

Napier City
Road Safety Report
2005 to 2009



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Introduction and general information

The NZ 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 NZ Transport Agency.

This report helps identify road safety issues in Napier 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 Napier 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 NZ 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 NZ Transport Agency. Mostly five-year data (2005 to 2009) has been used, but 10-year data (2000 to 2009) 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 B) along with data for all New Zealand.

The peer group used for comparison with Napier City is Group B which consists of large urban areas with some rural areas on the outskirts. (Population 40000 - 98000 and/or rural crashes less than 35 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 2009 populations estimates updated from the 2006 census, traffic flows from the year 2009, and the average of five year crash data (2005–2009).
3. Traffic flows are based on Road Asset Maintenance and Management (RAMM) data from December 2009. 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 2005 to 2009 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 2009 compared with the previous five years (2004 to 2008). 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	2005	2006	2007	2008	2009
Northland	30%	28%	34%	38%	27%
Auckland	17%	20%	16%	18%	18%
Waikato	40%	38%	50%	47%	40%
Bay of Plenty	32%	37%	38%	29%	27%
Gisborne	32%	26%	31%	28%	27%
Hawkes Bay	80%	75%	59%	68%	42%
Taranaki	55%	65%	79%	41%	36%
Manawatu-Wanganui	38%	34%	35%	36%	31%
Wellington	68%	61%	74%	55%	48%
Nelson-Marlborough	44%	52%	54%	50%	39%
West Coast	53%	55%	59%	53%	54%
Canterbury	47%	42%	49%	45%	43%
Otago	99%	85%	77%	69%	39%
Southland	78%	103%	73%	53%	39%
New Zealand	36%	35%	37%	35%	33%

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
Napier City	44	31	40	23
Group B	34	47	20	16
All NZ	37	29	27	18

Figure 1.3 Casualties per 100 million vehicle kilometres travelled

	Council roads		State Highways	
	Urban	Rural	Urban	Rural
Napier City	53	40	52	36
Group B	41	66	26	22
All NZ	46	42	36	26

Figure 1.4 Peer group crash and casualty rates

Group B

City or District	10,000 Population (5 year average)	Crashes per				10,000 Population (5 year average)	Casualties per				2009 Population	% of rural crashes
		100 million vehicle kilometres travelled					100 million vehicle kilometres travelled					
		Council roads		State Highways			Council roads		State Highways			
		Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural		
Invercargill	40	78	37	67	27	59	114	62	89	44	51900	16
Napier	26	44	31	40	23	34	53	40	52	36	57200	20
Nelson	23	37	72	16	16	28	43	89	19	21	45000	18
Palmerston North	22	45	38	45	22	27	53	58	61	32	80300	18
Papakura	25	34	27	n/a	11	34	46	35	n/a	17	48900	40
Group B	27	46	33	43	17	36	59	49	56	25	283300	21
All New Zealand	26	38	29	28	18	36	48	42	38	26	4331000	41

Group B : Major urban areas with some rural areas on the outskirts. (Population 40000-97500 and/or rural crashes less than 35 percent).

Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (2005-2009) and December 2009 VKT estimates.

Crashes and casualties per 10,000 population are based on five year average crash data (2005-2009) and Statistics NZ 2009 population estimates.

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

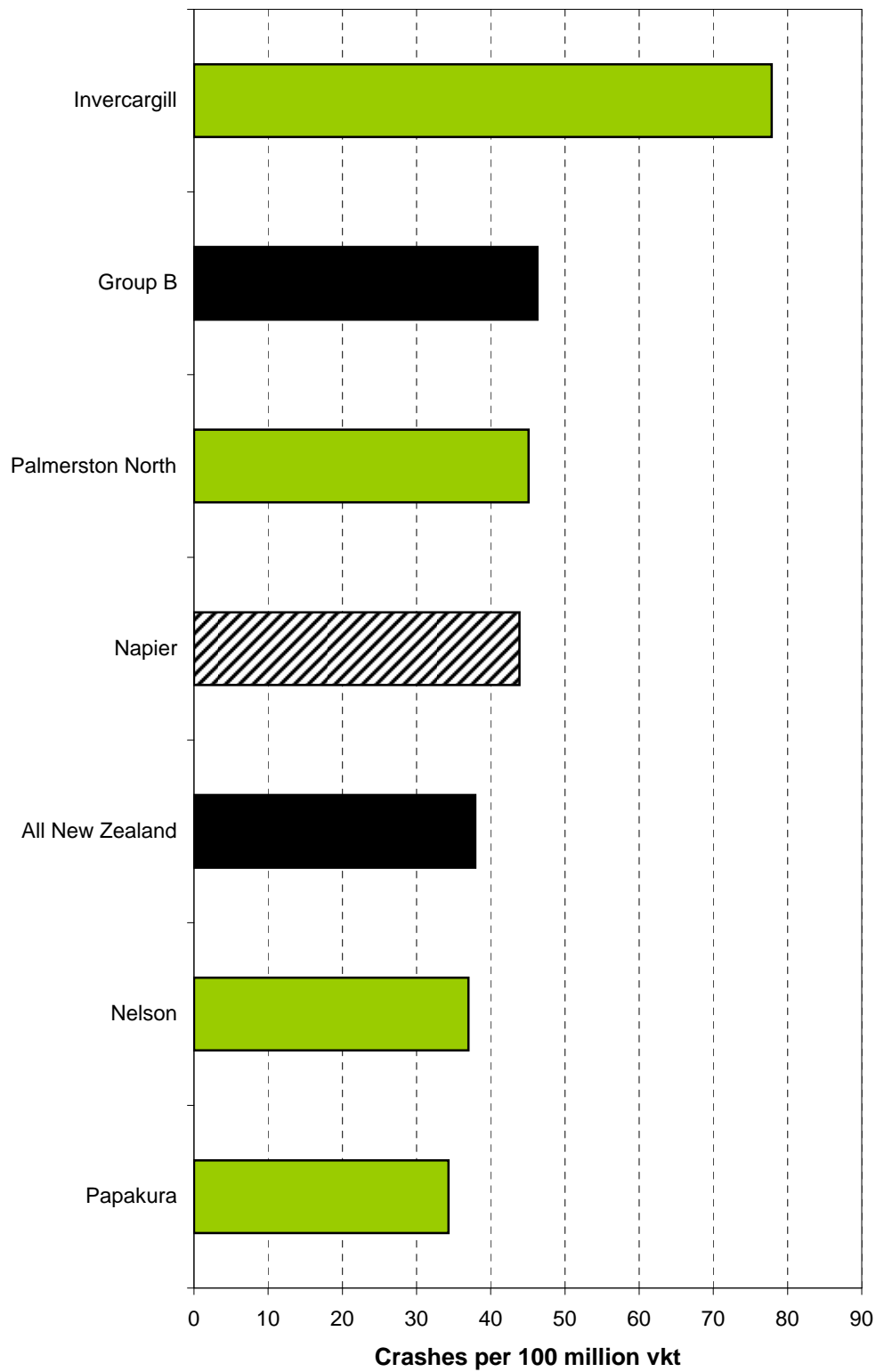


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural council roads

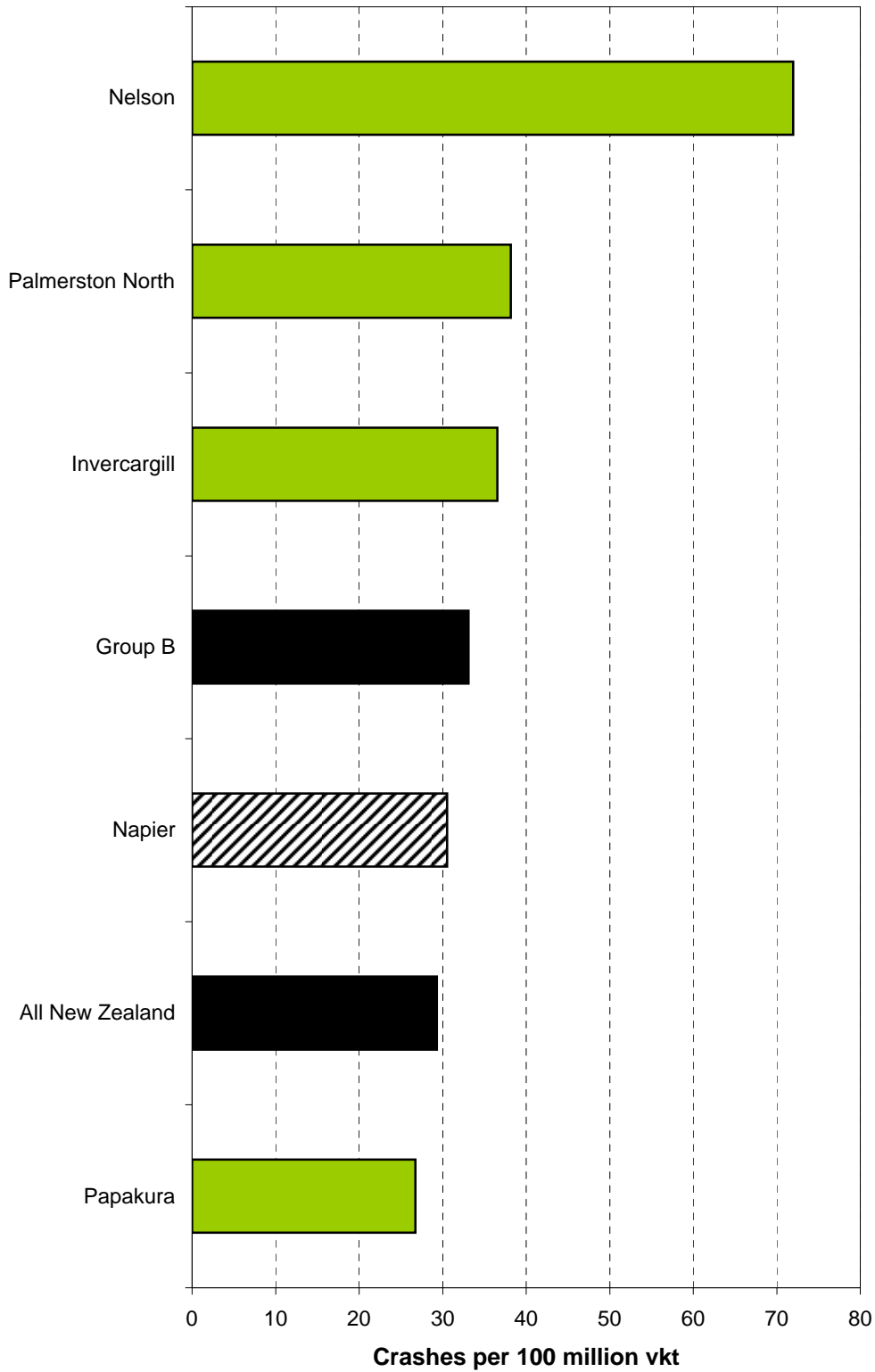


Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways

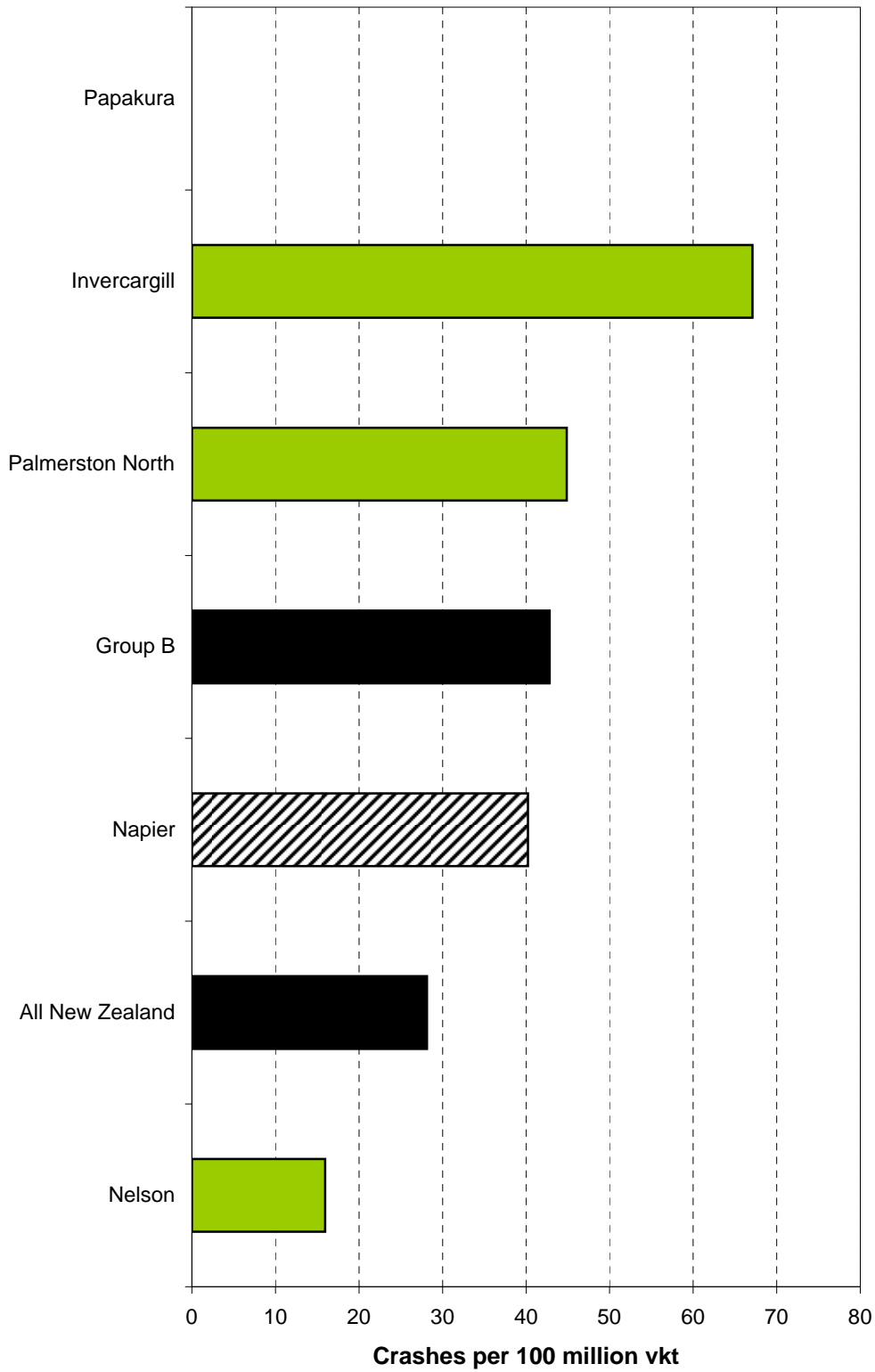
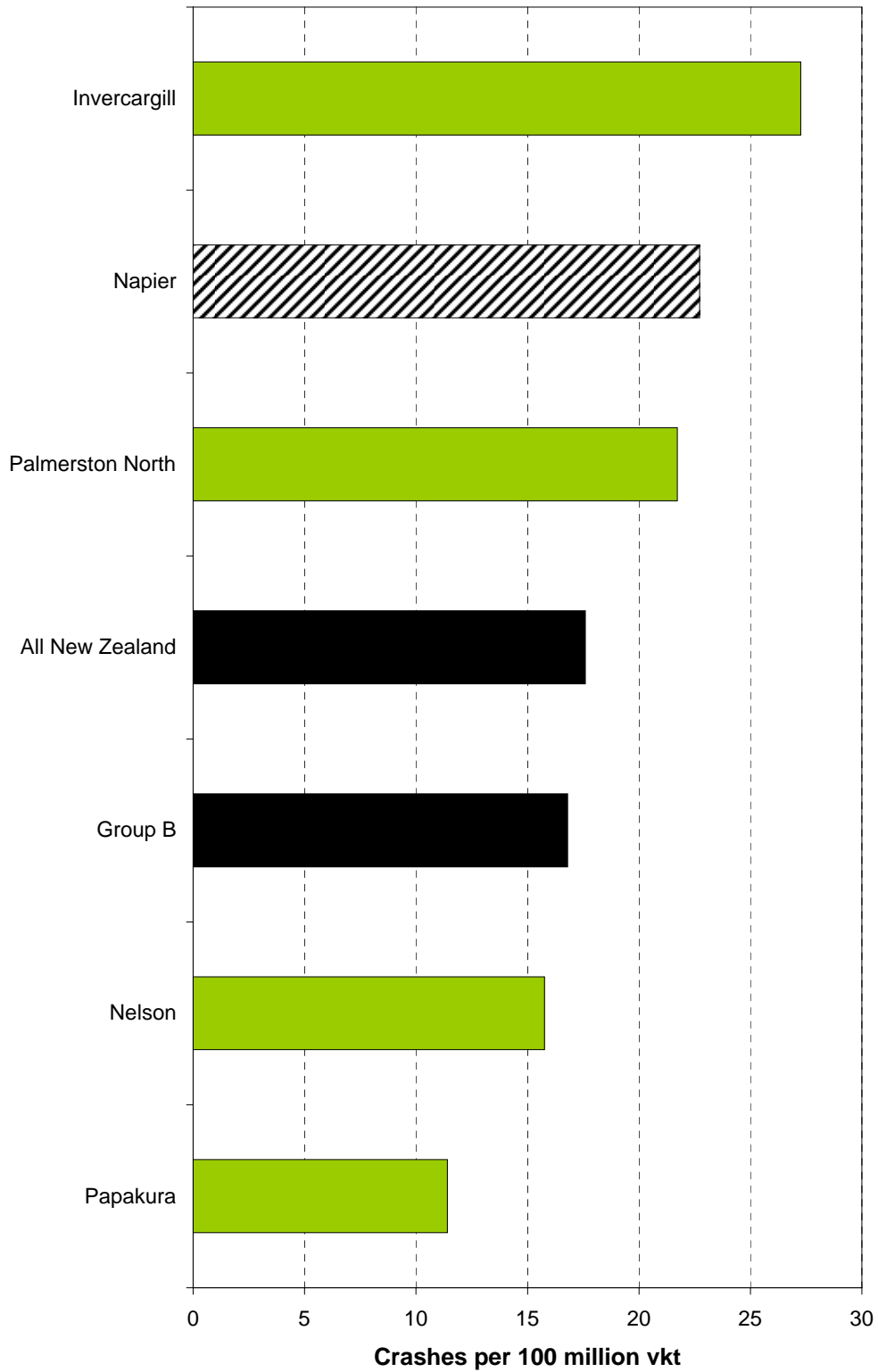


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways



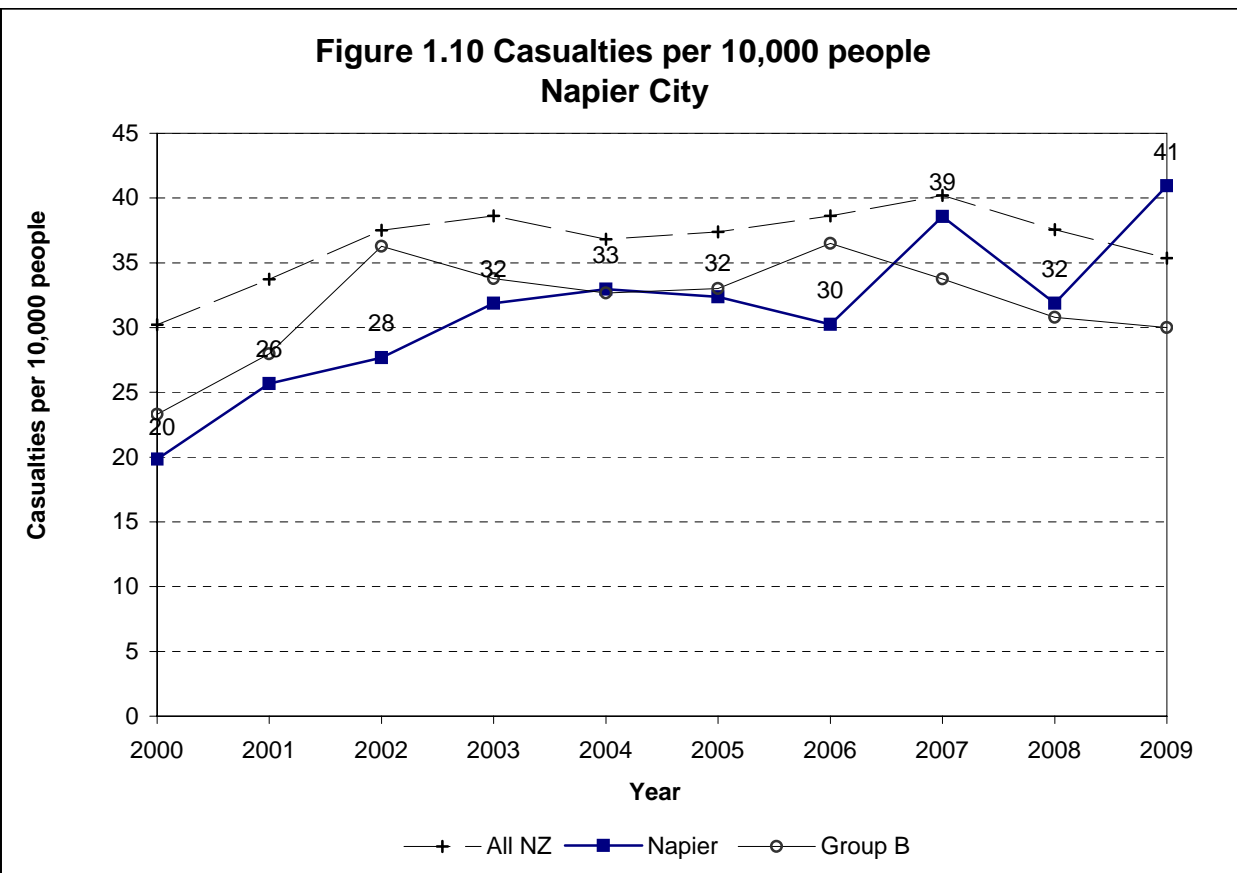
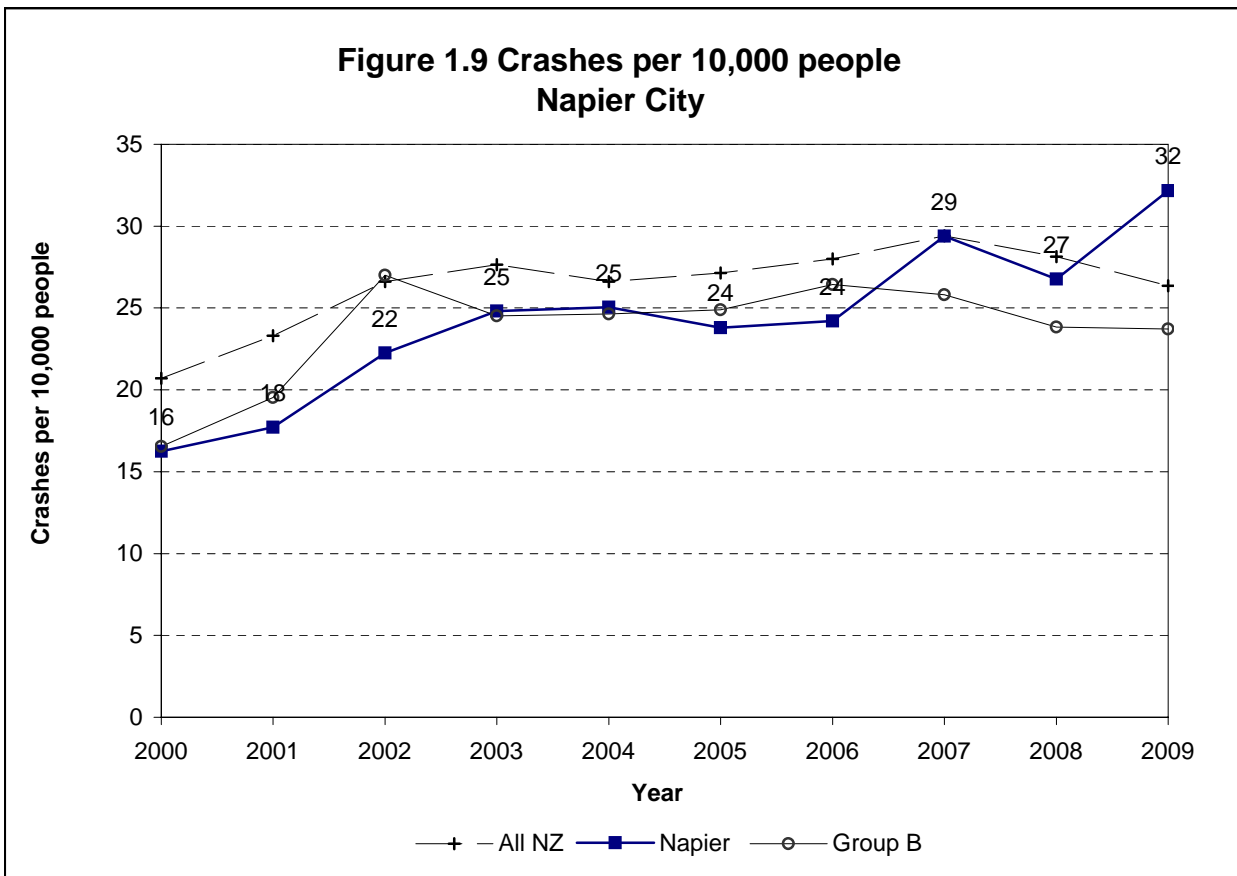


Figure 1.11 Social cost of crashes in Napier City in 2009

		Napier City	New Zealand
Council roads	urban	\$28.30	\$1,607.40
	rural	\$1.82	\$909.43
State Highways	urban	\$5.60	\$299.76
	rural	\$17.99	\$1,487.35
Total		\$53.72	\$4,303.94

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 \$3.5 million (in June 2009 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 2009 update', available at the Ministry of Transport's website:

<http://www.transport.govt.nz/assets/NewPDFs/NewFolder/Social-Cost-June-2009-update-final.pdf>

The average social cost per reported crash (in June 2009 dollars) are estimated at:

Rural fatal crash	\$4,260,000
Rural serious crash	\$820,000
Rural minor crash	\$91,000
Urban fatal crash	\$3,775,000
Urban serious crash	\$699,000
Urban minor crash	\$82,000

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 2005 to 2009 - whole City

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	3	6	3	0	4	16	2%	2%
Serious crashes	20	32	30	30	24	136	18%	19%
Minor crashes	110	98	133	122	155	618	80%	79%
Total injury crashes	133	136	166	152	183	770	100%	100%
Non-injury crashes	455	479	539	441	407	2321		

Figure 2.2: Crash numbers and severity 2005 to 2009 - urban roads

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	1	1	0	0	1	3	0%	1%
Serious crashes	13	24	23	23	18	101	16%	18%
Minor crashes	92	84	114	91	137	518	83%	81%
Total injury crashes	106	109	137	114	156	622	100%	100%
Non-injury crashes	403	426	486	396	383	2094		

Figure 2.3: Crash numbers and severity 2005 to 2009 - rural roads

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	2	5	3	0	3	13	9%	5%
Serious crashes	7	8	7	7	6	35	24%	22%
Minor crashes	18	14	19	31	18	100	68%	72%
Total injury crashes	27	27	29	38	27	148	100%	100%
Non-injury crashes	52	53	53	45	24	227		

Figure 2.4: Casualty numbers and severity 2005 to 2009 - whole City

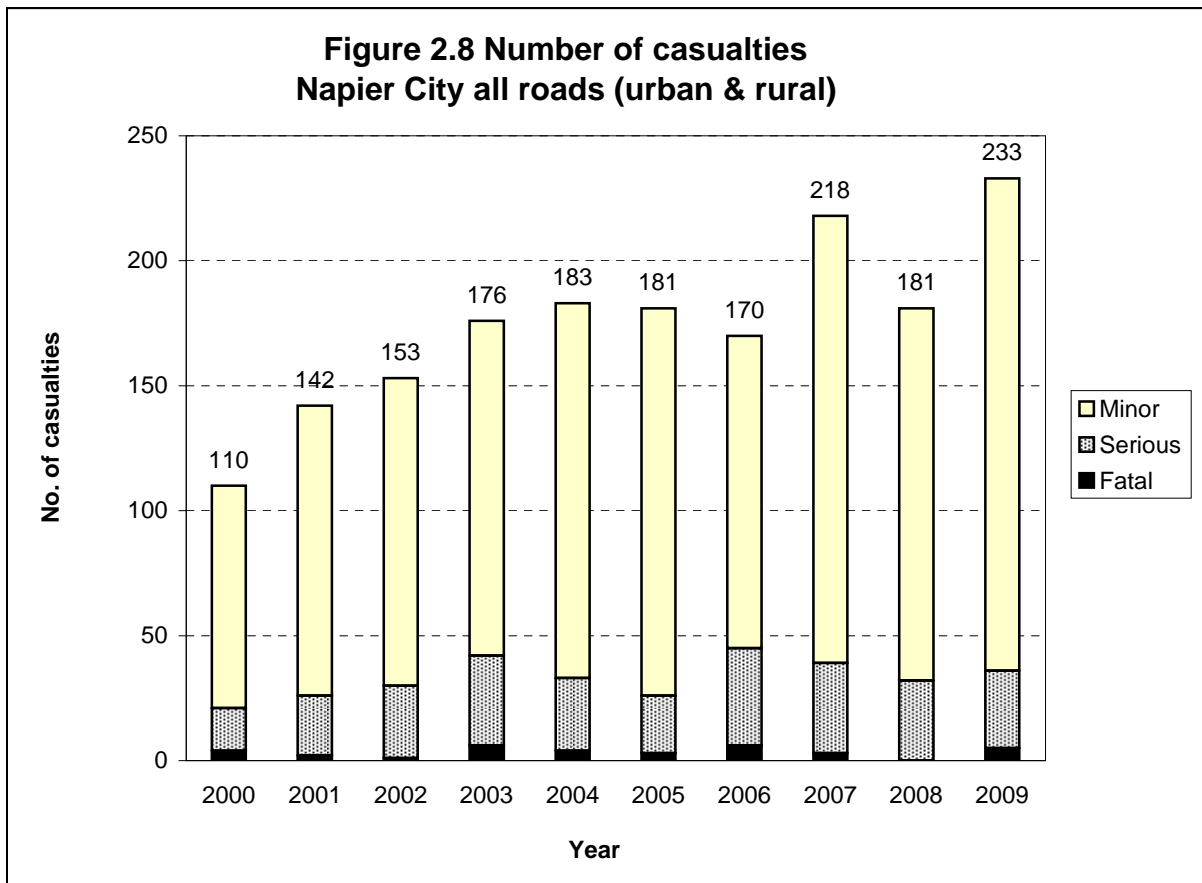
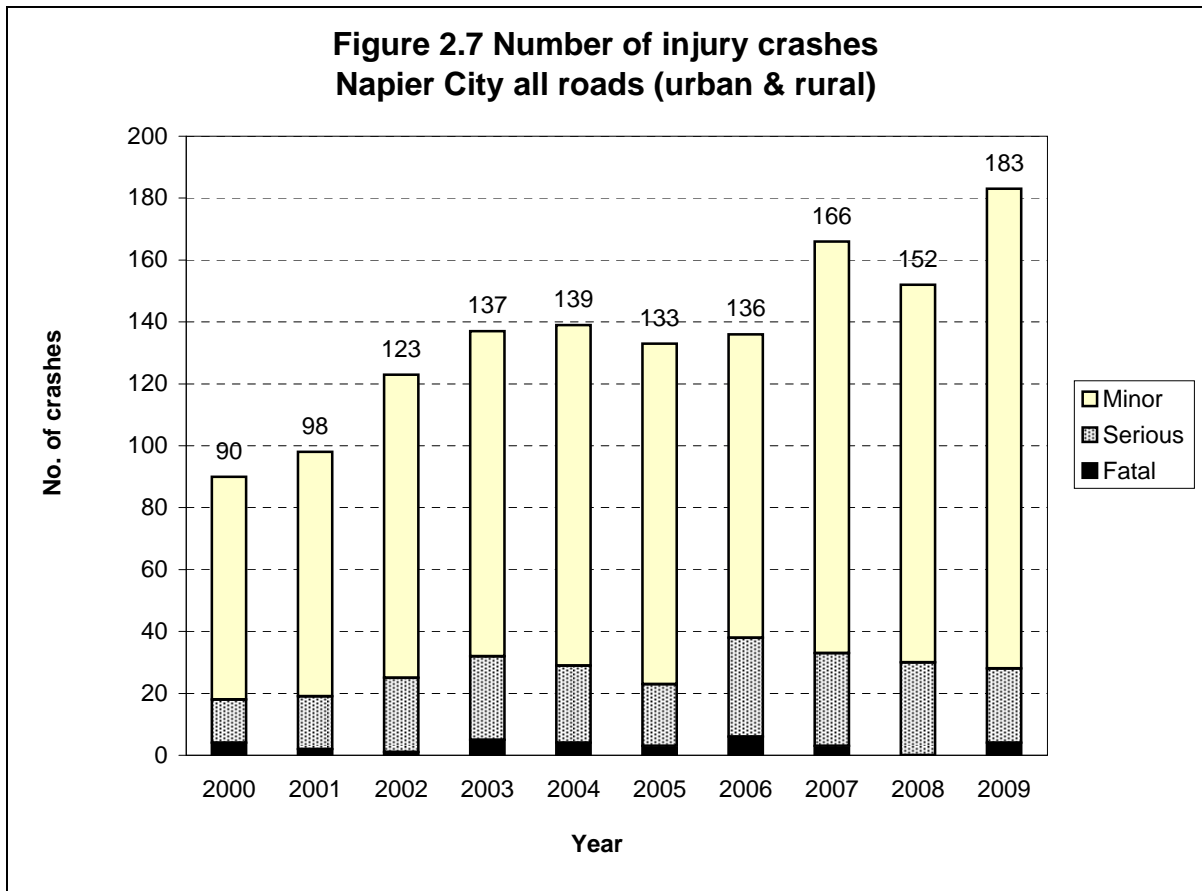
	2005	2006	2007	2008	2009	Total	%	Group B
Fatal casualties	3	6	3	0	5	17	2%	2%
Serious casualties	23	39	36	32	31	161	16%	17%
Minor casualties	155	125	179	149	197	805	82%	82%
Total casualties	181	170	218	181	233	983	100%	100%

