

CITY OF



Hamilton

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Public Works

**2010**  
**TRAFFIC SAFETY**  
**STATUS REPORT**  
**Volume 1**

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## **DISCLAIMER AND EXPLANATION – SELF REPORTING OF COLLISIONS**

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The use of the term “reported” or “reported collision” refers to a collision attended by a member of the Hamilton Police Service who filled out the standard Provincial reporting form.

In June 2003, the Hamilton Police Service adopted a system of Collision Reporting Centres (CRC) for the City of Hamilton. These 'one step reporting centres' allow citizens who are involved in minor, property damage only collisions, to file a report based on their own information only, at the nearest CRC office. These collisions are referred to as “self-reported” collisions.

As a result of the introduction of self-reporting, there has been a significant decrease in total number of collisions reported by Police officers, and the statistics in this report reflect this. This is to be expected, as the onus for reporting minor collisions was shifted from the police officers to the general public. However, a parallel decrease in injury collisions was also noted in our statistics. This change was unexpected as all injury collisions are still categorized as requiring police reports. There are no obvious background factors which we can identify as causing a year-to-year reduction in injury collisions. We must, therefore, conclude that the change to reporting centres is also responsible for the statistical change in injury collisions.

For reasons of consistency of previous years, due to the limited data fields available and quality issues, the data contained in this report will be based on police reported collisions only.

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## **INTRODUCTION**

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The Annual Traffic Safety Status Report is a summary of statistics associated with traffic collisions that occurred in the City of Hamilton. It is comprised of two volumes. This volume contains the summary of data specific to 2010, including overall frequencies and trends, plus location-specific data. This volume is produced annually or bi-annually. A companion report (Volume 2) provides more general information on road users, and roadway/weather conditions and is published every 3 years.

The City of Hamilton is situated in southern Ontario at the westerly end of Lake Ontario. The City amalgamated on January 1, 2001 joining the following municipalities to form the new City: the Town of Ancaster, the Town of Dundas, the Town of Flamborough, the Township of Glanbrook; the former City of Hamilton and the City of Stoney Creek. The 2006 census population of the City of Hamilton is 504,559. The roadway system contains the full spectrum of road types: multi-lane, one-way and two-way arterials; residential local and collector streets; medium and high-speed rural two-lane roads and a 90 km/h limited access freeway system.

Traffic collisions are a primary cause of accidental deaths, injuries and associated property losses. 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 City of Hamilton.

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 information presented in this report is based upon motor vehicle collisions investigated by the Hamilton Police Service. Citizen reported collisions ("self-reported") are not included in the statistics. The geographic area includes all roads within the Hamilton municipal boundaries, excluding collisions occurring on the following roads: Queen Elizabeth Way (mainline); Highway 6; Highway 8 from Highway 5 northerly; Highway 5 between Highway 6 and Highway 8/52; Highway 403; on-ramps and off-ramps to Highway 403. Collisions occurring on service roads to the Queen Elizabeth Way are included. Only collisions on city streets/roads or sidewalks are recorded – private property collisions are not included.

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## OVERVIEW

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### 2010 COMPARED WITH PREVIOUS YEARS

#### Overall Collisions\*

Total reported collisions between 2004 and 2009 have remained relatively constant, with an increase of 338 between 2009 and 2010. The occurrence of injury collisions has been again relatively constant since 2004, with an increase of 143 in 2010. The number of fatal collisions was 20 in 2010, compared to 14 in 2009.

When comparing 2006-2010 to previous years, one should consider the fact that Collision Reporting Centres (CRC) was introduced in 2003 to record collisions with no injury qualification and minimal property damage. It has been noted by the Hamilton Police Service that an undetermined number of previously reportable collisions are being recorded at CRC offices as non-reportable collisions, thereby possibly lowering the true number of reportable collisions. As stated in the disclaimer, the number of injury collision reports has also been impacted since the initiation of CRCs.

#### Bicycle Injuries

The number of people injured in motor vehicle collisions while riding on a bicycle in 2010 was 141 and in 2009 was 119. The City of Hamilton had 2 cyclist fatalities in 2010.

#### Pedestrian Injuries

In 2010 there were 250 pedestrians injured. This is an increase of 43 over 2009, and also the fourth highest in the last 10 years.

#### Alcohol Involvement

In the years 2001 to present, alcohol involvement in collisions averaged 6.2 percent, unchanged from the previous 10 years. The rate was 5.8 percent in 2009, and 4.9 percent in 2010. The involvement of young drivers under 21 who had been drinking, a statistic which has shown great variability, was 6.1 percent in 2009 and 7.7 percent in 2010.

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**OVERVIEW – CONTINUED**

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**2009 COMPARED TO 2010**

In 2009, 3,335 reported traffic collisions occurred on municipal roadways in the City of Hamilton, and in 2010 there were 3,673. These collisions resulted in:

	<u>2009</u>	<u>2010</u>
Driver fatalities	7	9
Passenger fatalities	5	3
Cyclist fatalities	2	2
Pedestrian fatalities	2	7
Driver, cyclist, or passenger injuries (Excluding fatalities)	2,138	2,272
Pedestrian injuries (not including fatalities)	207	261
Persons involved in a reported traffic collision	7,796	8,761



An aerial, high-angle photograph of a multi-lane highway. The road is filled with cars, many of which are blurred due to motion, suggesting a traffic jam or slow-moving traffic. The cars are in various colors, including red, white, and blue. The road surface is grey asphalt with white lane markings. The overall scene is brightly lit, possibly during the day. Overlaid on the center of the image is the text "Chapter One" in a large, bold, blue font with a white outline, and "TRENDS" in a smaller, bold, blue font with a white outline below it.

# Chapter One

## TRENDS

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## CHAPTER 1 – TRENDS

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### General

Since peaking in 1967, the overall number of reported motor vehicle collisions in the City of Hamilton has exhibited a steadily decreasing trend (Exhibit 1.1). The number of collisions resulting in a fatality increased from 14 in 2009 to 20 in 2010, (Exhibit 1.1). Personal injuries have decreased considerably in past years, but 2010 shows an increase of 143 over 2009, (Exhibit 1.1) the second highest count recorded since 2002. The overall declining trend in injuries is particularly notable as, since 1980, the population of the reporting area has increased by 19% and motor vehicle registrations have risen by 66.0%.

### Normalizing the Data

To best assess historical trends, collision data should be expressed as a normalized rate. Information on annual motor vehicle use would provide the most accurate assessment of a motorist's exposure, and hence, likelihood of involvement in a collision. Motor vehicle registration data is somewhat less accurate as a normalizing factor, but is utilized later in this report since exposure information is not available. Population also provides a reasonable normalizing factor, although it does not account for the trends in individual drivers' travel. Exhibits 1.2, 1.5, 1.6, 1.7, 1.8, 1.9 and associated analysis in the rest of this chapter refer to data which has been calculated on a population rate basis (based on most applicable census population data), rather than on the basic number of occurrences.

