



Pedestrian Fatalities and Injuries 1988 - 1997

This document presents pedestrian fatalities and injuries resulting from collisions with motor vehicles on a roadway. The report reviews the number of pedestrian fatalities and injuries by age group and gender, by jurisdiction, time of day and month. The report also presents tables and charts showing the fatality and injury rates per 100,000 population, the distribution of fatalities and injuries by type of vehicle, vehicle manoeuvre, pedestrian action and the number and percentages of fatally injured pedestrians who had been drinking.

In the tables relating to age group and gender, the sum of males and females do not always add to total fatalities and injuries for two reasons¹. First, Manitoba data for 1989 were not available by gender and by age group; and second, for a number of fatalities and injuries, the gender was not specified in the collision report resulting in the gender being coded as unknown in the database.

SUMMARY FINDINGS

Over the 10-year period, 1988-1997:

- Pedestrian fatalities averaged 486 per year with an average of 15,358 pedestrians injured.
- Overall males represented 61.5 percent of pedestrian fatalities while females accounted for 38.5 percent of fatalities.
- The 65+ age group accounted for 25 percent and 38 percent of male and female pedestrian fatalities, respectively. Over the period, male fatalities over 64 years old decreased 29.9 percent and over 64 year old female fatalities decreased 38.8 percent.
- Pedestrian fatalities decreased 31 percent compared to a decrease of 26 percent for all road users including pedestrians. Male pedestrian fatalities were down 34 percent and down 27 percent for female pedestrians.
- Pedestrian fatalities in urban areas represented 70 percent of all pedestrian fatalities over the 10 years.
- For pedestrians over 64, 85 percent of the fatalities occurred in an urban area.
- Pedestrian injuries dropped 17 percent – 20 percent in male injuries and 14 percent in female injuries, while all road user injuries decreased 21 percent.
- An average of 94 percent of pedestrian injuries occurred in urban areas.

In 1997:

- Pedestrian fatalities (402) decreased 14 percent from 1996 and represented 13 percent of all road user fatalities, while injuries (14,090) decreased 3 percent from 1996 and accounted for 6 percent of all road user injuries.
- Fatalities and injuries in 1997 were at their lowest level during the 10-year period. On average, 1 pedestrian fatality and 39 injuries occurred each day in Canada.
- Males accounted for 61 percent of pedestrian fatalities, and females accounted for 39 percent.
- Pedestrian injuries were more evenly distributed between the genders with males accounting for 53 percent of injuries and females at 47 percent.
- Of the 295 fatally injured pedestrians who were tested for alcohol use, 45 percent had been drinking. The majority of those who had been drinking had Blood Alcohol Concentrations (BAC) over the legal driving limit (80 mg %). In fact, the average BAC among fatally injured pedestrians who had been drinking was 210 mg %, considerably higher than the average BAC of fatally injured drivers who had been drinking at 167 mg %.

DETAILED FINDINGS

Tables 1 and 2 present the pedestrian fatalities and injuries by jurisdiction and include unknown gender and 1989 Manitoba data. From 1988 to 1997, a total of 4,856 pedestrians died from injuries suffered in collisions with motor vehicles and 153,583 were injured. As shown in the tables, pedestrian fatalities and injuries decreased in most jurisdictions over the period and, in total, they were at their lowest level in the 10-year period, with 1988 having the highest count (586) and 1997 recording the lowest number of fatalities (402). Fatalities averaged 486 per year and decreased 31.4 percent over the 10 years. During this period, pedestrian injuries averaged 15,358 per year, and decreased 17.1 percent from 1988 to 1997.

Pedestrian fatalities in 1997 decreased to 402 (13.5 percent) from the previous year and represented 13.1 percent of all road user fatalities, while the 14,090 injuries accounted for 6.4 percent of all road user injuries and decreased 2.5 percent from 1996. On average, 1.1 pedestrian fatalities (0.7 males and 0.4 females) and 38.6 injuries (20.2 males, 18.2 females and 0.2 of unknown gender) occurred each day in 1997.

TABLE 1
Pedestrian Fatalities by Jurisdiction
1988-1997

Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
Nfld.	4	12	14	11	6	6	4	7	16	6	86
P.E.I.	5	4	7	3	2	3	0	0	2	4	30
N.S.	15	9	21	17	12	7	10	16	19	10	136
N.B.	17	18	30	18	14	19	4	11	14	14	159
Qué.	171	148	180	146	130	138	120	131	135	108	1,407
Ont.	186	161	154	157	140	146	127	126	144	133	1,474
Man.	28	19	14	21	12	17	17	14	16	20	178
Sask.	20	15	10	24	13	21	16	15	16	14	164
Alta.	50	59	45	59	34	52	55	39	36	45	474
B.C.	90	77	108	76	76	70	76	56	61	45	735
Yukon	0	0	1	1	1	0	0	0	1	0	4
N.W.T.	0	0	0	0	0	0	0	1	5	3	9
Canada	586	522	584	533	440	479	429	416	465	402	4,856

TABLE 2
Pedestrian Injuries by Jurisdiction
1988-1997

Jurisdiction	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
Nfld.	231	238	252	242	201	191	193	171	157	112	1,988
P.E.I.	37	43	28	31	34	27	18	16	13	37	284
N.S.	319	318	289	317	326	360	355	365	344	318	3,311
N.B.	295	245	282	278	271	206	233	227	180	179	2,396
Qué.	4,997	4,738	4,528	4,240	4,271	4,049	3,996	3,878	3,902	3,806	42,405
Ont.	6,360	6,187	5,839	5,352	5,177	5,181	5,345	5,261	5,336	5,154	55,192
Man.	671	659	650	631	771	711	634	650	535	481	6,393
Sask.	455	429	429	379	387	371	369	365	354	365	3,903
Alta.	1,156	1,192	1,191	1,146	1,018	1,066	1,059	1,052	1,002	1,208	11,090
B.C.	2,469	2,637	2,850	2,693	2,528	2,563	2,787	2,844	2,583	2,371	26,325
Yukon	16	14	13	13	14	8	8	19	14	20	139
N.W.T.	0	0	0	0	0	0	43	40	35	39	157
Canada	17,006	16,700	16,351	15,322	14,998	14,733	15,040	14,888	14,455	14,090	153,583

Of all pedestrian fatalities, males accounted for an average of 61.5 percent with females accounting for the remaining 38.5 percent of these deaths, excluding unknown gender and 1989 Manitoba data. Tables 3 and 4 show the numbers of male and female pedestrians fatally injured by age group for 1988 to 1997 and the 10-year totals. Male fatalities in all age groups, except the unknown category were lower in 1997 than in 1988 with fluctuations throughout the period. In comparison, female fatalities in the 05-09, 15-19, 20-24, 45-54 and the unknown age groups were higher in 1997 than in 1988. Remarkably, female fatalities were zero in the 00-04 age group for the first time in the 10-year period.

Pedestrians in the 65+ age group had the greatest number of fatalities accounting for an average of 25.3 percent of male fatalities and 37.8 percent of female fatalities over the 10-year period, compared to 27.6 percent and 33.3 percent in 1997, respectively. Male and female pedestrian fatalities in this age group showed the largest decreases in absolute values but not in terms of percentage changes.

