	443,900	11.6
2000	12	1489	4873	6374	451,500	14.1
2001	12	1561	4757	6330	459,500	13.8
2002	20	1638	5338	6976	469,800	14.8
2003	14	1521	5122	6657	478,600	13.9
2004	11	1476	4574	6061	488,490	12.4
2005	12	1460	4276	5748	497,900	11.5
2006	9	1398	4281	5688	506,150	11.2
2007	5	1355	4620	5980	511,700	11.7
2008	11	1359	4453	5823	533,710	10.9
2009	9	1196	4342	5547	534,920	10.4
2010	8	1341	4460	5809	543,800	10.7
2011	15	1379	4637	6031	552,930	10.9
2012	10	1350	4435	5795	559,050	10.4
2013	10	1433	4832	6275	563,030	11.1
2014	9	1441	5012	6462	568,500	11.4
2015	9	1486	4824	6319	575,000	11.0
2016	6	1371	4414	5791	581,500	10.0
2017	9	1424	4830	6263	594,100	10.5
2018	6	1338	5026	6370	601,220	10.6
2019	2	460	6480	6942	617,650	11.2
2020	7	493	4215	4715	623,930	7.6

Exhibit 1.1.2 Regional Collision History vs. Population

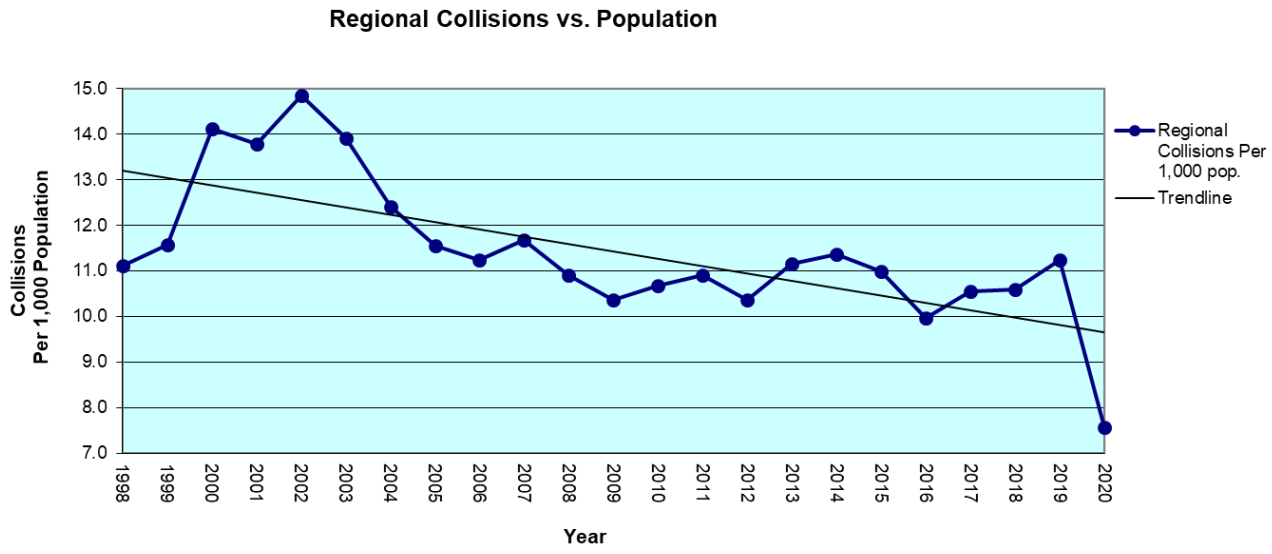
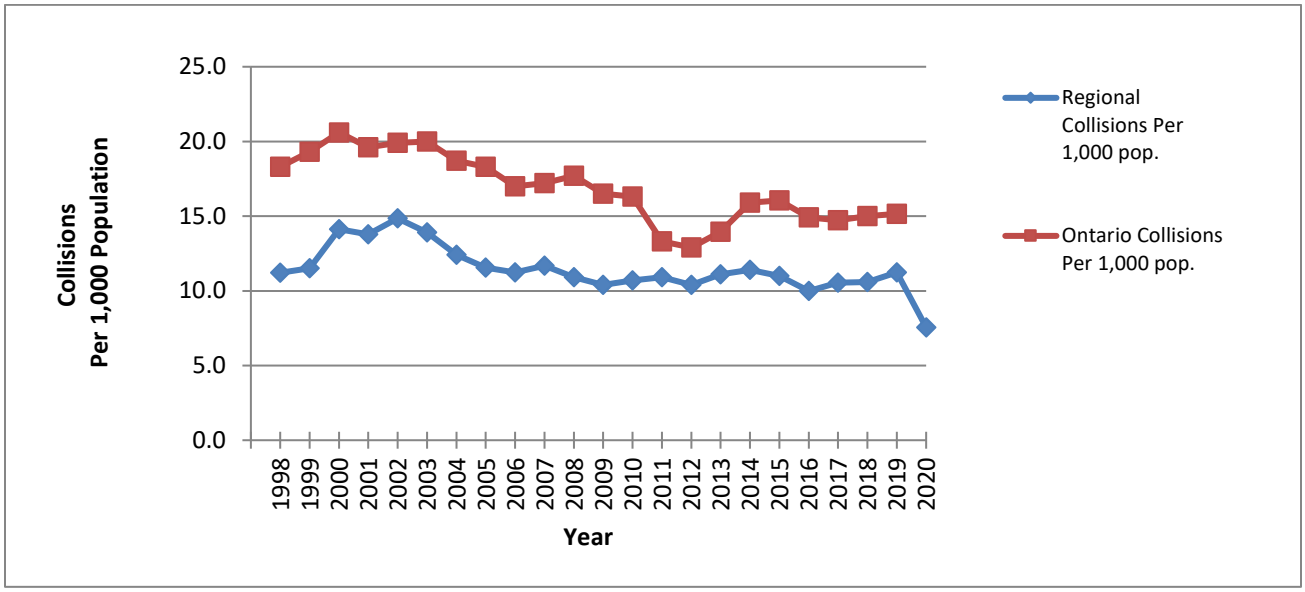


Exhibit 1.1.3 compares trends in motor vehicle collisions per 1,000 population between the Region of Waterloo and the Province of Ontario.

Exhibit 1.1.3 Regional Collisions vs. Ontario Collisions

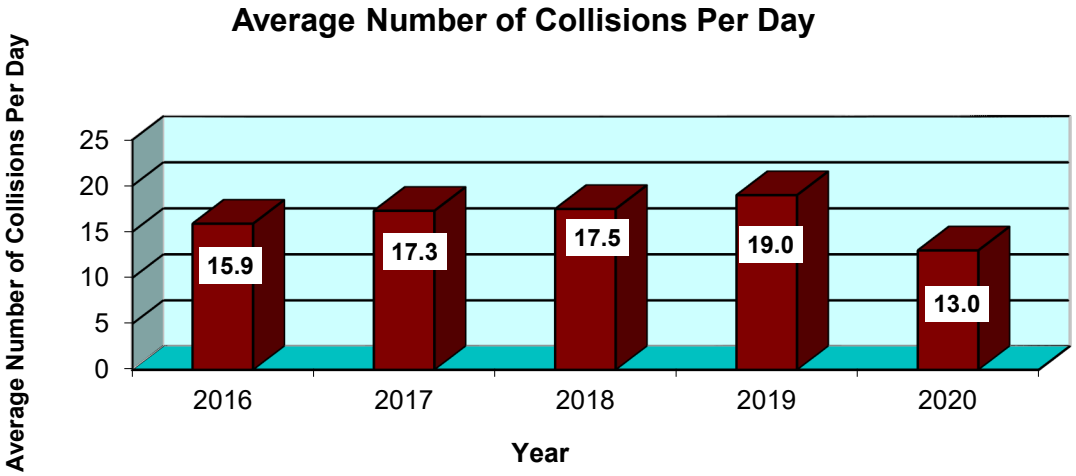


Note – Ontario statistics gathered from the latest (2014) Ministry of Transportation Ontario Road Safety Annual Report and include all jurisdictions in the Province of Ontario. Statistics have not been available since 2019.

1.2 Day/Time/Month of Occurrence

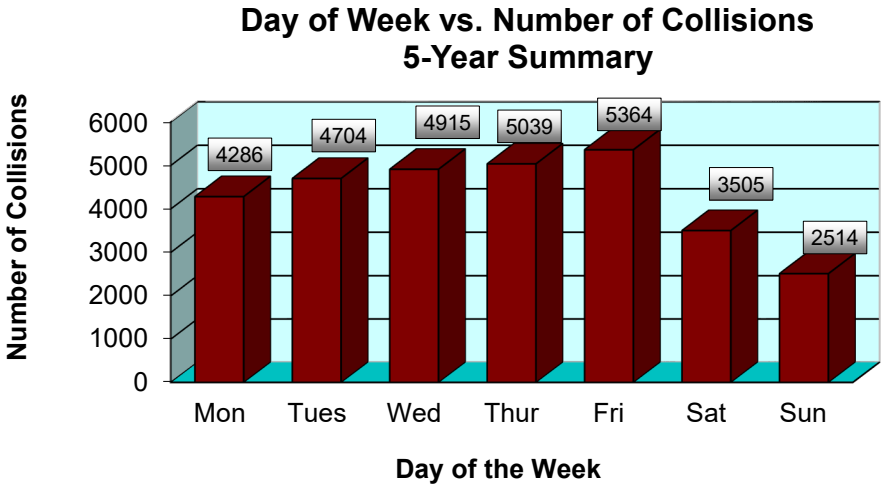
Exhibit 1.2.1 indicates that in **2020** the average number of collisions per day was **13.0**.

Exhibit 1.2.1



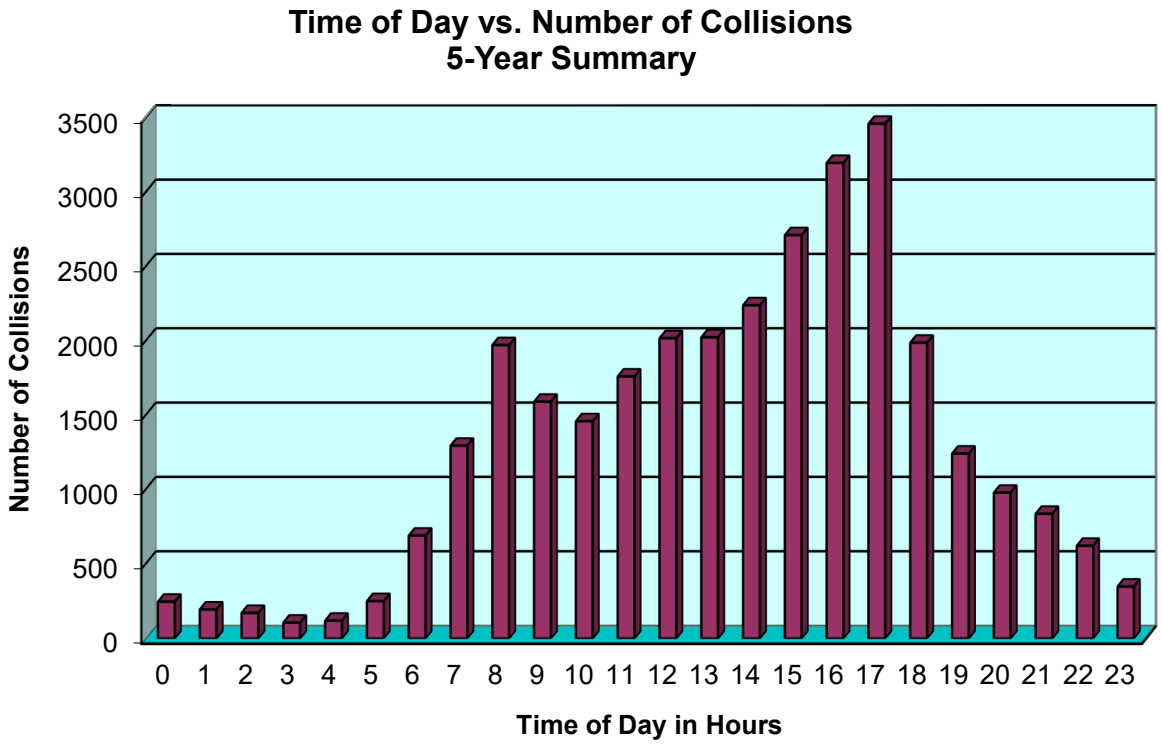
In **2020** the largest proportion of collisions occurred on **Friday**. Exhibit 1.2.2 demonstrates that the largest proportion of collisions over a 5-year period occurred on Fridays.

Exhibit 1.2.2



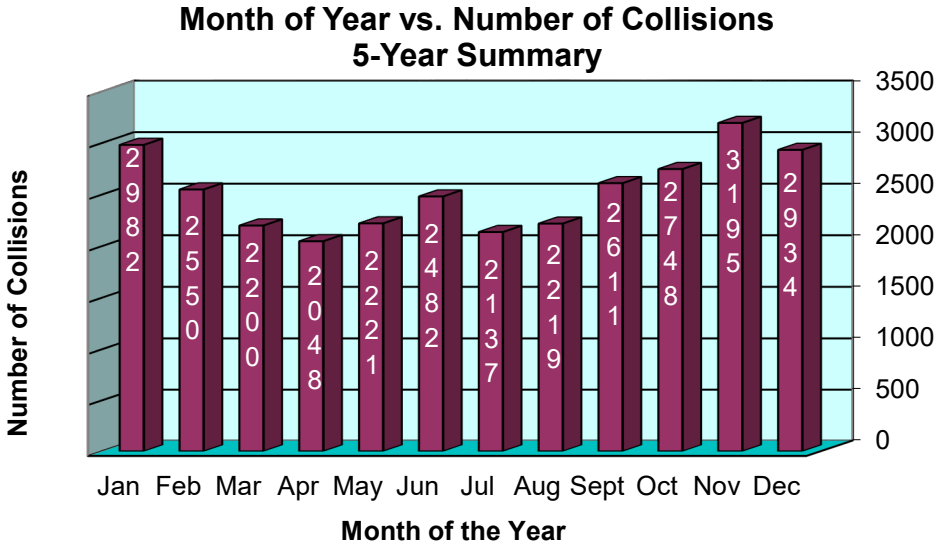
The hour **17:00** was the time of day that experienced the highest number of collisions in **2020**. Exhibit 1.2.3 demonstrates that over 5 years the hour with the highest number of collisions is 17:00.

Exhibit 1.2.3



The month with the highest number of collisions during **2020** was **February** with 661 collisions. Exhibit 1.2.4 shows that over 5 years November was the month with the highest number of collisions.

Exhibit 1.2.4



1.3 Impact Type

The most common impact type in motor vehicle collisions was **"Rear End"**. However, collisions with pedestrians result in the highest percentage of injury followed by the impact type **"Approaching (head on)"** for the year 2020 and historically over 5 years (see Exhibit 1.3.1).

Exhibit 1.3.1

Impact Type vs. Type of Collision

2020 Summary (Number of Collisions)

Initial Impact Type	Type Of Collision				% of Type Involving Injury & Fatal Collisions
	Fatal Injury	Personal Injury	Property Damage	Total	
Approaching (head on)	0	12	55	67	18%
Angle	0	65	397	462	14%
Rear End	1	110	1498	1609	7%
Sideswipe	1	23	713	737	3%
Turning Movement	0	147	955	1102	13%
Single Motor Vehicle (Animal)	0	4	129	133	3%
Single Motor Vehicle (Fixed Object)	4	69	385	458	16%
Single Motor Vehicle (Pedestrian)	1	59	7	67	90%
Other	0	4	76	80	5%
TOTAL	**7**	**493**	**4215**	**4715**	

5-Year Summary (Number of Collisions)

Initial Impact Type	Type Of Collision				% of Type Involving Injury & Fatal Collisions
	Fatal Injury	Personal Injury	Property Damage	Total	
Approaching (head on)	0	66	157	223	30%
Angle	2	627	2672	3301	19%
Rear End	5	1794	9123	10922	16%
Sideswipe	2	222	3978	4202	5%
Turning Movement	3	1337	5665	7005	19%
Single Motor Vehicle (Animal)	0	23	750	773	3%
Single Motor Vehicle (Fixed Object)	10	420	2209	2639	16%
Single Motor Vehicle (Pedestrian)	4	507	44	555	92%
Other	3	110	594	707	16%
TOTAL	**29**	**5106**	**25192**	**30327**	

Exhibit 1.3.2 shows that in 2020, 25% of all collisions occurred where there was **no traffic control** and the most common collision type with no traffic control was **"Rear End"**. **"Rear End"** collisions were also the most common collision type at traffic signal locations. Overall, 47% of all collisions occurred at locations with **traffic signals**. Exhibit 1.3.2 also shows that over 5 years the pattern remains similar.