### Overall Collision Rates

The overall motor vehicle collision rate, based on population, is shown in Exhibit 1.5. On January 1, 1985, the reporting level for property damage only collisions was raised from \$400.00 to \$700.00. The level was raised to \$1,000.00 in 1998. The reporting area increased due to an increase in roadway inventory in 1997-1998. In June, 2003, Collision Reporting Centres (CRC) were opened. Considering these changes, the rate for total collisions shows a decline from 1989 to the present, with the exception of 1993 and 1994. 1997 through 2010 show the lowest rates experienced in the past 30 years for which records have been kept. The rate of collisions involving injury or fatality shows a modest but consistent decline from 1990 to about 2004-5 (Exhibit 1.5), with a relatively constant trend from 2004-5 to the present.

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## CHAPTER 1 – TRENDS – CONT'D

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### Injury Rates

Since 1989, the rate of personal injury (Exhibits 1.6) has been on the decline and the rate of personal injury in 2006 was the lowest it has been in the past 20 years. The rate and number of pedestrian injuries (Exhibits 1.3, 1.8) show a significant and continuing decline from 1990 to 1994, with 2004 and 2009 showing the lowest number of pedestrians injured in record keeping history. 2010 resulted in an increase of 51 pedestrian collisions over 2009.

In 2010, the chance of an involved person sustaining injury in a collision varied from 15% for a motor vehicle passenger, to 89% for a pedestrian (Exhibit 1.10). The risk of injury is significantly higher for cyclists and pedestrians. The percentages are high for cyclists and pedestrians, as it is unlikely that these types of collisions could occur with no personal injury and less than \$1,000.00 total property damage.

### Fatalities

21 fatalities occurred in 2010, an increase of 5 from 2009. Fatal collisions are rare events and small changes in the number of fatalities cause large fluctuations in the fatality rate (Exhibit 1.7). While injuries are at an all-time low, fatalities are slightly higher than the experience of 1993 – 1996, prior to a substantial length of higher speed (80 km/h) road being transferred from the Province to the Region, compounded by growing traffic volumes and population.

In 2010, 7 pedestrians died in motor vehicle collisions, increased by 5 from 2009. The fatality rate for pedestrians, (Exhibit 1.9) displays a general reducing trend, especially since 1987, with the average pedestrian fatality frequency of 0.7 per 100,000 population for the past 10 years.

### Alcohol Involvement

Overall the percentage of collisions reported with one or more drivers having used alcohol has shown an increasing trend since 1998, although it was at a more typical level of 4.9% in 2010 (Exhibit 1.4). The percentage of impaired/had-been-drinking drivers under the age of 21 has been stable or increasing over the past 5 years. In 2010 the percentage of impaired or had been drinking drivers, under the age of 21, was 7.7%.

**EXHIBIT 1.1 – MOTOR VEHICLE COLLISION HISTORY – 1986 to 2010**

<b>Year</b>	<b>Total Collisions</b>	<b>Fatal Collisions</b>	<b>Injury Collisions</b>	<b>Property Damage Collisions</b>
1986	7434	21	3331	4082
1987	8140	35	3615	4491
1988	9586	22	3285	6279
1989	9566	21	3372	6173
1990	6917	25	2751	4141
1991	6145	25	2331	3789
1992	6180	22	2312	3846
1993	7674	15	2313	5346
1994	7233	13	2205	5015
1995	5987	19	2111	3857
1996	5687	14	2103	3570
1997 (c)	5453	21	1979	3453
1997 (b)	5693	28	2075	3590
1998 (a,b)	5111	17	1999	3095
1999	5004	17	2022	2952
2000	5217	20	2023	3151
2001	5171	20	2031	3107
2002	5270	19	2229	3020
2003 (d)	4041	21	1784	2238
2004	3161	16	1697	1448
2005	3149	19	1690	1440
2006	3174	22	1638	1514
2007	3356	21	1743	1592
2008	3314	14	1675	1625
2009	3335	14	1666	1655
2010	3673	20	1809	1844

- (a) Collision reporting criteria changed (see Exhibit 1.5).
- (b) Includes the roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.
- (c) Previous road network.
- (d) Introduction of Collision Reporting Centres – refer to disclaimer.

**EXHIBIT 1.2 – PERSONAL INJURIES AND FATALITIES**

Year	Total Collisions	Persons Injured	Personal Injuries/1,000 Population	Number of Fatalities	Fatalities/100,000 Population	Fatalities/10,000 Registered Vehicles	
1991	6415	3420	7.6	25	5.5	1.0	(d)
1992	6180	3439	7.5	23	5.0	0.8	(e)
1993	7674	3421	7.6	16	3.5	0.5	(e)
1994	7233	3213	7.0	13	2.8	0.4	(e)
1995	5987	3061	6.6	20	4.3	0.6	(e)
1996	5687	3066	6.5	14	2.9	0.4	(e)
1997 (b)	5693	3173	6.7	31	6.6	1.4	(e)
1998 (a,b)	5111	2945	6.3	18	3.8	0.5	(e)
1999	5004	3032	6.4	17	3.6	0.5	(e)
2000	5217	3013	6.4	22	4.7	0.6	(e)
2001	5171	3107	5.2	21	4.4	0.6	(e)
2002	5270	3209	6.4	19	3.8	0.5	(e)
2003 (c)	4041	2680	5.3	21	4.1	0.5	(e)
2004	3161	2507	5.0	16	3.2	0.4	(e)
2005	3149	2422	4.8	19	3.8	0.5	(e)
2006	3174	2427	4.8	25	4.9	0.7	(e)
2007	3356	2457	4.9	27	5.3	0.7	(e)
2008	3314	2347	4.6	14	2.8	0.4	(e)
2009	3335	2345	4.6	16	3.1	0.4	(e)
2010	3673	2533	5.0	21	4.1	0.5	(e)

(a) Collision reporting criteria changed (see page 3).

(b) Includes roads transferred in 1997 and 1998 from the Province to the Region of Hamilton-Wentworth.

(c) Introduction of Collision Reporting Centres – refer to disclaimer.

(d) Registration data from license information.

(e) Registration data from license information for Wentworth County.