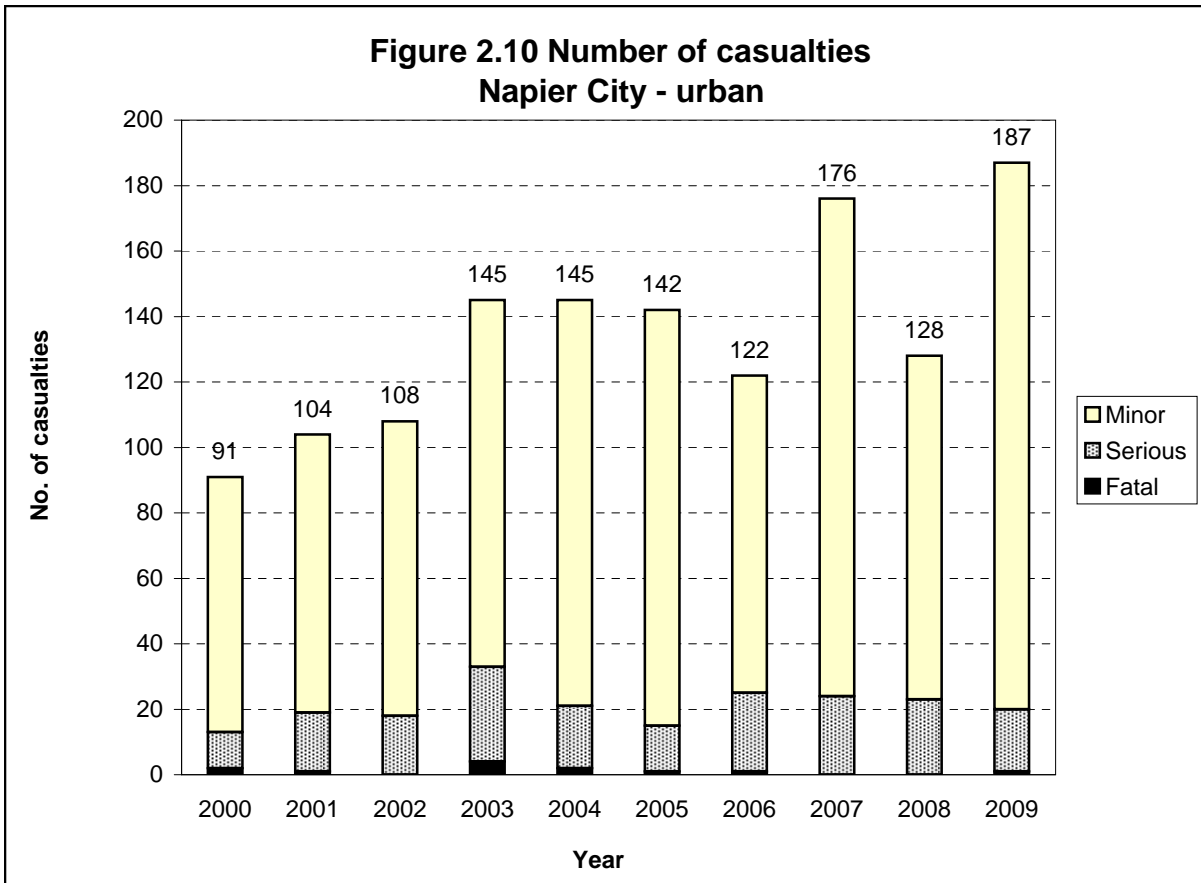
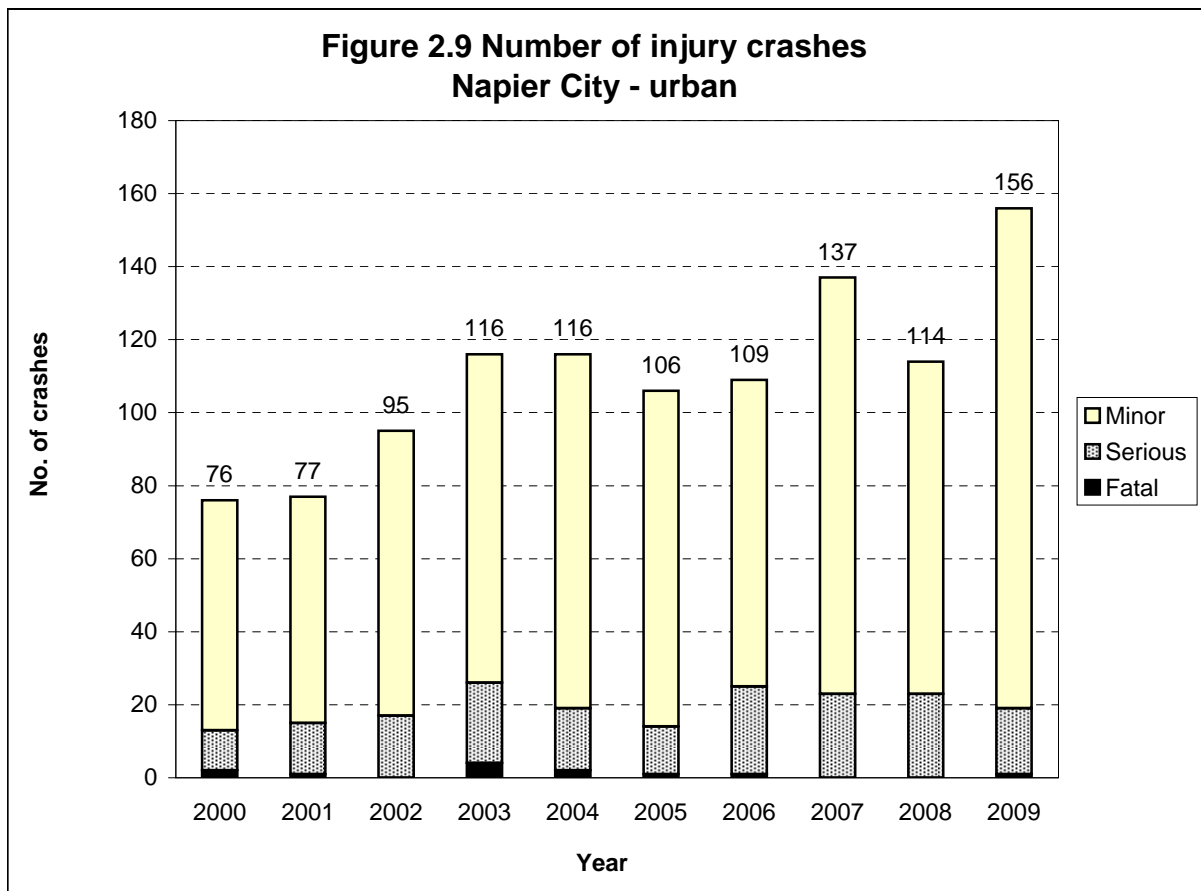
Figure 2.5: Casualty numbers and severity 2005 to 2009 - urban roads

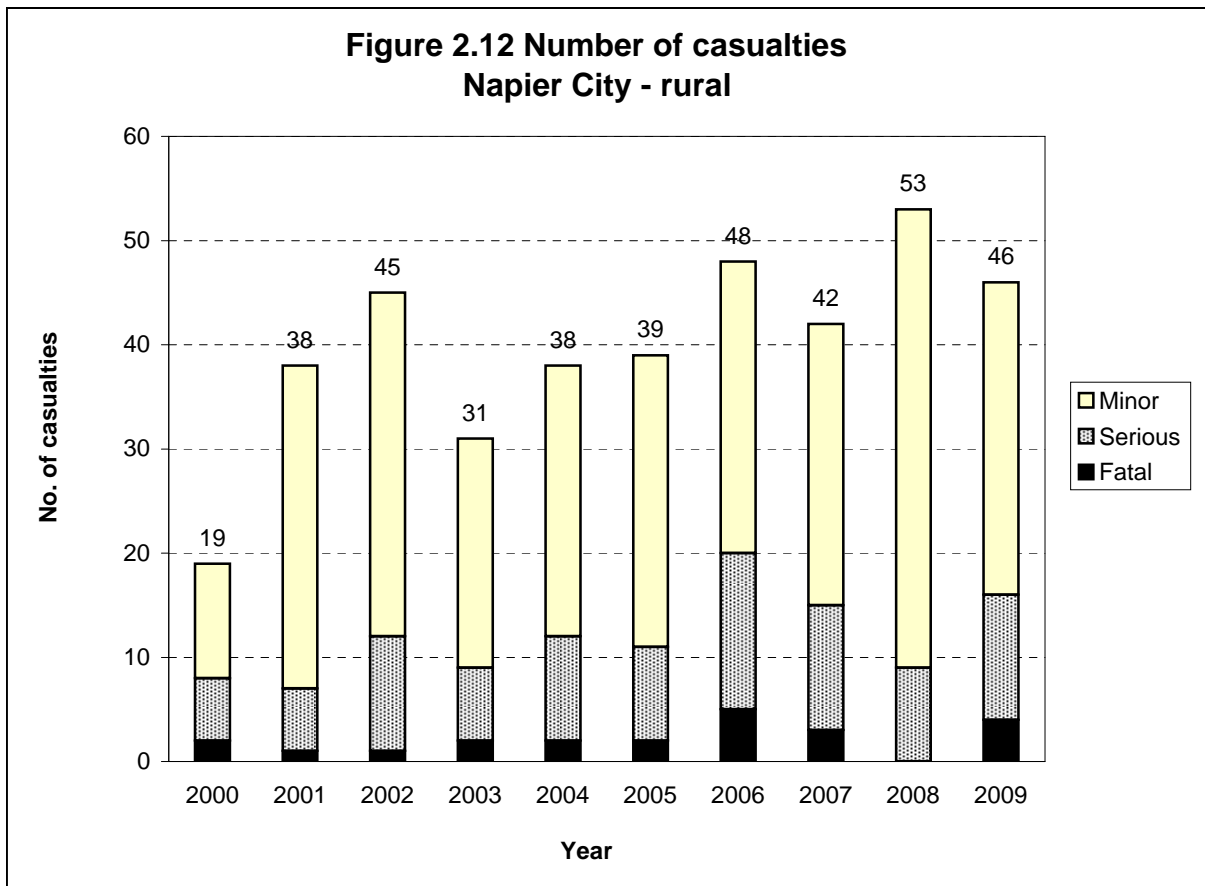
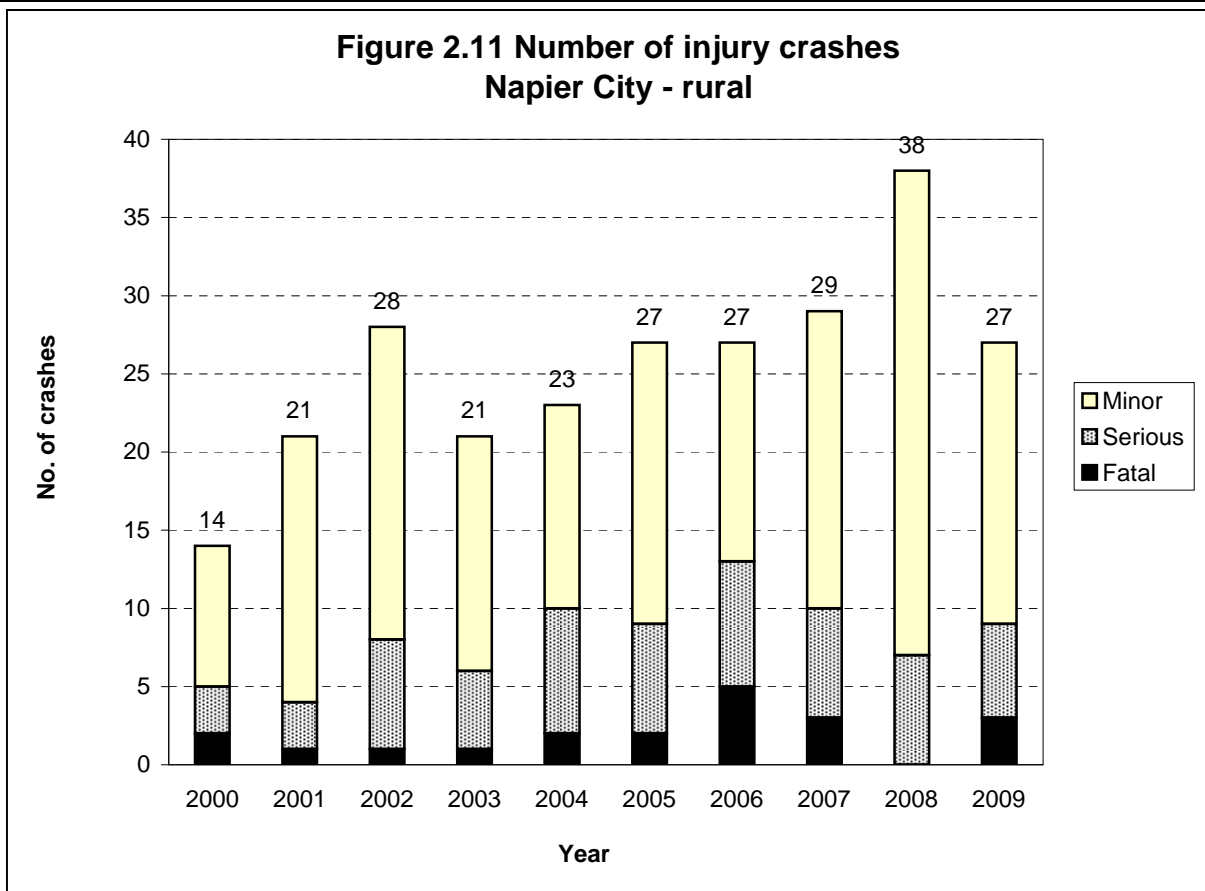
	2005	2006	2007	2008	2009	Total	%	Group B
Fatal casualties	1	1	0	0	1	3	0%	1%
Serious casualties	14	24	24	23	19	104	14%	16%
Minor casualties	127	97	152	105	167	648	86%	83%
Total casualties	142	122	176	128	187	755	100%	100%

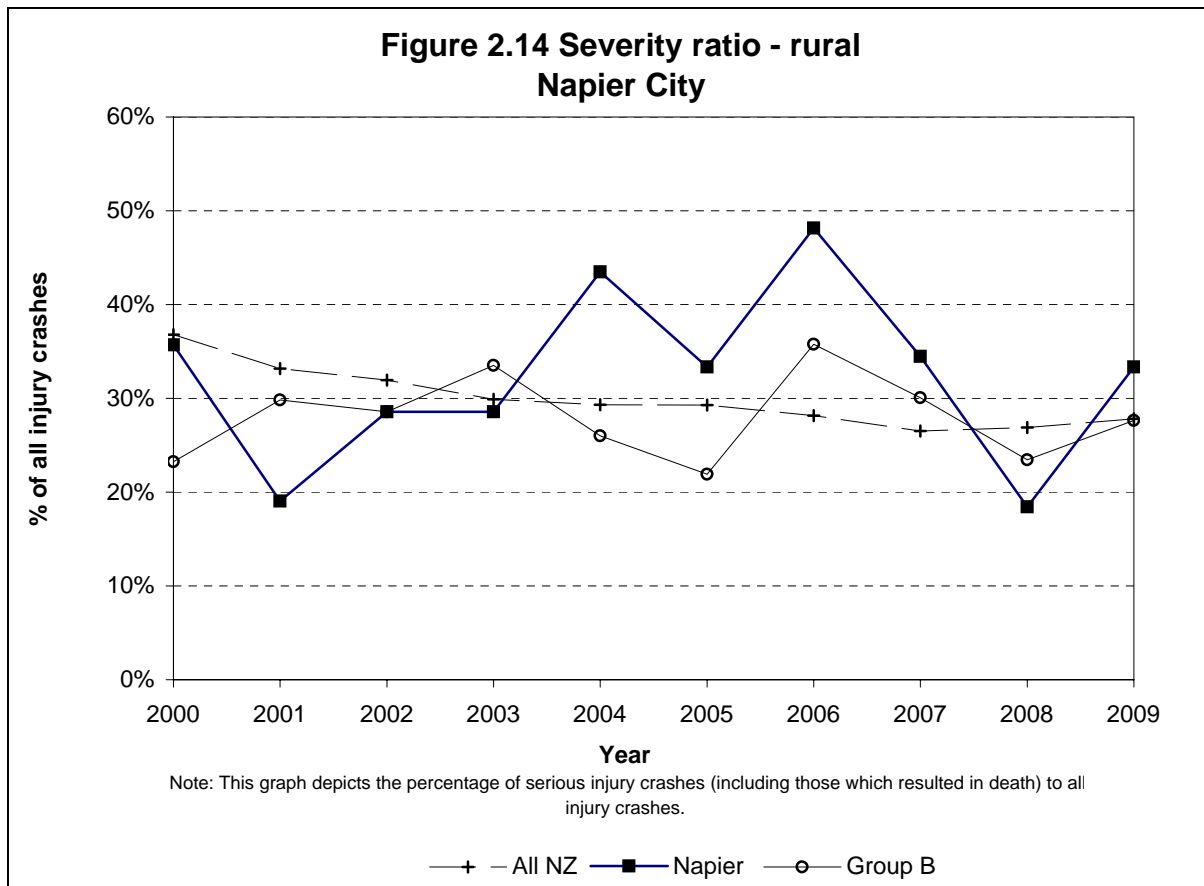
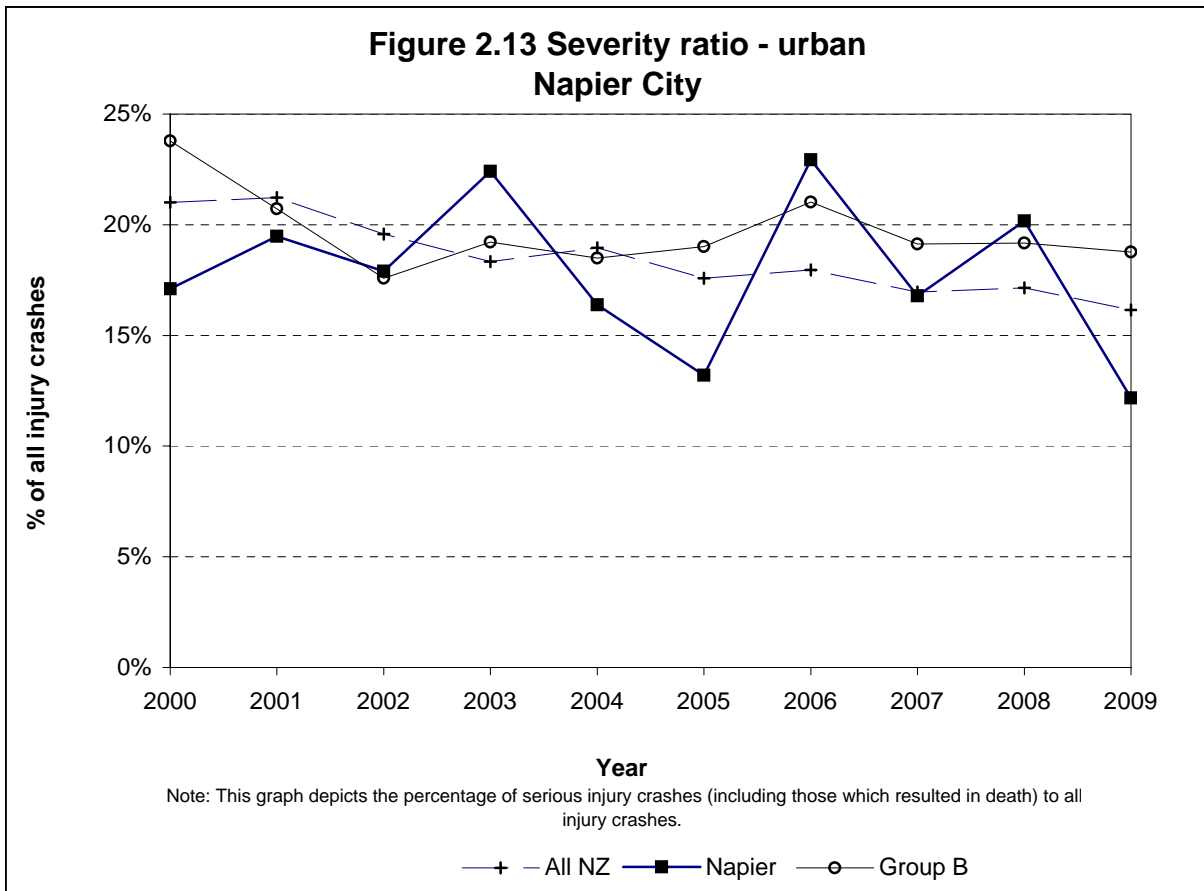
Figure 2.6: Casualty numbers and severity 2005 to 2009 - rural roads

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal casualties	2	5	3	0	4	14	6%	4%
Serious casualties	9	15	12	9	12	57	25%	21%
Minor casualties	28	28	27	44	30	157	69%	76%
Total casualties	39	48	42	53	46	228	100%	100%



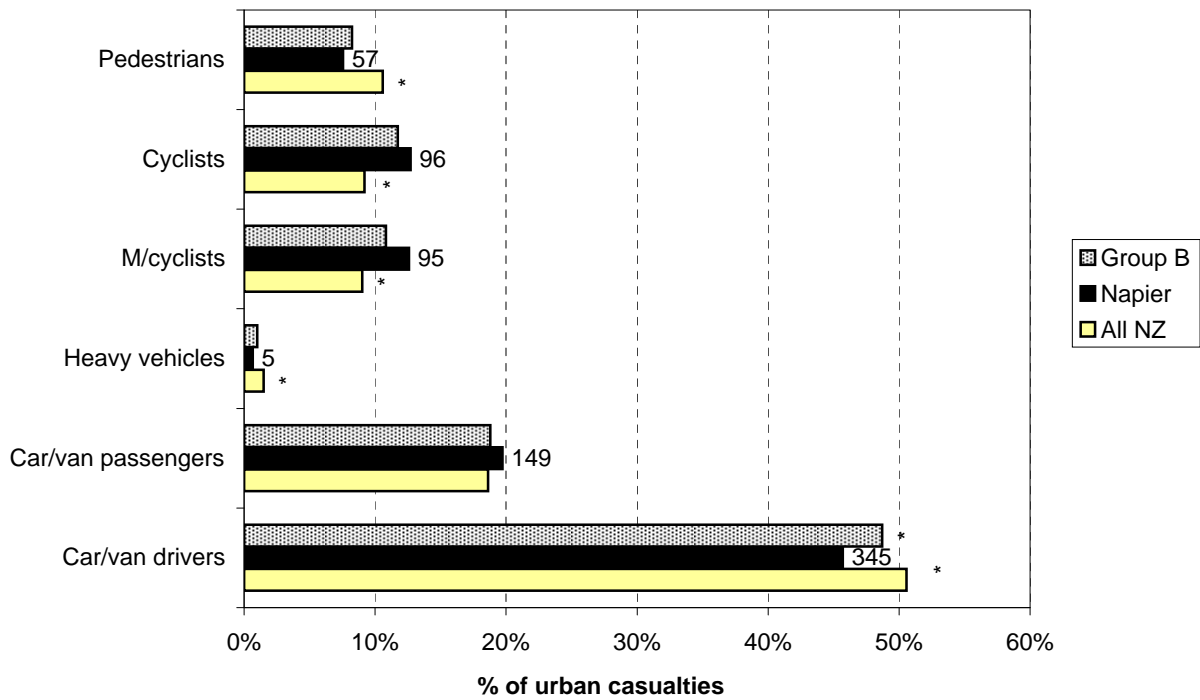






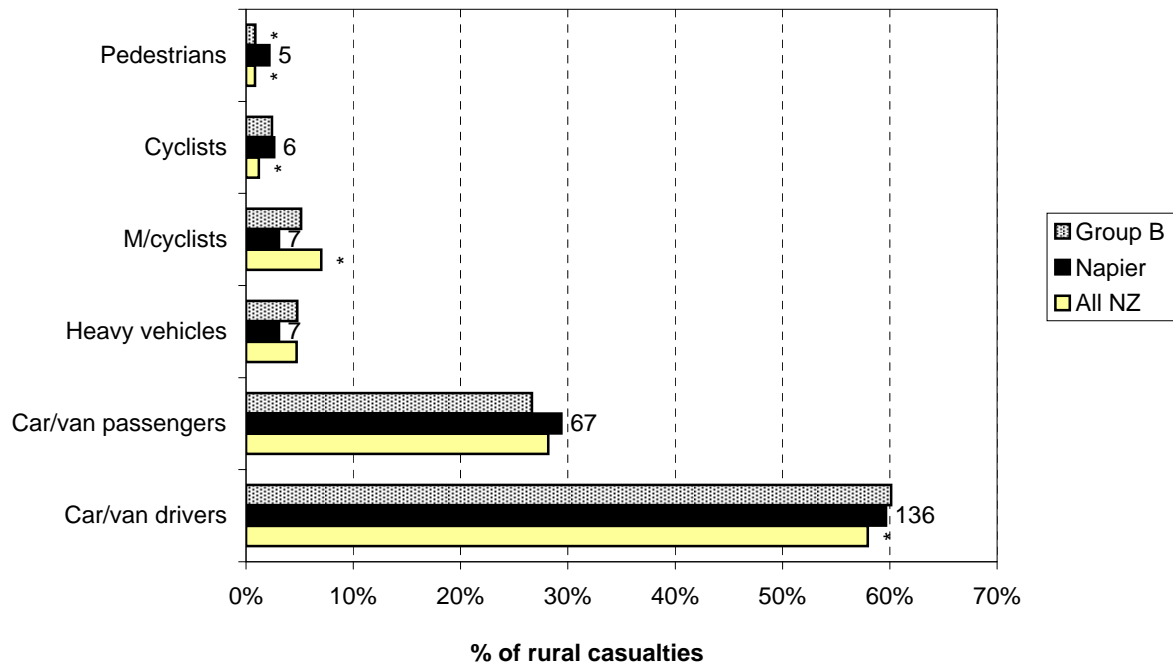
Road User Statistics

**Figure 3.1 Road user casualties - urban
Napier City (2005-2009)**



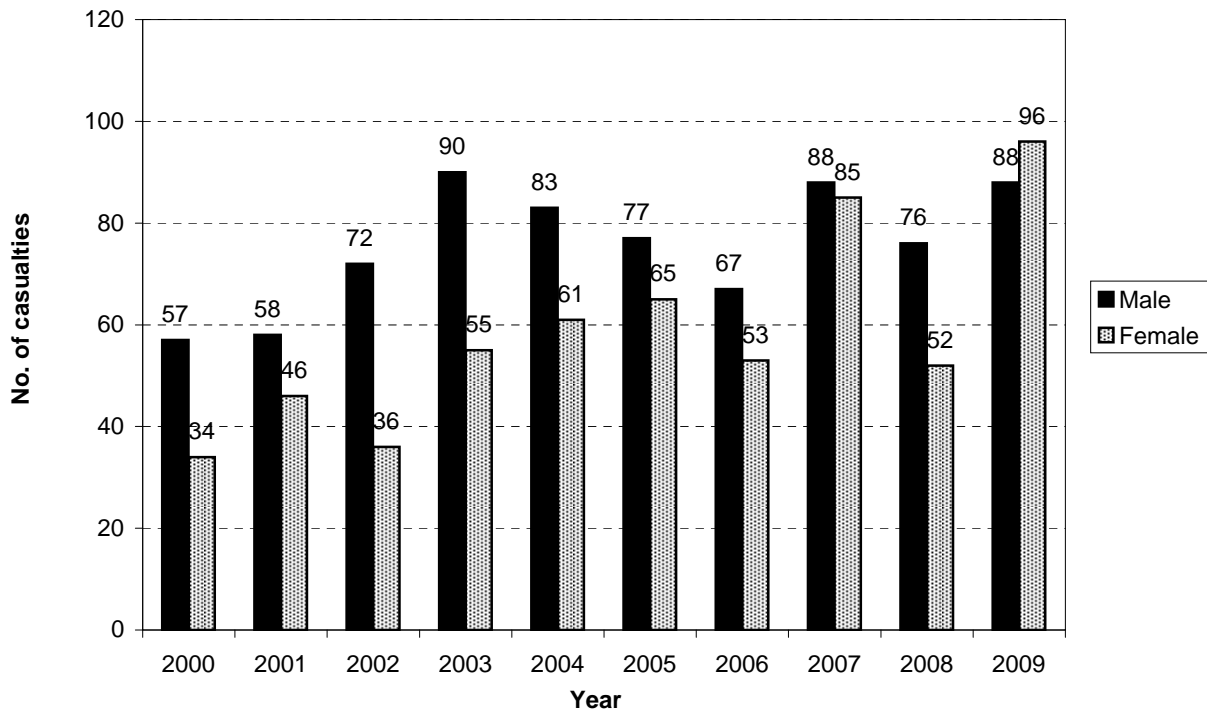
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.2 Road user casualties - rural
Napier City (2005-2009)**



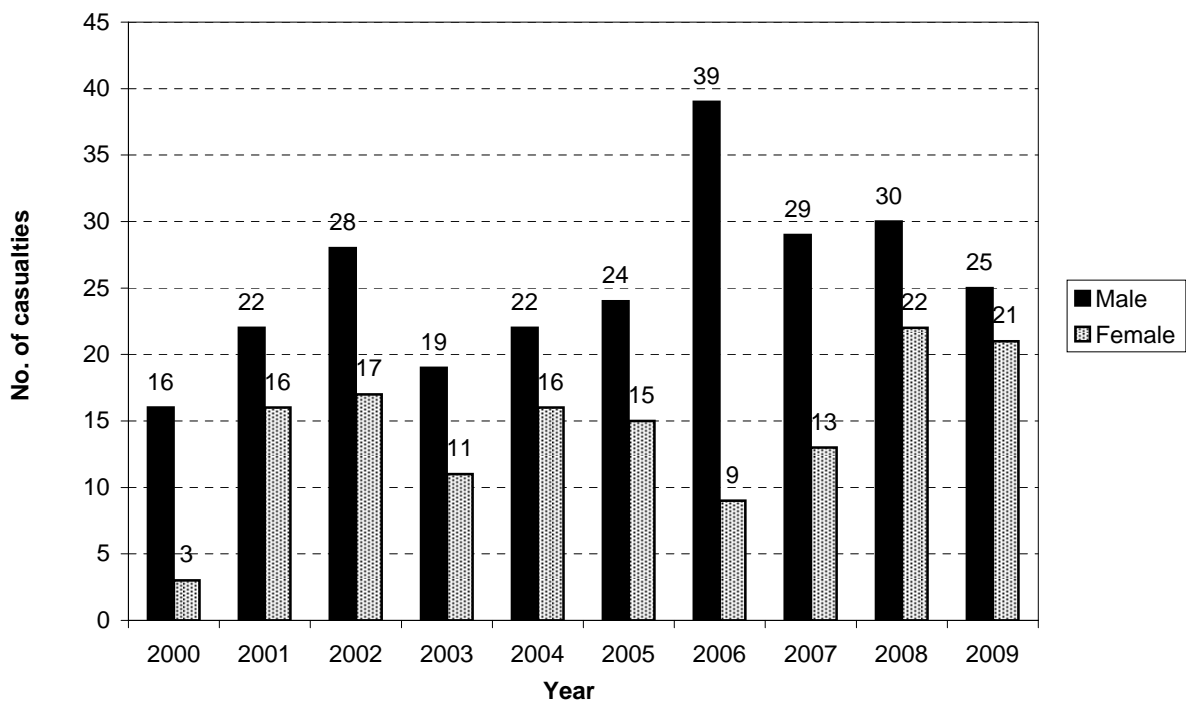
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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



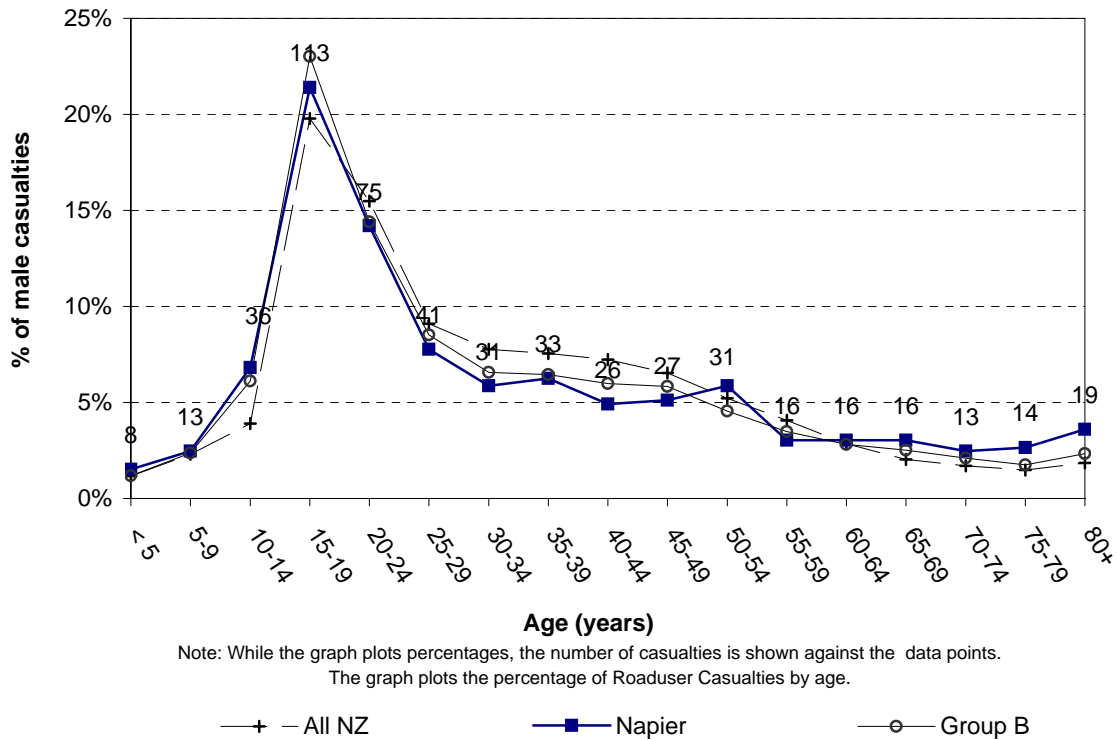
Note: This graph shows the number of male and female roadusers injured

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

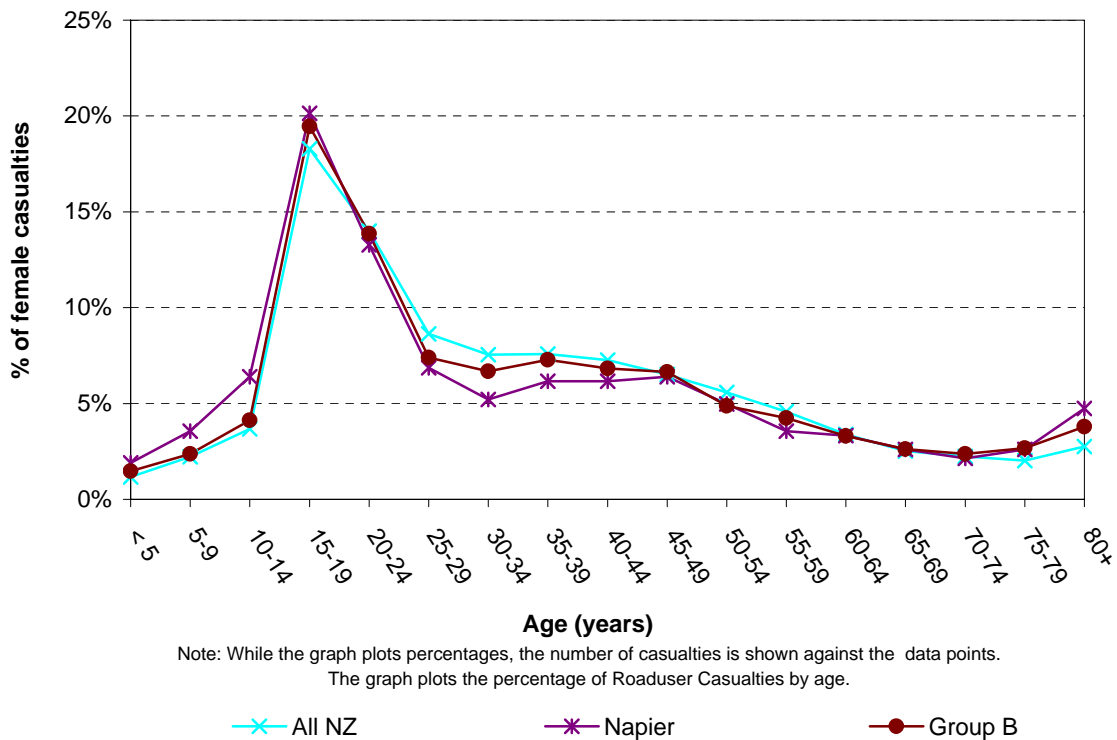


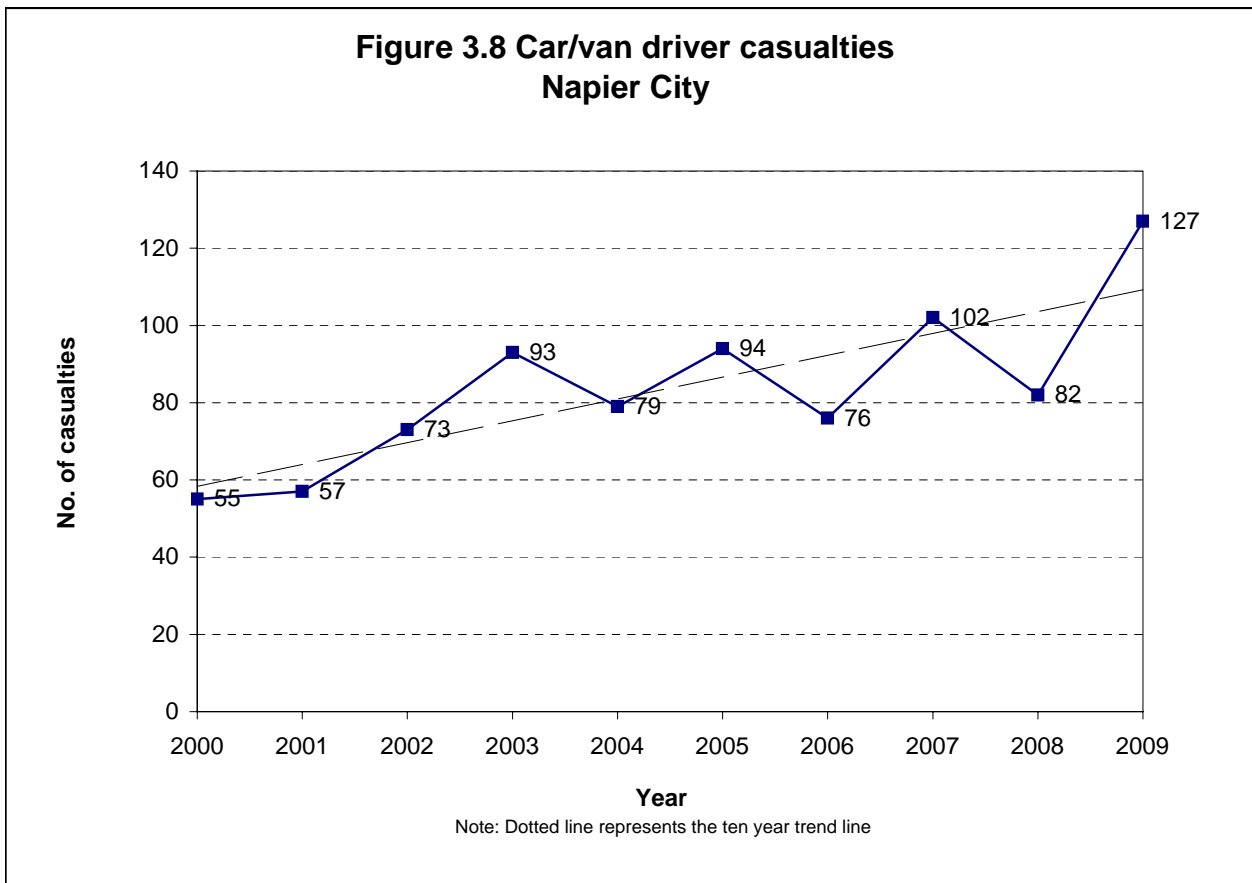
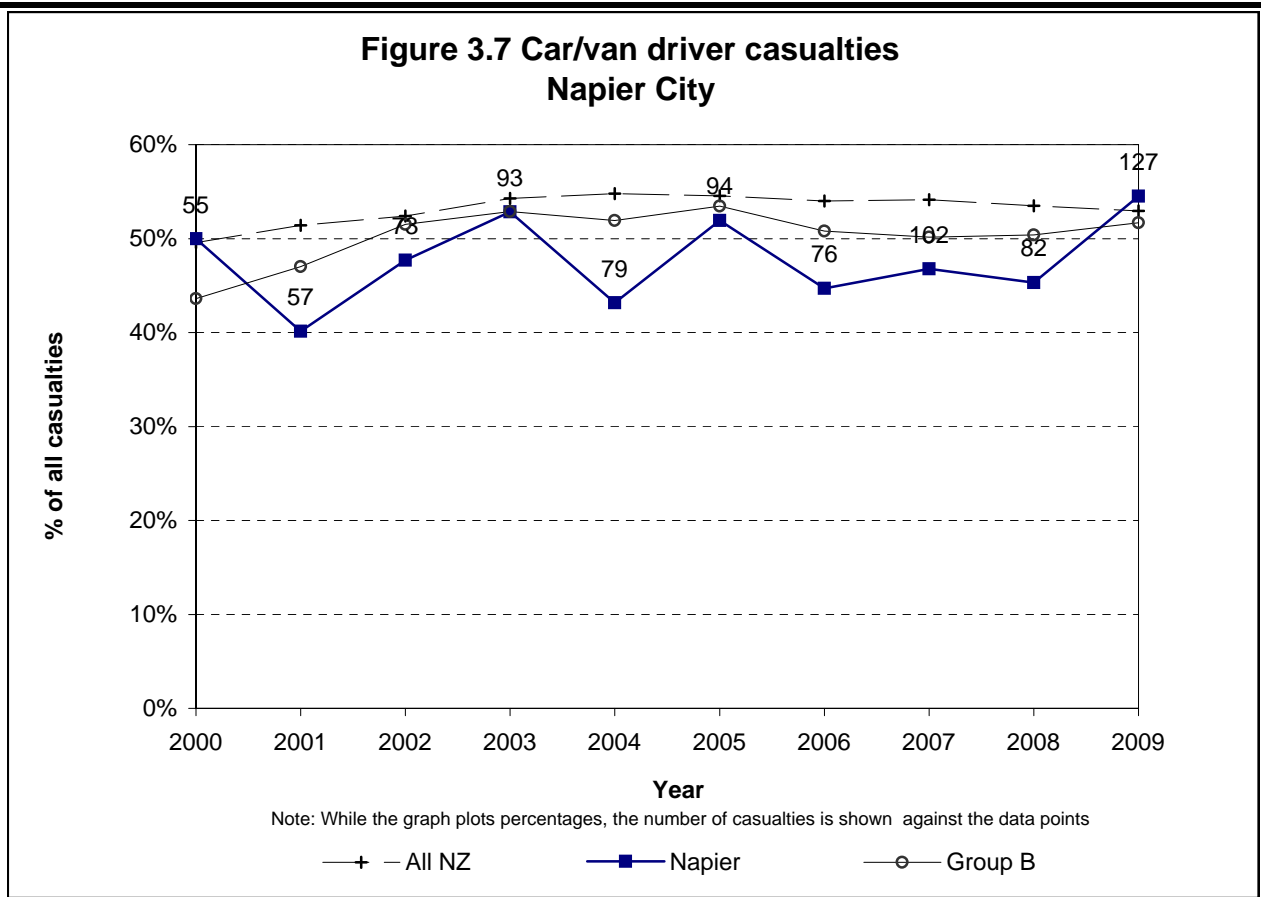
Note: This graph shows the number of male and female roadusers injured