Pedestrian fatalities represented 13.1 percent of all road user fatalities in 1997. Of all road user fatalities by age group, pedestrians represented 38.5 percent in the 05-09 age group, 25.3 percent in the 10-14 age group, and 23.1 percent in the 65+ age group. These percentages are significantly higher than all other age groups, which ranged from 5.8 percent in the 20-24 age group to 13.8 percent in the 55-64 age group.

TABLE 3
Male Pedestrian Fatalities by Age Group
1988-1997

Age Group	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
00-04	21	14	19	13	8	9	13	4	7	7	115
05-09	33	23	25	21	19	11	12	14	15	15	188
10-14	10	15	13	11	4	19	8	6	9	8	103
15-19	30	17	32	25	21	22	17	27	19	24	234
20-24	33	27	22	24	17	19	31	22	28	12	235
25-34	39	37	69	43	31	40	30	30	31	36	386
35-44	43	40	20	37	30	35	29	23	34	29	320
45-54	33	35	34	29	33	34	25	24	28	24	299
55-64	30	34	35	35	30	33	30	28	31	18	304
65+	97	72	105	71	71	64	63	56	86	68	753
Unknown	2	2	5	7	2	2	2	3	5	5	35
Total	371	316	379	316	266	288	260	237	293	246	2,972

TABLE 4
Female Pedestrian Fatalities by Age Group
1988-1997

Age Group	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
00-04	11	8	7	5	8	8	13	6	5	0	71
05-09	9	16	16	17	9	13	6	6	13	10	115
10-14	16	8	8	9	7	10	6	8	4	12	88
15-19	15	11	14	8	6	15	14	11	11	18	123
20-24	8	12	8	12	6	10	10	6	9	10	91
25-34	17	17	29	21	12	16	20	19	9	13	173
35-44	16	16	16	16	21	19	12	18	20	9	163
45-54	9	7	12	15	12	12	12	11	22	10	122
55-64	26	21	14	26	23	22	12	13	13	19	189
65+	85	65	76	87	69	64	62	79	65	52	704
Unknown	2	4	5	1	1	2	1	2	1	3	22
Total	214	185	205	217	174	191	168	179	172	156	1,861

Figures 1 and 2 display the 1988 and 1997 fatalities by gender from the above tables along with the 10-year averages.

FIGURE 1

**Male Pedestrian Fatalities by Age Group
1988, 1997 and 10-Year Averages**

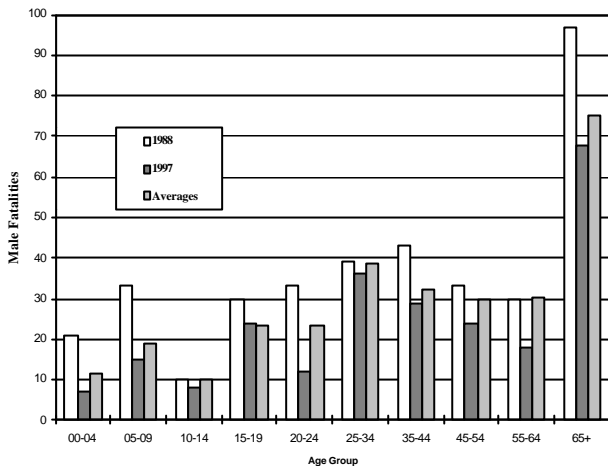
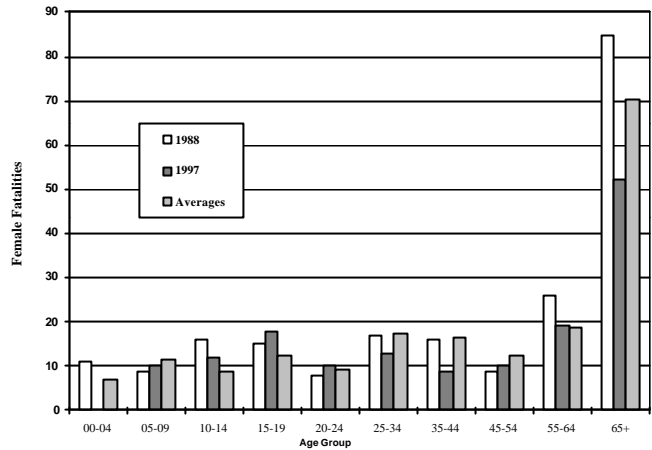


FIGURE 2

**Female Pedestrian Fatalities by Age Group
1988, 1997 and 10-Year Averages**



Tables 5 and 6 show the number of male and female pedestrians injured by age group from 1988 to 1997 and the 10-year totals. For both male and female pedestrians injured, the 1997 injuries were lower than 1988 for all age groups except 35-44, 45-54 and unknown age. The most significant decreases over the 10-year period were in the 05-09 age group for males and females at -49 percent and -44 percent, respectively. In contrast to the male and female pedestrian fatalities in the 65+ age group ranking the highest in the 10-year totals, the male pedestrians injured in the 65+ group ranked seventh and the females in that group ranked second.

**TABLE 5
Male Pedestrians Injured by Age Group
1988-1997**

Age Group	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
00-04	444	402	404	361	305	299	339	277	274	256	3,361
05-09	1,414	1,271	1,222	1,052	1,047	962	897	808	823	720	10,216
10-14	927	878	921	916	870	844	918	889	834	870	8,867
15-19	968	931	886	858	879	910	898	891	847	819	8,887
20-24	900	791	811	773	812	732	723	669	657	630	7,498
25-34	1,344	1,323	1,441	1,300	1,282	1,237	1,251	1,135	1,163	1,051	12,527
35-44	897	859	945	908	839	882	916	950	954	934	9,084
45-54	582	574	602	562	524	579	634	679	646	653	6,035
55-64	595	532	552	501	462	493	497	488	422	462	5,004
65+	831	766	740	718	721	689	701	692	688	632	7,178
Unknown	307	274	323	313	270	316	301	357	341	335	3,137
Total	9,209	8,601	8,847	8,262	8,011	7,943	8,075	7,835	7,649	7,362	81,794

TABLE 6
Female Pedestrians Injured by Age Group
1988-1997

Age Group	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	10-Year Total
00-04	264	230	243	210	179	188	194	177	157	197	2,039
05-09	776	741	635	654	597	523	549	522	466	438	5,901
10-14	847	746	796	787	808	764	767	785	724	721	7,745
15-19	934	873	881	857	863	901	795	826	824	775	8,529
20-24	655	647	652	609	589	582	613	585	583	614	6,129
25-34	1,038	1,022	1,015	996	924	851	957	944	881	897	9,525
35-44	709	712	761	726	744	765	735	814	759	794	7,519
45-54	581	592	575	533	542	533	573	640	655	629	5,853
55-64	643	573	548	479	500	455	468	502	482	448	5,098
65+	1,041	994	985	848	939	921	971	904	852	851	9,306
Unknown	229	224	326	250	230	239	268	274	302	263	2,605
Total	7,717	7,354	7,417	6,949	6,915	6,722	6,890	6,973	6,685	6,627	70,249

An average of 15,204 pedestrians were injured each year, with 1988 having the highest number of pedestrians injured at 16,926 and 1997 recording the lowest number injured at 13,989 (excluding unknown gender and 1989 Manitoba). Pedestrian injuries accounted for 6.4 percent of all road user injuries in 1997. Of all road user injuries by age group, pedestrians accounted for 18.7 percent in the 10-14 age group, 17.9 percent in the 05-09 age group, and 13.3 percent in the 00-04 age group. All other age groups ranged from 4.3 percent in the 25-34 age group to 9.7 percent in the 65+ age group. Figures 3 and 4 present the injuries for 1988 and 1997 along with the 10-year averages.