Exhibit 1.3.2

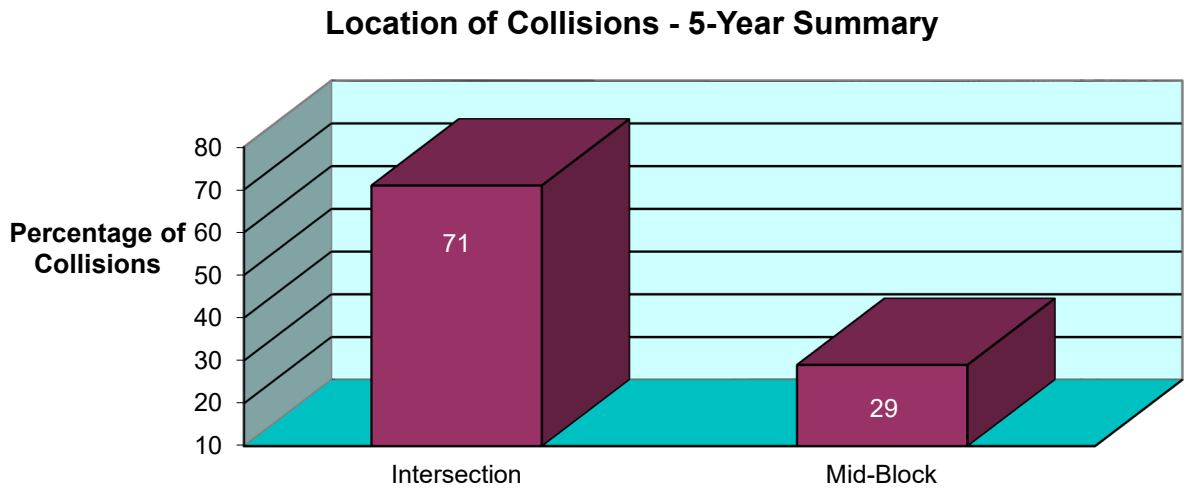
Impact Type vs. Type of Traffic Control

Impact Type	Traffic Signal	Stop Sign	Yield Sign	Other**	No Control	Total	% of all types of impact
2020 Summary (Number of Collisions)							
Approaching	21	8	2	0	36	67	1%
Angle	217	60	157	1	27	462	10%
Rear End	933	135	202	11	328	1609	34%
Sideswipe	234	37	258	1	207	737	16%
Turning Movement	605	159	146	0	192	1102	23%
SMV(*)/Animal	9	15	4	0	105	133	3%
SMV(*)/Fixed Object	103	63	52	1	239	458	10%
SMV(*)/Pedestrian	49	2	1	2	13	67	1%
Other	46	9	1	0	24	80	2%
Total	2217	488	823	16	1171	4715	100%
% of all types of control	47%	10%	17%	0.3%	25%		
5-Year Summary (Number of Collisions)							
Approaching	54	27	11	0	131	223	1%
Angle	1088	512	1492	7	202	3301	11%
Rear End	5904	1122	1015	65	2816	10922	36%
Sideswipe	1518	220	943	14	1507	4202	14%
Turning Movement	3367	1201	899	16	1522	7005	23%
SMV(*)/Animal	19	43	8	3	700	773	3%
SMV(*)/Fixed Object	606	378	229	17	1409	2639	9%
SMV(*)/Pedestrian	385	59	16	12	83	555	2%
Other	221	86	30	2	368	707	2%
Total	13162	3648	4643	136	8738	30327	100%
% of all types of control	43%	12%	15%	0.4%	29%		

1.4 Location of Collisions

During **2020**, **75%** of all collisions occurred at intersections and **25%** occurred within mid-block locations. Exhibit 1.4.1 indicates that over 5 years this pattern is similar with 71% at intersections and 29% within mid-block locations.

Exhibit 1.4.1



1.5 Injuries

During **2020** there were 493 injury collisions with 673 persons injured and 7 persons sustaining fatal injuries. Exhibit 1.5.1 shows a summary of injuries over 5 years.

Exhibit 1.5.1

Year	Total Collisions	Injury Collisions	Total Injured Persons*		Injured Occupants of Vehicles		Injured Pedestrians		Injured Cyclists	
			Injury	Fatal	Injury	Fatal	Injury	Fatal	Injury	Fatal
2016	5791	1371	1851	6	1653	4	126	1	74	1
2017	6263	1424	1949	9	1733	7	142	1	77	1
2018	6370	1338	1893	6	1705	4	120	1	68	1
2019	6942	460	598	2	475	2	93	0	30	0
2020	4715	493	673	7	565	5	59	1	49	1

*Number of Persons Injured in Collisions (includes drivers, passengers, cyclists and pedestrians)

Chapter Two

Drivers

2.0 Drivers

2.1 Driver Age

Exhibit 2.1.1 indicates the age category with the highest number of **improper driving** collisions was the **25 to 34-year-old age group**. The most frequent improper driving actions recorded for this group was **"Following Too Close"**. The most frequent improper driving action for all ages was **"Following Too Close"**. Historically over 5 years the pattern remains the same.

Exhibit 2.1.1

Driver Age vs. Driver Action Involved in 2020 Collisions

Driver Action	Driver Age 16 - 19	20 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65 - 74	75+	Unknown Age	Total	% of all actions
2020 Summary (Number of Collisions)											
Driving Properly	158	541	1031	846	791	688	360	157	14	4586	58%
Following Too Close	67	156	**230**	175	137	140	55	25	6	**991**	12%
Exceeding Speed Limit	4	8	16	4	3	1	1	0	3	40	1%
Speed Too Fast	12	39	47	28	23	15	4	4	3	175	2%
Speed Too Slow	0	0	0	0	0	0	0	0	0	0	0%
Improper Turn	27	75	95	54	61	47	39	37	16	451	6%
Disobeyed Traffic Control	6	28	44	31	26	24	20	11	5	195	2%
Failed To Yield R.O.W.	22	77	148	101	100	106	67	43	22	686	9%
Improper Passing	4	10	12	9	14	17	4	2	5	77	1%
Lost Control	24	52	87	62	47	23	19	5	23	342	4%
Wrong way on one-way road	0	2	0	0	0	0	0	0	0	2	0%
Improper Lane Change	12	30	40	31	29	35	22	13	8	220	3%
Evasive Action	0	0	0	0	0	0	0	0	1	1	0%
Other (undetermined)	12	22	34	26	26	22	16	8	43	209	3%
Total # of drivers involved in collisions	**348**	**1040**	**1784**	**1367**	**1257**	**1118**	**607**	**305**	**149**	**7975**	**100%**
Total # of drivers involved in improper driving collisions (excluding other)	**178**	**477**	**719**	**495**	**440**	**408**	**231**	**140**	**92**	**3180**	**40%**
% of drivers who were recorded as driving properly	45%	52%	58%	62%	63%	62%	59%	51%	9%	58%	
5-Year Summary (Number of Collisions)											
Driving Properly	979	2994	6194	5510	5488	4358	2140	950	63	28676	52%
Following Too Close	484	1112	**1673**	1220	1014	760	359	183	30	**6835**	12%
Exceeding Speed Limit	22	44	49	21	8	7	1	1	5	158	0%
Speed Too Fast	180	360	439	264	237	156	64	36	8	1744	3%
Speed Too Slow	0	1	4	3	0	1	1	2	1	13	0%
Improper Turn	238	490	727	505	557	475	348	264	62	3666	7%
Disobeyed Traffic Control	75	195	291	236	203	182	119	80	32	1413	3%
Failed To Yield R.O.W.	285	628	973	738	765	727	487	363	99	5065	9%
Improper Passing	16	54	82	63	76	70	20	23	18	422	1%
Lost Control	176	372	542	312	265	194	110	57	65	2093	4%
Wrong way on one-way road	0	4	2	3	1	2	1	0	0	13	0%
Improper Lane Change	124	260	384	307	323	268	211	149	29	2055	4%
Evasive Action	1	13	15	7	6	15	6	2	3	68	0%
Other (undetermined)	162	324	589	536	491	419	187	121	191	3020	5%
Total # of drivers involved in collisions	**2742**	**6851**	**11964**	**9725**	**9434**	**7634**	**4054**	**2231**	**606**	**55241**	**100%**
Total # of drivers involved in improper driving collisions (excluding other)	**1601**	**3533**	**5181**	**3679**	**3455**	**2857**	**1727**	**1160**	**352**	**23545**	**43%**
% of drivers who were recorded as driving properly	36%	44%	52%	57%	58%	57%	53%	43%	10%	52%	

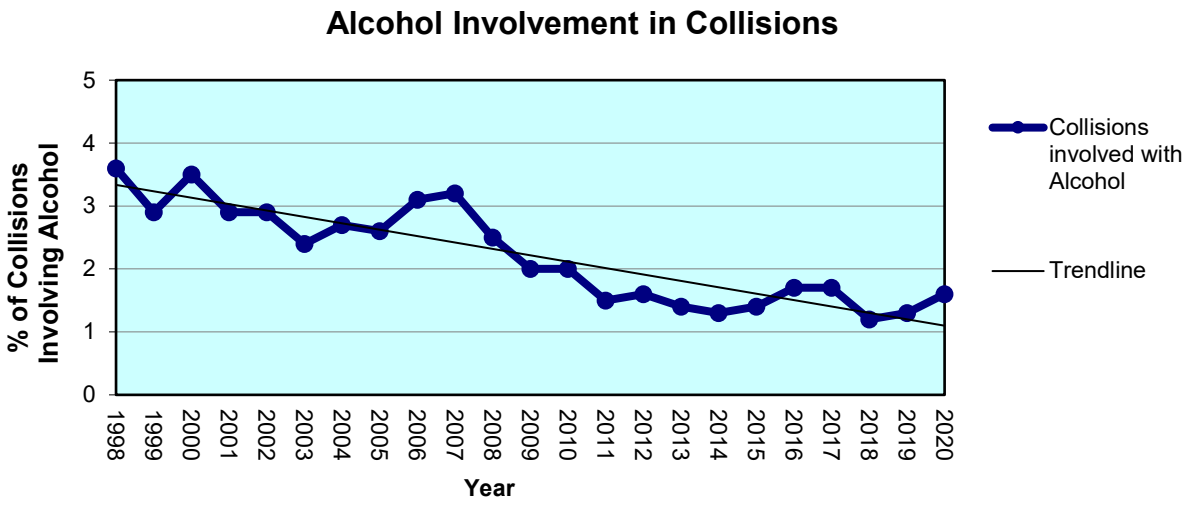
In total, speeding accounts for only 3% of 2020 collisions. This suggests that speeding on Regional roads is not a significant factor in collisions that occurred on Regional roads in 2020. During the previous 5 years (2016 to 2020), the rate of excessive speeding as a factor for collisions remains the same.

2.2 Drinking Drivers

Exhibit 2.2.1 indicates that drinking drivers were involved in **1.6%** of all reported collisions in **2020**, a total of 75 collisions.

As shown in Exhibit 2.2.1, the trend of drinking and driving being a factor in collisions on Regional roads continues to fall.

Exhibit 2.2.1



In **2020** the highest number of collisions involving alcohol occurred on both **Saturday** and **Sunday,** with 19 and 17 collisions respectively. Exhibit 2.2.2 shows on average, over 5 years, the highest number of collisions occurring during the hours of **2:00 to 3:00** and the day with the highest number of collisions was **Saturday** followed by **Sunday** and **Friday**.

Exhibit 2.2.2

Collisions Involving Alcohol vs. Time of Day and Day of Week - 5 Year Summary

	Day of Week							
Time of Day	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**	**Total**
00:00-01:00	2	2	1	0	7	10	9	**31**
01:00-02:00	0	0	2	3	3	11	12	**31**
02:00-03:00	4	2	3	3	6	15	10	**43**
03:00-04:00	3	2	0	1	3	4	6	**19**
04:00-05:00	0	2	0	1	4	2	1	**10**
05:00-06:00	1	0	1	0	1	4	2	**9**
06:00-07:00	0	0	0	0	0	1	1	**2**
07:00-08:00	1	0	0	0	1	0	2	**4**
08:00-09:00	2	0	0	0	0	2	0	**4**
09:00-10:00	0	0	1	1	1	0	2	**5**
10:00-11:00	0	0	0	0	1	2	2	**5**
11:00-12:00	0	1	3	2	1	1	2	**10**
12:00-13:00	2	0	0	1	1	2	2	**8**
13:00-14:00	0	0	1	0	1	5	2	**9**
14:00-15:00	1	1	2	1	2	3	2	**12**
15:00-16:00	4	2	2	1	4	1	2	**16**
16:00-17:00	1	4	2	0	1	2	4	**14**
17:00-18:00	4	3	2	9	7	6	5	**36**
18:00-19:00	3	2	4	7	5	9	5	**35**
19:00-20:00	4	1	7	3	2	6	3	**26**
20:00-21:00	4	3	4	6	10	6	4	**37**
21:00-22:00	6	4	3	9	5	7	5	**39**
22:00-23:00	8	2	5	2	8	8	3	**36**
23:00-00:00	2	3	1	5	6	3	3	**23**
TOTAL	**52**	**34**	**44**	**55**	**80**	**110**	**89**	**464**

During **2020**, **0.9%** of drivers in all age groups had consumed alcohol before being involved in a collision. Exhibit 2.2.3 shows that **0.8%** of drivers in all age groups over 5 years of collisions had consumed alcohol before being involved in a collision.

Exhibit 2.2.3

Driver Age vs. Driver Condition Involved in Collisions – 5-Year Summary											
	Driver Age (Number of Drivers)								Unknown Age	Total	% of Total Drivers
Driver Condition	**16 - 19**	**20 - 24**	**25 - 34**	**35 - 44**	**45 - 54**	**55 - 64**	**65 - 74**	**75+**			
Normal	1316	3787	7431	6445	6390	5089	2524	1183	56	34221	61.0%
Had Been Drinking	6	25	44	26	16	15	4	4	1	141	0.3%
Impaired - alcohol >80mg	5	35	79	41	25	20	7	2	0	214	0.4%
Impaired - alcohol	3	16	36	19	21	7	5	1	1	109	0.2%
Impaired - drugs	3	16	17	11	6	4	0	1	0	58	0.1%
Fatigue	15	33	33	22	21	13	11	6	0	154	0.3%
Medical disability	2	8	17	14	13	18	22	25	0	119	0.2%
Inattentive	1373	2878	4242	3102	2899	2442	1457	1000	158	19551	34.8%
Other	33	112	174	132	123	94	57	25	790	1540	2.7%
Total # of drivers involved in collisions	**2756**	**6910**	**12073**	**9812**	**9514**	**7702**	**4087**	**2247**	**1006**	**56107**	100%
% of drinking drivers involved, in each category	0.5%	1.1%	1.3%	0.9%	0.7%	0.5%	0.4%	0.3%		**0.8%**	

2.3 Horse-Drawn Vehicles

Collisions involving horse-drawn vehicles were not available in 2019 and 2020.