**Figure 3.5 Male casualties by age
Napier City (2005-2009)**

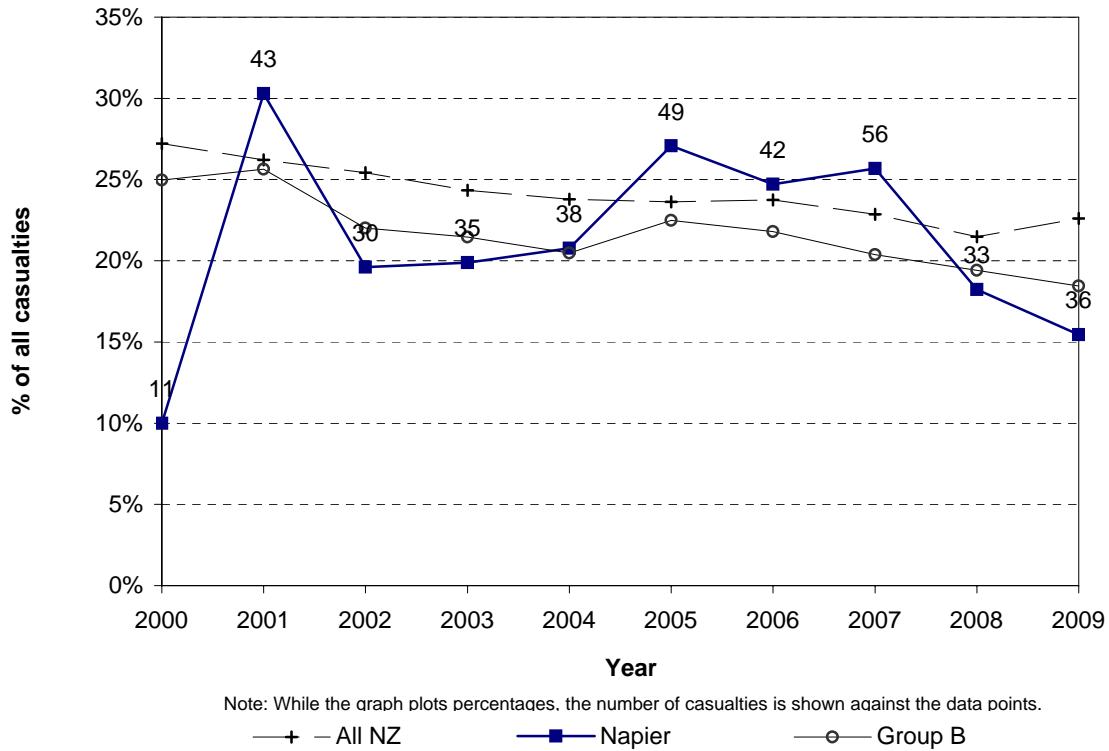


**Figure 3.6 Female casualties by age
Napier City (2005-2009)**

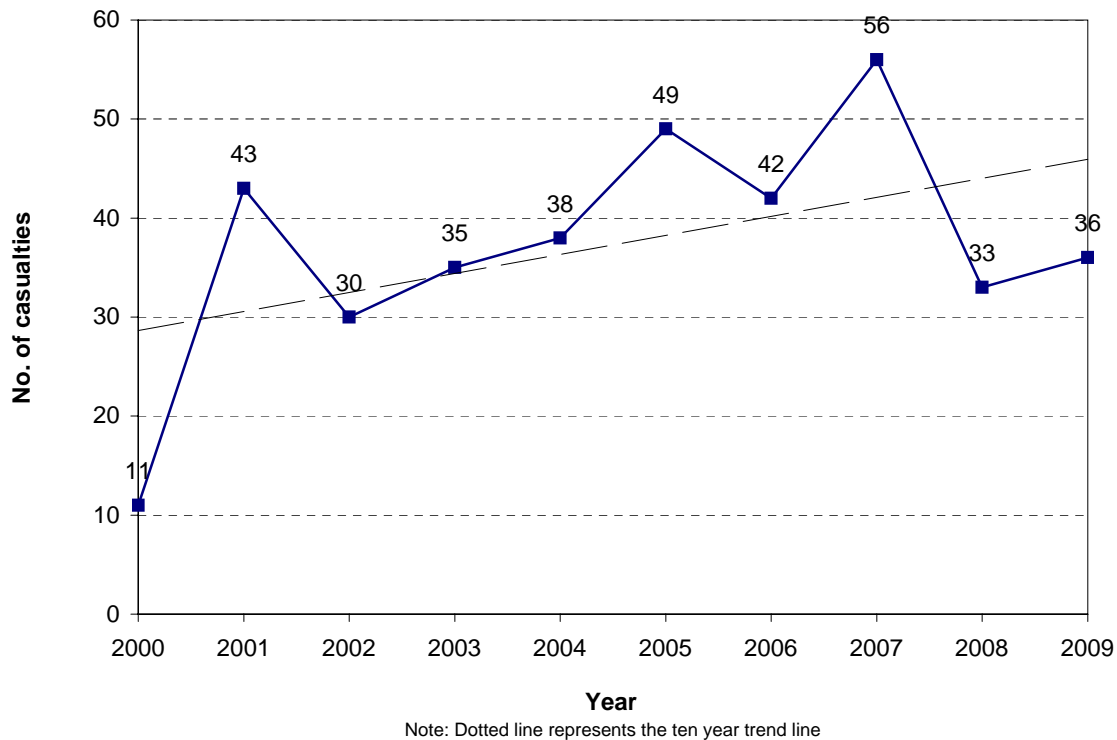




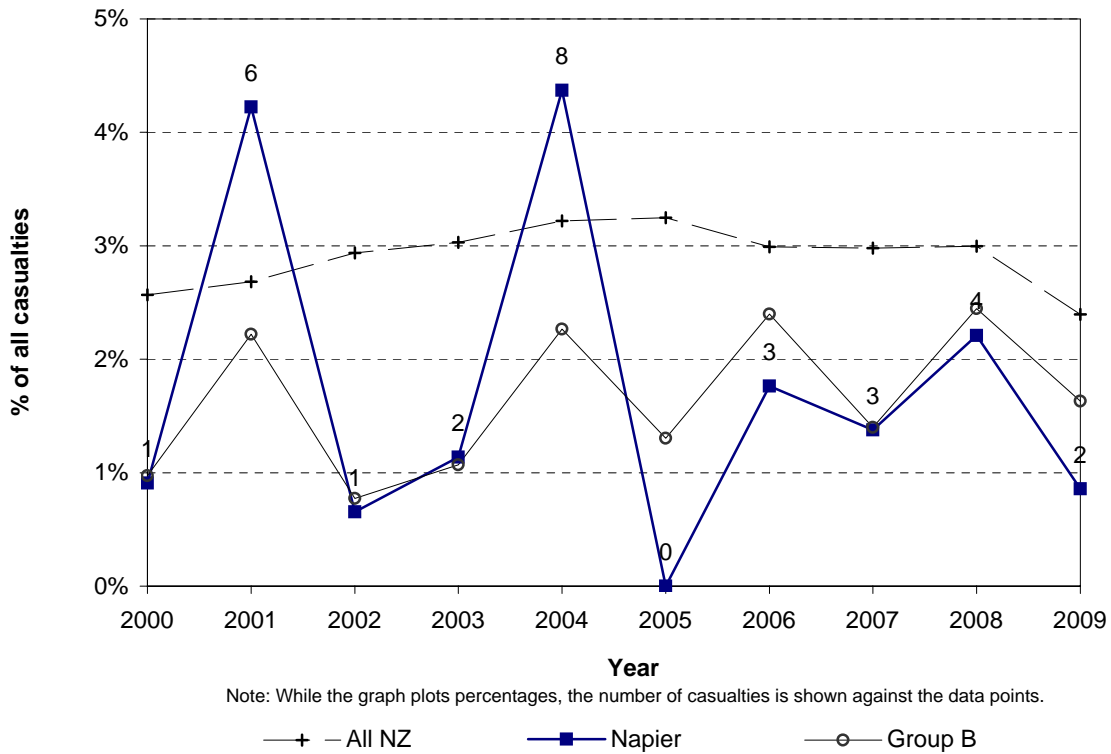
**Figure 3.9 Car/van passenger casualties
Napier City**



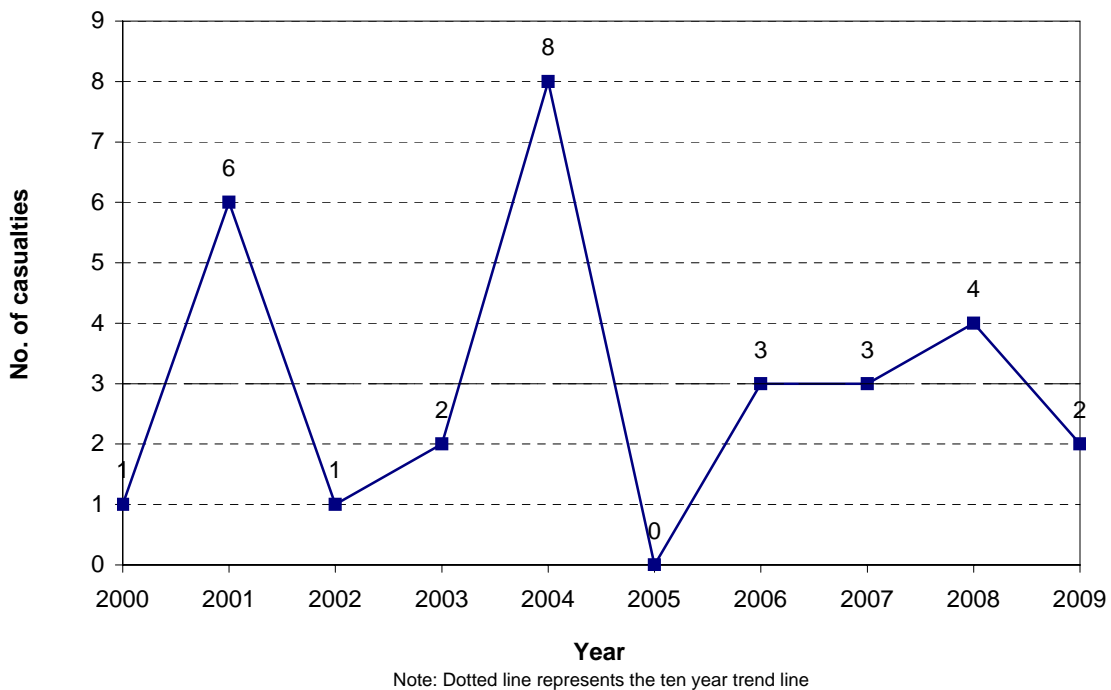
**Figure 3.10 Car/van passenger casualties
Napier City**



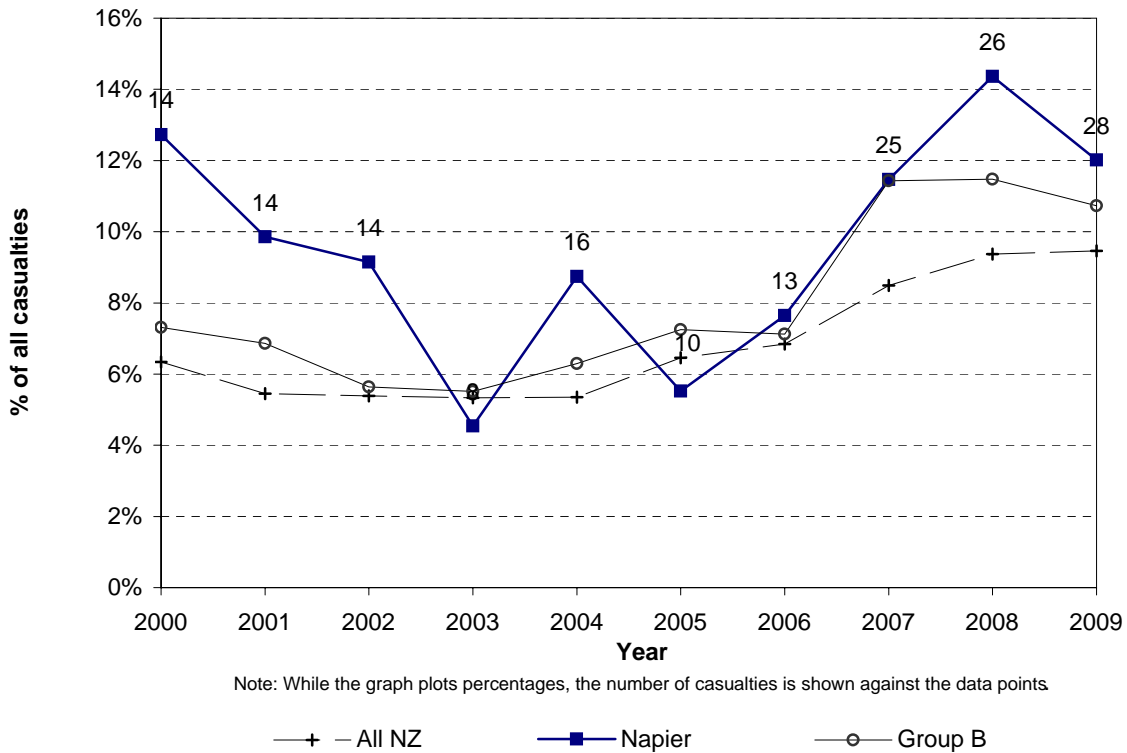
**Figure 3.11 Heavy vehicle casualties
Napier City**



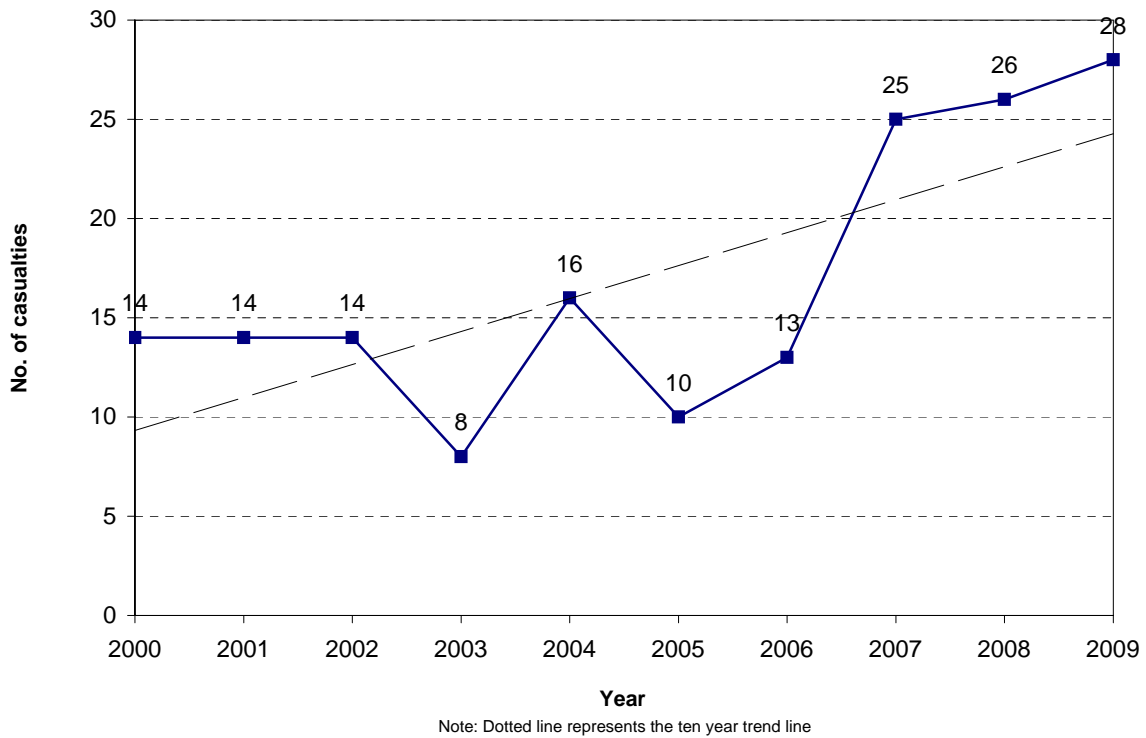
**Figure 3.12 Heavy vehicle casualties
Napier City**



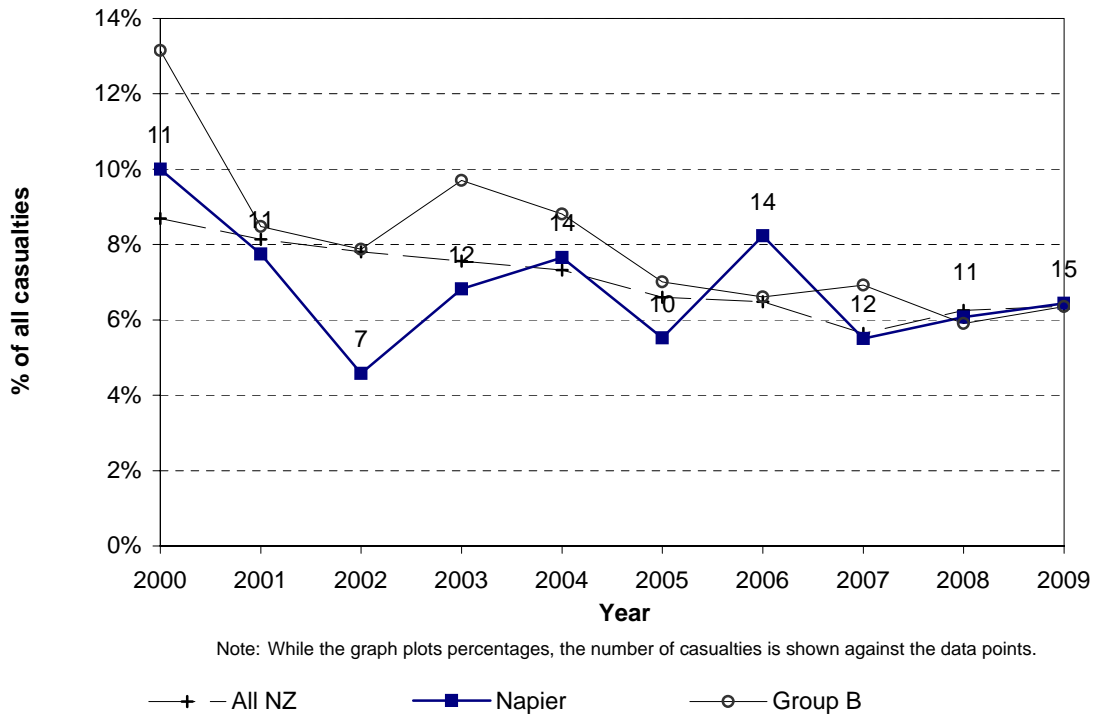
**Figure 3.13 Motorcyclist casualties
Napier City**



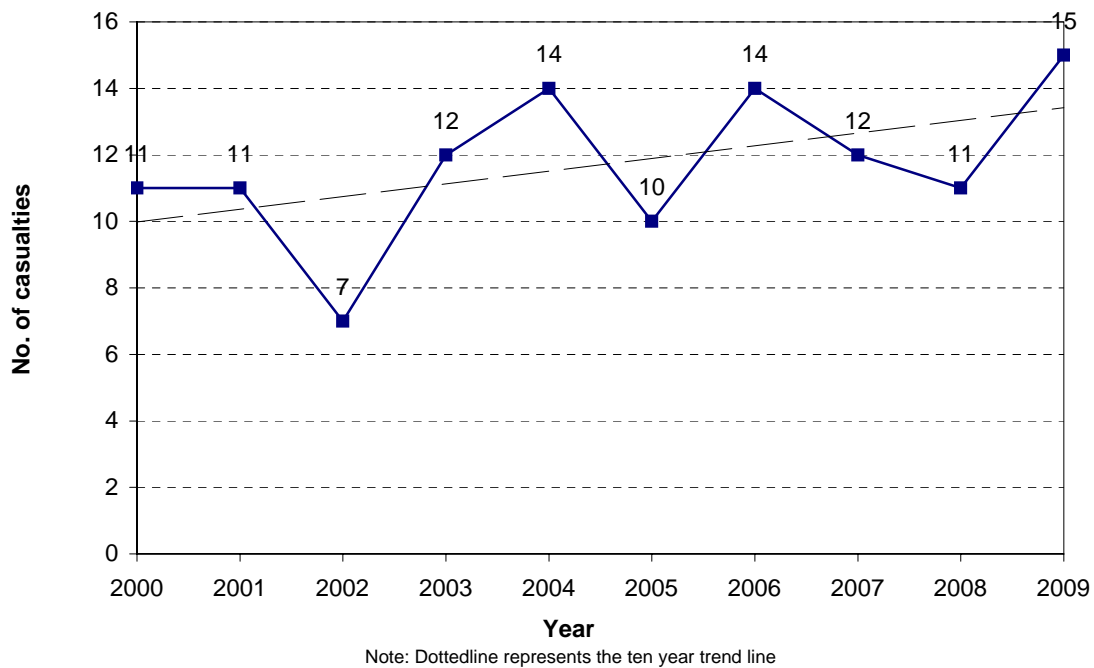
**Figure 3.14 Motorcyclist casualties
Napier City**



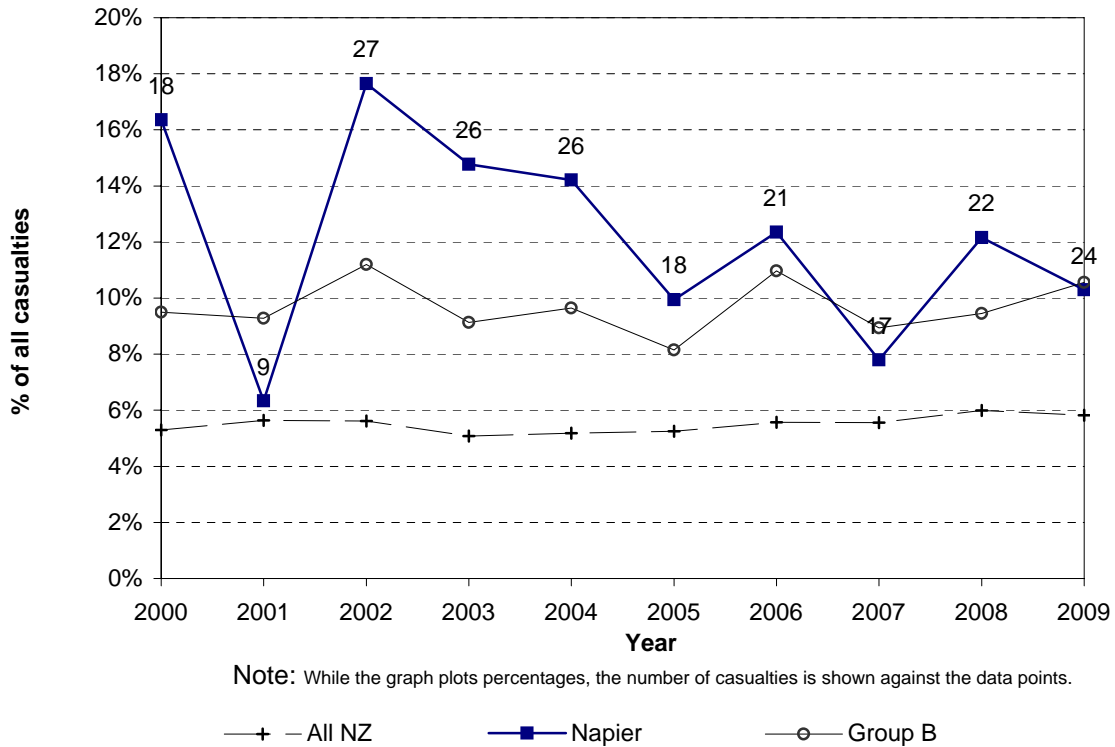
**Figure 3.15 Pedestrian casualties
Napier City**



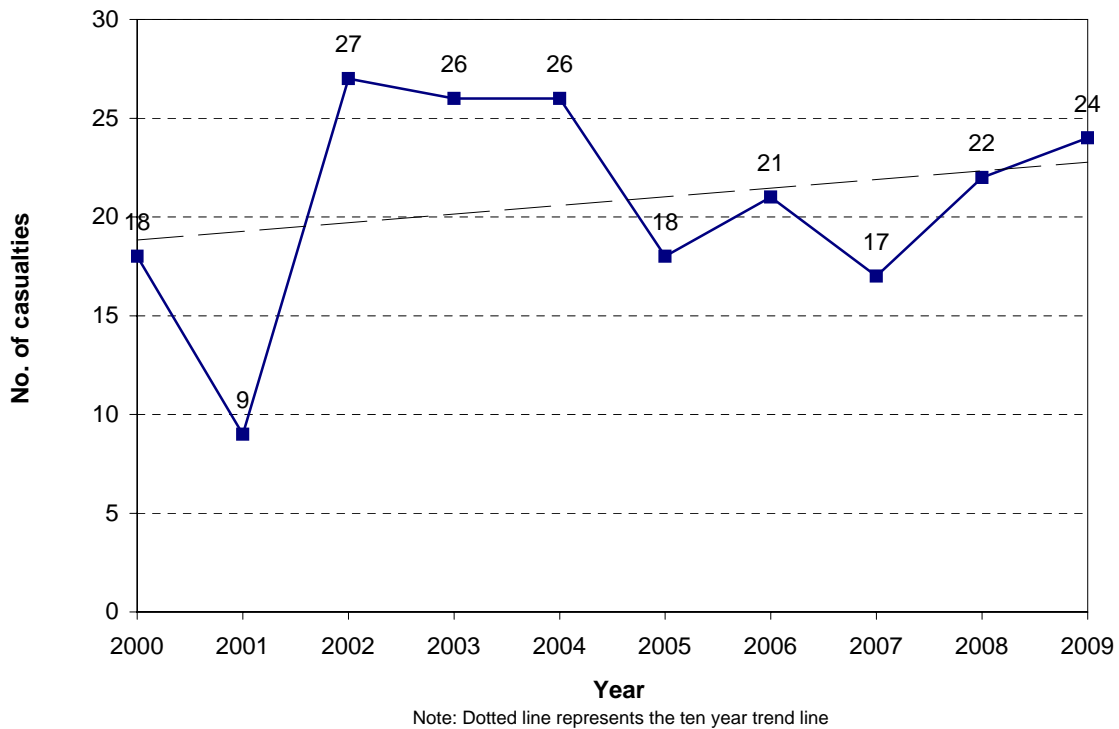
**Figure 3.16 Pedestrian casualties
Napier City**



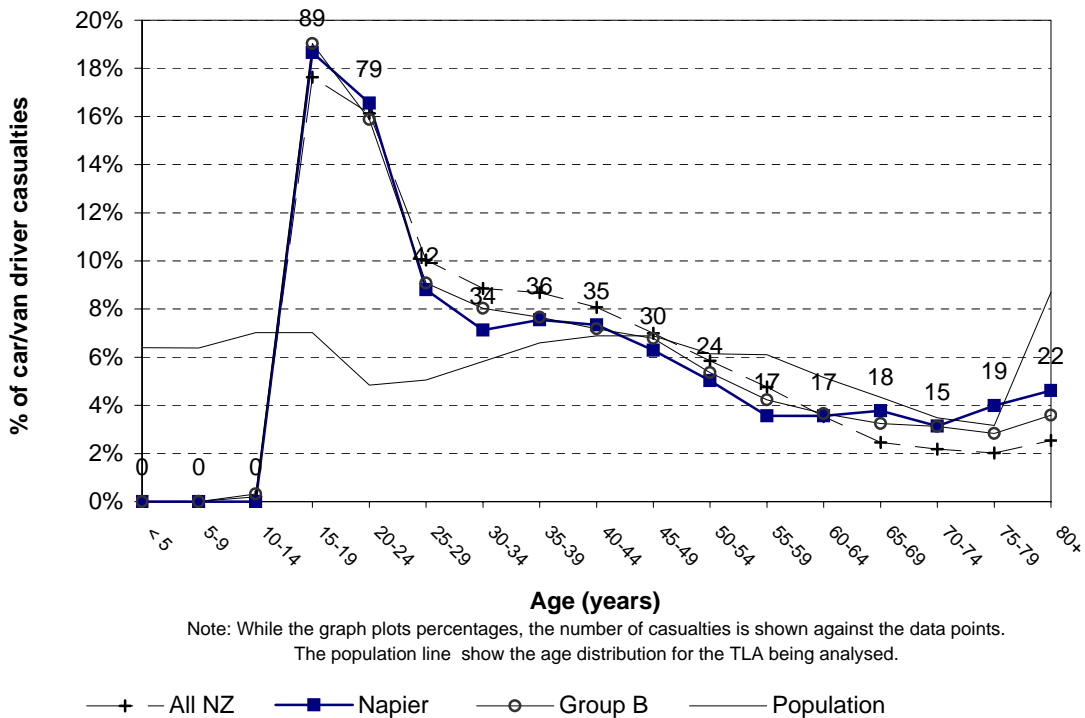
**Figure 3.17 Cyclist casualties
Napier City**



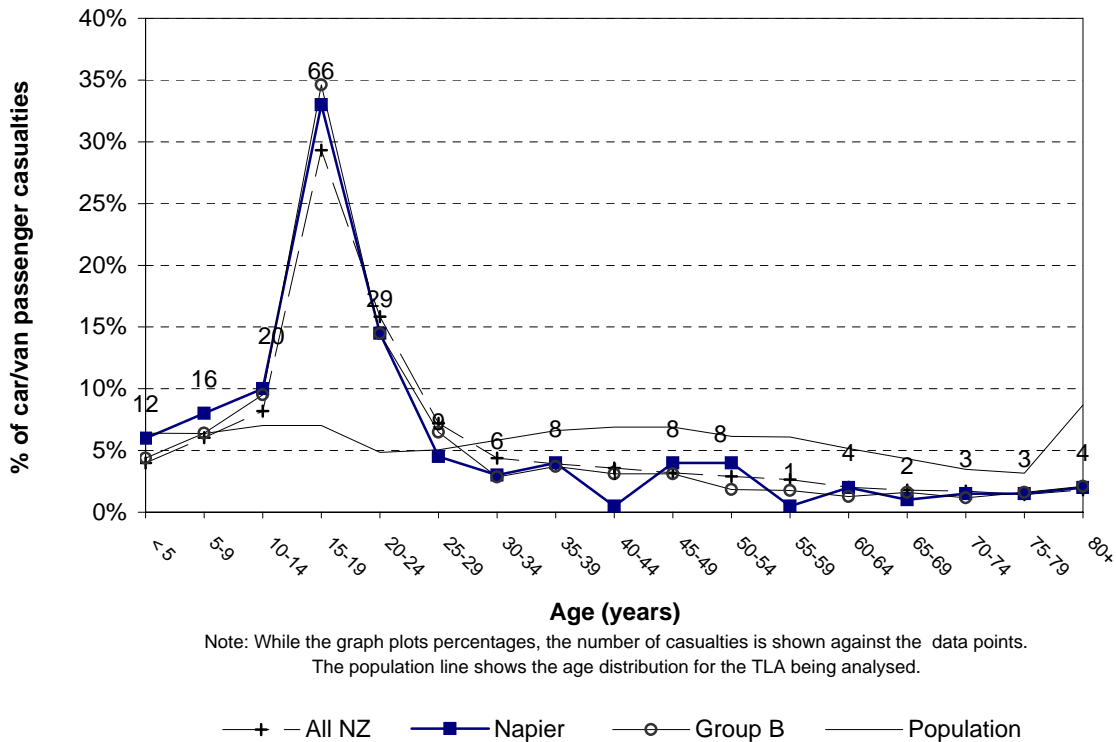
**Figure 3.18 Cyclist casualties
Napier City**



