

***Hamilton City***  
***Road Safety Report***  
***2004 to 2008***



Performance Information  
NZ Transport Agency  
Private Bag 3081  
183 Collingwood St  
HAMILTON



Ph. (07)958 7840  
Fax. (07)958 7866

Web: [www.nzta.govt.nz](http://www.nzta.govt.nz)

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## **Introduction and general information**

The New Zealand Transport Agency provides information on road safety to its stakeholders and the public. It also has responsibility for promoting safety and sustainability in land transport, among a variety of other functions. This road safety report is an example of information supplied by the New Zealand Transport Agency.

This report helps identify road safety issues in Hamilton City area ('the city') by presenting tables or graphs of:

- numbers and trends in reported crashes and casualties
- characteristics and types of crashes and casualties
- factors contributing to crashes
- locations with bad crash records
- characteristics of crashes on council authority roads

The information is intended to assist road controlling authorities, the New Zealand Police and others in evaluating the safety performance of the road network in Hamilton City. Comparison with other cities, districts or regions elsewhere in the country is included.

Researchers, students, and organisations with an interest in road safety will also find the information useful.

### **Source of crash information**

This report uses data from the New Zealand Transport Agency's crash database. This database includes all crashes involving injury and non-injury for which Police reports have been completed and forwarded to the New Zealand Transport Agency. Mostly five-year data (2004 to 2008) has been used, but 10-year data (1999 to 2008) has been used to analyse trends.

### **Council authority peer groups**

Traffic crash patterns and features for an area can depend on the traffic and roading characteristics of that area. The most useful comparisons are made with other areas or authorities with similar characteristics, rather than with the whole country. The data for the city is compared with a peer group of similar council authorities (Group A) along with data for all New Zealand.

The peer group used for comparison with Hamilton City is Group A which consists of major urban areas with some rural areas on the outskirts. (Population over 100000 and/or rural crashes less than 30 percent). Council authorities included in this group are listed in Figure 1.4.

## **Definitions of urban and rural**

Data has been separated for urban and rural (open) roads through this report because each has a distinctly different pattern of crashes. In this report urban roads are defined as all those with a speed limit of 70 km/h or less, however it should be noted that some locations which have been speed limit zoned might be more appropriately defined as rural but are included in urban zones.

## **Definition of statistically significant**

A number of graphs include a comparison between the road controlling authority, all New Zealand and a similar peer group. These graphs can include an indication as to whether the difference is statistically significant. For the purposes of this report statistically significant means that a difference of this size is unlikely to be due to chance. Significance is noted at the 5% level ( $P < 0.05$ ), this means that the observed result would occur by chance in only 1 in 20 similar situations.

## **Road user compliance data**

The Ministry of Transport collects information on road user compliance with traffic law. This information includes speed surveys, occupant restraint use surveys and cycle helmet use surveys. Information about these surveys is available on Ministry of Transport web site.

The appropriate web addresses are as follows:

Speed Surveys                    <http://www.transport.govt.nz/research/SpeedSurveys/>

Safety belts                      <http://www.transport.govt.nz/research/safetybeltstatistics/>

Cycle helmets                    <http://www.transport.govt.nz/research/cyclehelmets2009/>

The information is also distributed quarterly in the Ministry of Transport publication Road safety progress.

The Ministry of Transport also conducts public attitude surveys. These have been undertaken annually since 1994. They evaluate attitudes to road safety issues, primarily alcohol-impaired driving and speed. Surveys are carried out in May and June of each year by trained interviewers who conduct interviews with respondents in their homes. The sample is chosen to be representative of the New Zealand adult population, and includes men and women aged 15 and over from towns, cities and rural areas throughout New Zealand.

The results of these surveys are available from:

<http://www.transport.govt.nz/research/PublicAttitudestoRoadSafety-Survey/>

### **General explanatory notes**

1. Crash and casualty information in this report generally includes data for both council roads and state highways. Some tables and charts can separate this information, however figures 8.1–8.26 provide information for council roads only.
2. Crash and casualty rates are based on 2008 populations estimates updated from the 2006 census, traffic flows from the year 2008, and the average of five year crash data (2004–2008).
3. Traffic flows are based on Road Asset Maintenance and Management (RAMM) data from December 2008. As different road controlling authorities update flow data in RAMM at different times some data will be more up to date than other data, hence caution should be exercised when comparing traffic flow based crash rates in one authority with those of other authorities particularly as the traffic flow data (VKT) used in the calculations can not be considered definitive. Comparisons should be considered as indicative only.
4. With four to five categories of road for each council authority, some categories will only have short lengths of road. This may cause significant variation in the calculated crash and casualty rates.
5. The crash numbers include all those within the road controlling authority. The crash numbers used in the crash rate section can, however, vary slightly from the remainder of the document as only 'on road' crashes can be used. These are crashes on roads that have traffic volume information recorded. Crashes that occurred in car parks, reserves, beaches etc. are excluded.



6. The severity of a crash is determined as the most severely injured casualty in the crash. Injury severity is classified as fatal, serious, or minor as follows:
  - Fatal:** Injuries that result in death within 30 days of a crash.
  - Serious:** Fractures, concussion, internal injuries, crushing, severe cuts and lacerations, severe general shock necessitating medical treatment, and any injury involving removal to and detention in hospital.
  - Minor:** Injuries which are not serious but which require first aid, or cause discomfort or pain to the person injured, eg sprains and bruises.
  
7. Ethnicity of road users involved in crashes can now be recorded on traffic crash reports, although some reports may not include this data. Figures 3.25 and 3.26 shows the ethnicity of casualties, where known. Ethnicity is divided into five different groups. Only data for 2004 to 2008 is available. The graph includes all casualties irrespective of culpability.

NOTE: Ethnicity data should be treated with caution as the data can be considered subjective and incomplete.
  
8. For the licence status grouping in Figures 3.27 and 3.28 the 'no/wrong licence' group includes drivers who have never held a licence or have an expired or wrong class licence. This graph includes all drivers irrespective of injury or culpability.
  
9. See appendix for detailed descriptions of:
  - crash movement types and crash movement groupings (for Figures 4.1–4.4)
  - grouping of factors contributing to crashes (for Figures 5.1–5.14)
  
10. Blackspot sites listed in Figures 9.1 and 9.3 are listed by the total cost of crashes at the site and are listed regardless of any remedial treatments. Site were initially selected on the basis of 3 reported crashes and then the sites listed were limited to those with a higher number of injury crashes and over a defined social cost, which is indicated on each figure.
  
11. Alarm crash sites in section 9 as Figures 9.4 to 9.6 are crash sites that have shown a statistically significant increase (at the 95 percent level of confidence) in reported crashes in 2008 compared with the previous five years (2003 to 2007). The sites are initially selected on the basis of 3 or more reported crashes at the sites. Sites are listed regardless of any recent remedial treatments and they may already be under investigation for treatment.



# *Crash Rates and Costs*



## Crash reporting rates

The ratio of 'reported serious injuries' can be assessed by comparing seriously injured casualty numbers from Police crash reports to hospital admissions, given that a serious injury is generally one requiring hospital attention.

Figure 1.1 below indicates the serious injury reporting rate for each region.

**Figure 1.1 Reporting rate serious injuries to hospital admissions**

Region	2004	2005	2006	2007	2008
Northland	34%	30%	28%	34%	31%
Auckland	22%	17%	19%	16%	16%
Waikato	51%	40%	38%	49%	46%
Bay of Plenty	28%	32%	37%	38%	27%
Gisborne	28%	31%	26%	29%	26%
Hawkes Bay	73%	80%	75%	59%	60%
Taranaki	66%	55%	65%	77%	41%
Manawatu-Wanganui	50%	38%	34%	35%	34%
Wellington	61%	68%	61%	73%	64%
Nelson-Marlborough	63%	44%	52%	54%	49%
West Coast	43%	53%	55%	59%	53%
Canterbury	37%	47%	42%	50%	45%
Otago	107%	99%	85%	77%	53%
Southland	74%	78%	103%	73%	53%
<b>New Zealand</b>	<b>39%</b>	<b>36%</b>	<b>35%</b>	<b>37%</b>	<b>34%</b>

This is the ratio of the number of persons with serious injuries in reported crashes divided by the number of persons admitted to hospital with serious injuries.

These variations in reporting rates need to be considered when viewing the trends in crashes and casualties shown in this report.

**Note: These values should be considered indicative only.**

**Figure 1.2 Crashes per 100 million vehicle kilometres travelled**

	Council roads		State Highways	
	Urban	Rural	Urban	Rural
Hamilton City	43	21	41	18
Group A	37	26	37	14
All NZ	35	27	30	16

**Figure 1.3 Casualties per 100 million vehicle kilometres travelled**

	Council roads		State Highways	
	Urban	Rural	Urban	Rural
Hamilton City	54	25	52	24
Group A	46	37	50	19
All NZ	45	39	42	25

Figure 1.4 Peer group crash and casualty rates

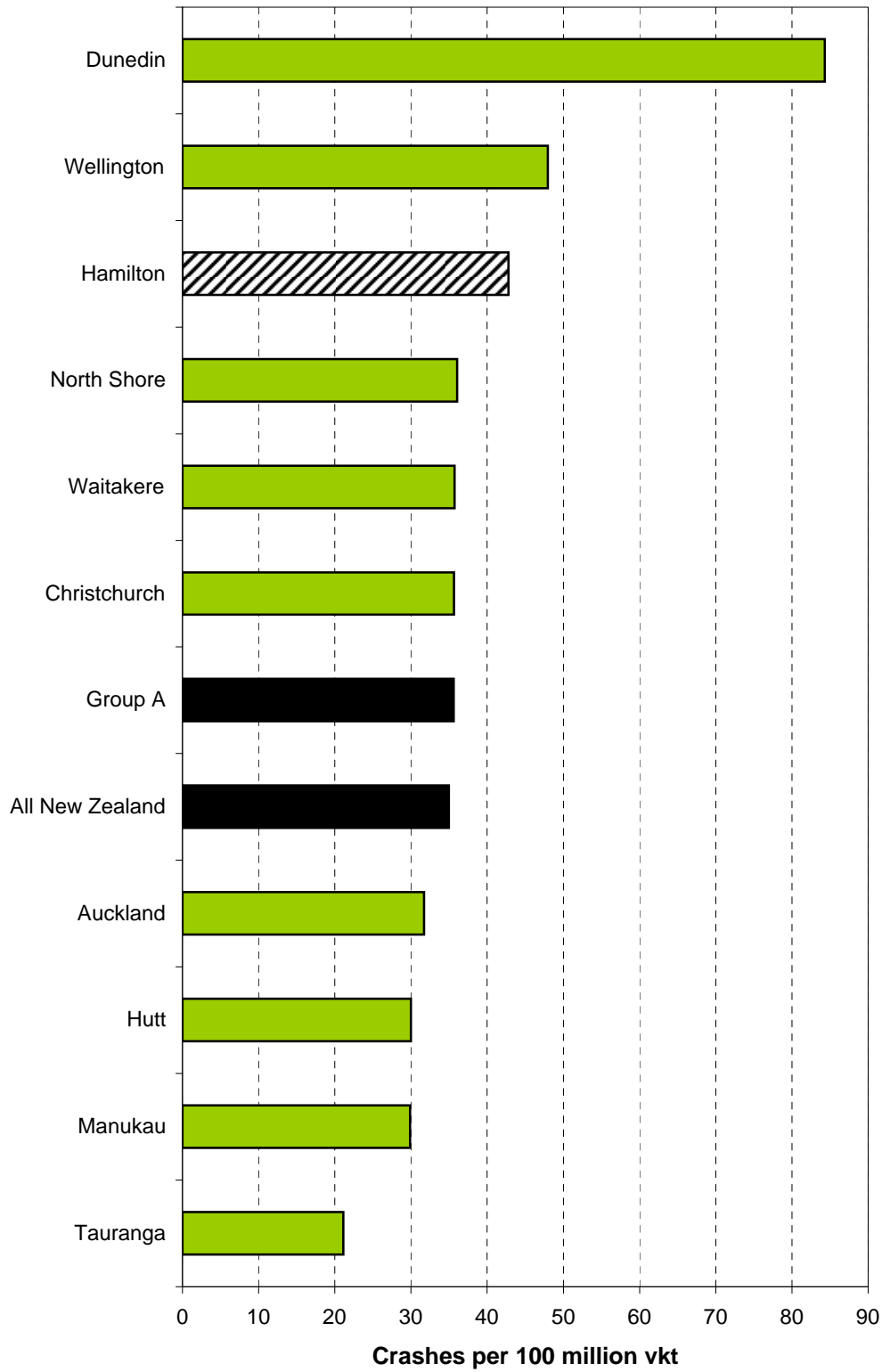
Group A												
City or District	Crashes per					Casualties per					2008 Population	% of rural crashes
	10,000 Population (5 year average)	100 million vehicle kilometres travelled				10,000 Population (5 year average)	100 million vehicle kilometres travelled					
		Council roads		State Highways			Council roads		State Highways			
		Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural		
Auckland	26	32	16	90	14	33	39	26	123	19	438100	21
Christchurch	25	36	22	21	13	31	44	31	27	17	368900	10
Dunedin	40	84	67	60	20	58	119	96	87	32	122900	24
Hamilton	23	43	21	41	18	29	54	25	52	24	138500	10
Hutt	20	30	50	21	8	25	37	71	24	11	101600	23
Manukau	17	30	24	56	11	24	39	36	80	17	362000	22
North Shore	20	36	17	151	11	25	45	23	193	15	223000	19
Tauranga	15	21	17	19	8	20	26	27	27	13	110500	15
Waitakere	20	36	22	29	18	27	47	30	37	23	201400	14
Wellington	23	48	28	52	10	27	55	28	71	14	192800	15
Group A	23	36	27	35	13	29	45	38	47	18	2259700	17
All New Zealand	132	35	27	30	16	36	44	39	41	24	4267970	41

Group A : Major urban areas with some rural areas on the outskirts. (Population > 97500 and/or rural crashes less than 30 percent).

Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (2004-2008) and December (2005) VKT.

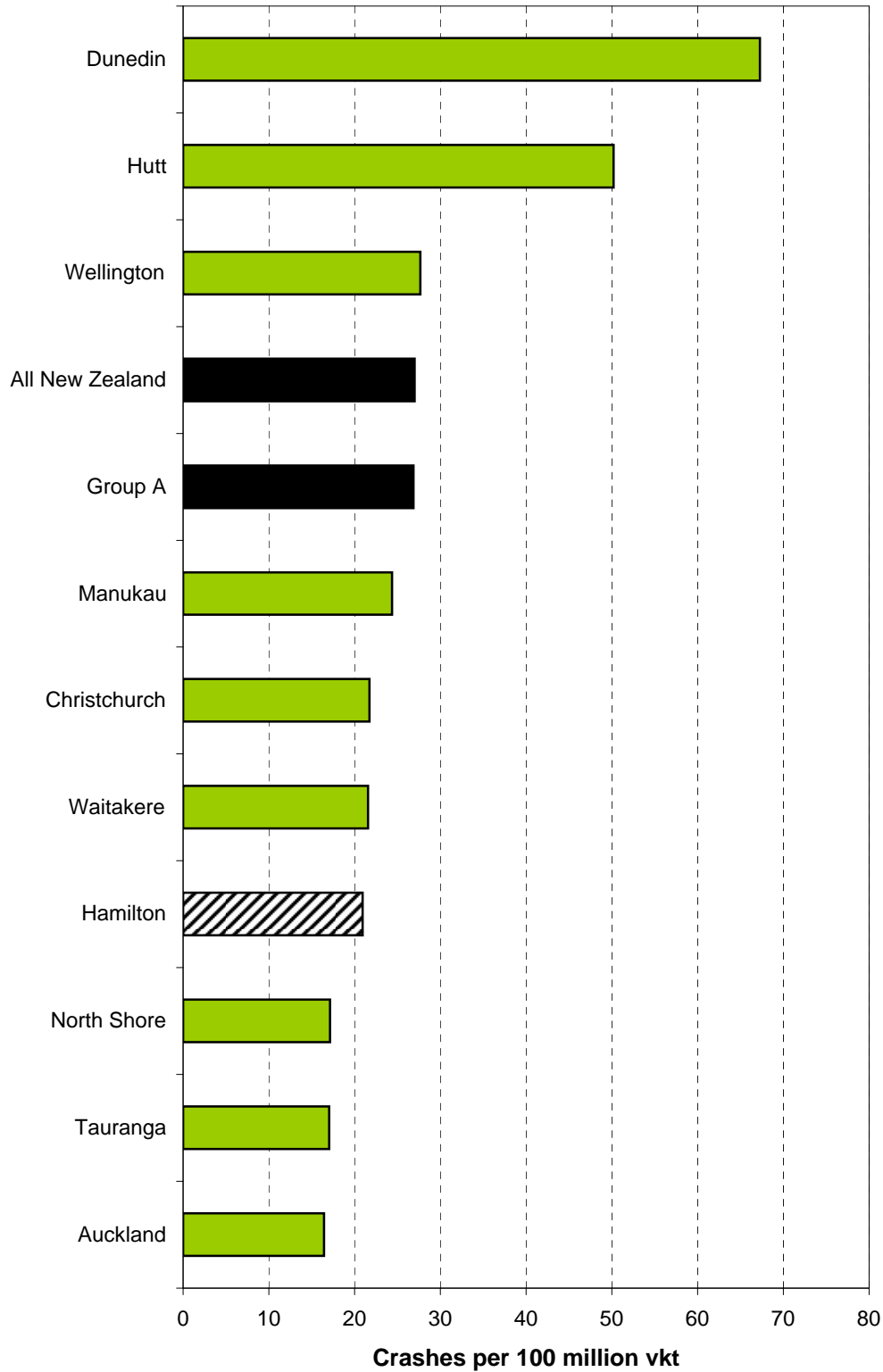
Crashes and casualties per 10,000 population are based on five year average crash data (2004-2008) and Statistics NZ 2008 population estimates.

**Figure 1.5 Crashes per 100 million vehicle-kilometres travelled - urban council roads**

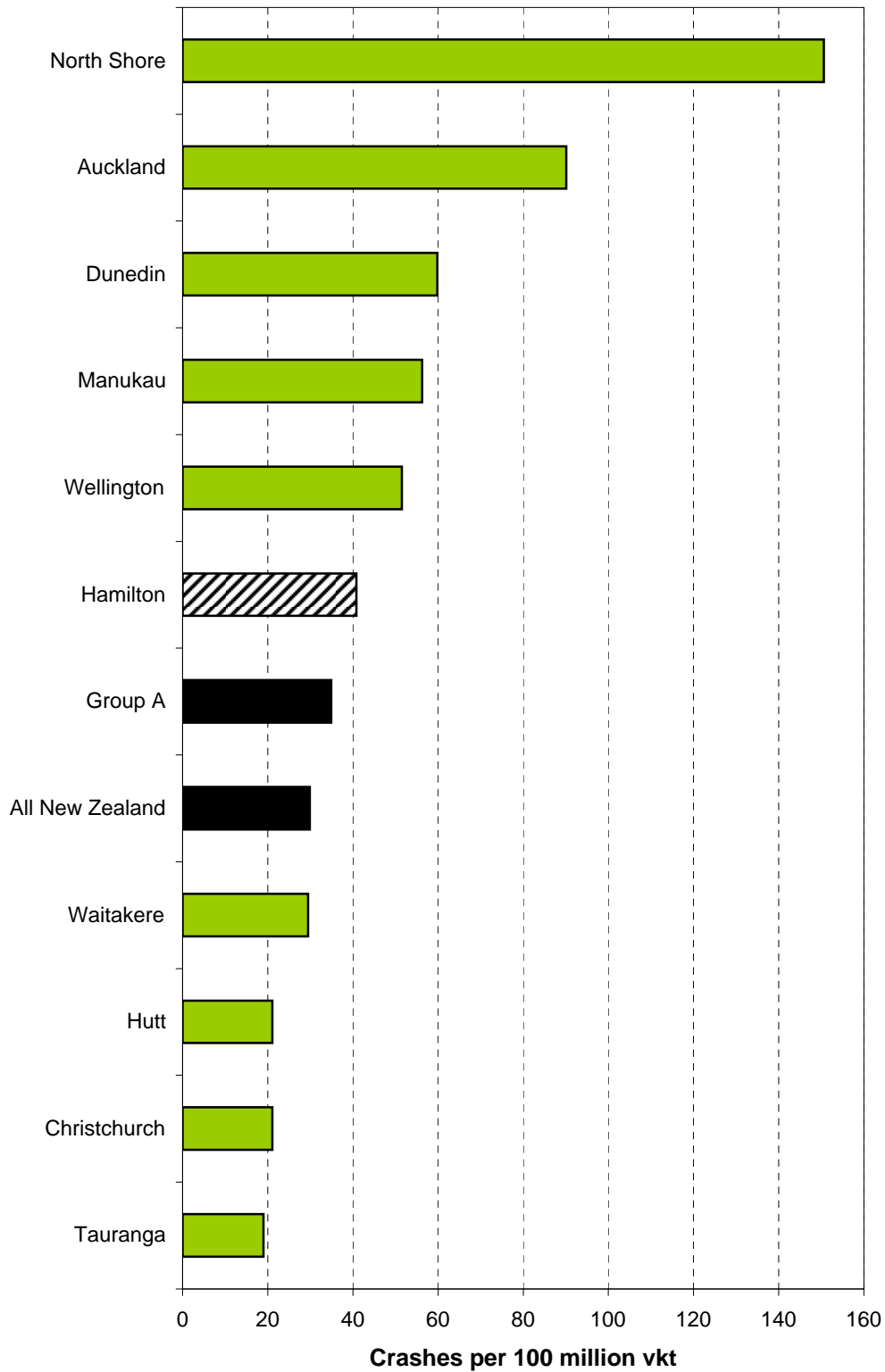




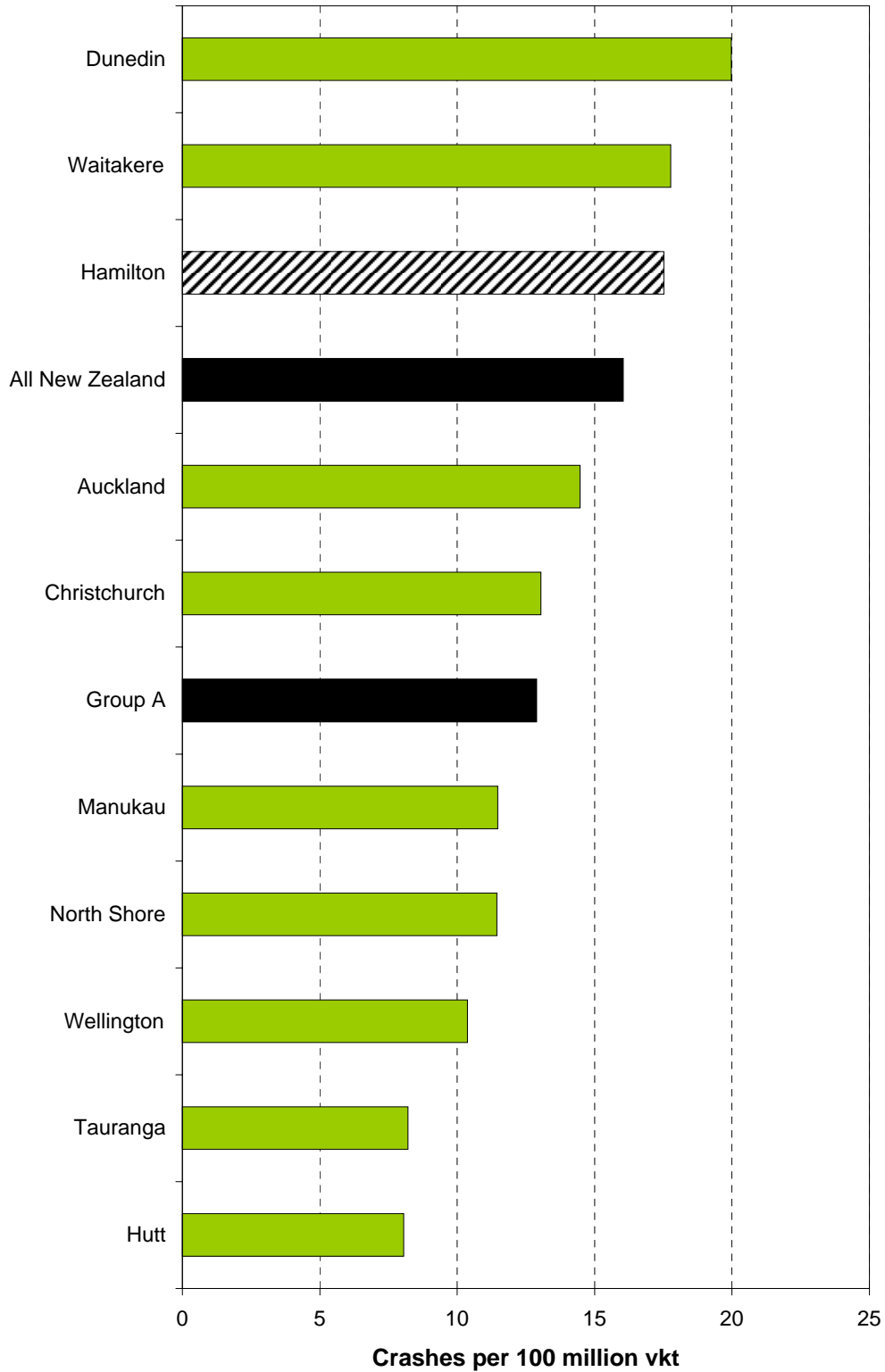
**Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural council roads**



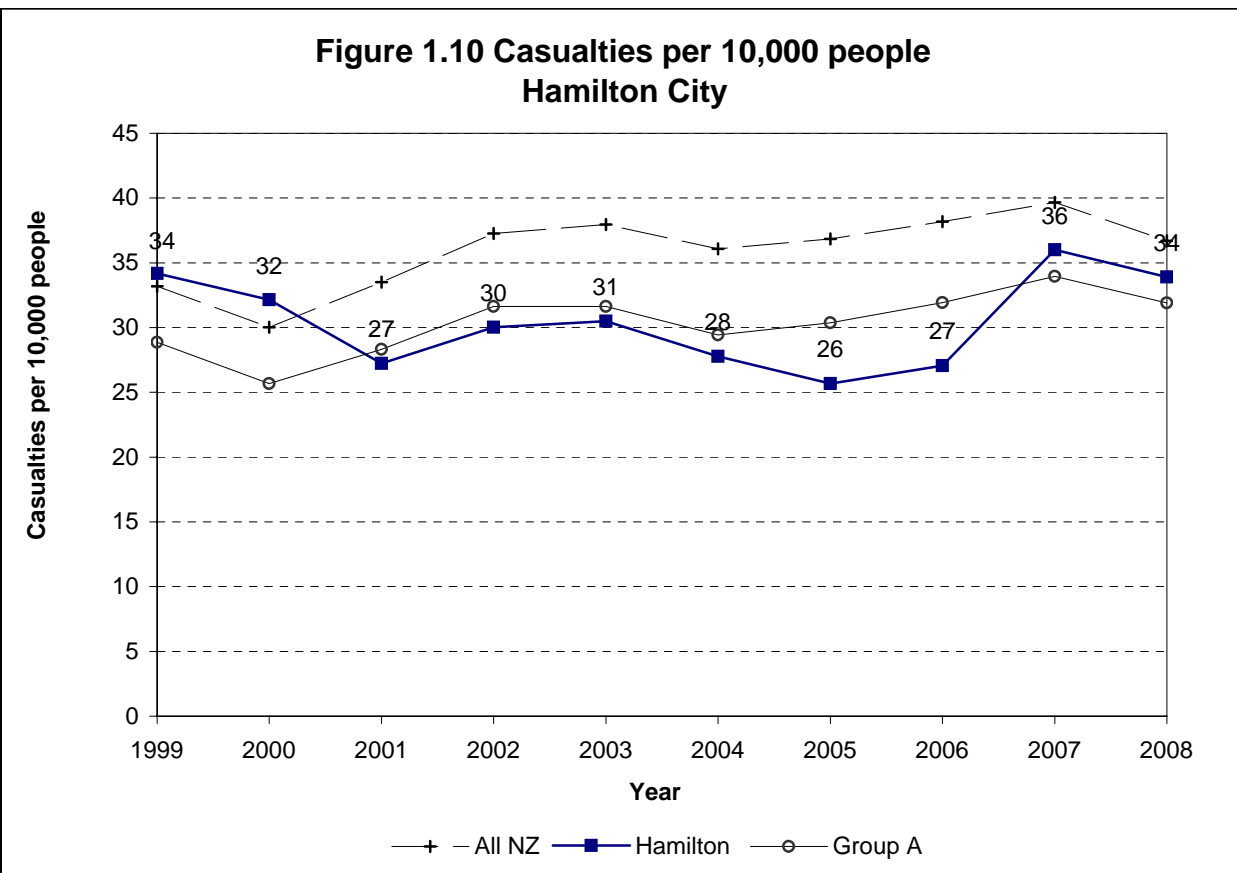
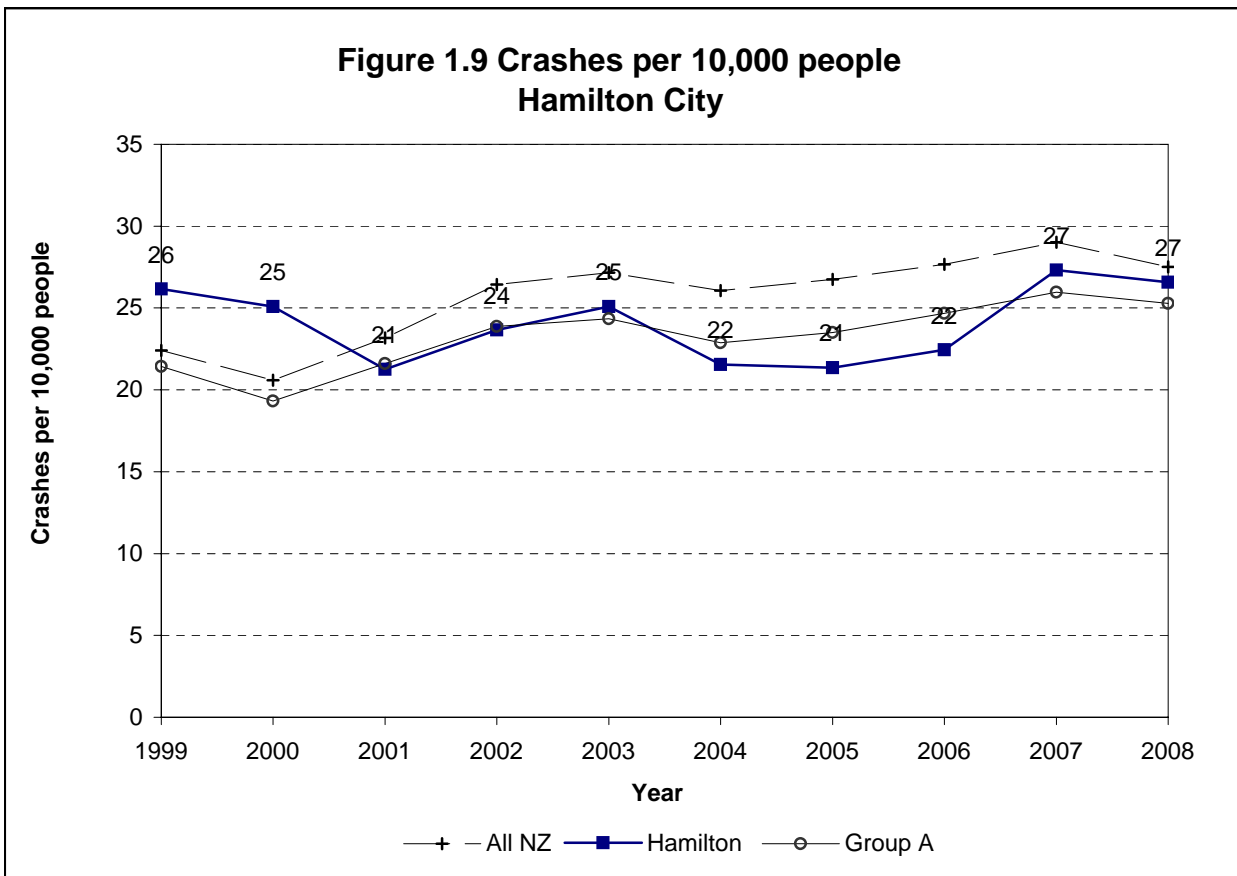
**Figure 1.7 Crashes per 100 million vehicle kilometres travelled  
- urban state highways**



**Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways**







**Figure 1.11 Social cost of crashes in Hamilton City in 2008**

		Hamilton City	New Zealand
Council roads	urban	\$63.90	\$1,636.63
	rural	\$3.98	\$962.97
State Highways	urban	\$9.59	\$303.03
	rural	\$6.60	\$1,390.98
<b>Total</b>		<b>\$84.07</b>	<b>\$4,293.62</b>

Note: Crash costs are in \$ millions

The social costs of a road crash and the associated injuries include a number of different elements:

- Loss of life and life quality
- Loss of output due to temporary incapacitation
- Medical costs
- Legal costs
- Property damage costs

The average value of a loss of life due to a road crash is estimated by the amount of money the New Zealand population would be willing to pay for a safety improvement that would result in the expected avoidance of one premature death. This is the willingness to pay based value of statistical life or VOSL. The VOSL was established at \$2 million in 1991. This has been indexed to the average hourly earnings (ordinary time) to express the value in current dollars. The updated VOSL is \$3.35 million (in June 2008 dollars). Based on several international and New Zealand studies on VOSL, the average loss of life quality for permanent impairments due to a serious and a minor injury were estimated to be 10% and 0.4% of the VOSL respectively.

Crash rates can vary due to reporting rates. These are adjusted on a regional basis in this report by comparing with hospitalisation rates.

The other social cost components are estimated based on a number of studies conducted during the early to mid-1990s and are updated for price changes by indexing to an appropriate price index.

For a detail discussion on this, please refer to 'The social cost of road crashes and injuries: June 2008 update', available at the Ministry of Transport's website:

<http://www.transport.govt.nz/assets/NewPDFs/NewFolder/Social-Cost-June-2008-update-final.pdf>

The average social cost per reported crash (in June 2008 dollars) are estimated at:

Rural fatal crash	\$4,199,000
Rural serious crash	\$776,000
Rural minor crash	\$90,000
Urban fatal crash	\$3,635,000
Urban serious crash	\$659,000
Urban minor crash	\$81,000

These values include an allowance for non-reported injury crashes, and the totals in Fig. 1.11 also include an allowance for non-injury crashes.



# *Crash Counts*





Figure 2.1: Crash numbers and severity 2004 to 2008 - whole City

	2004	2005	2006	2007	2008	Total	%	Group A
Fatal crashes	3	10	6	6	1	26	2%	1%
Serious crashes	33	36	35	44	55	203	13%	15%
Minor crashes	237	231	255	317	307	1347	85%	84%
Total injury crashes	273	277	296	367	363	1576	100%	100%
Non-injury crashes	947	1214	1213	1116	880	5370		

Figure 2.2: Crash numbers and severity 2004 to 2008 - urban roads

	2004	2005	2006	2007	2008	Total	%	Group A
Fatal crashes	1	9	4	6	1	21	1%	1%
Serious crashes	30	32	29	37	48	176	12%	15%
Minor crashes	214	212	233	280	279	1218	86%	84%
Total injury crashes	245	253	266	323	328	1415	100%	100%
Non-injury crashes	861	1146	1131	1010	806	4954		

Figure 2.3: Crash numbers and severity 2004 to 2008 - rural roads

	2004	2005	2006	2007	2008	Total	%	Group A
Fatal crashes	2	1	2	0	0	5	3%	2%
Serious crashes	3	4	6	7	7	27	17%	14%
Minor crashes	23	19	22	37	28	129	80%	84%
Total injury crashes	28	24	30	44	35	161	100%	100%
Non-injury crashes	86	68	82	106	74	416		

Figure 2.4: Casualty numbers and severity 2004 to 2008 - whole City

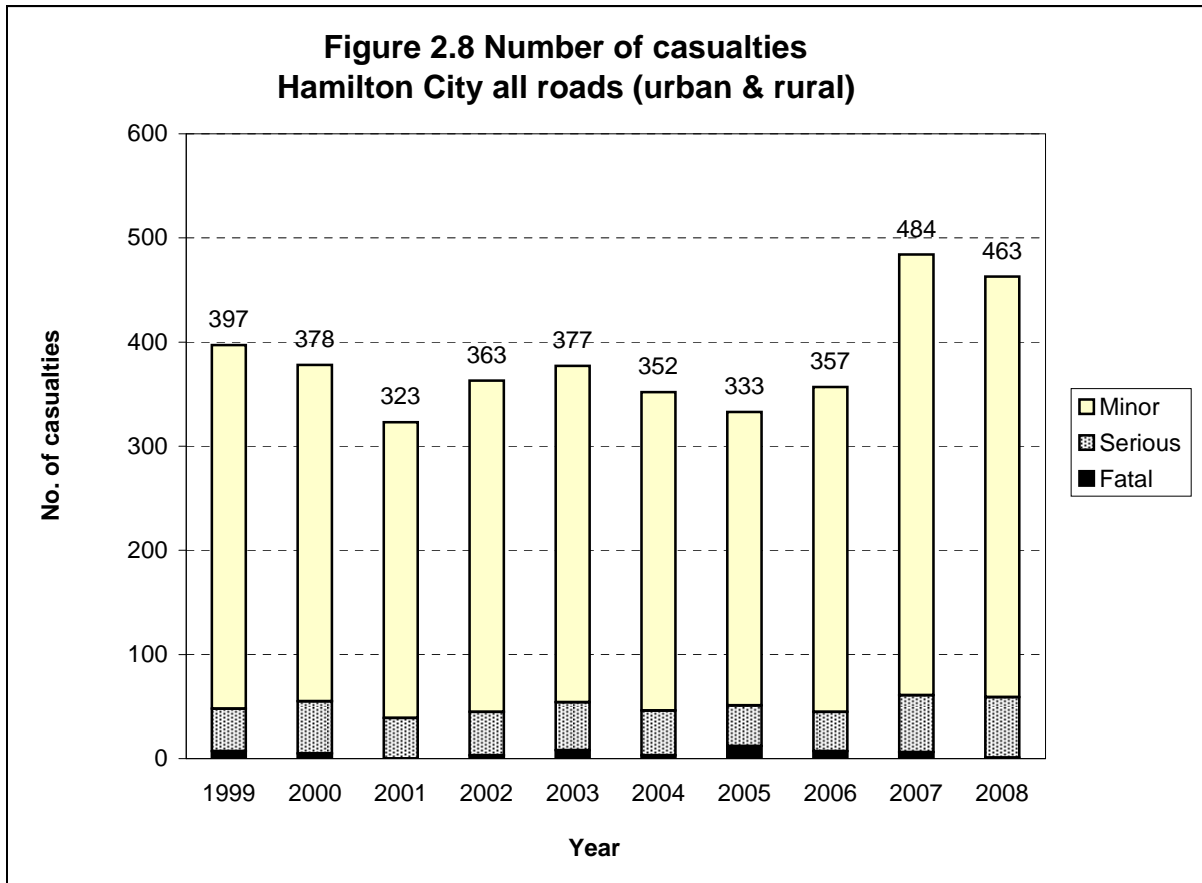
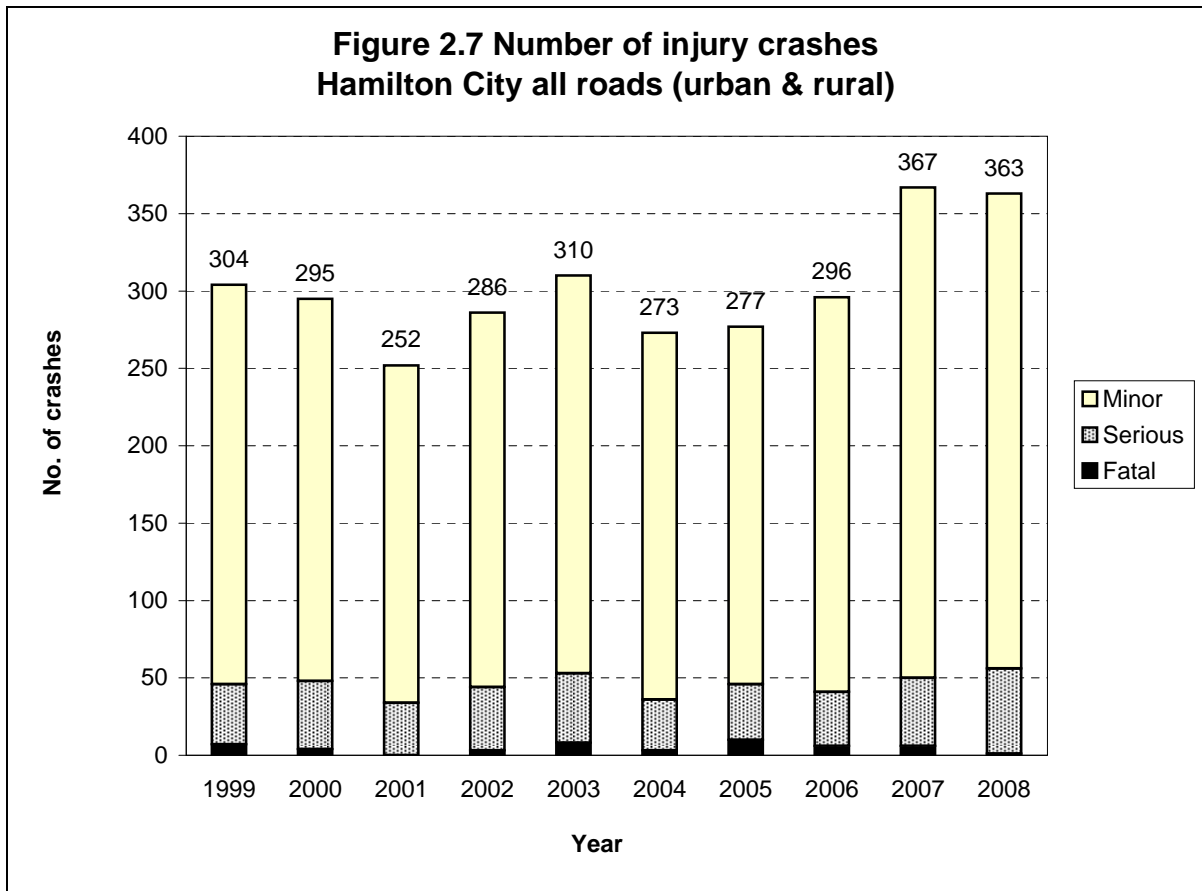
	2004	2005	2006	2007	2008	Total	%	Group A
Fatal casualties	3	12	7	6	1	29	1%	1%
Serious casualties	43	39	38	55	58	233	12%	13%
Minor casualties	306	282	312	423	404	1727	87%	86%
Total casualties	352	333	357	484	463	1989	100%	100%