Exhibit 2.3.1 shows collisions involving horse-drawn vehicles from **2016 to 2018.**

Exhibit 2.3.1

Year	Total Horse-Drawn Vehicle Collisions
2016	0
2017	3
2018	3
2019	*NA
2020	*NA
Total	*6

* Horse-Drawn Vehicle Collisions not available beyond 2018

Chapter Three

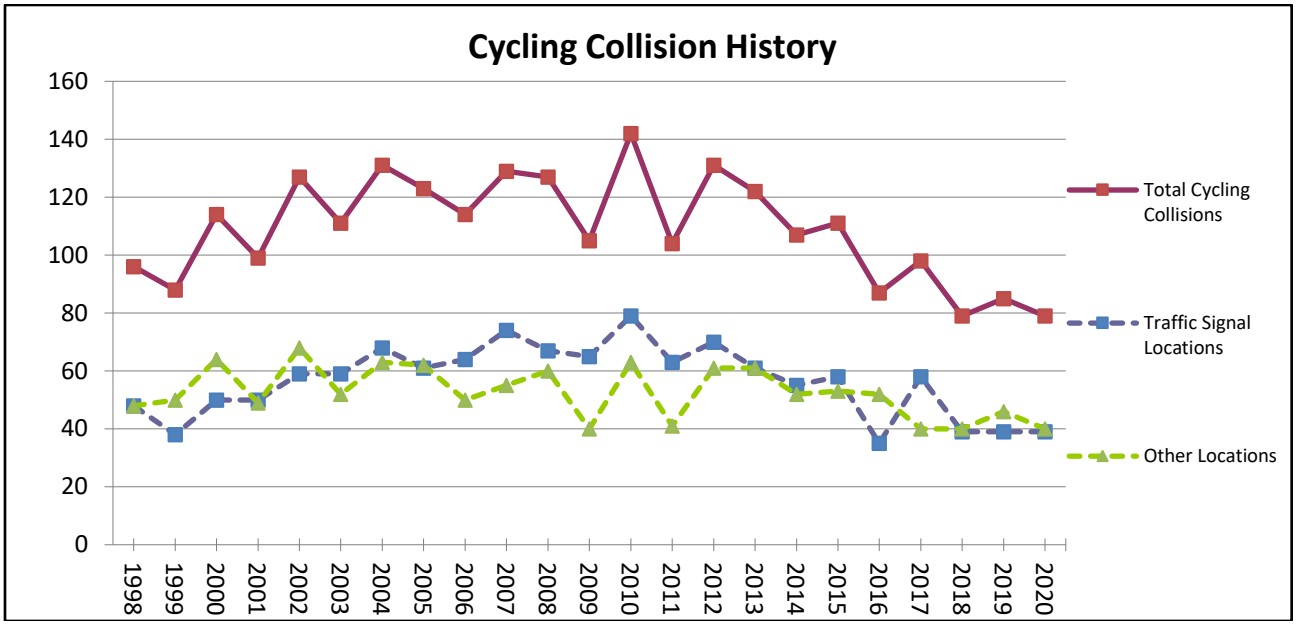
Cyclists

3.0 Cyclists

3.1 Cycling Collision History

Exhibit 3.1.1 provides historical trends of cycling collisions from 1998 to 2020 inclusive.

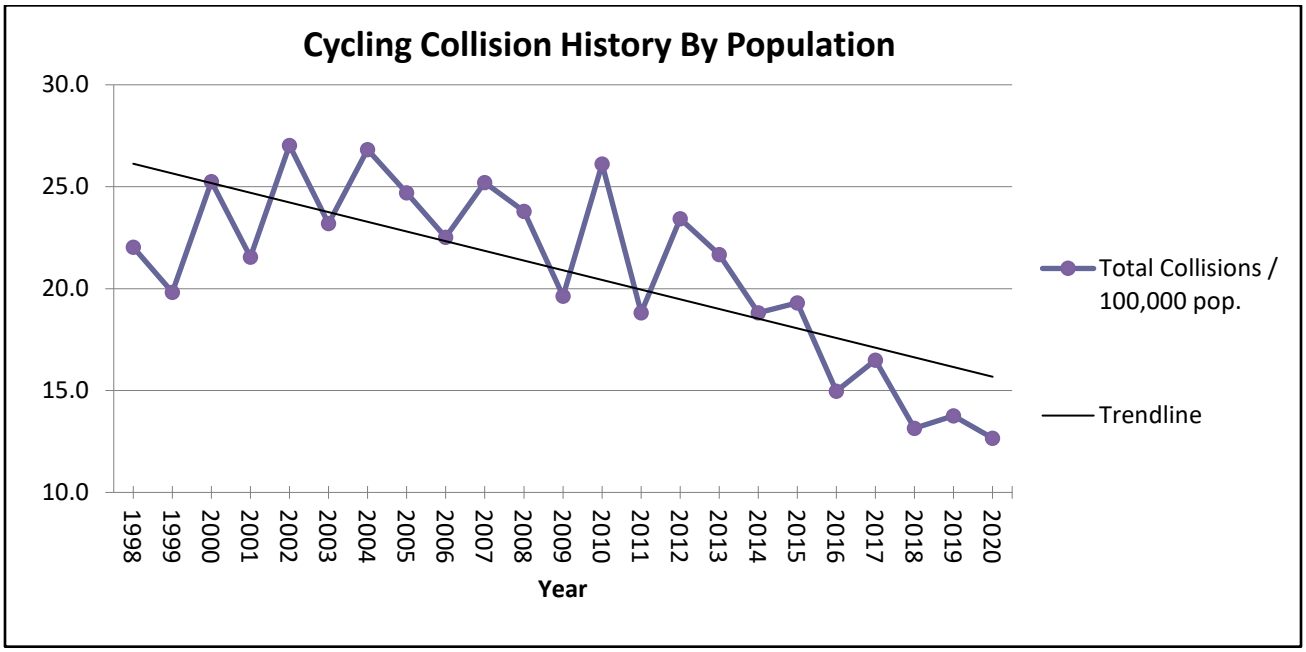
Exhibit 3.1.1



3.2 Cycling Collision History by Population

Exhibit 3.2.1 provides historical trends of cycling collisions by population from 1998 to 2020 inclusive. The trend line shows that cycling collisions continue to decline year after year.

Exhibit 3.2.1



3.3 Cyclist Age Versus Cyclist Action

In **2020** there were **79** collisions involving cyclists. In **25%** of these collisions, cyclists were riding improperly. Exhibit 3.3.1 indicates over 5 years there were 438 collisions involving cyclists. In **30%** of these collisions, cyclists were riding improperly and 39% were recorded as driving properly. Cyclists in the age group **25 to 34** had the highest number of improper driving collisions.

Exhibit 3.3.1

Cyclist Age vs. Cyclist Action Involved in Collisions – 5-Year Summary

	Cyclist Age (Number of Cyclists)													
Cyclist Action	**Under 5**	**5 - 9**	**10 - 15**	**16 - 19**	**20 - 24**	**25 - 34**	**35 - 44**	**45 - 54**	**55 - 64**	**65 - 74**	**75+**	**Unknown Age**	**Total**	**% of Total Cyclist Collisions**
Driving Properly	0	0	11	17	15	32	28	22	25	9	3	7	169	39%
Following Too Close	0	0	0	0	0	3	1	0	1	0	0	0	5	1%
Exceeding Speed Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Speed Too Fast	0	0	0	0	0	0	1	0	0	0	0	0	1	0%
Speed Too Slow	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Improper Turn	0	1	1	1	0	1	1	1	3	0	2	0	11	3%
Disobeyed Traffic Control	0	0	5	1	6	7	3	3	4	2	0	0	31	7%
Failed To Yield R.O.W.	0	1	11	8	8	9	4	7	4	2	0	3	57	13%
Improper Passing	0	0	0	0	0	1	0	2	0	0	0	0	3	1%
Lost Control	0	0	1	0	1	3	3	2	2	0	0	1	13	3%
Wrong way on one-way road	0	0	0	0	0	0	1	0	1	1	0	0	3	1%
Improper Lane Change	0	0	0	0	0	3	1	0	2	1	0	0	7	2%
Other (undetermined)	0	1	11	29	15	25	11	17	5	4	2	18	138	32%
Total # of cyclists involved in collisions	**0**	**3**	**40**	**56**	**45**	**84**	**54**	**54**	**47**	**19**	**7**	**29**	**438**	100%
Total # of cyclists involved in improper driving collisions (excluding other)	**0**	**2**	**18**	**10**	**15**	**27**	**15**	**15**	**17**	**6**	**2**	**4**	**131**	**30%**
% of cyclists involved, in each category, who were recorded as driving properly	0%	0%	28%	30%	33%	38%	52%	41%	53%	47%	0%	0%	39%	

3.4 Cyclist Age Versus Cyclist Condition

During **2020** approximately **3%** of cyclists involved in a collision had consumed alcohol. Exhibit 3.4.1 indicates over 5 years that **2%** of cyclists involved in a collision had consumed alcohol.

Exhibit 3.4.1

Cyclist Age vs. Cyclist Condition Involved in Collisions – 5-Year Summary														
	Cyclist Age (Number of Cyclists)													
Cyclist Condition	**Under 5**	**5 - 9**	**10 - 15**	**16 - 19**	**20 - 24**	**25 - 34**	**35 - 44**	**45 - 54**	**55 - 64**	**65 - 74**	**75+**	**Unknown Age**	**Total**	**% of Total Collisions**
Normal	0	1	16	28	26	40	33	31	29	12	4	8	228	52%
Had Been Drinking	0	0	0	2	1	1	2	2	1	1	0	0	10	2%
Impaired – alcohol>80mg	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Impaired - alcohol	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Impaired - drugs	0	0	0	0	1	0	0	0	0	0	0	0	1	0%
Fatigue	0	0	0	0	0	0	1	1	0	0	0	0	2	0%
Medical disability	0	0	0	1	0	1	1	0	0	0	0	0	3	1%
Inattentive	0	2	24	23	16	38	17	20	16	5	3	5	169	39%
Other	0	0	0	2	1	4	0	0	1	1	0	16	25	6%
Total # of Cyclists	**0**	**3**	**40**	**56**	**45**	**84**	**54**	**54**	**47**	**19**	**7**	**29**	**438**	100%
% of Drinking Cyclists involved, in each category	0%	0%	0%	4%	2%	1%	4%	4%	2%	5%	0%	0%	**2%**	

3.5 Location of Cyclists

Exhibit 3.5.1 indicates that the majority of cyclists involved in collisions occurred while cycling on the roadway **(26%)**. Twenty-nine percent (29%) of cyclists involved in collisions occurred while cycling in a crosswalk.

Exhibit 3.5.1

Location of Cyclists Involved in Collisions – 5-Year Summary														
	Cyclist Age (Number of Cyclists)													
Cyclist Location	**Under 5**	**5 - 9**	**10 - 15**	**16 - 19**	**20 - 24**	**25 - 34**	**35 - 44**	**45 - 54**	**55 - 64**	**65 - 74**	**75+**	**Unknown Age**	**Total**	**% of Total Cyclist Collisions**
Cycling in Crosswalk	0	1	5	4	2	8	4	0	5	2	1	2	34	8%
Cycling in Crosswalk against traffic	0	0	16	17	13	17	8	8	6	2	1	4	92	21%
Cycling on Sidewalk	0	1	0	2	0	2	1	0	1	0	0	0	7	2%
Cycling on Sidewalk against traffic	0	0	1	4	3	3	0	5	1	0	0	1	18	4%
Cycling on Roadway	0	1	3	9	11	25	16	16	16	4	3	4	108	**25%**
Cycling on Roadway against traffic	0	0	0	0	0	0	1	1	1	0	0	1	4	1%
Cutting through traffic	0	0	0	1	0	1	0	1	1	1	0	0	5	1%
Cycling in Roundabout Crosswalk with entering vehicle	0	0	0	1	0	0	0	0	0	0	0	0	1	0%
Cycling in Roundabout Crosswalk with exiting vehicle	0	0	0	1	0	0	0	0	0	0	0	0	1	0%
Other	0	0	15	17	16	28	24	23	16	10	2	17	168	38%
Total # of cyclists involved in collisions	**0**	**3**	**40**	**56**	**45**	**84**	**54**	**54**	**47**	**19**	**7**	**29**	**438**	100%

3.6 Motor Vehicle Driver Action

Exhibit 3.6.1 indicates that **40%** of motor vehicle drivers involved in cyclist collisions were involved in improper driving actions with the most frequent improper driving actions recorded being **"Failed To Yield Right-of-Way"**.

Exhibit 3.6.1

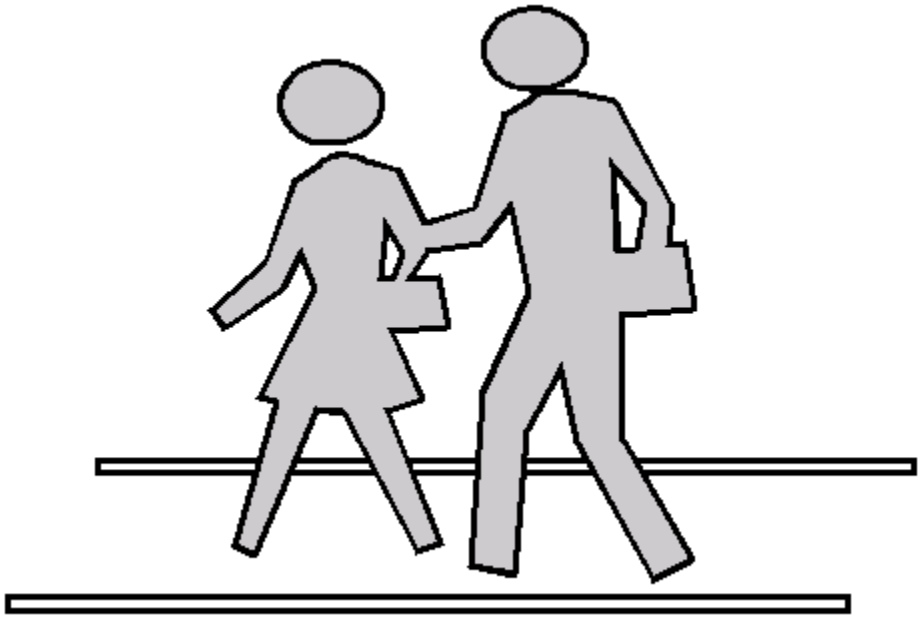
Motor Vehicle Driver Action Involved in Cyclist Collisions		
Motor Vehicle Driver Action	**Total**	**% of all actions**
5-Year Summary (Number of Collisions Involving Cyclists)		
Driving Properly	207	47.3%
Following Too Close	2	0.5%
Exceeding Speed Limit	2	0.5%
Speed Too Fast	0	0.0%
Speed Too Slow	0	0.0%
Improper Turn	45	10.3%
Disobeyed Traffic Control	8	1.8%
Failed To Yield R.O.W.	97	**22.1%**
Improper Passing	18	4.1%
Lost Control	0	0.0%
Wrong way on one-way road	0	0.0%
Improper Lane Change	4	0.9%
Evasive Action	2	0.5%
Other (undetermined)	53	12.1%
Total # of collisions involving cyclists	**438**	**100%**
Total # of motor vehicle drivers involved in improper driving actions (excluding other)	**176**	**40%**

3.7 Motor Vehicle Driver Condition

Exhibit 3.7.1 indicates that the condition of the majority of motor vehicle drivers **(49%)** involved in cyclist collisions was normal with **38%** of drivers noted as inattentive.