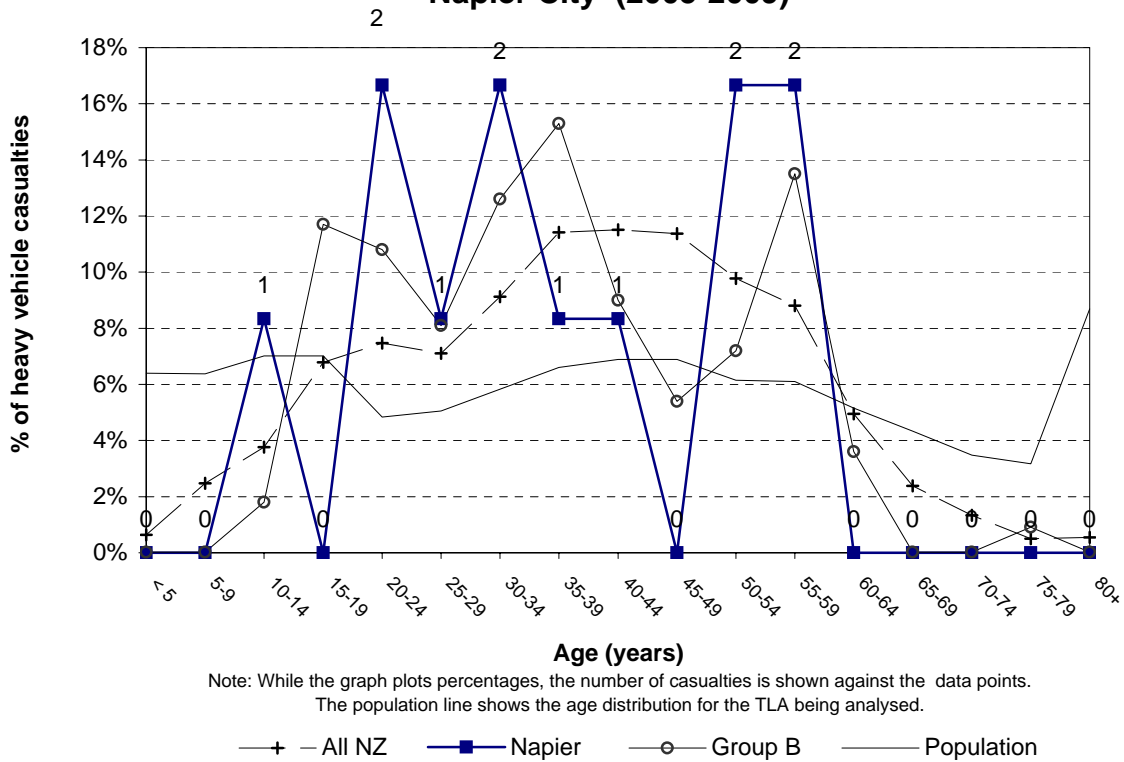
**Figure 3.19 Car/van driver casualty age
Napier City (2005-2009)**



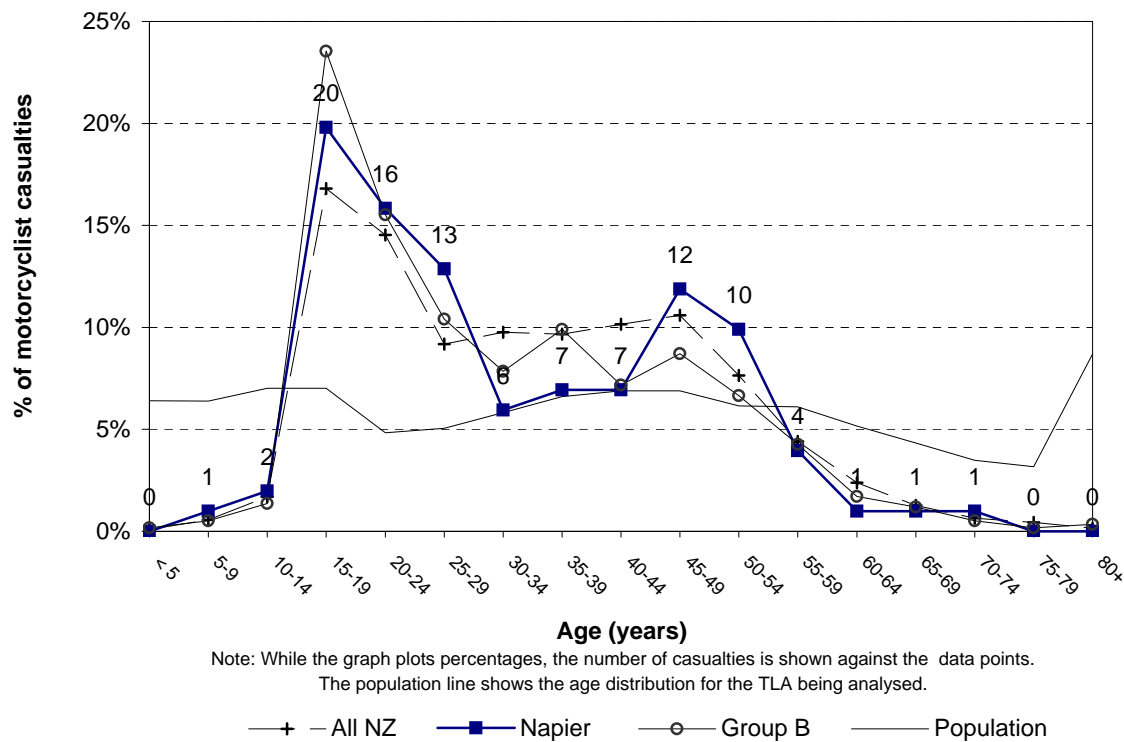
**Figure 3.20 Car/van passenger casualty age
Napier City (2005-2009)**



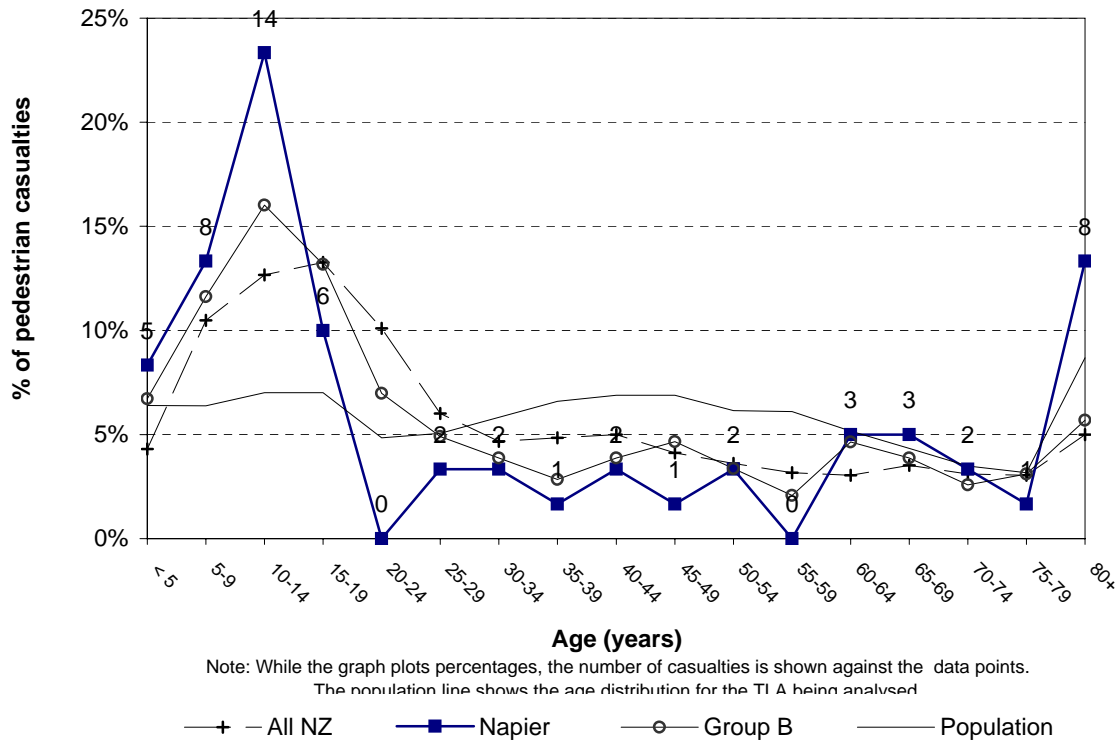
**Figure 3.21 Heavy vehicle casualty age
Napier City (2005-2009)**



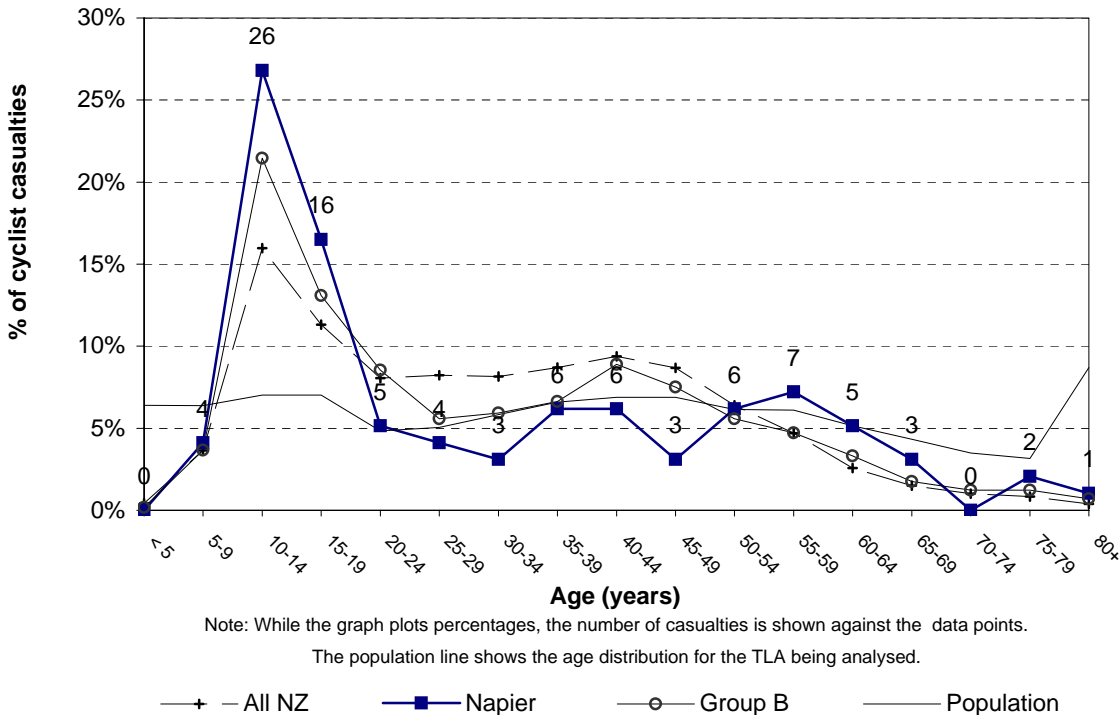
**Figure 3.22 Motorcyclist casualty age
Napier City (2005-2009)**



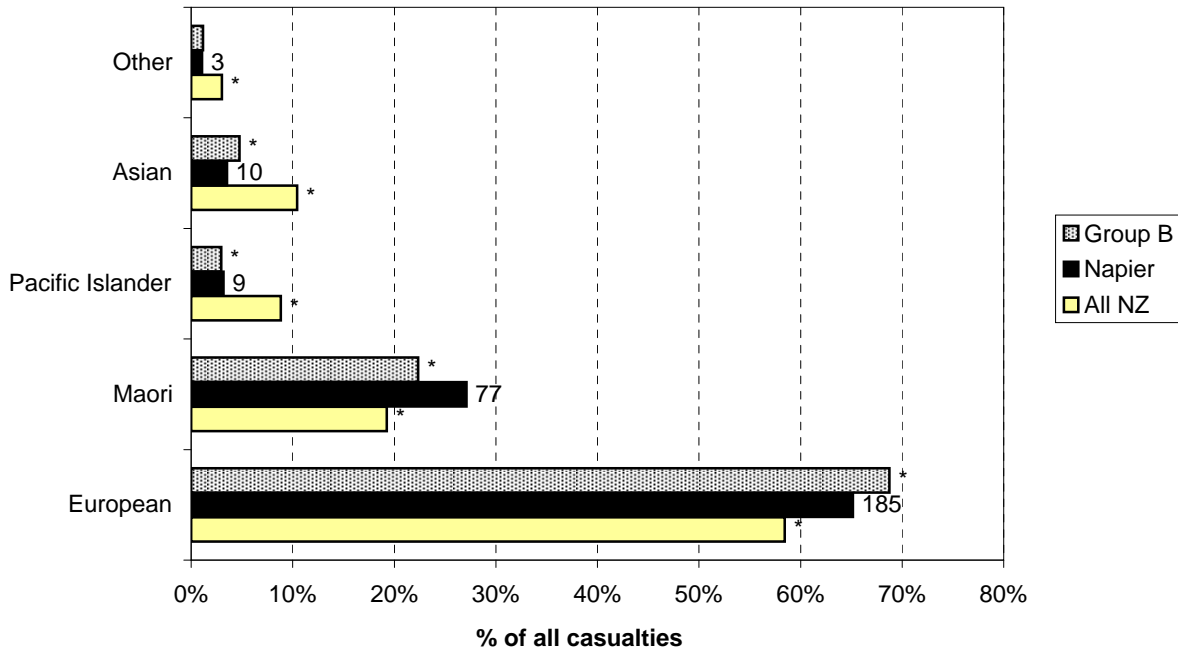
**Figure 3.23 Pedestrian casualty age
Napier City (2005-2009)**



**Figure 3.24 Cyclist casualty age
Napier City (2005-2009)**

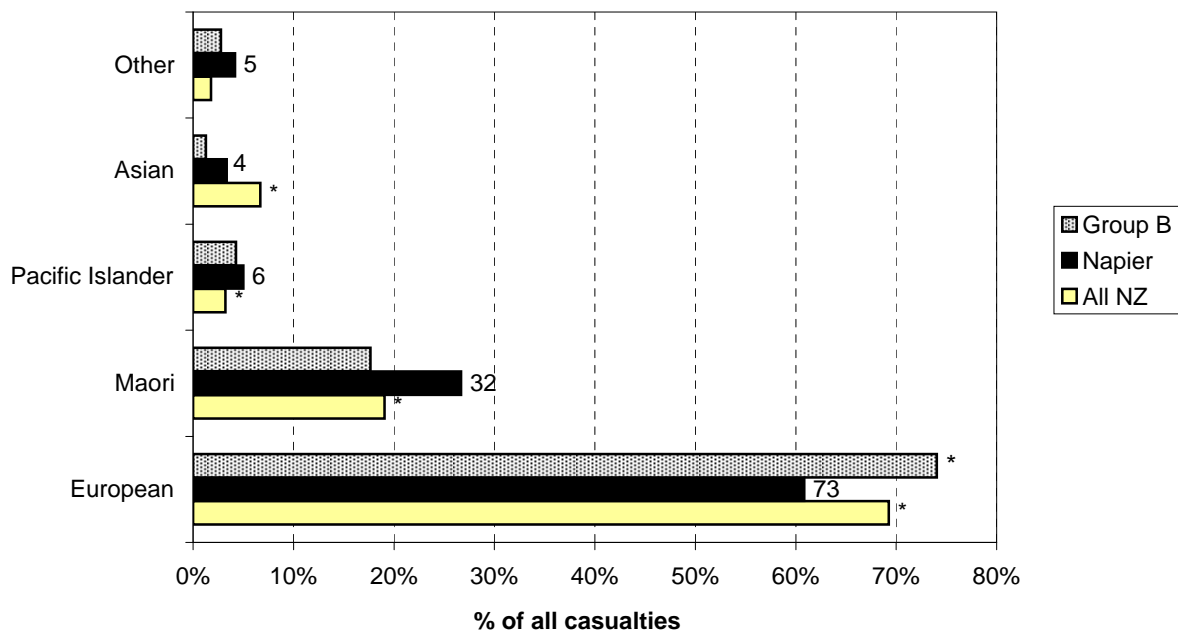


**Figure 3.25 Casualty ethnicity - urban
Napier City (2005-2009)**



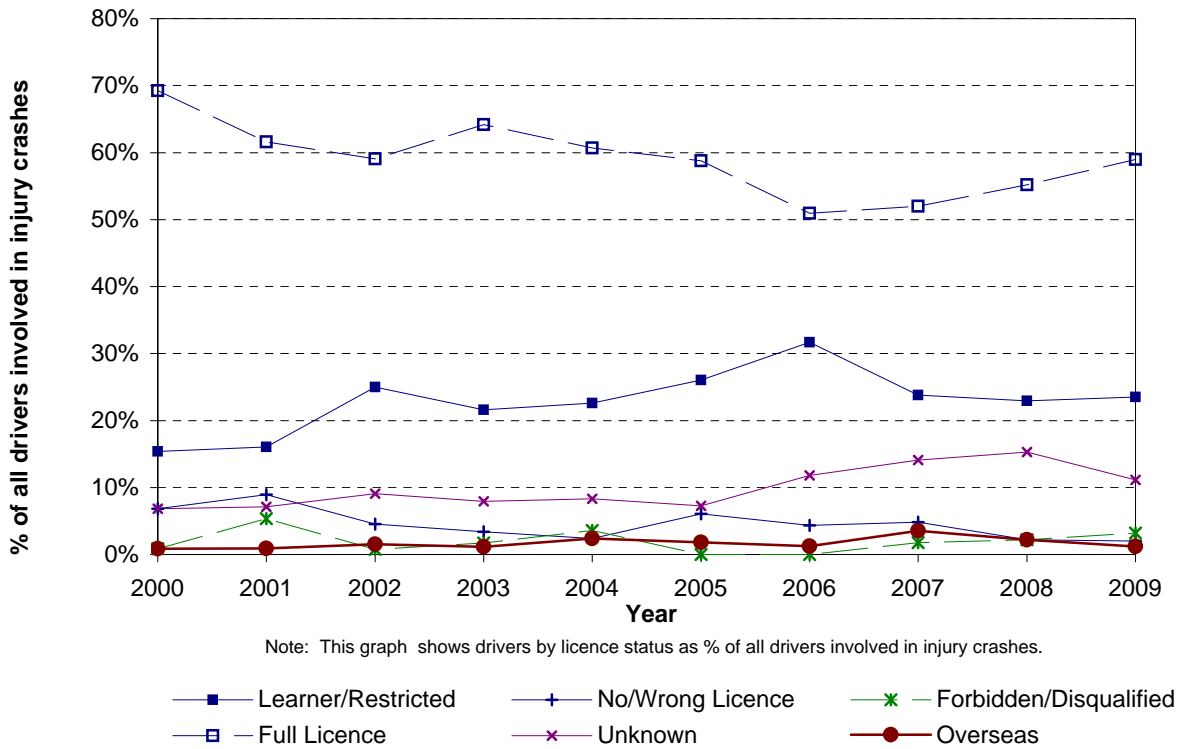
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.26 Casualty ethnicity - rural
Napier City (2005-2009)**

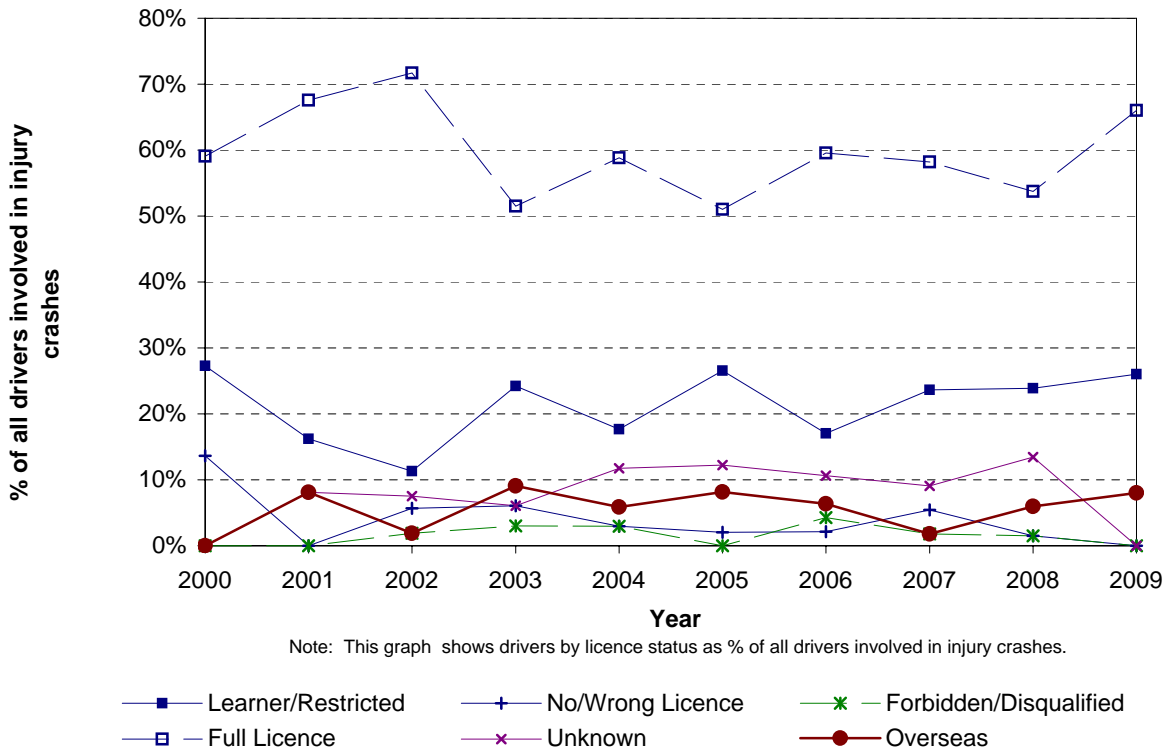


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

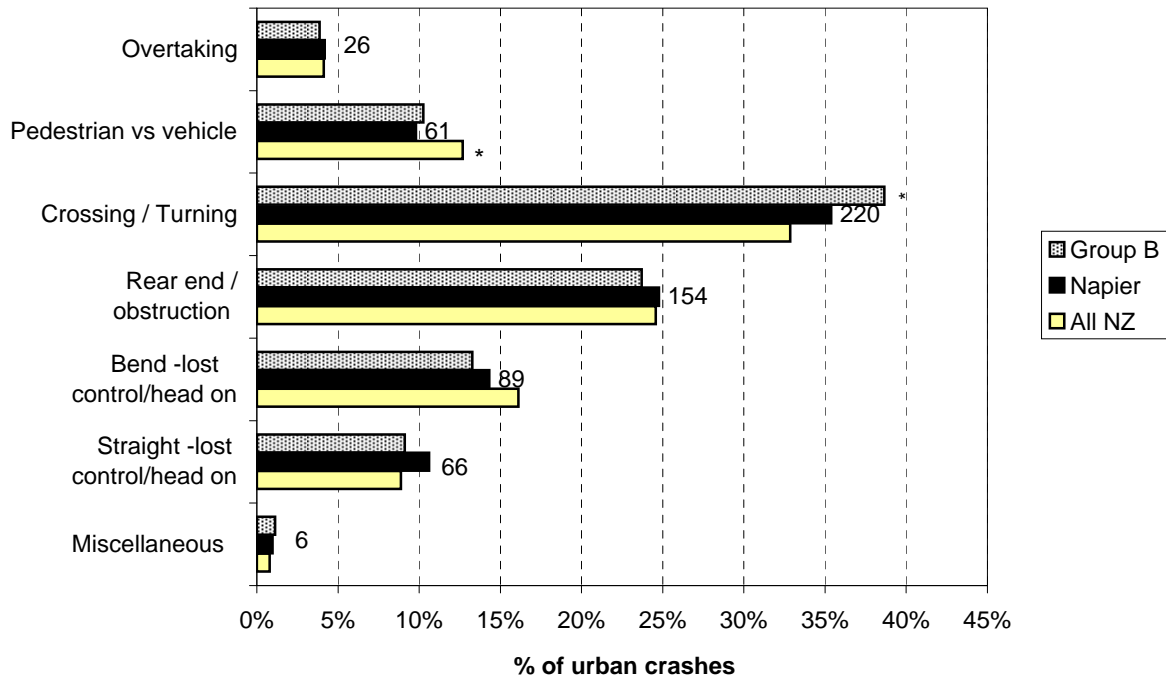


**Figure 3.28 Licence status - rural
Napier City**



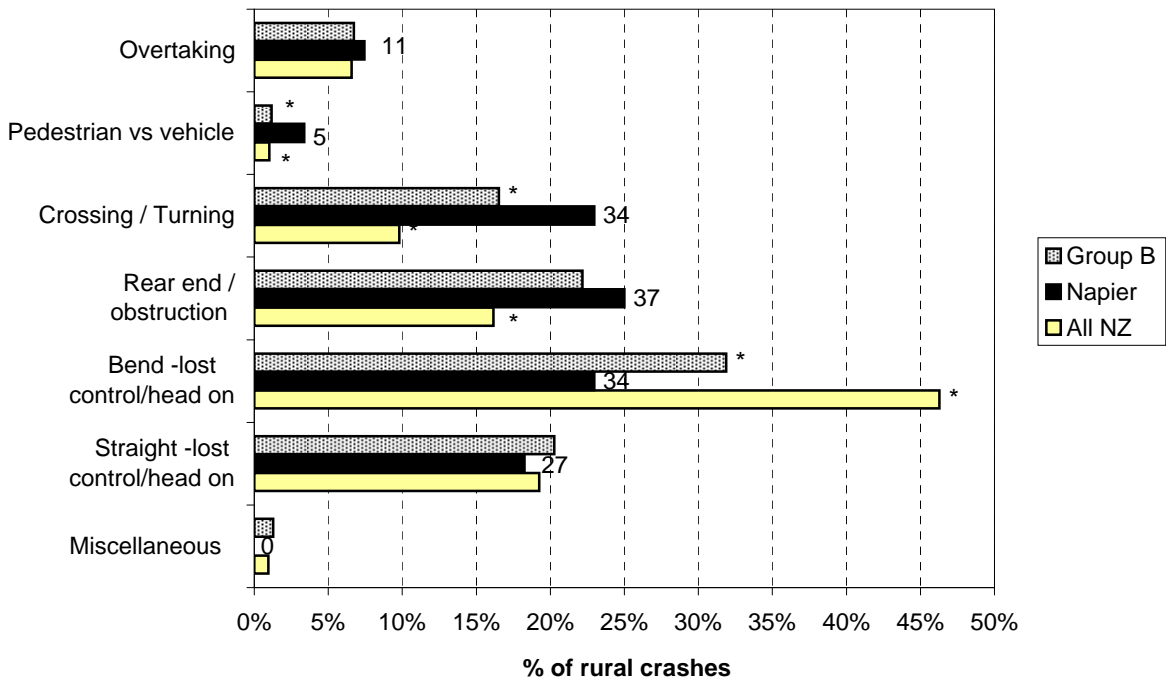
Crash Type Statistics

**Figure 4.1 Crash movement type - urban
Napier City (2005-2009)**



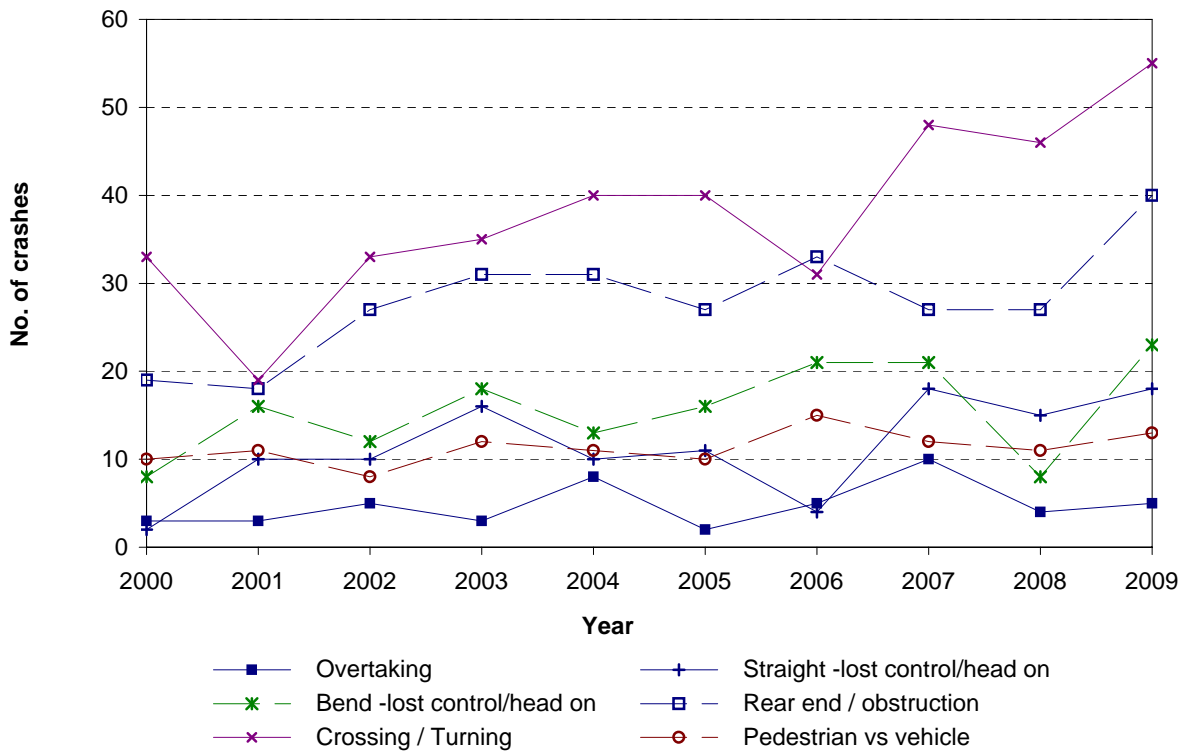
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 4.2 Crash movement type - rural
Napier City roads (2005-2009)**

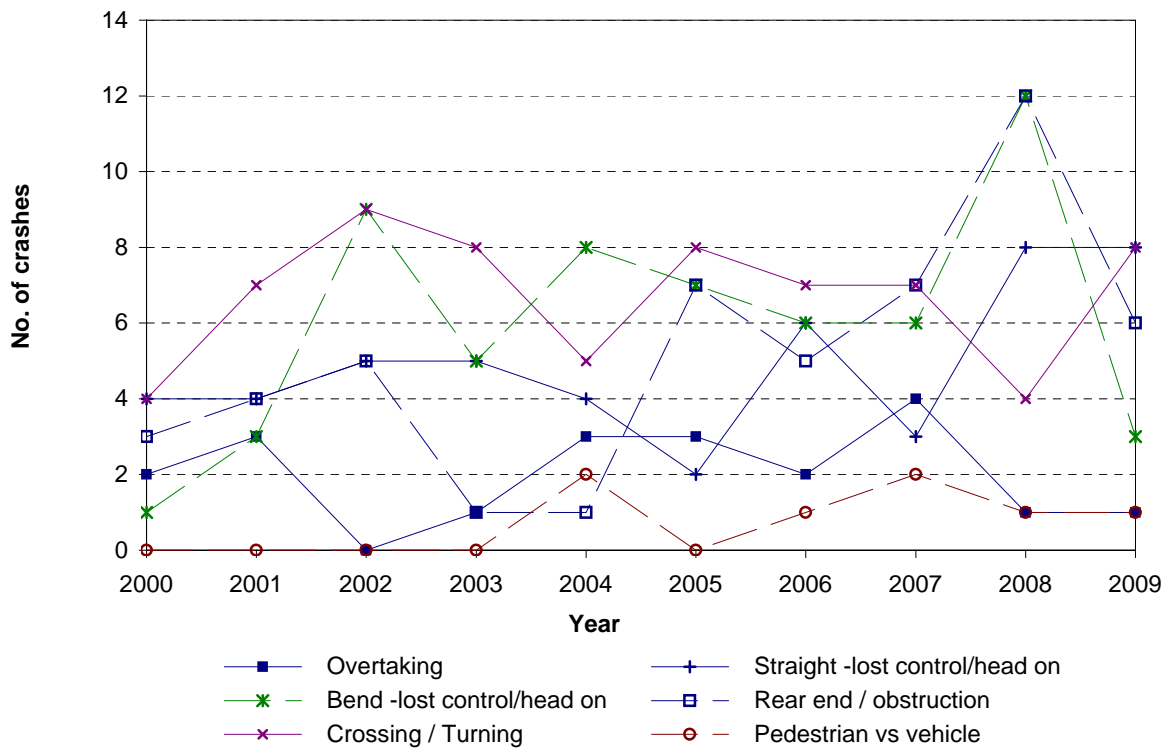


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

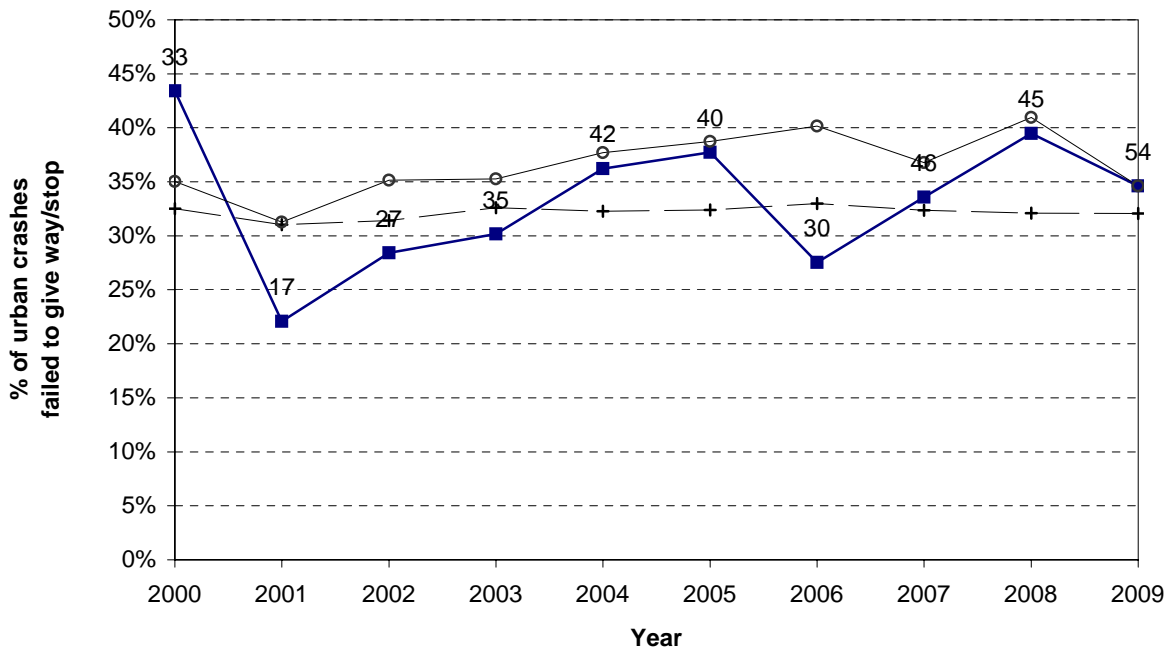
**Figure 4.3 Crash movement type - trends
Napier City - urban roads**



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



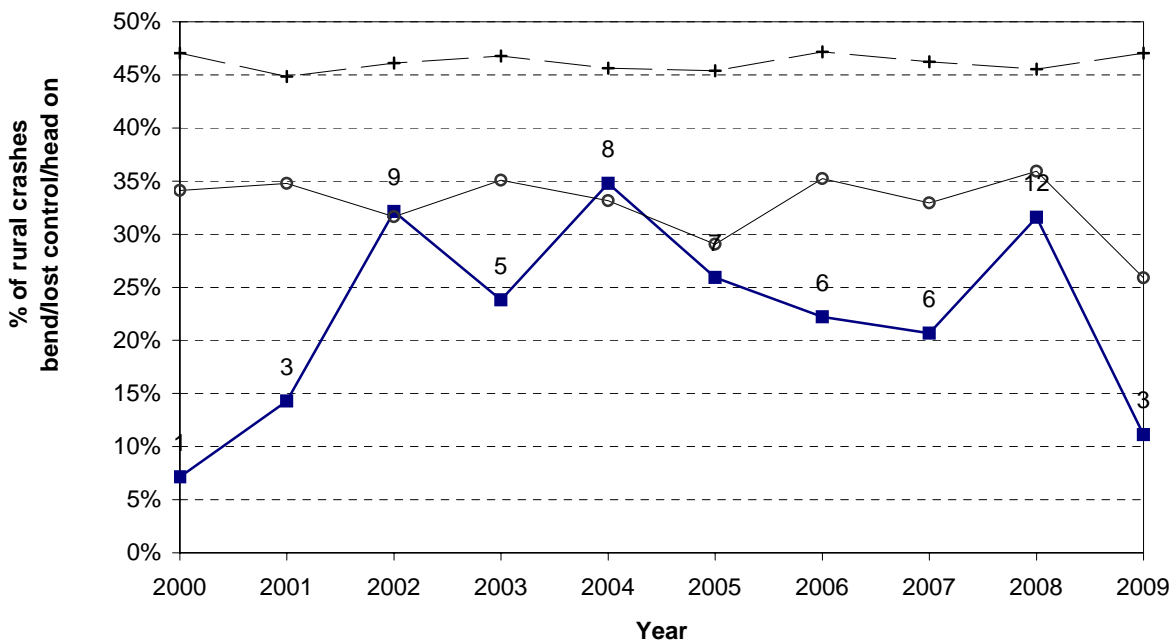
**Figure 4.5 Failed to give way / stop
Napier City - urban roads**



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

—+— All NZ —■— Napier —○— Group B

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

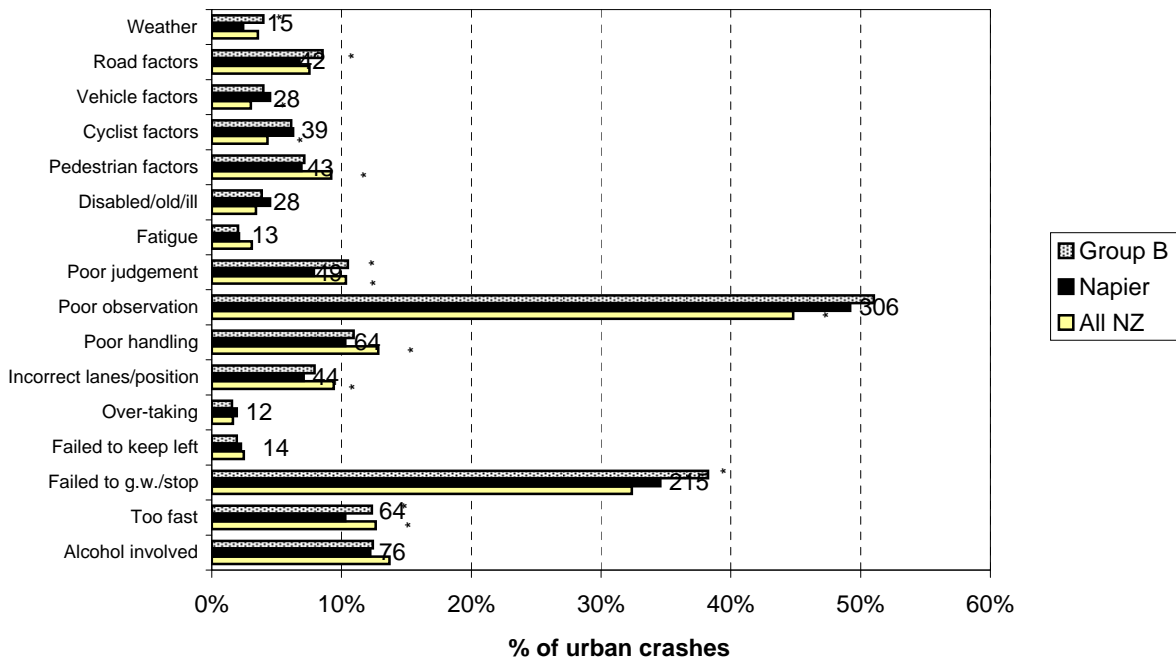


Note: While the graph plots percentages, the number of crashes is shown against the data points.