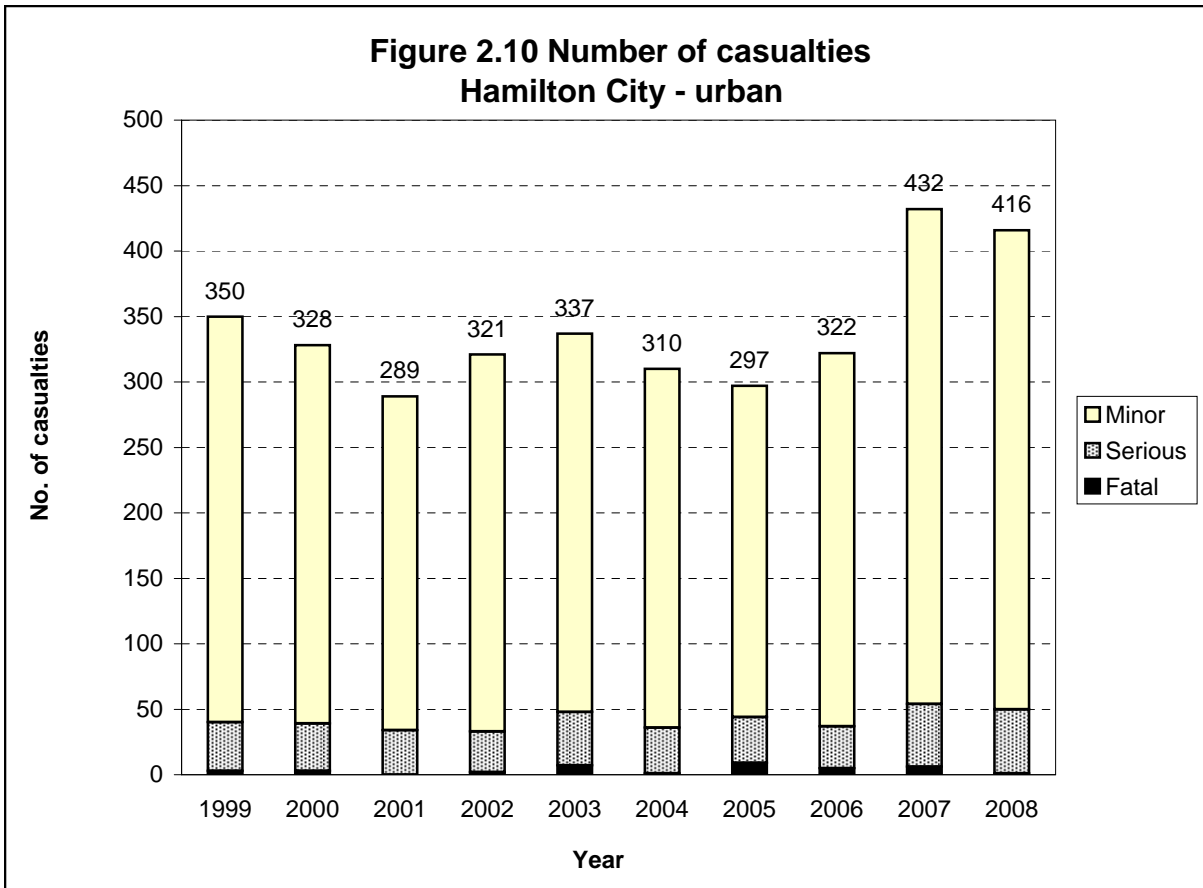
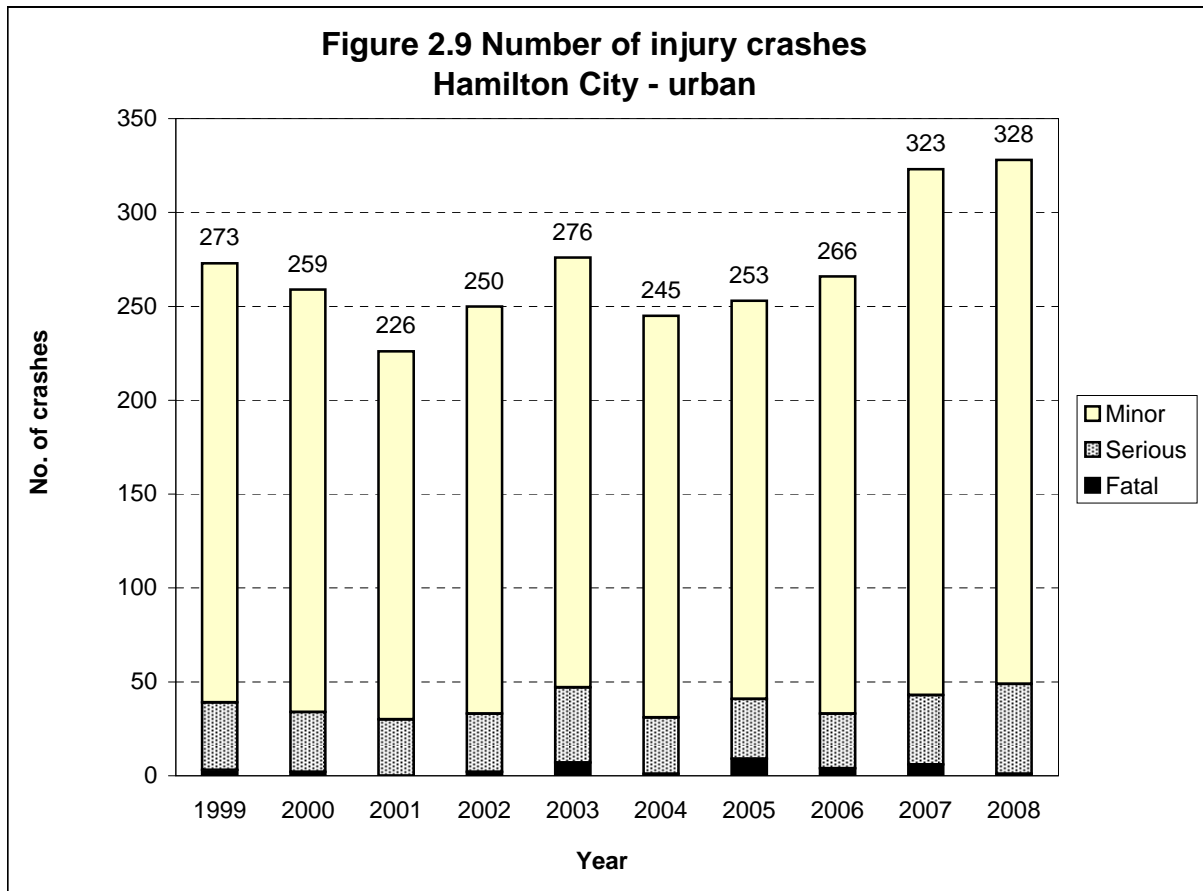
Figure 2.5: Casualty numbers and severity 2004 to 2008 - urban roads

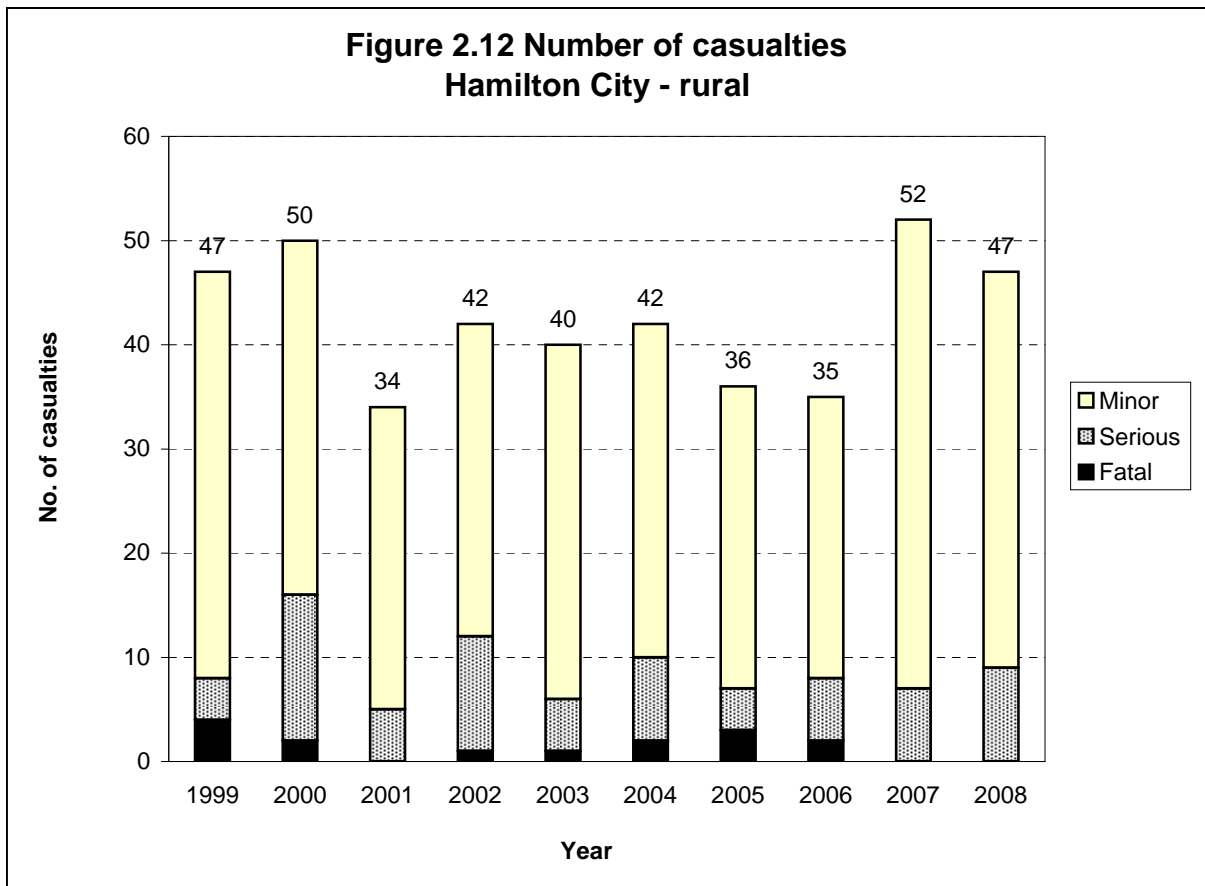
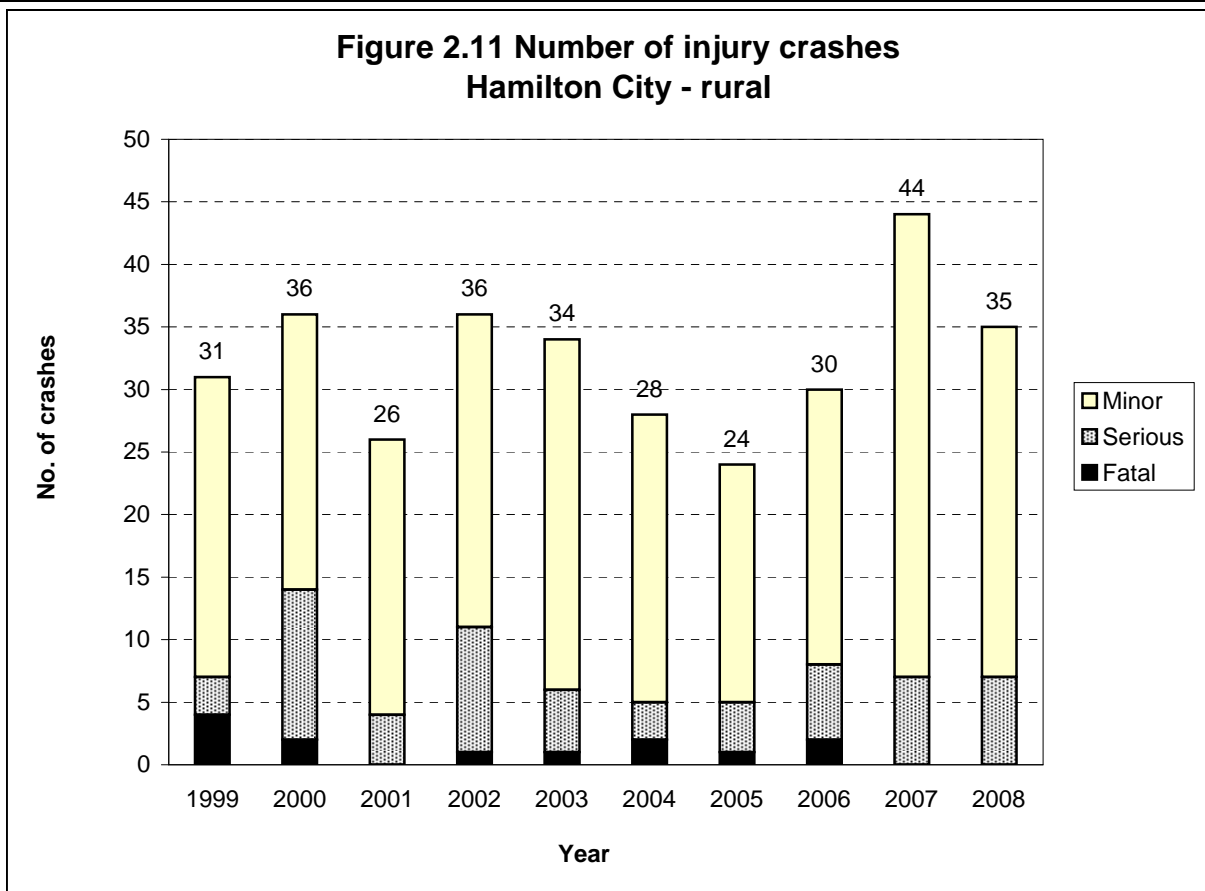
	2004	2005	2006	2007	2008	Total	%	Group A
Fatal casualties	1	9	5	6	1	22	1%	1%
Serious casualties	35	35	32	48	49	199	11%	13%
Minor casualties	274	253	285	378	366	1556	88%	86%
Total casualties	310	297	322	432	416	1777	100%	100%

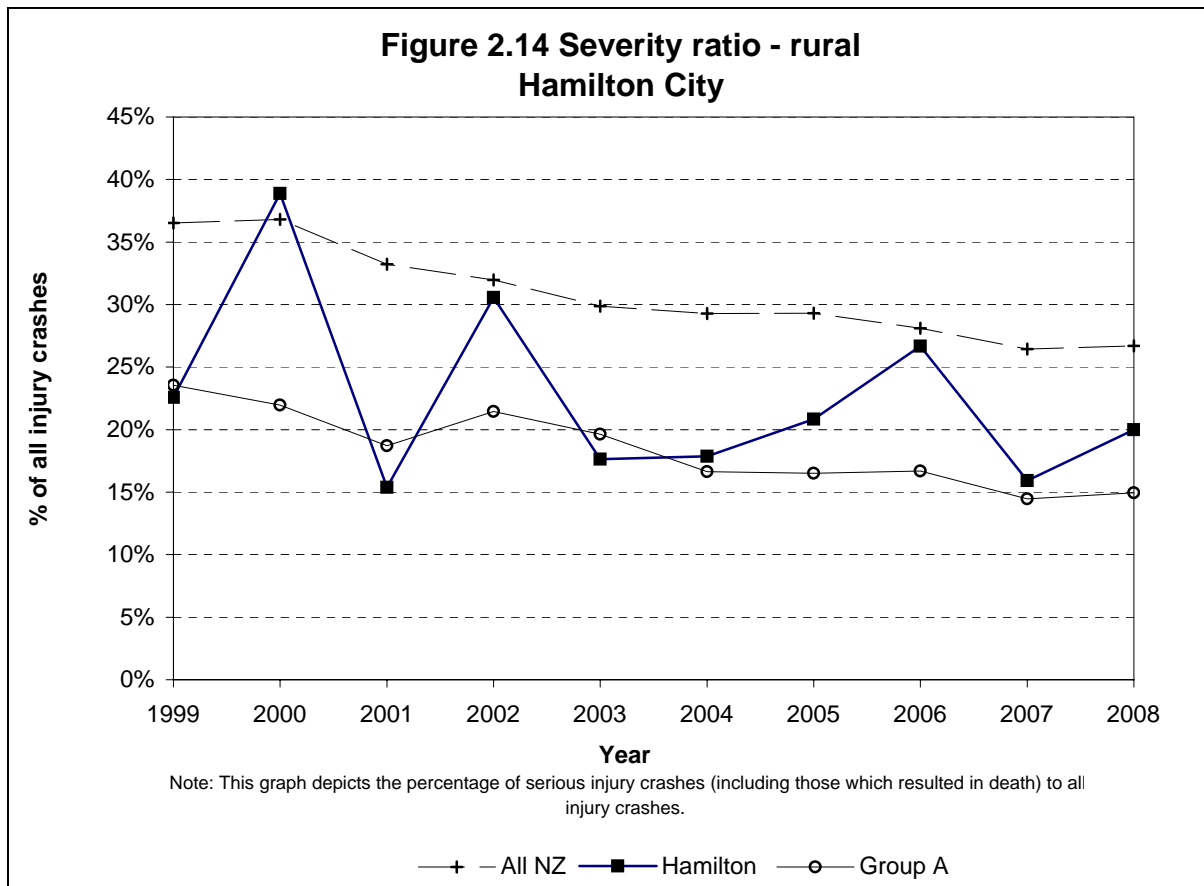
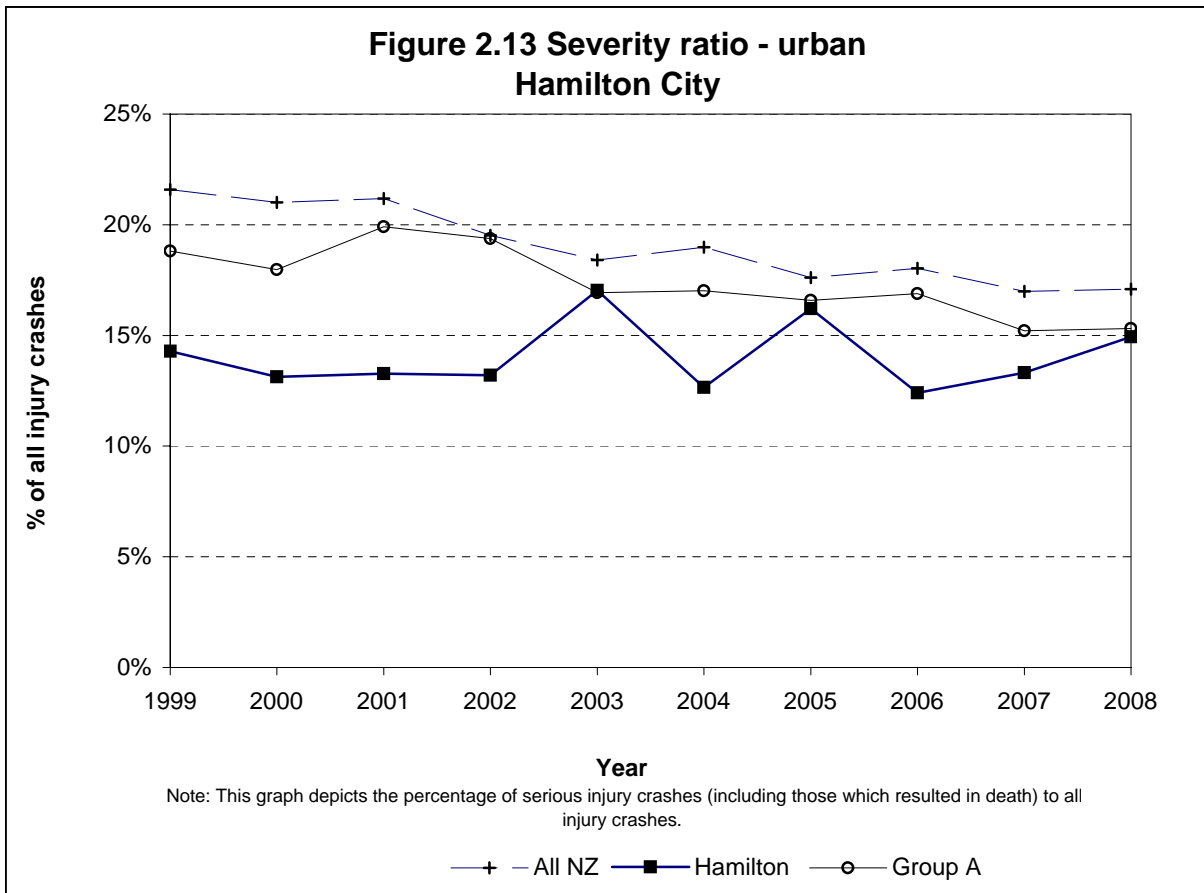
Figure 2.6: Casualty numbers and severity 2004 to 2008 - rural roads

	2004	2005	2006	2007	2008	Total	%	Group A
Fatal casualties	2	3	2	0	0	7	3%	2%
Serious casualties	8	4	6	7	9	34	16%	13%
Minor casualties	32	29	27	45	38	171	81%	85%
Total casualties	42	36	35	52	47	212	100%	100%









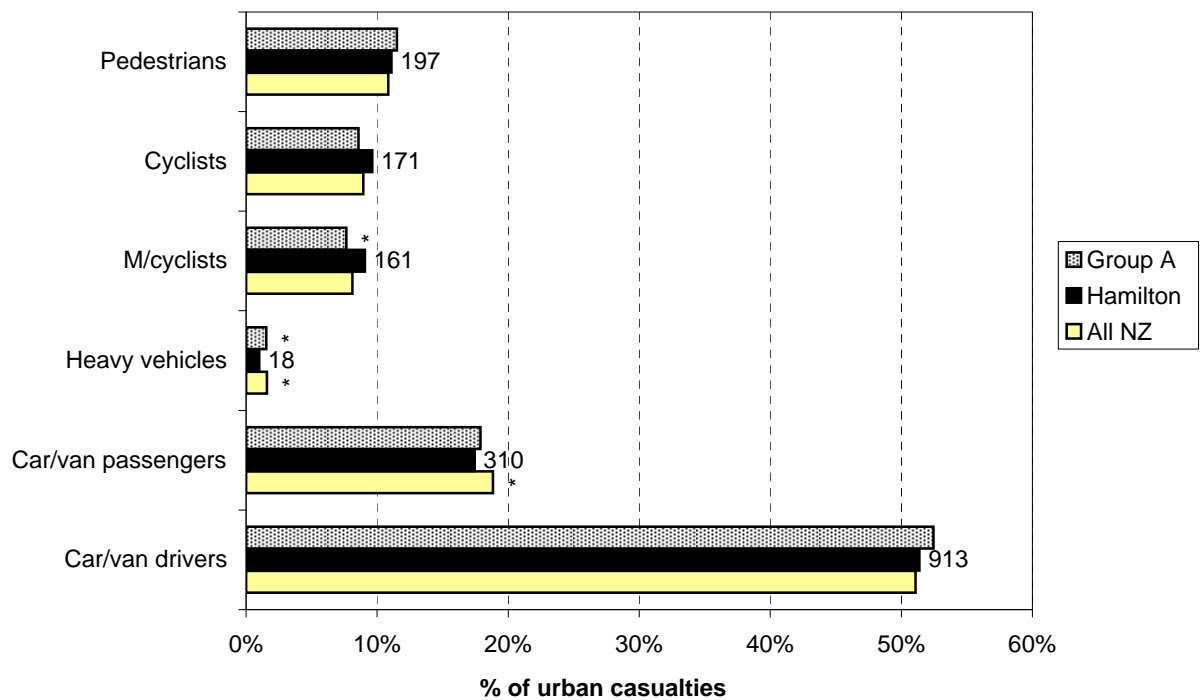


# *Road User Statistics*



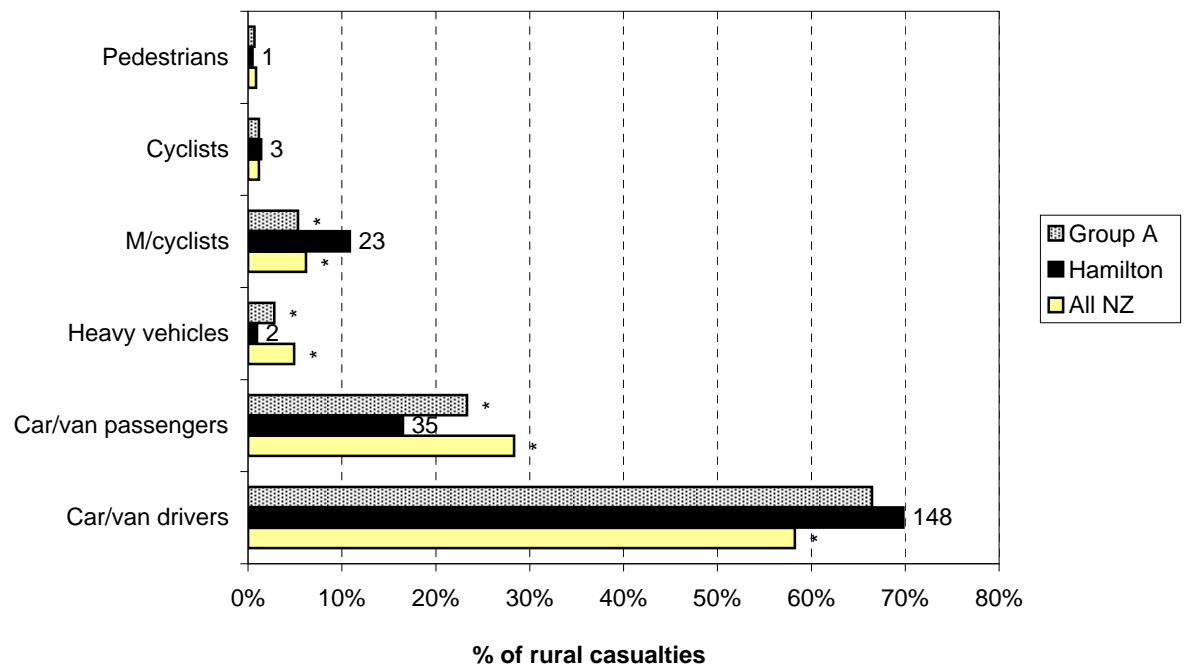


**Figure 3.1 Road user casualties - urban  
Hamilton City (2004-2008)**



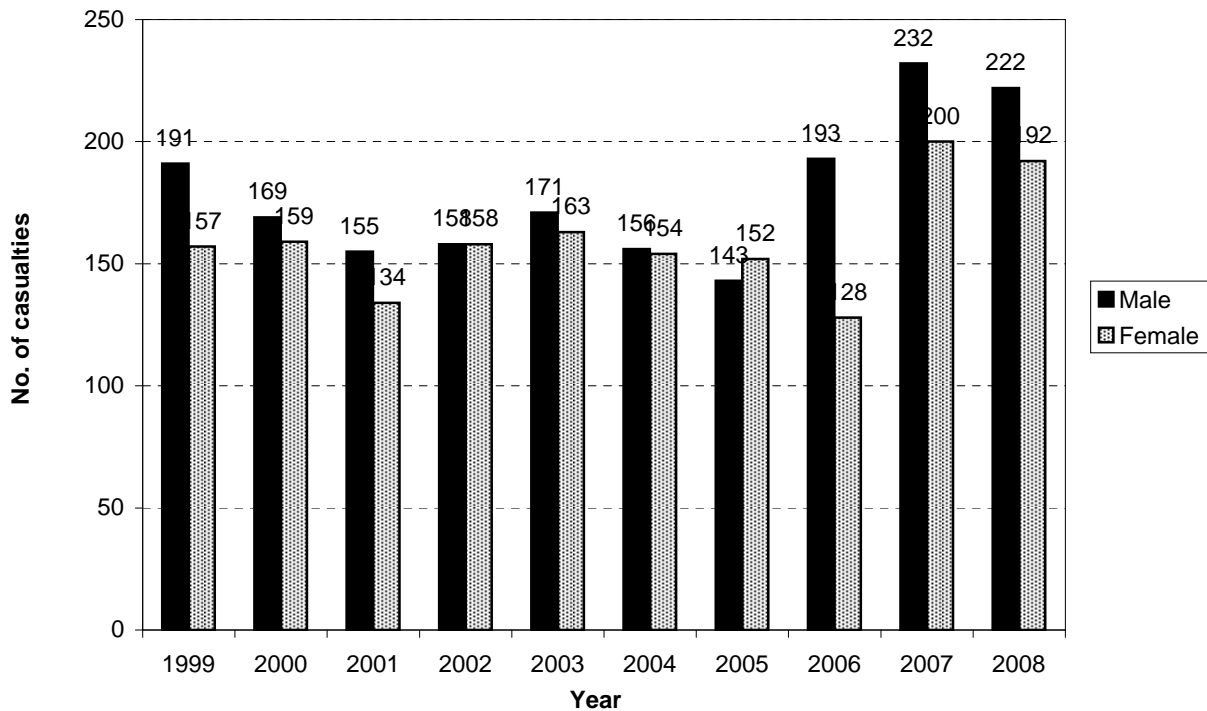
Note: While the graph plots percentages, the number of casualties is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.2 Road user casualties - rural  
Hamilton City (2004-2008)**



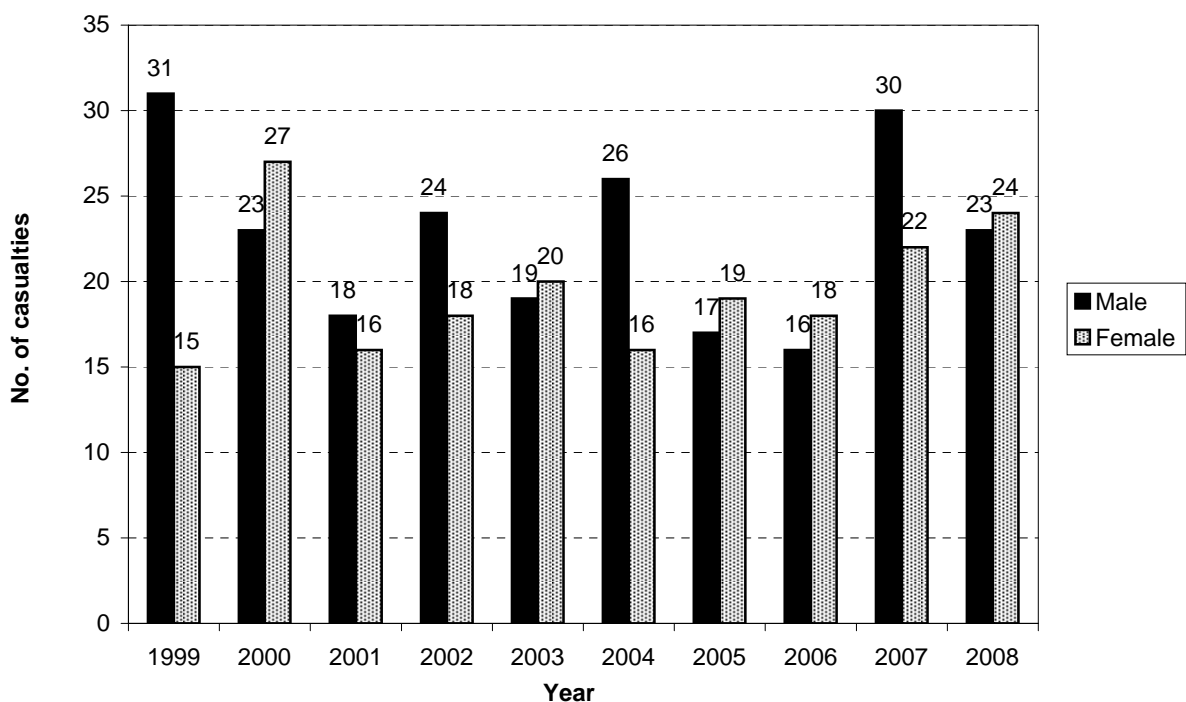
Note: While the graph plots percentages, the number of casualties is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.3 Male/female casualties - urban  
Hamilton City**



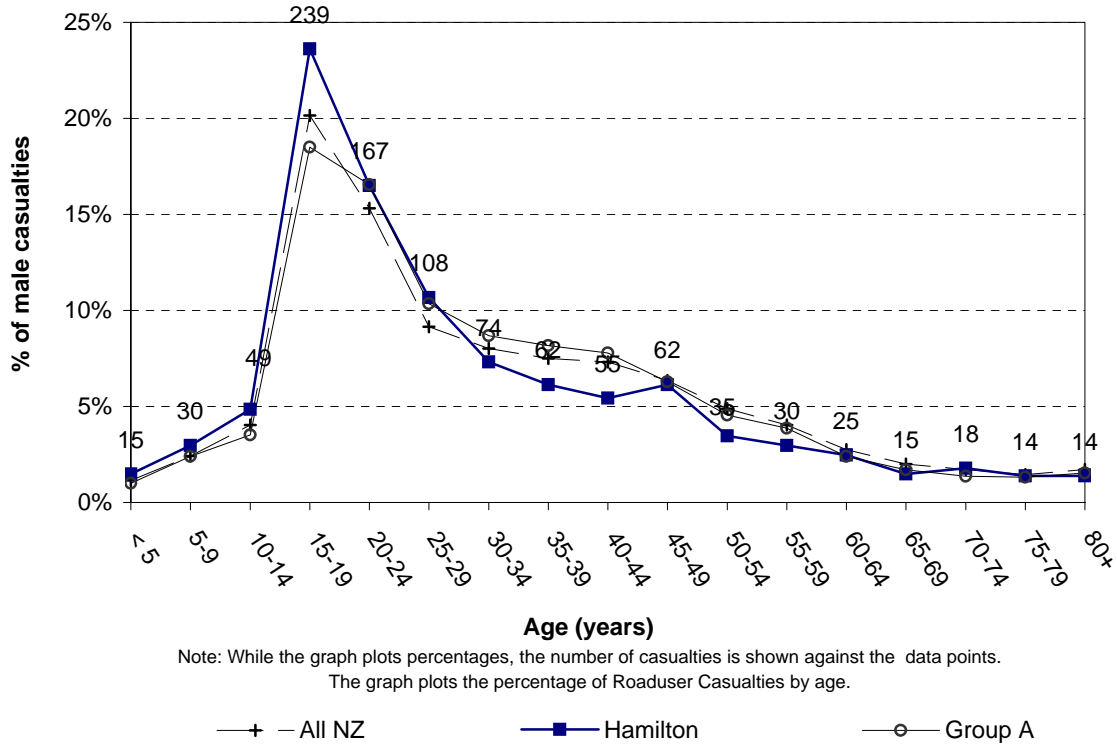
Note: This graph shows the number of male and female roadusers injured

**Figure 3.4 Male/female casualties - rural  
Hamilton City**

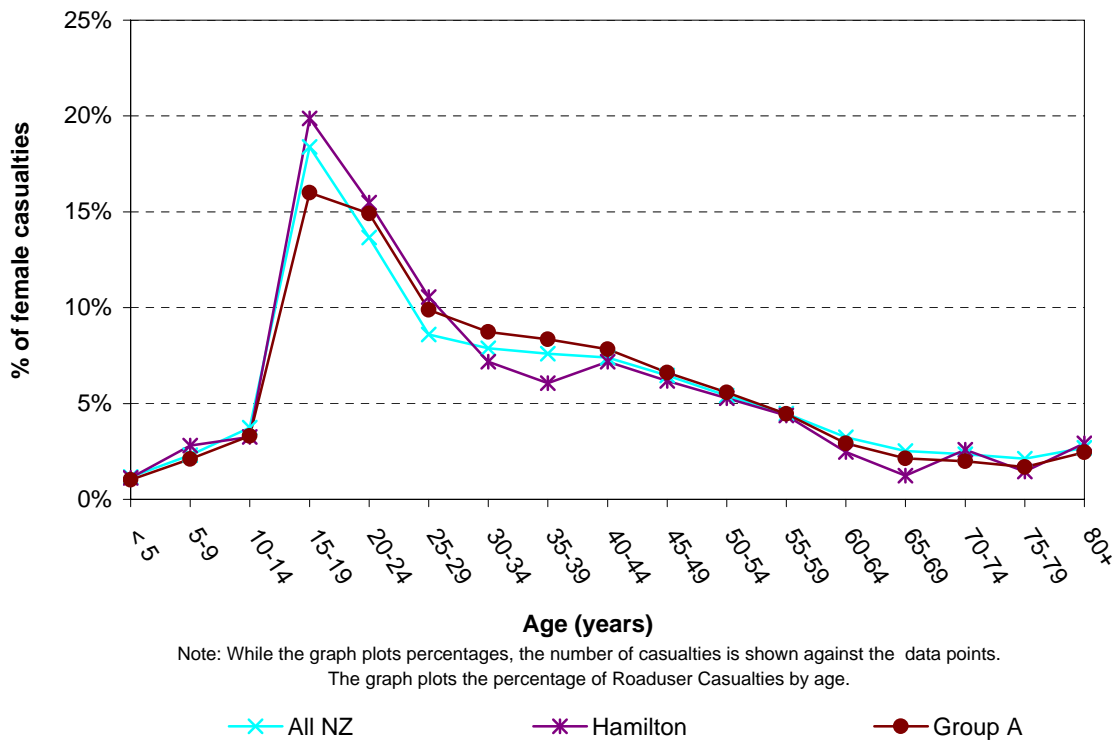


Note: This graph shows the number of male and female roadusers injured

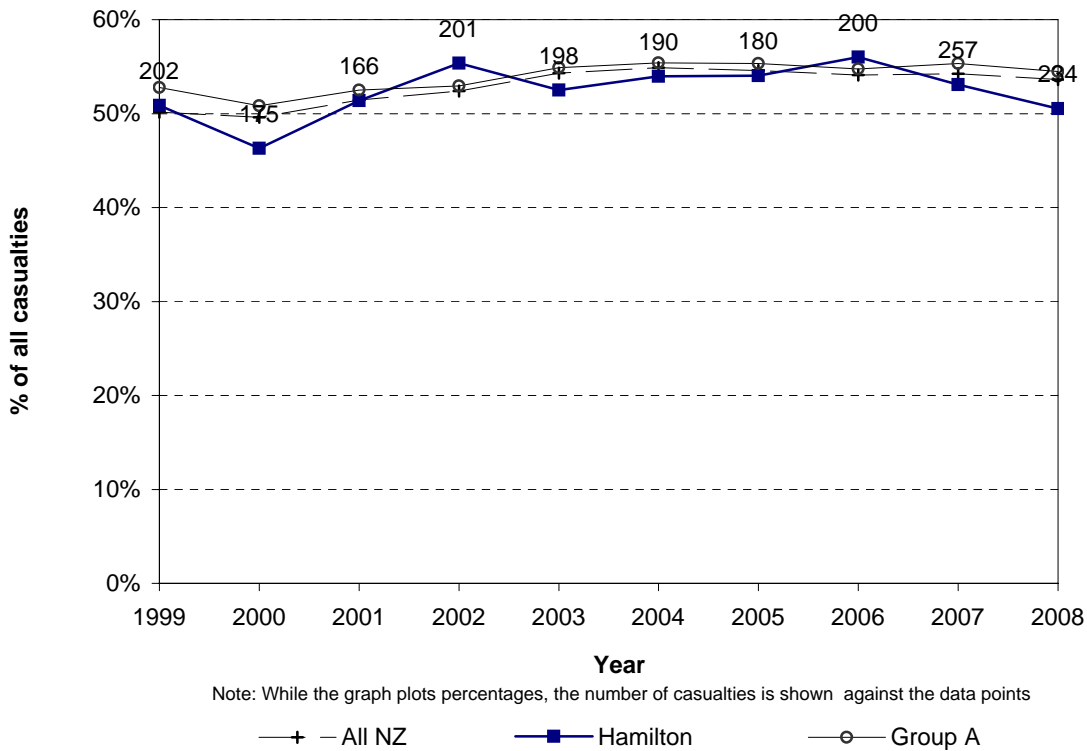
**Figure 3.5 Male casualties by age  
Hamilton City (2004-2008)**



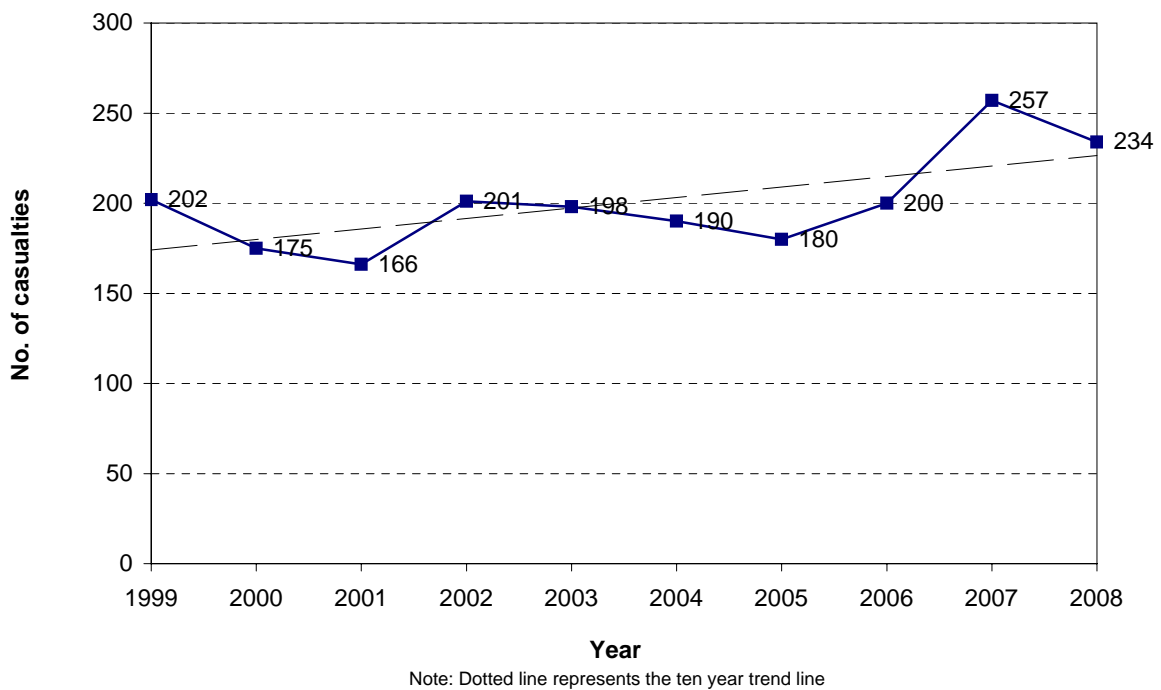
**Figure 3.6 Female casualties by age  
Hamilton City (2004-2008)**



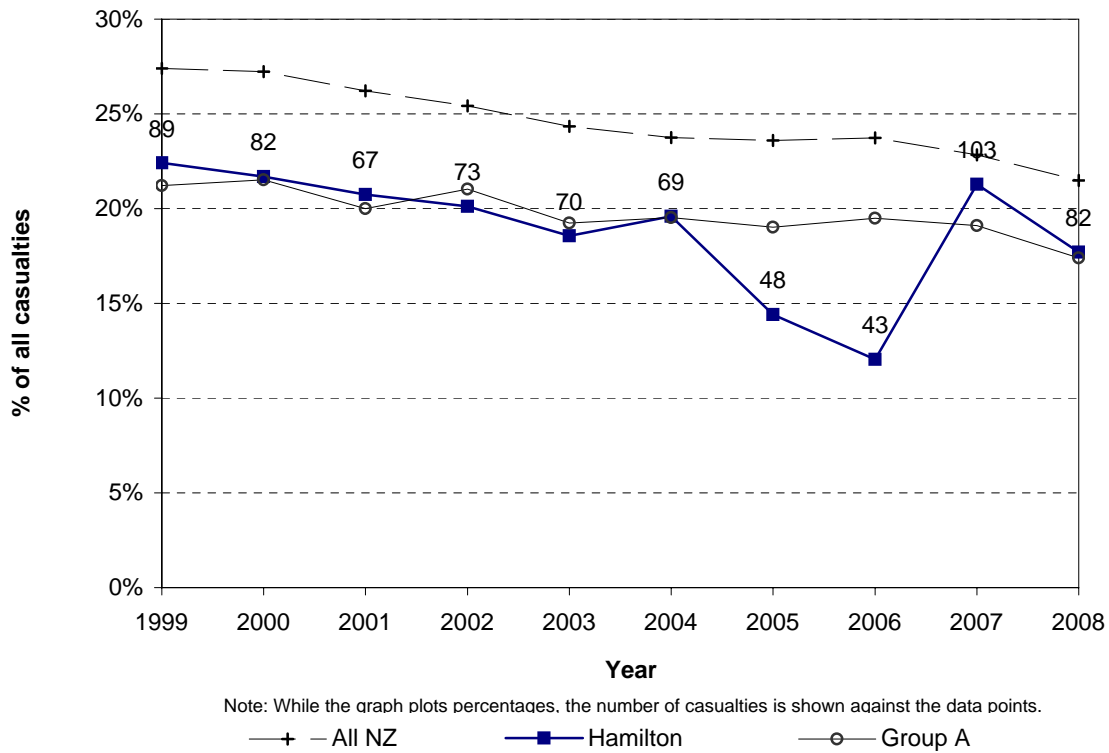
**Figure 3.7 Car/van driver casualties  
Hamilton City**



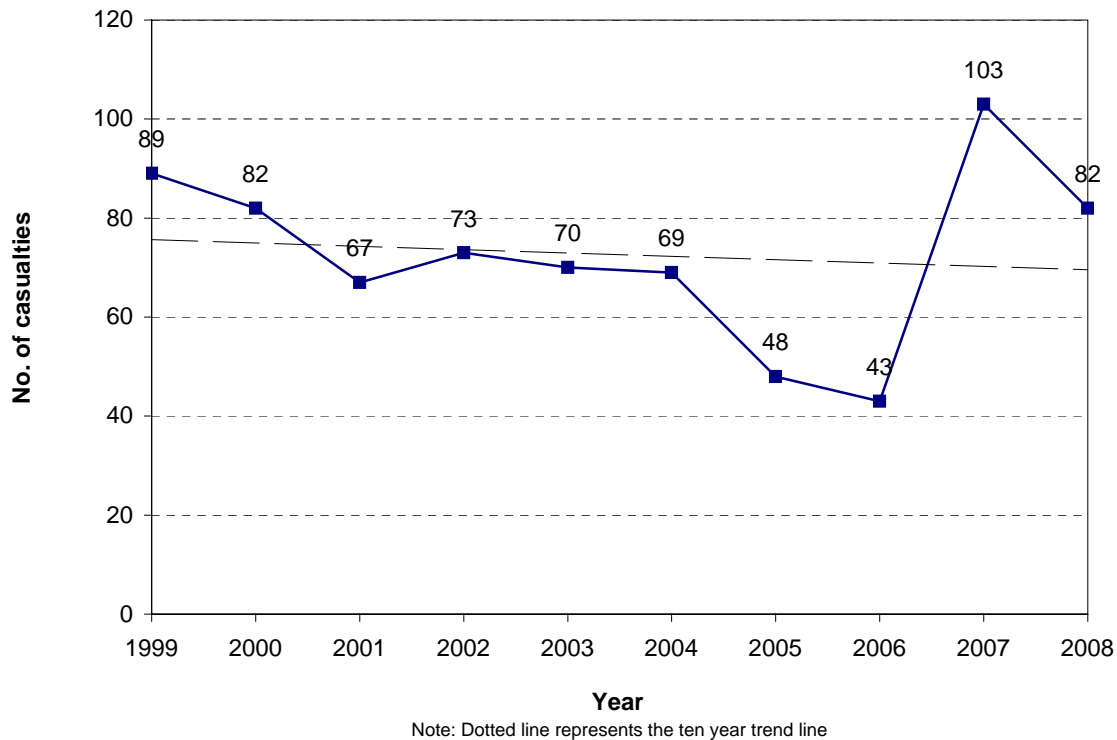
**Figure 3.8 Car/van driver casualties  
Hamilton City**