Exhibit 3.7.1

Motor Vehicle Driver Condition Involved in Cyclist Collisions		
5-Year Summary (Number of Collisions Involving Cyclists)		
Motor Vehicle Driver Condition	**Total**	**% of all conditions**
Normal	215	**49%**
Had Been Drinking	1	0%
Impaired - alcohol >80mg	1	0%
Impaired - alcohol	0	0%
Impaired - drugs	0	0%
Fatigue	0	0%
Medical disability	1	0%
Inattentive	168	**38%**
Other	52	12%
Total # of collisions involving cyclists	**438**	**100%**



Chapter Four

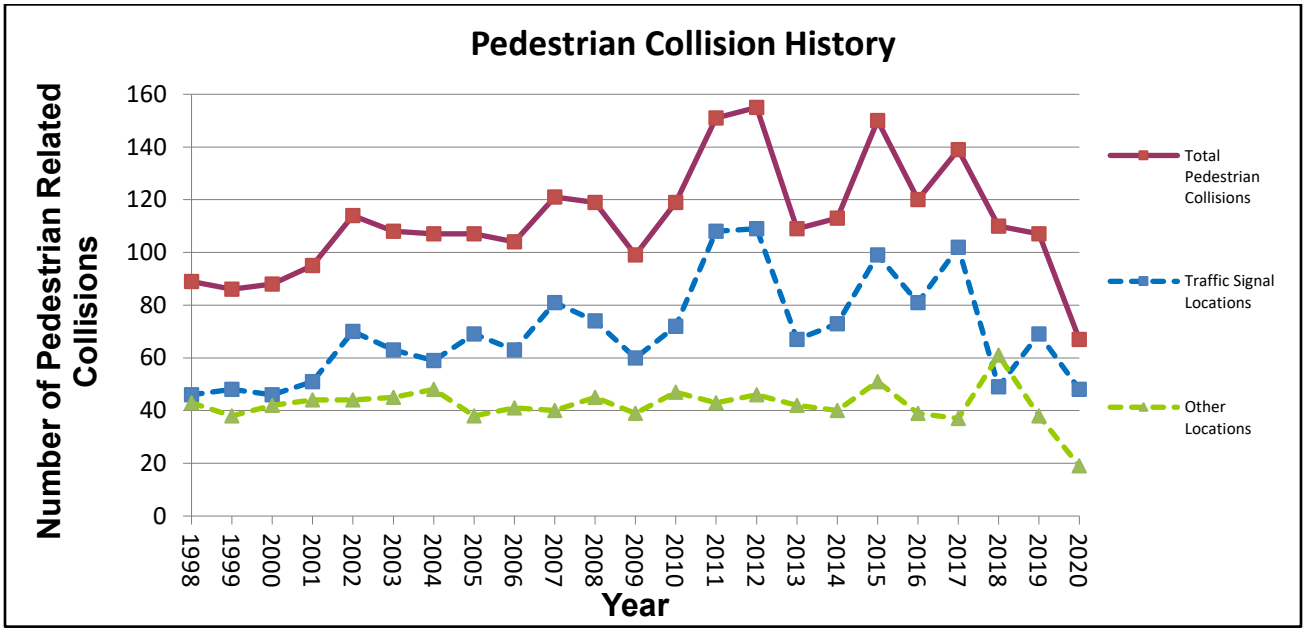
Pedestrians

4.0 Pedestrians

4.1 Pedestrian Collision History

Exhibit 4.1.1 provides historical trends of pedestrian collisions from 1998 to 2020 inclusive.

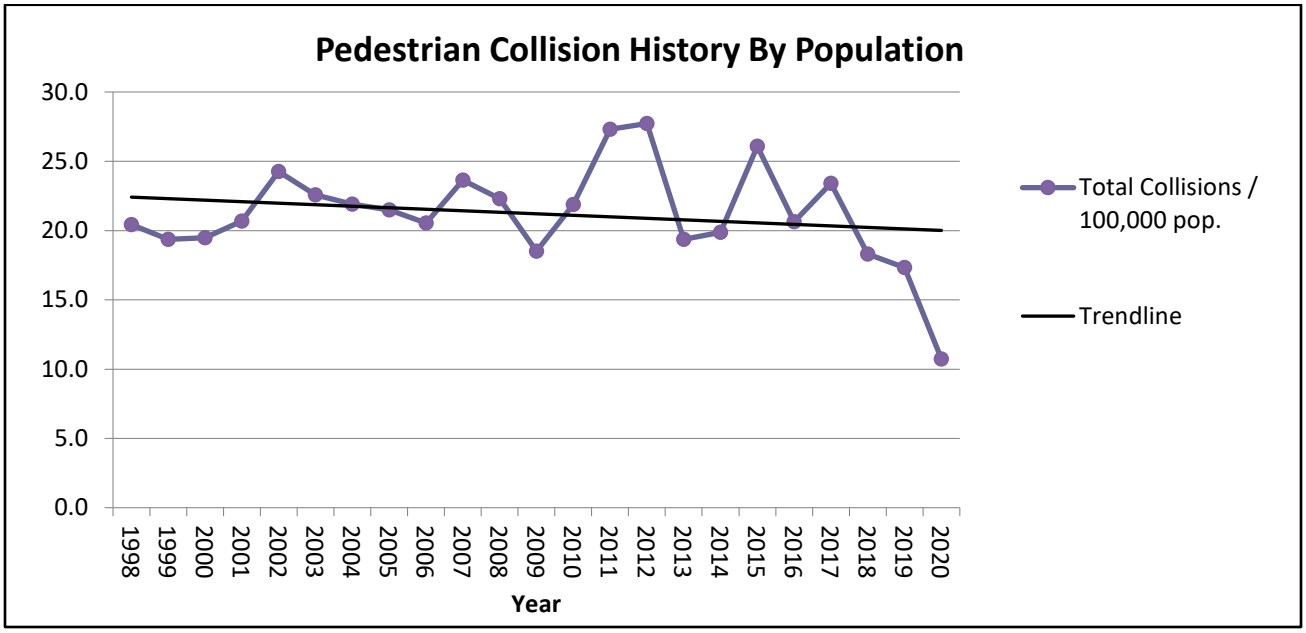
Exhibit 4.1.1



4.2 Pedestrian Collision History by Population

Exhibit 4.2.1 provides historical trends of pedestrian collisions by population from 1998 to 2020 exclusive. The trend of pedestrian collisions during the last 22 years shows a slight decline in pedestrian collisions.

Exhibit 4.2.1

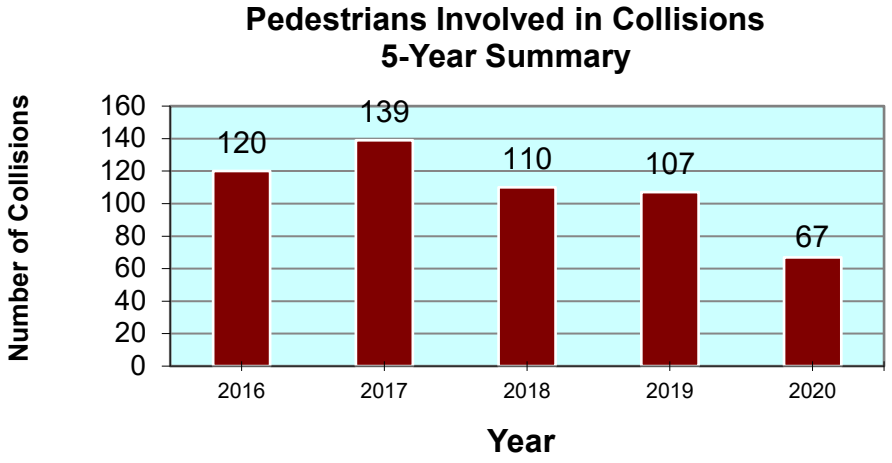


4.3 Pedestrians Involved in Collisions by Year

In 2020, there were 67 pedestrian collisions.

Exhibit 4.3.1 shows pedestrian involved in collisions over 5 years.

Exhibit 4.3.1

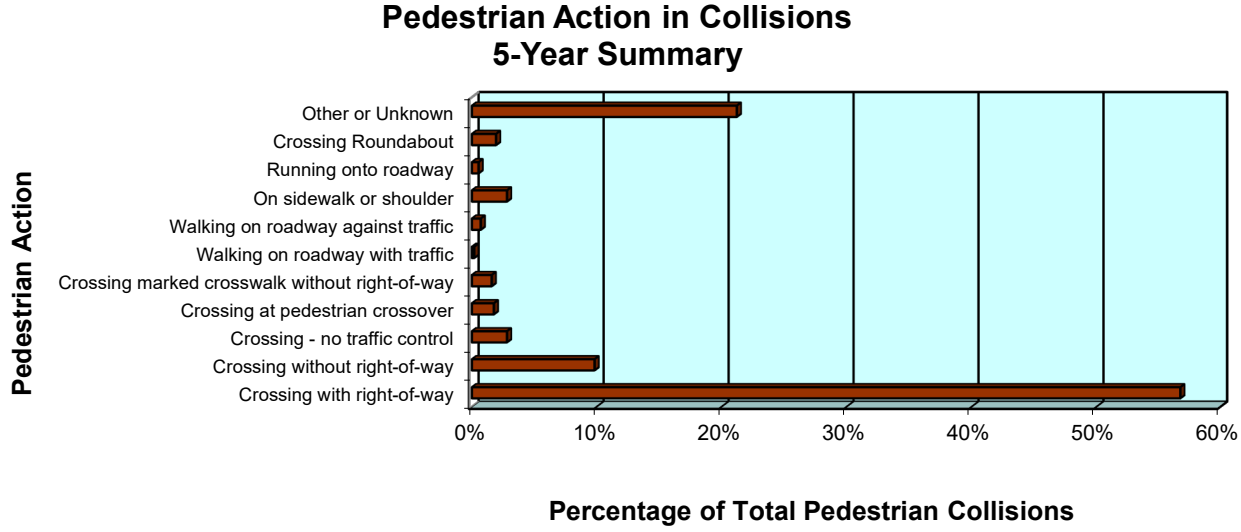


4.4 Pedestrian Action

In 55% of all pedestrian collisions in 2020, the pedestrian was crossing with the right-of-way and in 6%, the pedestrian was crossing without the right-of-way.

Exhibit 4.4.1 indicates historically that over 5 years the majority of pedestrian actions were crossing with the right-of-way.

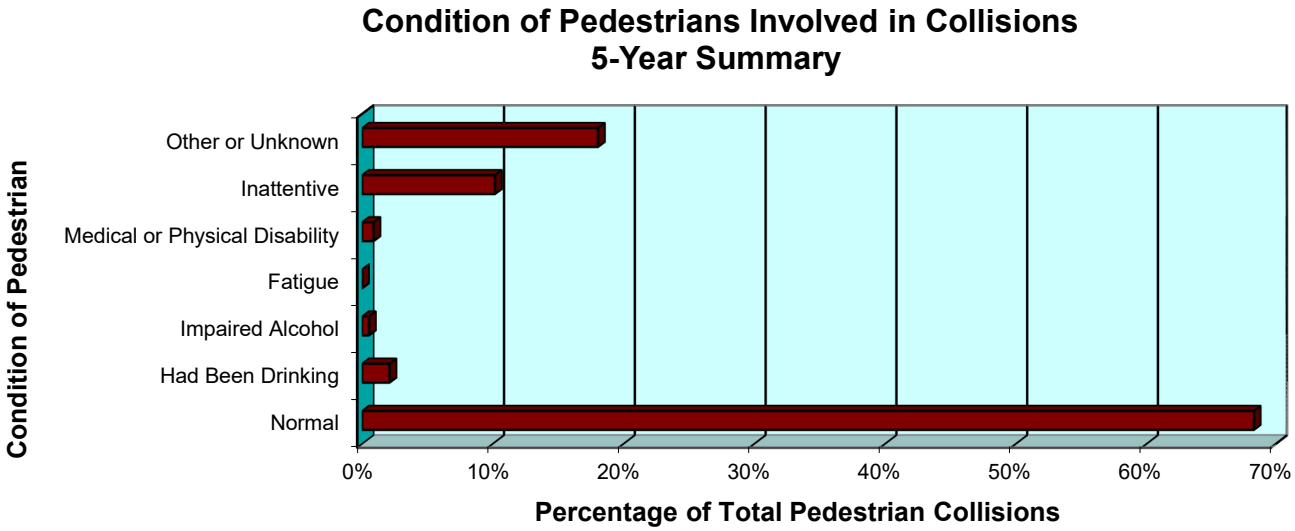
Exhibit 4.4.1



4.5 Pedestrian Condition

During **2020,** the majority of pedestrian collisions **(60%)** showed the condition of the pedestrian reported as normal. Exhibit 4.5.1 indicates the same pattern over 5 years **(68%).**

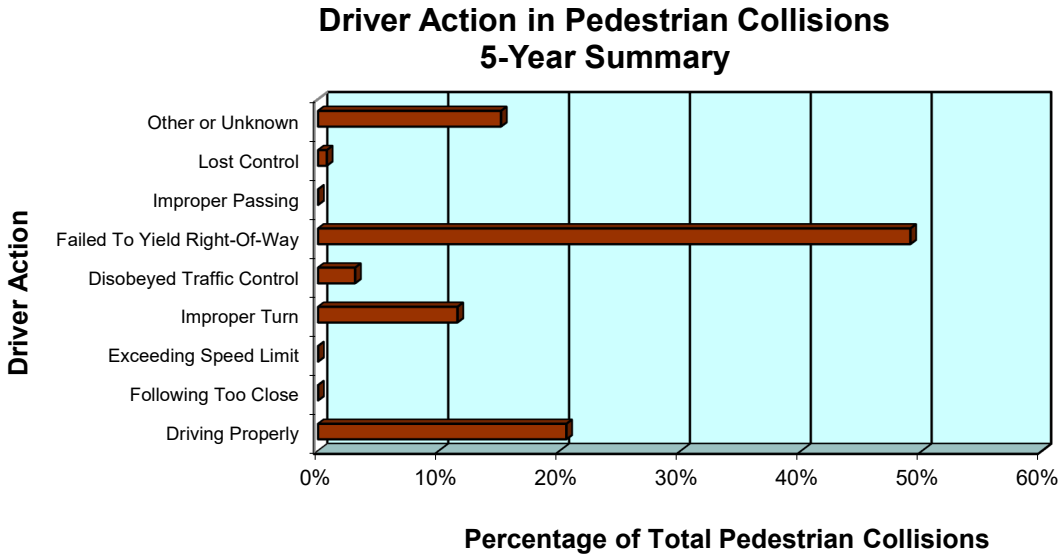
Exhibit 4.5.1



4.6 Driver Action

Exhibit 4.6.1 indicates that 49% of the time "Failed-to-Yield-Right-Of-Way" was the most frequently recorded improper driver action in pedestrian collisions **(51% in 2020)**. It was also noted that in 21% of all pedestrian collisions, the driver was recorded as driving properly **(19% in 2020)**. As shown in Exhibit 4.6.1 speeding is not a significant factor in pedestrian collisions during the previous 5 years (2016 to 2020).

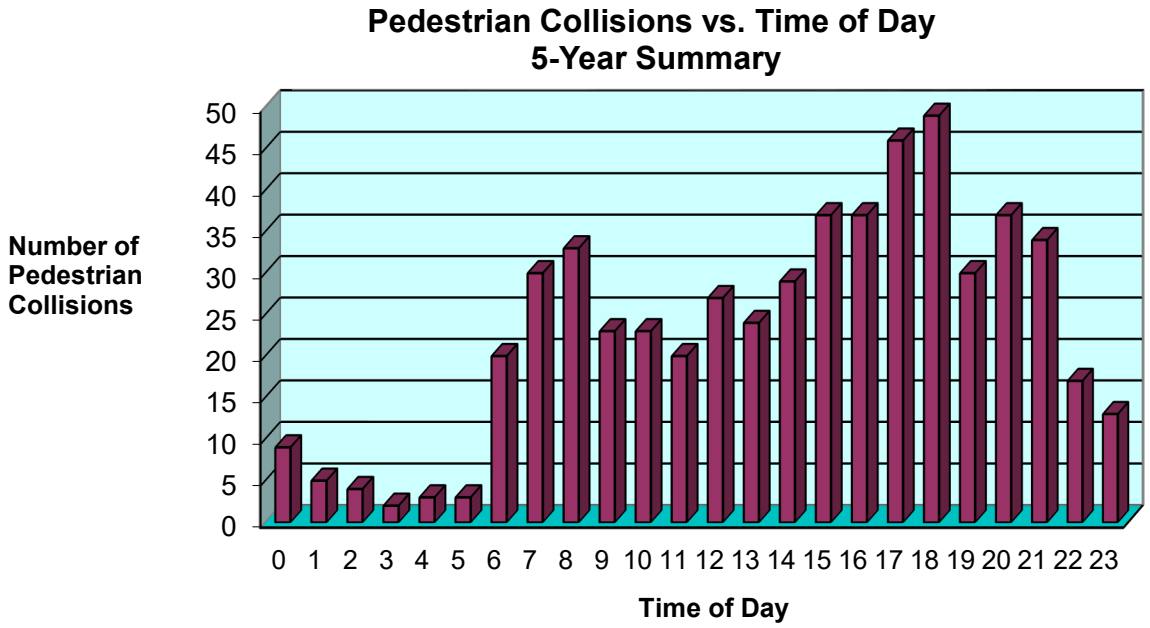
Exhibit 4.6.1



4.7 Time of Day

In **2020,** the time of the day with the highest number of pedestrian collisions was the hour starting at **19:00**. Exhibit 4.7.1 indicates that the hour starting at 18:00 had the highest number of pedestrian collisions over 5 years.