—+— All NZ —■— Napier —○— Group B

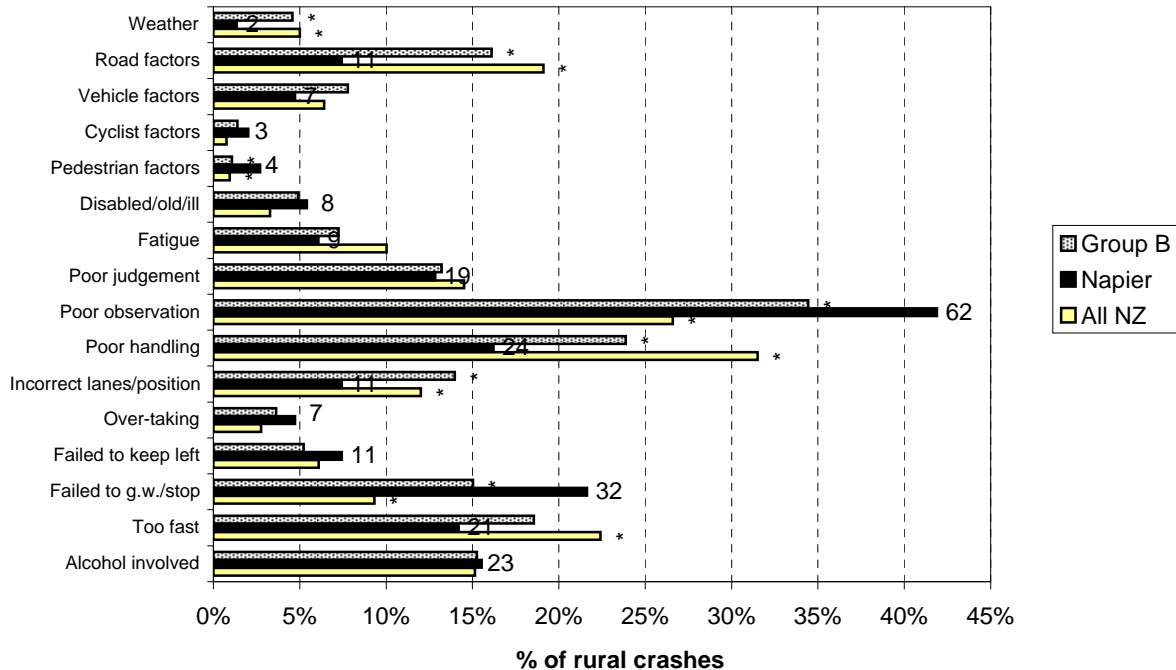
Crash Factor Statistics

**Figure 5.1 Contributing factors - urban
Napier City (2005-2009)**



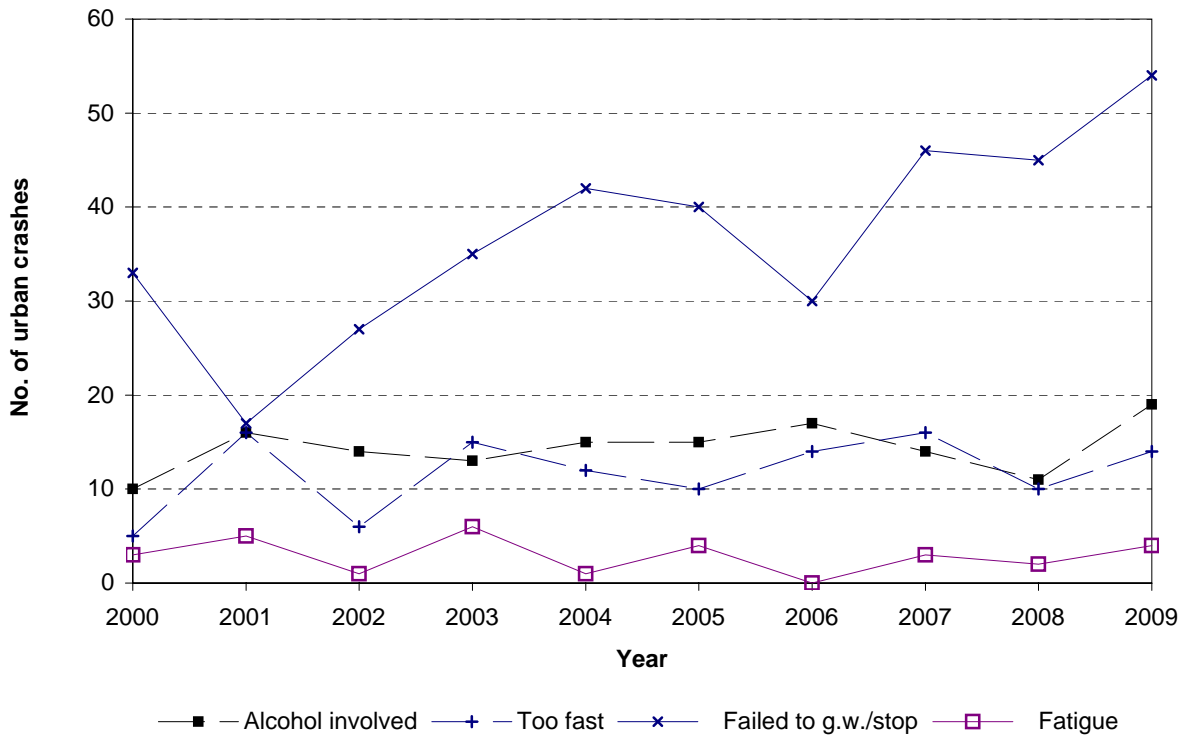
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 5.2 Contributing factors - rural
Napier City (2005-2009)**

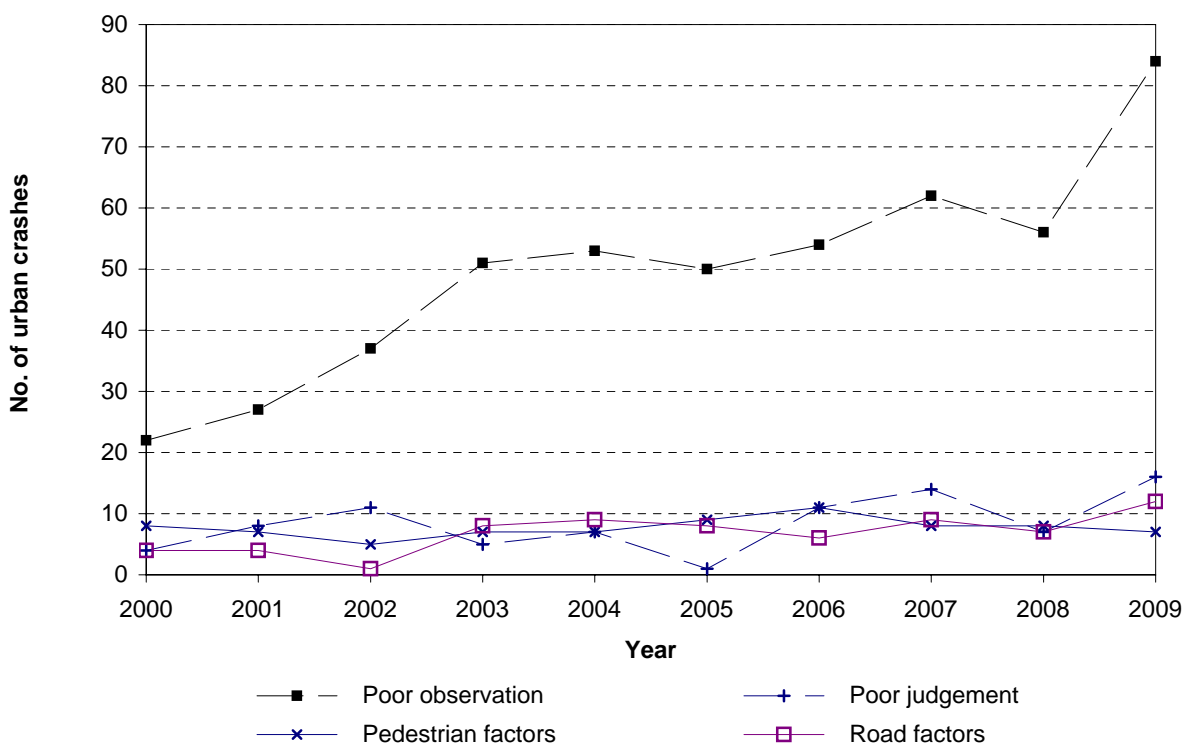


Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

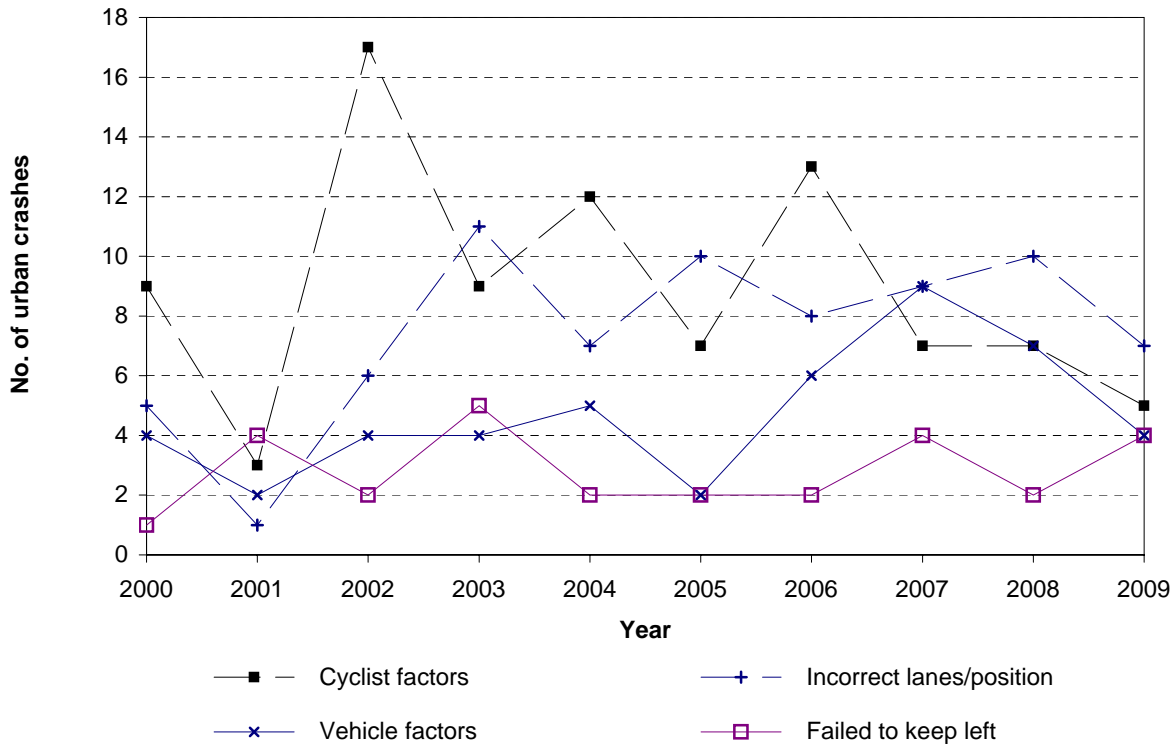
**Figure 5.3 Contributing factor trends
Napier City - urban roads**



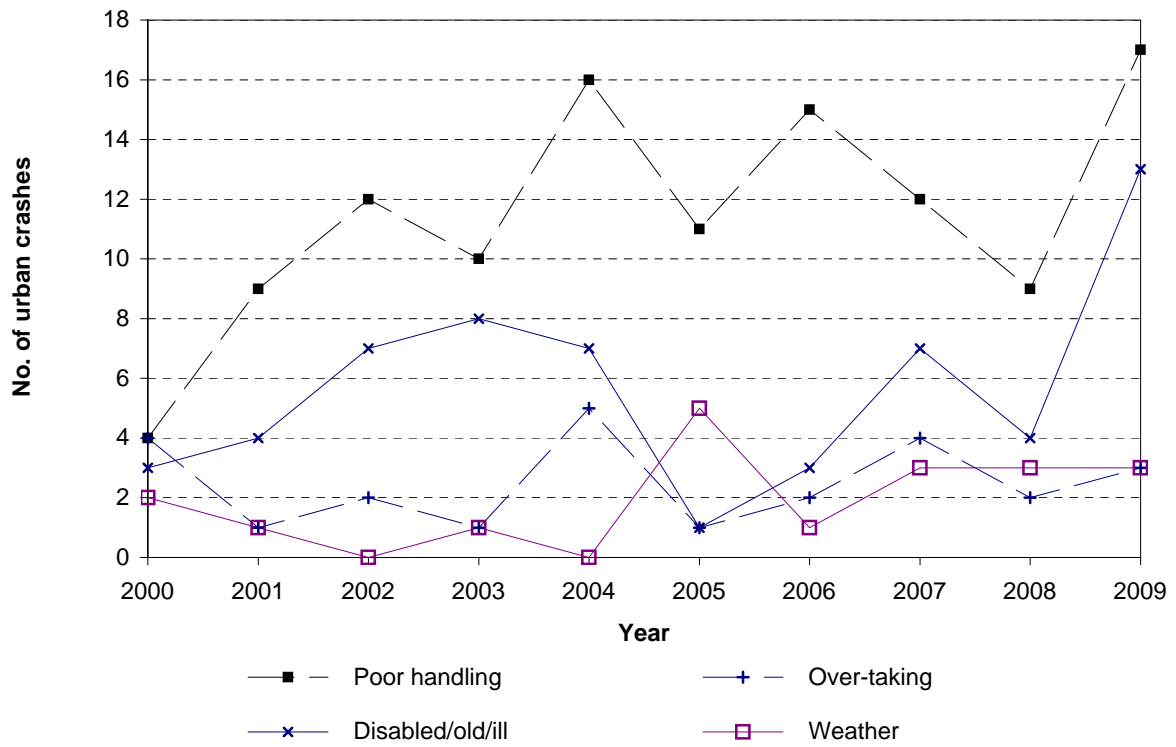
**Figure 5.4 Contributing factor trends
Napier City - urban roads**



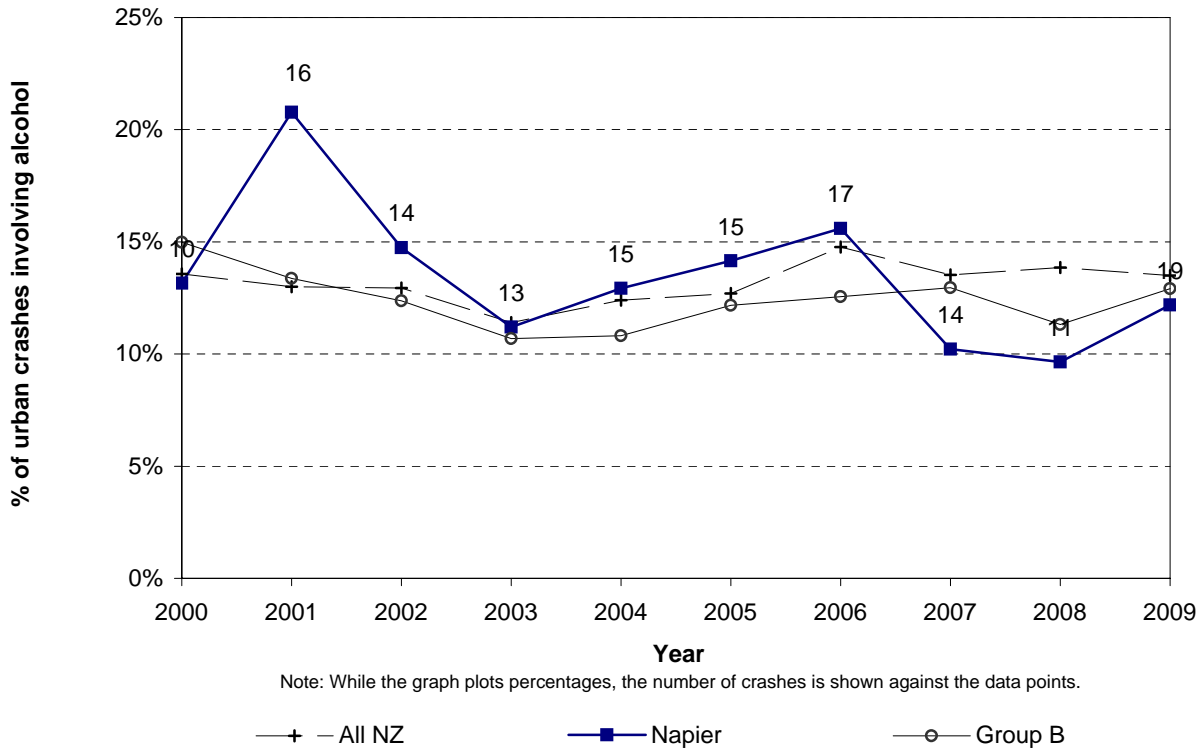
**Figure 5.5 Contributing factor trends
Napier City - urban roads**



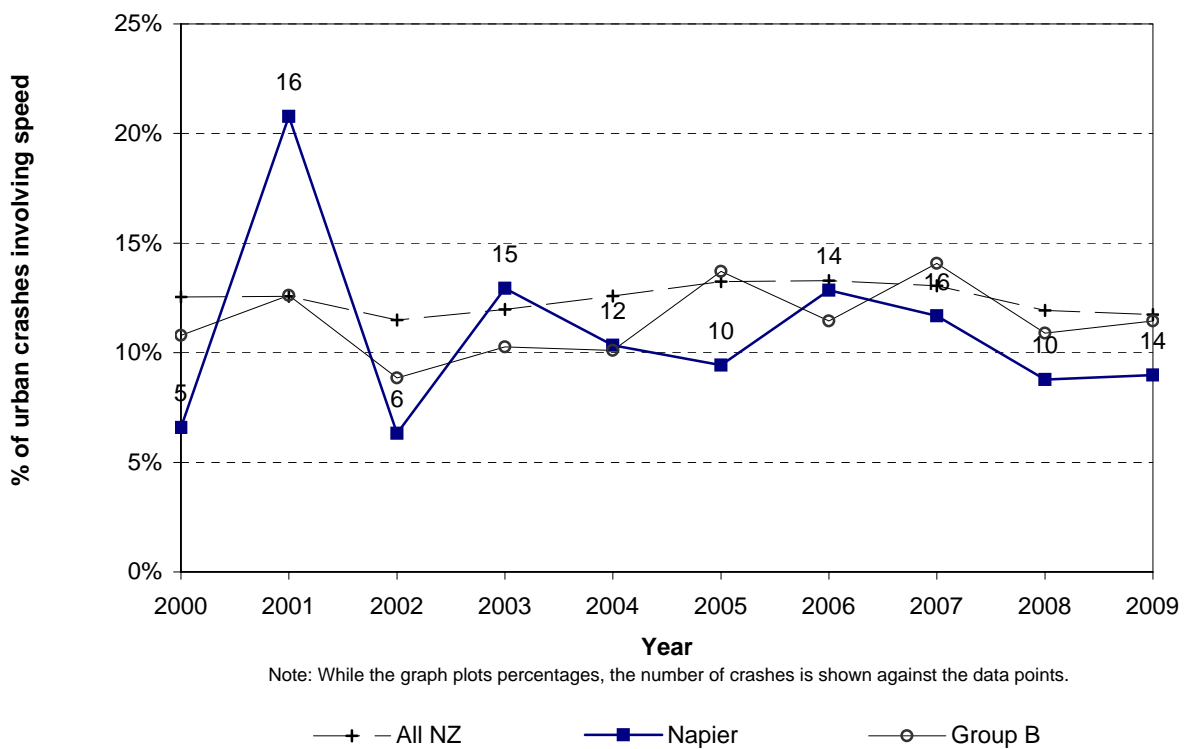
**Figure 5.6 Contributing factor trends
Napier City - urban roads**



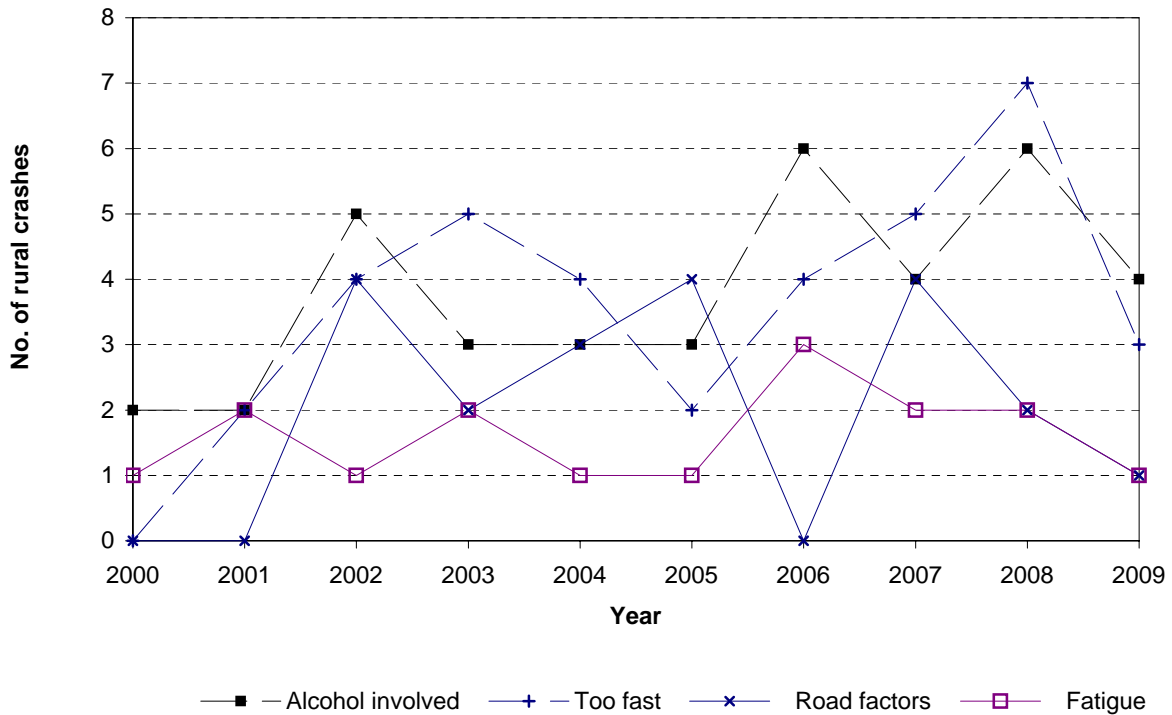
**Figure 5.7 Alcohol involved trend
Napier City - urban roads**



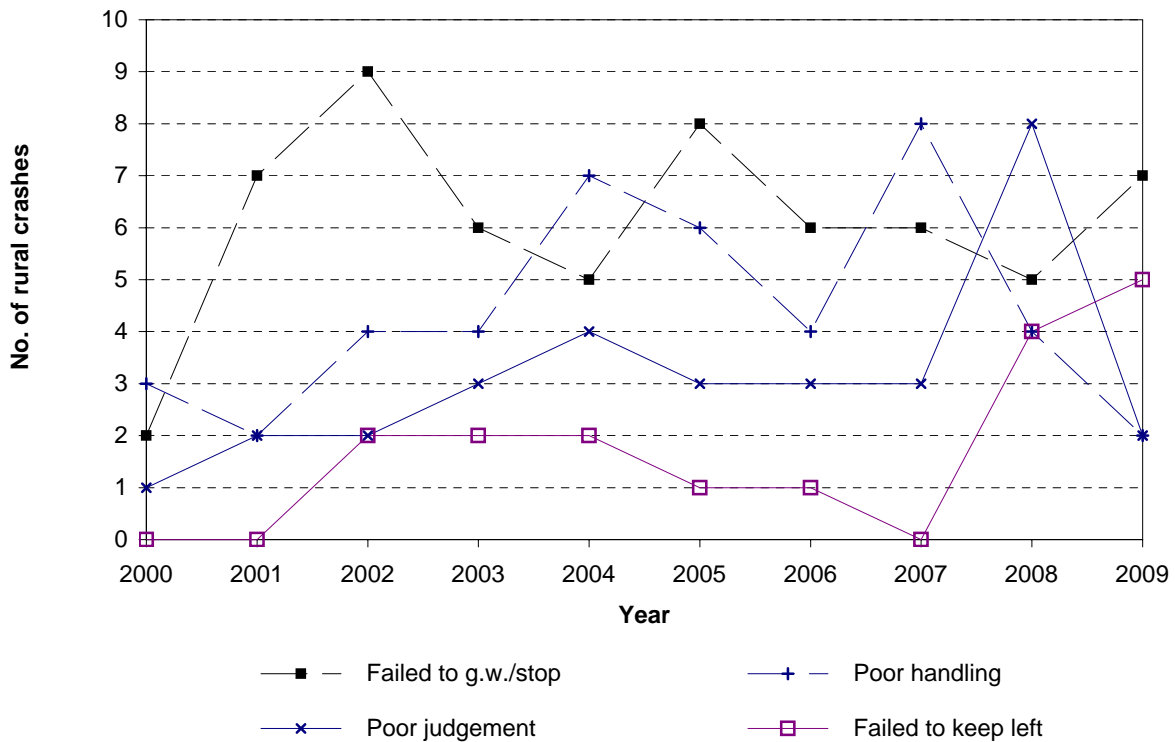
**Figure 5.8 Speed involved trend
Napier City - urban roads**



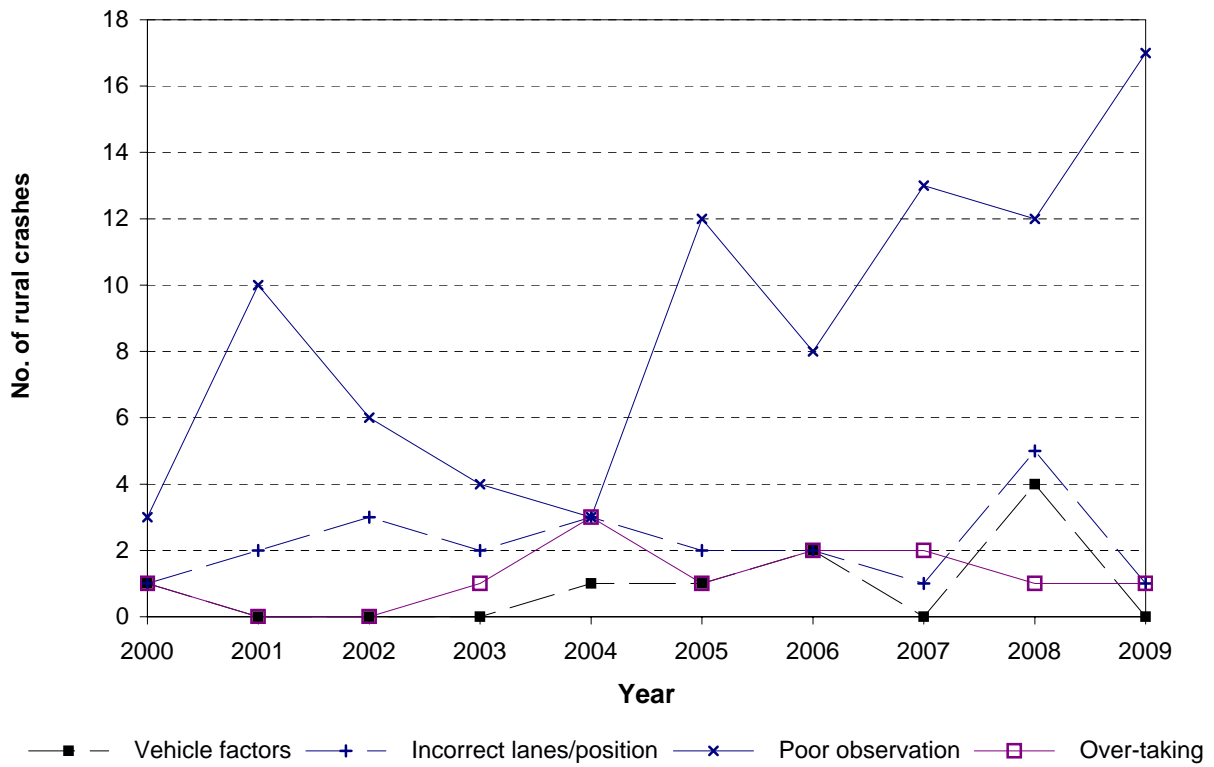
**Figure 5.9 Contributing factor trends
Napier City - rural roads**



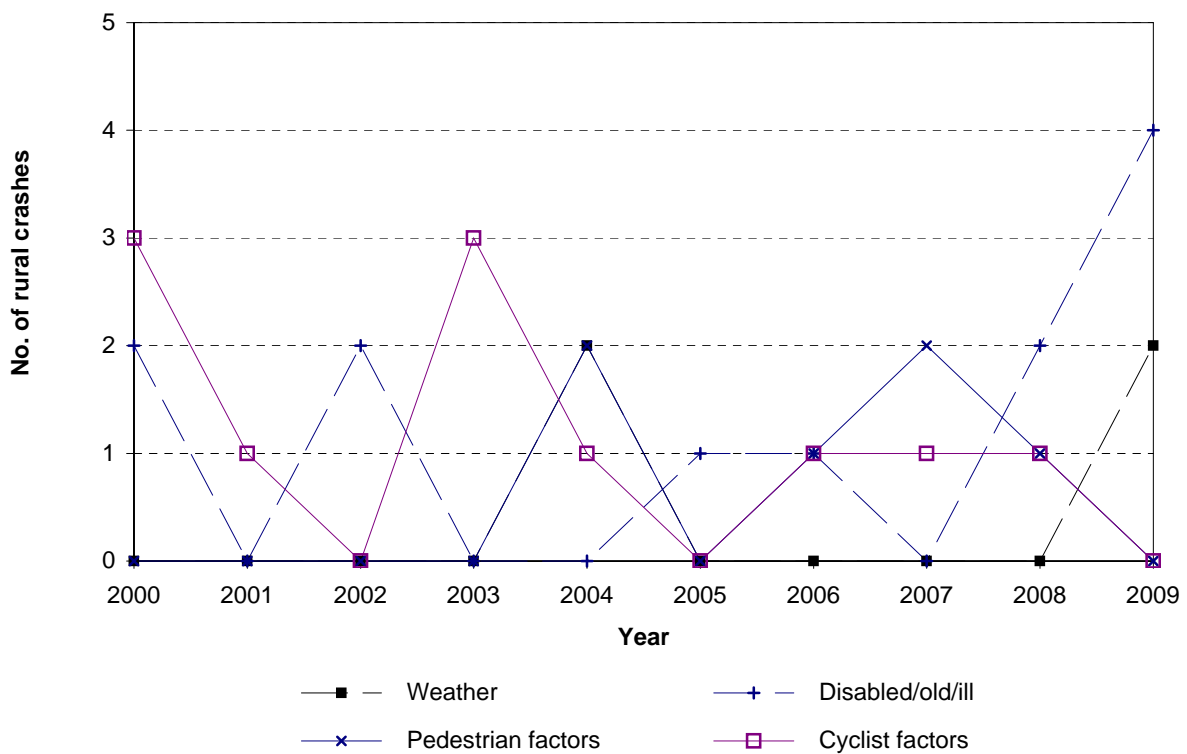
**Figure 5.10 Contributing factor trends
Napier City - rural roads**



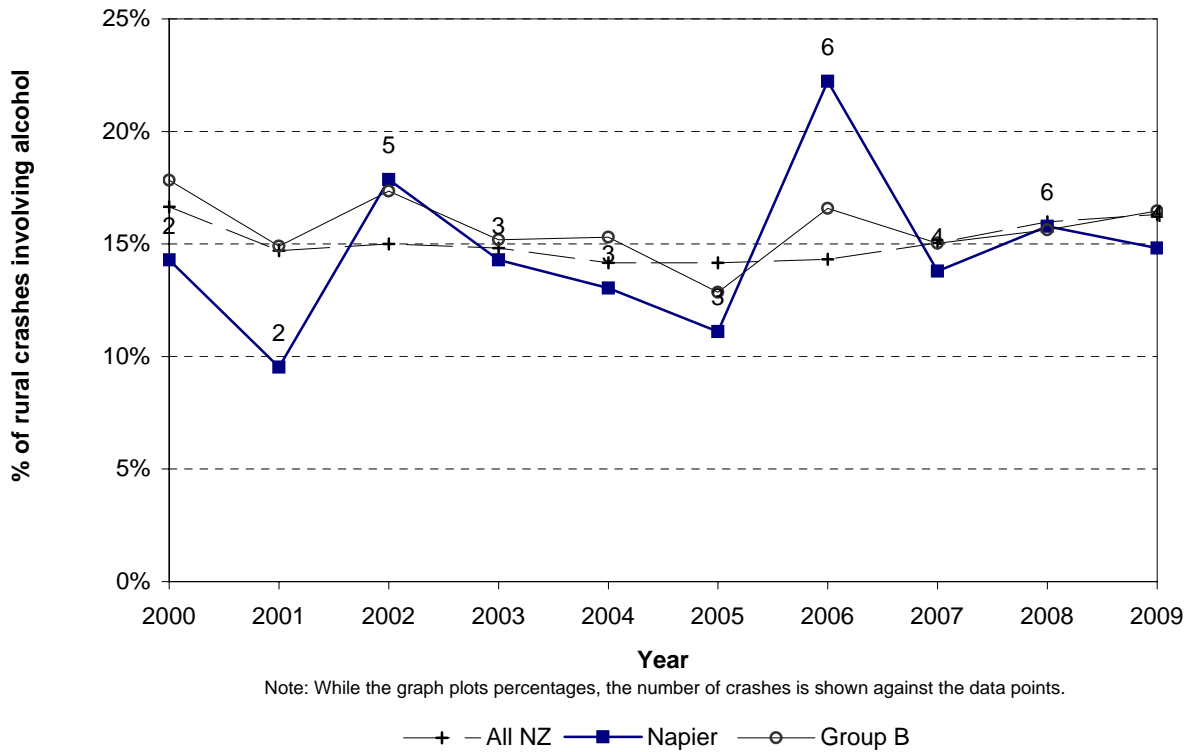
**Figure 5.11 Contributing factor trends
Napier City - rural roads**