FIGURE 3
Male Pedestrians Injured by Age Group
1988, 1997 and 10-Year Averages

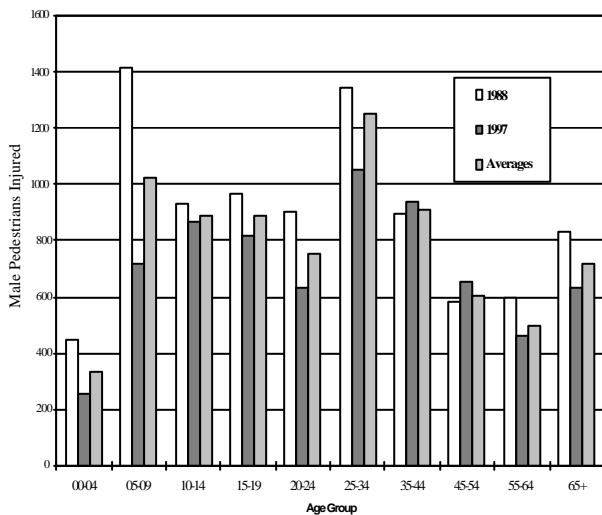
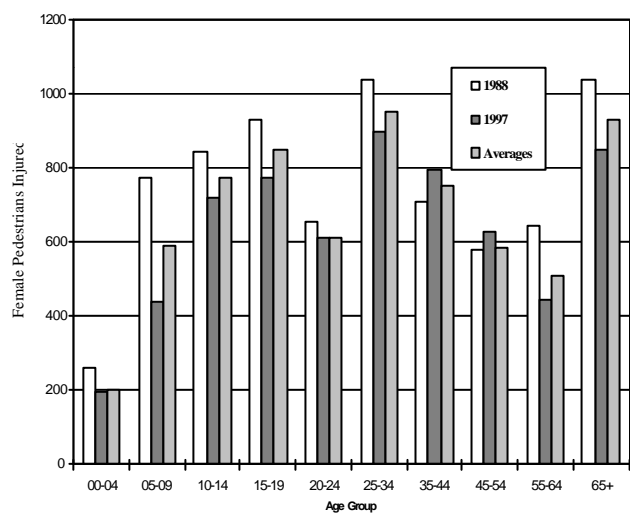


FIGURE 4
Female Pedestrians Injured by Age Group
1988, 1997 and 10-Year Averages



The population of Canada rose from 26.8 million in 1988 to 30.0 million in 1997, a 12.0 percent increase. Males increased 11.8 percent to 14.9 million and females increased 12.2 percent to 15.1 million in 1997. It is interesting to note the significant increases in both males and females in the 35-44 and 45-54 age groups from 1988 to 1997, as well as in the 65+ age group. There were decreases in the 20-24 and 25-34 age groups for both males and females. The male and female populations for 1988 and 1997 are displayed by age group in Figures 5 and 6.

FIGURE 5
Male Population of Canada by Age Group
1988 and 1997

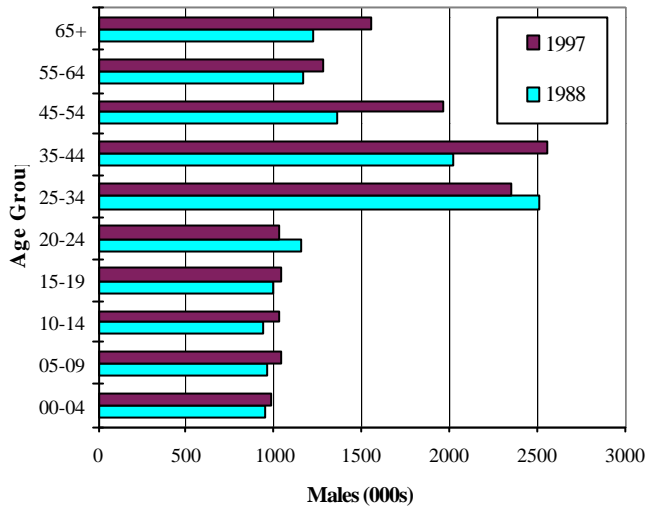
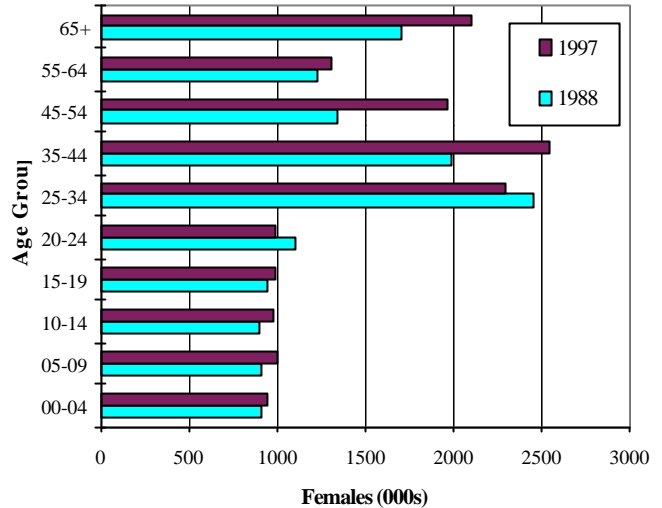


FIGURE 6
Female Population of Canada by Age Group
1988 and 1997



Tables 7 and 8 show the number of pedestrian fatalities by gender and by age group per 100,000 population. For all age groups combined, the fatality rate for male pedestrians decreased from 2.8 to 1.7 per 100,000 population. This downward trend was reflected in all individual age groups.

In comparing the 1988 percentage distribution of male fatalities by age groups with corresponding population, male fatalities were over-represented in four age groups:

- 65+ years - 26.1 percent compared to 9.2 percent of the population;
- 05-09 years - 8.9 percent compared to 7.2 percent of the population;
- 20-24 years - 8.9 percent compared to 8.7 percent of the population; and
- 15-19 years - 8.1 percent compared to 7.5 percent of the population.

In comparing the 1997 percentage distribution of male fatalities by age groups with corresponding population, male fatalities were over-represented in only two age groups:

- 65+ years - 27.6 percent compared to 10.5 percent of the population; and
- 15-19 years - 9.8 percent compared to 7.0 percent of the population.