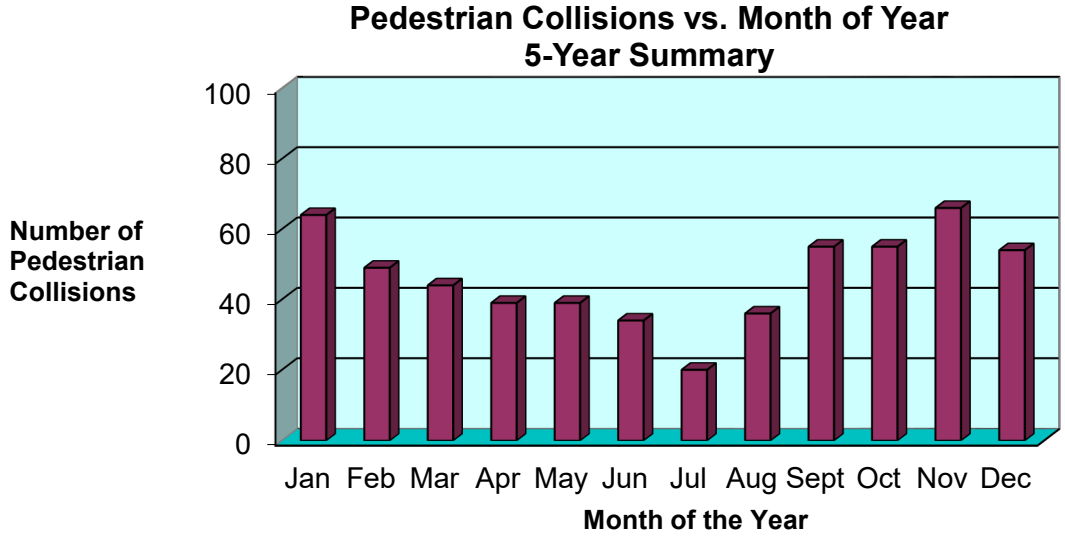
Exhibit 4.7.1



4.8 Month of Year

In **2020,** the month of year with the highest number of pedestrian collisions was **January** with 12 collisions. Exhibit 4.8.1 indicates that **November** had the highest number of pedestrian collisions over 5 years.

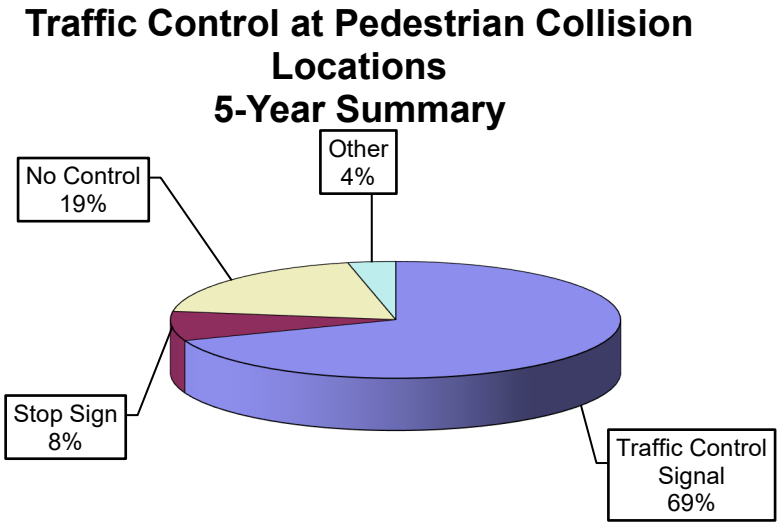
Exhibit 4.8.1



4.9 Traffic Control at Pedestrian Collision Locations

Exhibit 4.9.1 indicates historically 19.3% of pedestrian collisions **(14.9% in 2020)** occurred at mid-block locations where there was no traffic control, 69.2% at traffic control signals **(73.1% in 2020)**, 8.1% at locations with stop signs **(6.0% in 2020)** and 2.0% at other locations (e.g., yield signs, police control) **(6.0% in 2020)**.

Exhibit 4.9.1



4.10 Traffic Control at Fatal Injury Pedestrian Collision Locations

Historically, between 2016 and 2020, 100% of fatal injury pedestrian collisions occurred at mid-block locations where there was no traffic control. Exhibit 4.10.1 shows the number of fatal injury pedestrian collisions in each municipality between 2016 and 2020.

Exhibit 4.10.1

Municipality	Number of Fatal Injury Pedestrian Collision
Cambridge	1
Kitchener	2
Waterloo	0
North Dumfries	0
Wellesley	1
Wilmot	0
Woolwich	0
Total	**4**

Chapter Five

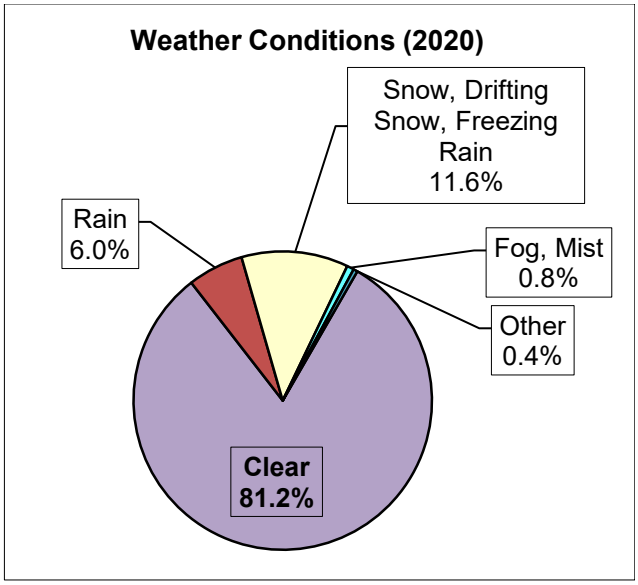
Environment

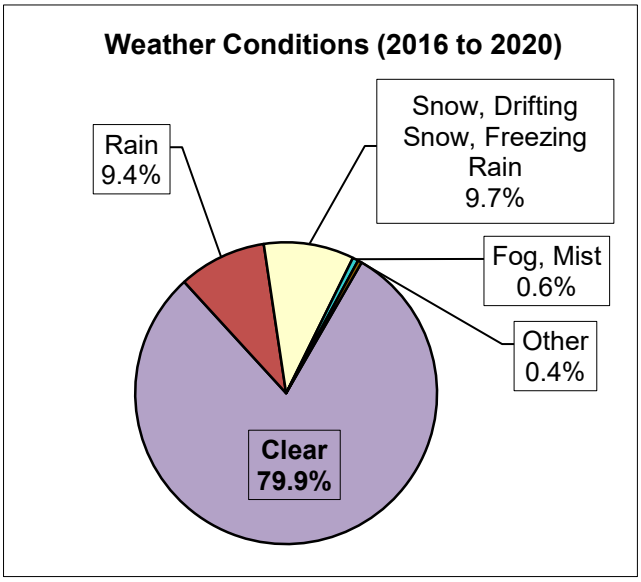
5.0 Environment

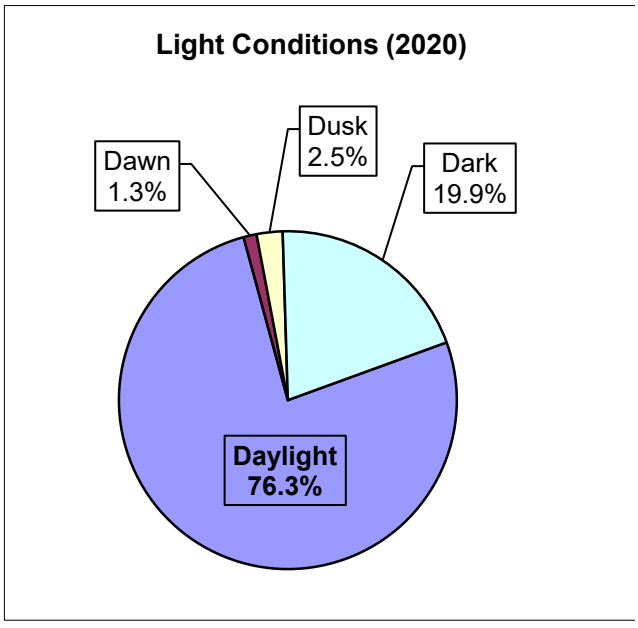
5.1 Weather and Light Conditions

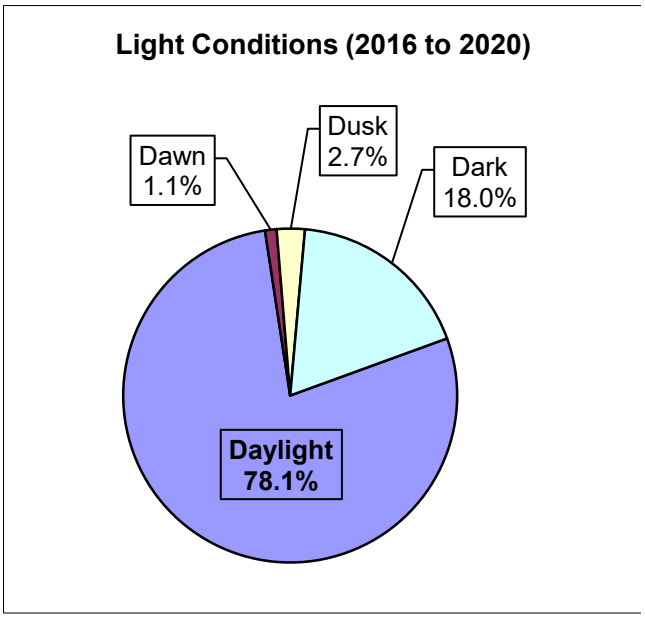
In 2020, and historically (2016 to 2020), most collisions occurred during clear weather and daylight conditions (see Exhibit 5.1.1).

Exhibit 5.1.1 Weather and Light Conditions in Motor Vehicle Collisions





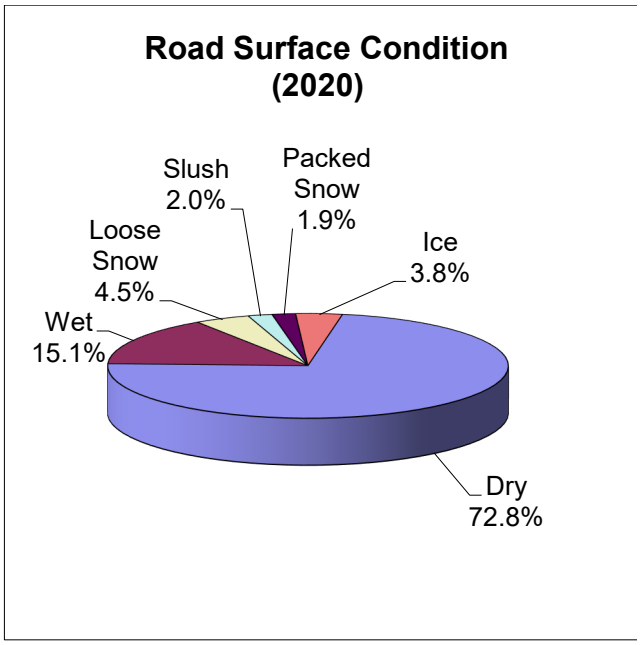


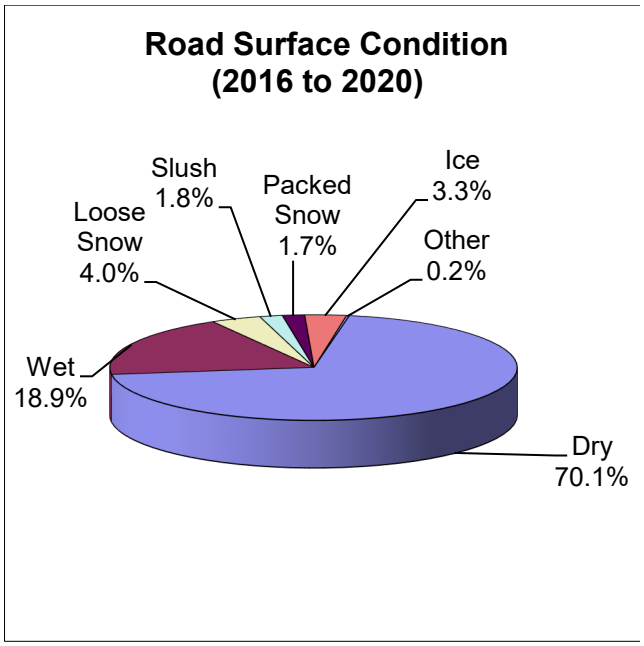


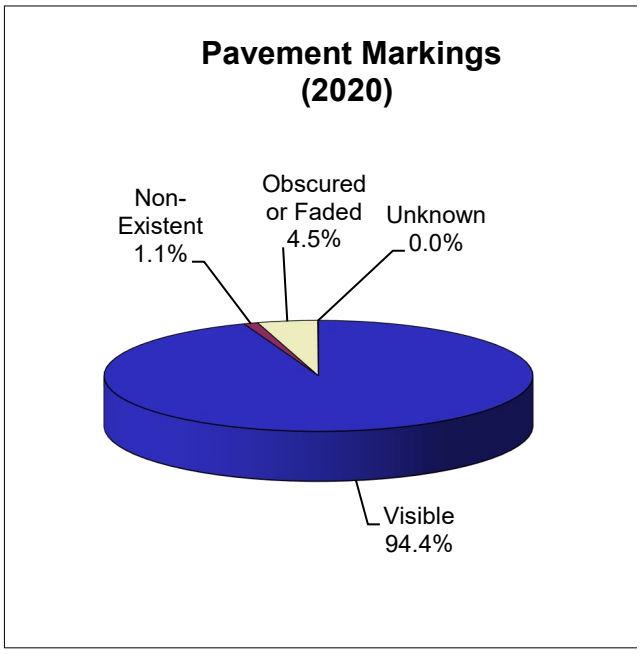
5.2 Road Surface and Pavement Markings

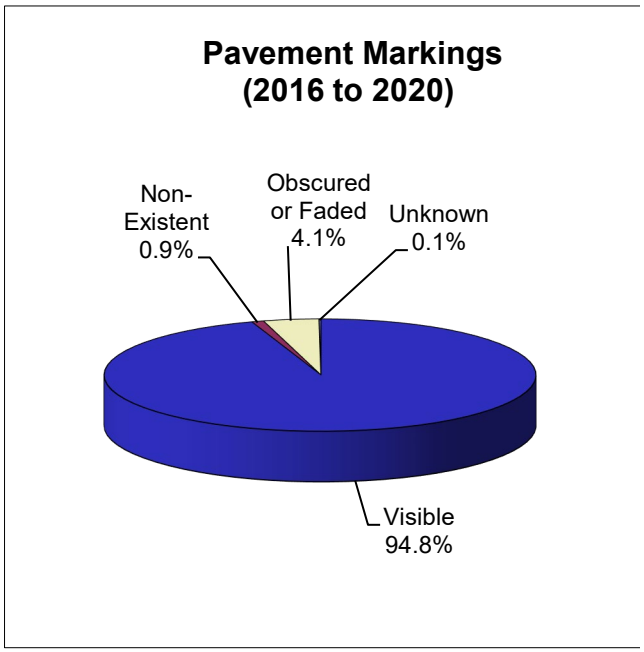
In 2020, and historically (2016 to 2020), most collisions occurred under dry pavement conditions and in most collisions the pavement markings were visible.