**EXHIBIT 1.3 – PEDESTRIAN & CYCLIST INJURIES AND FATALITIES**

Year	Collisions Involving Pedestrians	Pedestrian Injuries/ Fatalities	Pedestrian Fatalities Only	Collisions Involving Cyclists	Cyclist Injuries/ Fatalities	Cyclist Fatalities Only
1991	332	330	10	193	185	3
1992	300	297	9	219	209	3
1993	299	291	4	201	183	0
1994	290	283	3	196	185	2
1995	293	286	8	163	152	1
1996	303	302	7	150	135	1
1997 (a)	294	286	11	158	140	1
1998 (a)	281	286	5	197	177	4
1999	291	302	3	143	152	1
2000	282	271	8	159	145	1
2001	270	262	2	157	131	4
2002	262	253	2	170	146	2
2003 (b)	264	237	6	142	120	0
2004	241	222	4	169	143	1
2005	268	245	5	151	131	0
2006	243	227	6	146	132	2
2007	293	288	8	156	137	0
2008	250	246	3	162	140	1
2009	221	209	2	139	121	2
2010	272	257	7	162	143	2

(a) Includes roads transferred in 1997 and 1998 from the Region of Hamilton-Wentworth.

(b) Introduction of Collision Reporting Centres – refer to disclaimer.

**EXHIBIT 1.4 – ALCOHOL RELATED MOTOR VEHICLE COLLISIONS**

Year	Total Reported Collisions	Total Alcohol-Related Collisions	% of Total Collisions Involving Alcohol	Impaired or Had Been Drinking Drivers Under the Age of 21	Total Fatal Collisions	Alcohol-Related Fatal Collisions (a)	% Fatal Collisions Involving Alcohol
1991	6145	385	6.3	7.6	25	3	12.0
1992	6180	398	6.4	2.1	22	0	0.0
1993	7674	397	5.1	5.5	15	4	26.7
1994	7233	359	5.0	4.7	13	2	15.4
1995	5987	327	5.5	3.7	19	1	5.3
1996	5687	340	5.9	7.9	14	3	21.4
1997 (b)	5693	304	5.3	7.8	28	2	7.1
1998 (b)	5111	249	4.9	4.8	17	2	11.8
1999	5004	253	5.0	7.8	17	3	17.6
2000	5217	252	5.0	5.8	20	1	5.0
2001	5171	266	5.1	7.8	20	1	5.0
2002	5270	281	5.3	4.6	19	0	0
2003 (c)	4041	242	5.9	3.4	19	1	5.2
2004	3161	208	6.6	1.5	16	2	12.5
2005	3149	234	7.4	7.9	19	2	10.5
2006	3174	231	7.3	4.8	22	2	9.0
2007	3356	223	6.6	8.5	21	2	9.5
2008	3314	235	7.0	9.4	14	2	14.2
2009	3335	195	5.8	6.1	14	2	14.2
2010	3673	181	4.9	7.7	20	2	10.0

(a) Includes drivers classified as impaired due to alcohol or classified as had been drinking.

(b) 1997 and 1998 and all subsequent years include roads transferred in two groups from the Province to the Region of Hamilton-Wentworth.

(c) Introduction of Collision Reporting Centres – refer to disclaimer.