TABLE 7
Male Pedestrian Fatalities by Age Group per 100,000 Population, 1988-1997 and
Comparison of Percentage Distribution of Fatalities to Distribution of Population

Age Group	Total Fatalities		% Dist. of Fatalities		Population (000s)		% Dist. of Population		Fatality Rate / 100,000 Pop.	
	1988	1997	1988	1997	1988	1997	1988	1997	1988	1997
00-04	21	7	5.7	2.8	955.6	990.6	7.2	6.7	2.2	0.7
05-09	33	15	8.9	6.1	963.2	1,049.1	7.2	7.1	3.4	1.4
10-14	10	8	2.7	3.3	938.4	1,036.3	7.1	7.0	1.1	0.8
15-19	30	24	8.1	9.8	997.6	1,042.5	7.5	7.0	3.0	2.3
20-24	33	12	8.9	4.9	1,153.2	1,030.5	8.7	6.9	2.9	1.2
25-34	39	36	10.5	14.6	2,505.6	2,356.3	18.9	15.9	1.6	1.5
35-44	43	29	11.6	11.8	2,019.2	2,559.6	15.2	17.2	2.1	1.1
45-54	33	24	8.9	9.8	1,363.4	1,961.7	10.3	13.2	2.4	1.2
55-64	30	18	8.1	7.3	1,170.1	1,273.7	8.8	8.6	2.6	1.4
65+	97	68	26.1	27.6	1,225.3	1,553.0	9.2	10.5	7.9	4.4
Total	371	246	100.0	100.0	13,291.5	14,853.4	100.0	100.0	2.8	1.7

For all age groups, the fatality rate for female pedestrians decreased from 1.6 in 1988 to 1.0 per 100,000 population in 1997. This downward trend was reflected in most individual age groups with the most impressive decrease in the 00-04 age group, being 1.2 per 100,000 population in 1988 to 0 in 1997.

In comparing the 1988 percentage distribution of female fatalities by age groups with corresponding population, female fatalities were over-represented in three age groups:

- 65+ years - 39.7 percent compared to 12.6 percent of the population;
- 55-64 years - 12.1 percent compared to 9.1 percent of the population; and
- 10-14 years - 7.5 percent compared to 6.6 percent of the population.

In comparing the 1997 percentage distribution of female fatalities by age groups with corresponding population, female fatalities were over-represented in four age groups:

- 65+ years - 33.3 percent compared to 13.9 percent of the population;
- 55-64 years - 12.2 percent compared to 8.6 percent of the population;
- 15-19 years - 11.5 percent compared to 6.5 percent of the population; and
- 10-14 years - 7.7 percent compared to 6.5 percent of the population.

The fatality rate per 100,000 female population increased in two age groups:

- 15-19 years increased from 1.6 per 100,000 population in 1988 to 1.8 in 1997; and
- 20-24 years from 0.7 per 100,000 in 1988 to 1.0 in 1997; while the
- 05-09 years remained the same at 1.0 per 100,000 population.

TABLE 8
Female Pedestrian Fatalities by Age Group per 100,000 Population, 1988-1997 and Comparison of Percentage Distribution of Fatalities to Distribution of Population

Age Group	Total Fatalities		% Dist. of Fatalities		Population (000s)		% Dist. of Population		Fatality Rate / 100,000 Pop.	
	1988	1997	1988	1997	1988	1997	1988	1997	1988	1997
00-04	11	0	5.1	0.0	912.0	941.7	6.8	6.2	1.2	0.0
05-09	9	10	4.2	6.4	912.5	999.1	6.8	6.6	1.0	1.0
10-14	16	12	7.5	7.7	894.0	982.6	6.6	6.5	1.8	1.2
15-19	15	18	7.0	11.5	947.4	986.6	7.0	6.5	1.6	1.8
20-24	8	10	3.7	6.4	1,104.4	991.4	8.2	6.5	0.7	1.0
25-34	17	13	7.9	8.3	2,462.4	2,306.0	18.2	15.2	0.7	0.6
35-44	16	9	7.5	5.8	1,994.4	2,554.7	14.8	16.9	0.8	0.4
45-54	9	10	4.2	6.4	1,343.7	1,970.1	9.9	13.0	0.7	0.5
55-64	26	19	12.1	12.2	1,233.3	1,310.5	9.1	8.6	2.1	1.4
65+	85	52	39.7	33.3	1,702.7	2,107.7	12.6	13.9	5.0	2.5
Total	214	156	100.0	100.0	13,506.8	15,150.5	100.0	100.0	1.6	1.0

Tables 9 and 10 show the number and percentage distribution of pedestrian fatalities, injuries and population by jurisdiction. The tables also provide a comparison by jurisdiction to determine the jurisdictions' over-/under-representation in fatalities or injuries by comparing the distribution of fatalities and injuries by jurisdiction to the percentage distribution of the population. The 1988 distribution of fatalities shows that Prince Edward Island, New Brunswick, Quebec, Manitoba and British Columbia were over-represented in the distribution of fatalities in comparison to the population distribution. The other five jurisdictions were under-represented by varying amounts. Four of the five jurisdictions (excluding British Columbia) were over-represented again in 1997, along with Saskatchewan, Alberta and Northwest Territories. The fatality rate for Canada decreased from 2.2 to 1.3 per 100,000 population. This downward trend was reflected in all jurisdictions except Newfoundland and the Northwest Territories.

TABLE 9
Pedestrian Fatalities by Jurisdiction per 100,000 Population, 1988-1997 and
Comparison of Percentage Distribution of Fatalities to Distribution of Population

Jurisdiction	Total Fatalities		% Dist. of Fatalities		Population (000s)		% Dist. of Population		Fatality Rate / 100,000 Pop.	
	1988	1997	1988	1997	1988	1997	1988	1997	1988	1997
Nfld.	4	6	0.7	1.5	575.0	554.4	2.1	1.8	0.7	1.1
P.E.I.	5	4	0.9	1.0	129.3	136.8	0.5	0.5	3.9	2.9
N.S.	15	10	2.6	2.5	897.4	934.8	3.3	3.1	1.7	1.1
N.B.	17	14	2.9	3.5	730.4	754.0	2.7	2.5	2.3	1.9
Qué.	171	108	29.2	26.9	6,839.6	7,307.6	25.5	24.4	2.5	1.5
Ont.	186	133	31.7	33.1	9,843.8	11,260.4	36.7	37.5	1.9	1.2
Man.	28	20	4.8	5.0	1,102.1	1,136.8	4.1	3.8	2.5	1.8
Sask.	20	14	3.4	3.5	1,028.1	1,022.2	3.8	3.4	1.9	1.4
Alta.	50	45	8.5	11.2	2,454.7	2,837.8	9.2	9.5	2.0	1.6
B.C.	90	45	15.4	11.2	3,115.7	3,959.3	11.6	13.2	2.9	1.1
Yukon	0	0	0.0	0.0	26.6	32.2	0.1	0.1	0.0	0.0
N.W.T.	0	3	0.0	0.7	55.7	67.8	0.2	0.2	0.0	4.4
Canada	586	402	100.0	100.0	26,798.3	30,004.0	100.0	100.0	2.2	1.3

In Table 10 the 1988 distribution of injuries shows that Quebec, Ontario and British Columbia were over-represented in the distribution of injuries in comparison to the population distribution. The other jurisdictions were under-represented by varying amounts. Quebec and British Columbia were over-represented again in 1997, along with the Northwest Territories. The injury rate for Canada decreased from 63.5 to 47.0 per 100,000 population. This downward trend was reflected in all jurisdictions except Yukon and the Northwest Territories.