Exhibit 5.2.1 Road Surface Conditions and Pavement Markings in Motor Vehicle Collisions





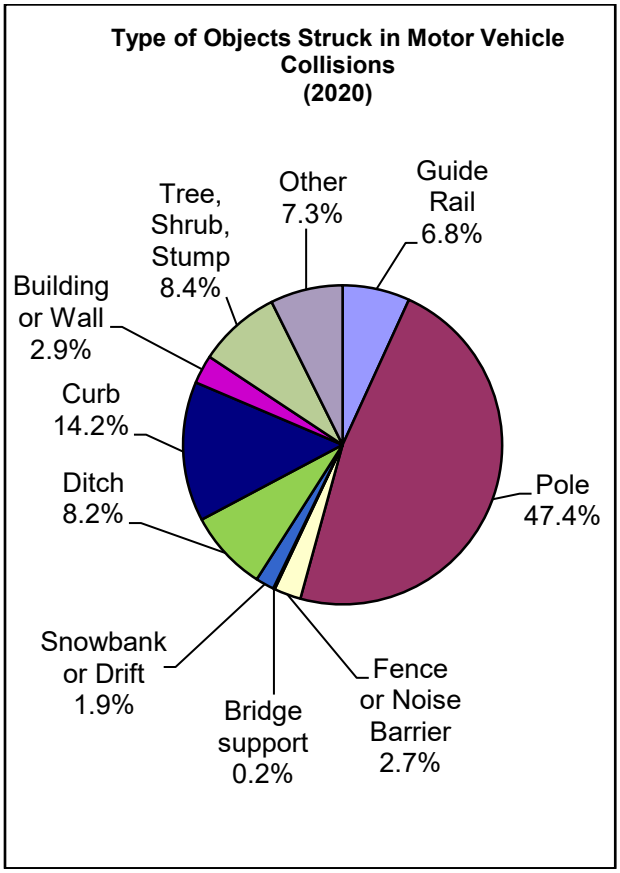


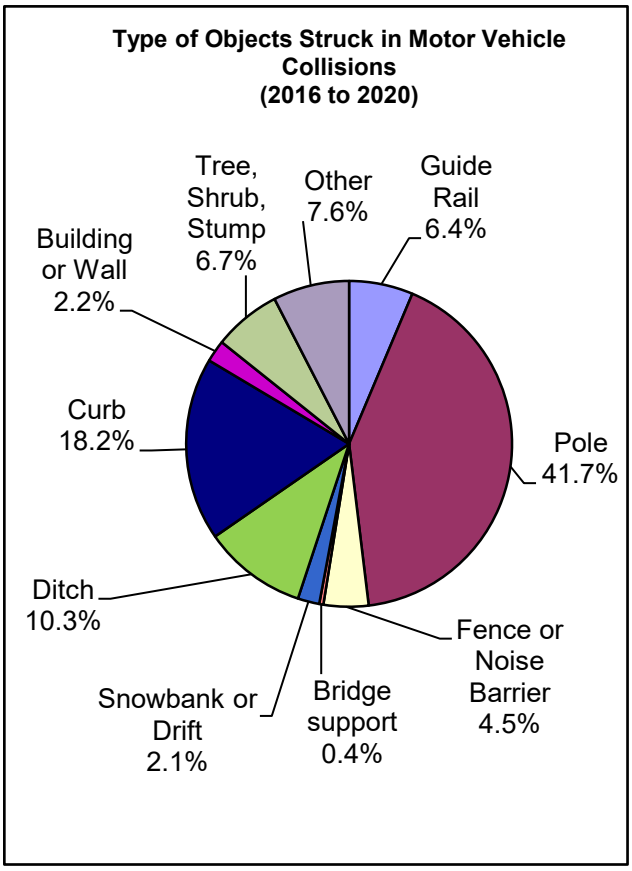


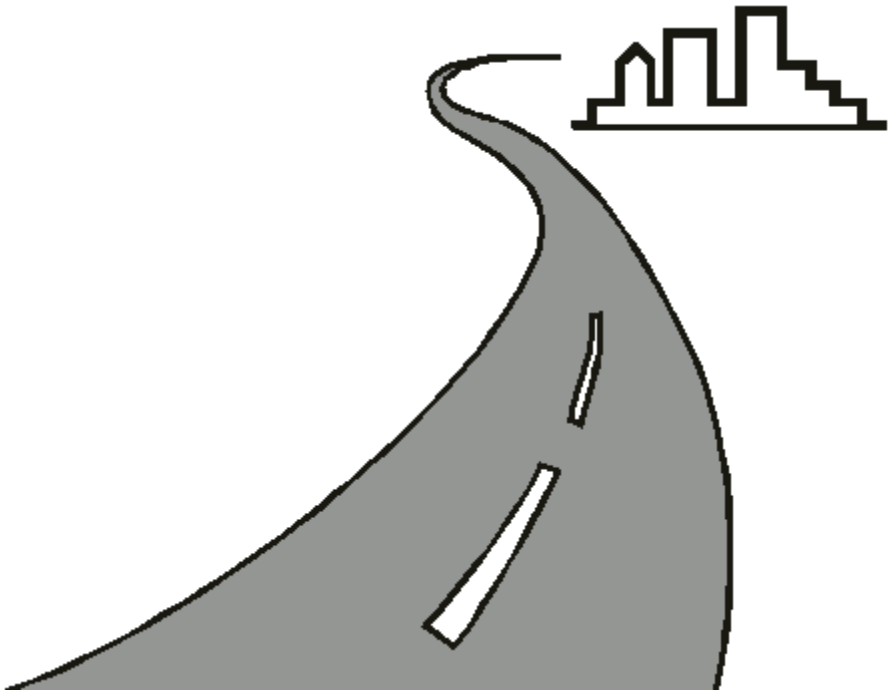
5.3 Fixed Objects

Vehicles struck poles in **47.4%** of all collisions with fixed objects in **2020** and 41.7% of all collisions with fixed objects historically from 2016 to 2020.

Exhibit 5.3.1 Type of Objects Struck in Motor Vehicle Collisions







Chapter Six

Locations

6.0 Locations

6.1 Local Municipality

Exhibit 6.1.1 provides total collision statistics for collisions on Regional roads and signalized intersections in each local municipality.

Exhibit 6.1.1 Collisions by Local Municipality

2020 Summary (Number of Collisions)

Municipality	Class of Collision: Fatal Injury	Class of Collision: Personal Injury	Class of Collision: Property Damage	Total Collisions	Estimated Population	Collisions per 1,000 Pop.
Cambridge	1	131	1276	1408	140,850	10.0
Kitchener	2	187	1681	1870	263,770	7.1
Waterloo	0	92	817	909	147,350	6.2
North Dumfries	3	23	91	117	10,790	10.8
Wellesley	1	12	54	67	11,650	5.8
Wilmot	0	8	73	81	22,050	3.7
Woolwich	0	40	223	263	27,470	9.6
Region of Waterloo	7	493	4215	4715	623,930	7.6

5-Year Summary (Number of Collisions)

Municipality	Class of Collision: Fatal Injury	Class of Collision: Personal Injury	Class of Collision: Property Damage	Total Collisions	5 Year Average Collisions	5 Year Average Population	5 Year Average of Collisions per 1,000 Pop.
Cambridge	4	1387	7217	8608	1722	137,614	12.5
Kitchener	6	2172	10393	12571	2514	255,254	9.8
Waterloo	2	919	4927	5848	1170	141,074	8.3
North Dumfries	8	156	599	763	153	10,494	14.5
Wellesley	4	62	292	358	72	11,490	6.2
Wilmot	1	117	464	582	116	21,526	5.4
Woolwich	4	293	1300	1597	319	26,254	12.2
Region of Waterloo	29	5106	25192	30327	6065	603,706	10.0

Notes: Students included in population.

Exhibit 6.1.2 provides total cyclist collision statistics for collisions on Regional roads and signalized intersections in each local municipality.

Exhibit 6.1.2 Cyclist Collisions by Local Municipality

2020 Summary (Number of Cyclist Collisions)

Municipality	Class of Collision: Fatal Injury	Personal Injury	Property Damage	Total Collisions	Estimated Population	Collisions per 1,000 Pop.
Cambridge	0	12	7	19	140,850	0.13
Kitchener	0	20	15	35	263,770	0.13
Waterloo	0	14	3	17	147,350	0.12
North Dumfries	1	1	0	2	10,790	0.19
Wellesley	0	0	1	1	11,650	0.09
Wilmot	0	0	0	0	22,050	0.00
Woolwich	0	3	2	5	27,470	0.18
Region of Waterloo	1	50	28	79	623,930	0.13

5-Year Summary (Number of Cyclist Collisions)

Municipality	Class of Collision: Fatal Injury	Personal Injury	Property Damage	Total Collisions	5 Year Average Collisions	5 Year Average Population	5 Year Average of Collisions per 1,000 Pop.
Cambridge	1	79	38	118	24	137,614	0.17
Kitchener	0	139	53	192	38	255,254	0.15
Waterloo	1	67	1	69	14	141,074	0.10
North Dumfries	1	5	27	33	7	10,494	0.63
Wellesley	0	2	1	3	1	11,490	0.05
Wilmot	0	5	1	6	1	21,526	0.06
Woolwich	1	10	4	15	3	26,254	0.11
Region of Waterloo	4	307	125	436	87	603,706	0.14

Exhibit 6.1.3 provides total pedestrian collision statistics for collisions on Regional roads and signalized intersections in each local municipality.

Exhibit 6.1.3 Pedestrian Collisions by Local Municipality

2020 Summary (Number of Pedestrian Collisions)

Municipality	Class of Collision: Fatal Injury	Class of Collision: Personal Injury	Class of Collision: Property Damage	Total Collisions	Estimated Population	Collisions per 1,000 Pop.
Cambridge	0	14	3	17	140,850	0.12
Kitchener	1	30	3	34	263,770	0.13
Waterloo	0	13	0	13	147,350	0.09
North Dumfries	0	0	0	0	10,790	0.00
Wellesley	0	0	0	0	11,650	0.00
Wilmot	0	0	1	1	22,050	0.05
Woolwich	0	2	0	2	27,470	0.07
Region of Waterloo	1	59	7	67	623,930	0.11

5-Year Summary (Number of Pedestrian Collisions)

Municipality	Class of Collision: Fatal Injury	Class of Collision: Personal Injury	Class of Collision: Property Damage	Total Collisions	5 Year Average Collisions	5 Year Average Population	5 Year Average of Collisions per 1,000 Pop.
Cambridge	1	124	16	141	28.2	137,614	0.20
Kitchener	2	232	19	253	50.6	255,254	0.20
Waterloo	0	136	8	144	28.8	141,074	0.20
North Dumfries	0	1	0	1	0.2	10,494	0.02
Wellesley	1	1	0	2	0.4	11,490	0.03
Wilmot	0	3	1	4	0.8	21,526	0.04
Woolwich	0	10	0	10	2	26,254	0.08
Region of Waterloo	4	507	44	555	111	603,706	0.18

6.2 Roundabouts

There are currently 25 locations, which have five years or more of operation, and they have been included in the overall rankings.

The remaining 12 locations are included in Exhibit 6.2.1 which shows details of the total number of collisions and the total number of injury collisions.

Exhibit 6.2.1 Collisions at Roundabout Locations

Location	Opened	2016			2017			2018			2019			2020		
		I	P	T	I	P	T	I	P	T	I	P	T	I	P	T
Franklin & Main, Cambridge	Sep. 2016	0*	0*	19*	1	0	57	3	0	34	2	2	77	1	1	37
Franklin & Pinebush	Sep. 2016	2*	0*	49*	22	0	138	5	0	60	3	0	220	2	0	86
Clyde & Franklin, Cambrdige	Sep. 2016	1*	0*	5*	4	1	22	3	0	21	1	0	32	0	0	16
Erb & Landfill Gate 1 /Waterloo West Centre (Costco)	Nov. 2016	0*	0*	0*	2	0	3	0	0	0	0	0	5	0	0	1
Erb & Landfill Gate 2 /Platinum	Nov. 2016	0*	0*	0*	0	0	1	0	0	0	0	0	3	0	0	0
Dundas St & Franklin Blvd	July. 2017	n/a	n/a	n/a	7*	1*	14*	6	1	48	6	1	164	2	1	56
Franklin Blvd & Champlain Blvd	Aug. 2017	n/a	n/a	n/a	1*	0*	2*	0	0	1	0	0	11	0	0	5
Ottawa & Homer Watson	Oct. 2017	n/a	n/a	n/a	6*	0*	51*	18	1	181	5	0	300	0	0	125
Ottawa & Alpine/Hwy 7/8 EB on/off Ramp	Oct. 2017	n/a	n/a	n/a	1*	0*	5*	1	0	37	0	0	40	0	0	12
Franklin Blvd & Myers Rd	Sep. 2018	n/a	n/a	n/a	n/a	n/a	n/a	0*	0*	2*	0	0	10	0	0	4
Herrgott Rd & Ament Ln	Sep. 2018	n/a	n/a	n/a	n/a	n/a	n/a	0*	0*	0*	0	0	2	0	0	0
Franklin Blvd & Avenue Rd	Sep. 2020	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3*	0*	13*

* Note: denotes partial year

I = Injury Collision

P = Pedestrian Collision

T = Total Number of Collisions

6.3 Collision Ranking

Collision ranking is used to identify those locations most likely to benefit from collision countermeasures. The most recent 5 years of collision data is used to determine social collision costs; resulting in the ranking of locations. The locations that are ranked include:

- Intersections of Regional roads;
- Intersections of Regional roads with City/Township roads;
- Signalized intersections;
- Stop-controlled intersections; and
- Mid-block locations along Regional roads. Mid-block locations are the roadway sections between any two intersections, signalized or unsignalized.

The Region of Waterloo has adopted a network screening methodology outlined in the American Association of State Highway and Transportation Officials Highway Safety Manual (HSM). The HSM provides the best factual information and proven analysis tools for crash frequency prediction. The primary focus of the HSM is to provide the analytical tools for assessing the safety impacts of transportation project and program decisions.

Several advantages are recognized using the HSM network screening approach and include:

- Major and minor road volumes are accounted for to predict collisions at intersections;
- The impact of random fluctuations in collisions is lessened;
- Severity of collisions is now factored into the rankings; and
- Estimated social costs for collisions are used to rank locations.

Historically, the Region's network screening process accounted for all collision severities that occurred on roadways under the jurisdiction of the Region of Waterloo. This included property-damage-only collisions. For the 2020 Collision Report, staff have revised its network screening process to remove property-damage-only collisions. This change in methodology places a higher emphasis on identifying locations with higher than expected fatal and injury (F&I) traffic-related collisions.

Exhibit 6.3.1 lists the top 100 ranked locations sorted by rank. Exhibit 6.3.2 lists the top 100 ranked locations sorted alphabetically.

Exhibit 6.3.3 and 6.3.4 rank locations based on pedestrian and cyclist collisions respectively.