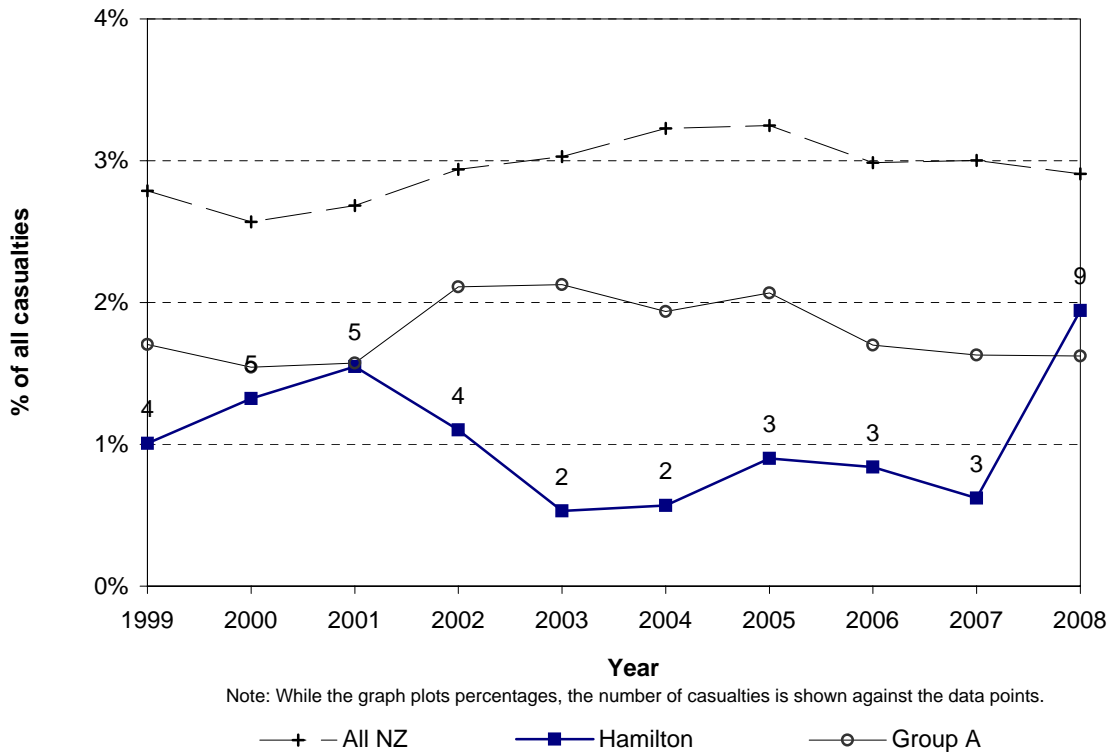
**Figure 3.9 Car/van passenger casualties  
Hamilton City**



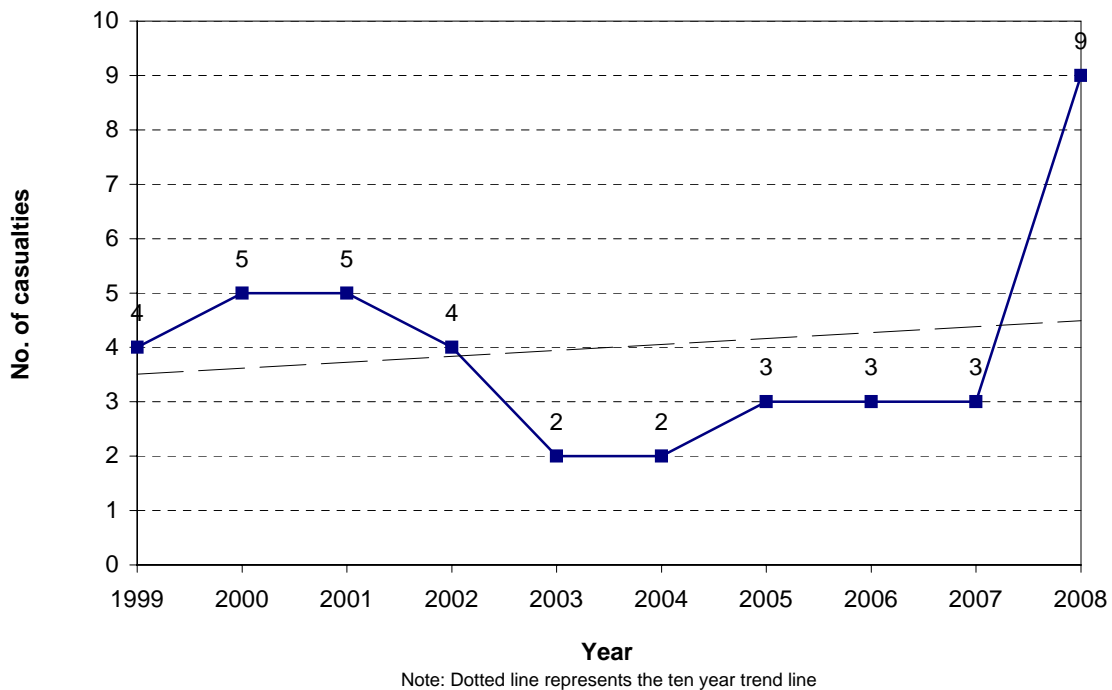
**Figure 3.10 Car/van passenger casualties  
Hamilton City**



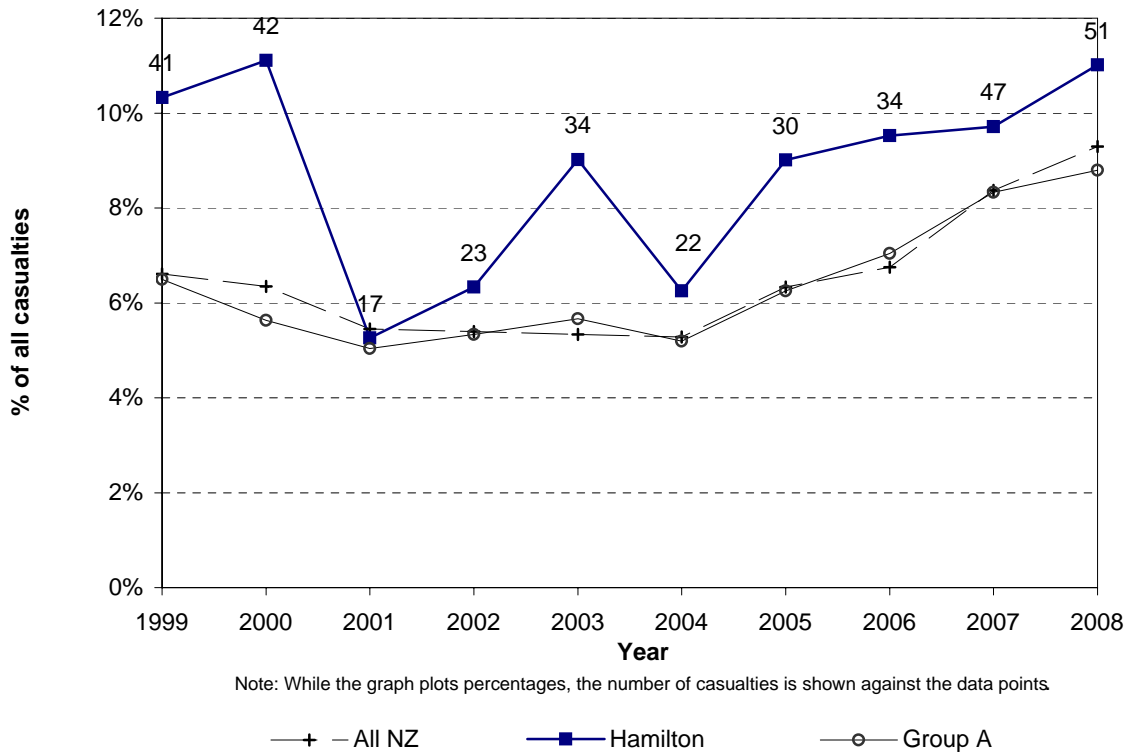
**Figure 3.11 Heavy vehicle casualties  
Hamilton City**



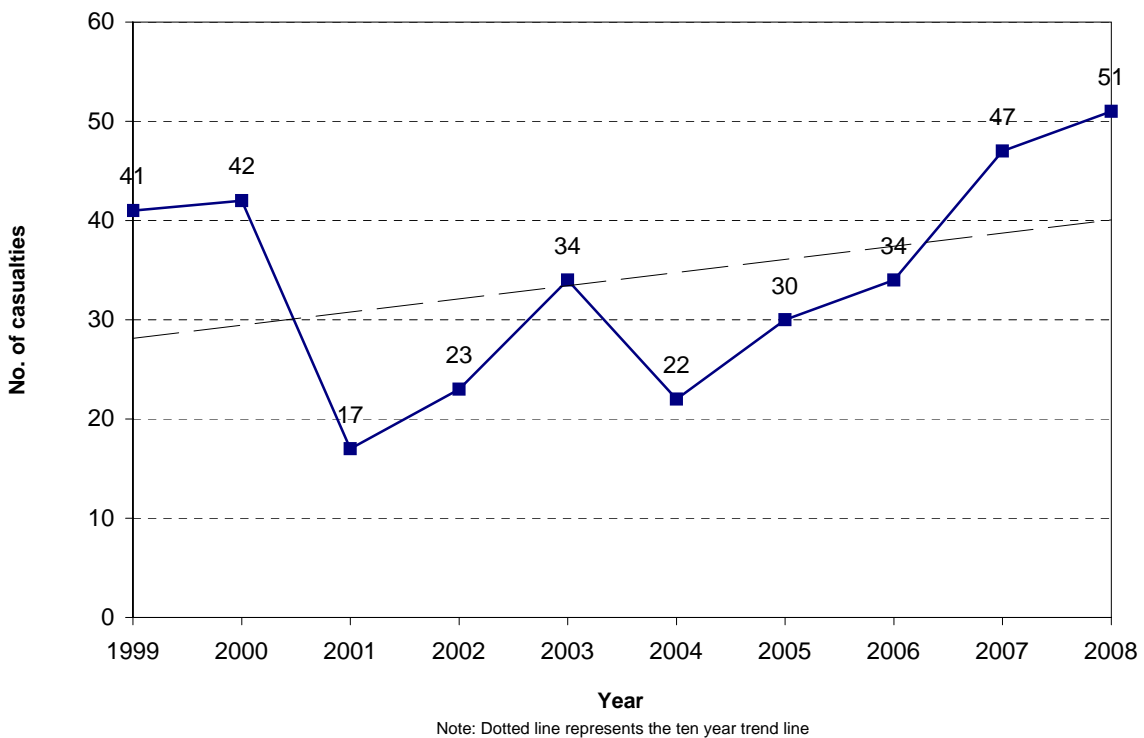
**Figure 3.12 Heavy vehicle casualties  
Hamilton City**



**Figure 3.13 Motorcyclist casualties  
Hamilton City**

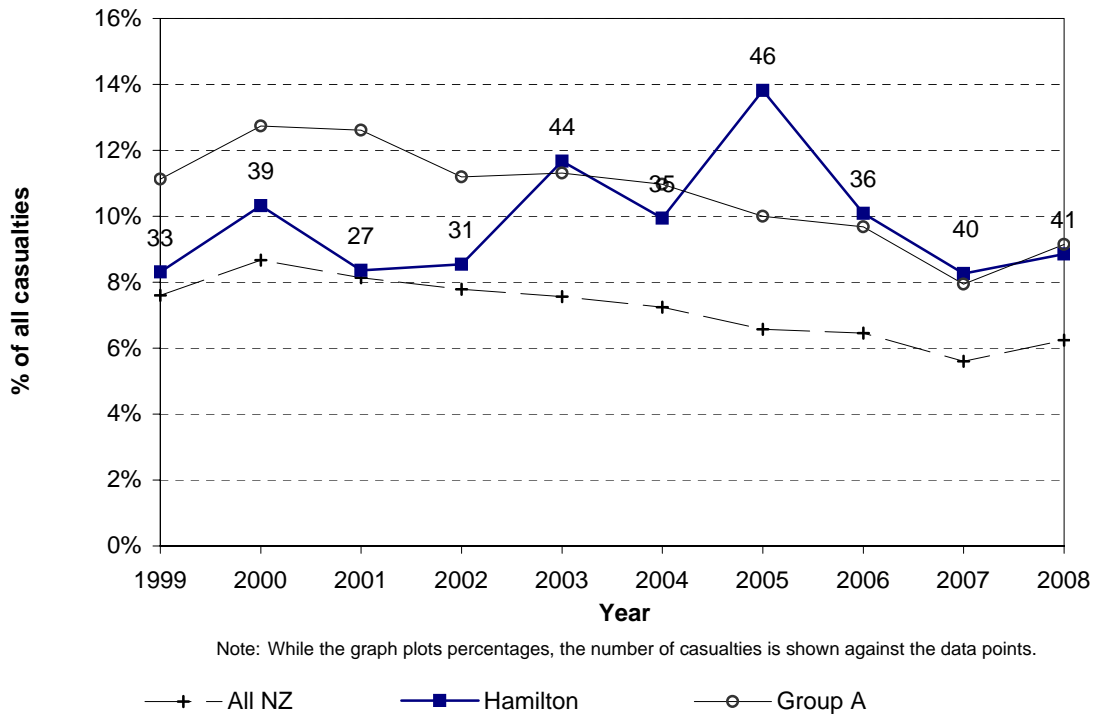


**Figure 3.14 Motorcyclist casualties  
Hamilton City**

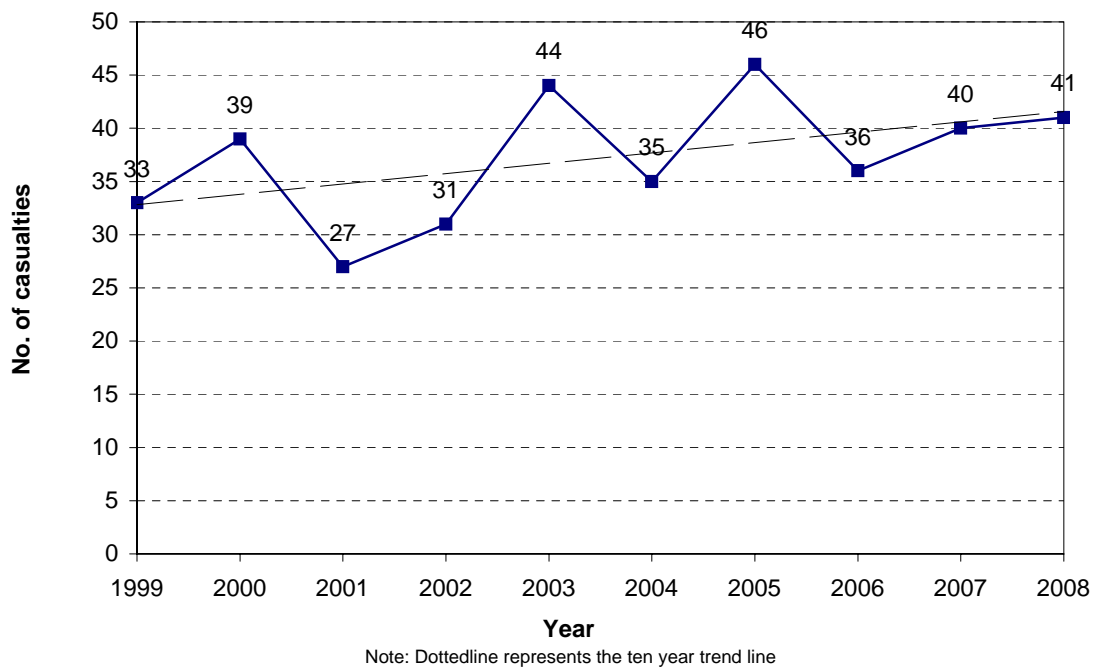




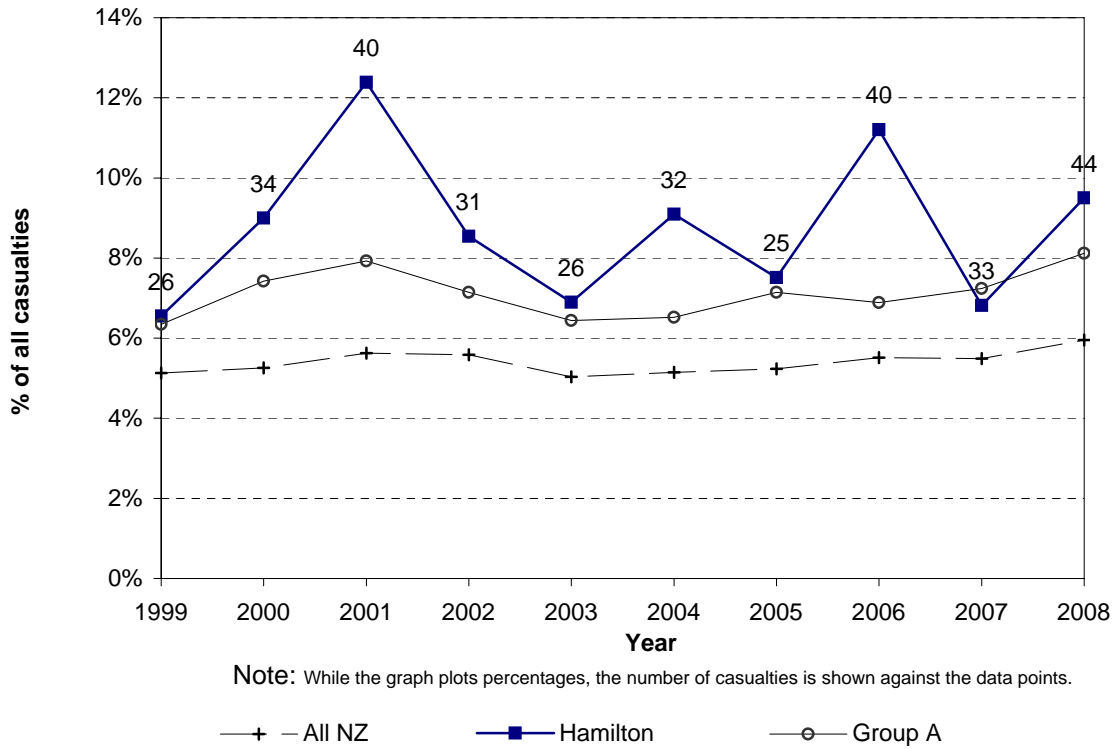
**Figure 3.15 Pedestrian casualties  
Hamilton City**



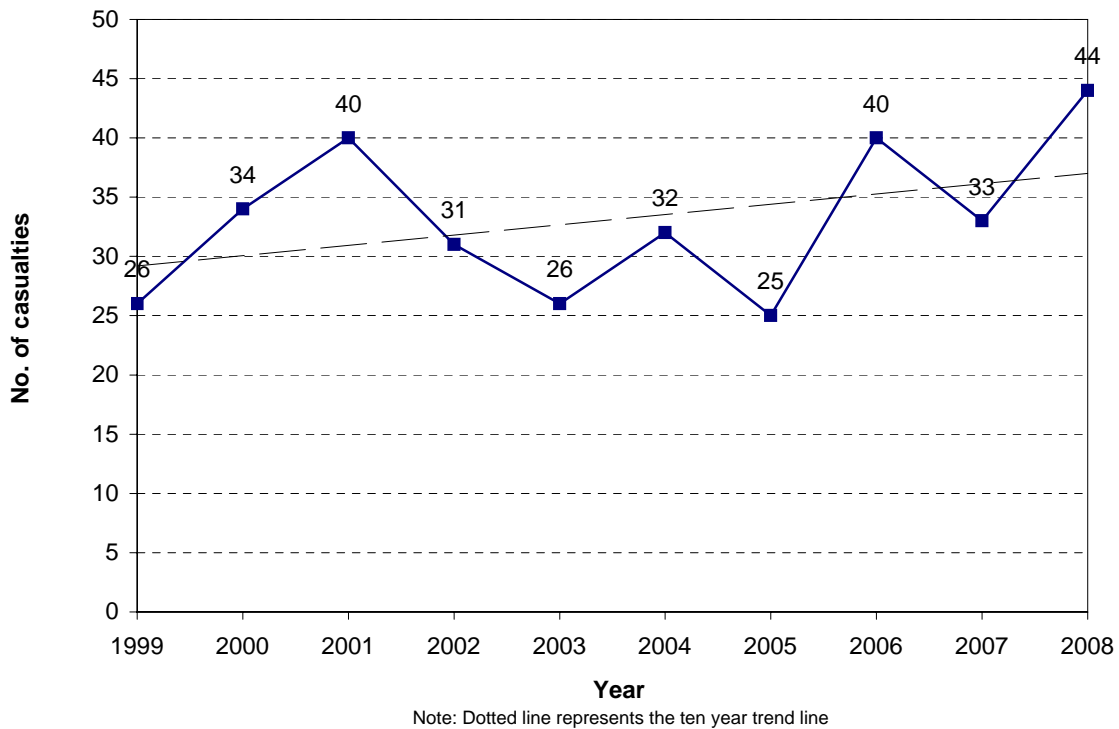
**Figure 3.16 Pedestrian casualties  
Hamilton City**



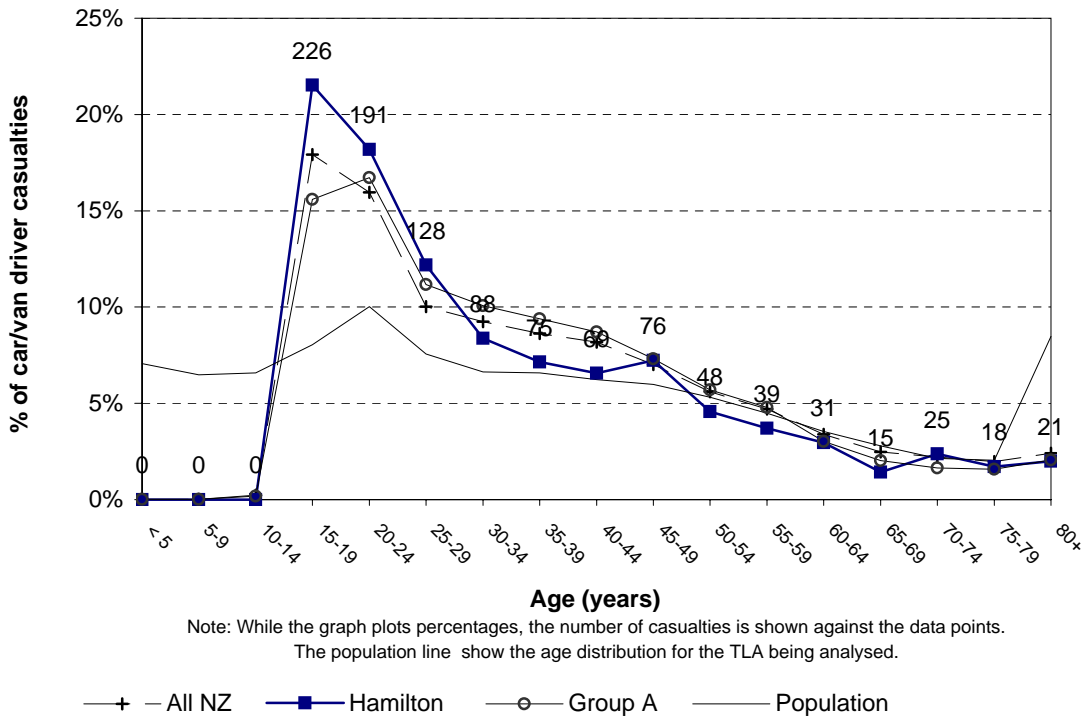
**Figure 3.17 Cyclist casualties  
Hamilton City**



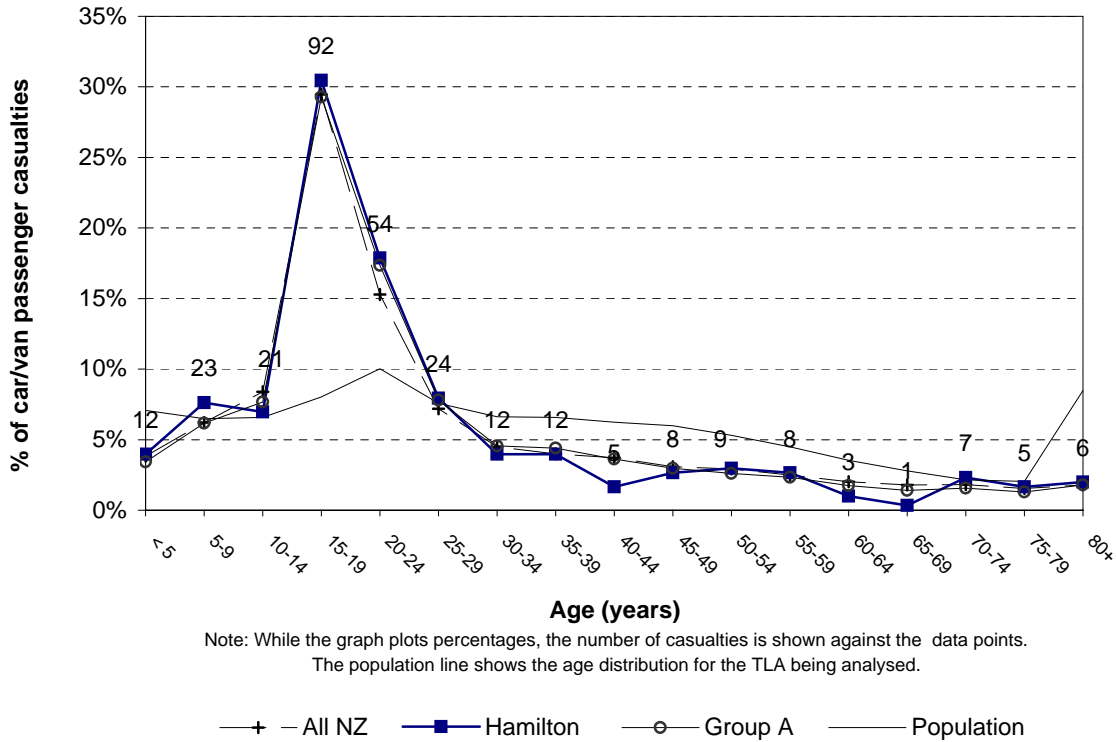
**Figure 3.18 Cyclist casualties  
Hamilton City**



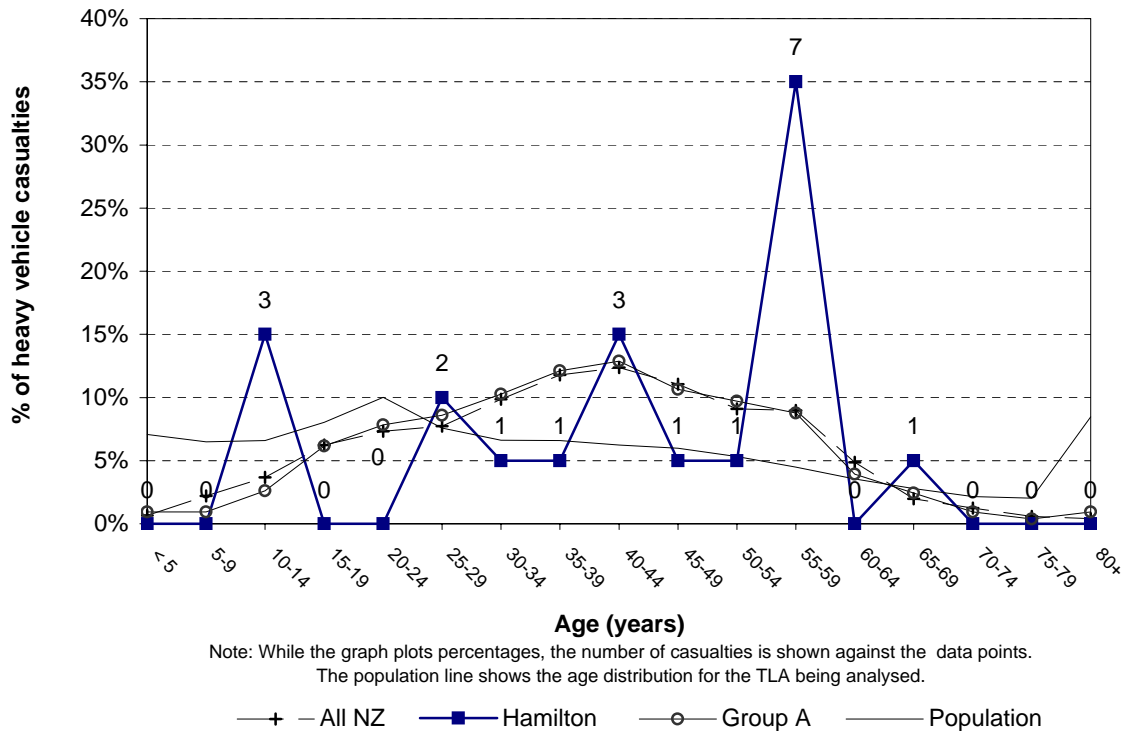
**Figure 3.19 Car/van driver casualty age  
Hamilton City (2004-2008)**



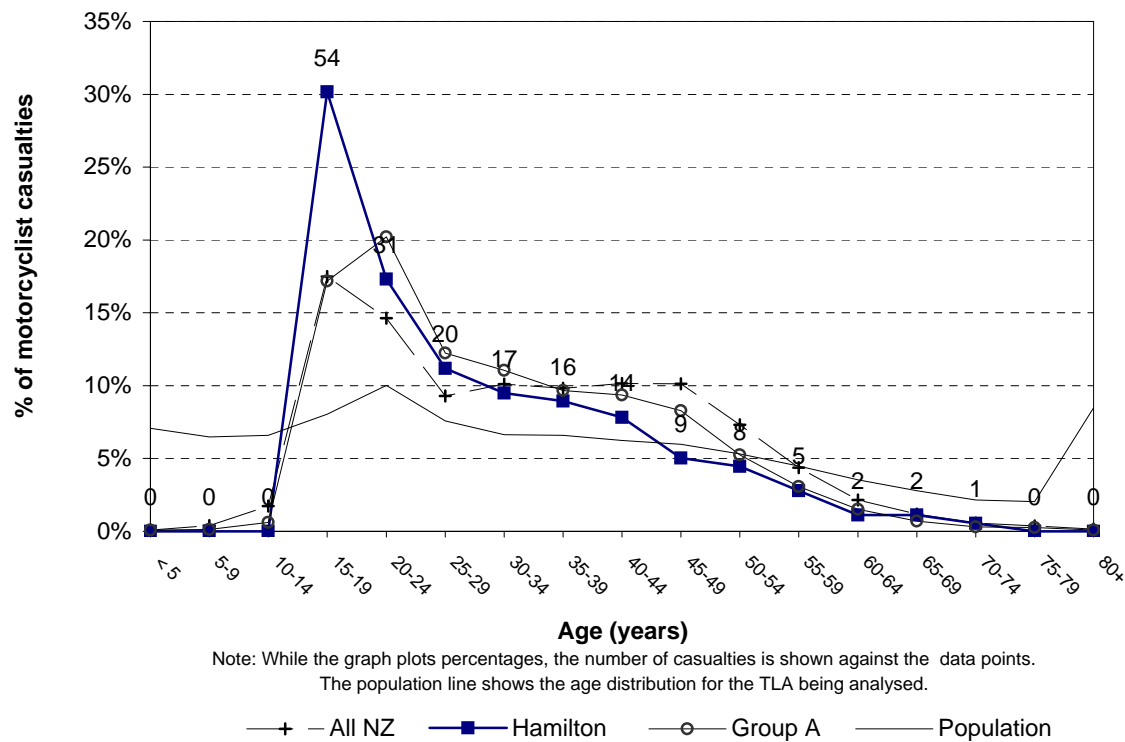
**Figure 3.20 Car/van passenger casualty age  
Hamilton City (2004-2008)**



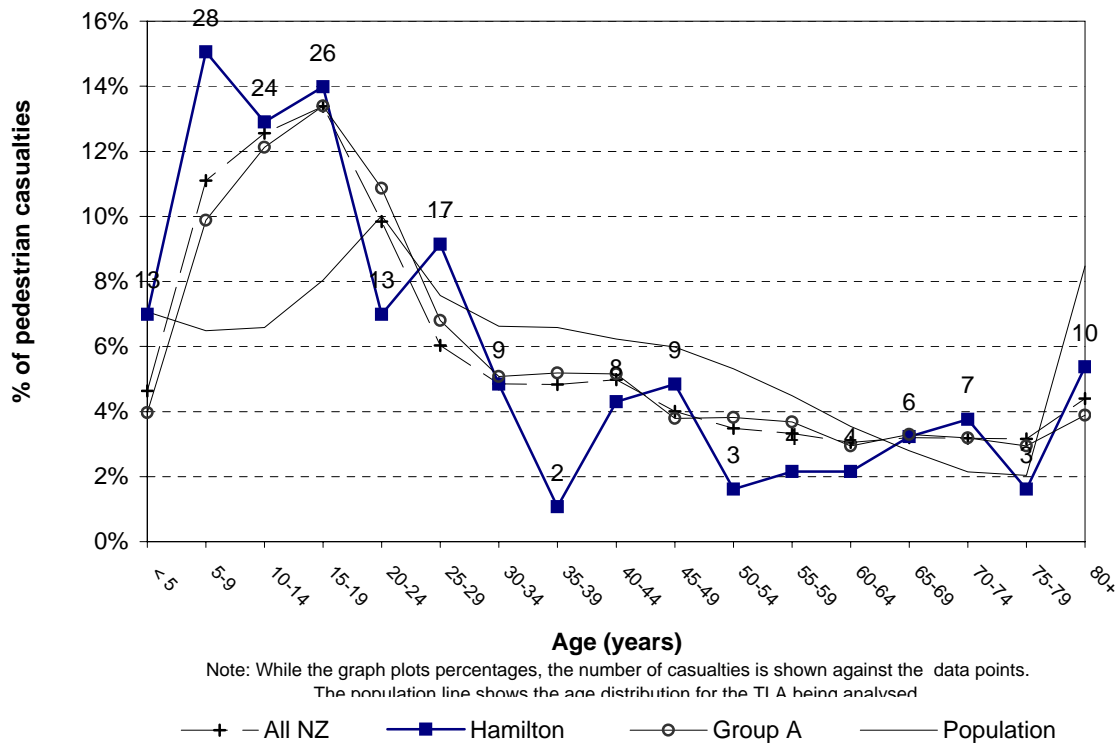
**Figure 3.21 Heavy vehicle casualty age  
Hamilton City (2004-2008)**



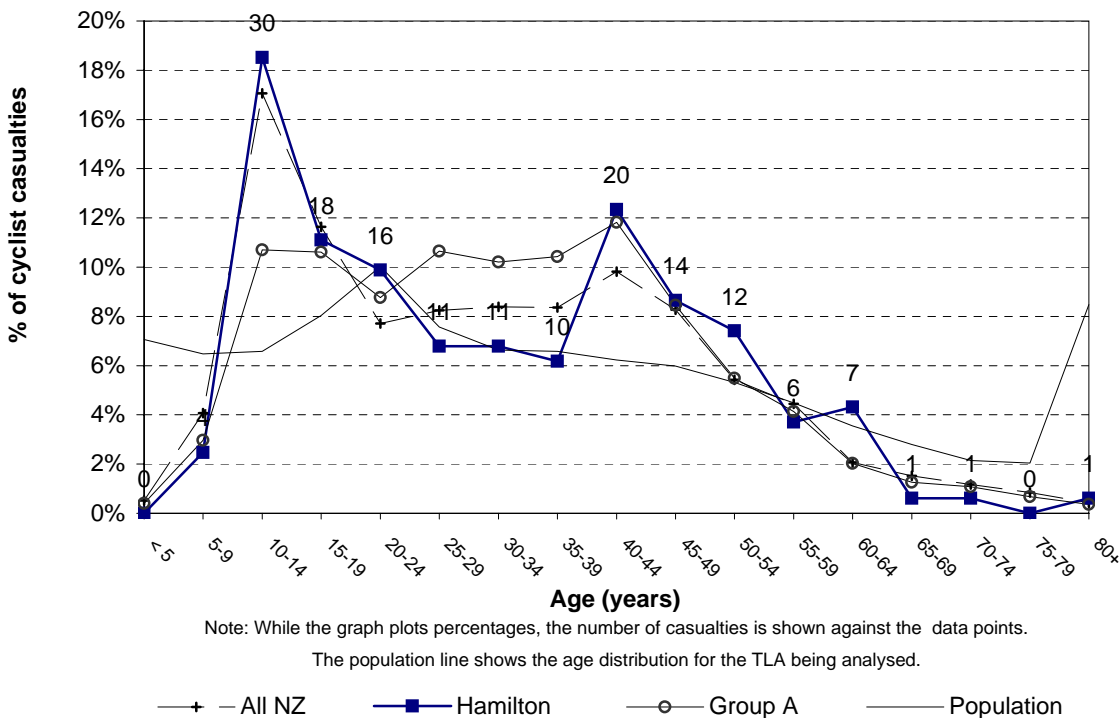
**Figure 3.22 Motorcyclist casualty age  
Hamilton City (2004-2008)**



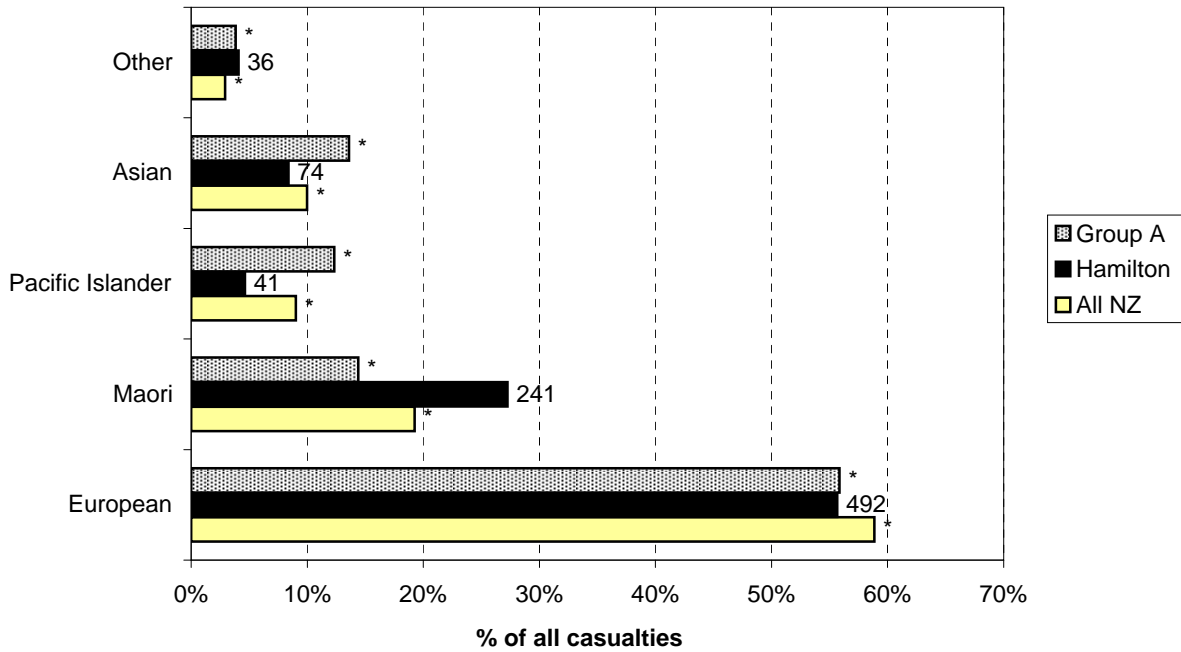
**Figure 3.23 Pedestrian casualty age  
Hamilton City (2004-2008)**



**Figure 3.24 Cyclist casualty age  
Hamilton City (2004-2008)**

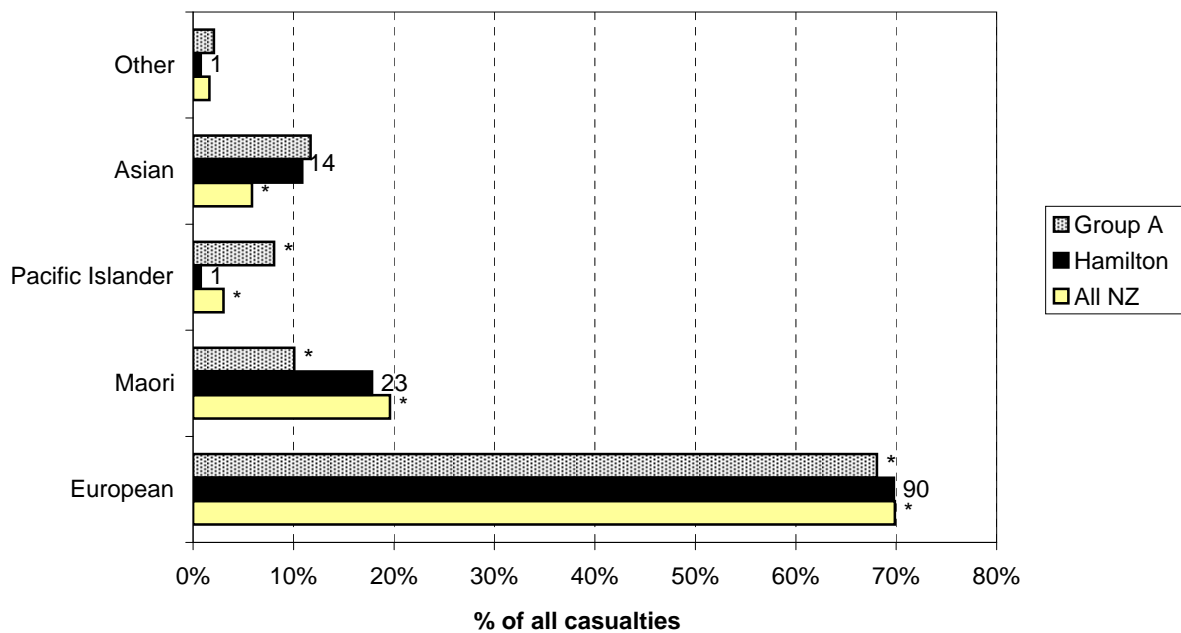


**Figure 3.25 Casualty ethnicity - urban  
Hamilton City (2004-2008)**



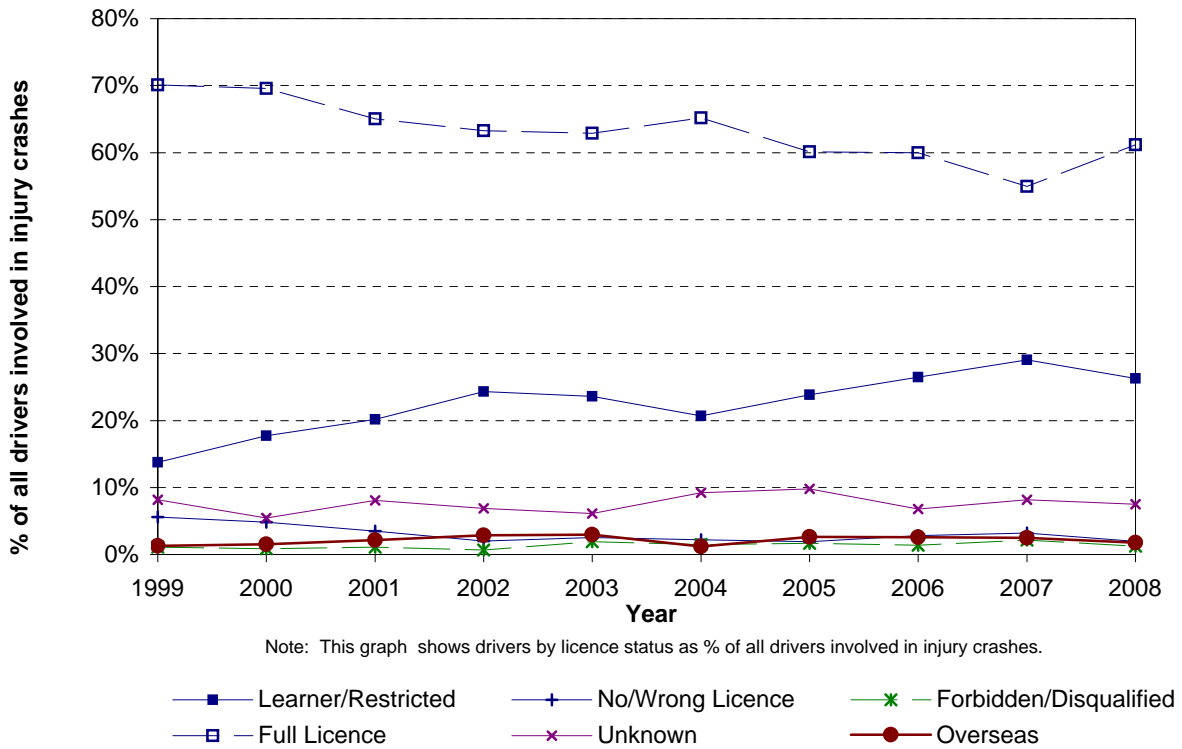
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.26 Casualty ethnicity - rural  
Hamilton City (2004-2008)**