TABLE 10
Pedestrian Injuries by Jurisdiction per 100,000 Population, 1988-1997 and
Comparison of Percentage Distribution of Injuries to Distribution of Population

Jurisdiction	Total Injuries		% Dist. of Injuries		Population (000s)		% Dist. of Population		Injury Rate / 100,000 Pop.	
	1988	1997	1988	1997	1988	1997	1988	1997	1988	1997
Nfld.	231	112	1.4	0.8	575.0	554.4	2.1	1.8	40.2	20.2
P.E.I.	37	37	0.2	0.3	129.3	136.8	0.5	0.5	28.6	27.0
N.S.	319	318	1.9	2.3	897.4	934.8	3.3	3.1	35.5	34.0
N.B.	295	179	1.7	1.3	730.4	754.0	2.7	2.5	40.4	23.7
Qué.	4,997	3,806	29.4	27.0	6,839.6	7,307.6	25.5	24.4	73.1	52.1
Ont.	6,360	5,154	37.4	36.6	9,843.8	11,260.4	36.7	37.5	64.6	45.8
Man.	671	481	3.9	3.4	1,102.1	1,136.8	4.1	3.8	60.9	42.3
Sask.	455	365	2.7	2.6	1,028.1	1,022.2	3.8	3.4	44.3	35.7
Alta.	1,156	1,208	6.8	8.6	2,454.7	2,837.8	9.2	9.5	47.1	42.6
B.C.	2,469	2,371	14.5	16.8	3,115.7	3,959.3	11.6	13.2	79.2	59.9
Yukon	16	20	0.1	0.1	26.6	32.2	0.1	0.1	60.1	62.0
N.W.T.	0	39	0.0	0.3	55.7	67.8	0.2	0.2	0.0	57.5
Canada	17,006	14,090	100.0	100.0	26,798.3	30,004.0	100.0	100.0	63.5	47.0

Table 11 displays the percentages of pedestrian fatalities and injuries by age group according to traffic control at the collision site. Of the total pedestrians fatally injured from 1988 to 1997, 68.9 percent were struck by a motor vehicle where no traffic control was present and 13.5 percent where traffic signals were located. Of those pedestrians injured, 53.1 percent occurred where no traffic control was in place and 24.9 percent occurred at traffic signals. No traffic control present means that pedestrians were crossing between intersections, walking along the side of the road either against or with the traffic, running out into or playing on the street and so on.

TABLE 11
Percentage of Fatalities and Injuries by Traffic Control Type by Age Group
1988-1997 Totals

Fatalities %					Injuries %				
Age Group	No Control Present	Traffic Signals	Other	Total	Age Group	No Control Present	Traffic Signals	Other	Total
00-04	73.7	9.1	17.2	100.0	00-04	71.6	11.9	16.5	100.0
05-09	76.0	8.9	15.1	100.0	05-09	68.5	11.8	19.7	100.0
10-14	75.9	9.9	14.1	100.0	10-14	55.5	22.1	22.3	100.0
15-19	70.0	10.6	19.3	100.0	15-19	52.7	24.9	22.4	100.0
20-24	74.2	9.2	16.6	100.0	20-24	49.6	26.9	23.5	100.0
25-34	71.7	9.1	19.1	100.0	25-34	50.2	27.6	22.2	100.0
35-44	71.6	11.8	16.6	100.0	35-44	49.2	28.1	22.8	100.0
45-54	71.3	11.6	17.1	100.0	45-54	47.7	29.7	22.6	100.0
55-64	66.4	14.6	19.0	100.0	55-64	47.4	30.6	22.0	100.0
65+	63.1	19.2	17.7	100.0	65+	47.9	30.1	21.9	100.0
Unknown	61.0	25.4	13.6	100.0	Unknown	52.9	21.9	25.2	100.0
Total	68.9	13.5	17.5	100.0	Total	53.1	24.9	22.1	100.0

Note: The category "Other" includes stop signs, pedestrian crossovers and other - not stated.

The greatest number of pedestrians were fatally injured in collisions with automobiles (57.7 percent), followed by light trucks and vans (22.0 percent), single unit trucks greater than 4 536 kg (5.2 percent), tractor trailers (4.8 percent), and buses (2.8 percent). Among pedestrians injured, 75.6 percent were involved in collisions with automobiles, 15.2 percent with light trucks and vans, 2.1 percent with buses, and 1.7 percent with heavy trucks. These percentages are displayed in the pie charts in Figures 7 and 8, where the term 'Commercial Vehicles' refers to large single unit trucks greater than 4 536 kg, tractor trailers and buses, that is, vehicles subject to the National Safety Code for Motor Carriers.

FIGURE 7
Pedestrian Fatalities by Vehicle Type
1988-1997 Averages

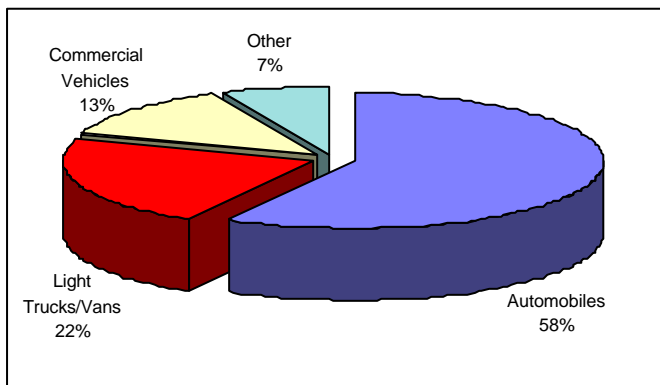
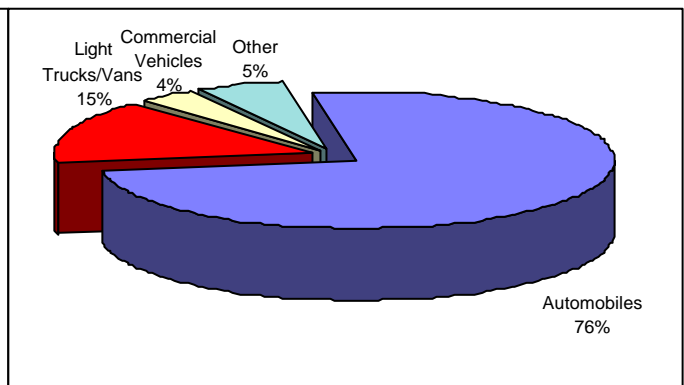


FIGURE 8
Pedestrian Injuries by Vehicle Type
1988-1997 Averages



The percentages in these charts were derived based on TRAIID collision report data showing that the particular vehicle struck the pedestrian².

Most pedestrian fatalities occurred while the vehicle was travelling straight ahead, followed by other manoeuvres, turning in either direction and reversing, as shown in Figure 9³. The majority of pedestrian injuries occurred while the vehicle was moving straight ahead, followed by turns in either direction, other manoeuvres, and reversing (Figure 10). Other manoeuvres include overtaking, changing lanes, starting/stopping in traffic, slowing/stopping, starting from parked position, entering parking position, swerving to avoid object, and other (not stated).