Collision Ranking Table Definitions

Definitions for Exhibit 6.3.1, 6.3.2, 6.3.3 and 6.3.4 are defined below:

MUN	Municipality
Fatal/Injury (FI)	Motor vehicle collisions in which at least one person sustains bodily injuries resulting in death or motor vehicle collisions in

	which at least one person involved sustains bodily injuries not resulting in death
Property Damage (PD)	Motor vehicle collisions in which no person sustains bodily injury, but in which there is damage to any public property or damage to private property
Observed	Average number of reported collisions per year observed over 5 years
Predicted	Estimate of long-term average crash frequency per year which is forecast to occur at a site using predictive models
Expected	Estimate of long-term expected average crash frequency of a site based on observed crash frequency at the site and predicted crash frequency at the site
Excess Social Costs	Annual cost to society due to collisions (including factors like property damage, loss of income due to injury, etc.) - Average FI cost ($60,500)

Exhibit 6.3.1 Collision Ranking (By Rank) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
1	17215	KING ST	AT	BISHOP ST/Bishop St	CAM	4	1.77472	2.84847	$64,964
2	18701	HESPELER RD	AT	MAPLE GROVE RD/Fisher Mills Rd	CAM	4.6	2.90516	3.91911	$61,347
3	21307	TRUSSLER RD	AT	CEDAR CREEK RD	NDF	2.6	0.5964	1.47305	$53,038
4	11642	King St	AT	Borden Ave	KIT	2.8	1.12068	1.75013	$38,084
5	28246	FAIRWAY RD	AT	Fairview Park Mall/Cineplex (200/215/225 Fairway)	KIT	3.2	2.01044	2.62075	$36,926
6	6913	King St	AT	Stirling Ave	KIT	2.4	1.04051	1.52642	$29,399
7	10941	HOMER WATSON BLVD	AT	Block Line Rd	KIT	6.2	4.50987	4.99473	$29,359
8	17750	WATER ST	AT	Samuelson St/GCI driveway	CAM	3.2	2.37036	2.83288	$27,984
9	322	WEBER ST	AT	Lincoln Rd/Bridgeport Plaza	WAT	3	2.13584	2.59123	$27,553
10	12963	EBYCREST RD/Kraft Dr	AT	BLOOMINGDALE RD/SAWMILL RD (RR17)	WOO	1.4	0.6699	1.12492	$27,529
11	10831	OTTAWA ST	AT	Strasburg Rd	KIT	3	2.18688	2.61925	$26,164
12	18343	DUNDAS ST	AT	Wellington St	CAM	2.4	0.31369	0.74185	$25,906
13	20632	VICTORIA ST	AT	FISCHER-HALLMAN RD	KIT	4.2	3.55426	3.96971	$25,134
14	6480	WEBER ST	AT	Young St	KIT	2.2	1.19297	1.58737	$23,863
15	22082	HOMER WATSON BLVD	AT	Doon South Dr (com'l driveway)	KIT	3.4	2.7566	3.13656	$22,990
16	10710	FAIRWAY RD	AT	Wilson Ave	KIT	3.8	3.19661	3.57061	$22,643
17	3872	ERB'S RD	AT	Sandhills Rd	WIL	1.6	0.50891	0.87206	$21,970
18	358	UNIVERSITY AVE	AT	Hazel St/WLU Mid Campus (75 University Ave)	WAT	2.2	1.34867	1.70459	$21,536
19	20367	BLAIR RD	BTWN	Cruickston Park Lane & GEORGE/Blair	NDF	2.2	1.26044	1.60334	$20,748
20	8688	VICTORIA ST	AT	Patricia Ave	KIT	1.6	0.51974	0.8563	$20,362
21	8511	WESTMOUNT RD	AT	VICTORIA ST	KIT	4.6	4.10345	4.43837	$20,263
22	18120	HESPELER RD	AT	Brooklyne Rd	CAM	1.6	0.50556	0.829	$19,571
23	3884	WATERLOO ST/SNYDER'S RD W	AT	NAFZIGER RD	WIL	1	0.75667	1.05838	$18,254
24	2483	ARTHUR ST	AT	Oriole Pkwy	WOO	1	0.73032	1.03164	$18,230
25	10967	WEBER ST	AT	Franklin St	KIT	3	2.49788	2.78086	$17,120
26	14172	DUNDAS ST	AT	Chalmers St/Gore St	CAM	1.4	0.53384	0.80835	$16,609

Exhibit 6.3.1 Collision Ranking (By Rank) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
27	23064	FAIRWAY RD	AT	Thaler Ave	KIT	1.4	0.52644	0.80085	$16,603
28	14619	DUNDAS ST	AT	Elgin St	CAM	2.2	1.60394	1.87709	$16,527
29	5077	GINGERICH RD	AT	FOUNDRY ST	WIL	1	0.49658	0.76642	$16,325
30	2727	NORTHFIELD DR	AT	LINE 86	WOO	1	0.46228	0.72421	$15,847
31	14580	DUNDAS ST	AT	Marion Way/Spruce St	CAM	1.6	0.30033	0.55779	$15,577
32	21651	FISCHER-HALLMAN RD	BTWN	BLEAMS & Seabrook Dr	KIT	2	1.32925	1.58237	$15,315
33	19445	EAGLE ST N	BTWN	HESPELER & Industrial	CAM	1.8	0.93252	1.18442	$15,245
34	20994	HIGHLAND RD W	BTWN	Butler & WESTMOUNT	KIT	2.2	0.58261	0.83413	$15,221
35	14477	AINSLIE ST	AT	Main St	CAM	2.2	1.67794	1.92297	$14,825
36	374	UNIVERSITY AVE	AT	Regina St	WAT	2.2	1.68957	1.92966	$14,527
37	13966	OLD BEVERLY RD	AT	Shellard Rd	NDF	1.2	0.47584	0.70657	$13,960
38	1308	WESTMOUNT RD	AT	Gage Ave	KIT	2.4	1.23913	1.46683	$13,778
39	10410	VICTORIA ST N	BTWN	Forfar & Frederick	KIT	1.8	1.11819	1.34273	$13,587
40	15020	TOWNLINE RD	AT	PINEBUSH RD/Cty Rd 32(Lake Rd)	CAM	3.6	3.24254	3.46572	$13,501
41	4483	SNYDER'S RD	AT	Sandhills Rd	WIL	1.2	0.35997	0.57929	$13,269
42	21754	FISCHER-HALLMAN RD	BTWN	Activa & OTTAWA	KIT	1.6	0.64753	0.86384	$13,089
43	2650	ARTHUR ST (RR21/85)	AT	LISTOWEL RD/Union St	WOO	0.8	0.59778	0.81377	$13,069
44	23163	OTTAWA ST	AT	LACKNER BLVD	KIT	2	1.51199	1.72761	$13,046
45	3180	ARTHUR ST	AT	South Field Dr/Whippoorwill Dr	WOO	0.8	0.54697	0.75869	$12,809
46	29523	FOUNTAIN ST	AT	VICTORIA ST	WOO	2	3.89078	4.1014	$12,744
47	6658	VICTORIA ST	AT	Ahrens St/Water St	KIT	1.2	0.55095	0.76081	$12,699
48	22356	Franklin St	AT	Kingsway Dr	KIT	2	1.53389	1.74194	$12,588
49	9919	VICTORIA ST N	BTWN	Frederick & Turner	KIT	1.6	0.80559	1.01259	$12,525
50	5888	VICTORIA ST	AT	Duke St	KIT	2.4	1.99754	2.20403	$12,496
51	12688	VICTORIA ST N	BTWN	BRUCE & EDNA	KIT	2	0.99822	1.2015	$12,302
52	22085	HOMER WATSON BLVD	AT	Old Carriage Dr	KIT	1.2	0.41024	0.61066	$12,126
53	8325	WEBER ST	AT	Benjamin Rd	WOO	0.8	0.45099	0.64906	$11,983

Exhibit 6.3.1 Collision Ranking (By Rank) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
54	6308	OTTAWA ST	AT	Valleyview Rd	KIT	1.4	0.2415	0.43288	$11,578
55	31390	WESTMOUNT RD	AT	Union Blvd	KIT	1.2	0.3025	0.48133	$10,821
56	275	UNIVERSITY AVE	AT	Phillip St (com'l driveway)	WAT	1.8	1.43377	1.59168	$9,557
57	13062	BRIDGE ST	AT	Woolwich St (Shirk Pl)	KIT	1	0.47325	0.62763	$9,340
58	9182	BENTON ST	AT	COURTLAND AVE	KIT	1.6	1.20866	1.36214	$9,286
59	11674	WEBER ST	AT	Jackson Ave	KIT	1	0.49193	0.64468	$9,241
60	11703	OTTAWA ST	AT	McKenzie Ave	KIT	1	0.50209	0.65379	$9,179
61	17728	NORTH SQ/QUEEN'S SQ	AT	Grand Ave	CAM	1	0.5292	0.6803	$9,141
62	5999	WESTMOUNT RD	AT	John St	WAT	1	0.53139	0.6792	$8,943
63	9406	COURTLAND AVE	AT	Walton Ave	KIT	1	0.35809	0.50449	$8,857
64	18979	HESPELER RD	BTWN	Hwy 401 Ramps	CAM	1.4	0.61284	0.75893	$8,839
65	17195	KING ST	AT	Hwy 401 WB Ramp	KIT	1	0.51039	0.65639	$8,834
66	2269	ARTHUR ST	AT	CHURCH ST	WOO	0.6	0.59792	0.73957	$8,570
67	2020	ARTHUR ST	AT	First St	WOO	0.6	0.51378	0.65459	$8,520
68	12550	SAWMILL RD	AT	KATHERINE ST/Crowsfoot Rd	WOO	0.6	0.51586	0.65614	$8,488
69	35160	WEBER ST E	BTWN	Arlington & S to Signals(Emmanuel Village)	KIT	1.8	0.20693	0.3428	$8,220
70	6241	WESTMOUNT RD	AT	Stonybrook Dr	KIT	1	0.60771	0.74251	$8,155
71	4121	UNIVERSITY AVE	AT	IRA NEEDLES BLVD	WAT	3.8	3.20609	3.33817	$8,000
72	10242	VICTORIA ST N	BTWN	Forwell & LACKNER/Bingemans	KIT	1.6	1.22417	1.35562	$7,954
73	4229	NORTHFIELD DR/WESTMOUNT RD	AT	Westmount Rd N	WAT	1.8	1.05058	1.1776	$7,686
74	21424	NEW DUNDEE RD	AT	FISCHER-HALLMAN RD	KIT	2.2	1.95273	2.07846	$7,605
75	15591	FRANKLIN BLVD	BTWN	Hwy 401 & PINEBUSH	CAM	1.2	0.41388	0.5379	$7,505
76	21742	OTTAWA ST	AT	International Pl/Wilderness Dr	KIT	1.4	1.05647	1.17993	$7,470
77	17019	DUMFRIES RD	AT	CEDAR CREEK RD	NDF	0.6	0.33525	0.45663	$7,344
78	13093	BLOOMINGDALE RD	AT	BRIDGE ST	KIT	1	0.22146	0.34132	$7,253
79	5251	SNYDER'S RD	AT	FOUNDRY ST/Livingston Blvd	WIL	0.6	0.32372	0.44281	$7,205

Exhibit 6.3.1 Collision Ranking (By Rank) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
80	28255	HESPELER RD	AT	CAN-AMERA/YMCA (250 Hespeler Rd)	CAM	3.8	3.61933	3.7368	$7,111
81	21574	BLEAMS RD	AT	TRUSSLER RD	KIT	1	0.20939	0.32491	$6,991
82	8058	WEBER ST	AT	Parkside Dr (southerly intersection)	WAT	2.4	2.18665	2.3004	$6,882
83	2695	ARTHUR ST S	BTWN	Gerrat & SAWMILL	WOO	2.2	0.89881	1.00421	$6,379
84	20357	BISHOP ST	AT	Industrial Rd (Easterly Intersection) (com'l driveway)	CAM	0.8	0.3909	0.49547	$6,327
85	21662	FISCHER-HALLMAN RD	AT	Plains Rd	KIT	0.8	0.40888	0.51311	$6,306
86	600416	FAIRWAY RD S	BTWN	Wilson & E to Signals(Fairview Mall)	KIT	1.2	0.38766	0.49036	$6,215
87	22197	KING ST	AT	Morgan Ave/Driveway	KIT	0.8	0.34484	0.4456	$6,097
88	21872	HOMER WATSON BLVD	AT	Huron Rd (Easterly Intersection)	KIT	0.8	0.43004	0.52737	$5,889
89	270	UNIVERSITY AVE	AT	Albert St	WAT	2.4	2.22188	2.31722	$5,770
90	22350	WEBER ST E	BTWN	Fergus & Kinzie	KIT	1	0.22081	0.31594	$5,758
91	8558	WESTMOUNT RD	AT	Glasgow St	KIT	2.4	2.22381	2.31824	$5,715
92	9851	WEBER ST	AT	Stirling Ave	KIT	0.8	0.4827	0.57691	$5,701
93	20363	HESPELER RD	AT	BISHOP ST	CAM	4.4	4.26357	4.35674	$5,646
94	7329	FISCHER-HALLMAN RD	BTWN	Gatestone & Laurelwood	WAT	1	0.48568	0.57847	$5,614
95	16008	SHANTZ HILL RD	AT	Preston Pkwy (driveway)	CAM	1.6	1.07052	1.16226	$5,553
96	7544	ERB ST	AT	Devitt Ave	WAT	0.8	0.49951	0.59075	$5,521
97	27659	WEBER ST	AT	Louisa St	KIT	0.8	0.50222	0.59296	$5,490
98	18016	WATER ST	AT	Dayton St	CAM	0.8	0.48283	0.57351	$5,487
99	17278	KING ST	AT	Westminster Dr	CAM	1.6	1.39568	1.48283	$5,272
100	11476	COURTLAND AVE	AT	Grenville St	KIT	0.8	0.20947	0.29579	$5,222

Exhibit 6.3.2 Collision Ranking (Alphabetically) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
35	14477	AINSLIE ST	AT	Main St	CAM	2.2	1.677941142	1.922966239	$14,825
24	2483	ARTHUR ST	AT	Oriole Pkwy	WOO	1	0.730324738	1.031644714	$18,230
45	3180	ARTHUR ST	AT	South Field Dr/Whippoorwill Dr	WOO	0.8	0.546973743	0.758692636	$12,809
66	2269	ARTHUR ST	AT	CHURCH ST	WOO	0.6	0.597919454	0.739569116	$8,570
67	2020	ARTHUR ST	AT	First St	WOO	0.6	0.513781327	0.654592361	$8,520
43	2650	ARTHUR ST (RR21/85)	AT	LISTOWEL RD/Union St	WOO	0.8	0.597777858	0.813774726	$13,069
83	2695	ARTHUR ST S	BTWN	Gerrat & SAWMILL	WOO	2.2	0.898812915	1.004205853	$6,379
58	9182	BENTON ST	AT	COURTLAND AVE	KIT	1.6	1.208662849	1.362143336	$9,286
84	20357	BISHOP ST	AT	Industrial Rd (Easterly Intersection) (com'l driveway)	CAM	0.8	0.390898228	0.495469914	$6,327
19	20367	BLAIR RD	BTWN	Cruickston Park Lane & GEORGE/Blair	NDF	2.2	1.260444058	1.60334378	$20,748
81	21574	BLEAMS RD	AT	TRUSSLER RD	KIT	1	0.209389962	0.32491307	$6,991
78	13093	BLOOMINGDALE RD	AT	BRIDGE ST	KIT	1	0.221457205	0.34132441	$7,253
57	13062	BRIDGE ST	AT	Woolwich St (Shirk Pl)	KIT	1	0.473254397	0.627627297	$9,340
63	9406	COURTLAND AVE	AT	Walton Ave	KIT	1	0.358093442	0.504485253	$8,857
100	11476	COURTLAND AVE	AT	Grenville St	KIT	0.8	0.209471288	0.295787859	$5,222
77	17019	DUMFRIES RD	AT	CEDAR CREEK RD	NDF	0.6	0.335253868	0.456634499	$7,344
12	18343	DUNDAS ST	AT	Wellington St	CAM	2.4	0.313692044	0.74184641	$25,906
26	14172	DUNDAS ST	AT	Chalmers St/Gore St	CAM	1.4	0.533836846	0.808353139	$16,609
28	14619	DUNDAS ST	AT	Elgin St	CAM	2.2	1.603937557	1.877089586	$16,527
31	14580	DUNDAS ST	AT	Marion Way/Spruce St	CAM	1.6	0.300334768	0.557790999	$15,577
33	19445	EAGLE ST N	BTWN	HESPELER & Industrial	CAM	1.8	0.932523112	1.184419359	$15,245
10	12963	EBYCREST RD/Kraft Dr	AT	BLOOMINGDALE RD/SAWMILL RD (RR17)	WOO	1.4	0.669903619	1.124922937	$27,529
96	7544	ERB ST	AT	Devitt Ave	WAT	0.8	0.499511512	0.590754479	$5,521
17	3872	ERB'S RD	AT	Sandhills Rd	WIL	1.6	0.508913434	0.872059933	$21,970
5	28246	FAIRWAY RD	AT	Fairview Park Mall/Cineplex (200/215/225 Fairway)	KIT	3.2	2.010444245	2.620748993	$36,926
16	10710	FAIRWAY RD	AT	Wilson Ave	KIT	3.8	3.196613541	3.570607849	$22,643
27	23064	FAIRWAY RD	AT	Thaler Ave	KIT	1.4	0.526441677	0.800845438	$16,603