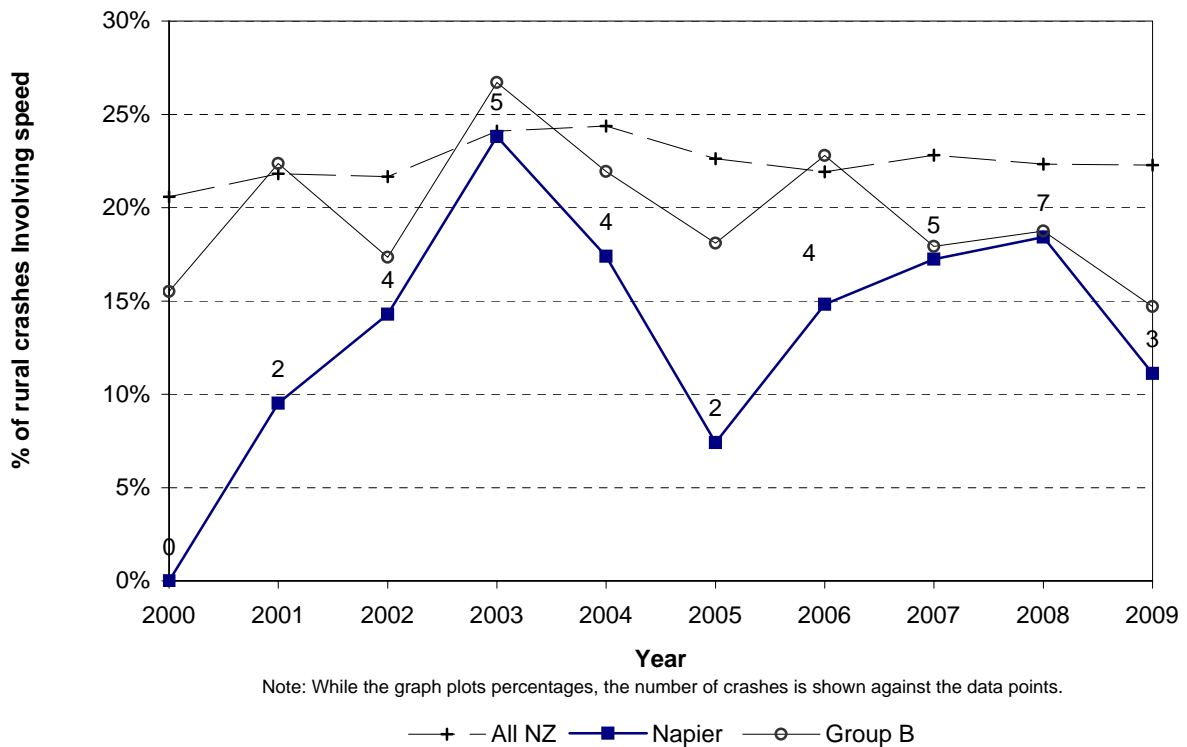
**Figure 5.12 Contributing factor trends
Napier City - rural roads**



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

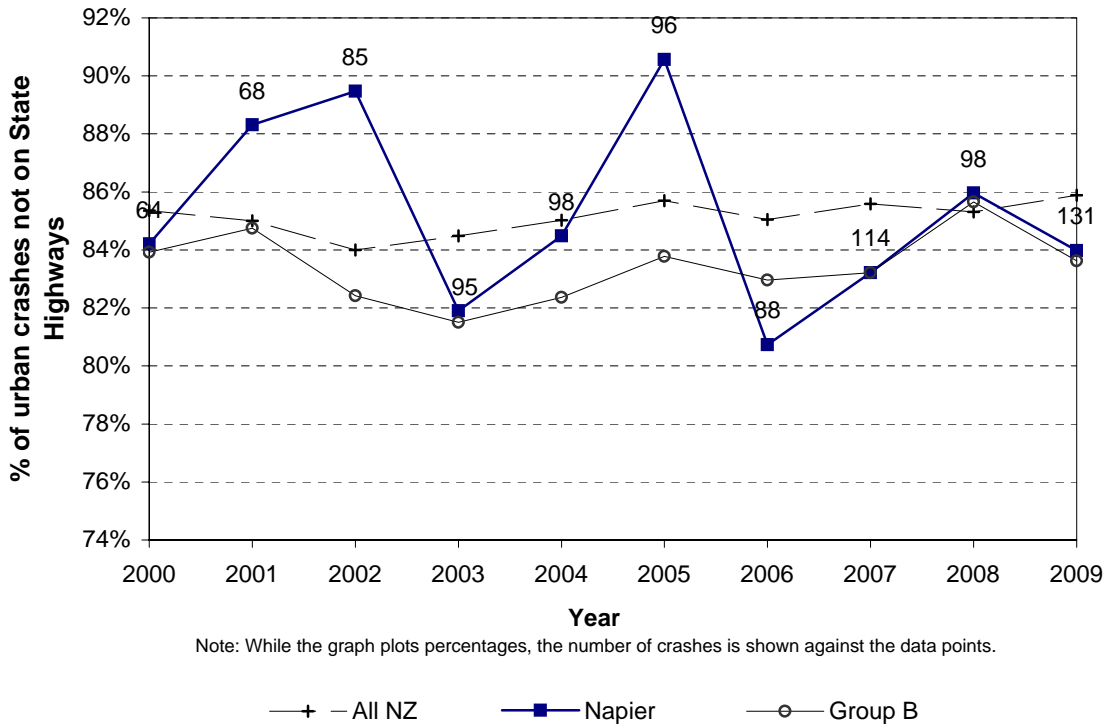


**Figure 5.14 Speed involved trend
Napier City - rural roads**

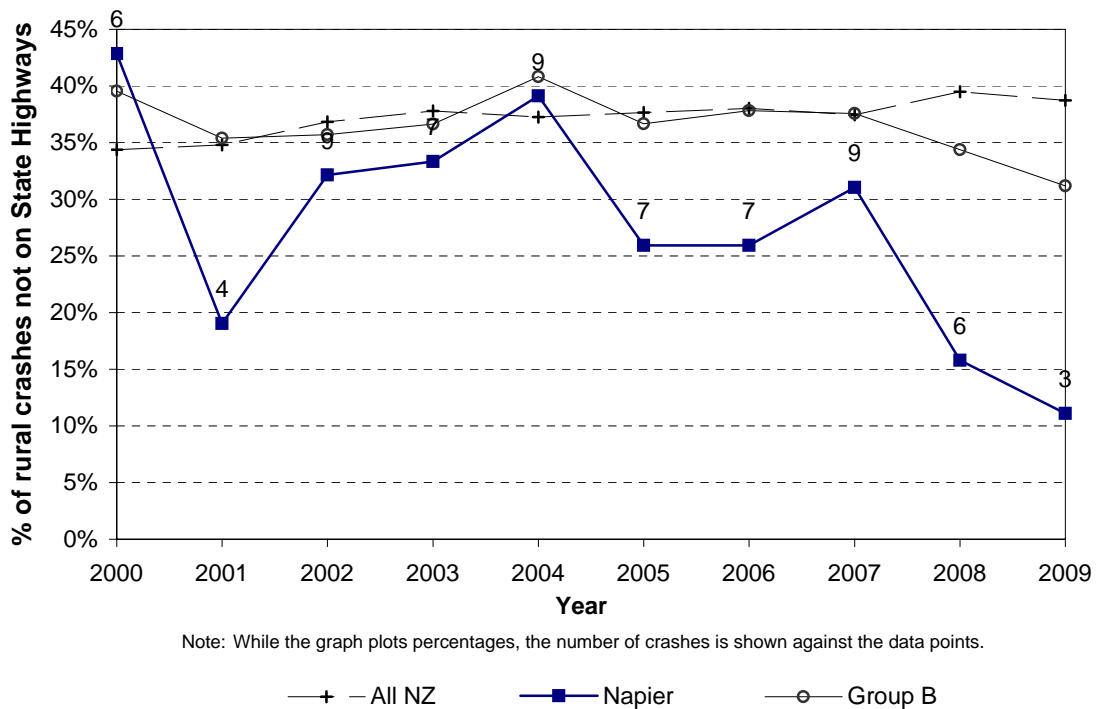


Environmental Statistics

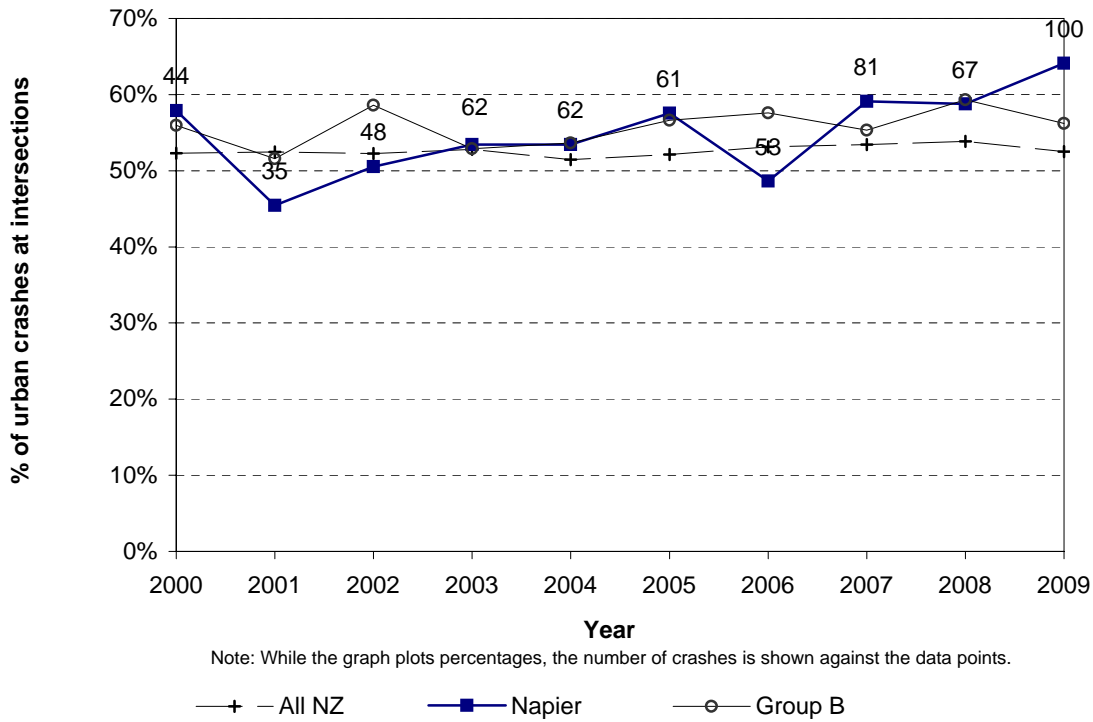
**Figure 6.1 Crashes not on state highways
Napier City - urban roads**



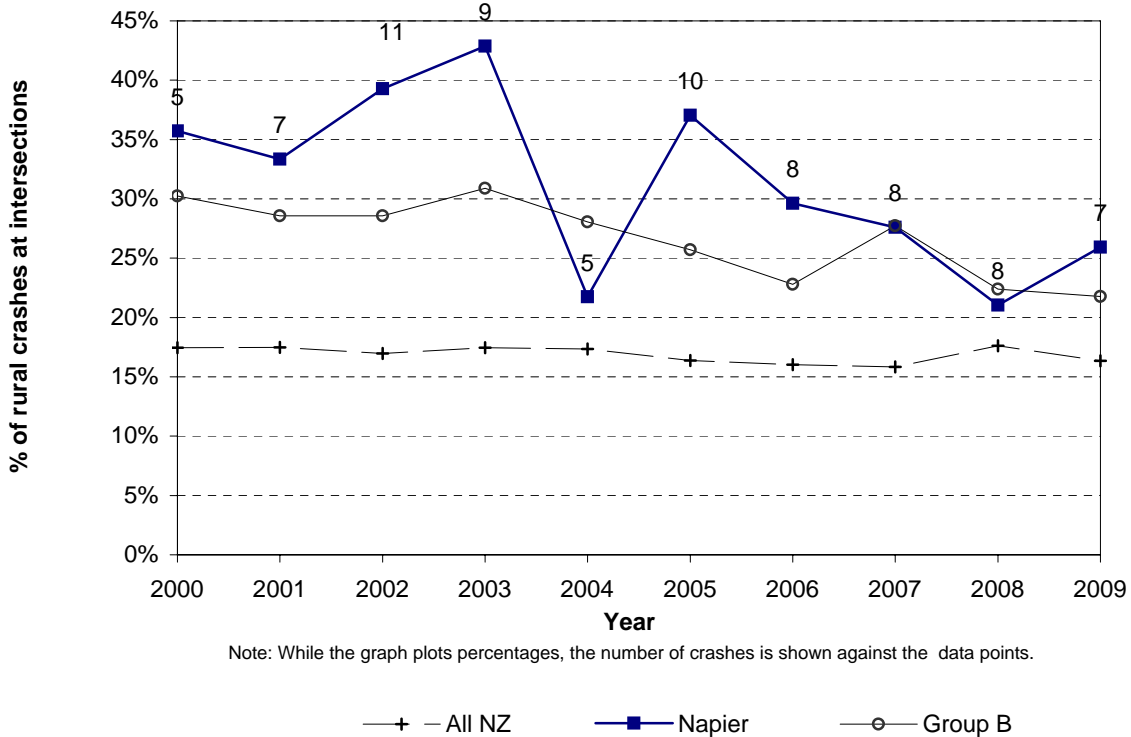
**Figure 6.2 Crashes not on state highways
Napier City - rural roads**



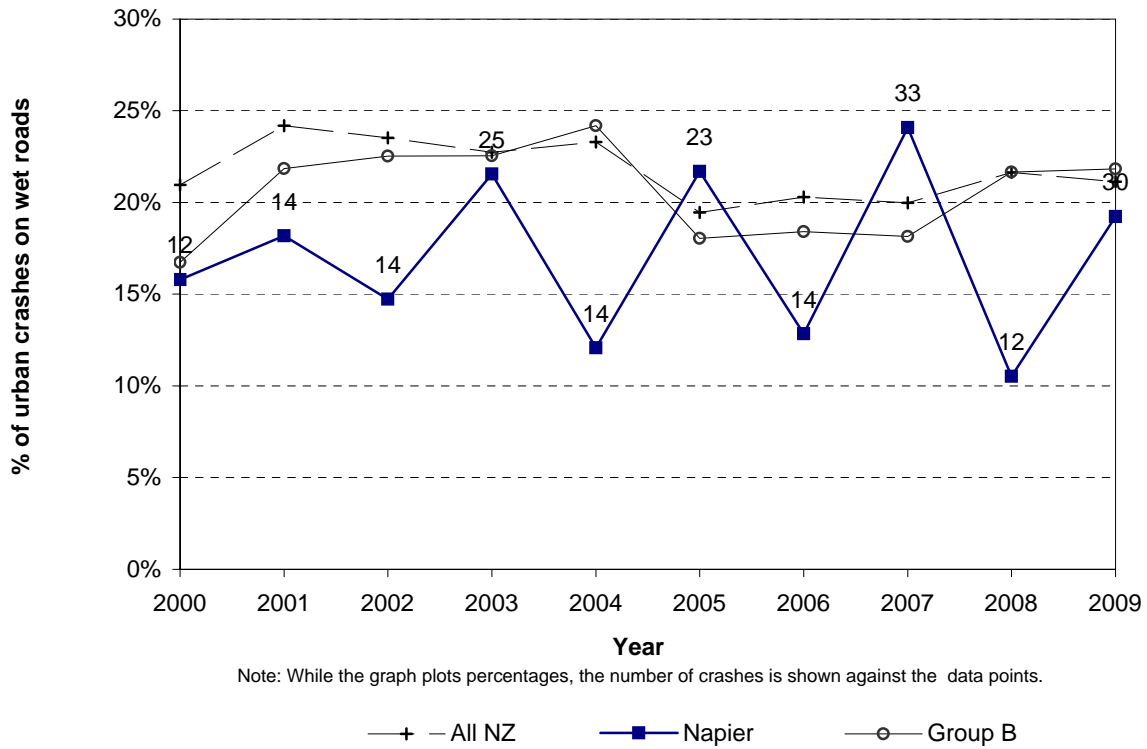
**Figure 6.3 Intersection crashes
Napier City - urban roads**



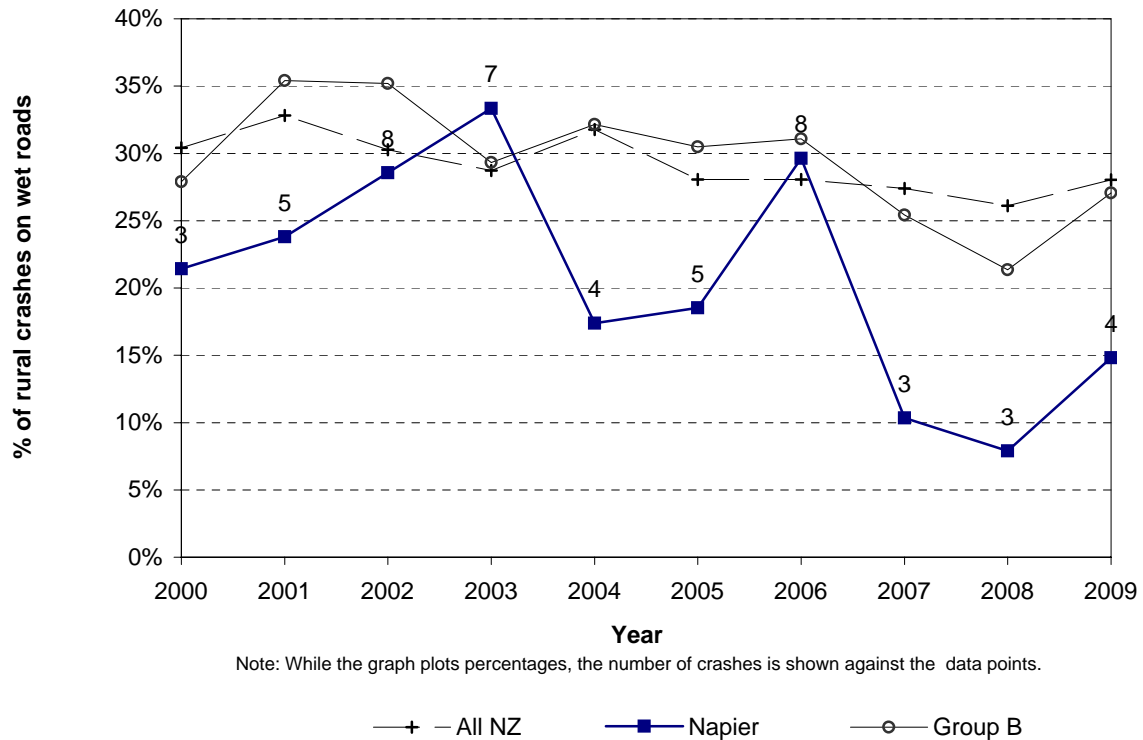
**Figure 6.4 Intersection crashes
Napier City - rural roads**



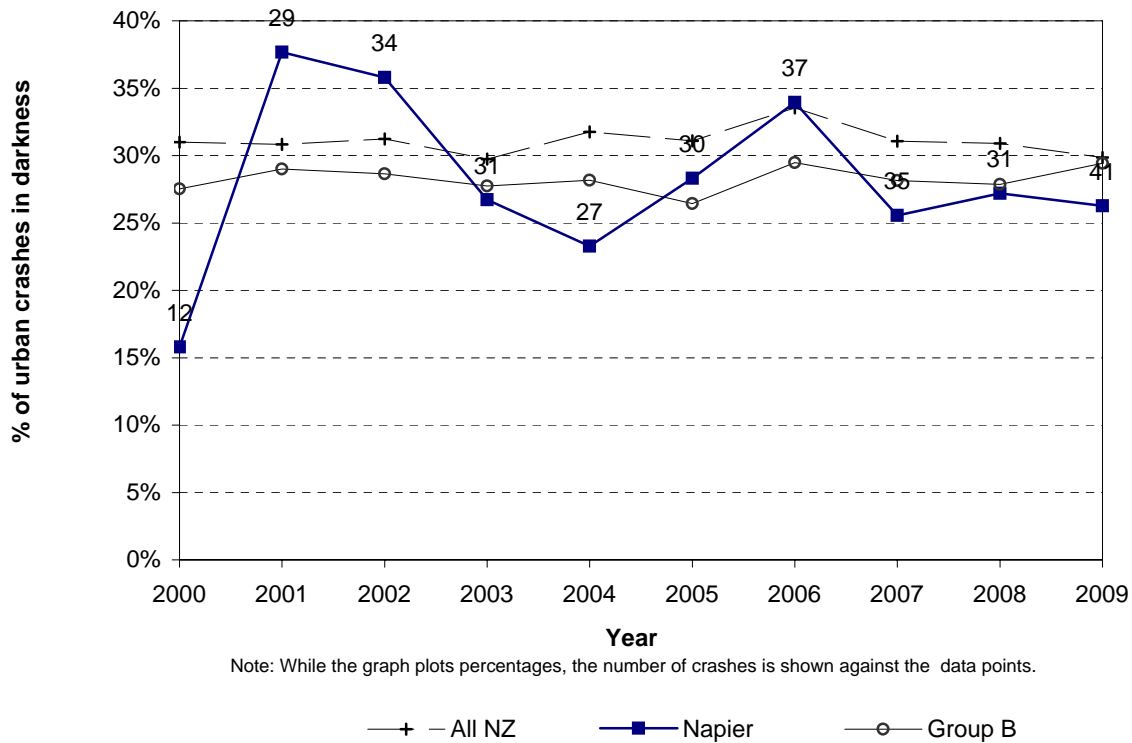
**Figure 6.5 Wet road crashes
Napier City - urban roads**



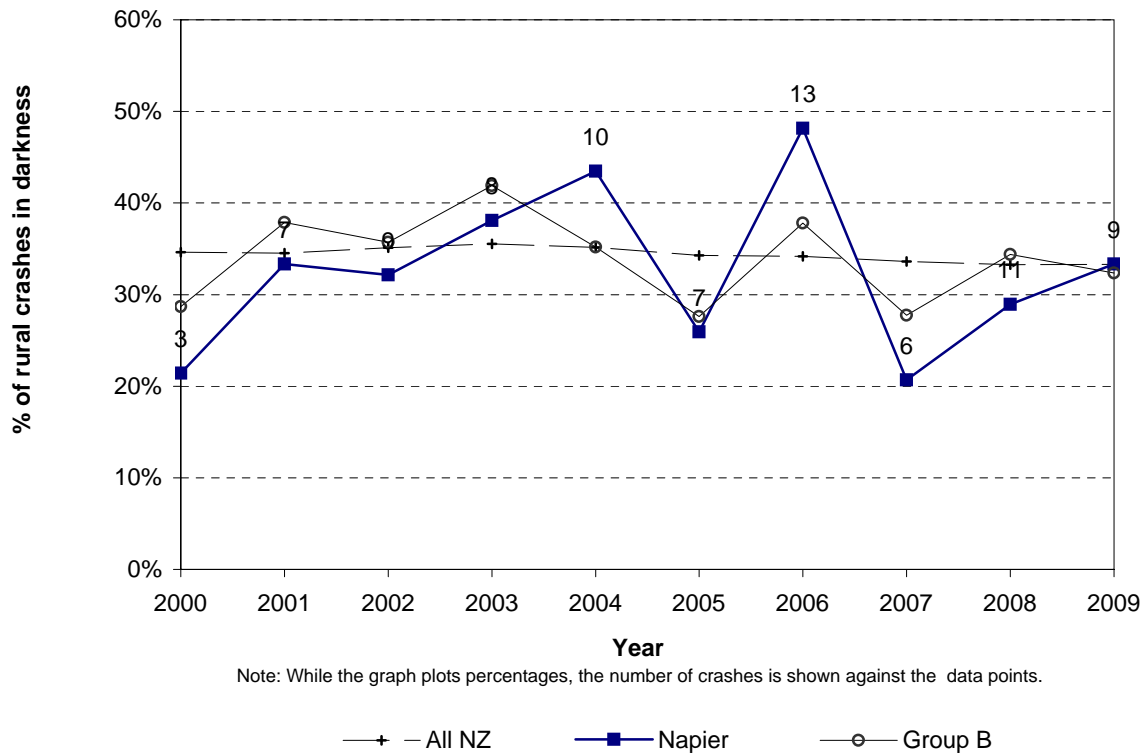
**Figure 6.6 Wet road crashes
Napier City - rural roads**



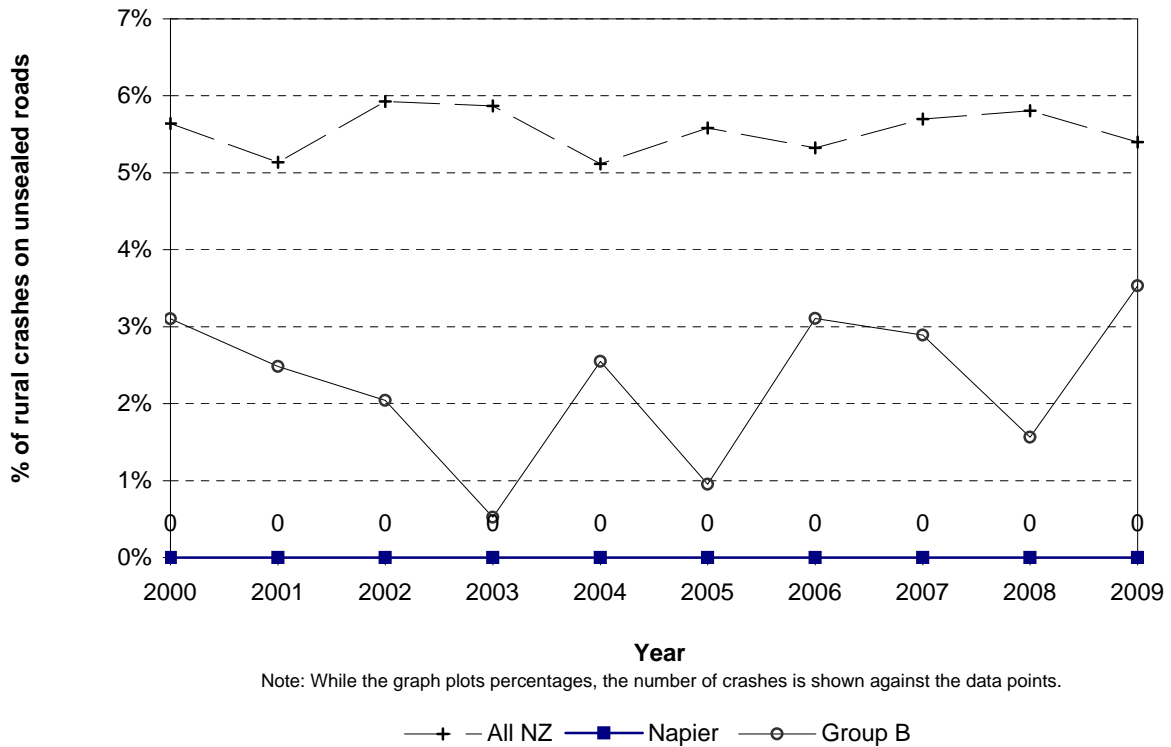
**Figure 6.7 Crashes in darkness
Napier City - urban roads**



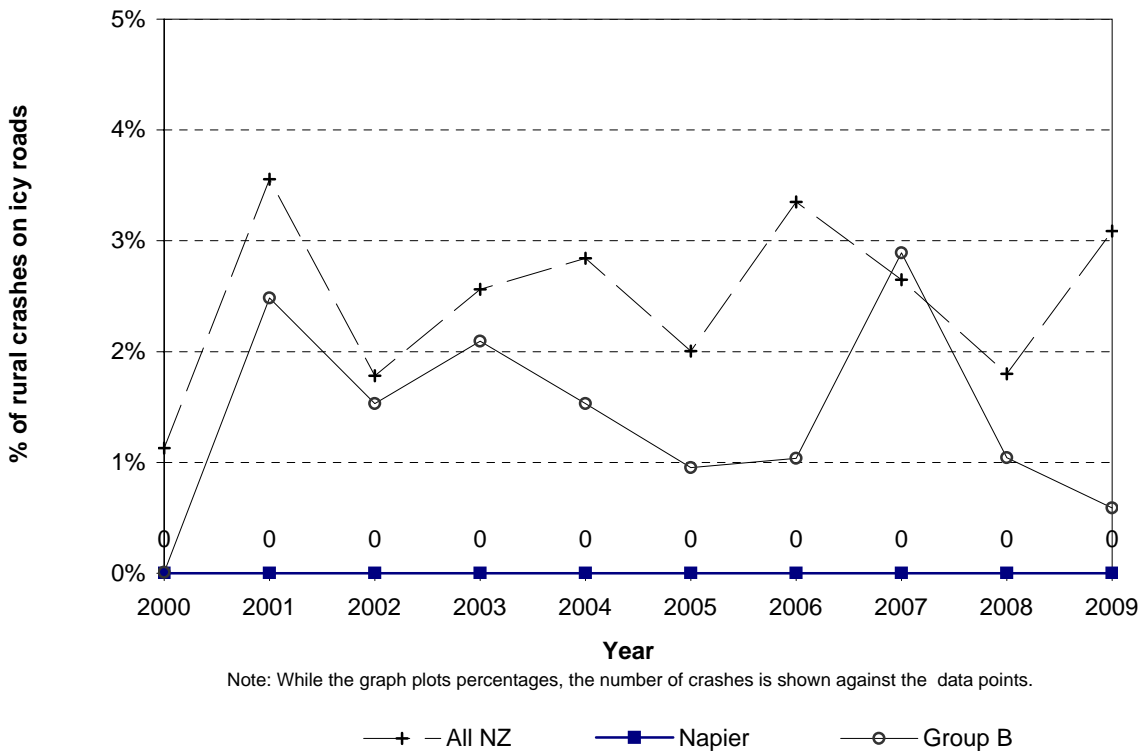
**Figure 6.8 Crashes in darkness
Napier City - rural roads**



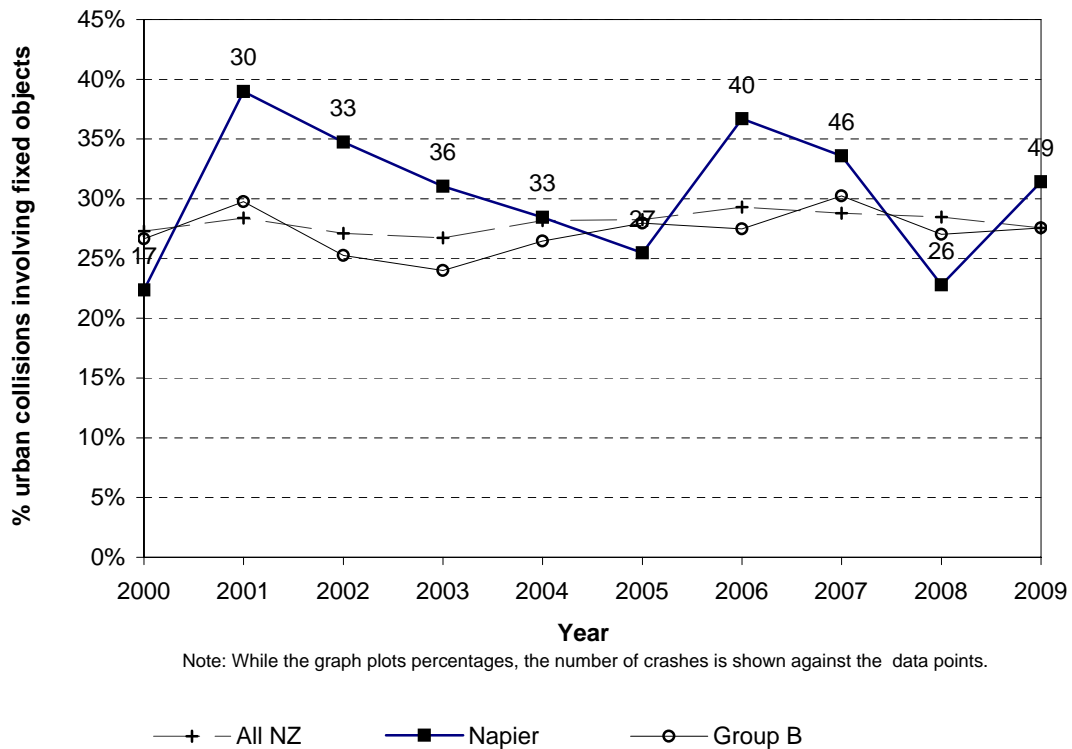
**Figure 6.9 Unsealed road crashes
Napier City - rural roads**



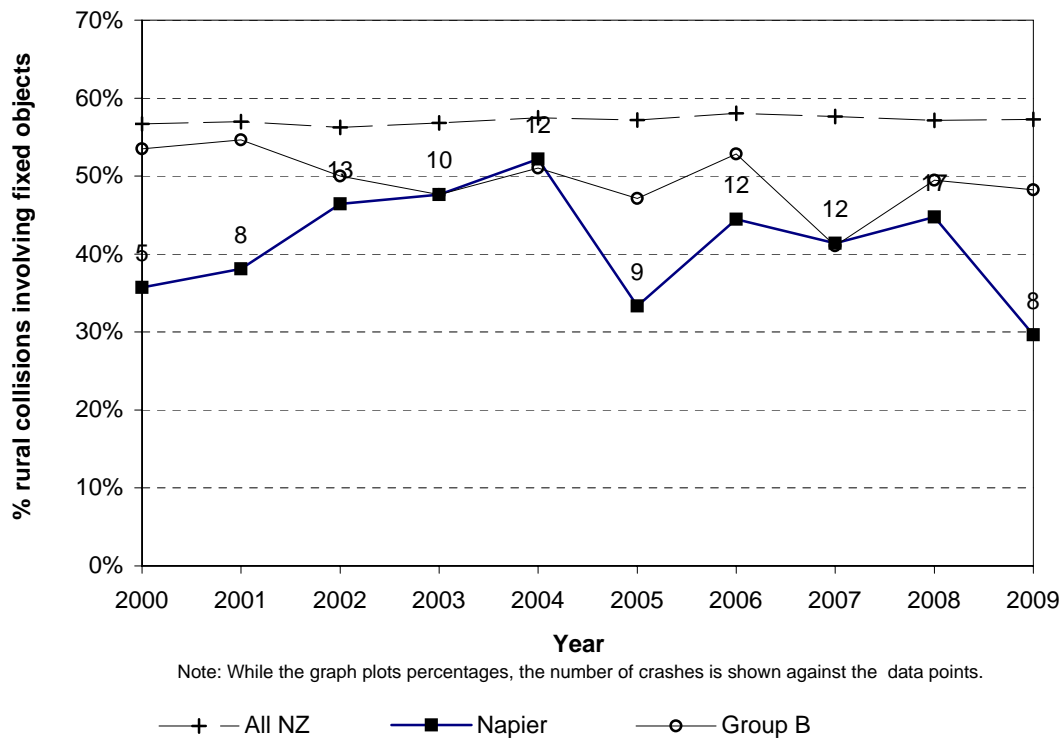
**Figure 6.10 Icy road crashes
Napier City - rural roads**



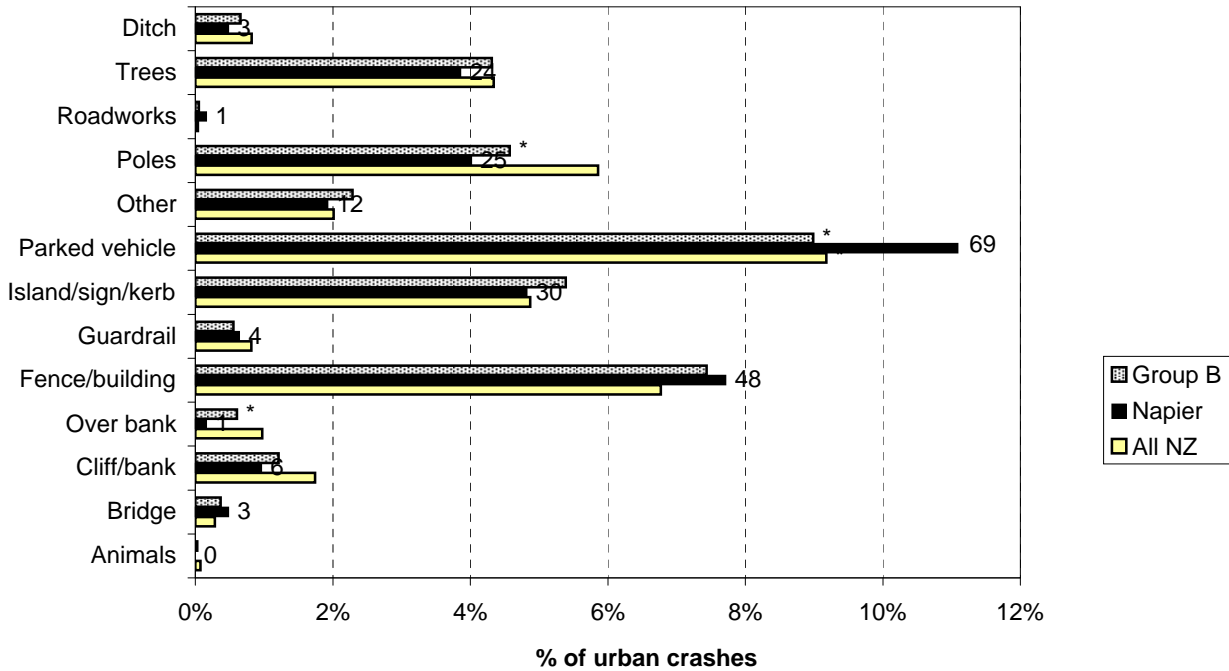
**Figure 6.11 Collisions with objects
Napier City - urban roads**