EXHIBIT 1.5 – TOTAL AND INJURY COLLISION RATES

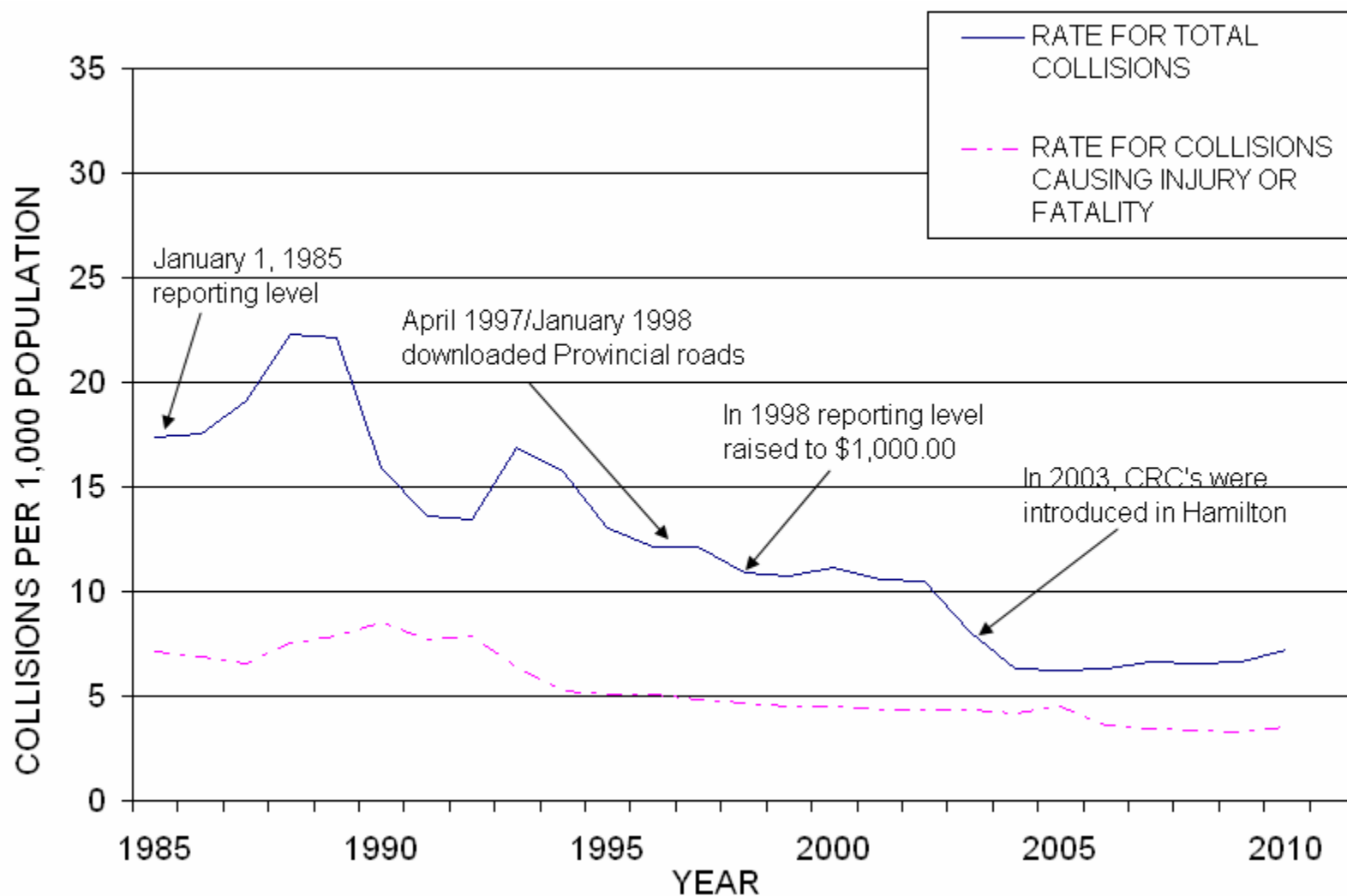
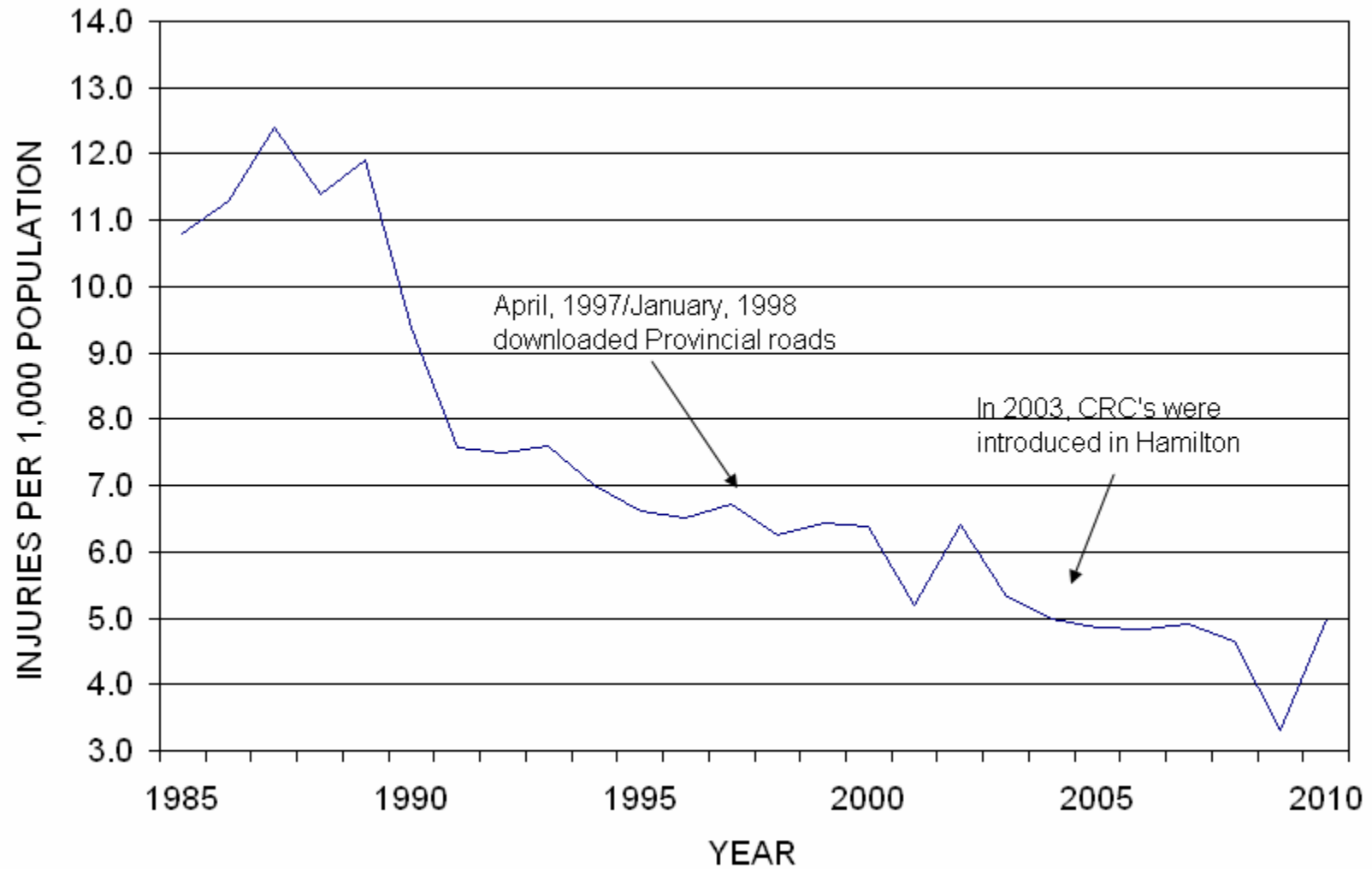