FIGURE 9
Fatalities by Vehicle Manoeuvre
1988-1997 Averages

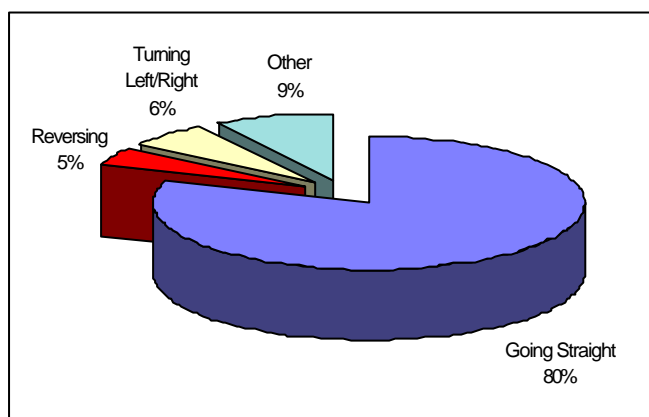
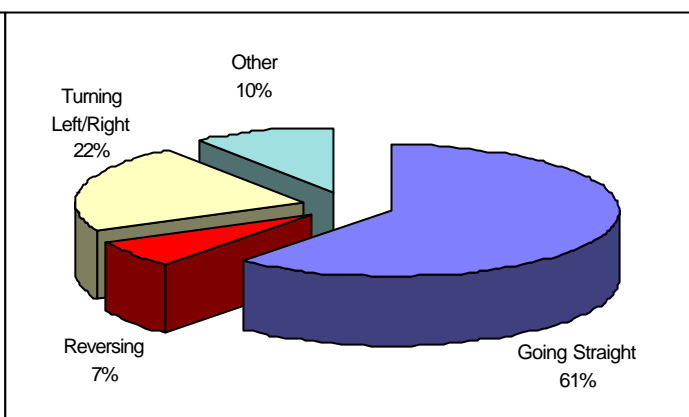


FIGURE 10
Injuries by Vehicle Manoeuvre
1988-1997 Averages



The greatest numbers of pedestrian fatalities occurred between the hours of five p.m. and eight p.m., while the highest frequencies of pedestrian injuries occurred between three and six in the late afternoon based on the 10-year averages. Distributions of pedestrian fatalities and injuries by time of day were not prepared by age group, but obviously, the distributions would vary for different age groups.

From 1988 to 1997, pedestrian fatalities occurred most frequently in the late summer and fall months of August to December which may be attributable to the shortening of daylight hours for the last three months of the year. Injuries occurred most frequently during the months of September to January. The months with the lowest numbers of pedestrian fatalities and injuries were April and July, respectively. This data was reviewed by age group, and the distribution of fatalities and injuries by month for certain age groups varies significantly from the distribution of the aggregate of all age groups.

Table 12 presents the percentage distribution of fatalities and injuries by urban and rural areas by age groups. In the Traffic Accident Information Database (TRAID), the variable 'Road Classification' (i.e., Urban/Rural) is an indicator of population density, hence traffic density, adjacent to the collision site. Urban is defined as metropolitan roads, streets and other urban areas, or a speed limit at the collision site of 60 km/h or less. Rural includes primary or secondary highways, as well as local roads, or a speed limit at the collision site exceeding 60 km/h. For example, on a multilane highway such as the 401, which passes through the city of Toronto, the classification would be rural, even though a collision might occur within the city's geographic boundaries.

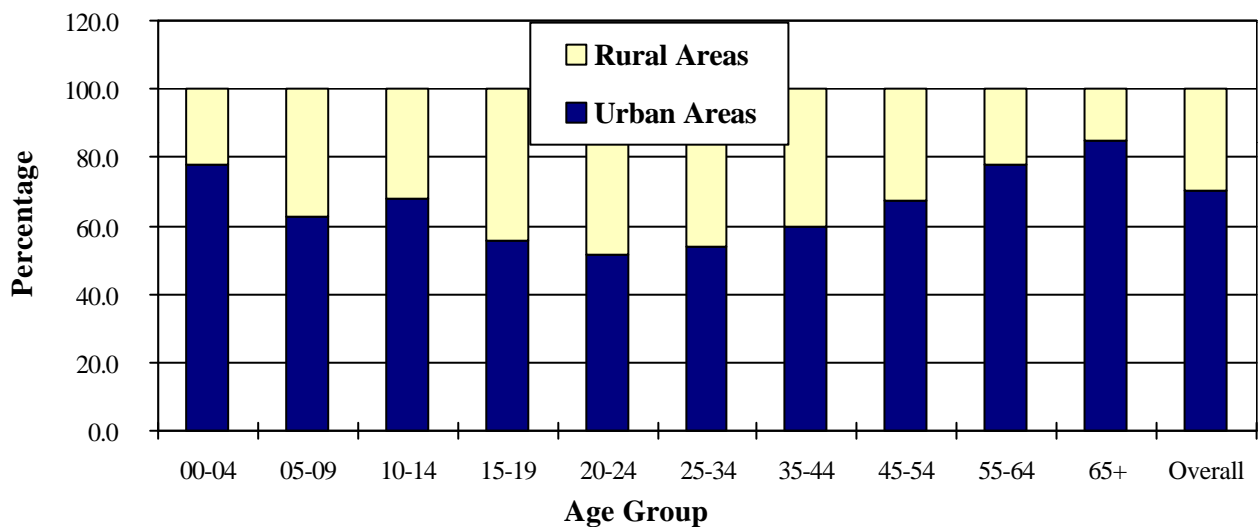
The data used to prepare this table and chart require some notes. On a number of collision reports, the variable was left blank and was classed as unknown. The unknowns were not used in the percentage distribution, as they were deemed insignificant⁴.

The majority of pedestrian fatalities and injuries occurred in urban areas, however, in the 15-19, 20-24 and 25-34 age groups, the percentage shares of fatalities in urban and rural areas were more evenly split. Figure 11 shows the percentage distribution of fatalities with the urban/rural split by age group. Injuries were not displayed in a chart showing an urban/rural split, because the distribution varies only marginally by age group.

TABLE 12
Percentage Distribution of Fatalities and Injuries by Urban/Rural Areas by Age Group
Based on 10-Year Totals

	00-04	05-09	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Overall
FATALITIES - Urban Areas	77.7	62.5	68.1	55.5	51.8	53.9	59.9	67.5	78.0	85.1	70.3
- Rural Areas	22.3	37.5	31.9	44.5	48.2	46.1	40.1	32.5	22.0	14.9	29.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
INJURIES - Urban Areas	94.7	95.4	95.1	92.3	92.5	93.1	93.5	94.5	95.4	97.1	94.3
- Rural Areas	5.3	4.6	4.9	7.7	7.5	6.9	6.5	5.5	4.6	2.9	5.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

FIGURE 11
Percentage Distribution of Fatalities by Urban/Rural Areas by Age Group
10-Year Totals



Tables 13 and 14 are included for their importance in showing the numbers of pedestrian fatalities and injuries not only by age group but also by pedestrian action. The totals include data where the age of the pedestrian was unknown and they are lower than the totals in Tables 1 and 2 by the amounts for Manitoba in 1989, which were not available by age group. The tables show that there are a number of steps that pedestrians could take to protect themselves from injury or death. Some of these precautions include wearing bright or reflective clothing, taking more care in crossing at intersections with and without traffic controls, avoiding crossing where the pedestrian has no right of way, avoiding running into the road or playing on the road, and always walking against the traffic where there are no sidewalks.