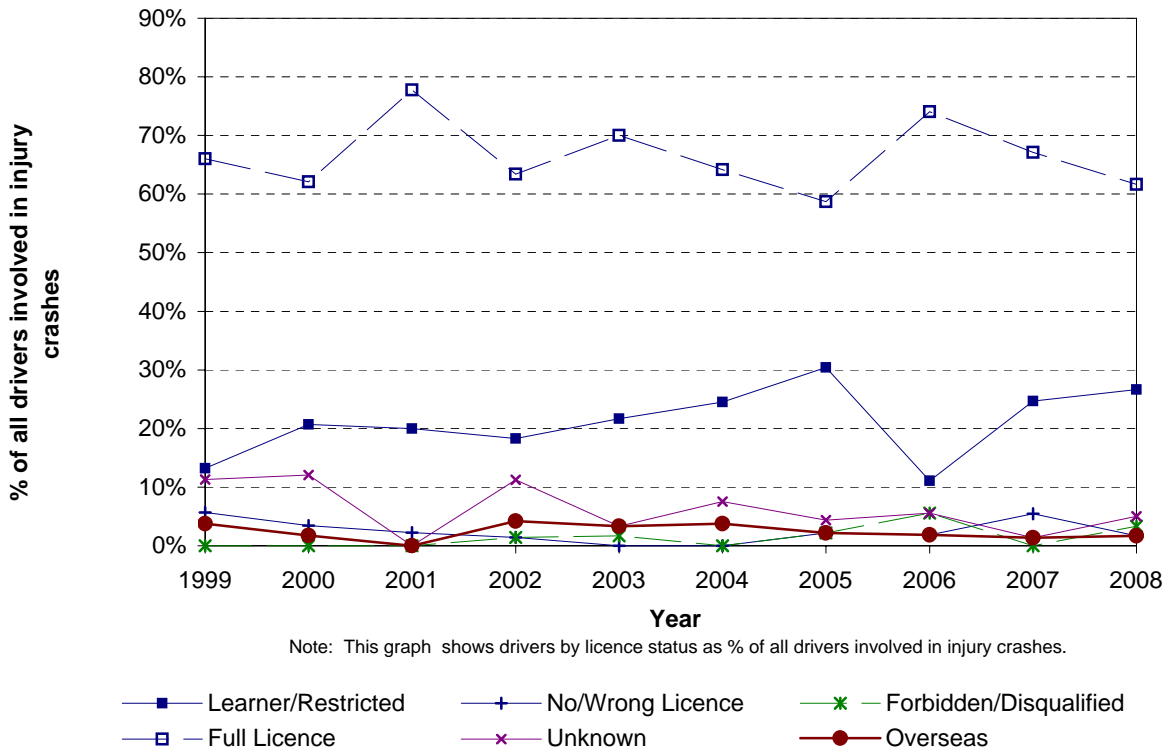


Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.27 Licence status - urban  
Hamilton City**



**Figure 3.28 Licence status - rural  
Hamilton City**

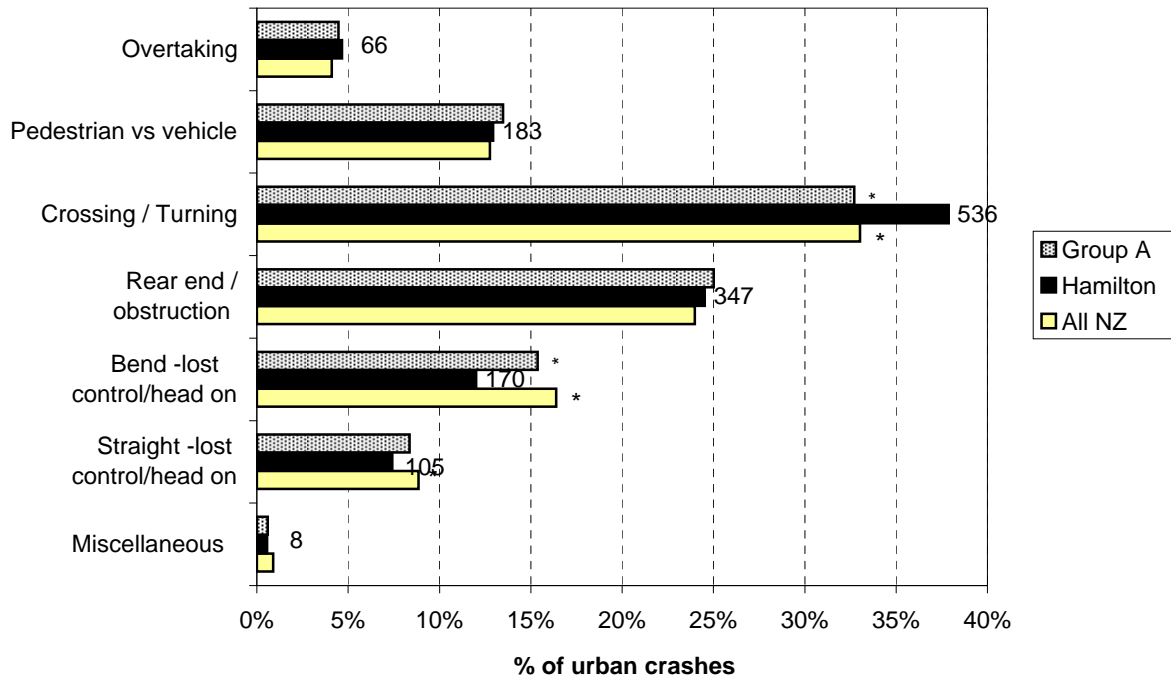


# *Crash Type Statistics*



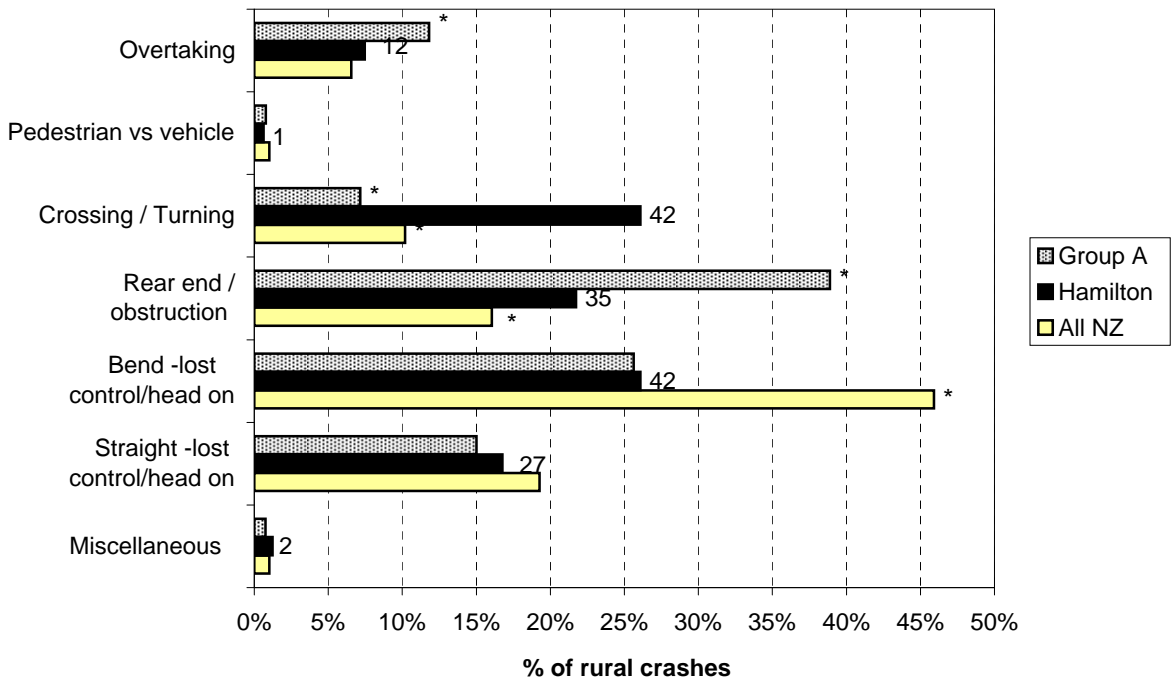


**Figure 4.1 Crash movement type - urban  
Hamilton City (2004-2008)**



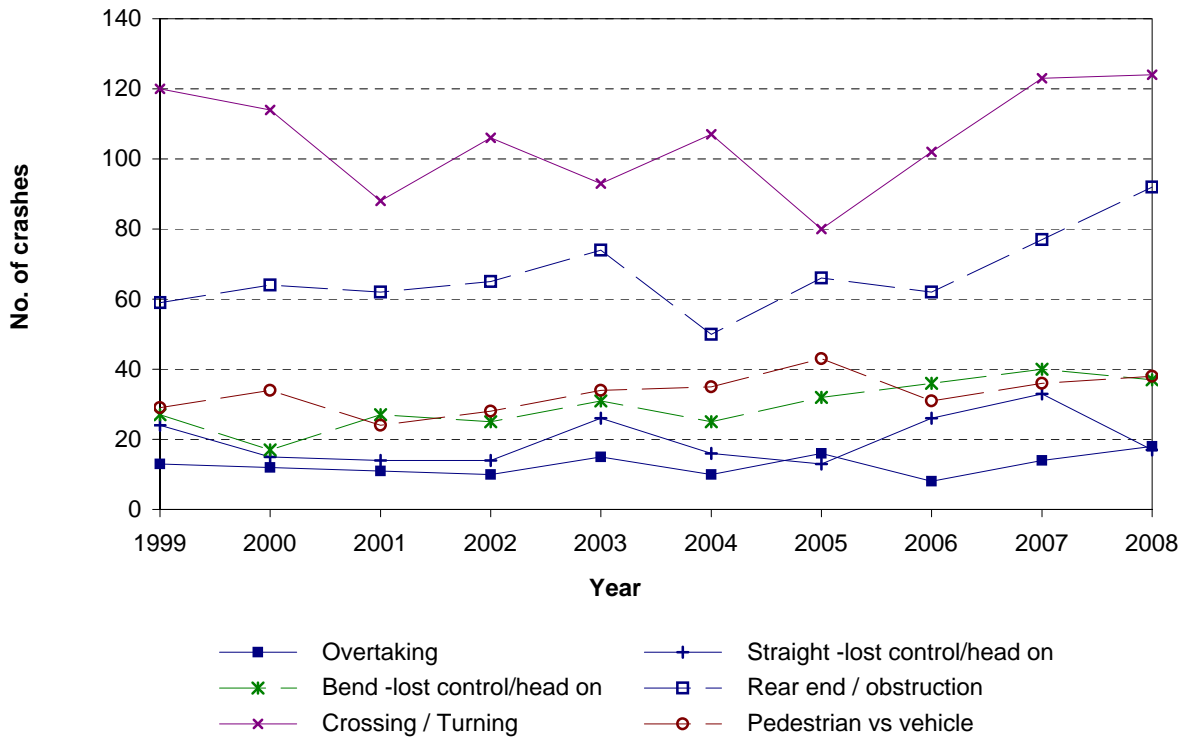
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 4.2 Crash movement type - rural  
Hamilton City roads (2004-2008)**

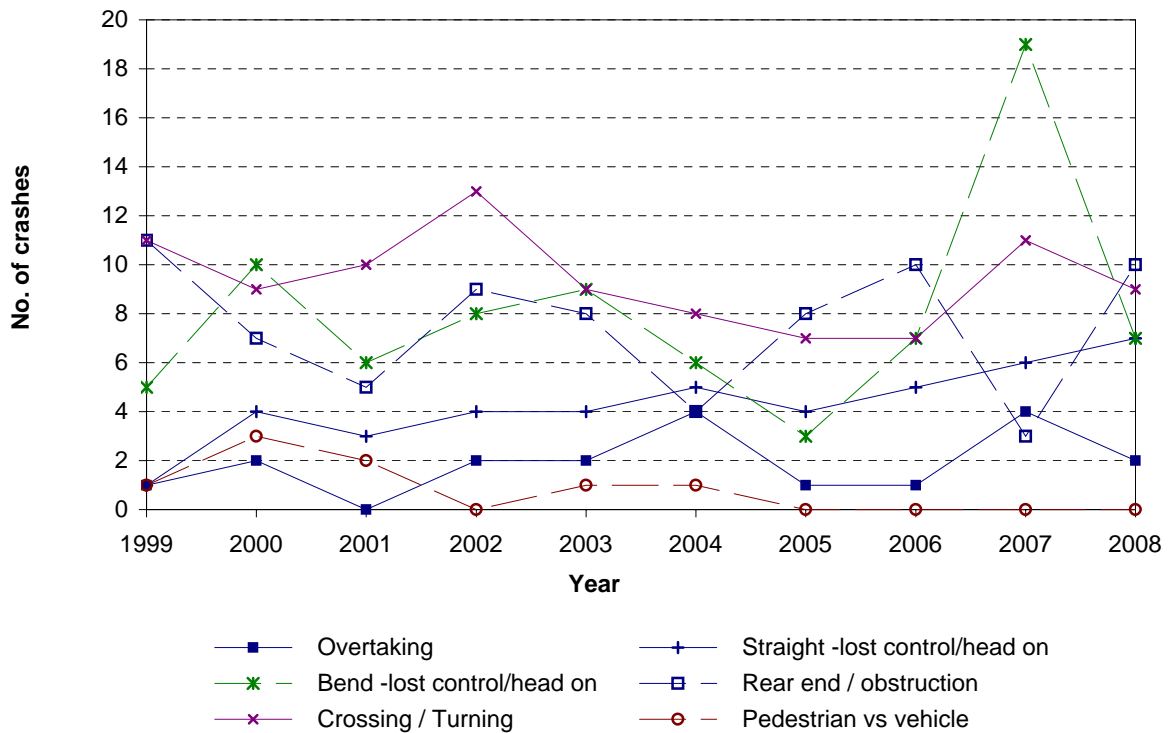


Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

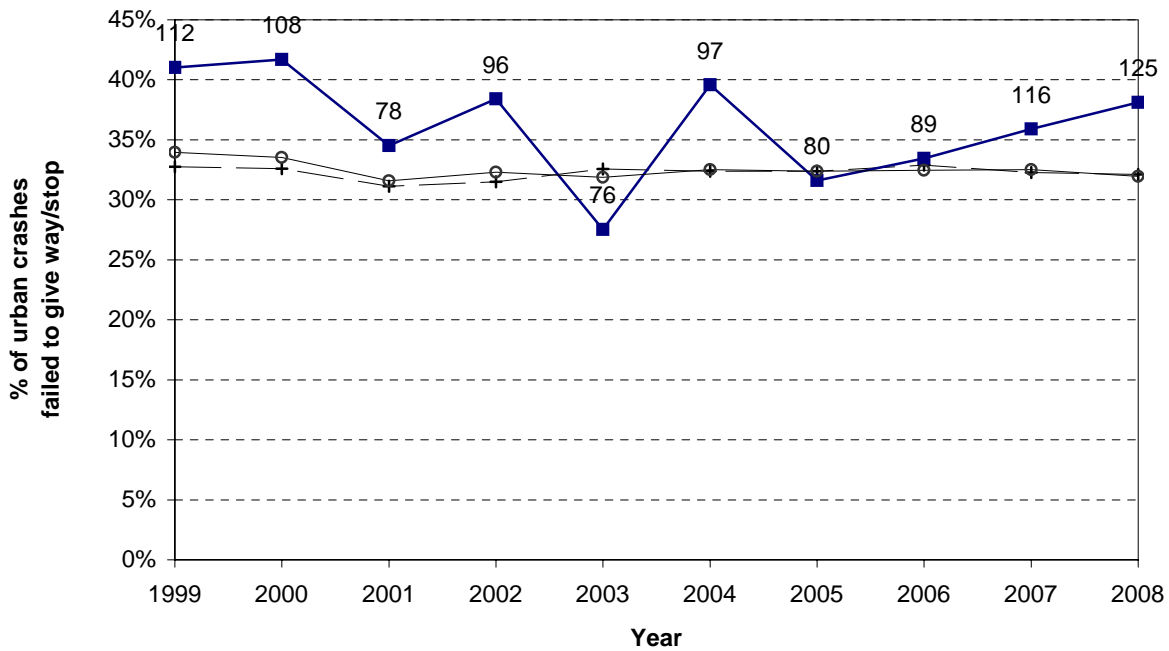
**Figure 4.3 Crash movement type - trends  
Hamilton City - urban roads**



**Figure 4.4 Crash movement type - trends  
Hamilton City - rural roads**



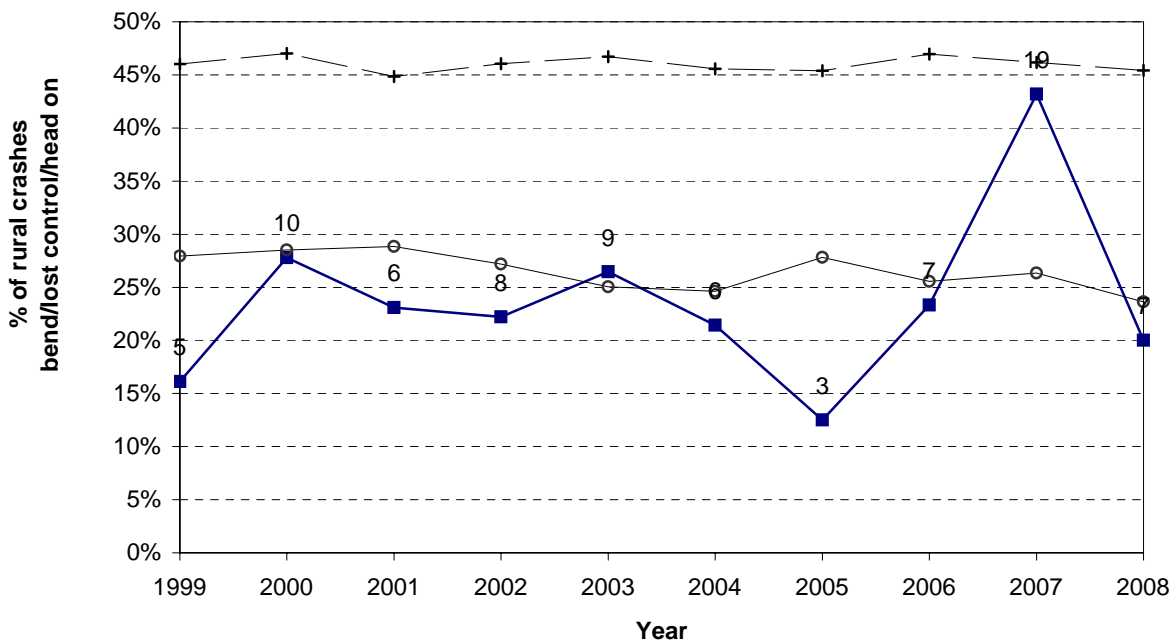
**Figure 4.5 Failed to give way / stop  
Hamilton City - urban roads**



Note: While the graph plots percentages, the number of crashes is shown against the data points.

—+— All NZ —■— Hamilton —○— Group A

**Figure 4.6 Bend - lost control / head - on  
Hamilton City - rural roads**



Note: While the graph plots percentages, the number of crashes is shown against the data points.

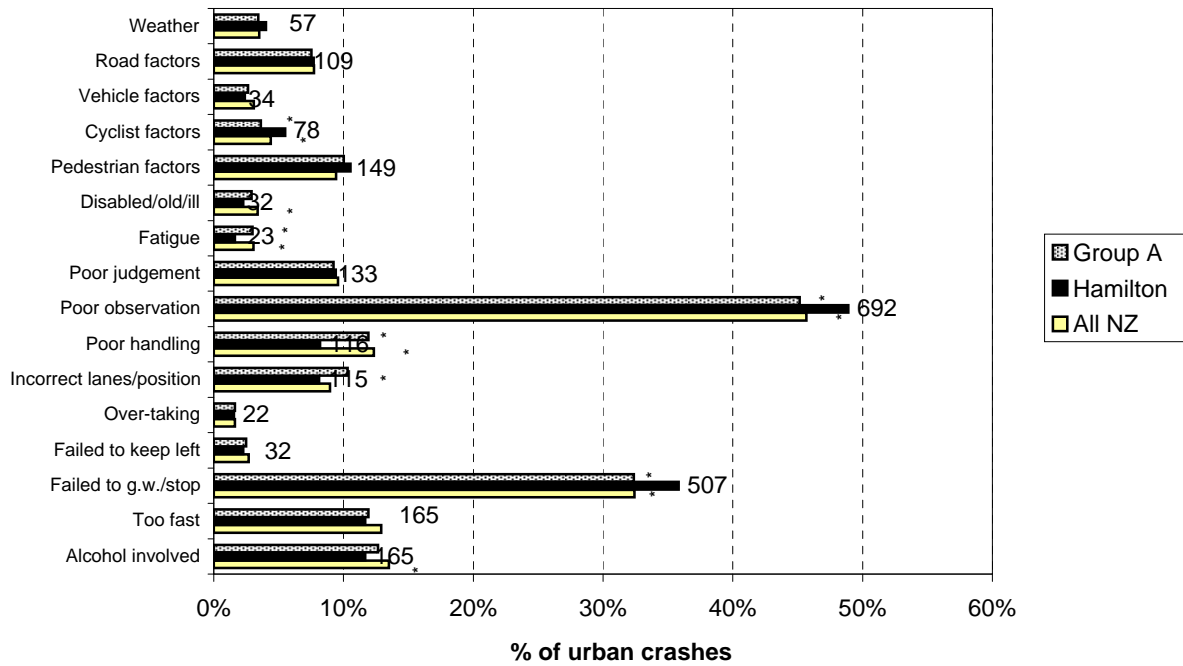
—+— All NZ —■— Hamilton —○— Group A



# *Crash Factor Statistics*

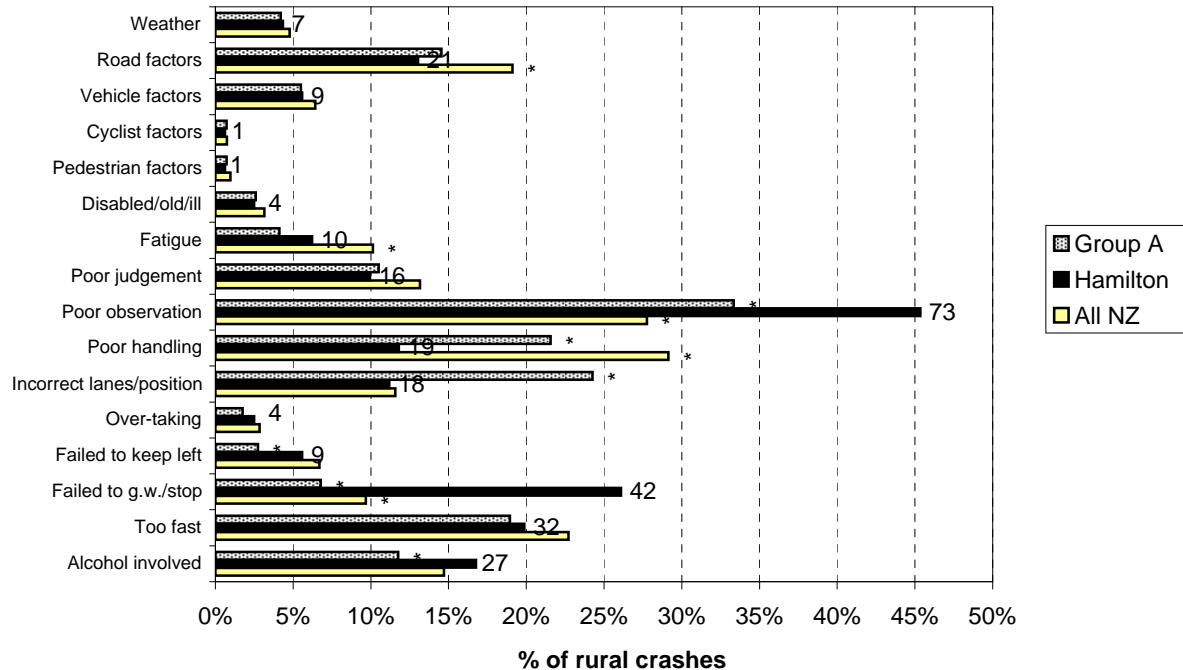


**Figure 5.1 Contributing factors - urban  
Hamilton City (2004-2008)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

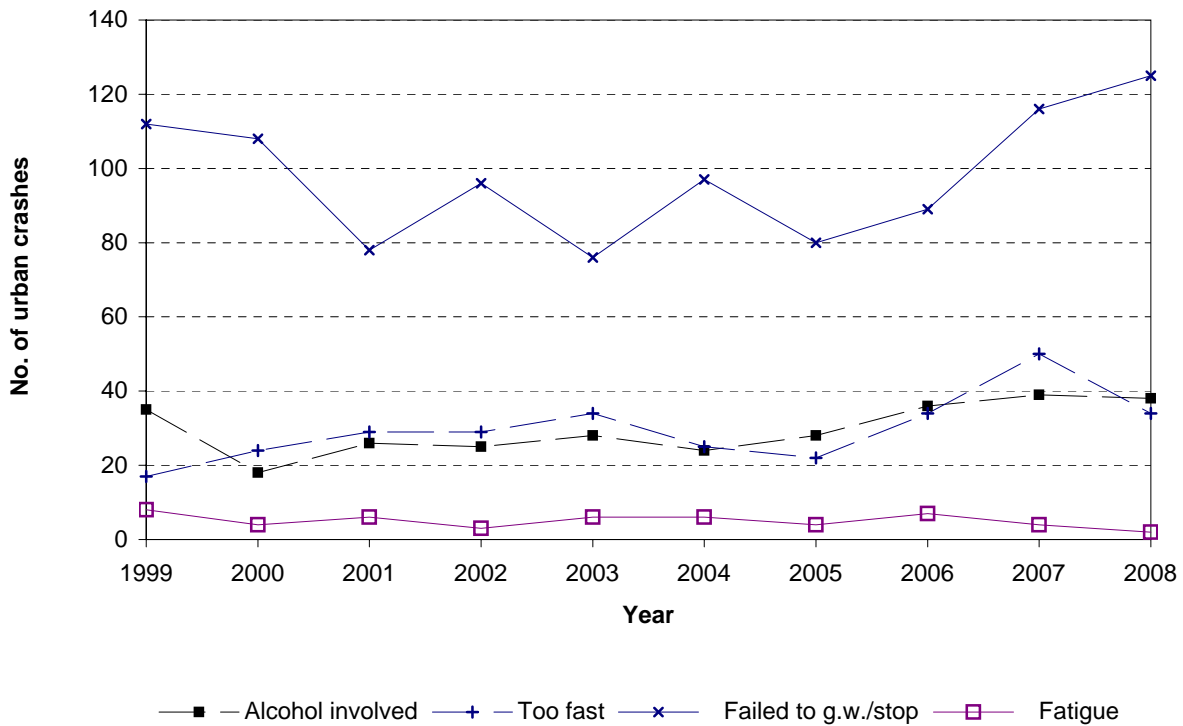
**Figure 5.2 Contributing factors - rural  
Hamilton City (2004-2008)**



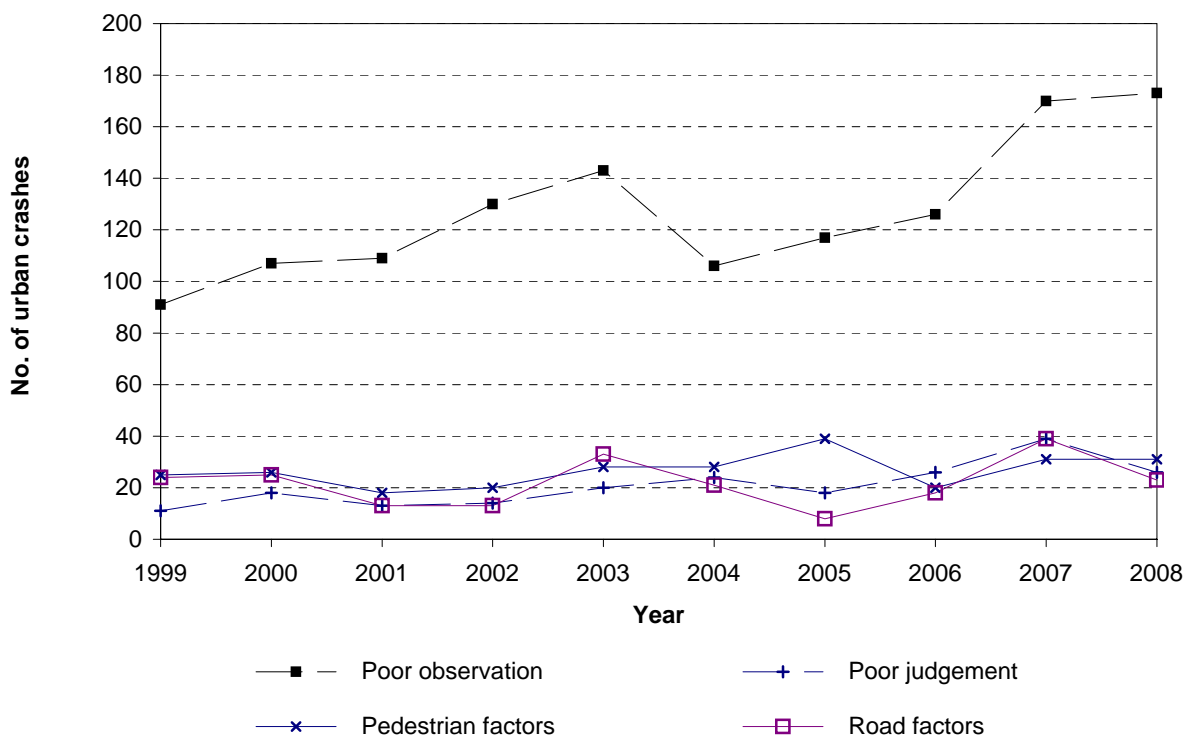
Note: While the graph plots percentages, the number of casualties is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions



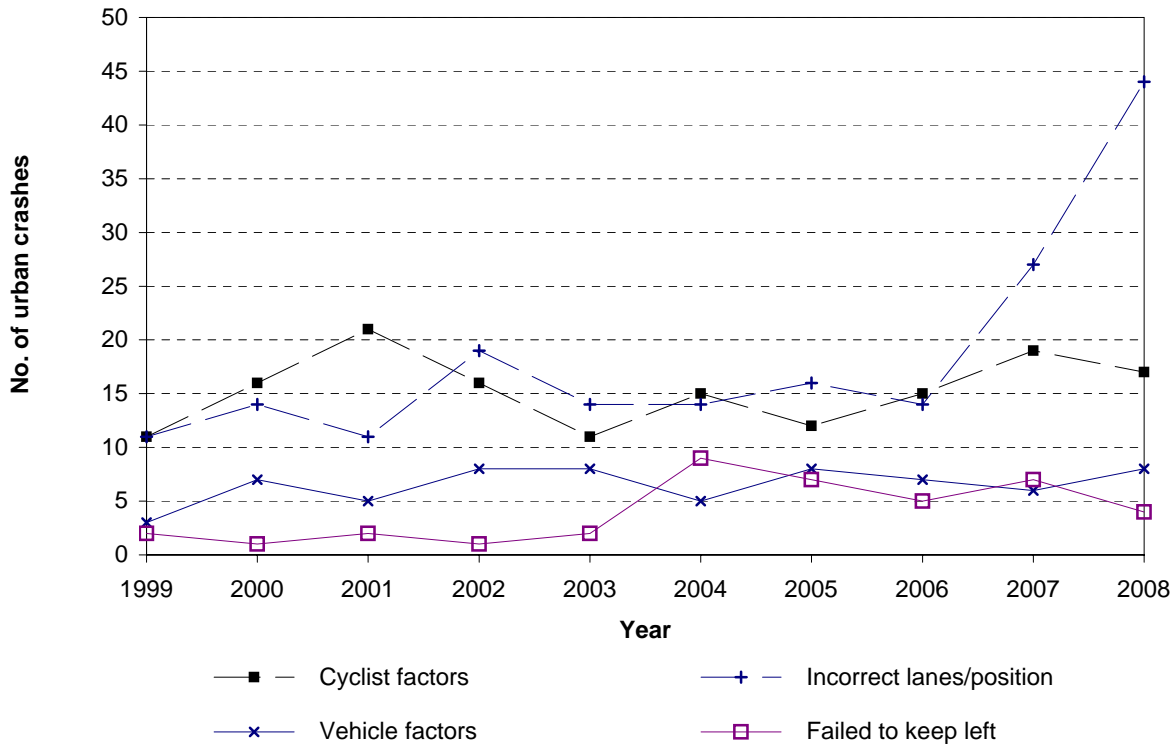
**Figure 5.3 Contributing factor trends  
Hamilton City - urban roads**



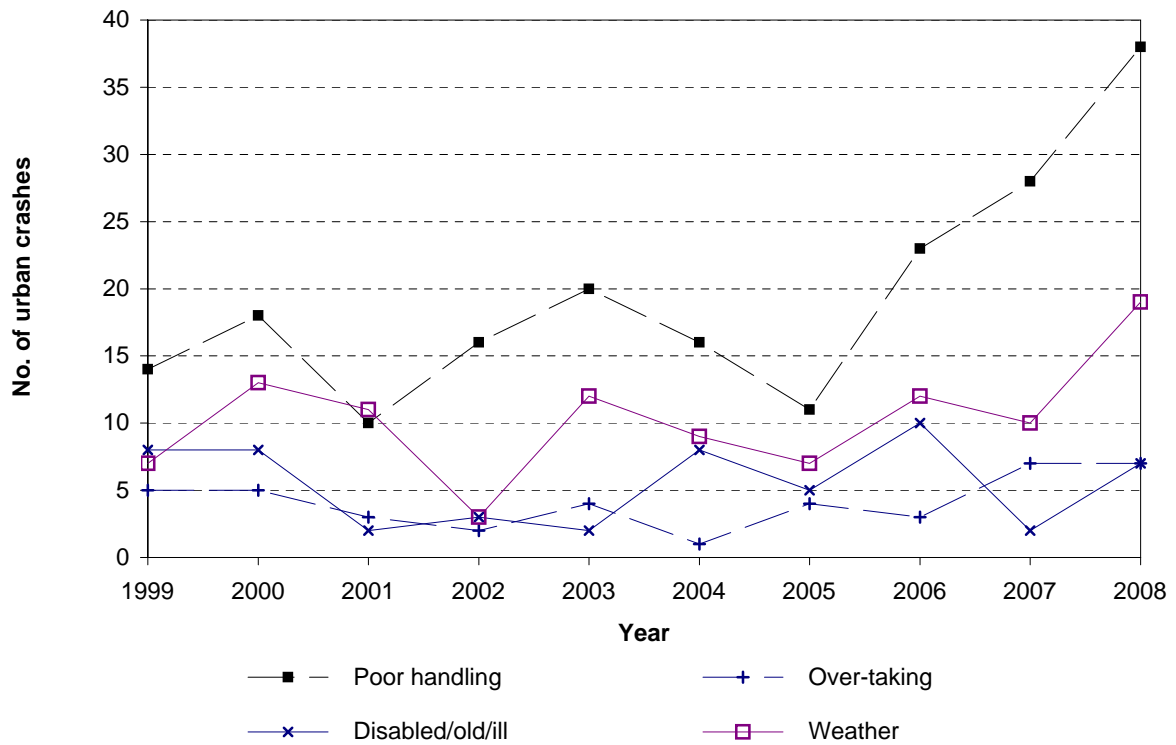
**Figure 5.4 Contributing factor trends  
Hamilton City - urban roads**



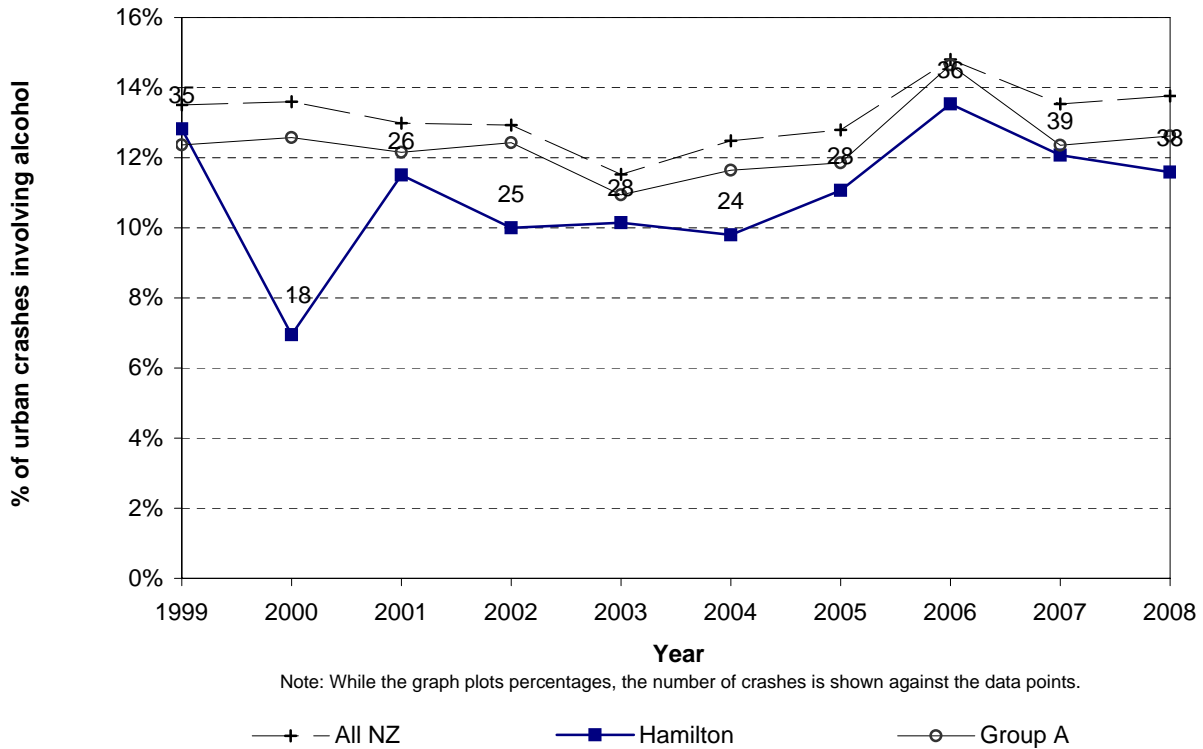
**Figure 5.5 Contributing factor trends  
Hamilton City - urban roads**



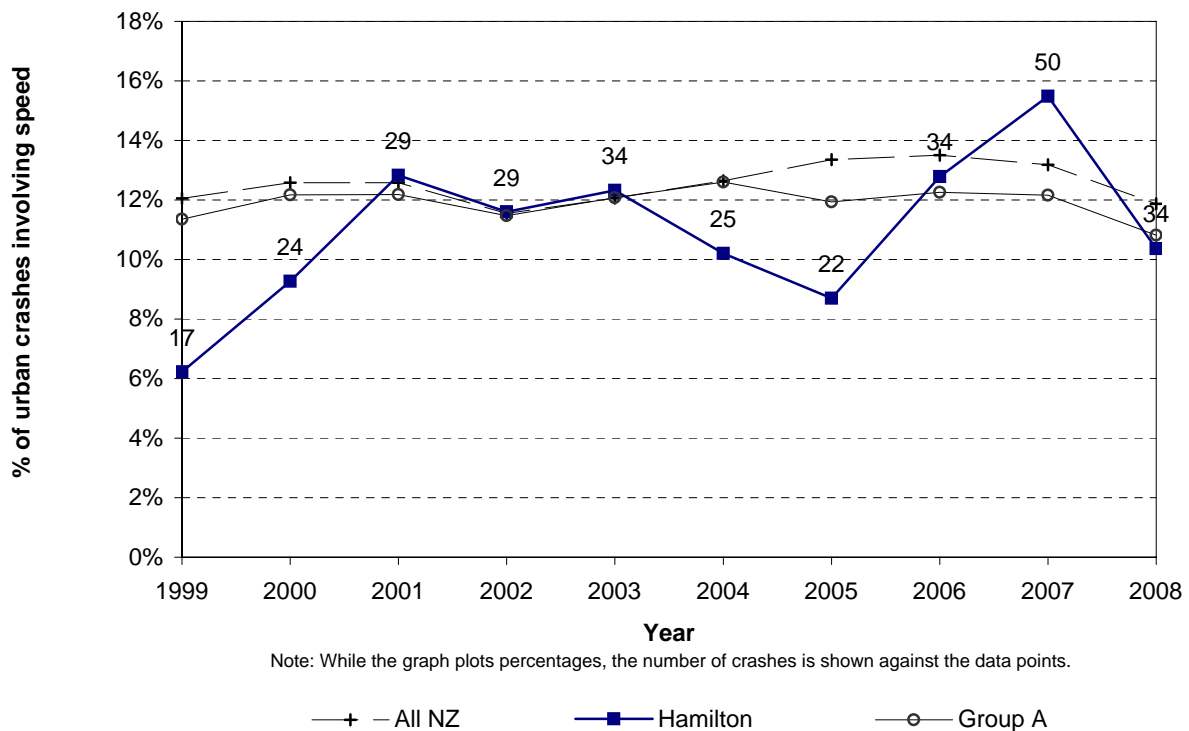
**Figure 5.6 Contributing factor trends  
Hamilton City - urban roads**



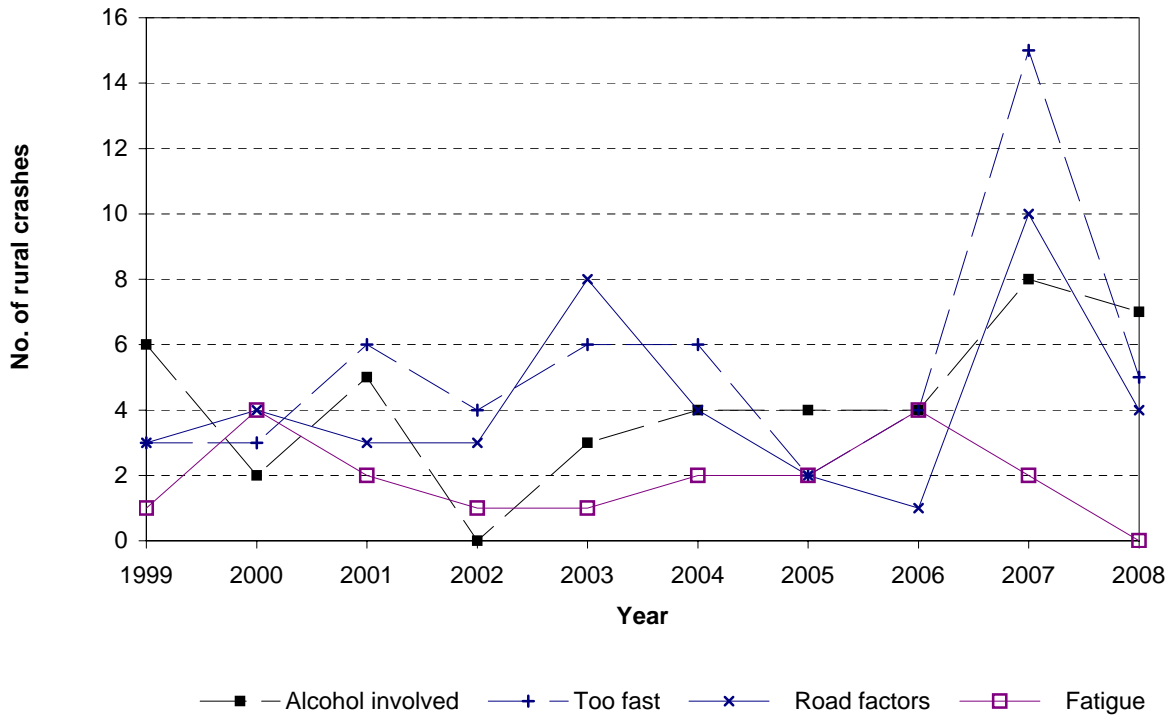
**Figure 5.7 Alcohol involved trend  
Hamilton City - urban roads**