Exhibit 6.3.2 Collision Ranking (Alphabetically) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
86	600416	FAIRWAY RD S	BTWN	Wilson & E to Signals(Fairview Mall)	KIT	1.2	0.387658455	0.490357522	$6,215
32	21651	FISCHER-HALLMAN RD	BTWN	BLEAMS & Seabrook Dr	KIT	2	1.329247193	1.582366632	$15,315
42	21754	FISCHER-HALLMAN RD	BTWN	Activa & OTTAWA	KIT	1.6	0.64753012	0.863835323	$13,089
85	21662	FISCHER-HALLMAN RD	AT	Plains Rd	KIT	0.8	0.408879595	0.513114842	$6,306
94	7329	FISCHER-HALLMAN RD	BTWN	Gatestone & Laurelwood	WAT	1	0.485683573	0.578472019	$5,614
46	29523	FOUNTAIN ST	AT	VICTORIA ST	WOO	2	3.890775288	4.101398905	$12,744
75	15591	FRANKLIN BLVD	BTWN	Hwy 401 & PINEBUSH	CAM	1.2	0.413881999	0.537902907	$7,505
48	22356	Franklin St	AT	Kingsway Dr	KIT	2	1.533890115	1.741943472	$12,588
29	5077	GINGERICH RD	AT	FOUNDRY ST	WIL	1	0.496581026	0.766416978	$16,325
2	18701	HESPELER RD	AT	MAPLE GROVE RD/Fisher Mills Rd	CAM	4.6	2.905155571	3.919112351	$61,347
22	18120	HESPELER RD	AT	Brooklyne Rd	CAM	1.6	0.505555474	0.829001979	$19,571
64	18979	HESPELER RD	BTWN	Hwy 401 Ramps	CAM	1.4	0.612836894	0.75892599	$8,839
80	28255	HESPELER RD	AT	CAN-AMERA/YMCA (250 Hespeler Rd)	CAM	3.8	3.619334722	3.736802277	$7,111
93	20363	HESPELER RD	AT	BISHOP ST	CAM	4.4	4.263571992	4.356743242	$5,646
34	20994	HIGHLAND RD W	BTWN	Butler & WESTMOUNT	KIT	2.2	0.582613401	0.8341339	$15,221
7	10941	HOMER WATSON BLVD	AT	Block Line Rd	KIT	6.2	4.509867157	4.994725261	$29,359
15	22082	HOMER WATSON BLVD	AT	Doon South Dr (com'l driveway)	KIT	3.4	2.75660431	3.136555205	$22,990
52	22085	HOMER WATSON BLVD	AT	Old Carriage Dr	KIT	1.2	0.410241017	0.610658578	$12,126
88	21872	HOMER WATSON BLVD	AT	Huron Rd (Easterly Intersection)	KIT	0.8	0.430043565	0.527374701	$5,889
1	17215	KING ST	AT	BISHOP ST/Bishop St	CAM	4	1.774717714	2.848467381	$64,964
4	11642	King St	AT	Borden Ave	KIT	2.8	1.120676831	1.750127144	$38,084
6	6913	King St	AT	Stirling Ave	KIT	2.4	1.04051378	1.52642318	$29,399
65	17195	KING ST	AT	Hwy 401 WB Ramp	KIT	1	0.510394521	0.656393951	$8,834
87	22197	KING ST	AT	Morgan Ave/Driveway	KIT	0.8	0.344837452	0.445598504	$6,097
99	17278	KING ST	AT	Westminster Dr	CAM	1.6	1.395680618	1.482829572	$5,272
74	21424	NEW DUNDEE RD	AT	FISCHER-HALLMAN RD	KIT	2.2	1.952734013	2.078456486	$7,605
61	17728	NORTH SQ/QUEEN'S SQ	AT	Grand Ave	CAM	1	0.529201784	0.680301431	$9,141

Exhibit 6.3.2 Collision Ranking (Alphabetically) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
30	2727	NORTHFIELD DR	AT	LINE 86	WOO	1	0.462277175	0.724207775	$15,847
73	4229	NORTHFIELD DR/WESTMOUNT RD	AT	Westmount Rd N	WAT	1.8	1.050579533	1.177604764	$7,686
37	13966	OLD BEVERLY RD	AT	Shellard Rd	NDF	1.2	0.475839525	0.706565497	$13,960
11	10831	OTTAWA ST	AT	Strasburg Rd	KIT	3	2.186878258	2.619246687	$26,164
44	23163	OTTAWA ST	AT	LACKNER BLVD	KIT	2	1.511992673	1.727613301	$13,046
54	6308	OTTAWA ST	AT	Valleyview Rd	KIT	1.4	0.241503823	0.432875053	$11,578
60	11703	OTTAWA ST	AT	McKenzie Ave	KIT	1	0.502088705	0.65378598	$9,179
76	21742	OTTAWA ST	AT	International Pl/Wilderness Dr	KIT	1.4	1.056474022	1.179928595	$7,470
68	12550	SAWMILL RD	AT	KATHERINE ST/Crowsfoot Rd	WOO	0.6	0.51585762	0.656138056	$8,488
95	16008	SHANTZ HILL RD	AT	Preston Pkwy (driveway)	CAM	1.6	1.070520048	1.162260017	$5,553
41	4483	SNYDER'S RD	AT	Sandhills Rd	WIL	1.2	0.359972503	0.579292578	$13,269
79	5251	SNYDER'S RD	AT	FOUNDRY ST/Livingston Blvd	WIL	0.6	0.323716623	0.442813886	$7,205
40	15020	TOWNLINE RD	AT	PINEBUSH RD/Cty Rd 32(Lake Rd)	CAM	3.6	3.242542658	3.465716148	$13,501
3	21307	TRUSSLER RD	AT	CEDAR CREEK RD	NDF	2.6	0.596402954	1.473045742	$53,038
18	358	UNIVERSITY AVE	AT	Hazel St/WLU Mid Campus (75 University Ave)	WAT	2.2	1.34866604	1.70458579	$21,536
36	374	UNIVERSITY AVE	AT	Regina St	WAT	2.2	1.689567703	1.929657948	$14,527
56	275	UNIVERSITY AVE	AT	Phillip St (com'l driveway)	WAT	1.8	1.433766555	1.591678515	$9,557
71	4121	UNIVERSITY AVE	AT	IRA NEEDLES BLVD	WAT	3.8	3.206094717	3.338170424	$8,000
89	270	UNIVERSITY AVE	AT	Albert St	WAT	2.4	2.22187823	2.317217908	$5,770
13	20632	VICTORIA ST	AT	FISCHER-HALLMAN RD	KIT	4.2	3.554255092	3.969713431	$25,134
20	8688	VICTORIA ST	AT	Patricia Ave	KIT	1.6	0.519741069	0.856296372	$20,362
47	6658	VICTORIA ST	AT	Ahrens St/Water St	KIT	1.2	0.550950432	0.760813183	$12,699
50	5888	VICTORIA ST	AT	Duke St	KIT	2.4	1.997537409	2.204032876	$12,496
39	10410	VICTORIA ST N	BTWN	Forfar & Frederick	KIT	1.8	1.118194543	1.342728316	$13,587
49	9919	VICTORIA ST N	BTWN	Frederick & Turner	KIT	1.6	0.805591327	1.012592256	$12,525
51	12688	VICTORIA ST N	BTWN	BRUCE & EDNA	KIT	2	0.998216565	1.201495323	$12,302
72	10242	VICTORIA ST N	BTWN	Forwell & LACKNER/Bingemans	KIT	1.6	1.224171758	1.355619005	$7,954

Exhibit 6.3.2 Collision Ranking (Alphabetically) – Top 100 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	FI Observed	FI Predicted	FI Expected	Excess Social Costs
8	17750	WATER ST	AT	Samuelson St/GCI driveway	CAM	3.2	2.370355619	2.832876023	$27,984
98	18016	WATER ST	AT	Dayton St	CAM	0.8	0.482829085	0.573506543	$5,487
23	3884	WATERLOO ST/SNYDER'S RD W	AT	NAFZIGER RD	WIL	1	0.75666539	1.058383341	$18,254
9	322	WEBER ST	AT	Lincoln Rd/Bridgeport Plaza	WAT	3	2.135838433	2.591231397	$27,553
14	6480	WEBER ST	AT	Young St	KIT	2.2	1.192965172	1.587367457	$23,863
25	10967	WEBER ST	AT	Franklin St	KIT	3	2.497875559	2.780856254	$17,120
53	8325	WEBER ST	AT	Benjamin Rd	WOO	0.8	0.450992331	0.649057181	$11,983
59	11674	WEBER ST	AT	Jackson Ave	KIT	1	0.491933382	0.644675302	$9,241
82	8058	WEBER ST	AT	Parkside Dr (southerly intersection)	WAT	2.4	2.186650418	2.300400602	$6,882
92	9851	WEBER ST	AT	Stirling Ave	KIT	0.8	0.48269703	0.576909689	$5,701
97	27659	WEBER ST	AT	Louisa St	KIT	0.8	0.50222252	0.59296129	$5,490
69	35160	WEBER ST E	BTWN	Arlington & S to Signals(Emmanuel Village)	KIT	1.8	0.206931566	0.342796325	$8,220
90	22350	WEBER ST E	BTWN	Fergus & Kinzie	KIT	1	0.220812962	0.315941871	$5,758
21	8511	WESTMOUNT RD	AT	VICTORIA ST	KIT	4.6	4.103452167	4.438365565	$20,263
38	1308	WESTMOUNT RD	AT	Gage Ave	KIT	2.4	1.239126015	1.466830675	$13,778
55	31390	WESTMOUNT RD	AT	Union Blvd	KIT	1.2	0.302500231	0.481334234	$10,821
62	5999	WESTMOUNT RD	AT	John St	WAT	1	0.531393508	0.679198253	$8,943
70	6241	WESTMOUNT RD	AT	Stonybrook Dr	KIT	1	0.607709201	0.742505794	$8,155
91	8558	WESTMOUNT RD	AT	Glasgow St	KIT	2.4	2.223810411	2.318240045	$5,715

Exhibit 6.3.3 Pedestrian Collision Ranking – Top 20 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	Avg /Yr over 5-year Observed Pedestrian Coll	Avg /Yr Total Predicted Pedestrian Collisions	Collision Difference (Observed - Predicted)	Excess Social Cost
1	270	UNIVERSITY AVE	AT	Albert St	WAT	1.6	0.221672954	1.378327046	$83,389
2	10715	Kingsway Dr (multi-res driveway)	AT	Wilson Ave	KIT	1.4	0.088945706	1.311054294	$79,319
3	14477	AINSLIE ST	AT	Main St	CAM	1.4	0.154526229	1.245473771	$75,351
4	322	WEBER ST	AT	Lincoln Rd/Bridgeport Plaza	WAT	1.4	0.206991868	1.193008132	$72,177
5	17215	KING ST	AT	BISHOP ST/Bishop St	CAM	1	0.166081356	0.833918644	$50,452
6	6694	King St	AT	Ontario St	KIT	0.8	0.037760757	0.762239243	$46,115
7	11642	King St	AT	Borden Ave	KIT	0.8	0.095476296	0.704523704	$42,624
8	11503	River Rd	AT	Holborn Dr/Access to Stanley Park Mall	KIT	0.8	0.102239788	0.697760212	$42,214
9	17278	KING ST	AT	Westminster Dr	CAM	0.8	0.121438522	0.678561478	$41,053
10	11572	OTTAWA ST	AT	River Rd	KIT	1	0.327189612	0.672810388	$40,705
11	275	UNIVERSITY AVE	AT	Phillip St (com'l driveway)	WAT	0.8	0.130053892	0.669946108	$40,532
12	1735	VICTORIA ST	AT	CHARLES ST (com'l driveway)	KIT	0.8	0.133382966	0.666617034	$40,330
13	10710	FAIRWAY RD	AT	Wilson Ave	KIT	1	0.342182745	0.657817255	$39,798
14	18765	Guelph Ave/Adam St	AT	Queen St	CAM	0.8	0.143619022	0.656380978	$39,711
15	374	UNIVERSITY AVE	AT	Regina St	WAT	0.8	0.157776721	0.642223279	$38,855
16	18072	CEDAR ST	BTWN	Berkley/Osborne & Dale	CAM	0.6	0.036004096	0.563995904	$34,122
17	15545	FRANKLIN BLVD	AT	Glamis Rd/Robson Ave	CAM	0.8	0.253109191	0.546890809	$33,087
18	8511	WESTMOUNT RD	AT	VICTORIA ST	KIT	1	0.457504446	0.542495554	$32,821
19	373	KING ST	AT	UNIVERSITY AVE	WAT	0.8	0.263176617	0.536823383	$32,478
20	6504	WESTMOUNT RD	AT	Greenbrook Dr	KIT	0.8	0.26408584	0.53591416	$32,423

Exhibit 6.3.4 Cyclist Collision Ranking – Top 20 Locations

2020 Ranking	GEO ID	STREET 1	LOCATE	STREET 2	MUN	Avg /Yr over 5-year Observed Cyclist Coll	Avg /Yr Total Predicted Cyclist Collisions	Collision Difference (Observed - Predicted)	Excess Social Cost
1	10831	OTTAWA ST	AT	Strasburg Rd	KIT	1.2	0.174534724	1.025465276	$62,041
2	6913	King St	AT	Stirling Ave	KIT	0.8	0.071795099	0.728204901	$44,056
3	5888	VICTORIA ST	AT	Duke St	KIT	0.8	0.147786607	0.652213393	$39,459
4	8992	WEBER ST	AT	Columbia St	WAT	1	0.361088535	0.638911465	$38,654
5	20086	HESPELER RD	AT	Avenue Rd/Jaffray St	CAM	0.8	0.178961027	0.621038973	$37,573
6	17762	WATER ST N	BTWN	AINSLIE & Simcoe	CAM	0.6	0.010208237	0.589791763	$35,682
7	8689	VICTORIA ST S	BTWN	Patricia & Strange/West	KIT	0.6	0.019374206	0.580625794	$35,128
8	6308	OTTAWA ST	AT	Valleyview Rd	KIT	0.6	0.035189631	0.564810369	$34,171
9	20994	HIGHLAND RD W	BTWN	Butler & WESTMOUNT	KIT	0.6	0.041405943	0.558594057	$33,795
10	20107	HESPELER RD	AT	Munch Ave/Isherwood Ave	CAM	0.8	0.272511167	0.527488833	$31,913
11	20569	ERB ST	AT	UNIVERSITY AVE	WAT	0.8	0.275655558	0.524344442	$31,723
12	6480	WEBER ST	AT	Young St	KIT	0.6	0.078037869	0.521962131	$31,579
13	7277	Albert St	AT	Bearinger Rd/Hazel St	WAT	0.6	0.079062288	0.520937712	$31,517
14	28255	HESPELER RD	AT	CAN-AMERA/YMCA (250 Hespeler Rd)	CAM	0.8	0.303437665	0.496562335	$30,042
15	20275	Industrial Rd	AT	Lang's Dr	CAM	0.6	0.108078524	0.491921476	$29,761
16	17338	KING ST	AT	EAGLE ST/Eagle St	CAM	0.6	0.146278409	0.453721591	$27,450
17	2711	SAWMILL RD	AT	ARTHUR ST	WOO	0.6	0.194738681	0.405261319	$24,518
18	12615	LANCASTER ST	BTWN	General & Shirk	KIT	0.4	0.00641473	0.39358527	$23,812
19	9382	OTTAWA ST S	BTWN	Maurice & Nyberg	KIT	0.4	0.008605281	0.391394719	$23,679
20	35160	WEBER ST E	BTWN	Arlington & S to Signals(Emmanuel Village)	KIT	0.4	0.01130331	0.38869669	$23,516