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

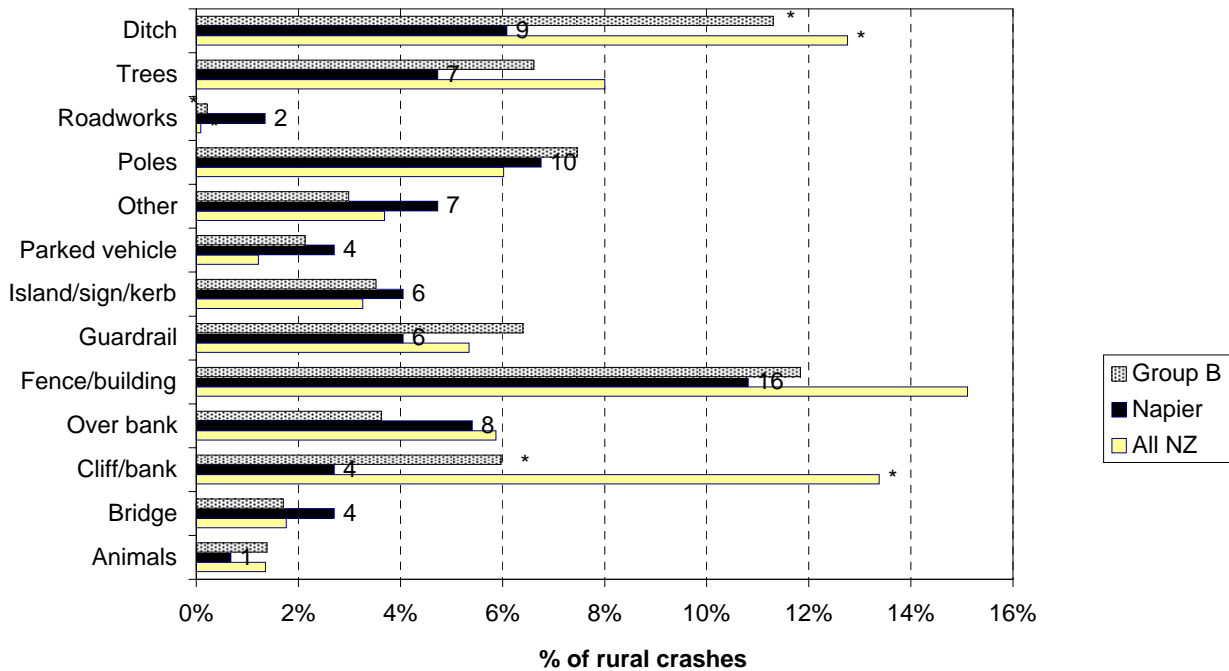


**Figure 6.13 Objects struck - urban
Napier City (2005-2009)**



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

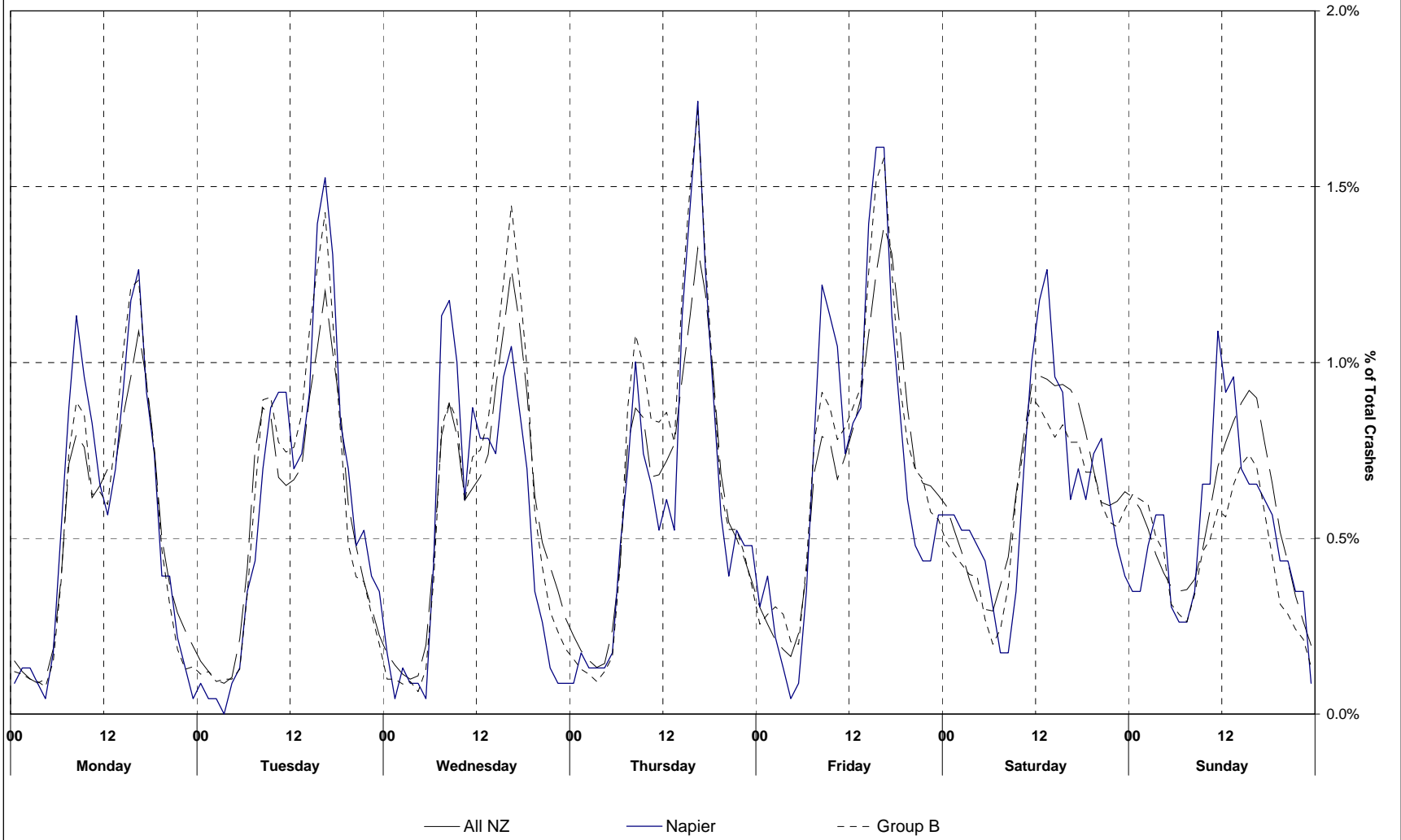
**Figure 6.14 Objects struck - rural
Napier City (2005-2009)**



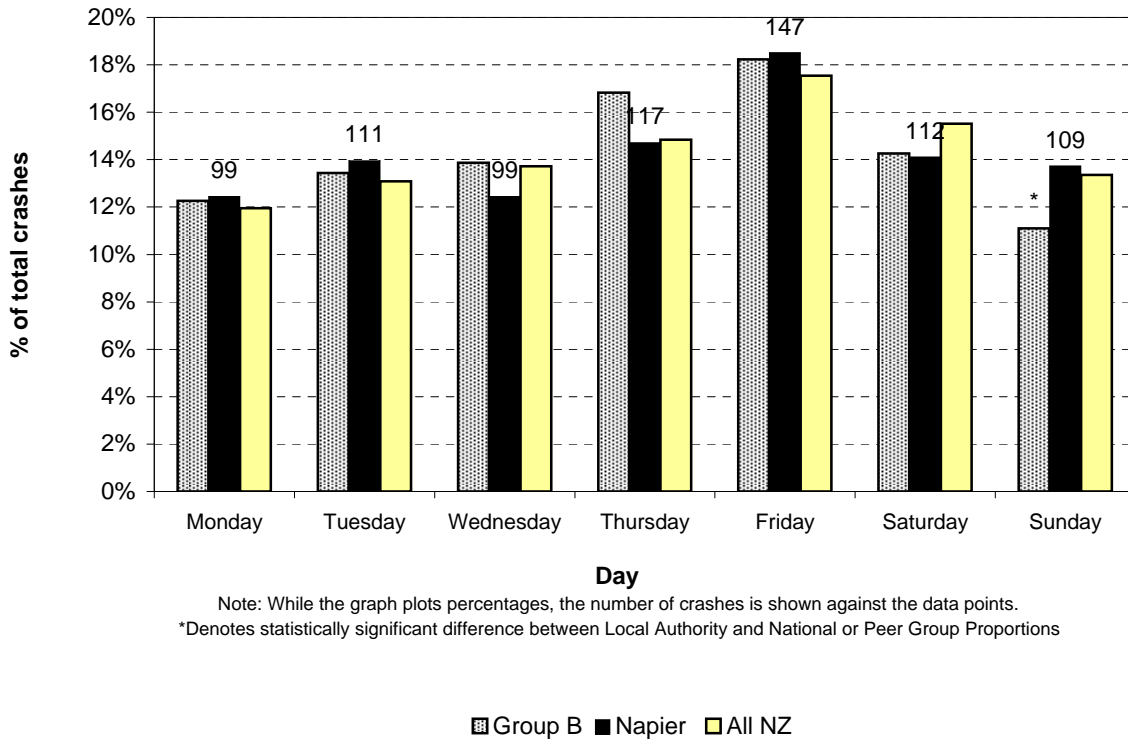
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Date and Time Statistics

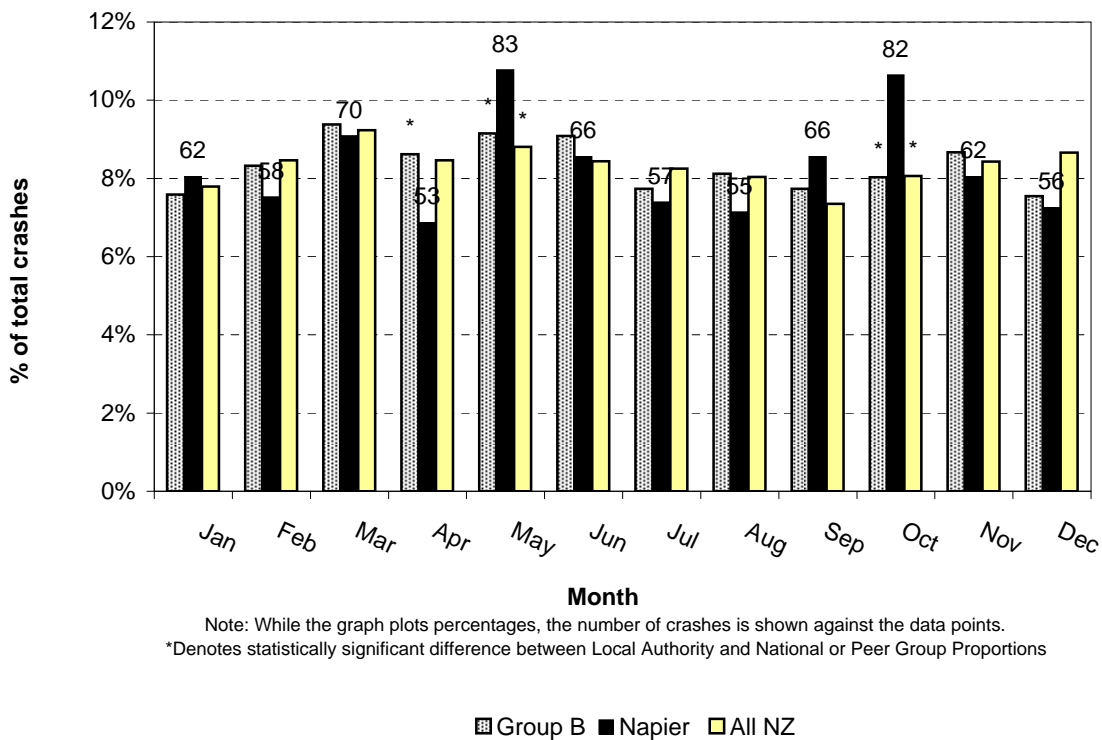
Figure 7.1 Time pattern over average week
Napier City (2005-2009)



**Figure 7.2 Day of week (6 a.m. to 6 a.m.)
Napier City (2005-2009)**



**Figure 7.3 Month of year
Napier City (2005-2009)**



Local Road Statistics

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

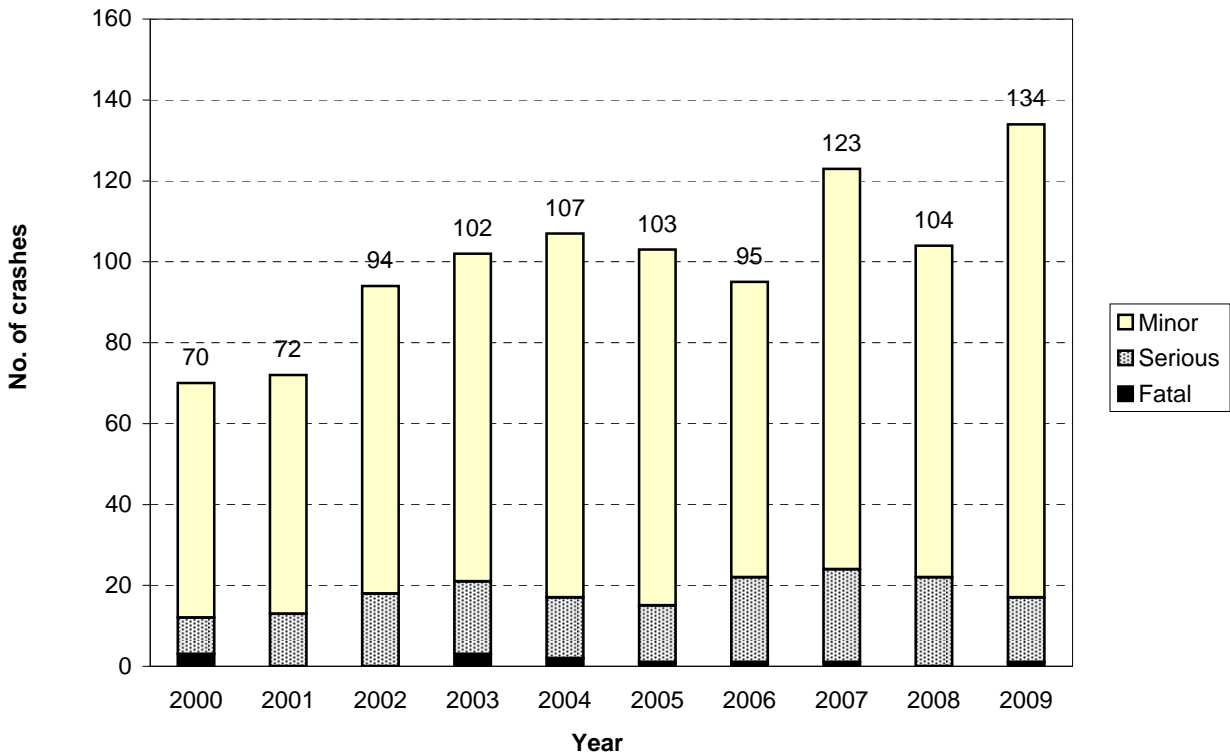
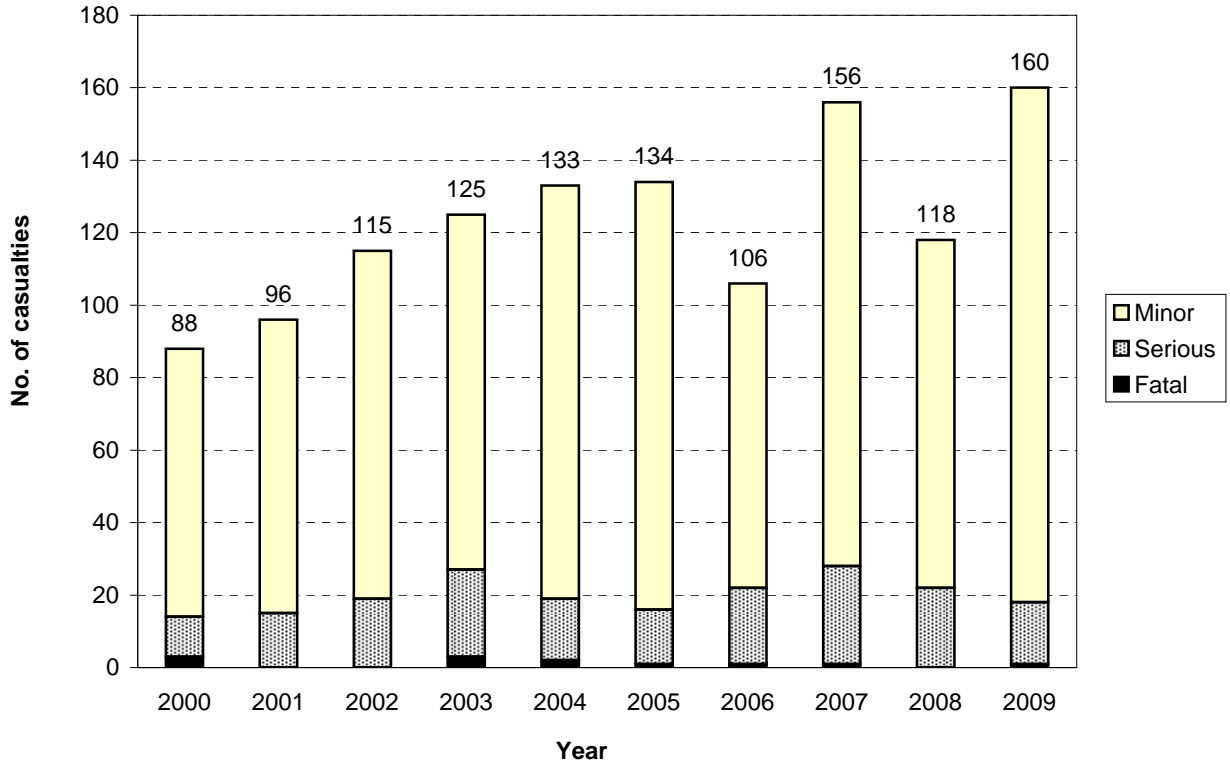
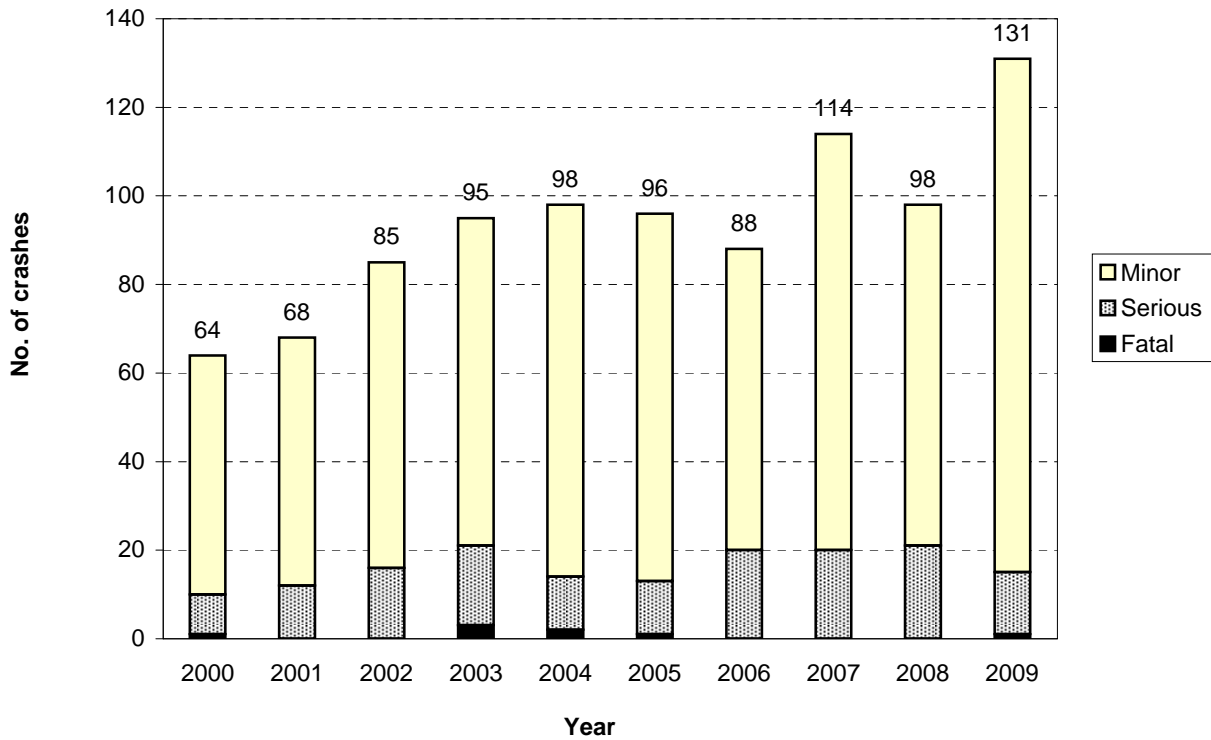


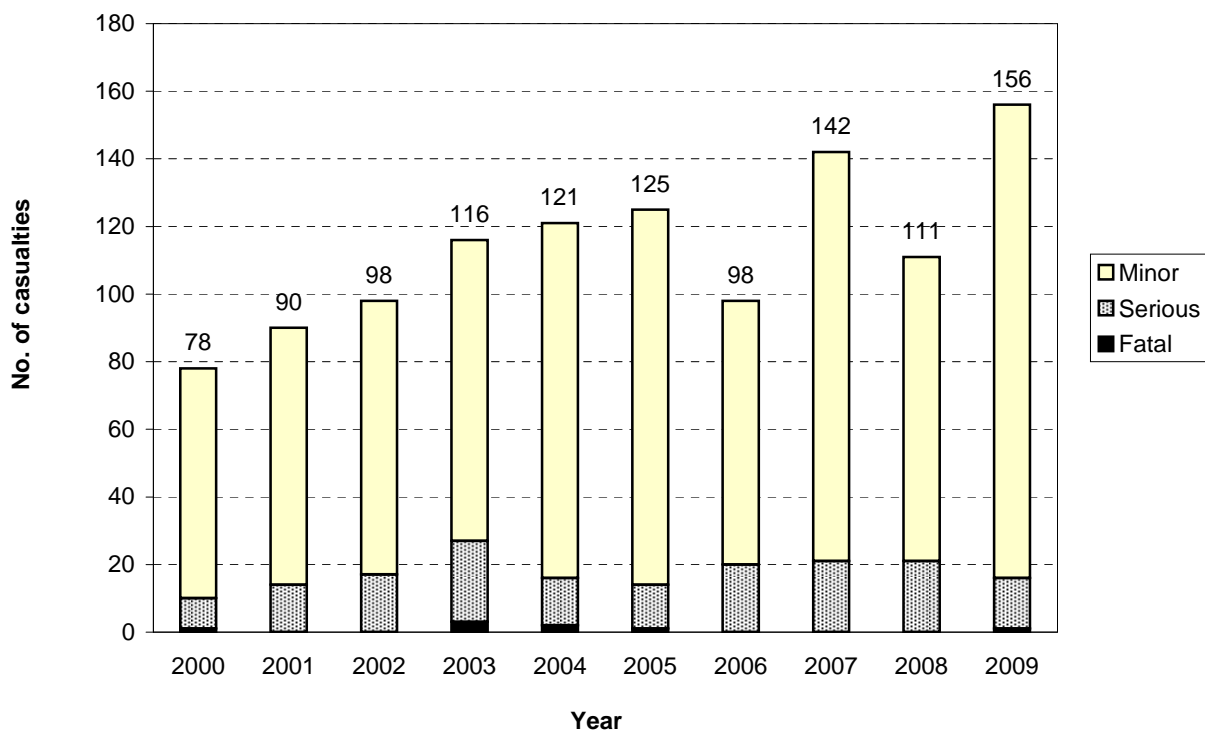
Figure 8.2 Number of casualties
Napier City - council roads (urban & rural)



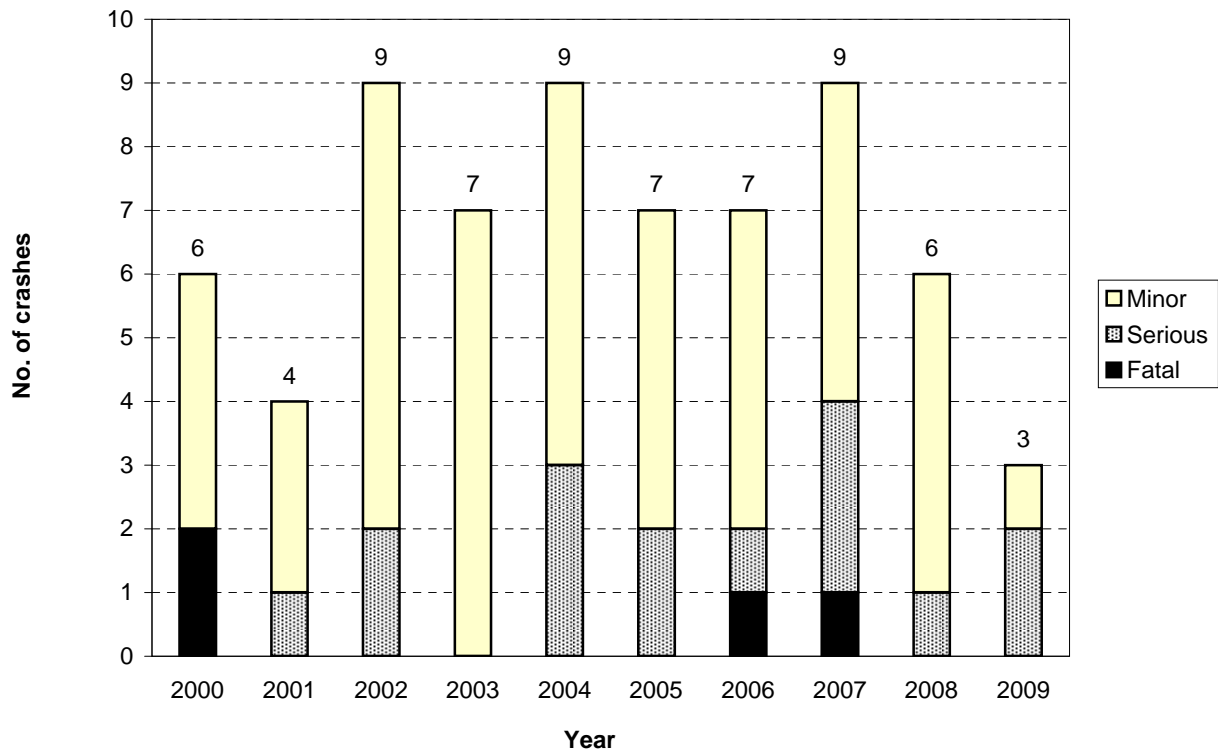
**Figure 8.3 Number of injury crashes
Napier City - urban council roads**



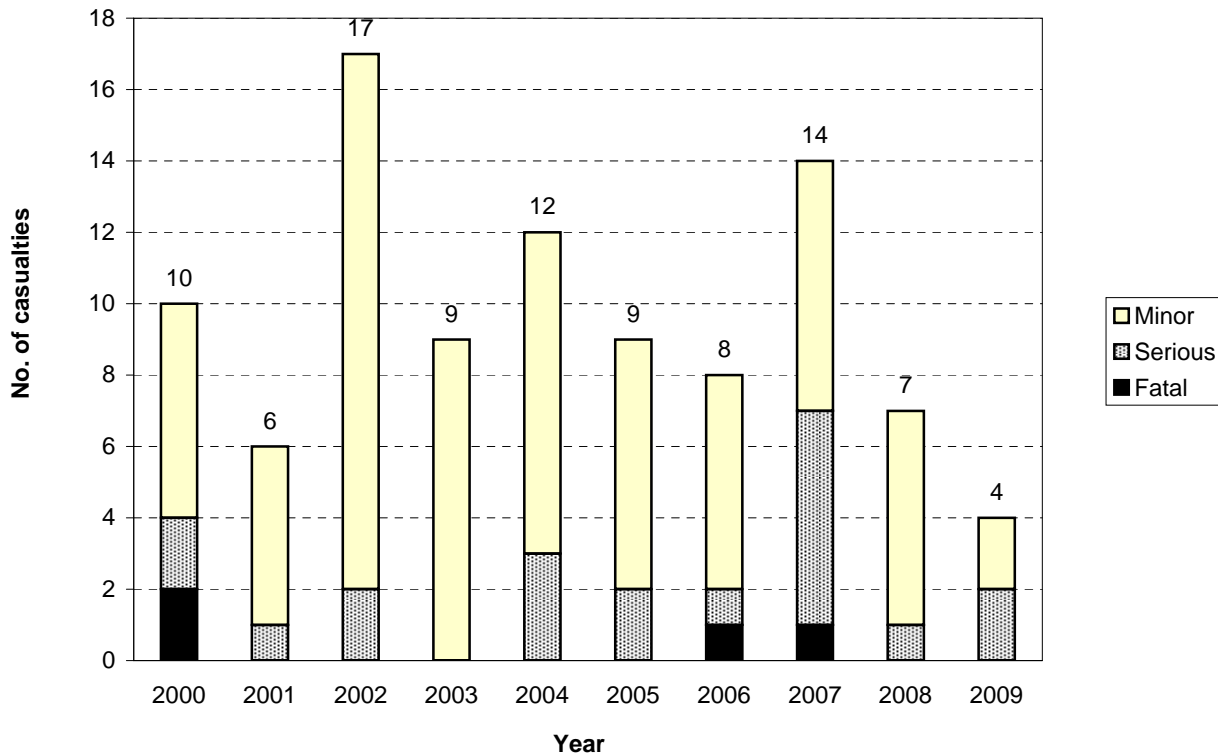
**Figure 8.4 Number of casualties
Napier City - urban council roads**



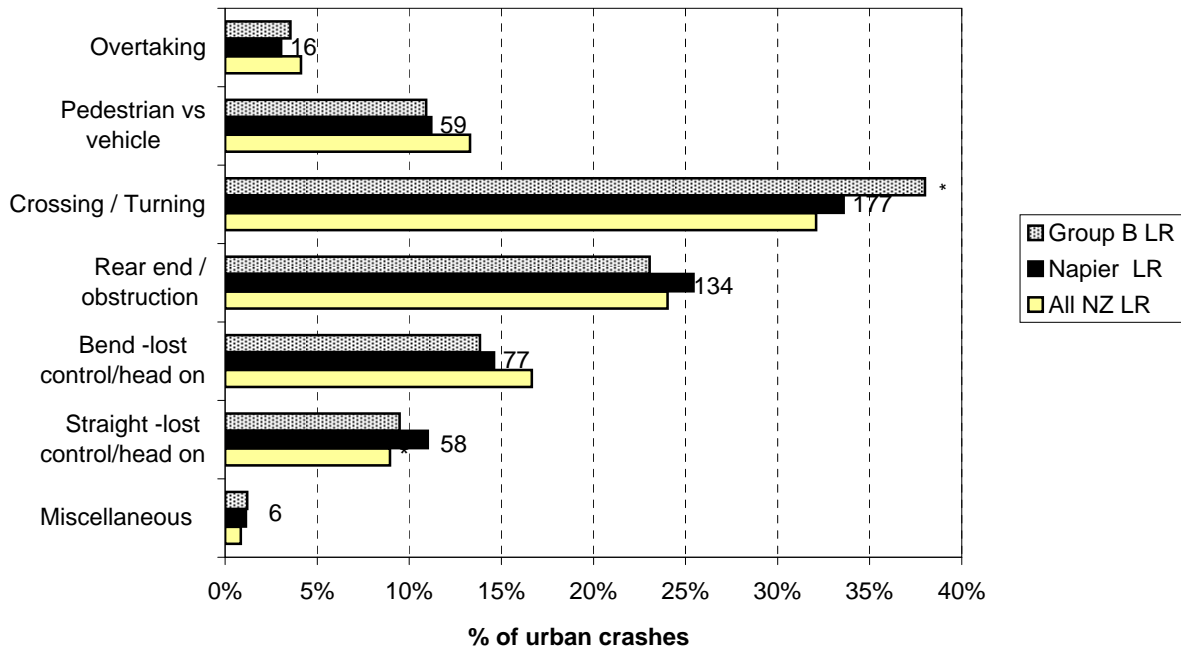
**Figure 8.5 Number of injury crashes
Napier City - rural council roads**



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

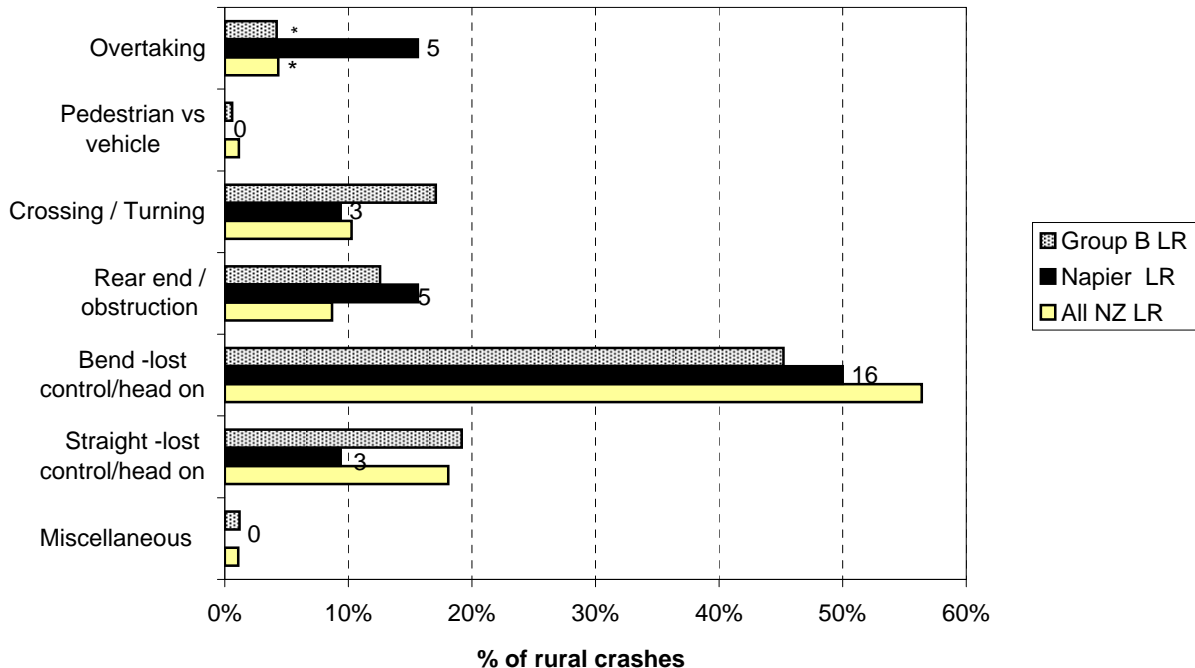


**Figure 8.7 Crash movement type - urban
Napier City council roads (2005-2009)**



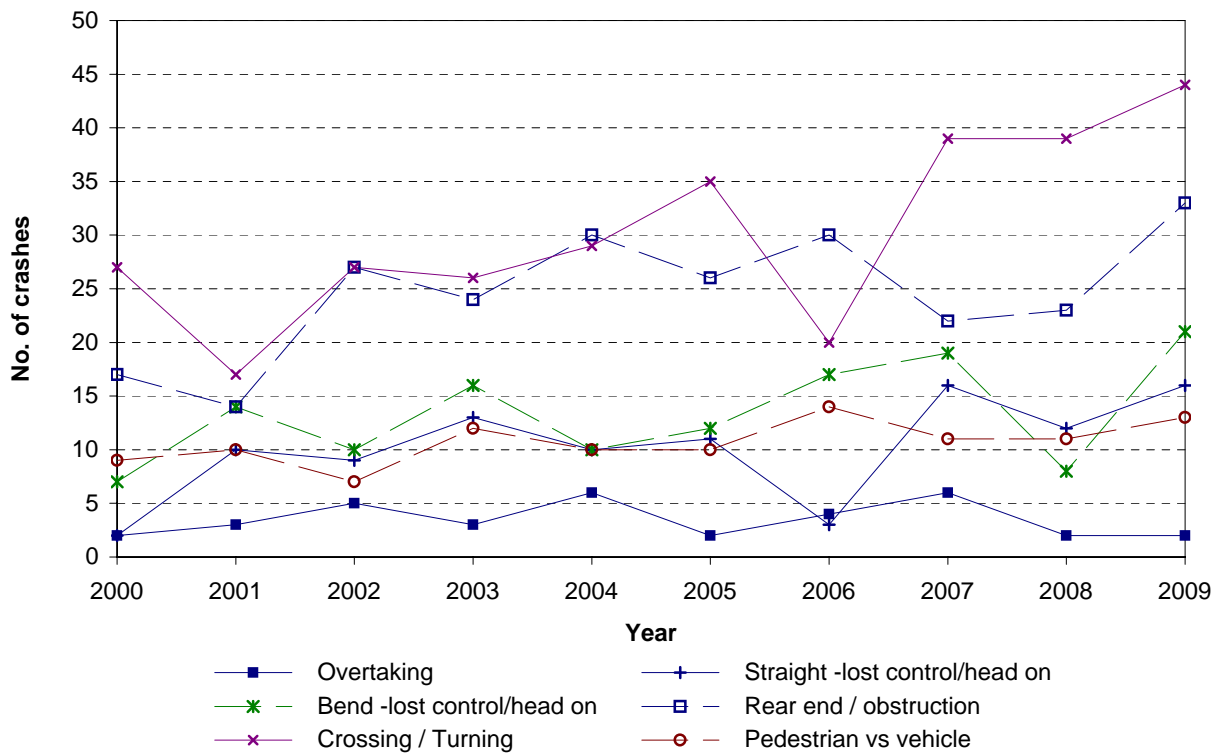
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.8 Crash movement type - rural
Napier City council roads (2005-2009)**