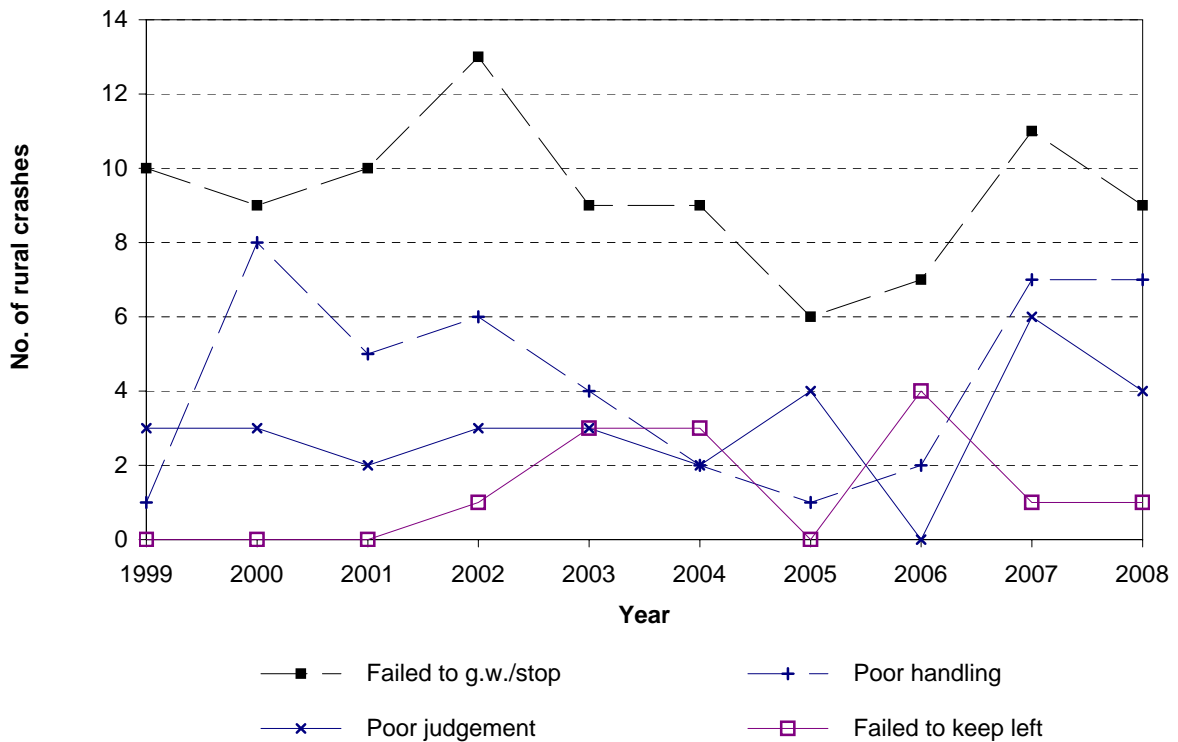
**Figure 5.8 Speed involved trend  
Hamilton City - urban roads**



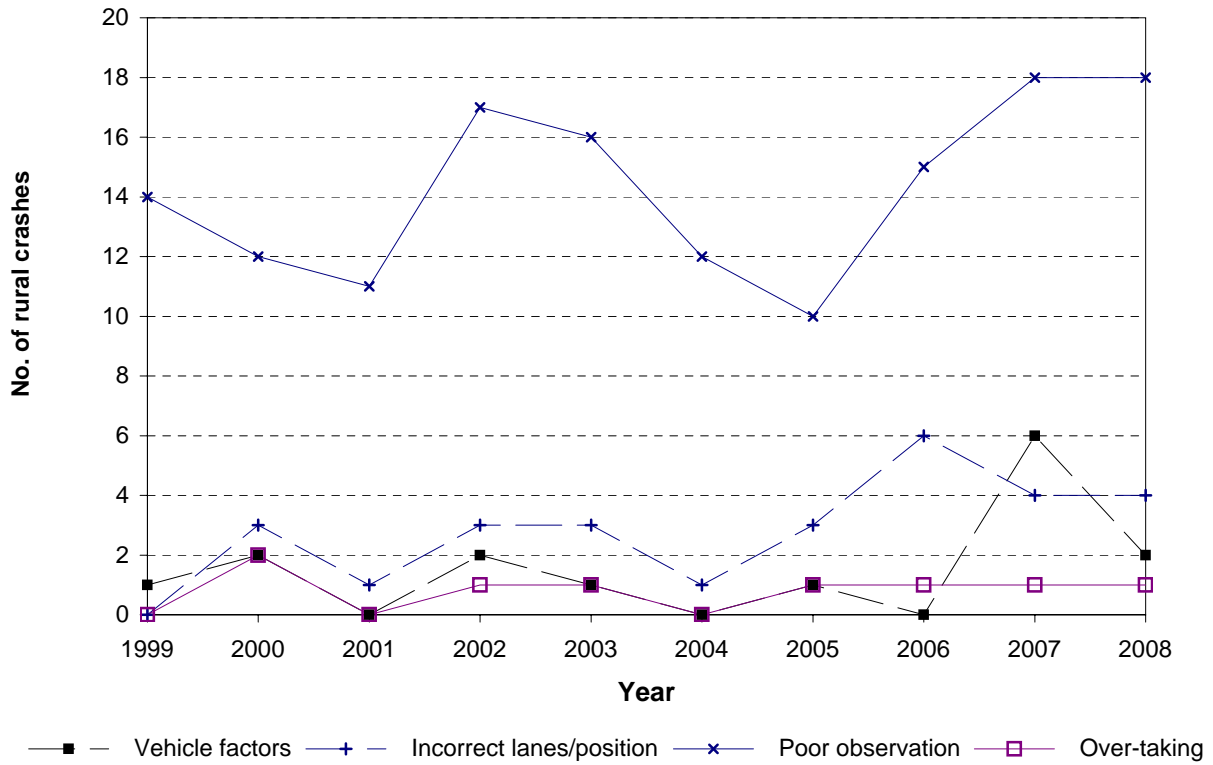
**Figure 5.9 Contributing factor trends  
Hamilton City - rural roads**



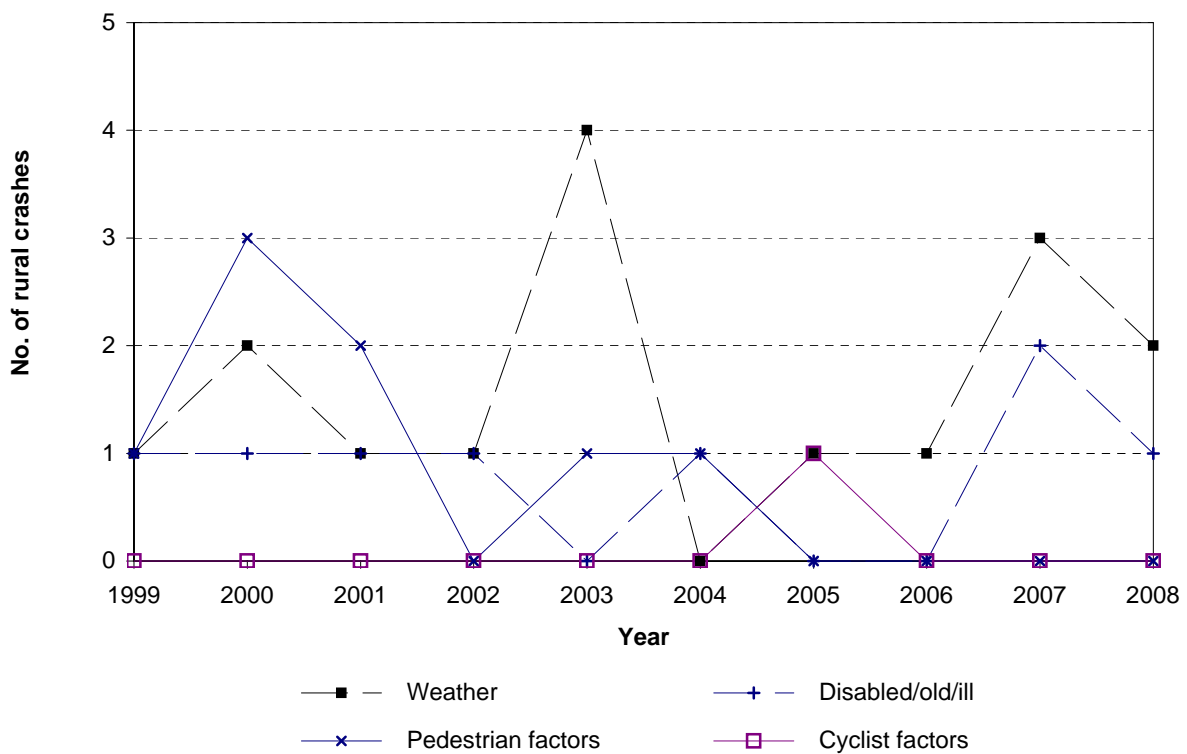
**Figure 5.10 Contributing factor trends  
Hamilton City - rural roads**



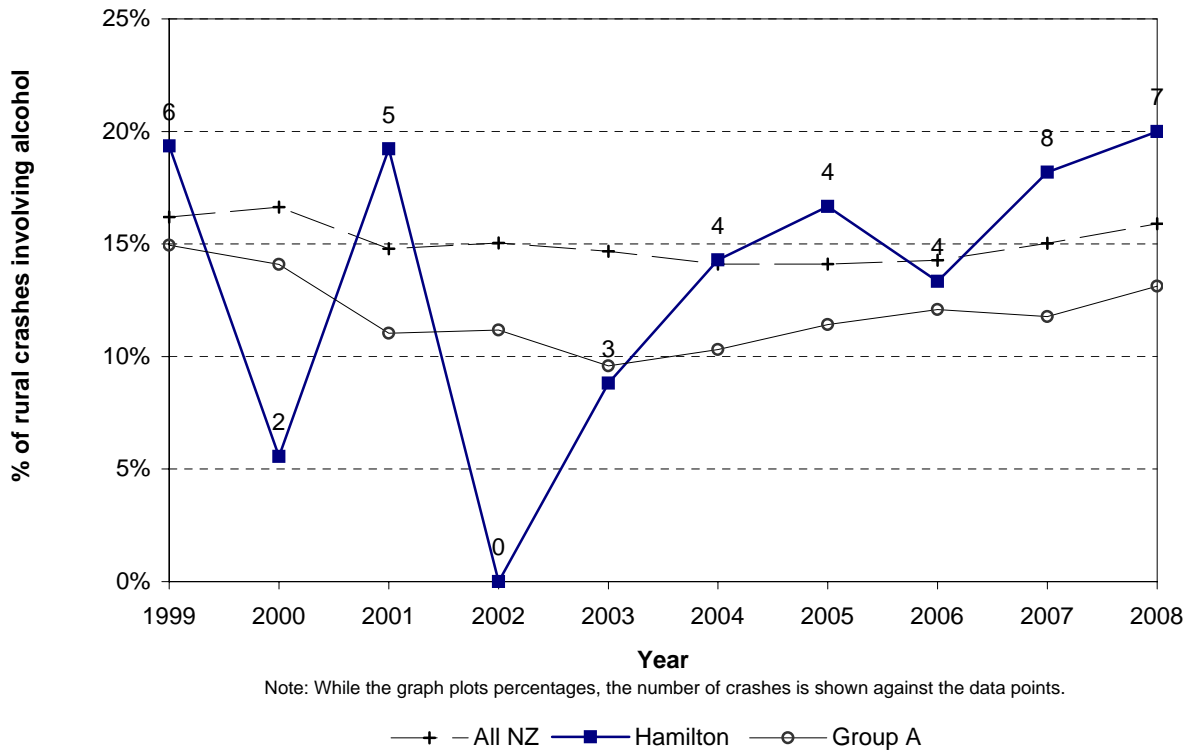
**Figure 5.11 Contributing factor trends  
Hamilton City - rural roads**



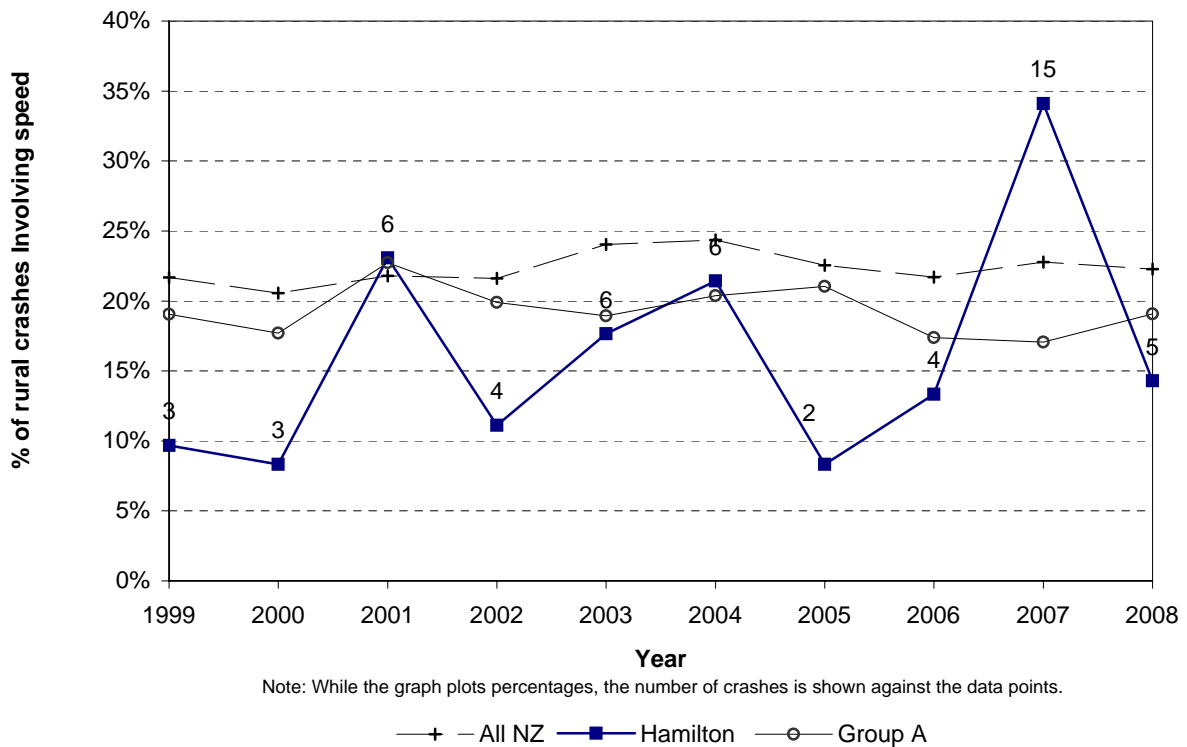
**Figure 5.12 Contributing factor trends  
Hamilton City - rural roads**



**Figure 5.13 Alcohol involved trend  
Hamilton City - rural roads**



**Figure 5.14 Speed involved trend  
Hamilton City - rural roads**



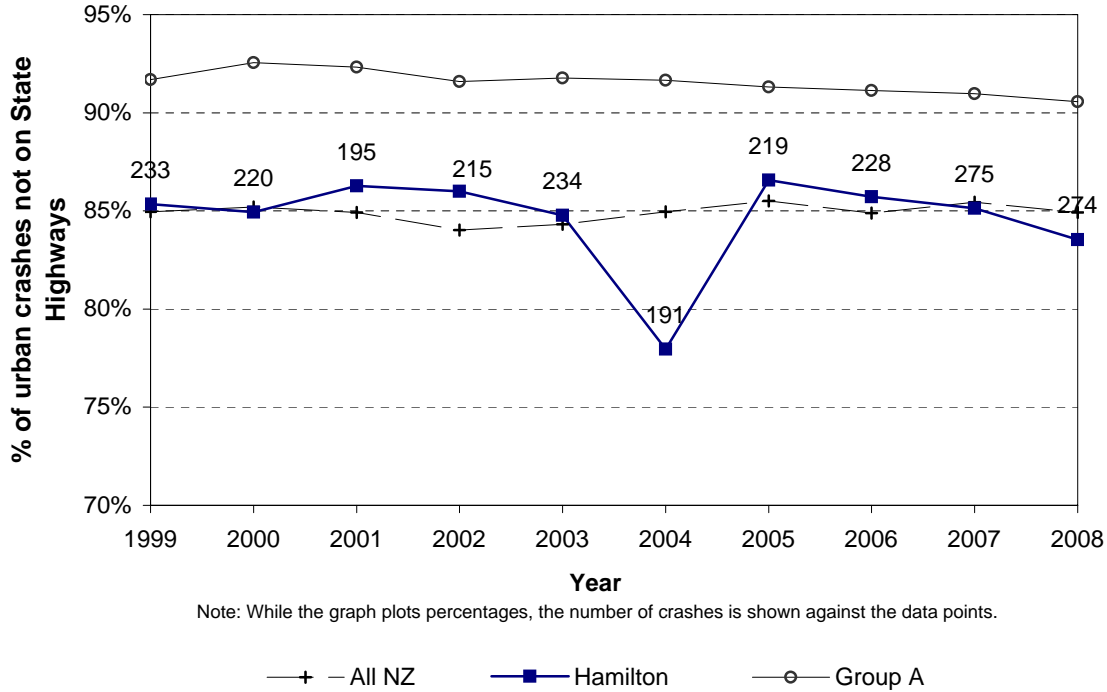


# *Environmental Statistics*

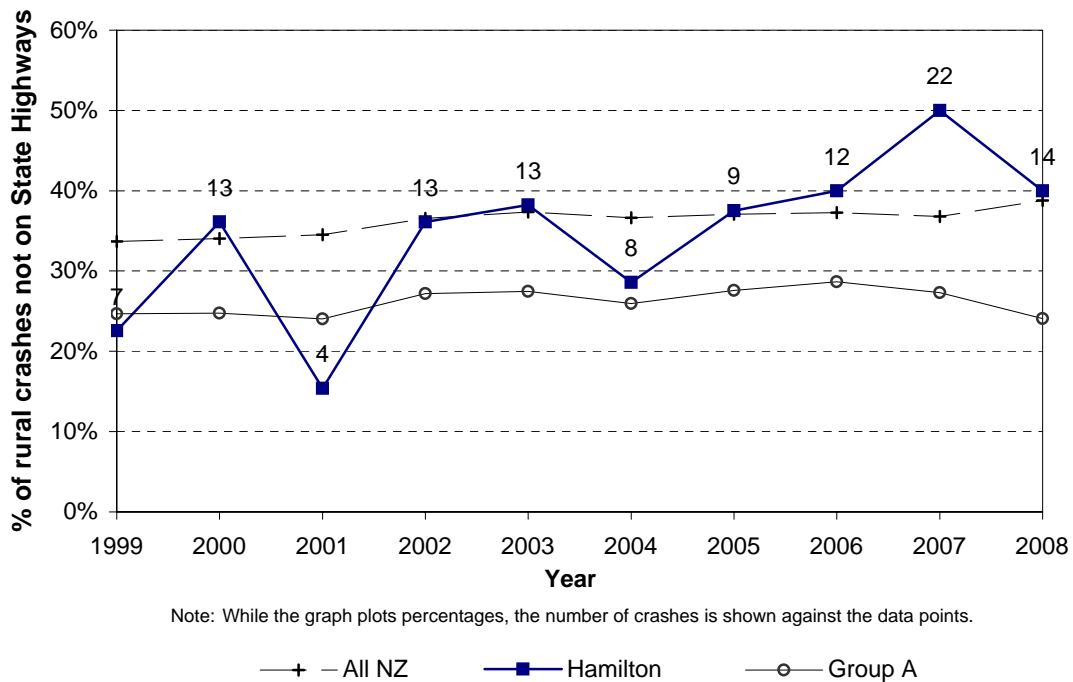




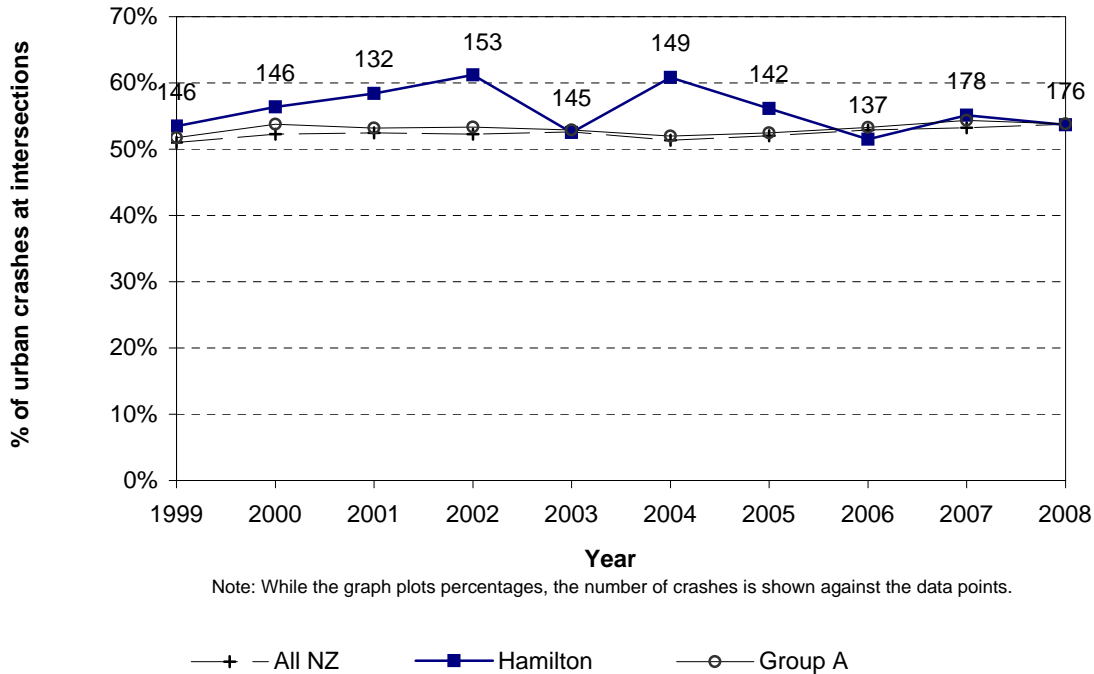
**Figure 6.1 Crashes not on state highways  
Hamilton City - urban roads**



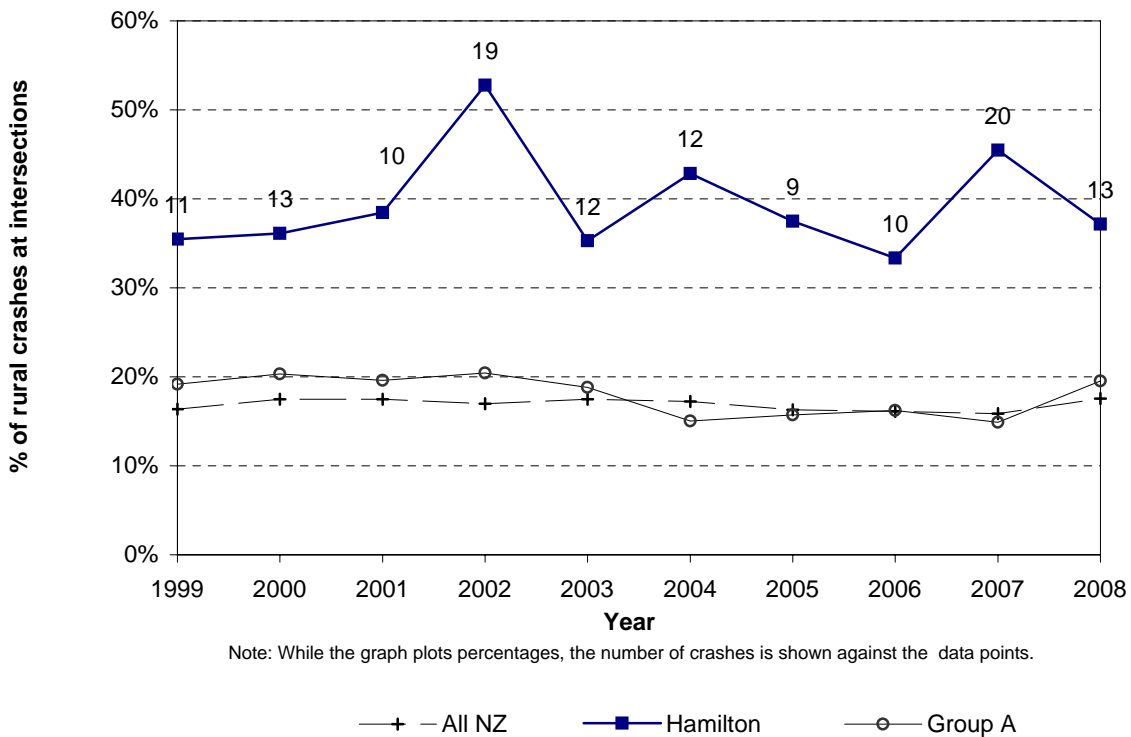
**Figure 6.2 Crashes not on state highways  
Hamilton City - rural roads**



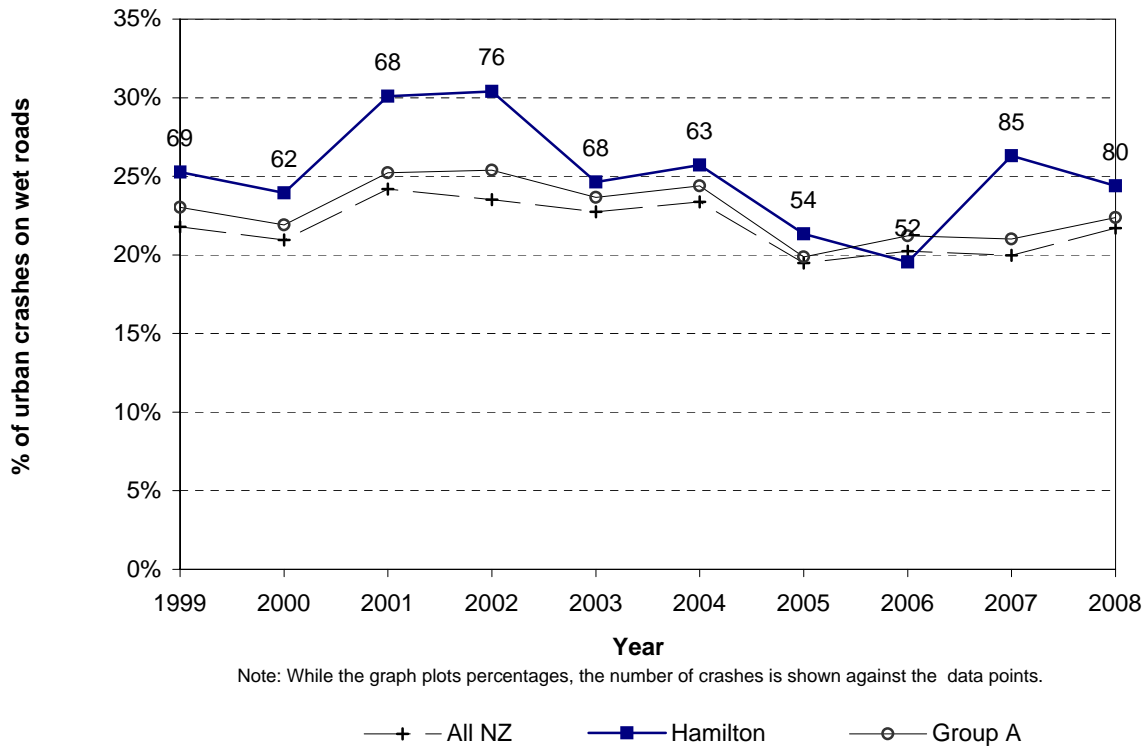
**Figure 6.3 Intersection crashes  
Hamilton City - urban roads**



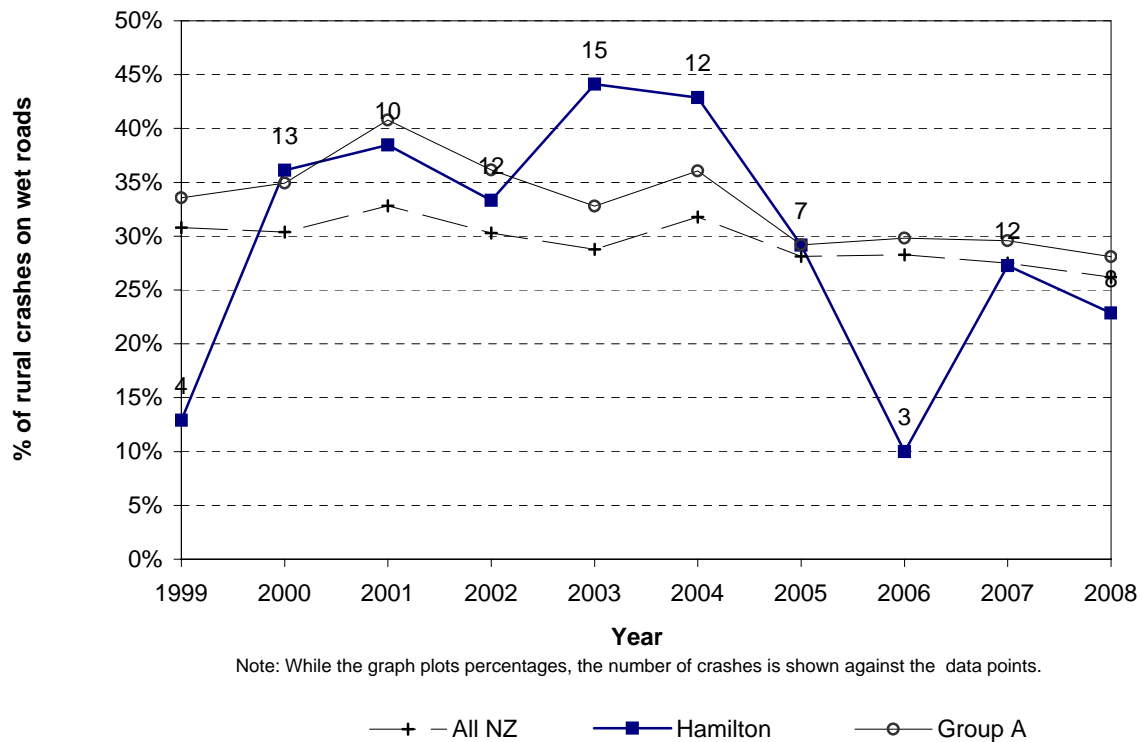
**Figure 6.4 Intersection crashes  
Hamilton City - rural roads**



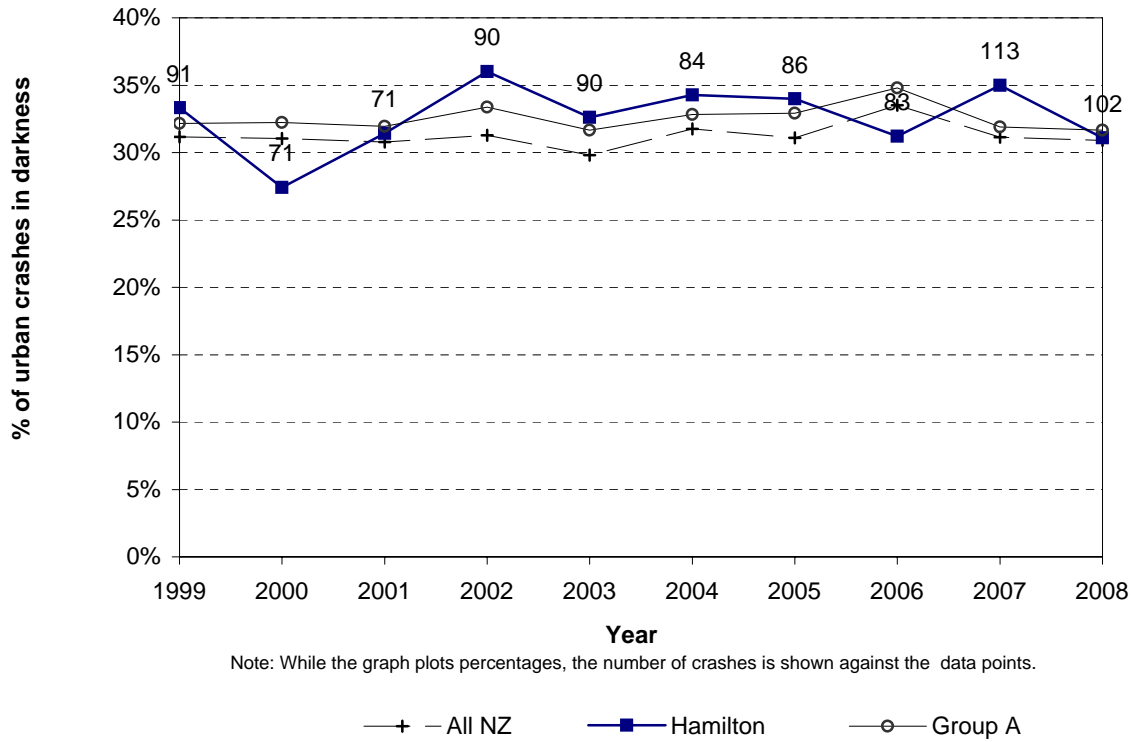
**Figure 6.5 Wet road crashes  
Hamilton City - urban roads**



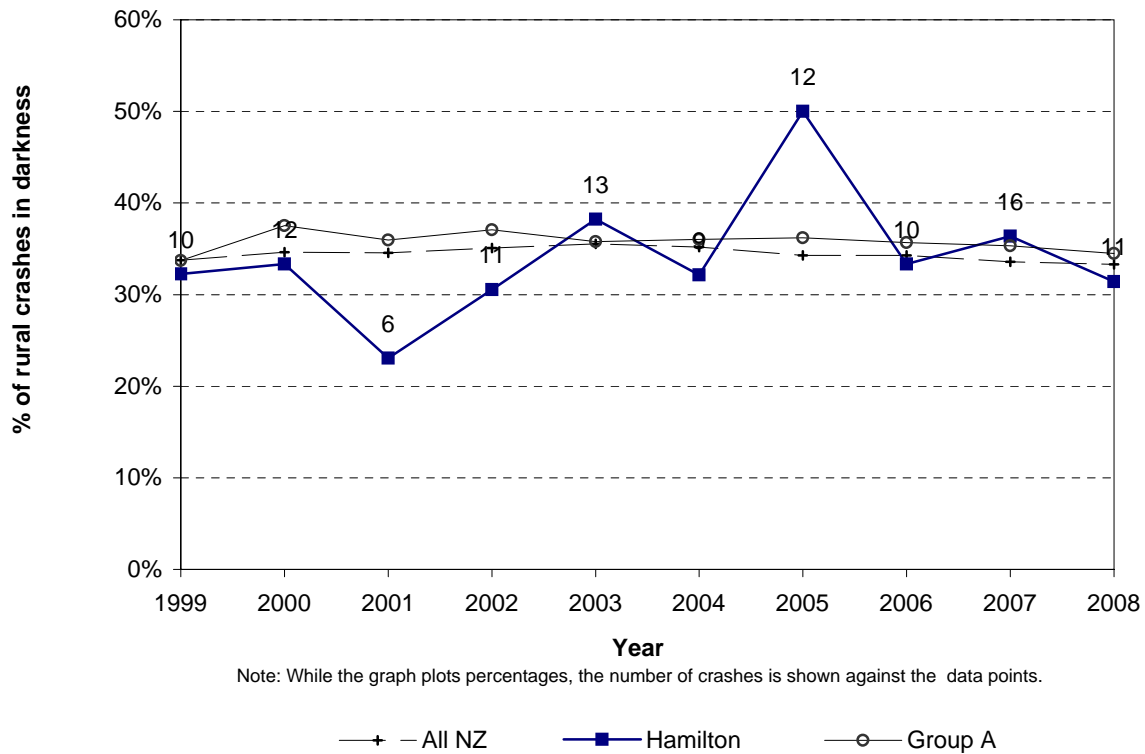
**Figure 6.6 Wet road crashes  
Hamilton City - rural roads**



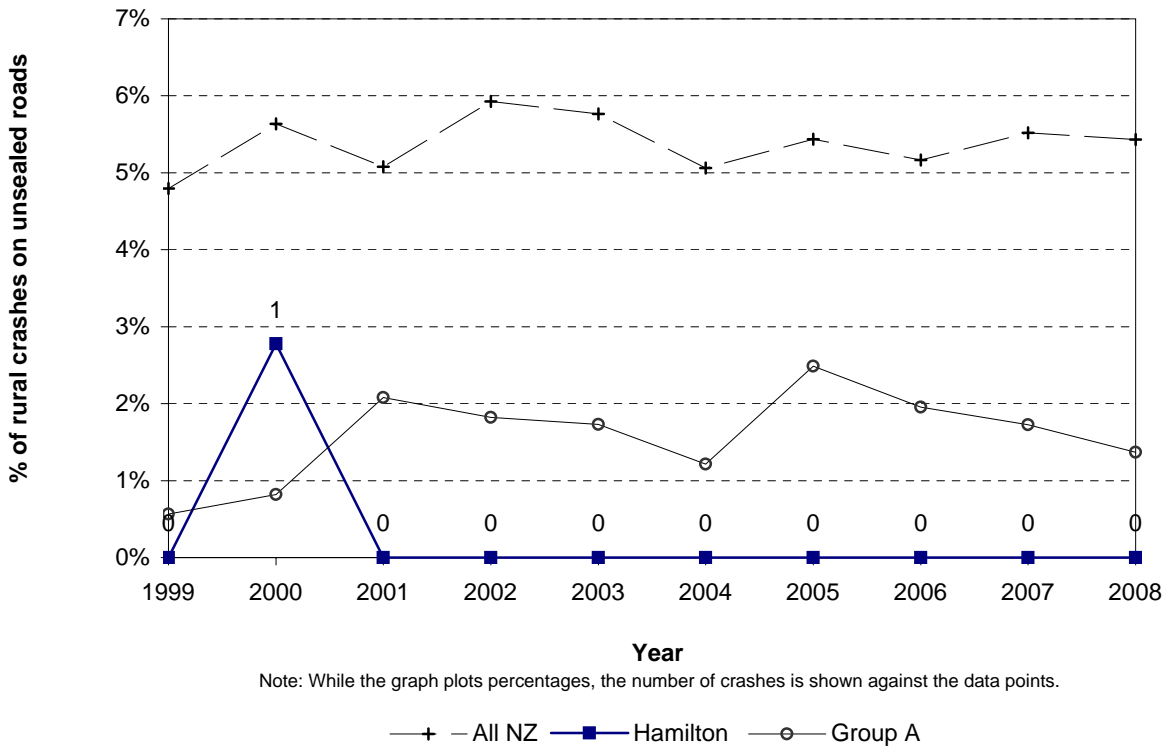
**Figure 6.7 Crashes in darkness  
Hamilton City - urban roads**



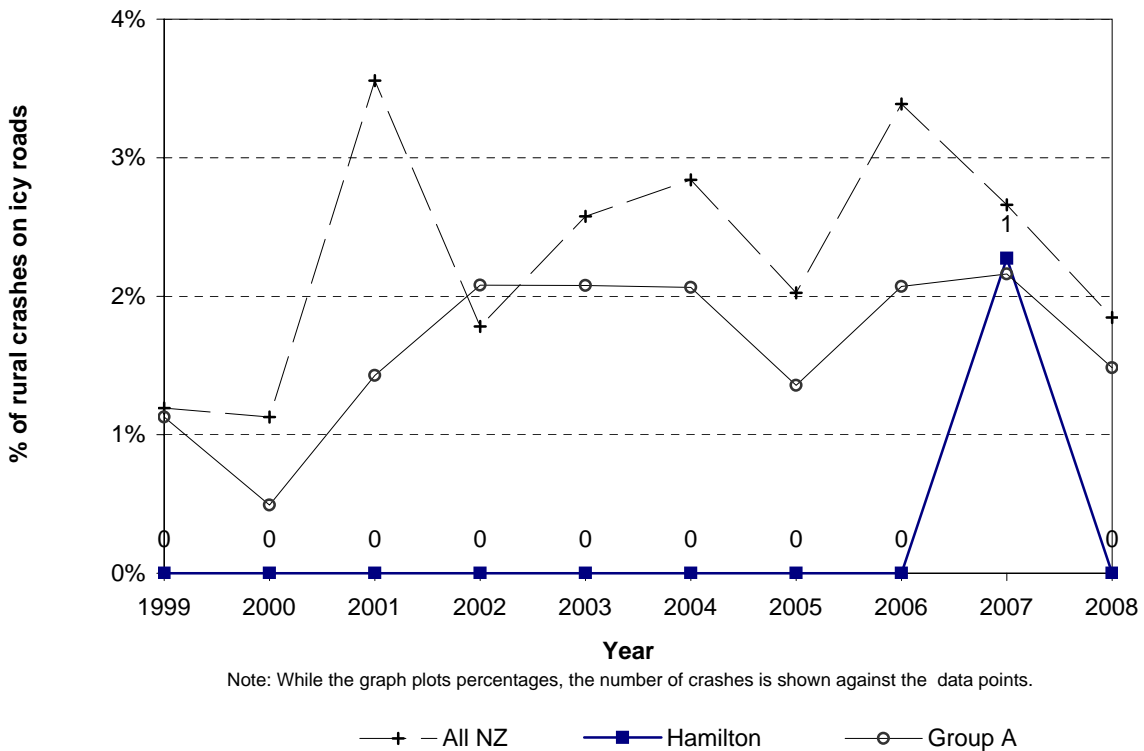
**Figure 6.8 Crashes in darkness  
Hamilton City - rural roads**



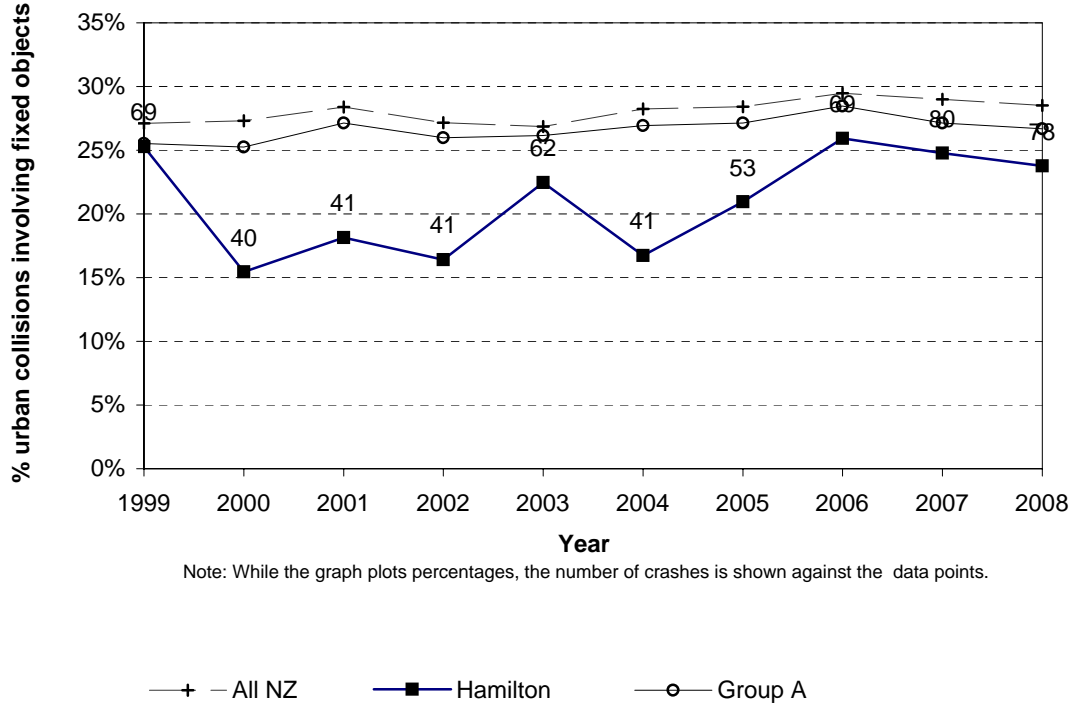
**Figure 6.9 Unsealed road crashes  
Hamilton City - rural roads**