TABLE 13
Pedestrian Fatalities by Pedestrian Action by Age Group
10-Year Totals 1988-1997

Pedestrian Action	00-04	05-09	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
Intersection-No Control	17	53	42	43	46	83	76	81	124	471	1,048
Other Actions	35	30	14	80	92	151	118	84	73	156	842
Intersection: No R-O-W	9	31	26	42	28	54	49	47	75	290	662
Unknown	16	24	16	31	27	51	40	39	46	84	385
Walk with Traffic	5	7	16	45	35	47	53	27	32	54	325
Intersection: R-O-W	3	14	7	8	4	10	16	21	28	156	268
Running into Road	29	54	18	20	12	22	20	14	15	31	235
Other	10	17	11	17	21	30	24	27	19	27	205
Safety Zone	9	9	9	15	17	23	17	12	21	49	181
Not Available	7	10	7	13	12	23	14	14	16	38	154
Fr Behind Parked Cars	16	27	8	10	4	18	19	12	11	25	152
Walk Against Traffic	0	5	11	17	13	17	18	16	13	33	145
Play/Work on Roadway	1	3	3	11	14	20	12	21	15	12	117
Between Intersections	2	5	1	3	0	8	5	6	6	31	67
Playing on Roadway	27	15	2	2	1	2	2	0	0	0	51
Total	186	304	191	357	326	559	483	421	494	1,457	4,837

R-O-W = Right of Way

TABLE 14
Pedestrian Injuries by Pedestrian Action by Age Group
10-Year Totals 1988-1997

Pedestrian Action	00-04	05-09	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65+	Total
Intersection: R-O-W	475	1,274	2,426	2,799	2,637	4,613	3,669	2,999	2,629	4,376	28,661
Intersection-No Control	597	2,724	2,884	2,601	1,875	3,231	2,699	2,010	1,999	4,024	25,606
Intersection: No R-O-W	452	2,233	2,982	2,654	1,826	2,798	2,274	1,512	1,392	2,377	21,229
Other Actions	550	1,152	1,405	2,315	2,207	3,620	2,543	1,612	1,234	1,625	19,032
Unknown	434	987	1,054	1,297	1,053	1,625	1,224	848	705	1,039	11,815
Running into Road	933	2,952	1,823	1,010	549	725	459	221	160	203	9,251
Fr Behind Parked Cars	967	2,477	1,157	722	530	901	647	472	366	545	9,093
Safety Zone	179	296	482	818	651	1,074	732	544	416	755	6,224
Walk with Traffic	55	155	538	1,096	596	820	571	443	324	379	5,173
Other	96	368	401	626	531	926	595	402	235	305	4,665
Not Available	166	464	400	458	349	563	333	243	185	298	3,539
Play/Work on Roadway	72	169	199	241	367	591	407	241	145	81	2,646
Walk Against Traffic	38	85	271	434	266	363	297	214	213	297	2,585
Playing on Roadway	325	610	407	180	63	29	19	10	2	6	1,719
Between Intersections	68	189	195	176	143	188	150	126	108	198	1,686
Total	5,407	16,135	16,624	17,427	13,643	22,067	16,619	11,897	10,113	16,508	152,924

R-O-W = Right of Way

In the above tables⁵, a few new categories were added since the previous edition of this report. The following categories: ‘Other Actions’, ‘Play/Work on Roadway’, ‘Unknown’, and ‘Not Available’, were removed from the category ‘Other’. No explanations are provided for these new categories, since they appear here as they do in TRAIID. Only the new category ‘Play/Work on Roadway’ is self-explanatory.

Figure 12 shows the trends in pedestrian fatalities compared to total road user fatalities from 1988 to 1997. Pedestrian fatalities decreased 31.4 percent over the 10-year period, while total road user fatalities decreased 26.2 percent from 1988.

FIGURE 12
Trends in Pedestrian and Total Road User Fatalities
1988-1997

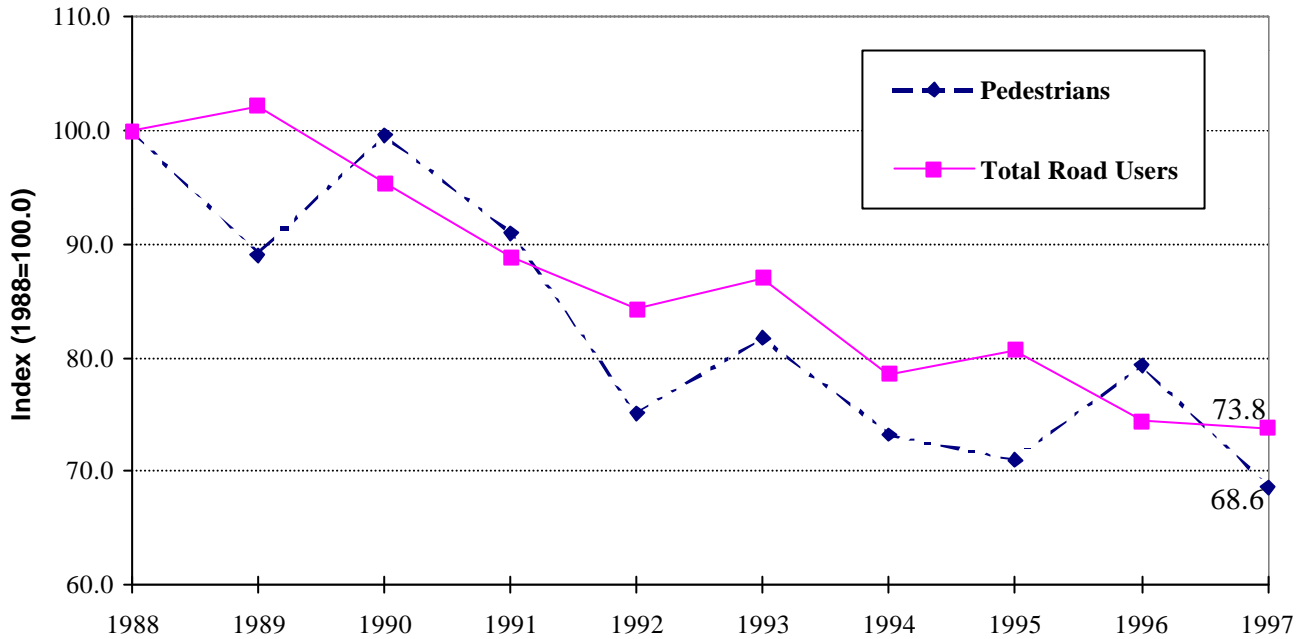


Table 15 shows the number of fatally injured pedestrians tested for alcohol consumption. A total of 295 fatally injured pedestrians were tested for alcohol use in 1997. Of those tested, 132 pedestrians (44.7 percent) had been drinking and 110 (37.3 percent) had a blood alcohol concentration (BAC) greater than the 'legal limit' of 80 mg %. This 'legal limit' only applies to operators of motor vehicles. Of the 110 fatally injured pedestrians who were impaired, 18 had BACs from 81 mg % to 150 mg % and 92 had BACs greater than 150 mg %. For those fatally injured pedestrians who had been drinking, the average BAC was 210 mg %, considerably higher than the average BAC of fatally injured drinking drivers at 167 mg %.