EXHIBIT 1.6 – PERSONAL INJURY RATES



**EXHIBIT 1.7 – FATALITY RATES**

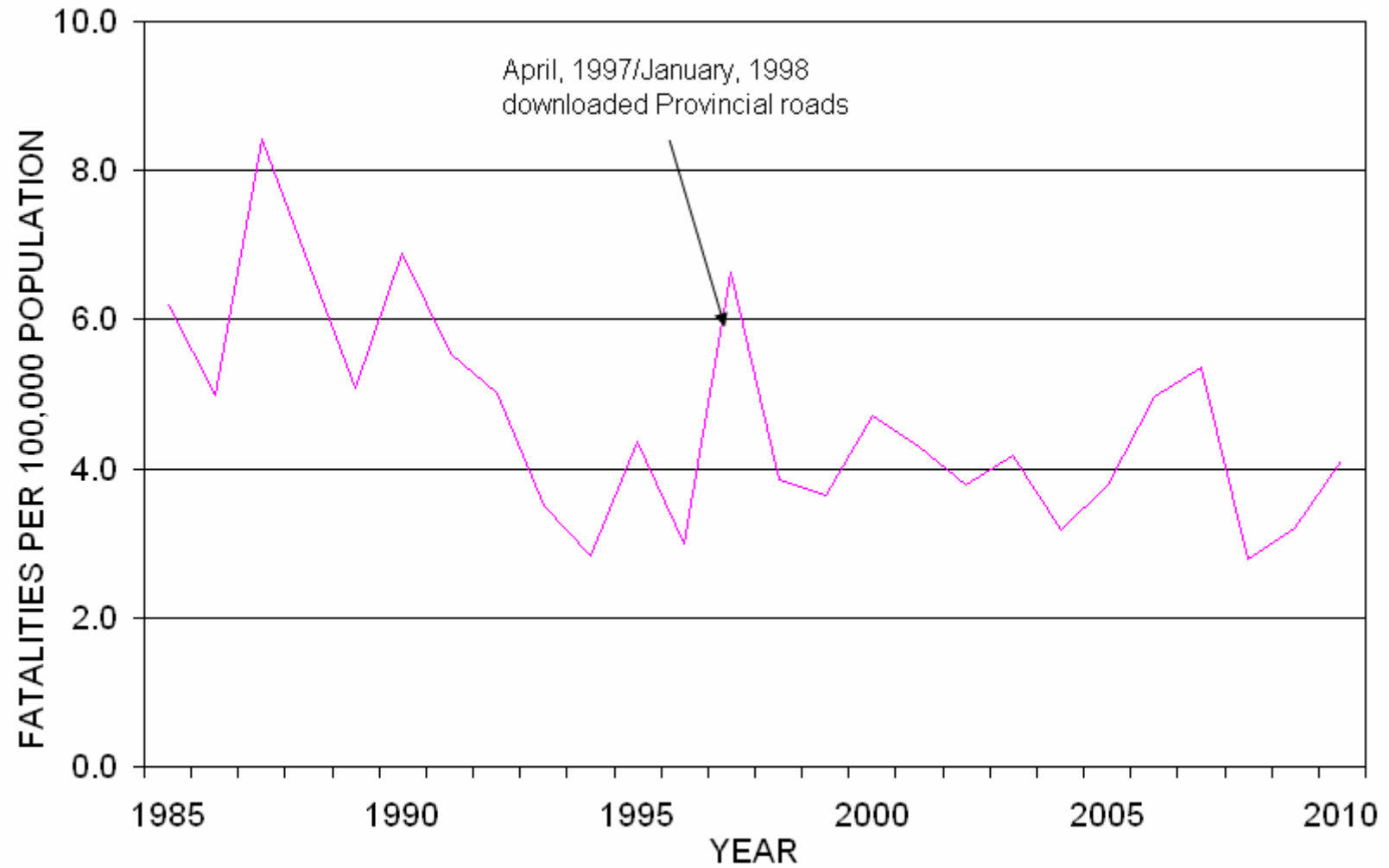
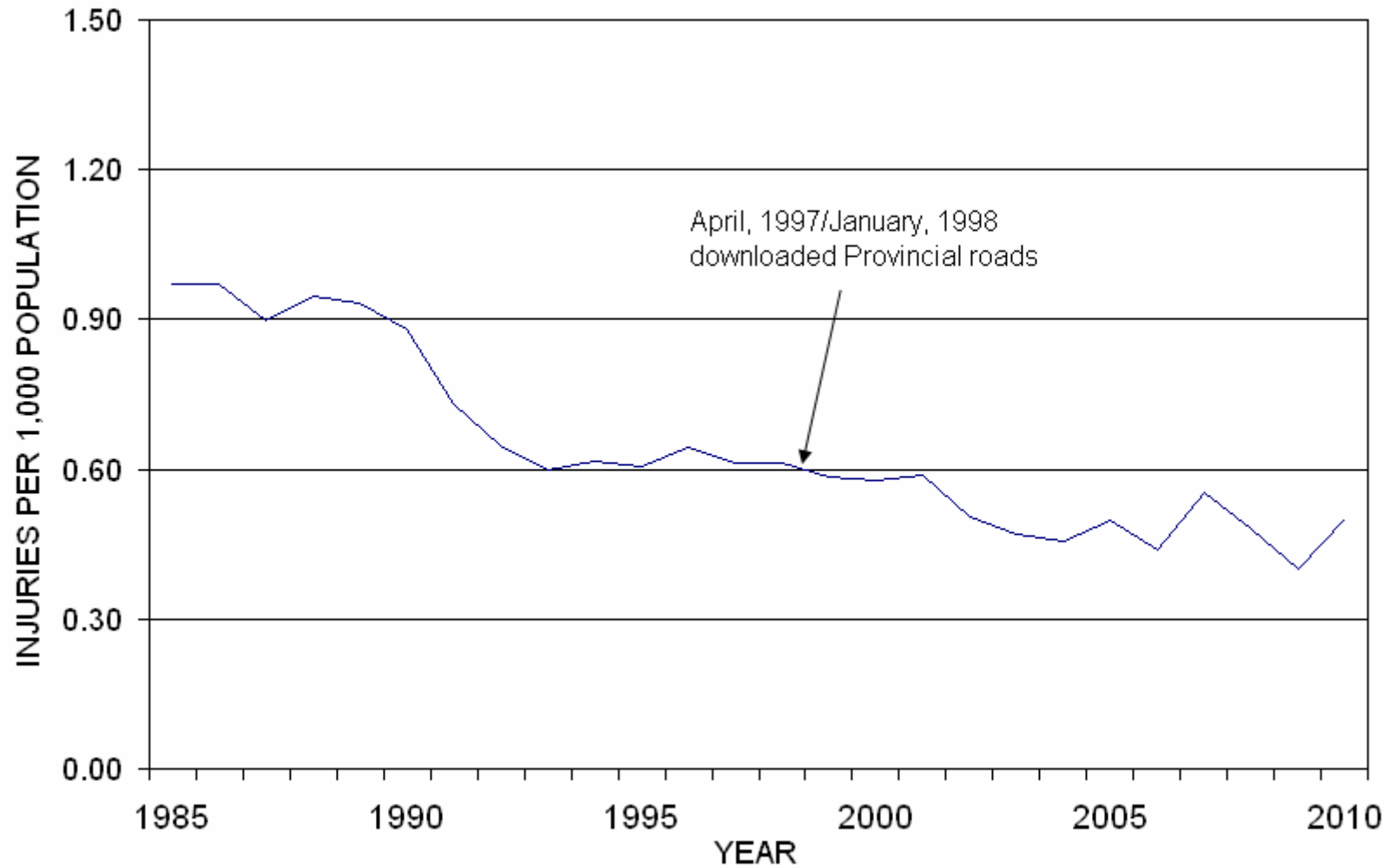