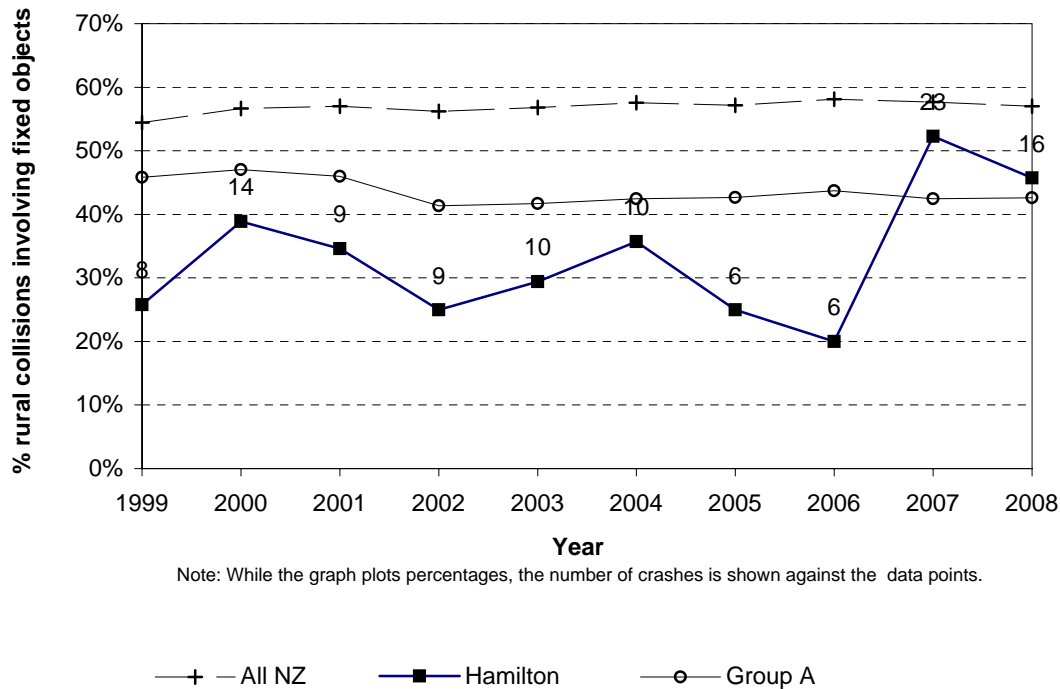
**Figure 6.10 Icy road crashes  
Hamilton City - rural roads**



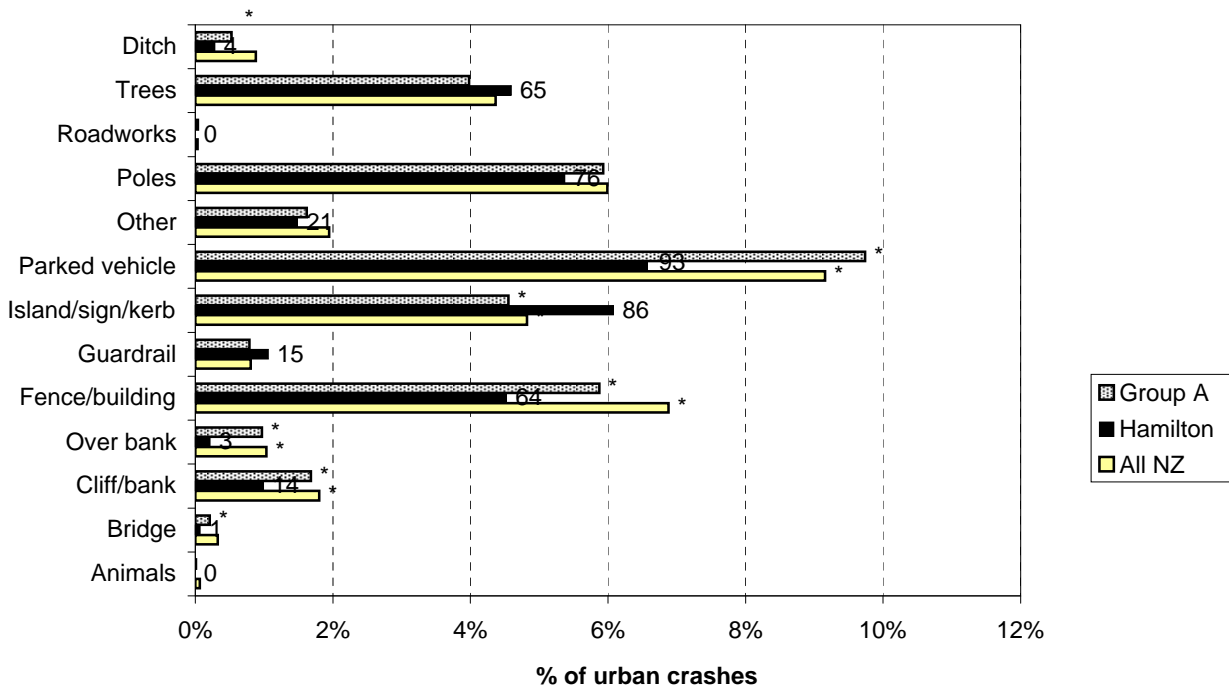
**Figure 6.11 Collisions with objects  
Hamilton City - urban roads**



**Figure 6.12 Collisions with objects  
Hamilton City - rural roads**

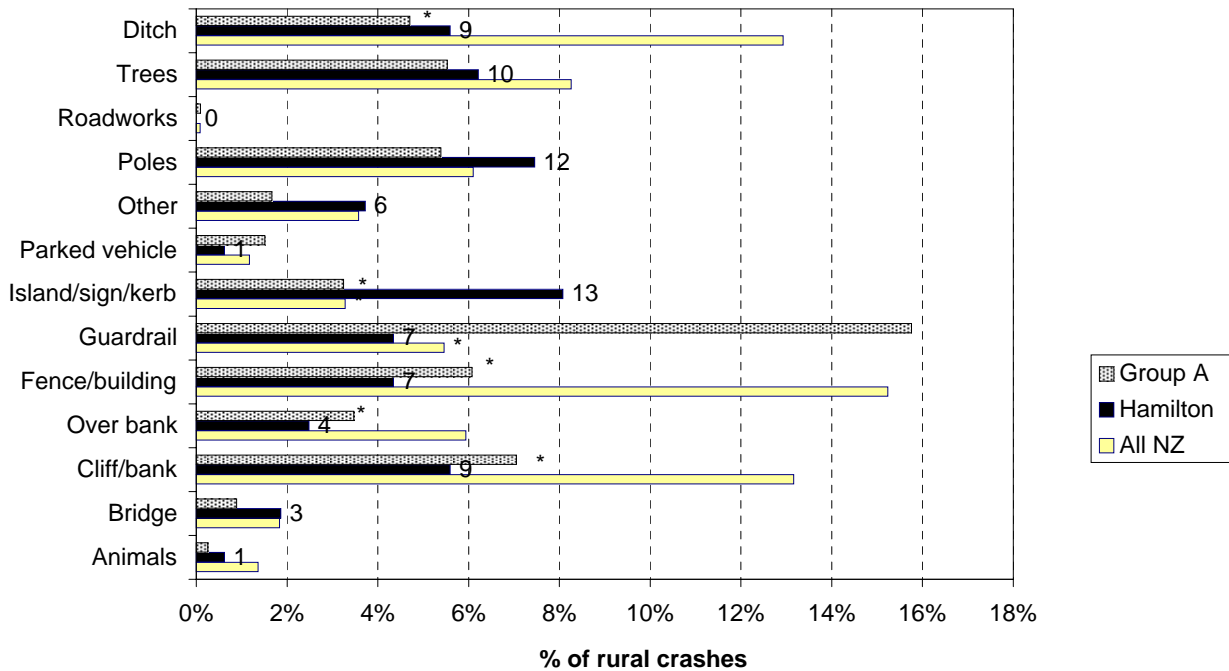


**Figure 6.13 Objects struck - urban  
Hamilton City (2004-2008)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 6.14 Objects struck - rural  
Hamilton City (2004-2008)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

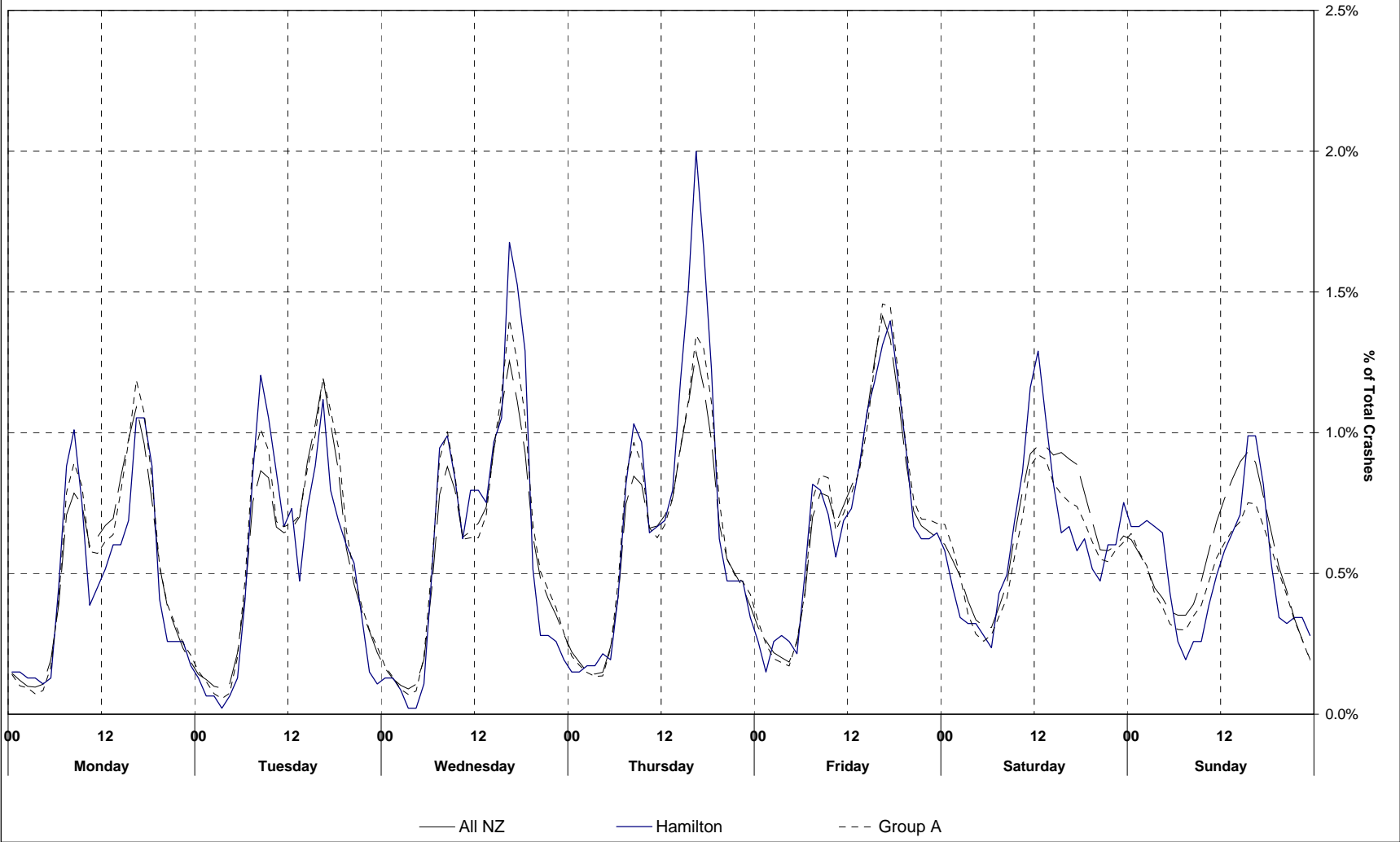




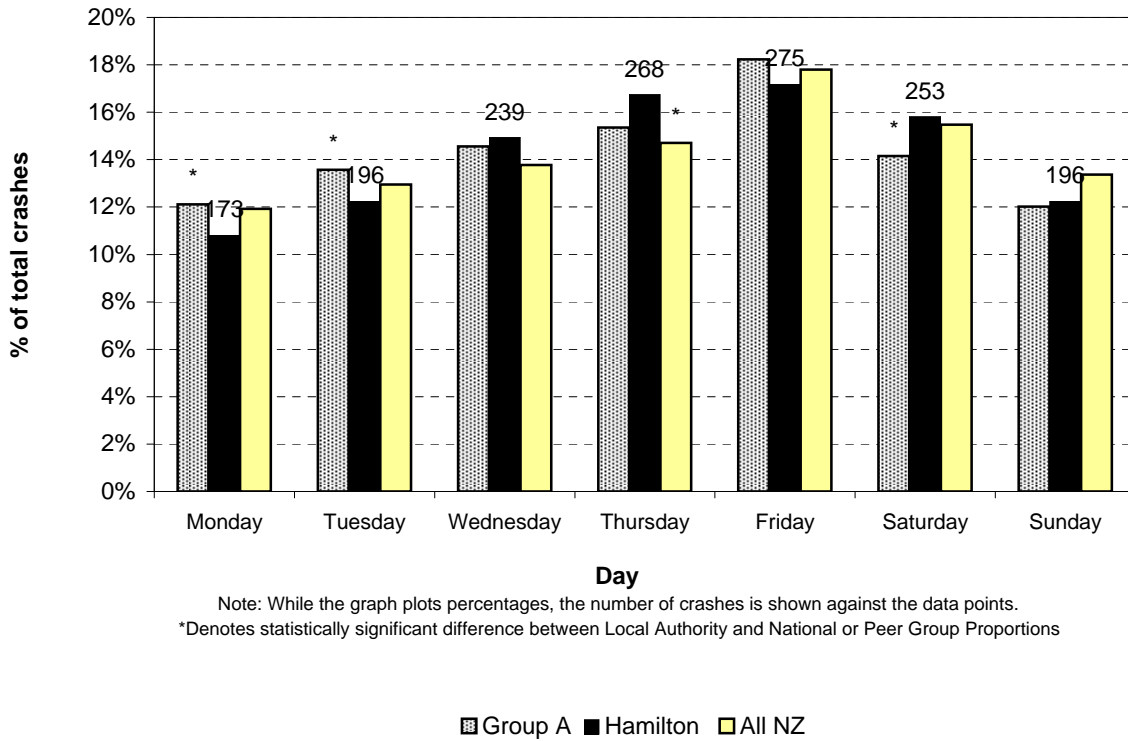
# *Date and Time Statistics*



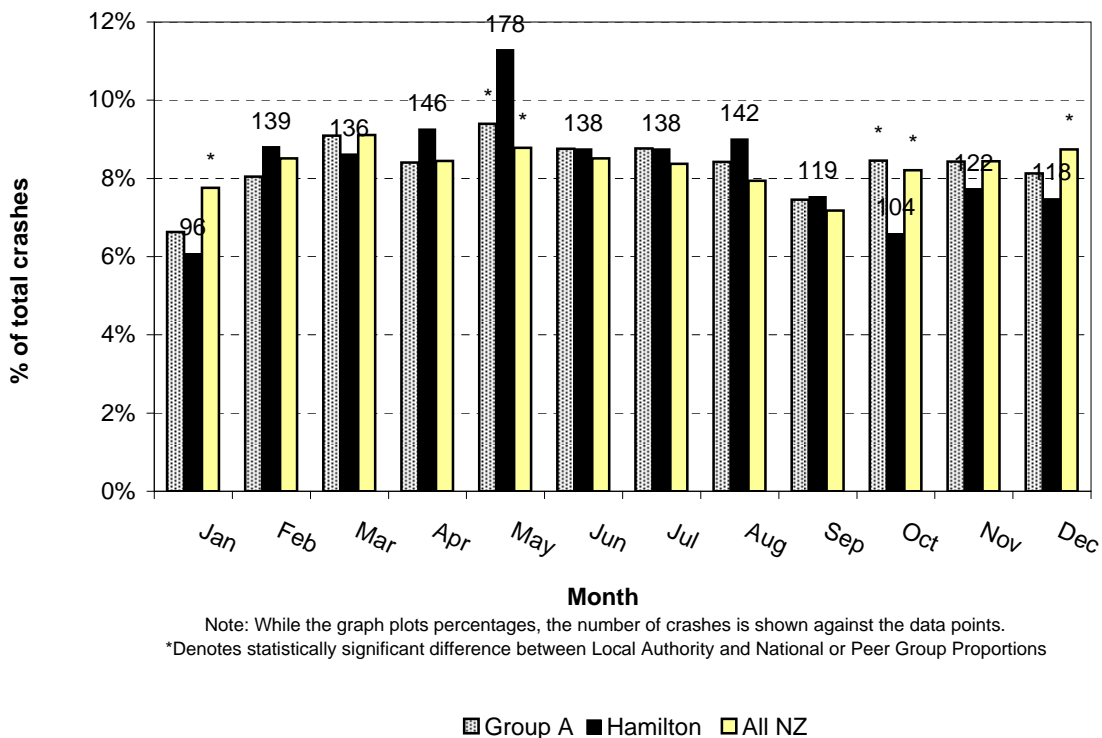
Figure 7.1 Time pattern over average week  
Hamilton City (2004-2008)



**Figure 7.2 Day of week (6 a.m. to 6 a.m.)  
Hamilton City (2004-2008)**



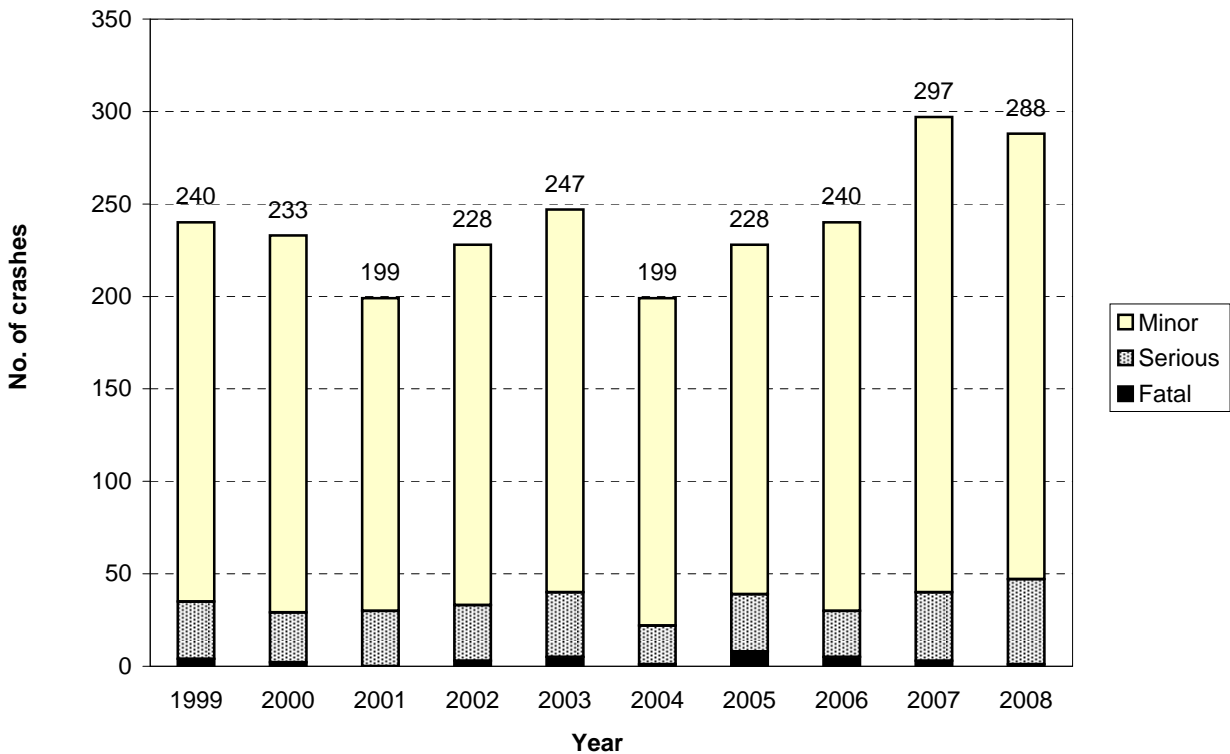
**Figure 7.3 Month of year  
Hamilton City (2004-2008)**



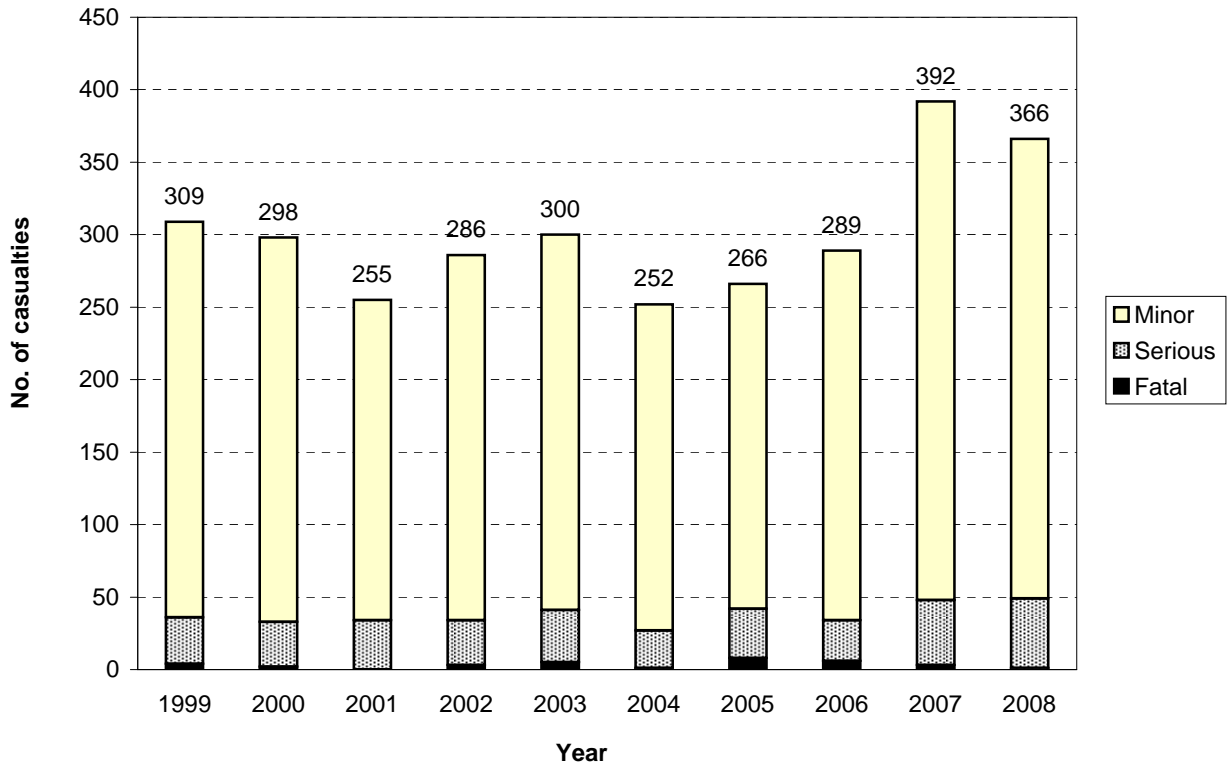
# *Local Road Statistics*



**Figure 8.1 Number of injury crashes**  
Hamilton City - council roads (urban & rural)

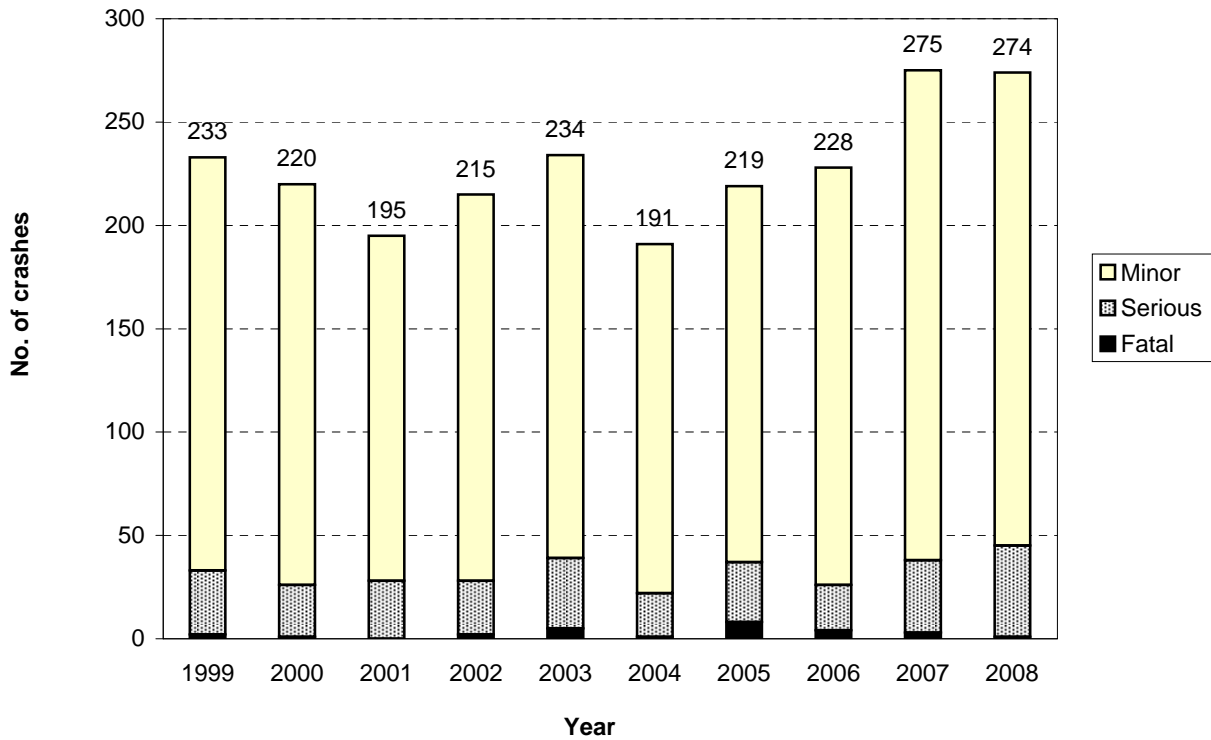


**Figure 8.2 Number of casualties**  
Hamilton City - council roads (urban & rural)

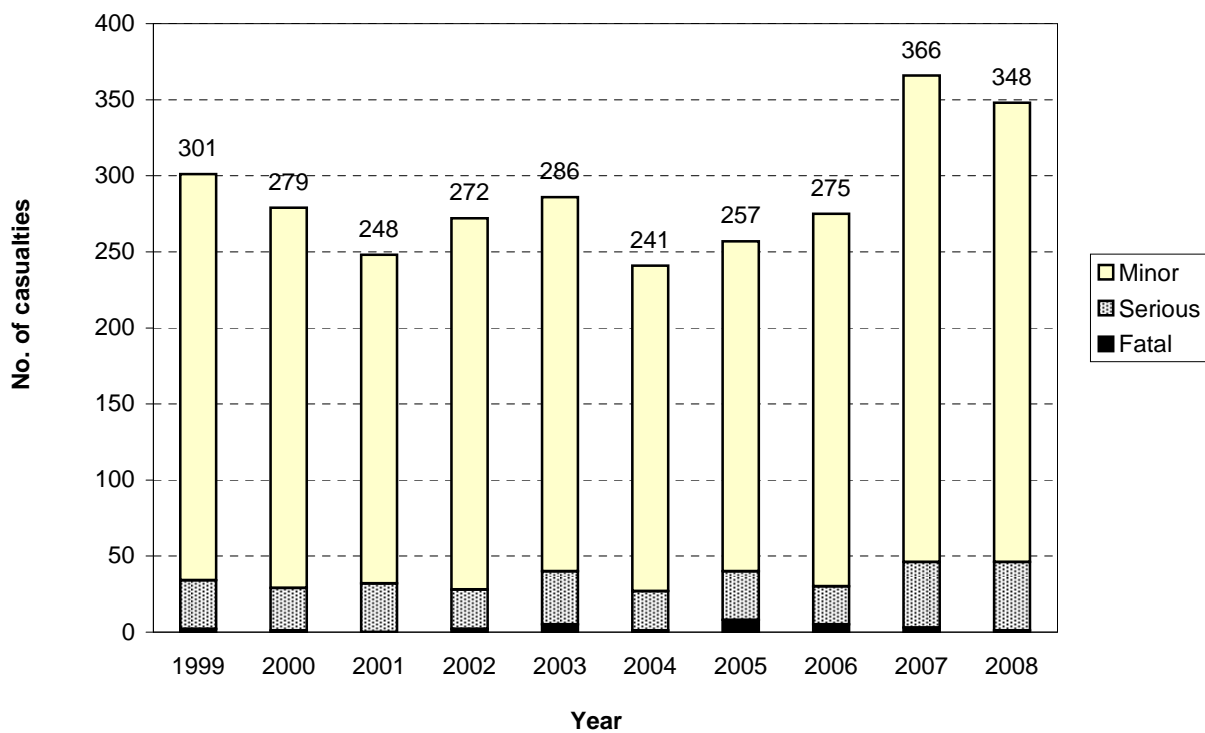




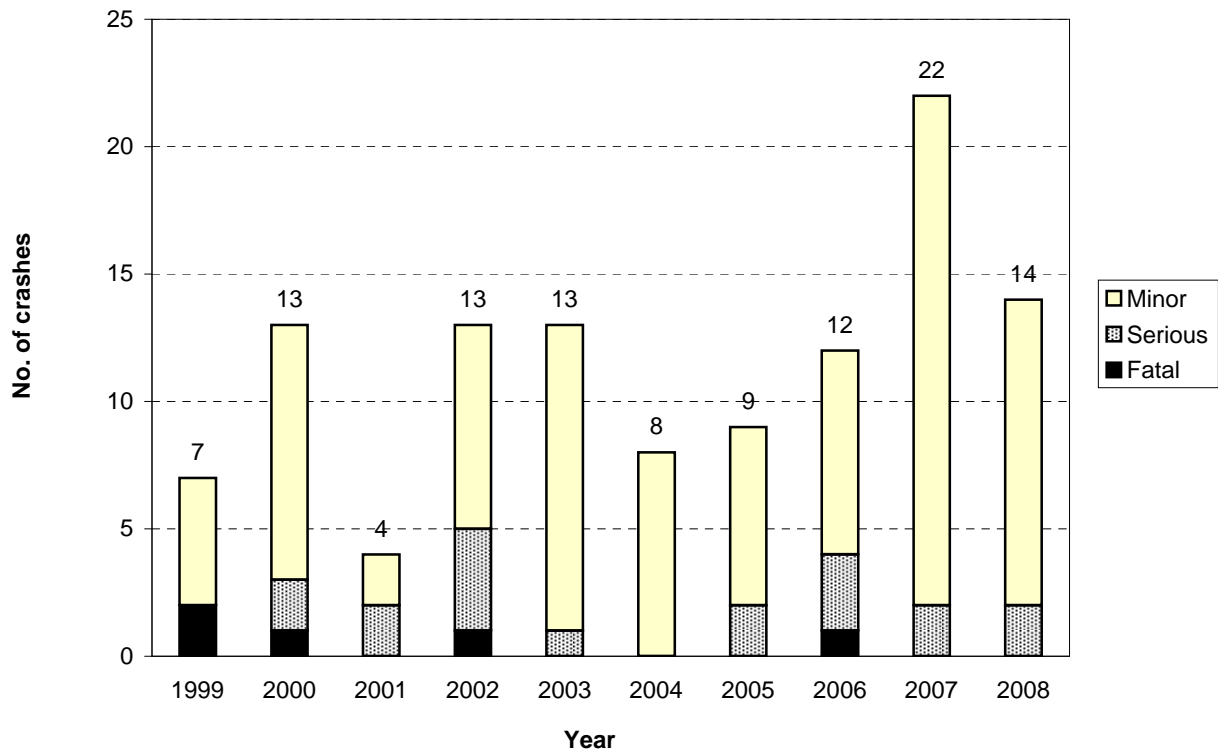
**Figure 8.3 Number of injury crashes  
Hamilton City - urban council roads**



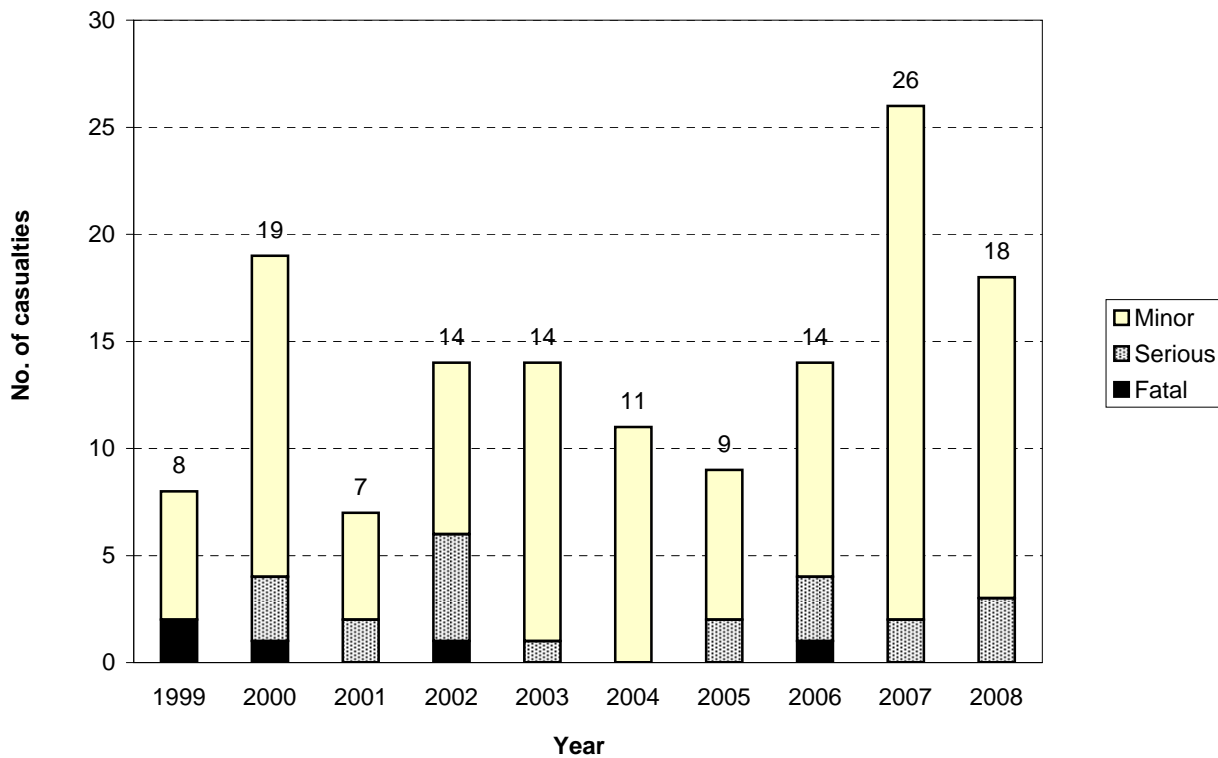
**Figure 8.4 Number of casualties  
Hamilton City - urban council roads**



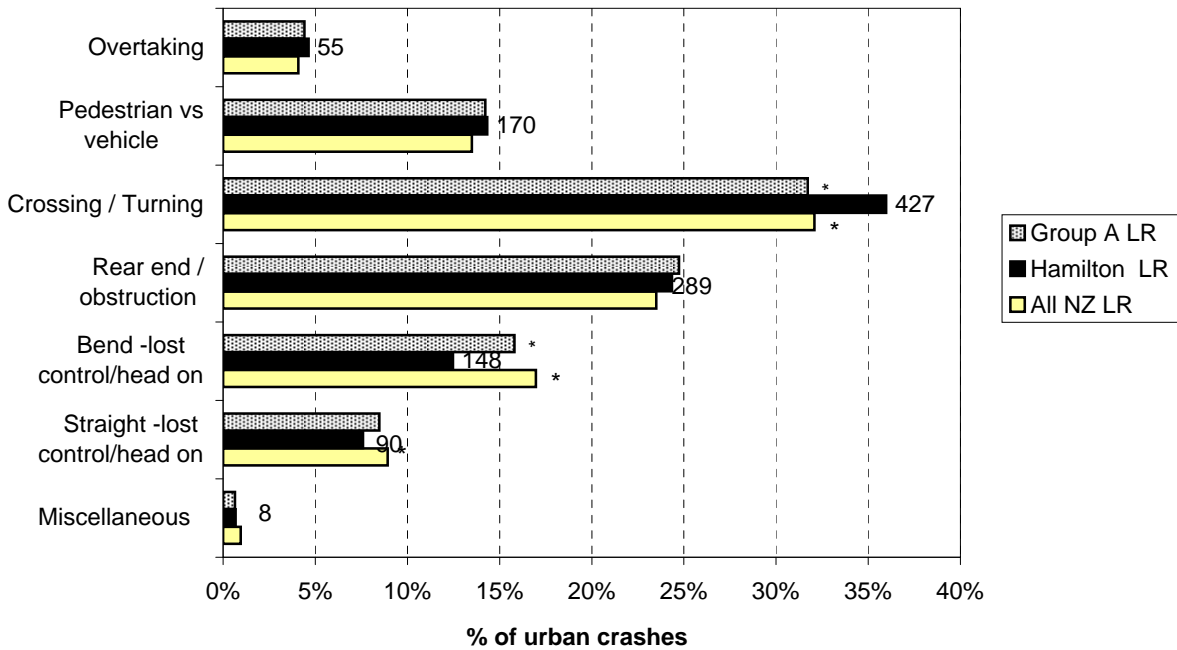
**Figure 8.5 Number of injury crashes  
Hamilton City - rural council roads**



**Figure 8.6 Number of casualties  
Hamilton City - rural council roads**

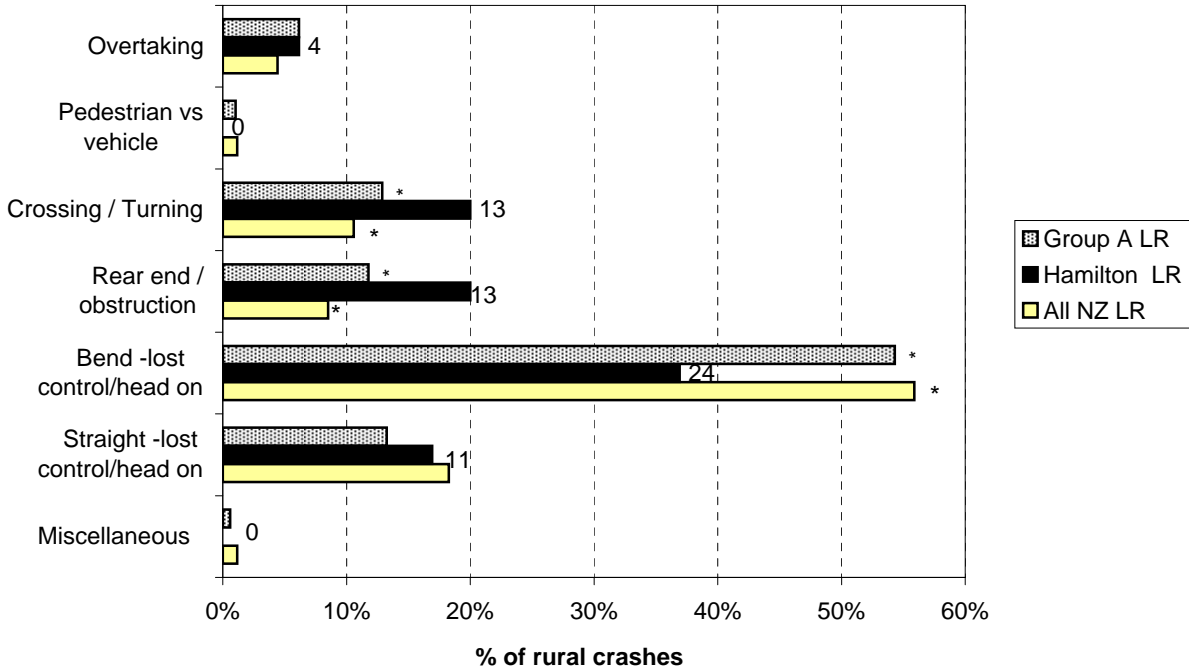


**Figure 8.7 Crash movement type - urban  
Hamilton City council roads (2004-2008)**



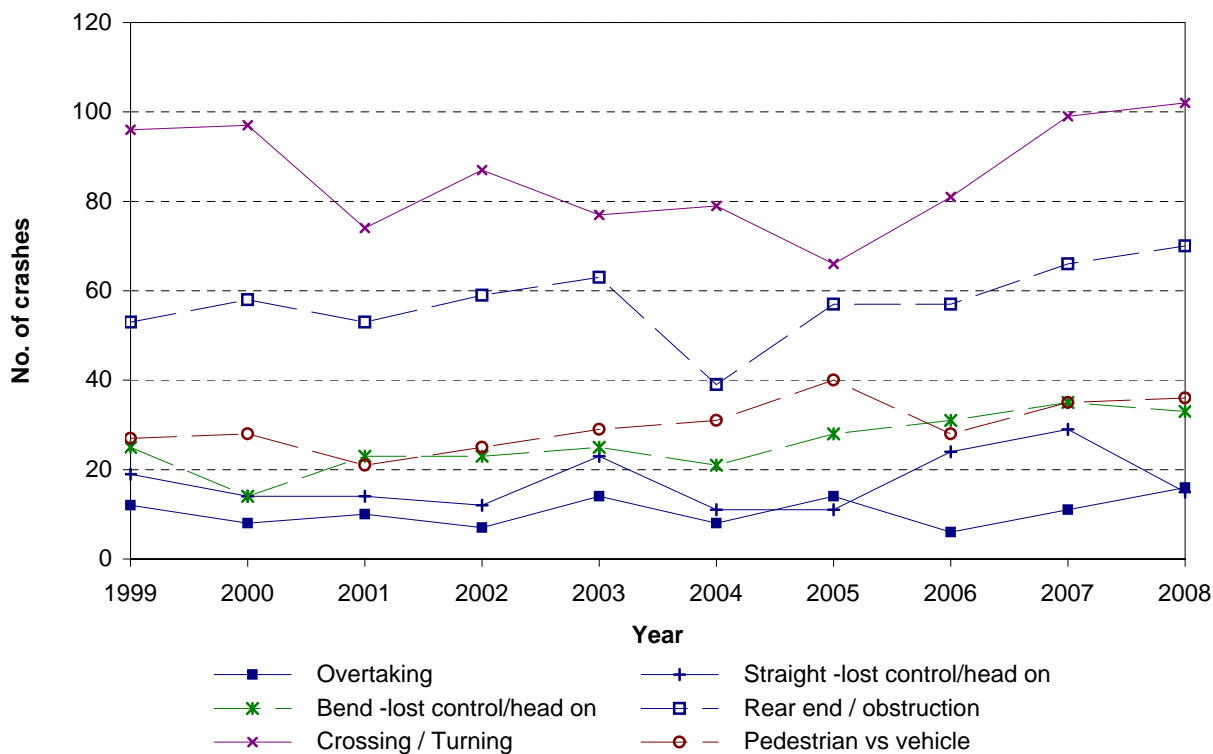
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.8 Crash movement type - rural  
Hamilton City council roads (2004-2008)**