Alcohol was most frequently detected among pedestrians age 26-35. Intoxication rates by age group for fatally injured pedestrians tested were as follows: 16 to 19 years, 54 percent; 20 to 25 years, 54 percent; 26 to 35 years, 62 percent; 36 to 45 years, 52 percent; 46 to 55 years, 39 percent; and over 55 years, 16 percent. Among fatally injured pedestrians, 46.4 percent of males tested had been drinking with 40.7 percent having a BAC above 80 mg %. In contrast, 40.7 percent of fatally injured female pedestrians tested showed evidence of alcohol, with 29.1 percent having a BAC above 80 mg %.

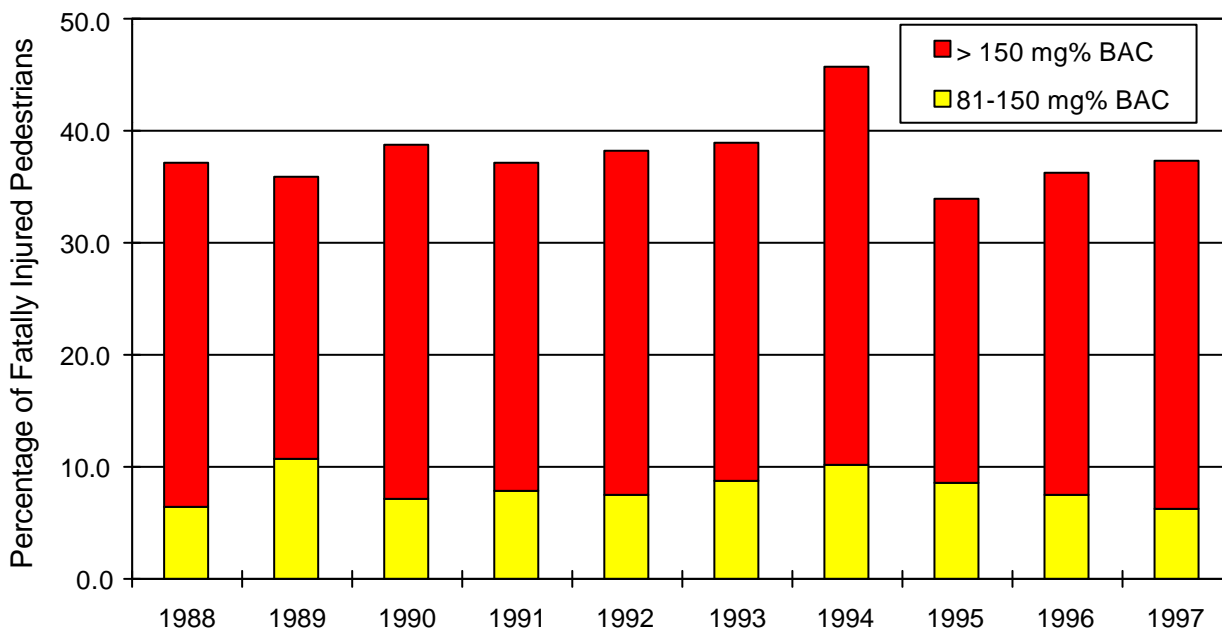
TABLE 15
Alcohol Use Among Fatally Injured Pedestrians
Canada 1988-1997

Year	Number Tested	Zero BAC		1-80 mg% BAC		81-150 mg% BAC		> 150 mg% BAC	
		Number	% of Tested	Number	% of Tested	Number	% of Tested	Number	% of Tested
1988	358	208	58.1	17	4.7	23	6.4	110	30.7
1989	368	209	56.8	27	7.3	39	10.6	93	25.3
1990	356	195	54.8	23	6.5	25	7.0	113	31.7
1991	347	188	54.2	30	8.6	27	7.8	102	29.4
1992	296	166	56.1	17	5.7	22	7.4	91	30.7
1993	301	169	56.1	15	5.0	26	8.6	91	30.2
1994	295	145	49.2	15	5.1	30	10.2	105	35.6
1995	303	178	58.7	22	7.3	26	8.6	77	25.4
1996	325	194	59.7	13	4.0	24	7.4	94	28.9
1997	295	163	55.3	22	7.5	18	6.1	92	31.2

Table 15 was partially reproduced from the publication “*Alcohol Use Among Drivers and Pedestrians Fatally Injured in Motor Vehicle Accidents, Canada 1997*” TP 11759 prepared for Transport Canada by the Traffic Injury Research Foundation.

Figure 13 shows the percentage of fatally injured pedestrians who had a blood alcohol concentration greater than 80 mg% (the sum of the percentages in the 81-150 mg% BAC and the >150 mg% BAC in the above table).

FIGURE 13
Percentages of Fatally Injured Pedestrians Who Were Legally Impaired
(BAC > 80 mg%)



CONCLUSIONS

Pedestrian fatalities decreased 31.4 percent over the 10-year period, while total road user fatalities decreased 26.2 percent from 1988. The significant decrease in pedestrian fatalities reflects the overall reduction in road user fatalities over the period, and was attributable to a greater awareness of road safety in general.

Even though pedestrian fatalities and injuries have decreased over the 10-year period, the 65+ age group still accounts for the greatest number of pedestrian fatalities – 25 percent of males and 38 percent of females based on the 10-year averages. Considering that in 1988, 9.2 percent of the male population were in the 65+ age group rising to 10.5 percent in 1997, and 12.6 percent of the female population were in the same age group in 1988 increasing to 13.9 percent by 1997, the fatalities in this age group were significantly over-represented for both genders. Among road safety professionals, this is cause for concern, which will increase in the future as Canada's population ages.

Most pedestrian fatalities in the 65+ age group occurred in urban areas (85 percent) and most occurred at intersections, either controlled or uncontrolled (63 percent). The safety of seniors crossing the street could easily be promoted through the medical community, discussed in a doctor/patient relationship, or seniors groups. City planners and traffic engineers/specialists could also be more aware of the duration of walk signals in areas populated by seniors.

As mentioned above, 45 percent of fatally injured pedestrians tested for alcohol had an average blood alcohol concentration of 210 mg %. This BAC was considerably higher than the average BAC of fatally injured drinking drivers at 167 mg %. Clearly, these fatally injured pedestrians posed a grave danger not only to themselves, but also to the unfortunate drivers who struck these pedestrians.

Footnotes:

- ¹ Unless otherwise indicated, Manitoba data were not included as they were not available with any breakdown (age, gender), and pedestrians of unknown gender were also not included.
- ² The province of Alberta does not report this data so the charts are based on data from eleven jurisdictions. It was assumed that the missing province would reflect approximately the same percentages as the national picture.
- ³ The province of Alberta does not report the variable 'Vehicle Manoeuvre'.
- ⁴ The province of Alberta does not report this data so the charts are based on data from eleven jurisdictions. It was assumed that the missing province would reflect approximately the same percentages as the national picture.
- ⁵ Alberta began reporting this variable in 1991 and no attempt was made to distribute their 1988 to 1990 data to the elements of Pedestrian Action. For these three years, their data were included as 'Not Available'. Nova Scotia and the Northwest Territories discontinued reporting this data element in 1991, so their data is also included as 'Not Available'.

Sources: Transport Canada, Road Safety and Motor Vehicle Regulation, TRRID database.
Transport Canada and the Traffic Injury Research Foundation of Canada, "Alcohol Use Among Drivers and Pedestrians Fatally Injured In Motor Vehicle Accidents, Canada 1997", TP 11759.
Statistics Canada, 91-002-XIB Quarterly Demographic Statistics.

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