EXHIBIT 1.8 – PEDESTRIAN INJURY RATES



**EXHIBIT 1.9 – PEDESTRIAN FATALITY RATES**

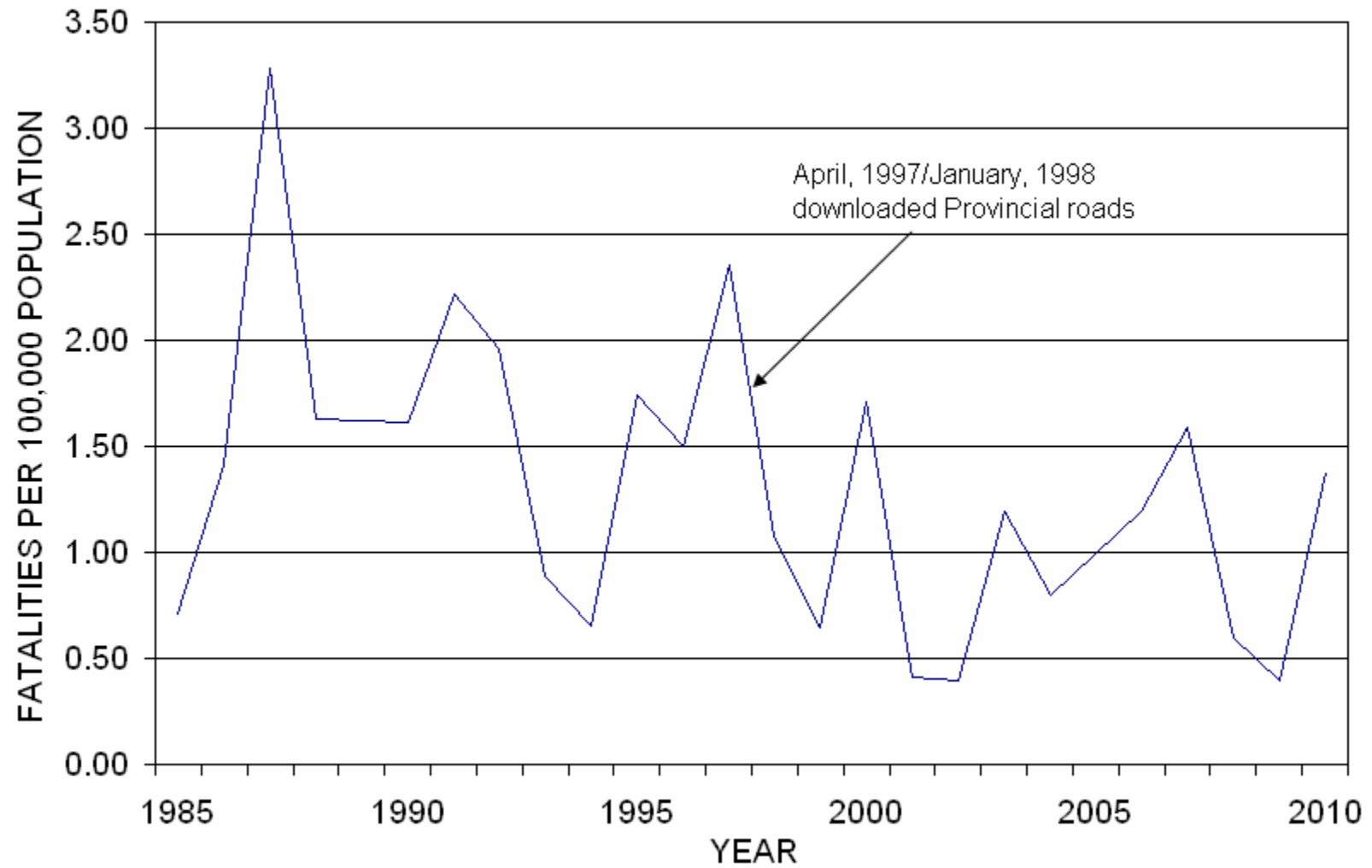


EXHIBIT 1.10 – 2010 INJURY STATUS OF ALL PERSONS INVOLVED

Description of Persons Involved	Persons Involved	Personal Injuries & Fatalities	% of Persons Injured/Persons Involved	Type of Injury (a)			
				Fatal	Major	Minor	Minimal
Driver (b)	3996	1475	36.7%	9	28	625	813
Cyclist	163	142	85.9%	2	10	74	56
Passenger	4309	669	15.5%	3	20	285	361
Pedestrian	293	268	89.0%	7	31	125	105
Total	8761	2554	49.5%	21	89	1109	1335

**FOR APPROXIMATELY EVERY 57 RESIDENTS OF THE CITY OF HAMILTON, 1 PERSON WAS INVOLVED IN A REPORTABLE MOTOR VEHICLE COLLISION IN 2010. THERE WAS A 49% CHANCE THAT A PERSON INVOLVED IN A TRAFFIC COLLISION WOULD BE INJURED. \*PLEASE REFER TO DISCLAIMER.**

(a) Definitions of injury types:

**Major** – Person admitted to the hospital for treatment of injuries received in the collision;

**Minor** – Person went to the hospital for medical treatment but was released without being admitted;

**Minimal** – Person did not go to a hospital for medical treatment upon leaving the scene of the collision.

(b) Does not include 'Hit & Run' or 'Failed To Remain' drivers.



# Chapter Two

## LOCATIONS

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## CHAPTER 2 – LOCATIONS

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### General

Locations that have high numbers or rates of collision occurrence receive regular attention by Public Works staff and by the Hamilton Police Service. Countermeasures are regularly implemented for existing facilities and incorporated into the design of new facilities. However, physical alterations are not effective in preventing many traffic collisions, which are the direct result of driver or pedestrian error.

### Network Screening Program

The Network Screening Project (Traffic Engineering, Public Works, Hamilton) consists of the application of risk analysis methodology to carry out a comprehensive review of the entire road network in the City of Hamilton. Twelve (12) types of road groups are analyzed:

- Traffic Signals (at intersections)
- IPS – Intersection Pedestrian Signals
- Mid-Block Traffic Signals
- All-Way Stop Controlled intersections
- Two-Way Stop Controlled intersections
- Yield Controlled intersections
- Intersections with No Traffic Control
- Urban Roadway Sections, between intersections (curbed cross-sections)
- Rural Roadway Sections, between intersections (uncurbed sections)
- Lincoln M. Alexander Expressway (Linc/Red Hill Valley Parkway (RHVP)) Sections
- Lincoln M. Alexander Expressway (Linc) On-Ramps
- Lincoln M. Alexander Expressway (Linc) Off-Ramps

These groups are then analyzed and prioritized, both by group and on overall basis.

### Calculation of Risk and Overrepresentation

Traditionally, collision screening processes determined candidate locations by calculating collision rates considering collision frequency and traffic volume.

A major change that has been implemented in the new network screening process for the City of Hamilton is the automated calculation of overrepresentation trends in the collisions

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## CHAPTER 2 – LOCATIONS – CONT'D

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that occurred at each location when compared to its group. By comparing locations to other similar types within the same group, a risk indicator can be calculated. All locations are then grouped and sorted by the indicator. In particular, where collision types were found to be overrepresented, greater potential exists for the application of programs or techniques to reduce the number of collisions. This element formed one component of a test for candidate locations for application of road safety audits.

To further enhance the likelihood of success in achieving collision reduction, the *Network Risk indicator and collision type overrepresentation* were supplemented with an evaluation of the frequency of collisions at each location. Each site was checked to determine if the number of collisions at the locations *exceeded the upper 95% confidence limits* for the expected number of collisions for sites in that group of locations. This additional test ensured that there was good “potential” at each site selected to implement successful countermeasures. Exhibit 2.1 displays a ranking of roadway locations which exceeded the expected number of collisions for that group, and further experienced an overrepresentation of causal factors for the years 2005-2009. The 2006 - 2010 Network Screening Report will be available at a later date, due to the length of time to prepare and update this report.

Exhibits in this chapter do not necessarily represent priority lists for improvements, as other factors must be taken into account, such as cost-benefit considerations and the ease of deployment of collision countermeasures.

### *Comparison of Hamilton with selected Canadian Cities*

On the basis of total collisions per 1,000 population, Hamilton has very close to the lowest rate in Canada (Exhibit 2.2). On the basis of injury collisions per 1,000 population, the City also has very close to the best performance in Canada when compared to cities with similar road operation responsibilities.