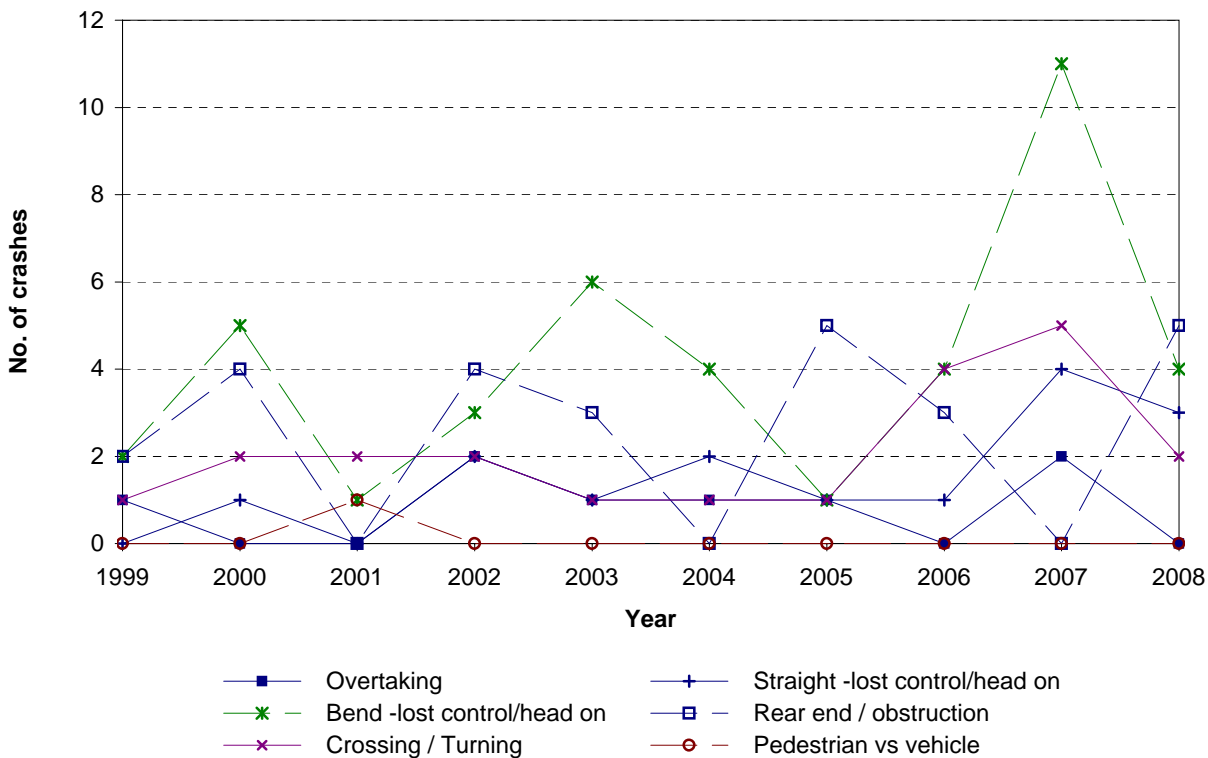


Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

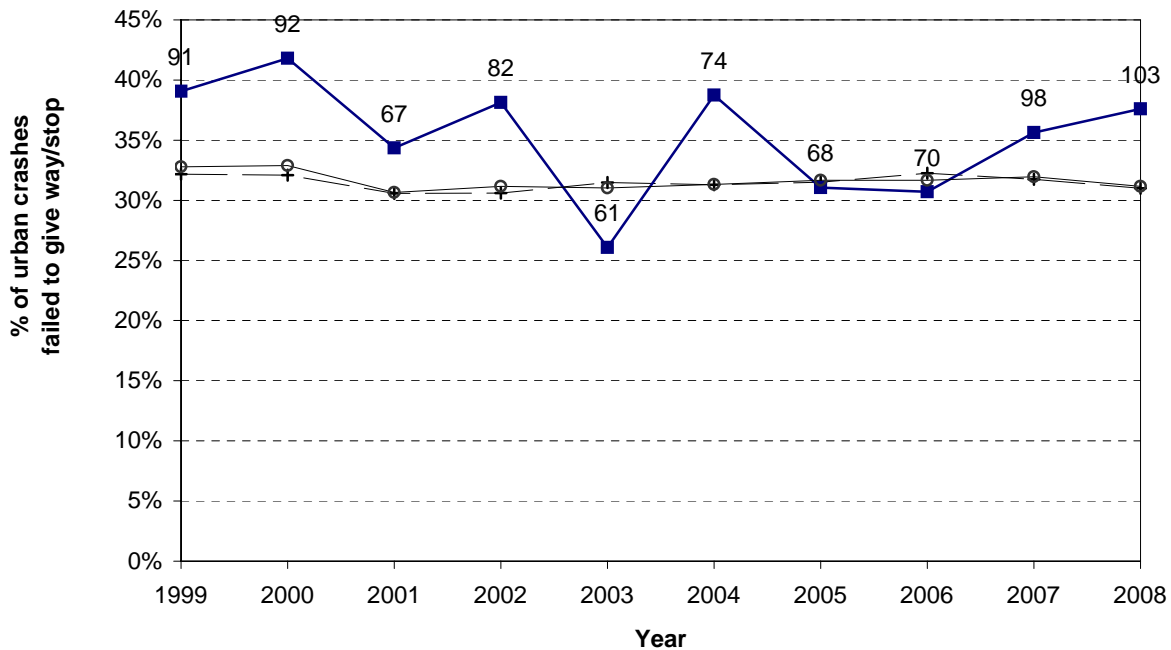
**Figure 8.9 Crash movement type - Trends  
Hamilton City - urban council roads**



**Figure 8.10 Crash movement type - Trends  
Hamilton City - rural council roads**



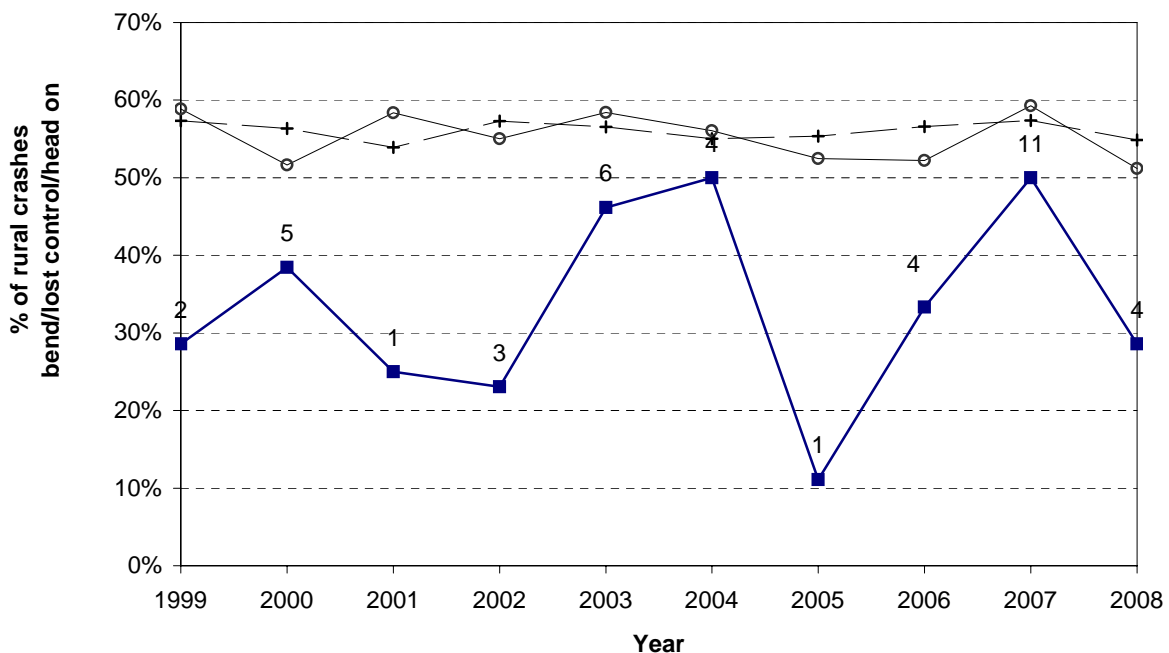
**Figure 8.11 Failed to give way/stop  
Hamilton City - urban council roads**



Note: While the graph plots percentages, the number of crashes is shown against the data points.

—+— All NZ LR —■— Hamilton LR —○— Group A LR

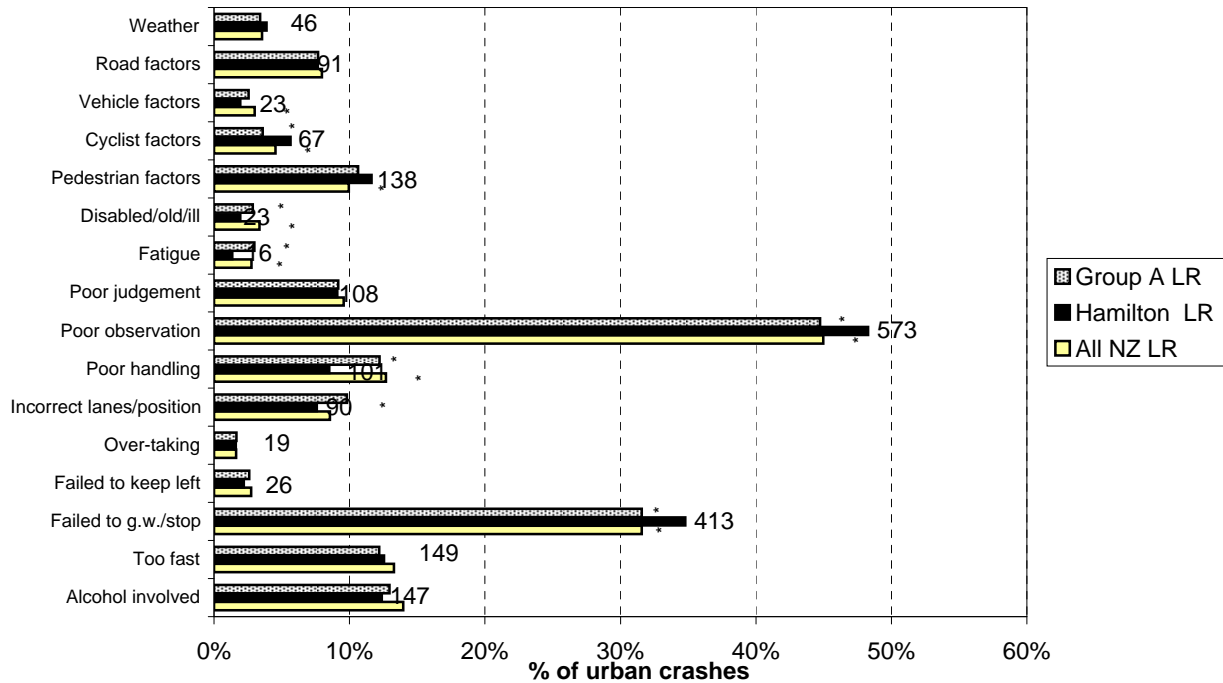
**Figure 8.12 Bend - lost control / head - on  
Hamilton City - rural council roads**



Note: While the graph plots percentages, the number of crashes is shown against the data points.

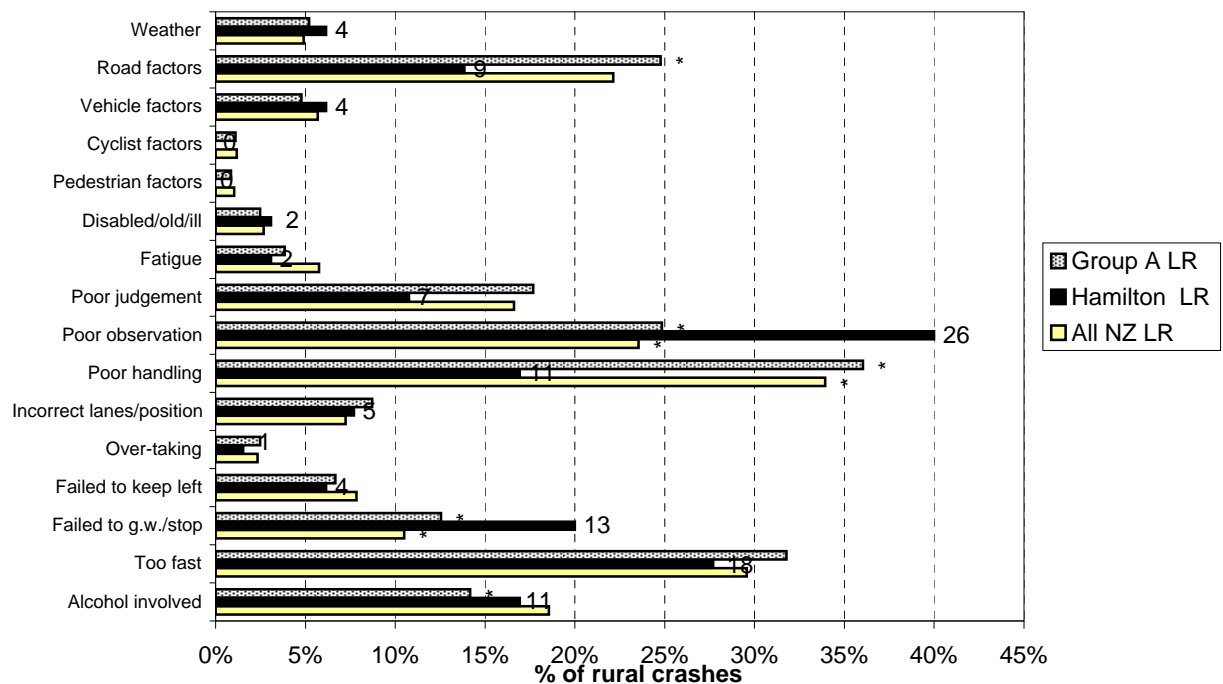
—+— All NZ LR —■— Hamilton LR —○— Group A LR

**Figure 8.13 Contributing factors - urban  
Hamilton City council roads (2004-2008)**



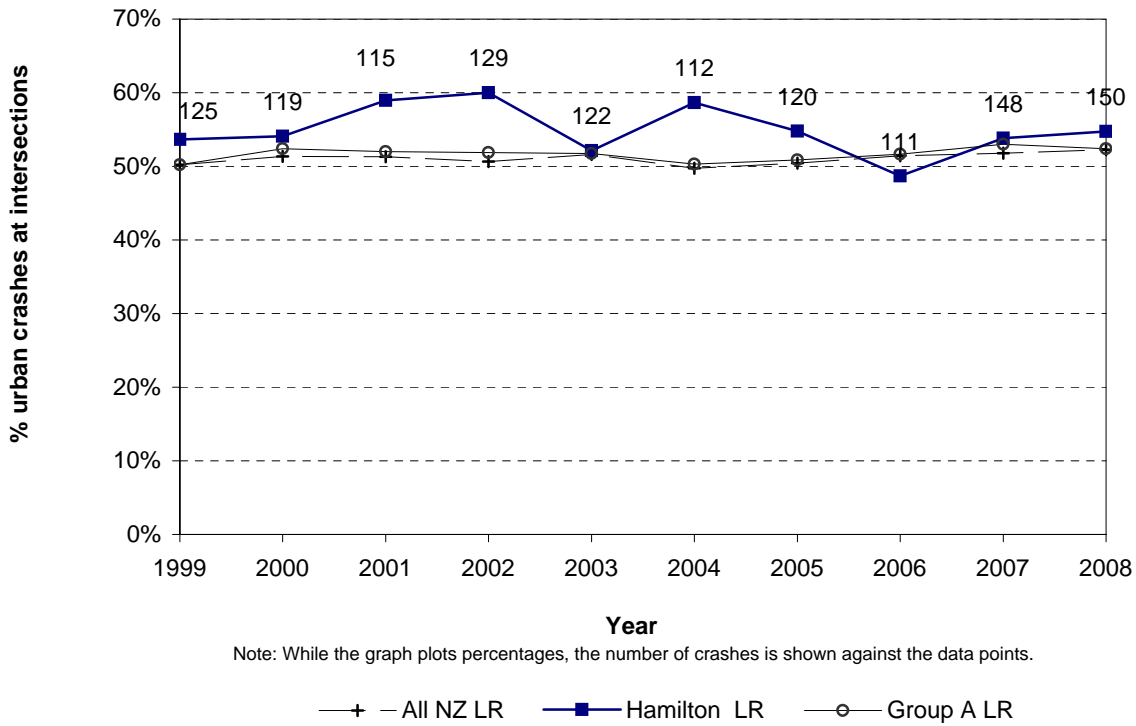
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.14 Contributing factors - rural  
Hamilton City council roads (2004-2008)**

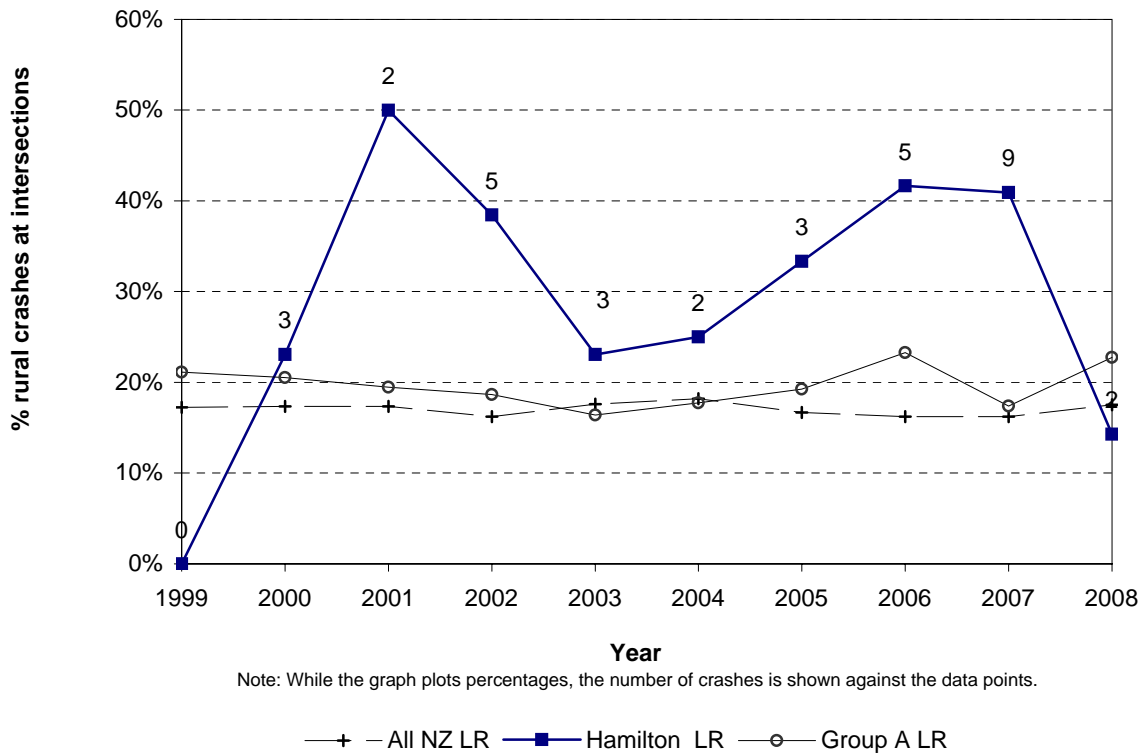


Note: While the graph plots percentages, the number of casualties is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

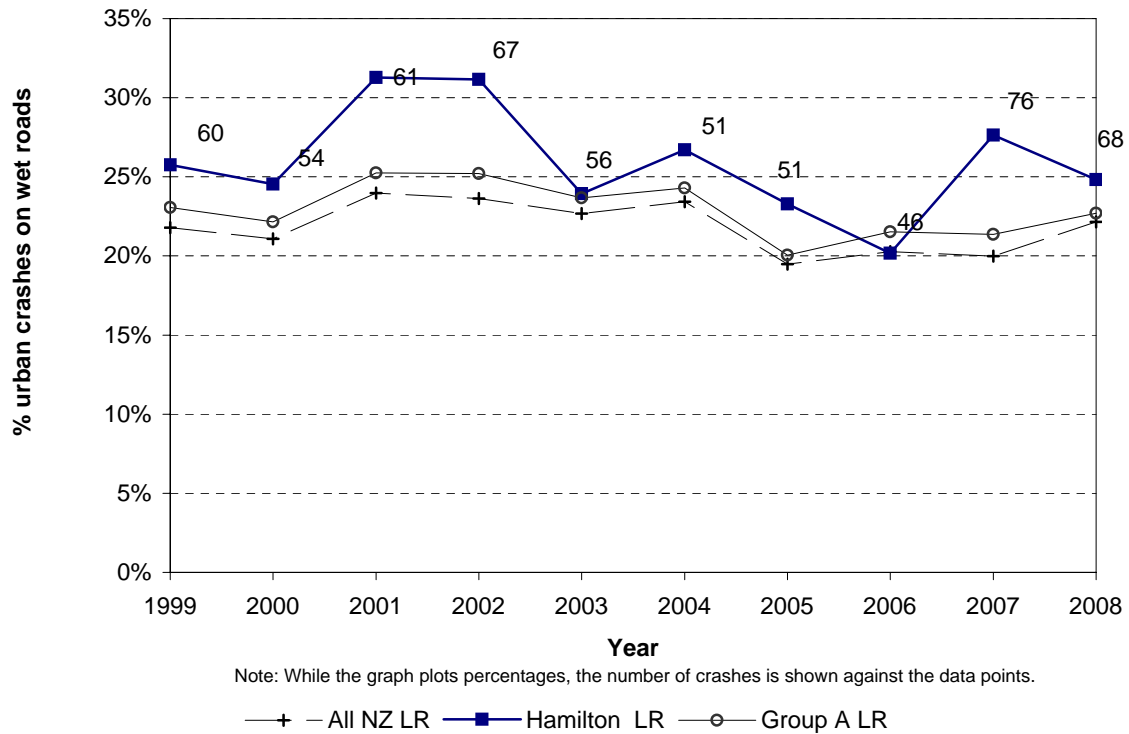
**Figure 8.15 Intersection crashes  
Hamilton City - urban council roads**



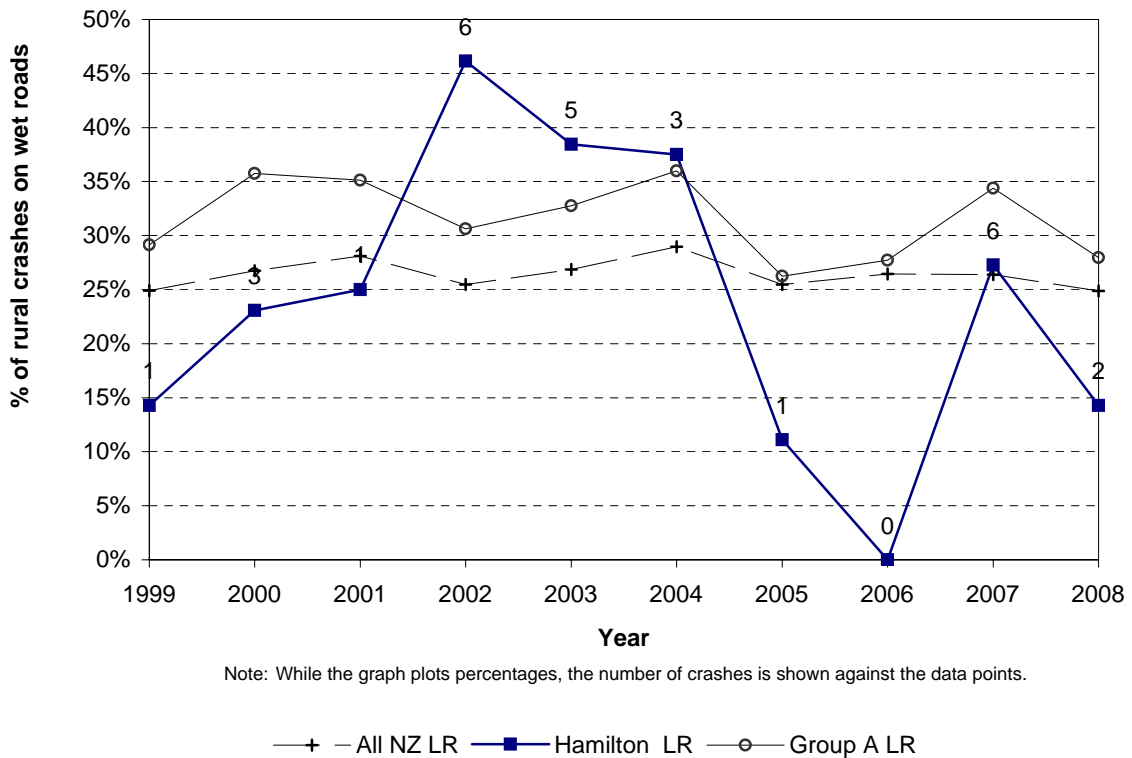
**Figure 8.16 Intersection crashes  
Hamilton City - rural council roads**



**Figure 8.17 Wet road crashes  
Hamilton City - urban council roads**

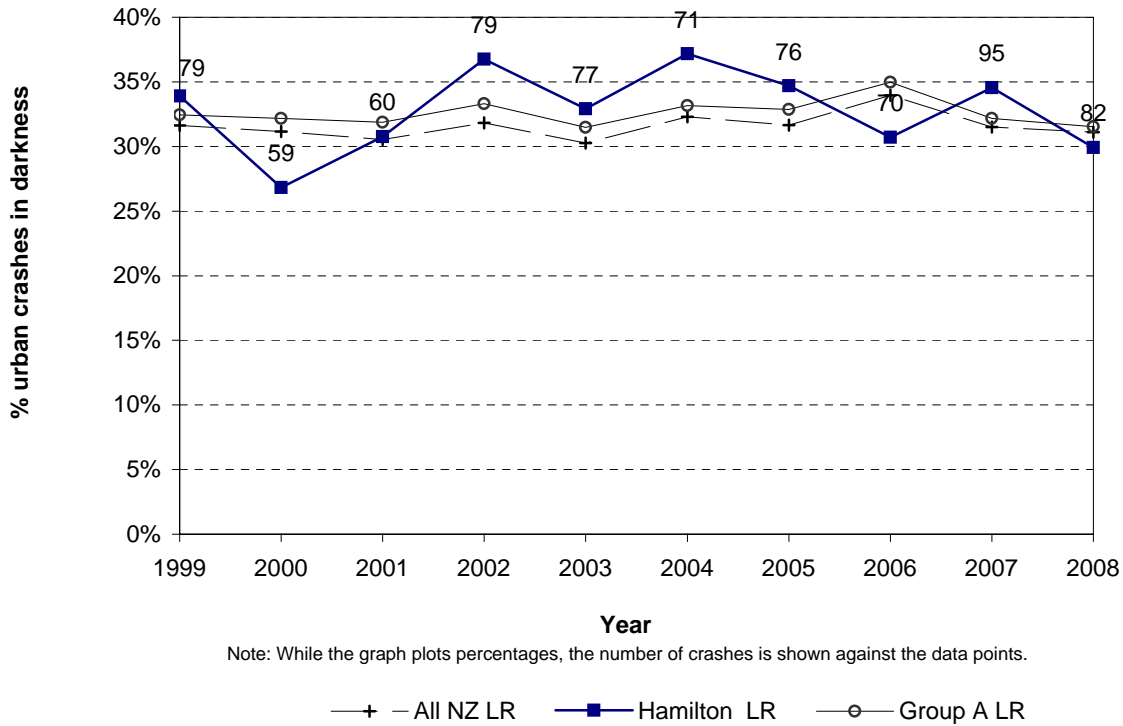


**Figure 8.18 Wet road crashes  
Hamilton City - rural council roads**

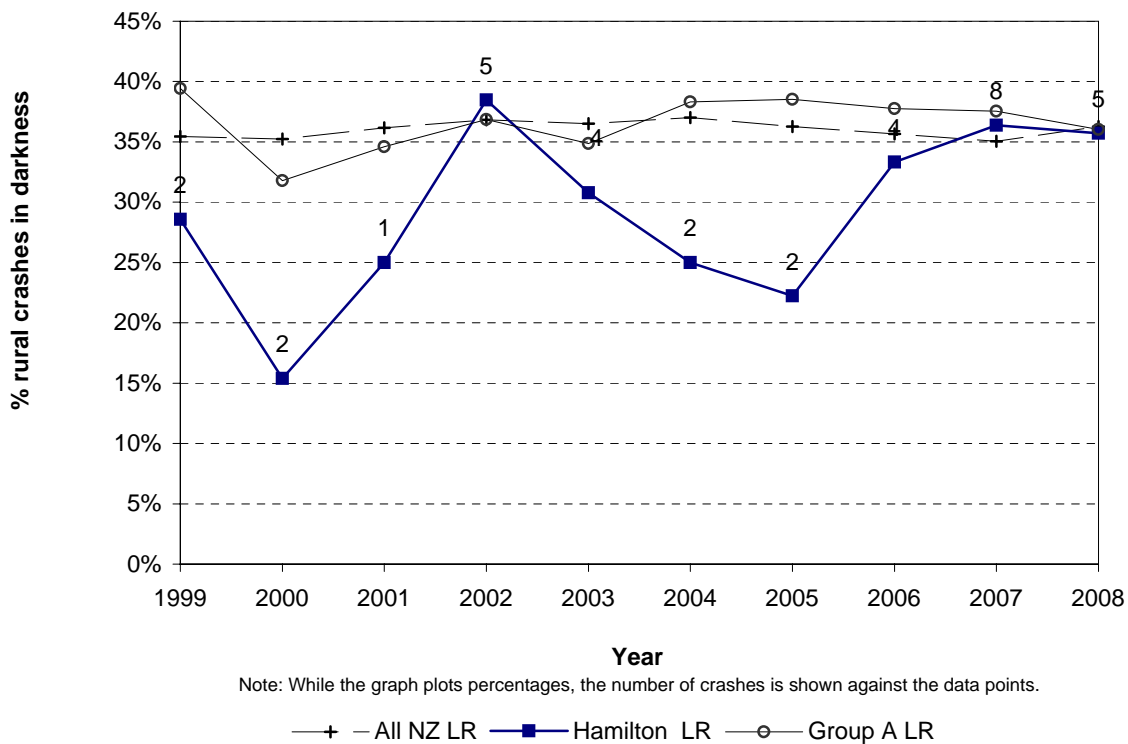




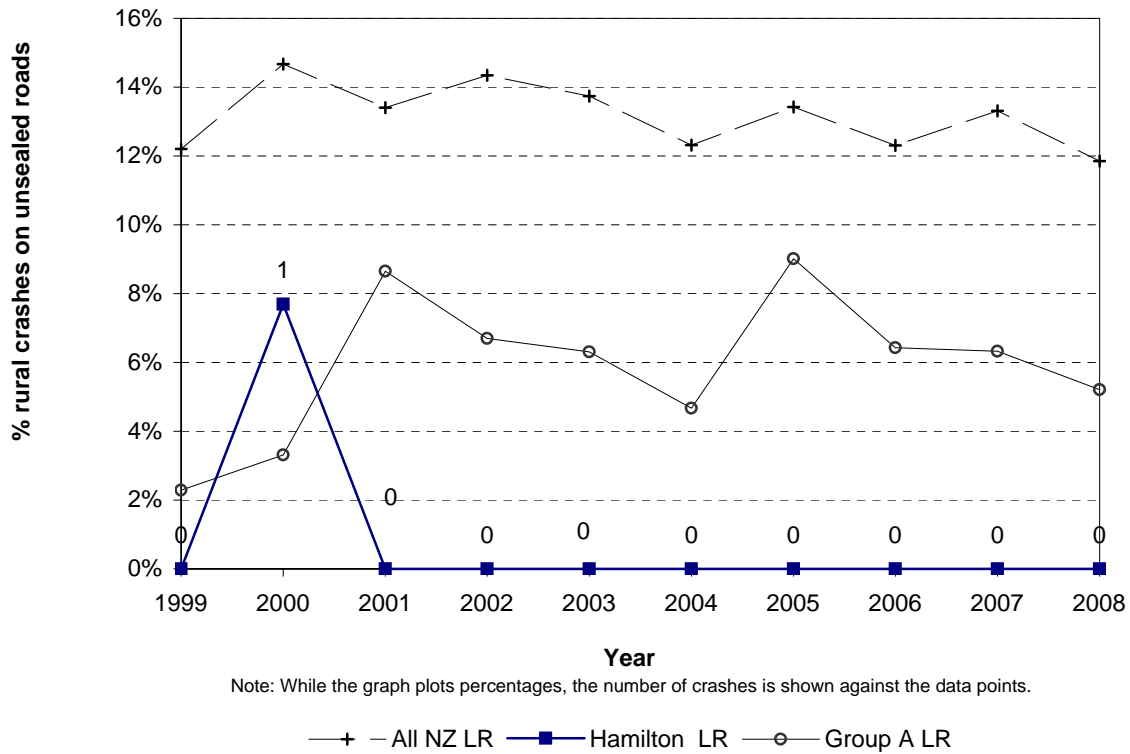
**Figure 8.19 Crashes in darkness  
Hamilton City - urban council roads**



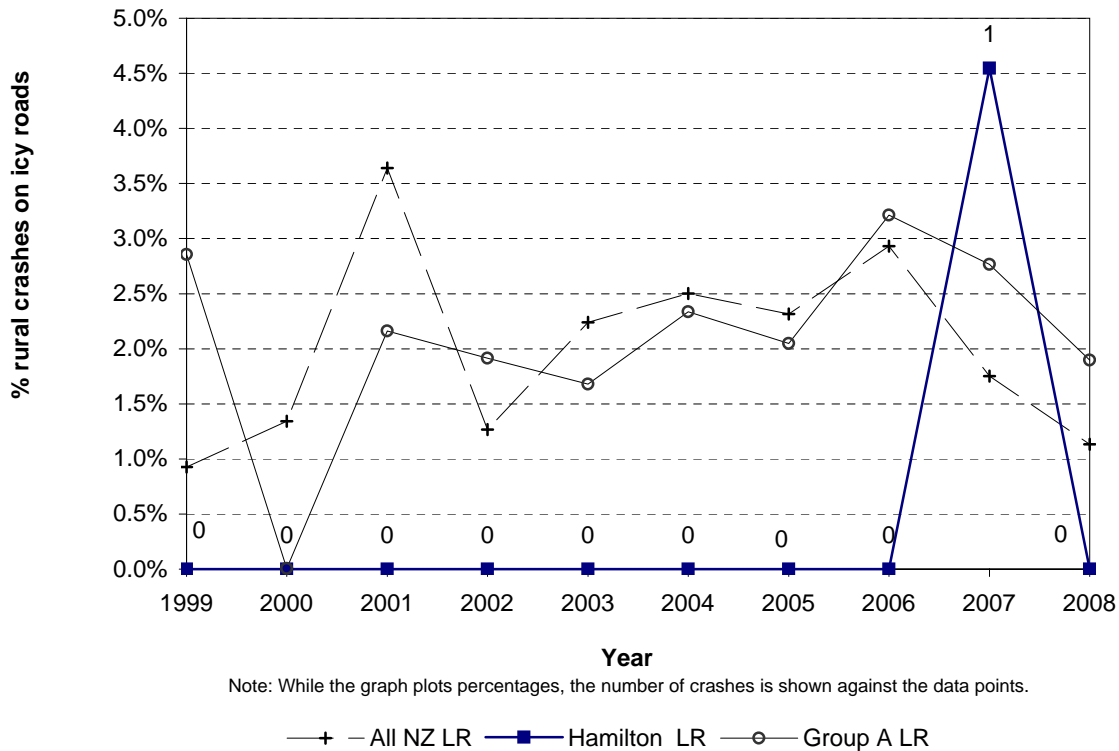
**Figure 8.20 Crashes in darkness  
Hamilton City - rural council roads**



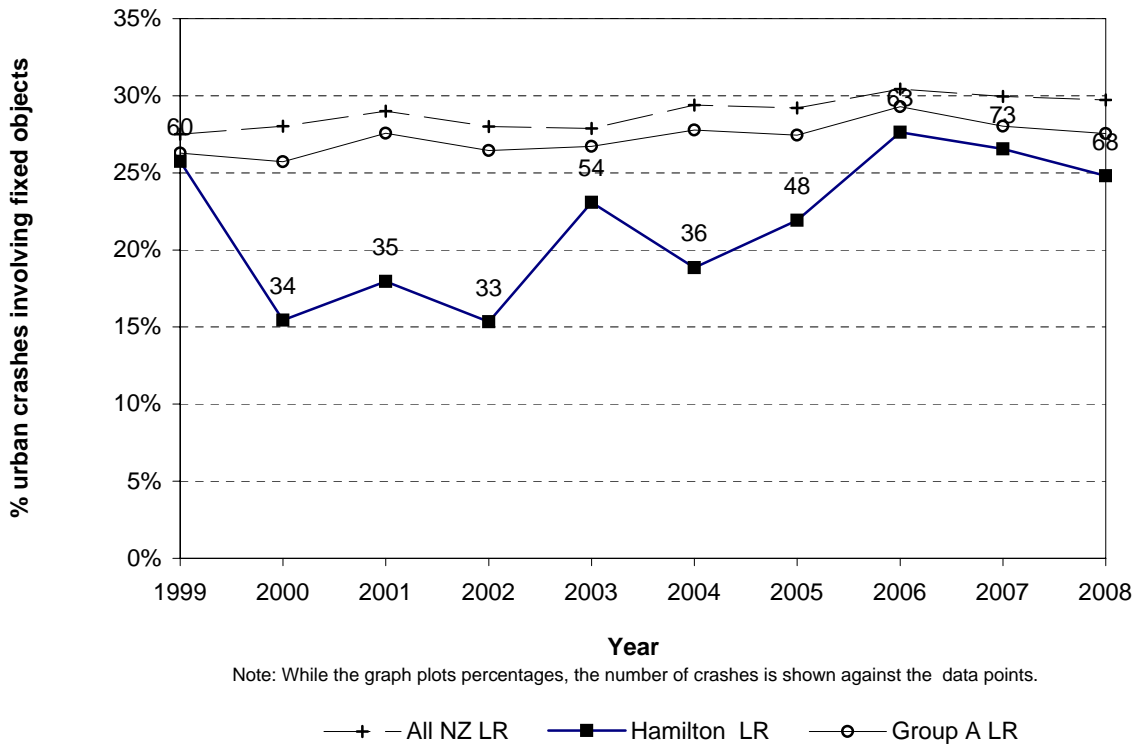
**Figure 8.21 Crashes on unsealed roads  
Hamilton City - rural council roads**



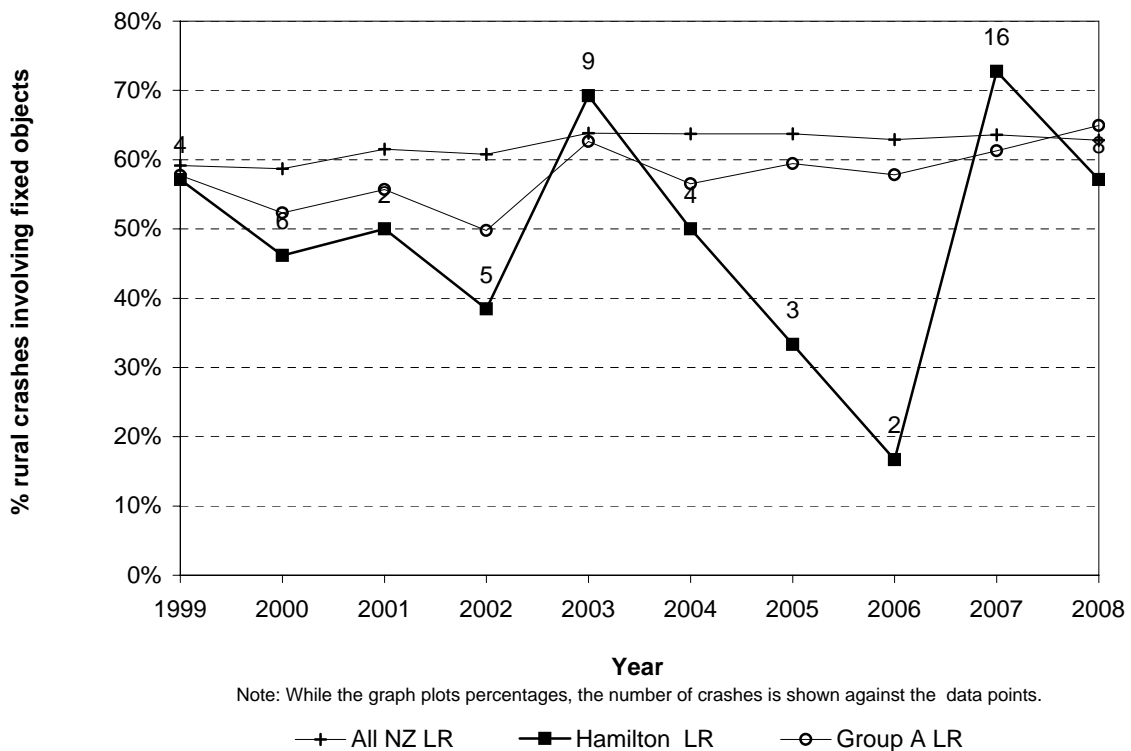
**Figure 8.22 Icy road crashes  
Hamilton City - rural council roads**



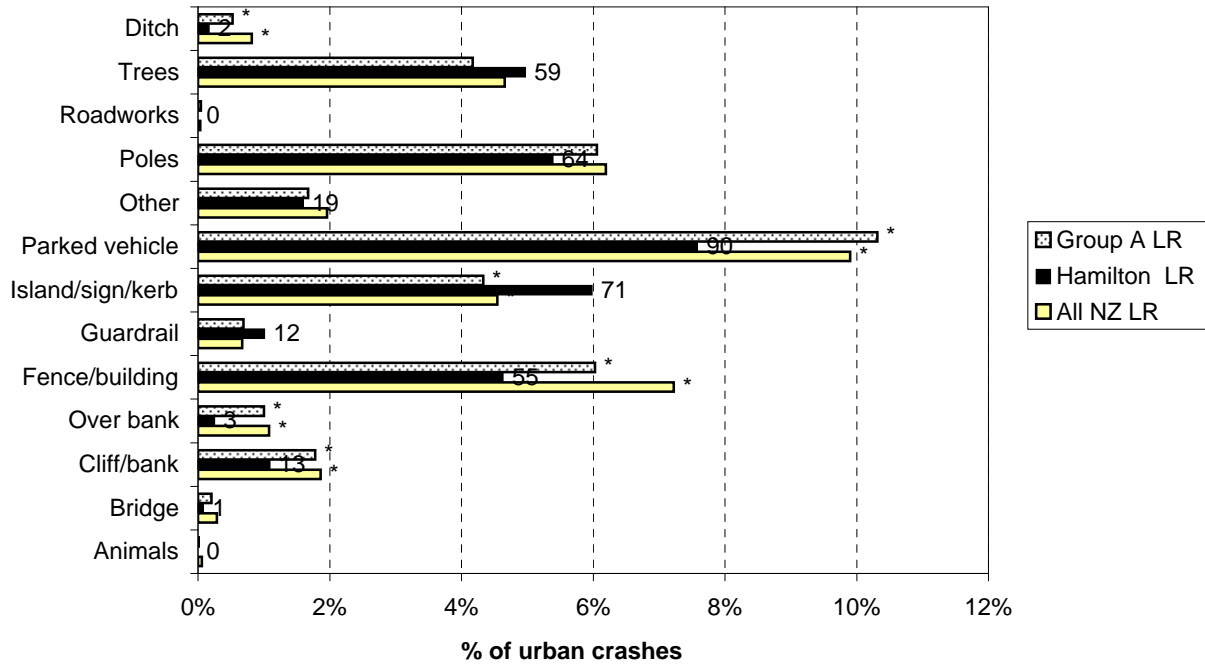
**Figure 8.23 Collisions with objects  
Hamilton City - urban council roads**



**Figure 8.24 Collisions with objects  
Hamilton City - rural council roads**

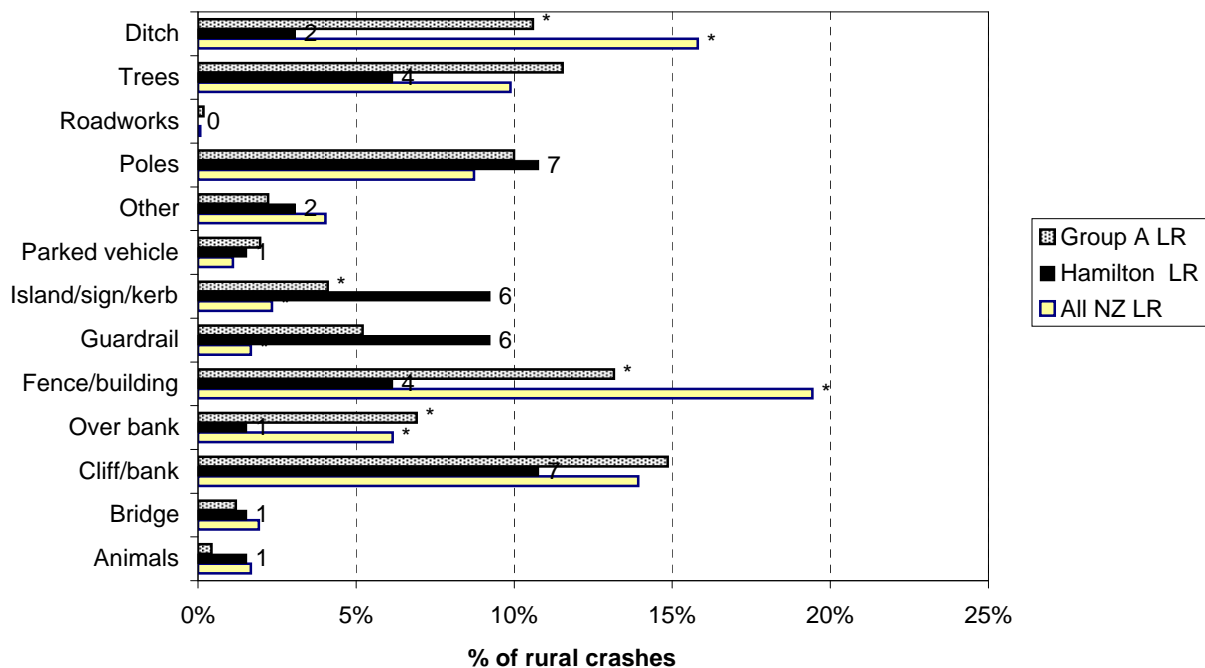


**Figure 8.25 Objects struck - urban  
Hamilton City council roads (2004-2008)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.26 Objects struck - rural  
Hamilton City council roads (2004-2008)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions



# *Crash Location Statistics*



**Table 9.1: Council Roads Black Spot List Urban  
(Injury and Non-Injury Crashes)**
**Site Radius = 30 metres**
**Sites with 3 or more injury crashes or more than \$1500000 in social costs**

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
VICTORIA ST	I	MARLBOROUGH PLACE	5	5	5	6	2	23	15	22	57	\$4,906,180
BROOKLYN ROAD	I	PEACHGROVE ROAD	13	17	15	7	9	61	53	21	38	\$4,589,900
ANGLESEA ST	I	BRYCE ST	6	11	8	8	8	41	33	12	32	\$4,273,067
MILL ST	I	VICTORIA ST	12	10	13	21	13	69	50	30	41	\$3,648,401
WILLOUGHBY ST	I	LIVERPOOL ST	3	9		4	3	19	16	32	26	\$3,541,716
PEACHGROVE ROAD		50 N BAILEY AVENUE	1	1	1			3	1	67	33	\$3,339,328
BRIDGE ST	I	VICTORIA ST	13	14	11	10	15	63	48	27	38	\$3,335,747
GREY ST		50 S BRIDGE ST	1		1	1	2	5	2	20	60	\$3,318,227
PEACHGROVE ROAD		80 N MARSHALL ST		1		2		3	2		33	\$3,286,407
CLYDE ST	I	CAMERON ROAD	1	2	5	1		9	8	22	22	\$3,273,811
RIFLE RANGE ROAD	I	WEKA ST		1	2	1	1	5	3		40	\$3,263,750
CLYDE ST		110 E FIRTH ST			1	2	1	4	3	25	50	\$3,194,131
MAHOE ST		60 W VIVIAN ST	1	2		1		4	3		100	\$3,193,392
CLYDE ST	I	PEACHGROVE ROAD	10	15	12	12	8	57	47	30	46	\$2,375,631
ANGLESEA ST	I	LONDON ST		4	7	4	6	21	13	29	62	\$2,289,346
PEACHGROVE ROAD	I	TE AROHA ST	9	13	6	17	7	52	38	31	33	\$2,094,835
LAKE ROAD	I	QUEENS AVENUE	3	5	1	6	1	16	11	25	13	\$1,944,709
ULSTER ST	I	MILL ST	5	15	3	7	8	38	33	39	42	\$1,841,025
VICTORIA ST	I	TE RAPA ROAD	7	10	3	7	4	31	24	23	45	\$1,744,393
GALLOWAY ST	I	NAYLOR ST	5	5	7	5	4	26	19	38	46	\$1,714,472
VICTORIA ST	I	BRYCE ST	6	15	9	1	8	39	31	28	28	\$1,562,898
FIRTH ST	I	WELLINGTON ST	2	3	1	1	3	10	5	30	10	\$1,394,661
GREY ST	I	CLAUDELANDS ROAD	7	2	11	9	6	35	32	31	40	\$1,225,523
GREY ST	I	CLYDE ST	4	9	3	9	4	29	25	31	45	\$1,187,554
KILLARNEY ROAD	I	QUEENS AVENUE	10	12	8	6	7	43	34	33	33	\$1,173,284
PEMBROKE ST	I	SELWYN ST	3	6	7	4	6	26	20	35	35	\$1,156,117
BRIDGE ST	I	MEMORIAL DRIVE	5	4	4	6	1	20	14	25	25	\$1,149,504
PEMBROKE ST	I	CLARENCE ST	2	4	7	4	2	19	13	21	21	\$1,135,388
TRISTRAM ST	I	ROSTREVOR ST	2	6	2	6	9	25	21	24	32	\$1,123,139
VICTORIA ST	I	FAIRFIELD BRIDGE	4	1	7	6	7	25	21	48	36	\$1,120,272
HUKANUI ROAD	I	COMRIES ROAD	2	4	1	7	7	21	15	24	24	\$1,115,300
ANGLESEA ST	I	CARO ST	6	7	1	1	1	16	9	31	13	\$1,049,879
WARD ST	I	ANGLESEA ST	4	5	3	5	2	19	15	21	32	\$1,028,643
VICTORIA ST	I	EDGE CUMBE ST	1	3	1	2	5	12	6	8	33	\$1,021,984
TRISTRAM ST	I	MILL ST	2	4		4	7	17	13	24	35	\$994,307
HALL ST	I	KENT ST	2	4		4	5	15	11	27	13	\$962,385
COLLINGWOOD ST	I	VICTORIA ST	3	6	3	2	6	20	17	35	55	\$937,748
WAIRERE DRIVE	I	RIVER ROAD	3	6	3	3	4	19	16	32	26	\$923,181
WELLINGTON ST	I	GREY ST	4	4	2	2	6	18	14	33	28	\$916,198
BOUNDARY ROAD	I	OAKLEY AVENUE		1	2	5	4	12	8	33	17	\$913,808
COLLINGWOOD ST	I	ALEXANDRA ST	2	1	3	4	4	14	11	14	64	\$892,603
PEACHGROVE ROAD	I	HOLLAND ROAD	2	1	2	1	4	10	6	50	40	\$882,090
VICTORIA ST	I	KNOX ST		3	3	3	4	13	10	23	38	\$876,233
SILVERDALE ROAD	I	HILLCREST ROAD	3	2	2	5		12	8	42	50	\$864,581
HEAPHY TERRACE	I	FAIRFIELD ROAD	4	3		1	3	11	8	36	27	\$842,957
GREY ST	I	NAYLOR ST	3	4	6	8	4	25	17	24	40	\$828,570



**Table 9.1: Council Roads Black Spot List Urban  
(Injury and Non-Injury Crashes)**

Site Radius = 30 metres

**Sites with 3 or more injury crashes or more than \$1500000 in social costs**

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
HOOD ST	I	VICTORIA ST	9	4	5	4	7	29	23	24	76	\$786,608
TE RAPA ROAD	I	EUCLID AVENUE	1	3	1	1	1	7	3	29	43	\$785,189
PEACHGROVE ROAD	I	WILSON ST	4	3	2	2	1	12	9	33	50	\$766,161
TRISTRAM ST	I	WARD ST	5	5	5	4	10	29	24	17	31	\$734,099
TE AROHA ST	I	WHYTE ST		1	1		2	4	1	50	50	\$733,324
HUKANUI ROAD	I	KENSINGTON PLACE		3	1	1	2	7	4	14	29	\$732,514
TRISTRAM ST	I	BRYCE ST	4	9	2	3	4	22	15	41	36	\$730,918
TE RAPA ROAD	I	SUNSHINE AVENUE	2	9	9	10	5	35	32	14	54	\$723,736
MILL ST	I	WILLOUGHBY ST	12	9	8	4	2	35	32	17	43	\$720,207
ULSTER ST	I	MAEROA ROAD	8	4	5	5	5	27	22	30	41	\$699,760
GREY ST	I	BRIDGE ST	5	7	10	6	2	30	26	30	40	\$693,247
VICTORIA ST	I	LIVERPOOL ST	8	6	6	5	5	30	26	30	53	\$692,836
HEAPHY TERRACE	I	BOUNDARY ROAD	9	5	9	5	5	33	30	30	48	\$688,657
TE RAPA ROAD	I	PUKETE ROAD	8	4	7	4	6	29	25	28	17	\$678,351
VICTORIA ST	I	LONDON ST	3	7	5	5	7	27	23	26	22	\$648,069
RIMU ST	I	MAEROA ROAD	7	1	8	2	1	19	13	26	21	\$628,479
PUKETE ROAD	I	SHERWOOD DRIVE	1	2				3				\$626,940
HALL ST	I	LAKE ROAD	3	6	4	5	6	24	20	33	33	\$601,621
NORTON ROAD	I	COMMERCE ST	3	3	6	1		13	7	8	46	\$533,247
LAKE ROAD	I	KING ST	4	1	1	2	3	11	5	18		\$500,506
PEACHGROVE ROAD		20 S SULLIVAN CRESCENT S	3	4	2	2	1	12	7	17	50	\$465,307
LAKE ROAD	I	TAINUI ST	3	2	5	6	2	18	15	17	33	\$449,701
HIGGINS ROAD	I	KAHIKATEA DRIVE		5	2	1	2	10	5	30	40	\$430,273
KARAKA ST	I	WALL ST	2		1	4	3	10	5	40	40	\$428,922
ONEILL ST	I	HEAPHY TERRACE	3	6	2	3	1	15	12	27	53	\$403,046
HUKANUI ROAD	I	WAIRERE DRIVE		5	2	3	1	11	7		18	\$392,781
PEACHGROVE ROAD	I	MARDON ROAD	4	4	4	2		14	11	29	29	\$386,634
WILLOUGHBY ST	I	ABBOTSFORD ST	2	3	3	5	1	14	11	43	29	\$384,465
DOMINION ROAD	I	WALL ST	2		4	2	2	10	6			\$376,862
POWELLS ROAD	I	TRAMWAY ROAD	1	1	2	2		6	1	33	50	\$366,964
HIGGINS ROAD	I	DUKE ST		3	1	2	2	8	4	50	38	\$346,374
TE AROHA ST	I	BOND ST	3	2	1		2	8	4	25		\$344,201
RIVER ROAD	I	GLEN LYNNE AVENUE	2	1	1	2	2	8	4	25	13	\$343,137
CLYDE ST	I	FIRTH ST		5	1	2	3	11	8	18	18	\$337,443
ELLIS ST	I	KILLARNEY ROAD		2	5	1	1	9	6	44	33	\$305,400
GREY ST	I	ALBERT ST	1		3	4	1	9	6	44	22	\$304,826
TE RAPA ROAD	I	MAHANA ROAD	2	2	1	2	2	9	6	11	11	\$304,087
NIXON ST	I	COOK ST	2	2	4			8	5	25	25	\$289,765
MARSHALL ST	I	WALTER ST	1	1	1		3	6	3		17	\$258,050
VICTORIA ST		130 N BRYCE ST			5		1	6	3	17	50	\$257,231
TE RAPA ROAD	I	STOREY AVENUE		1	2	1	2	6	3	17	17	\$257,190
TUHIKARAMEA ROAD	I	KAHIKATEA DRIVE	2	1		1	1	5	2	20	20	\$243,071
TONGARIRO ST	I	BANKWOOD ROAD	2			2	1	5	2	20	40	\$241,351
BOUNDARY ROAD	A	WHITIORA BR	1		1	1	2	5	2	60	40	\$240,491
TASMAN ROAD		200 E FOREMAN ROAD				2	1	3		33	100	\$208,980

**Table 9.2: Council Roads Black Spot List Rural  
(Injury and Non-Injury Crashes)**

Site Radius = 250 metres

**Sites with 3 or more injury crashes or more than \$1500000 in social costs**

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	TOTAL	Non- Injury	Wet Crash %	Dark Crash %	Crash Costs
GORDONTON ROAD	I	THOMAS ROAD		1	4	2	2	9	7	11	22	\$4,628,043
COBHAM DRIVE	I	HILLSBOROUGH TERRACE	5	3	7	10	6	31	22	39	48	\$3,498,361
CROSBY ROAD	I	MILFORD PLACE	1		3	4		8	4	13	25	\$1,149,899
GORDONTON ROAD	I	PUKETAHA ROAD	1	3	1	2	2	9	5	44	33	\$1,120,383
WAIRERE DRIVE	I	RIVER ROAD	2	7	2	5	4	20	16	25	45	\$952,543
TE KOWHAI ROAD	I	RUFFELL ROAD		1	1	7	3	12	7	42	25	\$693,343
PUKETE ROAD	I	WAIRERE DRIVE	2	2		3	3	10	7	40	30	\$523,878
COBHAM DRIVE	100 N	SH 1N	2	2	1		1	6	3	17	17	\$373,500

**Table 9.3: State Highway  
Urban and Rural Black Spot List  
(Injury and Non-Injury Crashes)**

Urban Site Radius = 30 metres  
Rural Site Radius = 250 metres

Sites with 3 or more injury crashes or more than \$1500000 in social costs

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N		200 N CHURCH ROAD	1	2	1	2	3	9	5	44	22	\$5,431,031
SH 1N	I	DUKE ST	1	1	1	2	4	9	6	11	44	\$4,660,047
SH 3		700 S DIXON ROAD	2	0	0	0	1	3	2	33	100	\$4,421,958
SH 23	I	WALLACE ROAD	0	3	2	2	3	10	2	20	50	\$4,030,449
SH 1N		550 W GREY ST	0	3	1	2	2	8	6	63	13	\$3,977,927
SH 1N	I	KAHIKATEA DRIVE	6	7	5	5	6	29	17	21	38	\$3,971,570
SH 1N	I	DOMINION ROAD	2	2	3	1	4	12	8	17	25	\$3,899,072
SH 1N	I	BRECKONS AVENUE	3	5	4	3	2	17	12	35	41	\$3,726,783
OHAUPO ROAD	I	SH 1N	18	14	10	15	10	67	52	21	37	\$3,164,883
SH 3	I	RAYNES ROAD	5	3	2	3	2	15	4	47	47	\$2,878,656
SH 1N	I	GALLOWAY ST	5	3	7	10	2	27	21	41	44	\$1,668,052
SH3 ON RAMP	I	BADER ST	7	5	6	3	5	26	14	23	38	\$1,572,420
SH 1N	I	NORTON ROAD	7	12	11	10	2	42	36	24	29	\$1,411,855
SH 1N	I	FOREST LAKE ROAD	10	10	17	11	10	58	49	24	22	\$1,411,345
SH 1N	I	MCKEE ST	3	1	2	1	1	8	4	13	13	\$1,152,759
SH 1N	I	MASSEY HALL OVERBRIDG	5	5	8	9	11	38	28	21	29	\$1,146,734
TE RAPA ROAD	I	THE BASE PARADE	1	1	1	3	3	9	5	22	33	\$1,136,410
SH 1N	I	GREY ST	9	9	2	5	1	26	20	19	35	\$1,101,481
SH 3	I	SH 3 ON RAMP	5	4	5	4	1	19	14	11	32	\$1,079,844
SH 1N	I	KAPUNI ST	2	1	3	0	0	6	2	0	33	\$1,078,081
SH 3	I	HOUCHENS ROAD	6	0	0	4	0	10	5	10	30	\$978,666
SH 1N	I	ALISON ST	5	4	5	1	1	16	13	25	13	\$967,089
SH 3		340 N RAYNES ROAD	0	1	0	2	1	4	1	50	50	\$952,561
SH 1N	I	COBHAM DRIVE	5	6	7	5	4	27	24	22	30	\$944,524
SH 1N	I	BANDON ST	1	4	3	4	2	14	11	7	21	\$891,620
SH 1N	I	TE KOWHAI ROAD	2	3	8	4	7	24	20	38	46	\$861,967
SH 1N	I	SH3 ON RAMP	5	2	5	6	6	24	20	25	50	\$810,434
SH 1N		100 S COBHAM DRIVE	0	1	4	0	1	6	3	50	33	\$803,915
SH 1N	I	SH 26	5	2	3	10	10	30	25	33	33	\$750,307
SH 1N	I	WAIRERE DRIVE	4	2	7	5	5	23	20	17	26	\$687,584
SH 1N		100 E GREY ST	3	2	2	3	4	14	10	36	29	\$681,302
SH 1N CAMBRIDGE	I	COBHAM DRIVE	4	6	6	4	4	24	20	25	17	\$618,463
SH 1N		150 N FOREMAN ROAD	3	1	4	5	0	13	10	8	23	\$613,944
SH 3	I	SAXBYS ROAD	3	6	9	0	3	21	16	24	48	\$606,946
SH 1N	I	GRANDVIEW ROAD	1	4	7	2	5	19	14	26	32	\$577,935
SH 3	I	COLLINS ROAD	3	1	3	1	4	12	7	25	25	\$461,909
SH 3	I	URLICH AVENUE	1	5	4	1	4	15	12	27	13	\$402,638
SH 1N		50 N GRANDVIEW ROAD	1	0	2	1	2	6	3	17	17	\$258,091
SH 1N		40 E OHAUPO ROAD	1	0	0	2	1	4	1	25	0	\$225,924

**Table 9.4 : Urban Council Road Crash Sites  
with a Significant Increase in Crashes in 2008  
(Injury and Non-Injury Crashes)**

Site Radius =  
30 metres

CRASH ROAD		SIDE ROAD	2003	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
TE RAPA ROAD	I	GARNETT AVENUE	5	2	3	8	5	8	31	29	29	39
WARD ST	I	TRISTRAM ST	1	5	5	5	4	10	30	25	20	30
TRISTRAM ST	I	ROSTREVOR ST	2	2	6	2	6	9	27	22	26	30
HUKANUI ROAD	I	COMRIES ROAD	3	2	4	1	7	7	24	18	25	25
MILL ST	I	TRISTRAM ST	3	2	4		4	7	20	16	20	40
GREY ST	I	WELLINGTON ST	1	4	4	2	2	6	19	15	32	32
VICTORIA ST	I	EDGE CUMBE ST	4	1	3	1	2	5	16	9	13	31
ANGLESEA ST	I	COLLINGWOOD ST	1	2	2	2	4	5	16	15	25	31
RIVER ROAD	I	FAIRFIELD BRIDGE	1		4	2	3	5	15	14	7	33
PEACHGROVE ROAD	I	HOLLAND ROAD	1	2	1	2	1	4	11	7	45	36
MARSHALL ST	I	WALTER ST	1	1	1	1		3	7	4		14
KENT ST	I	EMPIRE ST		1	1	1	1	3	7	5	43	43
TE AROHA ST	I	RIVER ROAD		1	2		1	3	7	6		29
DOMINION ROAD	I	GRANGE AVENUE	1	1			2	3	7	6	29	29
PUKETE ROAD	I	VICKERY ST	1	2		1		3	7	6	29	14
TRISTRAM ST	I	COLLINGWOOD ST			3			3	6	4	33	33
HARWOOD ST	I	ROSTREVOR ST		1		2		3	6	4	33	
ANGLESEA ST	I	KNOX ST				1	1	4	6	6	33	17
FOREST LAKE ROAD	I	WALSH ST					1	2	3	1	33	67
KNIGHTON ROAD	I	GREENSBORO ST	1					2	3	1	33	
TRAMWAY ROAD	I	CROSBY ROAD			1			2	3	1	33	33
EDINBURGH ROAD	I	KNIGHTON ROAD				1		2	3	1	33	
PEACHGROVE ROAD	I	DAISY ST				1		2	3	1	33	33
CATE ROAD	I	WENTWORTH DRIVE			1			2	3	1	33	
ULSTER ST		100 N MAEROA ROAD				1		2	3	2		
KILLARNEY ROAD		60 E QUEENS AVENUE				1		2	3	2		33
BROOKLYN ROAD	I	YOUNG ST			1			2	3	2	33	67
HUKANUI ROAD		160 N KENSINGTON PLACE		1				2	3	2		
ALEXANDRA ST		100 S COLLINGWOOD ST					1	2	3	3	33	67
STOREY AVENUE	I	MITCHAM AVENUE					1	2	3	3		
BRAID ROAD	I	SANDWICH ROAD			1			2	3	3		33
LAKE ROAD		70 W QUEENS AVENUE		1				2	3	3		67
PEMBROKE ST		50 N SELWYN ST		1				2	3	3	33	33
RIVER ROAD		120 N TAUHARA DRIVE		1				2	3	3	33	33
WARD ST		100 W ANGLESEA ST		1				2	3	3		

**Table 9.4a : Rural Council Road Crash Sites  
with a Significant Increase in Crashes in 2008  
(Injury and Non-Injury Crashes)**

**Site Radius =  
250 metres**

CRASH ROAD	SIDE ROAD	2003	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
RUAKURA ROAD	KNIGHTON ROAD	2	1	3			4	10	7	40	10

**Table 9.5 : State Highway Crash Sites  
with a Significant Increase in Crashes in 2008  
(Injury and Non-Injury Crashes)**

Urban Site Radius = 30 metres  
Rural Site Radius = 250 metres

CRASH ROAD		SIDE ROAD	2003	2004	2005	2006	2007	2008	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
SH 1N	I	SH 23	4	5	5	8	9	11	42	32	21	26
SH 1N	I	SH 26	6	5	2	3	10	10	36	28	33	36
SH 1N		100 S THE BASE PARADE	2	1	2	2	1	5	13	11	62	23
SH 1N	I	THE BASE PARADE	1	1	0	0	0	7	9	7	44	22
SH 1N	I	CRAWFORD ST	0	0	2	0	1	3	6	6	33	17
SH 23	I	LEONG AVENUE	0	0	1	0	0	3	4	2	25	50
SH 1N		100 N KILLARNEY ROAD	1	0	0	0	0	3	4	3	50	25
SH 1N		50 S FOREST LAKE ROAD	0	0	1	0	0	2	3	3	67	0

# appendix

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- Groupings of crash types
- Grouping of contributing factors


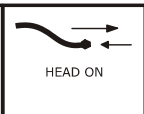


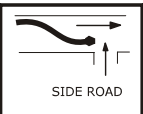


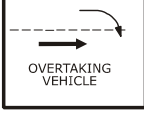
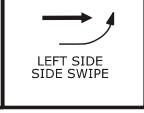







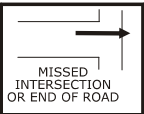
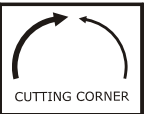
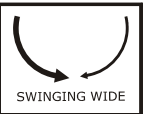
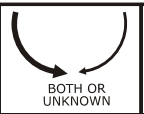
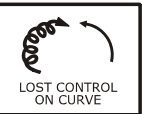





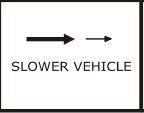

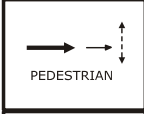
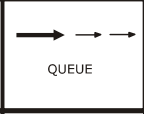
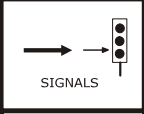
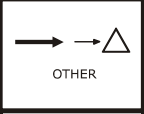

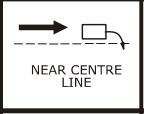

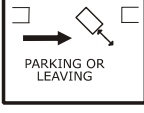
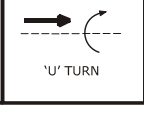
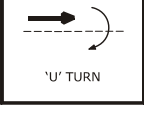

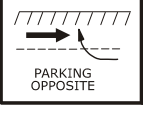


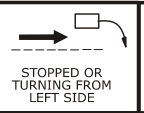
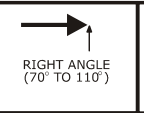
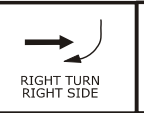
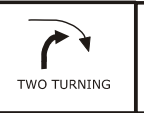
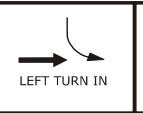
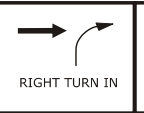
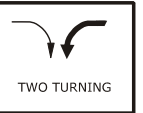
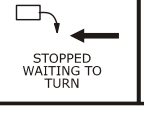
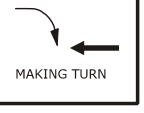
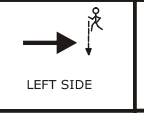
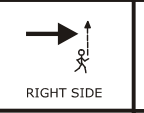
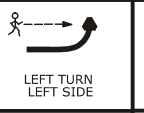
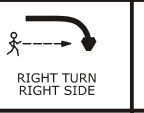





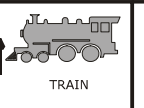
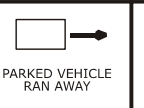

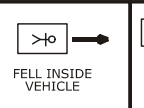
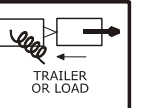
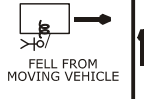
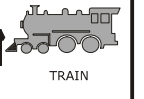


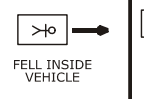
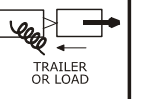




## Explanatory notes for the appendix

1. Each traffic crash report has a diagram and a description of what happened. These are used to classify the movements the vehicles were making when they crashed eg 'collided with parked vehicle', or 'lost control while overtaking'. In this report, crash types are grouped into seven categories. The following page shows the types of crashes which are included in each group.
2. Traffic crash reports also include information on why the crash occurred, or on factors contributing to the crash. In this report the hundreds of contributing factor codes used by New Zealand Transport Agency have been condensed into 16 groups for practical reasons. Lists of the factor groups used in this report, and of all the contributing factors used by New Zealand Transport Agency, are shown on the following pages.
3. Note that in the year 2000 there were some minor changes to the contributing factor groups. The most significant change was that 'inattention' was grouped with 'inadequate check' to form 'poor observation'. This allowed a more accurate assessment of 'fatigue' as a contributing factor, as it now has its own grouping.
4. The factor group 'poor handling' includes factor codes that were only introduced in 1998. This could explain why there may have been a sudden change at this time.
5. The coding of the factors contributing to a crash is subjective. Therefore analysis using contributing factor groups needs to be interpreted with caution. Also, to effectively target safety or enforcement campaigns more analysis of the specific contributing factors involved may be needed.
6. It should be noted that a traffic crash generally has more than one contributing factor. Therefore, adding the number of crashes on graphs showing the number of crashes with a given factor or factor group will be greater than the total number of crashes in the city or district.

# Groupings of crash types

Overtaking	AA	AB	AC	AD	AE	AF	AG
	 PULLING OUT OR CHANGING LANE TO RIGHT	 HEAD ON	 CUTTING IN OR CHANGING LANE TO LEFT	 LOST CONTROL (OVERTAKING VEHICLE)	 SIDE ROAD	 LOST CONTROL (OVERTAKEN VEHICLE)	 WEAVING IN HEAVY TRAFFIC
	GE	GB					
	 OVERTAKING VEHICLE	 LEFT SIDE SIDE SWIPE					
Straight - Lost control / Head on	BA	CA	CB	CC	BE		
	 ON STRAIGHT	 OUT OF CONTROL ON ROADWAY	 OFF ROADWAY TO LEFT	 OFF ROADWAY TO RIGHT	 LOST CONTROL ON STRAIGHT		
Bend - Lost control / Head on	DA	DB	DC	BB	BC	BD	BF
	 LOST CONTROL TURNING RIGHT	 LOST CONTROL TURNING LEFT	 MISSED INTERSECTION OR END OF ROAD	 CUTTING CORNER	 SWINGING WIDE	 BOTH OR UNKNOWN	 LOST CONTROL ON CURVE
Rear end / Obstruction	EA	EB	EC	ED	EE	FA	FB
	 PARKED VEHICLE	 ACCIDENT OR BROKEN DOWN	 NON VEHICULAR OBSTRUCTIONS (INCLUDING ANIMALS)	 WORKMANS VEHICLE	 OPENING DOOR	 SLOWER VEHICLE	 CROSS TRAFFIC
	FC	FD	FE	FF	GA	GD	GF
	 PEDESTRIAN	 QUEUE	 SIGNALS	 OTHER	 REAR OF LEFT TURNING VEHICLE	 NEAR CENTRE LINE	 TWO TURNING
	 PARKING OR LEAVING	 "U" TURN	 "U" TURN	 DRIVEWAY MANOEUVRE	 PARKING OPPOSITE	 ENTERING OR LEAVING	 REVERSING ALONG ROAD
Crossing / Turning	MA	MB	MC	MD	ME	MF	MG
	 STOPPED OR TURNING FROM LEFT SIDE	 RIGHT ANGLE (70° TO 110°)	 RIGHT TURN RIGHT SIDE	 TWO TURNING	 LEFT TURN IN	 RIGHT TURN IN	 TWO TURNING
	GC	HA	JA	JC	KA	KB	KC
	 STOPPED WAITING TO TURN	 MAKING TURN					
Pedestrian vs Vehicle	NA	NB	NC	ND	NE	NF	NG
	 LEFT SIDE	 RIGHT SIDE	 LEFT TURN LEFT SIDE	 RIGHT TURN RIGHT SIDE	 LEFT TURN RIGHT SIDE	 RIGHT TURN LEFT SIDE	 MANOEUVRING VEHICLE
	 WALKING WITH TRAFFIC	 WALKING FACING TRAFFIC	 WALKING ON FOOTPATH	 CHILD PLAYING (TRICYCLE)	 ATTENDING TO VEHICLE	 ENTERING OR LEAVING VEHICLE	
Miscellaneous	PA	PB	PC	PD	PE	PF	QG
	 FELL WHILE BOARDING OR ALIGHTING	 FELL FROM MOVING VEHICLE	 TRAIN	 PARKED VEHICLE RAN AWAY	 EQUESTRIAN	 FELL INSIDE VEHICLE	 TRAILER OR LOAD

## Groupings of contributing factors

Factor group	Factor codes included
<b>Alcohol involved</b>	100 – 101 103 – 109
<b>Too fast</b>	110 – 119 430 – 432
<b>Failed to give way or stop</b>	300 – 314 320 – 328
<b>Failed to keep left</b>	120 – 128 205
<b>Overtaking</b>	150 – 161
<b>Incorrect lanes or position</b>	129 170 – 183 200 – 204 206 – 209 440 – 448
<b>Poor handling</b>	130 – 134 137 – 149 420 – 429
<b>Poor observation</b>	330 – 360 370 – 379
<b>Poor judgement</b>	380 – 387 400 – 407
<b>Fatigue</b>	410 – 415
<b>Disabled, old age or illness</b>	500 – 507
<b>Pedestrian factors</b>	700 – 731
<b>Cyclist factors</b>	Any factor coded against a cyclist
<b>Vehicle factors</b>	136, 600 – 699
<b>Road factors</b>	135, 800 – 899
<b>Weather</b>	900 – 909

Note:

The following factor codes are not included as they do not fit adequately into any of the above groupings: 102, 106, 190–198, 433, 434, 510–534 and 910–999.

## FACTORS PROBABLY CONTRIBUTING TO CRASHES

### DRIVER CONTROL

- 100 **Alcohol or drugs**
  - 101 Alcohol suspected
  - 102 Alcohol test below limit
  - 103 Alcohol test above limit or test refused
  - 104 Alcohol test result unknown
  - 105 Visibly intoxicated non-driver (pedestrian / cyclist / passenger)
  - 106 Dead driver not suspected, tested negative (MOT only)
  - 107
  - 108 Drugs suspected
  - 109 Drugs proven
- 110 **Too fast for conditions**
  - 111 Cornering
  - 112 On straight
  - 113 To give way at intersection
  - 114 Approaching railway crossing
  - 115 When passing stationary school bus
  - 116 At temporary speed limit
  - 117 At crash or emergency
- 120 **Failed to keep left**
  - 121 Swung wide on bend
  - 122 Swung wide at intersection
  - 123 Cutting corner on bend
  - 124 Cutting corner at intersection
  - 125 On straight section
  - 126 Vehicle crossed raised median
  - 127 Driving or riding abreast (cyclists more than 2 abreast)
  - 128 Wandering or wobbling
  - 129 Too far left / right
- 130 **Lost control**
  - 131 When turning
  - 132 Under heavy braking
  - 133 Under heavy acceleration
  - 134 While returning to seal from unsealed shoulder
  - 135 Due to road conditions (requires road series code)
  - 136 Due to vehicle fault (requires vehicle series code)
  - 137 Avoiding another vehicle, pedestrian, party or obstacle on roadway
  - 138 On unsealed road
  - 139 End of seal
- 140 **Failed to signal in time**
  - 141 When moving to left, pulling over to left
  - 142 When turning left
  - 143 When pulling out or moving to the right
  - 144 When turning right
  - 145 Incorrect Signal
- 150 **Overtaking**
  - 151 Overtaking line of traffic or queue
  - 152 Deliberately in the face of oncoming traffic
  - 153 Failed to notice oncoming traffic
  - 154 Misjudged speed or distance of oncoming traffic
  - 155 At no passing line
  - 156 With insufficient visibility
  - 157 At an intersection without due care
  - 158 On left without due care
  - 159 Cut in after overtaking
  - 160 Vehicle signalling right turn
  - 161 Without care at a pedestrian crossing
- 170 **Wrong lane or turned from wrong position**
  - 171 Turned right from incorrect lane
  - 172 Turned left from incorrect lane
  - 173 Travelled straight ahead from turning lane or flush median
  - 174 Turned right from left side of road
  - 175 Turned left from near centre line
  - 176 Turned into incorrect lane
  - 177 Weaving or cut in on multi-lane roads
  - 178 Moved left to avoid slow vehicle

- 180 **In line of traffic**
  - 181 Following too closely
  - 182 Travelling unreasonably slowly
  - 183 Motorist crowded cyclist

- 190 **Sudden action**
  - 191 Braked
  - 192 Turned left
  - 193 Turned right
  - 194 Swerved to avoid pedestrian
  - 195 Swerved to avoid animal
  - 196 Swerved to avoid crash or broken down vehicle
  - 197 Swerved to avoid vehicle
  - 198 Swerved to avoid object or for unknown reason
- 200 **Forbidden movements**
  - 201 Wrong way in one way street, motorway or roundabout
  - 202 When turning or U turning contrary to a sign
  - 203 Contrary to "in" or "out" only driveway sign
  - 204 Driving or riding on footpath
  - 205 On incorrect side of island or median
  - 206 Contrary to "no entry" sign
  - 207 In Car Park
  - 208 Motor vehicle in cycle lane
  - 209 Bus / Transit lane

### VEHICLE CONFLICTS

- 300 **Failed to give way**
  - 301 At Stop sign
  - 302 At Give Way sign
  - 303 When turning to non-turning traffic
  - 304 When deemed turning by markings, not geometry
  - 305 When turning left, to opposing right turning traffic
  - 306 To pedestrian on a crossing
  - 307 When turning at signals to pedestrians
  - 308 When entering roadway from driveway
  - 309 To traffic approaching or crossing from the right
  - 310 Failed to give way at one lane bridge / road
  - 311 Failed to give way to pedestrian on footpath or verge
  - 312 Entering roadway not from driveway or intersection
  - 313 To emergency vehicle
  - 314 Driver waved through
- 320 **Did not stop**
  - 321 At stop sign
  - 322 At steady red light
  - 323 At steady red arrow
  - 324 At steady amber light
  - 325 At steady amber arrow
  - 326 At flashing red lights (Rail Xing, Fire Stn etc)
  - 327 For police or flag-person
  - 328 For school patrol / kea crossing
- 330 **Inattentive: failed to notice**
  - 331 Car slowing, stopping or stopped in front
  - 332 Bend in road
  - 333 Indication of vehicle in front
  - 334 Traffic lights
  - 335 Intersection or its Stop / Give Way control
  - 336 Other regulatory sign / markings
  - 337 Warning sign
  - 338 Direction, information signs / markings
  - 339 Road-works signs
  - 340 Lane use arrows / markings?
  - 341 Obstructions on Roadway
- 350 **Attention diverted by:**
  - 351 Passengers
  - 352 Scenery or persons outside vehicle
  - 353 Other traffic
  - 354 Animal or insect in vehicle
  - 355 Trying to find intersection, house number, destination
  - 356 Advertising or signs
  - 357 Emotionally upset
  - 358 Cigarette, radio, glove box etc, obj under drivers feet/pedals etc
  - 359 Cell phone / navigation device or any communications device
  - 360 Driver dazzled

- 370 **Did not see or look for another party until too late**
  - 371 Behind when reversing / manoeuvring
  - 372 Behind when changing lanes position or direction (includes U-turns)
  - 373 Behind when pulling out from parked position
  - 374 Behind when opening door or leaving vehicle
  - 375 When required to give way to traffic from another direction
  - 376 When required to give way to pedestrians.
  - 377 When visibility obstructed by other vehicles
  - 378 When visibility limited by roadside features
  - 379 When first in queue on receiving green light
- 380 **Misjudged speed, distance, size or position of:**
  - 381 Other vehicle coming from behind or alongside
  - 382 Other vehicle coming from another direction with right of way
  - 383 Pedestrian movement or intention
  - 384 Towed vehicle, or while towing a vehicle
  - 385 Size or position of fixed object or obstacle
  - 386 Of own vehicle
  - 387 Misjudged intentions of another party

### GENERAL DRIVER

- 400 **Inexperience**
  - 401 In driving in fast, complex or heavy traffic
  - 402 New driver showed inexperience
  - 403 Driving strange vehicle
  - 404 Overseas driver fails to adjust to local conditions
  - 405 Driver under instruction
  - 406 At towing trailer / other vehicle
  - 407 Driver over-reacted
  - 408 Unsupervised cyclist
- 410 **Fatigue (drowsy, tired, fell asleep)**
  - 411 Long trip
  - 412 Lack of sleep
  - 413 Exhaust fumes
  - 414 Worked long hours before driving
  - 415 Exceeded driving hours
- 420 **Incorrect use of vehicle controls**
  - 421 Started in gear
  - 422 Stalled engine
  - 423 Wrong pedal
  - 424 Footrest, stand
  - 425 Ignition turned off (steering locked)
  - 426 Lights not switched on
  - 427 Foot slipped
  - 428 Parking brake not fully applied
  - 429 Trailer coupling or safety chain not secured
- 430 **Showing off**
  - 431 Racing
  - 432 Playing chicken
  - 433 Wheel spins / wheelies / doughnuts etc
  - 434 Intimidating driving
- 440 **Parked or stopped**
  - 441 Inadequately lit at night: (not lit by street lights or park lights off)
  - 442 At point of limited visibility
  - 443 Not as close as practicable to side of road
  - 444 On incorrect side of road
  - 445 Double parked
  - 446 In 'No Stopping' area
  - 447 Not clear of rail crossing
  - 448 In cycle or Transit lane

## **GENERAL PERSON**

- 500 Illness and disability**  
501 Illness with no warning e.g. heart attack, unexpected epilepsy)  
502 Physically disabled  
503 Defective vision  
504 Medical illness (not sudden) flu, diabetes  
505 Mental illness (depression, psychosis)  
506 Suicidal (but not successful)  
507 Impaired ability due to old age
- 510 Intentional or criminal**  
511 Deliberate homicide (only if succeeded)  
512 Intentional collision  
513 Committed suicide (only if succeeded)  
514 Evading enforcement  
515 Object deliberately thrown at or dropped on vehicle / shot at  
516 Object thrown from vehicle  
517 Stolen vehicle
- 520 Driver or passenger, boarding, leaving, in vehicle**  
521 Boarding moving vehicle  
522 Intentionally leaving moving vehicle  
523 Riding in insecure position  
524 Interfered with driver  
525 Opened door inadvertently  
526 Overloaded vehicle (with passengers)  
527 Child playing in parked vehicle
- 530 Miscellaneous person**  
531 Casualty drowned  
532 Casualty thrown from vehicle  
533 Equestrian not keeping to verge  
534 Cyclist or M/cyclist wearing dark clothing

## **VEHICLES**

- 600 Lights and reflectors at fault or dirty**  
601 Dazzling headlights  
602 Headlights inadequate or no headlights  
603 Headlights failed suddenly  
604 Brake-lights or indicators faulty or not fitted  
605 Tail-lights inadequate or no tail-lights  
606 Reflectors inadequate or no reflectors  
607 Lights or reflectors obscured
- 610 Brakes**  
611 Parking brake failed  
612 Parking brake defective  
613 Service brake failed  
614 Service brake defective  
615 Jack-knifed
- 620 Steering**  
621 Defective  
622 Failed suddenly
- 630 Tyres**  
631 Puncture or blowout  
632 Worn tread on tyre  
633 Incorrect tyre type  
634 Mixed treads / space savers
- 640 Windscreen or mirror**  
641 Shattered windscreen  
642 Windscreen or rear window dirty  
643 Rear vision mirror not adjusted correctly  
644 No rear vision mirror  
645 Windscreen or rear window misted/frosted  
646 Inadequate or no sun-visors  
647 Inadequate or no windscreen wipers  
648 Cycle / Motorcycle visor, glasses, goggles or screen
- 650 Mechanical**  
651 Engine failure  
652 Transmission failure (including chains and gears)  
653 Accelerator or throttle jammed

- 660 Body or chassis**  
661 Body, chassis or frame (cycle, m/c) failure  
662 Suspension failure  
663 Failure of door catch or door not shut  
664 Inadequate mudguards  
665 Inadequate tow coupling  
666 Inadequate or no safety chain  
667 Bonnet catch failed  
668 Wheel off  
669 Broken axle  
670 Inconspicuous colour  
671 Blind spot  
672 Seat belt / restraint failed  
673 Air-bag failed to inflate (fully)
- 680 Load**  
681 Load interferes with driver  
682 Not well secured or load moved  
683 Over-hanging  
684 Load obscured vision  
685 Excess dimensions not adequately indicated  
686 Over dimension vehicle or load  
687 Load too heavy  
688 Towed vehicle or trailer too heavy or incompatible
- 690 Miscellaneous vehicle**  
691 Emergency Vehicle attending emergency  
692 Vehicle caught fire  
693 Being towed  
694 Air-bag contributed to crash or injury  
695 Seatbelt / restraint absent or unusable  
696 Dangerous goods

## **PEDESTRIANS**

- 700 Walking along road**  
701 Not keeping to footpath  
702 Not keeping to side of road  
703 Not facing oncoming traffic  
704 Not on outside of blind curve  
705 Wheeled ped inconsiderate or dangerous on footpath
- 710 Crossing road**  
711 Walking heedless of traffic  
712 Stepping out from behind vehicles  
713 Running heedless of traffic  
714 Failed to use pedestrian crossing when one within 20 metres  
715 Waiting on roadway for moving traffic  
716 Confused by traffic or stepped back  
717 Suddenly stepped onto pedestrian crossing  
718 Not complying with traffic signals or school patrols  
719 Misjudged speed and / or distance of vehicle
- 720 Miscellaneous**  
721 Pushing, working on or unloading vehicle  
722 Playing on road or unnecessarily on road  
723 Working on road  
724 Wearing dark clothing  
725 Vision obscured by umbrella or clothing  
726 Child escaped from supervision  
727 Unsupervised child  
728 Sitting / lying on road  
729 Pedestrian from school bus  
730 Pedestrian behind reversing / manoeuvring vehicle  
731 Overseas pedestrian

## **ROAD**

- 800 Slippery**  
801 Rain  
802 Frost or ice  
803 Snow or hail  
804 Loose material on seal  
805 Mud  
806 Oil / Diesel / Fuel  
807 Painted markings  
808 Recently graded  
809 Surface bleeding / defective

- 810 Surface**  
811 Potholed  
812 Uneven  
813 Deep loose metal  
814 High crown  
815 Curve not well banked  
816 Edge badly defined or gave way  
817 Under construction or maintenance  
818 Unusually narrow  
819 Broken glass
- 820 Obstructed**  
821 Fallen tree or branch  
822 Slip or subsidence  
823 Flood waters, large puddles, ford  
824 Road works not adequately lighted  
825 Road works not adequately signposted  
826 Roadside object fell on vehicle  
827 Object flicked up by vehicle
- 830 Visibility limited**  
831 Curve  
832 Crest  
833 Building  
834 Trees  
835 Hedge or fence  
836 Scrub or long grass  
837 Bank  
838 Temporary obstruction, dust or smoke  
839 Parked vehicle
- 840 Signs and signals**  
841 Damaged, removed or malfunction  
842 Badly located  
843 Ineffective or inadequate  
844 Necessary  
845 Signals turned off

- 850 Markings**  
851 Faded  
852 Difficult to see under weather conditions  
853 Markings necessary  
854 Not visible due to geometry or vehicles  
855 Old markings not adequately removed
- 860 Street lighting**  
861 Failed  
862 Inadequate  
863 Glare on wet road  
864 Pedestrian crossing not adequately lighted
- 870 Raised islands and roundabouts**  
871 Traffic island(s) difficult to see  
872 Traffic island(s) Ineffective, badly located or designed  
873 Cyclist squeeze point

## **MISCELLANEOUS**

- 900 Weather**  
901 Heavy rain  
902 Dazzling sun  
903 Strong wind  
904 Fog or mist  
905 Snow, sleet or hail
- 910 Animals**  
911 Household pet rushed out or playing  
912 Farm animal straying  
913 Farm animal attended, but inadequate warning or unexpected  
914 Farm animal attended, but out of control  
915 Wild animal
- 920 Entering or leaving land use**  
921 Roadside stall  
922 Service station  
923 Specialised liquor outlet  
924 Take away foods  
925 Shopping complex  
926 Car parking building / area  
927 Other commercial  
928 Industrial site  
929 Private house / farm  
930 Other non-commercial  
931 Mobile shop or vendor
- 999 Unknown**