**EXHIBIT 2.1 – NETWORK SCREENING 2005-2009 – OVERREPRESENTATION RANKING**

No.	Group	Description	Network Risk Indicator	Total # of Collisions in 5 Years	Collisions per Km	Overall average # of Collisions for 5 Years for Group	Fatal or Injury Collisions for 5 Years for Location
1	Urban Road	King: James – Catharine	66.47	28	80.1	11.1	18
2	Urban Road	Barton: Wellington – Wentworth	62.94	36	47.7	11.1	26
3	All-way Stop	Eleventh Rd & Ridge Rd	53.05	6		0.6	5
4	Onramp	Mud: Mud SB – EB off ramp – RHVP	52.14	23	35.0	1.4	2
5	Rural Road	Centre: Concession 11 E – Campbellville	45.17	11	2.7	2.0	6
6	Urban Road	Quigley: Greenhill – King	43.38	17	12.4	11.1	12
7	Urban Road	Queenston: Nash – Centennial Pkwy	32.53	56	67.4	11.1	36
8	Urban Road	Upper James: Mohawk – LINC WB off ramp	31.72	57	61.6	11.1	43
9	Rural Road	Sulphur Springs: Governors – Mineral Springs	30.69	10	4.9	2.0	5
10	Urban Road	Main: Longwood – Paradise	30.21	10	77.5	11.1	4
11	Urban Road	Barton: Sherman – Gage	29.99	43	32.5	11.1	18
12	Urban Road	Mill F: Dundas F to City Limits	29.48	21	15.5	11.1	5
13	Urban Road	Queenston: Parkdale – Nash	29.17	55	36.4	11.1	36
14	Urban Road	Upper James: Rymal – Stone Church	28.32	67	73.4	11.1	43
15	Two-way	Hwy 5 & Hwy 52	27.16	32		1.0	17

**EXHIBIT 2.1 – NETWORK SCREENING 2005-2009 – OVERREPRESENTATION RANKING- CONTINUED**

No.	Group	Description	Network Risk Indicator	Total # of Collisions in 5 Years	Collisions per Km	Overall average # of Collisions for 5 Years for Group	Fatal or Injury Collisions for 5 Years for Location
16	Rural Road	Concession 4 W: Ofield – Millgrove Side Rd	26.21	4	2.8	2.0	6
17	Urban Road	James: St Josephs – King	25.22	34	25.8	11.1	13
18	Urban Road	Hamilton: Dundas – Parkside	25.00	19	16.2	11.1	5
19	Urban Road	James: King – Barton	24.89	27	27.7	11.1	9
20	Urban Road	Kenilworth: Main – Barton	24.59	22	22.5	11.1	11
21	Two-way	11th Con & Centre	24.59	6		1.0	5
22	Rural Road	Campbellville: Centre – City Limits	23.66	11	2.7	2.0	3
23	Rural Road	Becketts: Fennell/Garth – Aberdeen/Queen	23.47	74	41.8	2.0	34
24	Urban Road	King: Queen – James	23.08	55	44.0	11.1	8
25	Urban Road	Upper James: Claremont Access – Fennell	22.44	32	48.8	11.1	20
26	Urban Road	Upper James: Mohawk – Fennell	22.28	51	44.5	11.1	30
27	Urban Road	Mount Albion: Greenhill to end	22.04	15	21.5	11.1	14
28	Urban Road	Burlington: James – Wellington	21.97	12	14.1	11.1	4
29	Rural Road	Miles: Dickenson – Airport	21.86	15	5.1	2.0	6
30	Rural Road	Sydenham: Crowley – Rock Chapel	21.56	19	5.9	2.0	8

**EXHIBIT 2.1 – NETWORK SCREENING 2005-2009 – OVERREPRESENTATION RANKING- CONTINUED**

No.	Group	Description	Network Risk Indicator	Total # of Collisions in 5 Years	Collisions per Km	Overall average # of Collisions for 5 Years for Group	Fatal or Injury Collisions for 5 Years for Location
31	Urban Road	Sherman: Main – King	21.47	5	16.7	11.1	4
32	Urban Road	John: St Josephs – King	21.46	29	29.8	11.1	15
33	Rural Road	Jerseyville: Martin – Wilson A	21.29	15	5.6	2.0	5
34	Urban Road	Rymal: West 5th – Upper James	21.25	13	31.0	11.1	7
35	Urban Road	Upper Wellington: Mohawk – Limeridge	20.94	16	15.5	11.1	12
36	Urban Road	Wilson: James – Wellington	20.82	20	24.1	11.1	8
37	Urban Road	Upper Wentworth: Kingfisher – Mohawk	20.60	31	49.9	11.1	20
38	Urban Road	Barton: Ottawa – Kenilworth	20.43	27	24.8	11.1	14
39	Urban Road	Cannon: James – Wellington	20.41	23	22.2	11.1	14
40	Urban Road	Main: Kenilworth – Berry	20.21	32	33.3	11.1	18
41	Two-way	Hess & Markland	19.95	5		1.0	4
42	Two-way	Brock Rd & Hwy 97	19.87	8		1.0	5
43	Urban Road	Fennell: Upper Wentworth – Upper Sherman	19.78	22	26.0	11.1	18
44	Two-way	Arvin & Millen Rd	19.75	15		1.0	11
45	Urban Road	King: Catharine – Wellington	19.67	21	30.0	11.1	6

**EXHIBIT 2.1 – NETWORK SCREENING 2005-2009 – OVERREPRESENTATION RANKING- CONTINUED**

No.	Group	Description	Network Risk Indicator	Total # of Collisions in 5 Years	Collisions per Km	Overall average # of Collisions for 5 Years for Group	Fatal or Injury Collisions for 5 Years for Location
46	Urban Road	Upper Wentworth: Kingfisher – LINC EB off ramp	19.46	32	42.4	11.1	22
47	Two-way	Governors A & Lynden Rd	19.06	11		1.0	2
48	Urban Road	Garth: Limeridge – Mohawk	18.67	10	28.4	11.1	10
49	Two-way	Campbellville & Centre	18.44	5		1.0	6
50	Urban Road	Main: Wellington – Wentworth	18.42	27	33.1	11.1	19
51	Two-way	5th Con & Millgrove Side	18.19	8		1.0	5
52	Urban Road	Barton: Wentworth – Sherman	18.01	18	23.7	11.1	11
53	Rural Road	Concession 4 W: Middletown – Brock Rd	17.99	5	2.9	2.0	5
54	Urban Road	Victoria: Barton – Burlington	17.56	11	12.5	11.1	8
55	Signal	Hunter St H & James St H	17.20	32		10.6	19
56	Two-way	5th Con & Brock Rd	17.05	7		1.0	4
57	Rural Road	Binbrook: Woodburn – Westbrook	16.93	11	4.7	2.0	5
58	Rural Road	White Church: Glancaster – Upper James	16.78	13	4.4	2.0	5
59	Signal	King H & Parkdale	16.71	29		10.6	17
60	Urban Road	Mohawk: Upper Paradise – Garth	16.33	22	24.9	11.1	14

EXHIBIT 2.2 – SELECTED CANADIAN CITIES – PAGE 1 OF 3

City	Population	Property Damage Reporting Level	Collision Reporting Criteria (1)					Total Collisions	Collisions/1,000 Population	Injury Collisions (3)	Injury Collisions/1,000 Population (2)
			(a)	(b)	(c)	(d)	Other				
HAMILTON ** (2010) Police reported only	504,559	\$1,000.00	N	N	Y	Y	f	3,673	7.2	1,809	3.6
HAMILTON ** (2010) All collisions including self-reported	504,559	\$1,000.00	N	N	Y	Y	f	6,137	12.1	1,809	3.6
BURLINGTON (2010)	173,000	\$1,000.00	Y	Y	Y	Y	e,f	1,323	7.6	234	1.3
CALGARY (2010)	1,071,515	\$1,000.00	N	N	N	Y	f	34,297	32.0	2,350	2.2
EDMONTON (2010)	793,000	\$1,000.00	N	N	N	Y	e,f	28,481	35.9	3,768	4.8
GUELPH (2010)	123,000	\$1,000.00	Y	Y	Y	Y	e,f	1,365	11.1	503	4.1
LONDON (2010)	355,000	\$1,000.00	Y	Y	Y	Y		10,015	28.2	1,591	4.5
MISSISSAUGA (7) (2006)	668,549	\$1,000.00	N	N	N	Y		5,817	8.7	800	1.2
OTTAWA (2010)	912,000	\$1,000.00	N	N	N	Y	e	14,925	16.4	2,877	3.2
SASKATOON (2009)	218,573	\$1,000.00	N	N	N	Y	f	13,215	60.5	1,247	5.7
TORONTO (2010)	2,654,980	\$1,000.00	Y	Y	Y	Y	e,f	55,685	21.0	13,427	4.3
VANCOUVER (2009)	628,654	\$1,000.00	N	N	N	Y	f	2,330	3.7	1,455	2.3
WINDSOR (2010)	208,402	\$1,000.00	N	N	N	Y		4,695	22.5	1,004	4.8
WINNIPEG (2009)	687,619	\$1,000.00	N	N	Y	Y	e,f	12,166	17.7	2,130	3.1

EXHIBIT 2.2 – SELECTED CANADIAN CITIES – PAGE 2 OF 3

Regional Municipality	Population	Property Damage Reporting Level	Collision Reporting Criteria (1)					Total Collisions	Collisions/1,000 Population	Injury Collisions (3)	Injury Collisions/1,000 Population (2)
			(a)	(b)	(c)	(d)	Other				
REGIONAL MUNICIPALITY OF HALTON (4,5) (2010)	492,100	\$1,000.00	Y	Y	Y	Y	e,f	7,649	15.5	1,091	2.2
REGIONAL MUNICIPALITY OF NIAGARA (2010)	443,866	\$1,000.00	N	N	Y	Y	f	5,198	11.7	891	2.0
REGIONAL MUNICIPALITY OF PEEL (4) (2009)	1,220,000	\$1,000.00	Y	Y	Y	Y	e,f	4,605	3.8	767	0.6
REGIONAL MUNICIPALITY OF WATERLOO (6) (2009)	534,920	\$1,000.00	Y	Y	Y	Y	f	5,547	10.4	1,196	2.2

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**EXHIBIT 2.2 – SELECTED CANADIAN CITIES – PAGE 3 OF 3**

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(1) KEY TO CRITERIA FOR REPORTING COLLISIONS (See next page for definitions of injury collisions)

It is generally assumed, unless otherwise noted, that only collisions occurring on public roadways involving personal injury or property damage greater than the reporting level are included on this table.

- (a) Collisions reported involving an infraction of the Provincial Highway Traffic Act with property damage only and less than reporting level.
- (b) Collisions reported involving an infraction of the Criminal Code of Canada with property damage only and less than reporting level.
- (c) Hit and run collisions reported with property damage only and less than reporting level.
- (d) Collisions reported if it involves any personal injury
- (e) Public property damage collisions.
- (f) Collisions involving City or Regional government vehicles.

(2) Only injuries requiring medical attention were classified as injury collisions.

(3) Injury collisions do not include fatal collisions.

(4) Regional municipality statistics are for Regional roads only and do not include Burlington, in the case of Halton, or Mississauga, Brampton, or Caledon, and in the case of Peel. Thus, the collision rates stated will substantially underrepresent the actual rates for all roads within that Regional Municipality.

(5) Regional Municipality of Halton statistics are for Regional roads only, within Halton Region as provided by Halton Region Police.

(6) Regional Municipality of Waterloo statistics are for both Regional and area municipality roads. Injury collisions include fatal collisions.

(7) Data is for City roadways only, and does not include Regional roadways. Thus, the collision rates stated will underrepresented the overall rates.

\* Due to the publication date of this report, some municipalities were unable to provide 2010 statistics, therefore, we have used 2009 or older statistics for Exhibit 2.2.

\*\* Please refer to disclaimer.

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**DEFINITIONS OF PERSONAL INJURY (a)**

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Hamilton	any bodily harm, visible or complained of, that results from a motor vehicle collision
Burlington	any bodily harm, visible or complained of, that results from a motor vehicle collision
Calgary	any type of injury resulting from a collision
Edmonton	including minor abrasions and bruises, complaint of pain, caused by a motor vehicle collision
Guelph	any bodily harm, visible or complained of, that results from a motor vehicle collision
London	any type of injury, visible or complained of, caused by a collision; need not be treated at a hospital
Mississauga	N/A
Ottawa	any bodily harm, visible or complained of, that results from a motor vehicle collision
Saskatoon	any bodily harm, visible or complaint of, caused by the accident
Toronto	injury must be reported when an injury occurs to any of the involved persons in a collision
Vancouver	N/A
Windsor	any injury resulting from a motor vehicle collision
Winnipeg	readily identifiable injury or perceived injury caused by a collision
Halton Region	any bodily harm, visible or complained of, that results from a motor vehicle collision
Regional Municipality of Niagara	any type of injury resulting from a collision
Regional Municipality of Peel	any bodily harm, visible or complained of, that results from a motor vehicle collision
Regional Municipality of Waterloo	injury or death caused by a motor vehicle collision

(a) Definitions of a "personal injury" such that a collision involving a personal injury must be reported.



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