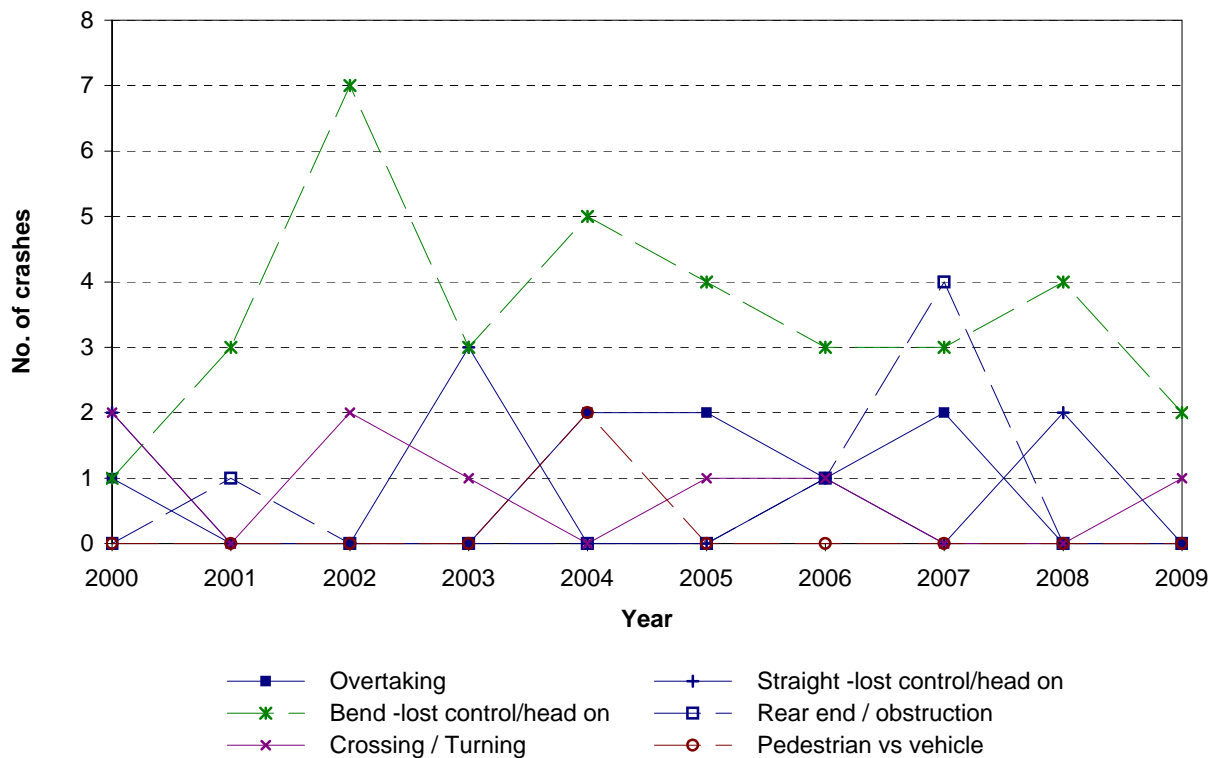


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

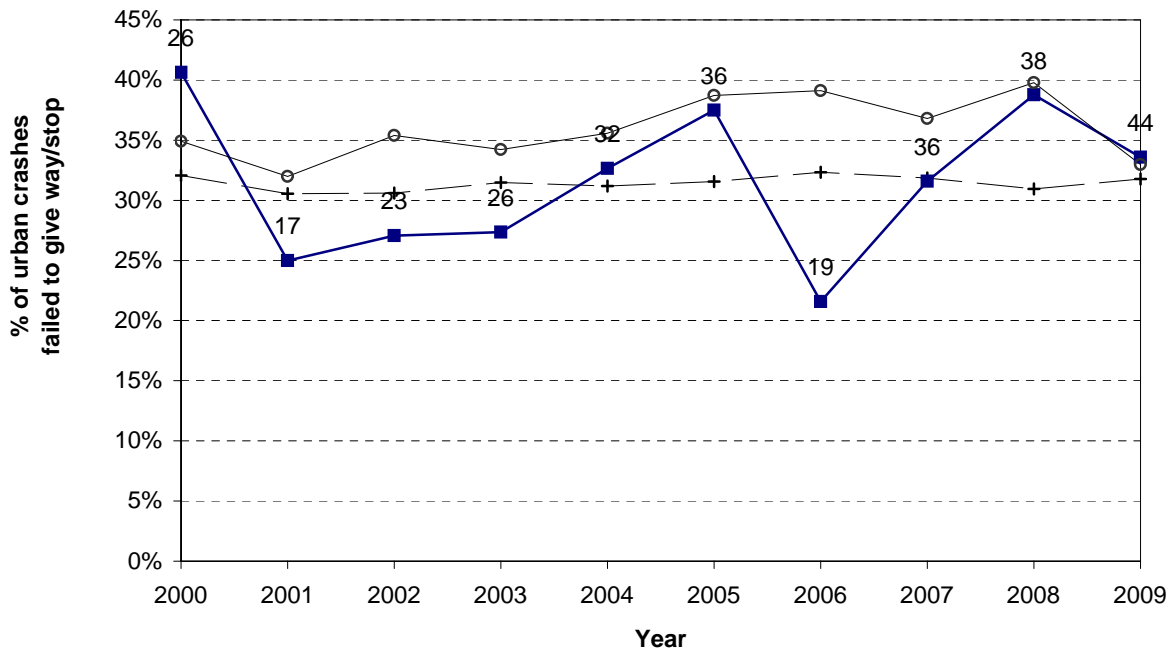
**Figure 8.9 Crash movement type - Trends
Napier City - urban council roads**



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



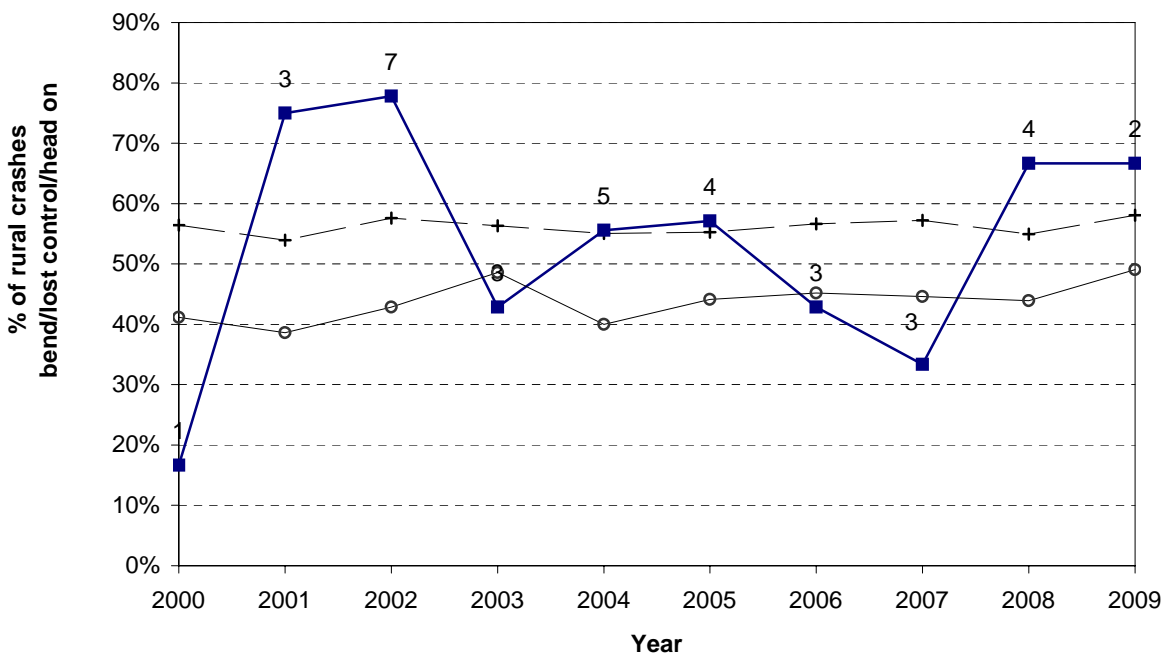
**Figure 8.11 Failed to give way/stop
Napier City - urban council roads**



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

+ All NZ LR ■ Napier LR ○ Group B LR

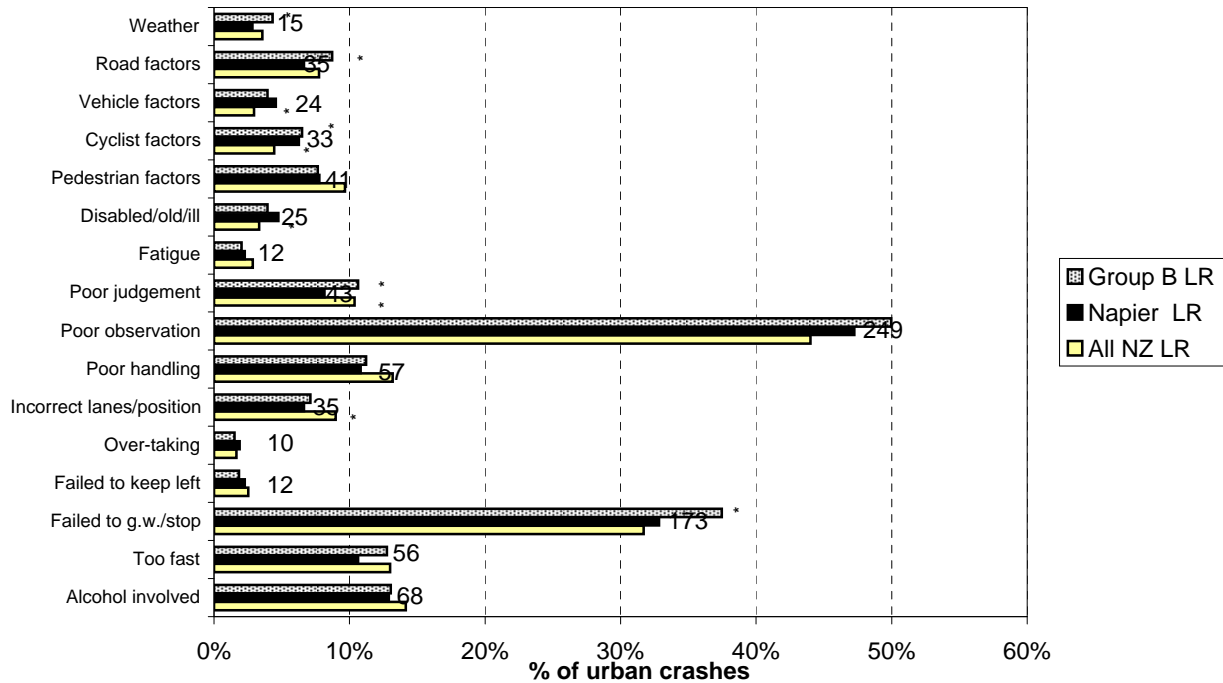
**Figure 8.12 Bend - lost control / head - on
Napier City - rural council roads**



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

+ All NZ LR ■ Napier LR ○ Group B LR

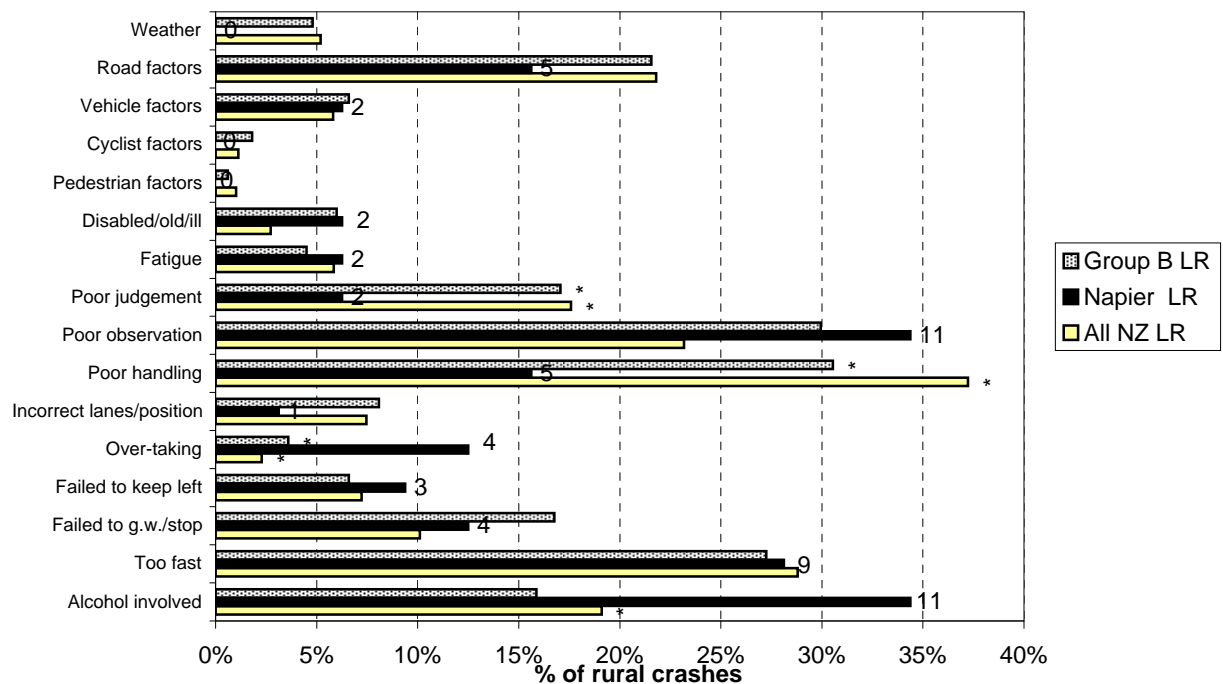
**Figure 8.13 Contributing factors - urban
Napier City council roads (2005-2009)**



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

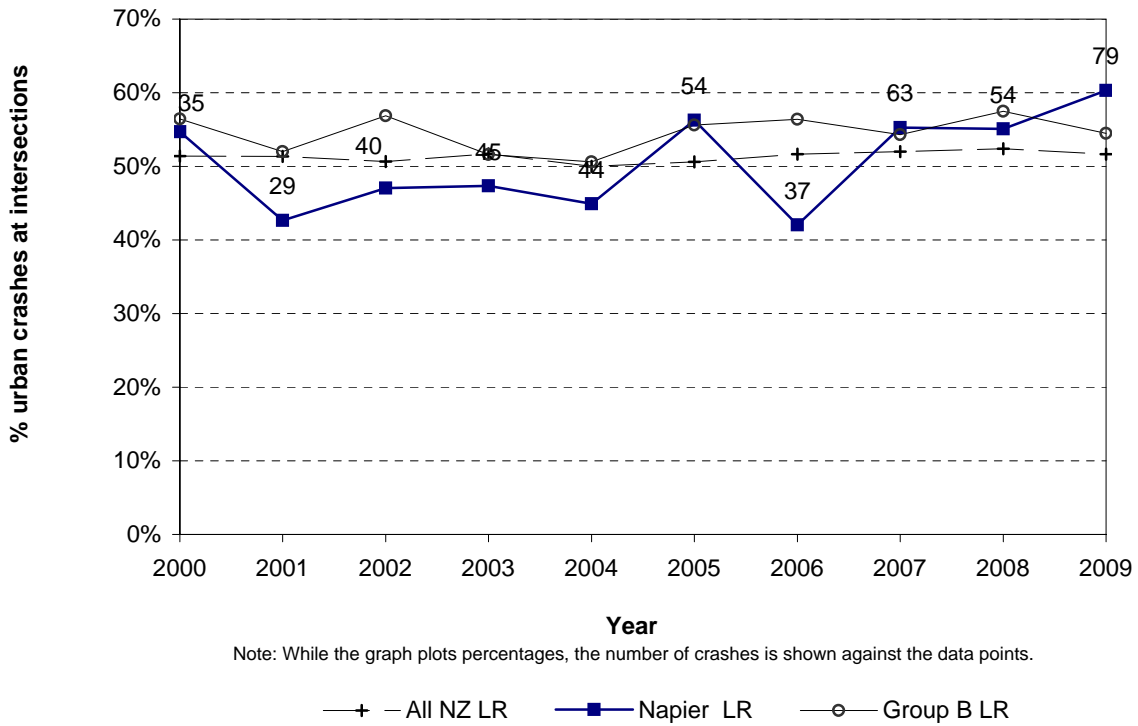
**Figure 8.14 Contributing factors - rural
Napier City council roads (2005-2009)**



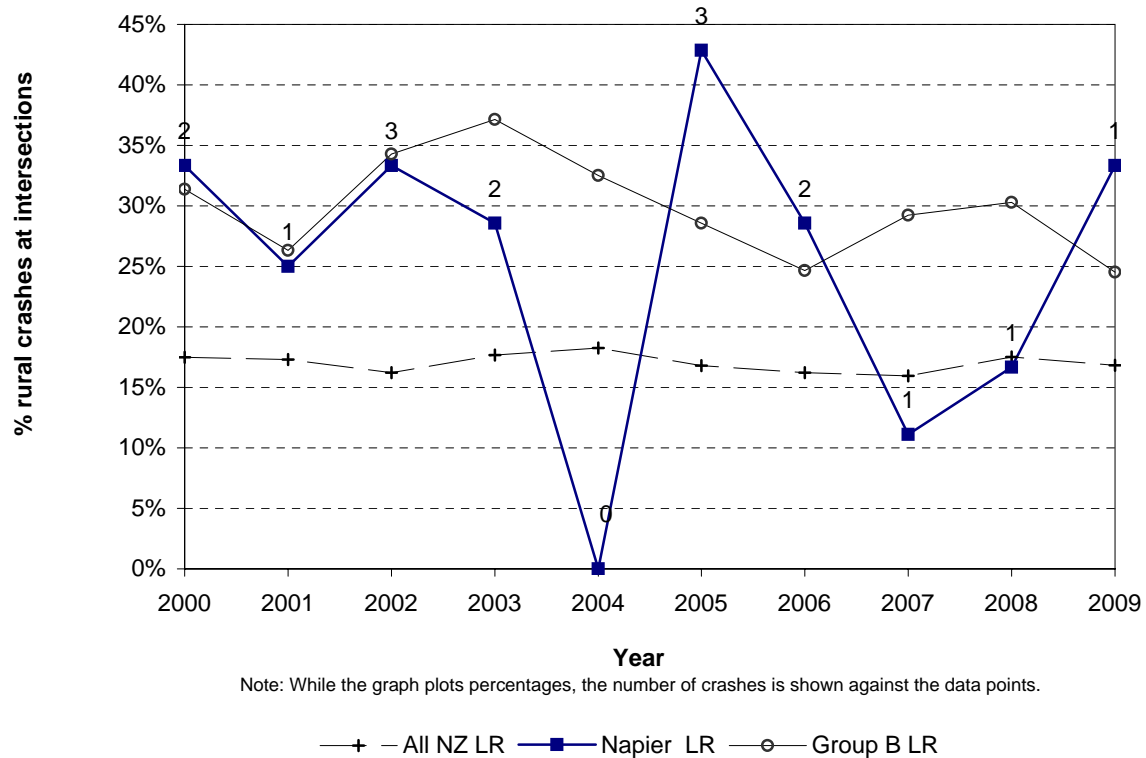
Note: While the graph plots percentages, the number of casualties is shown against the data points.

*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

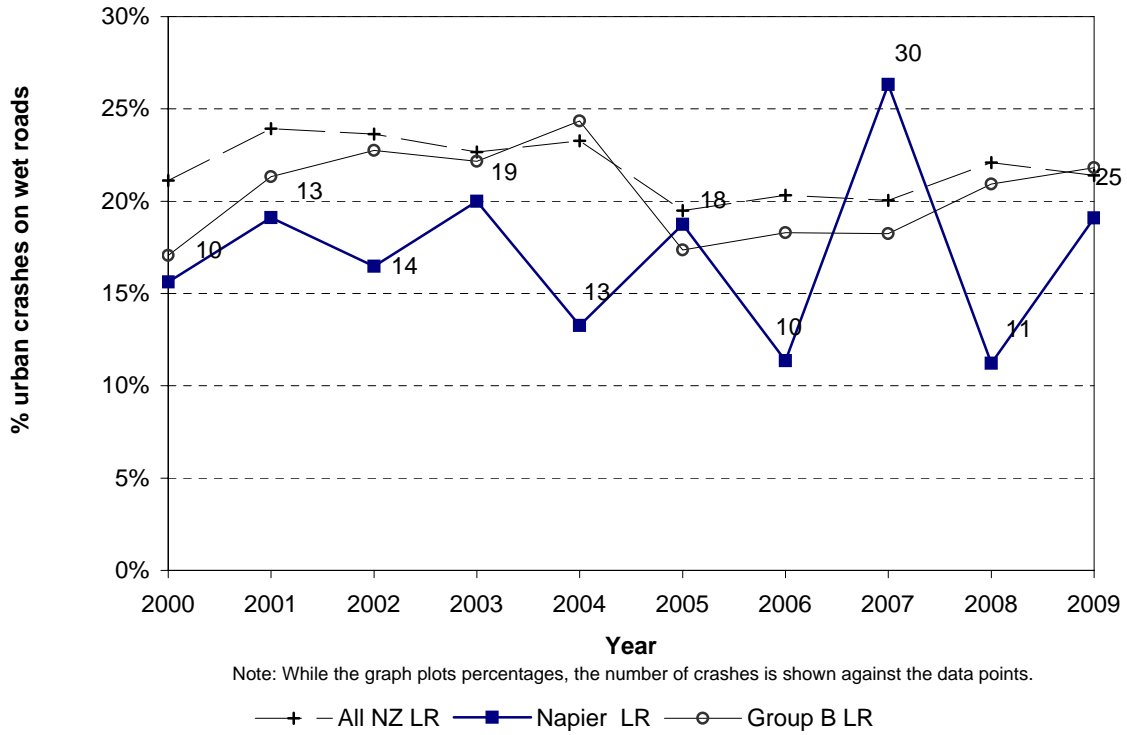
**Figure 8.15 Intersection crashes
Napier City - urban council roads**



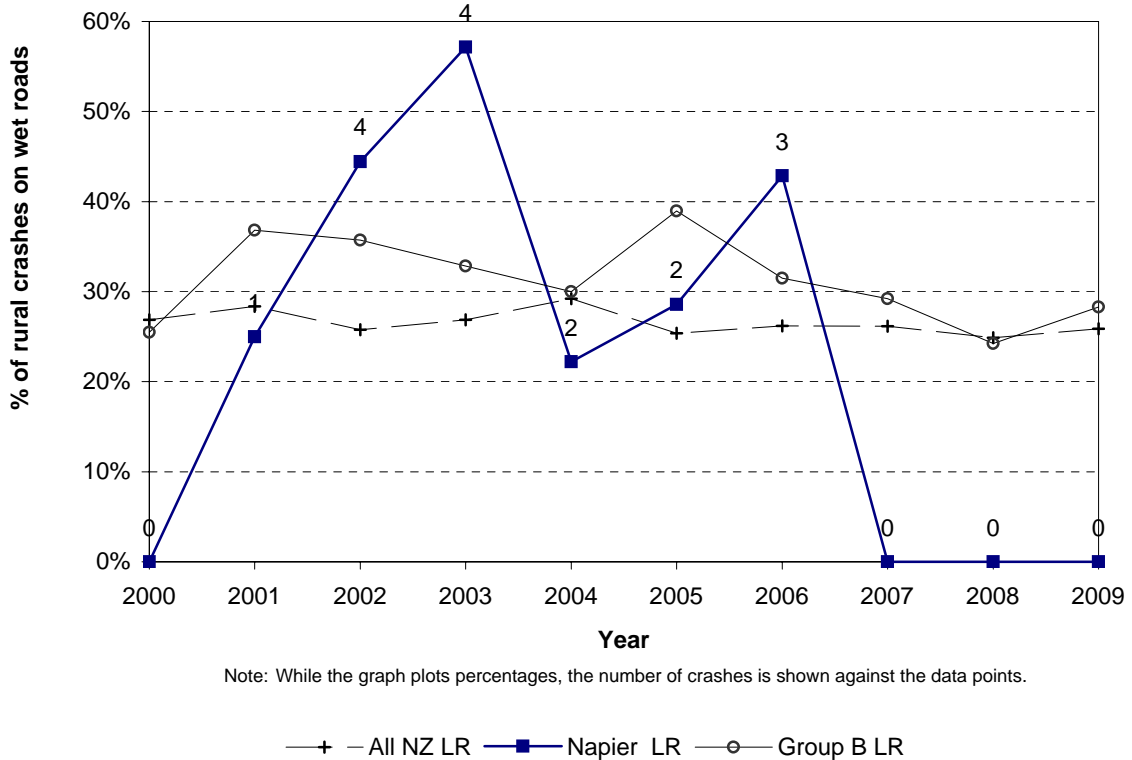
**Figure 8.16 Intersection crashes
Napier City - rural council roads**



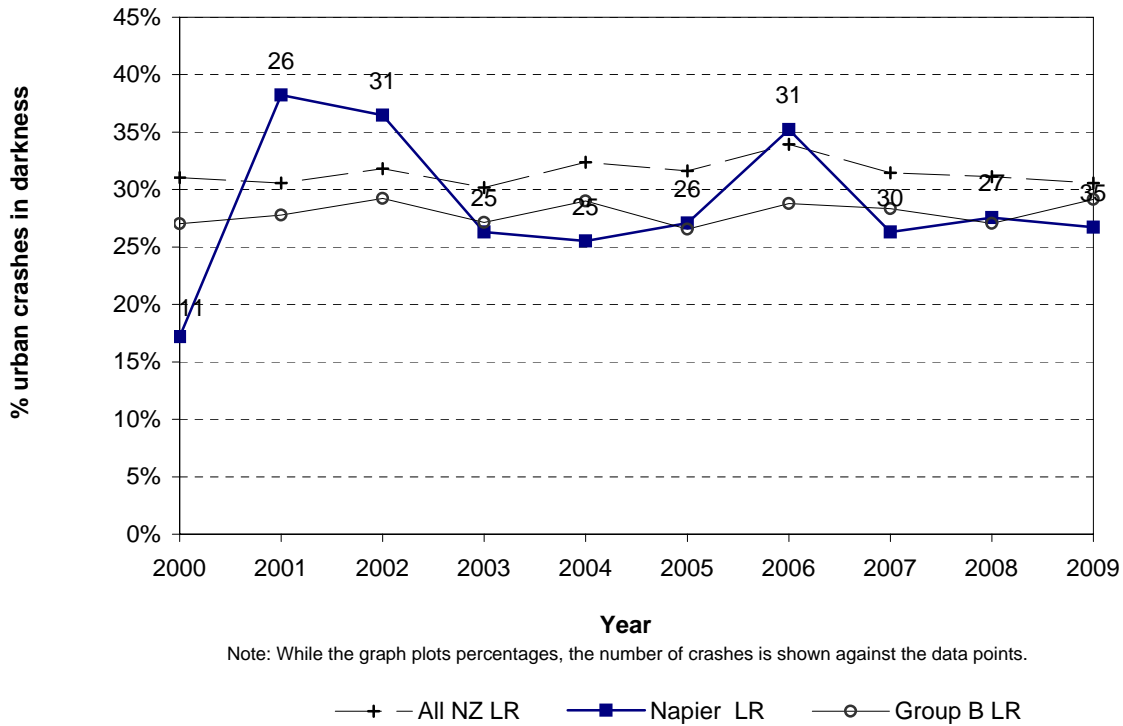
**Figure 8.17 Wet road crashes
Napier City - urban council roads**



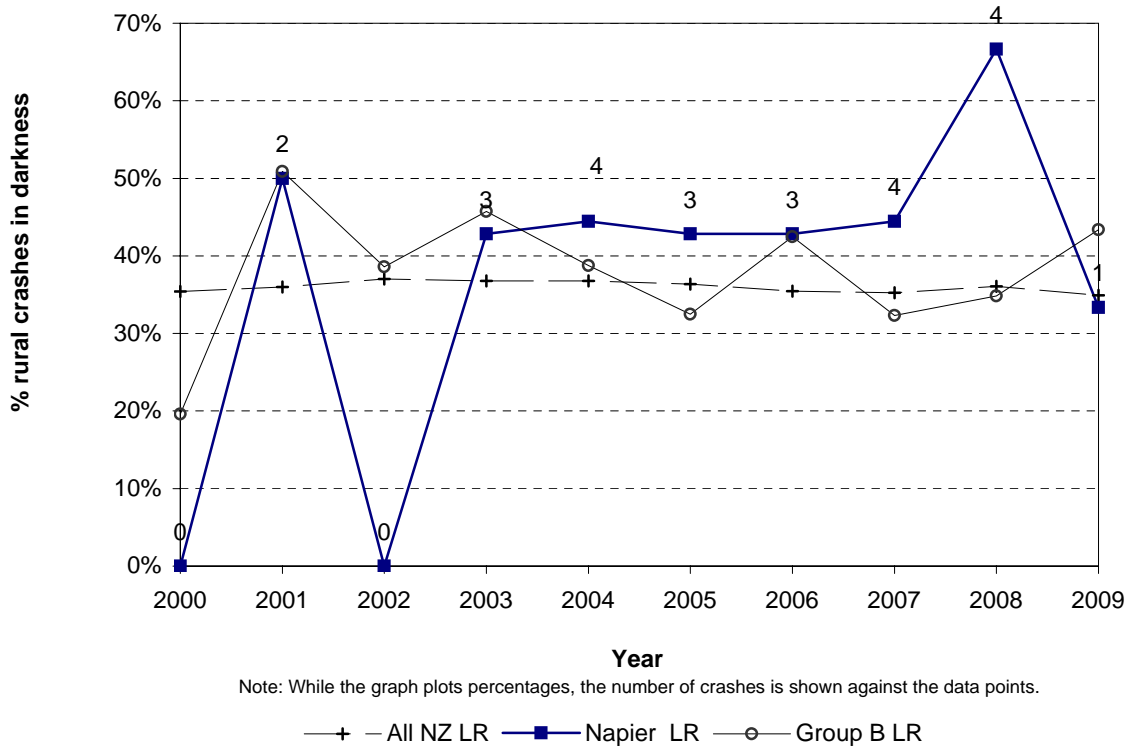
**Figure 8.18 Wet road crashes
Napier City - rural council roads**



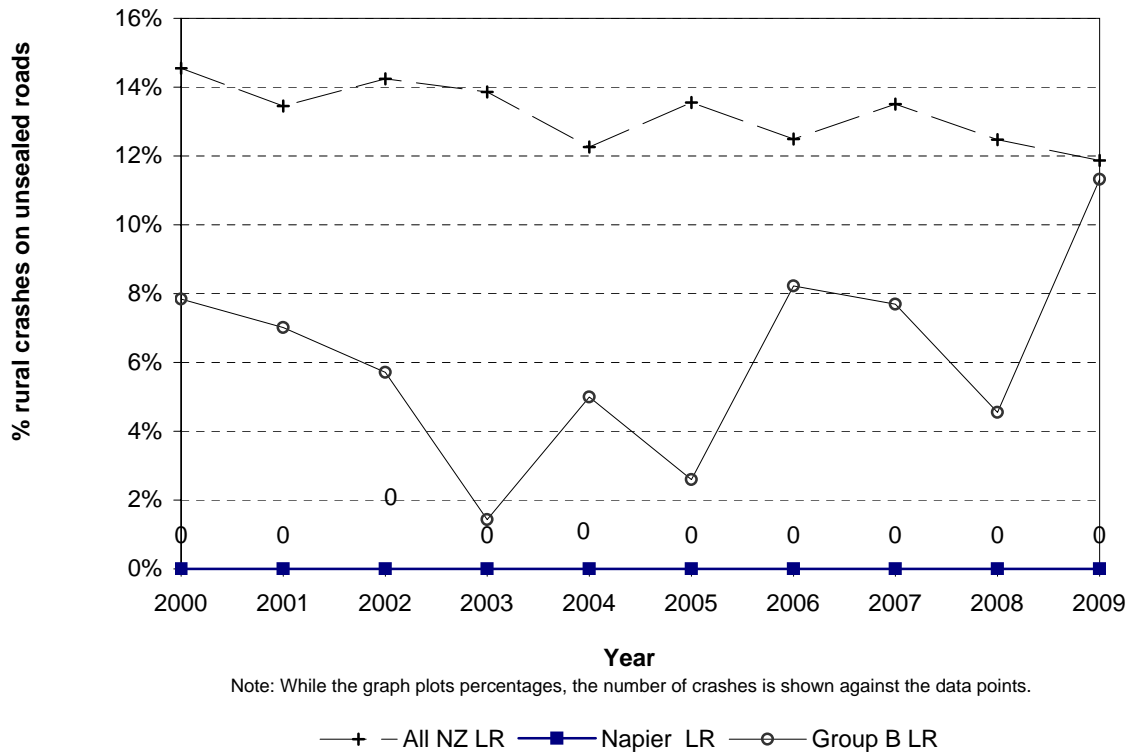
**Figure 8.19 Crashes in darkness
Napier City - urban council roads**



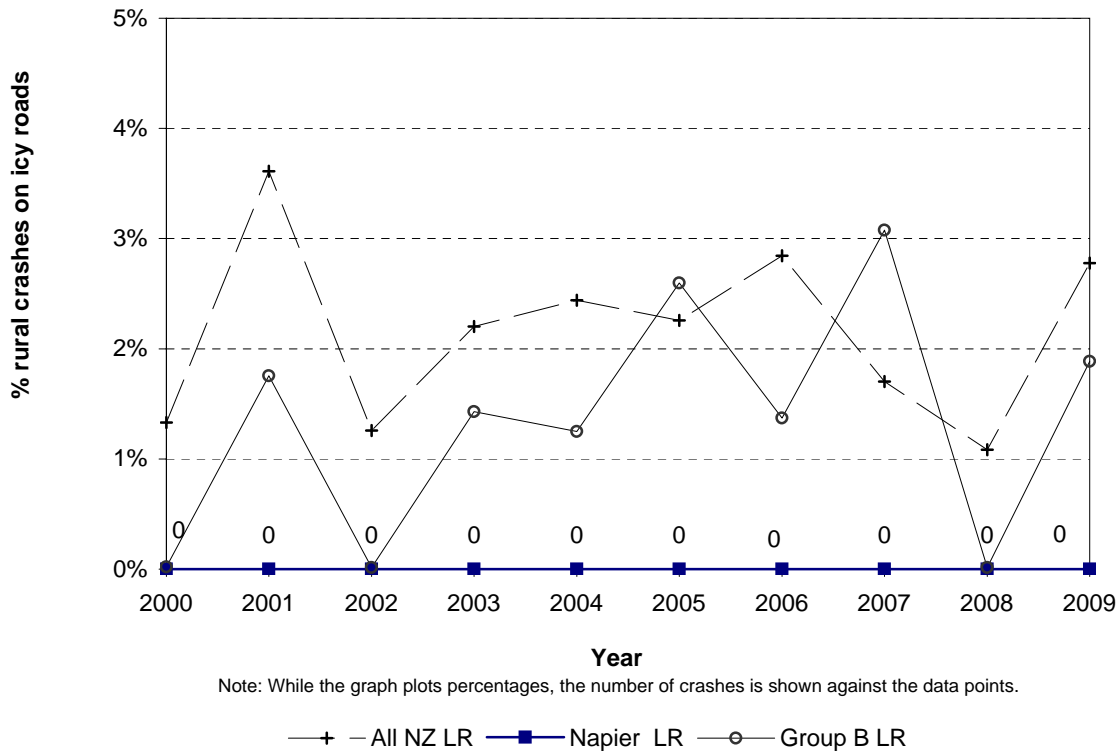
**Figure 8.20 Crashes in darkness
Napier City - rural council roads**



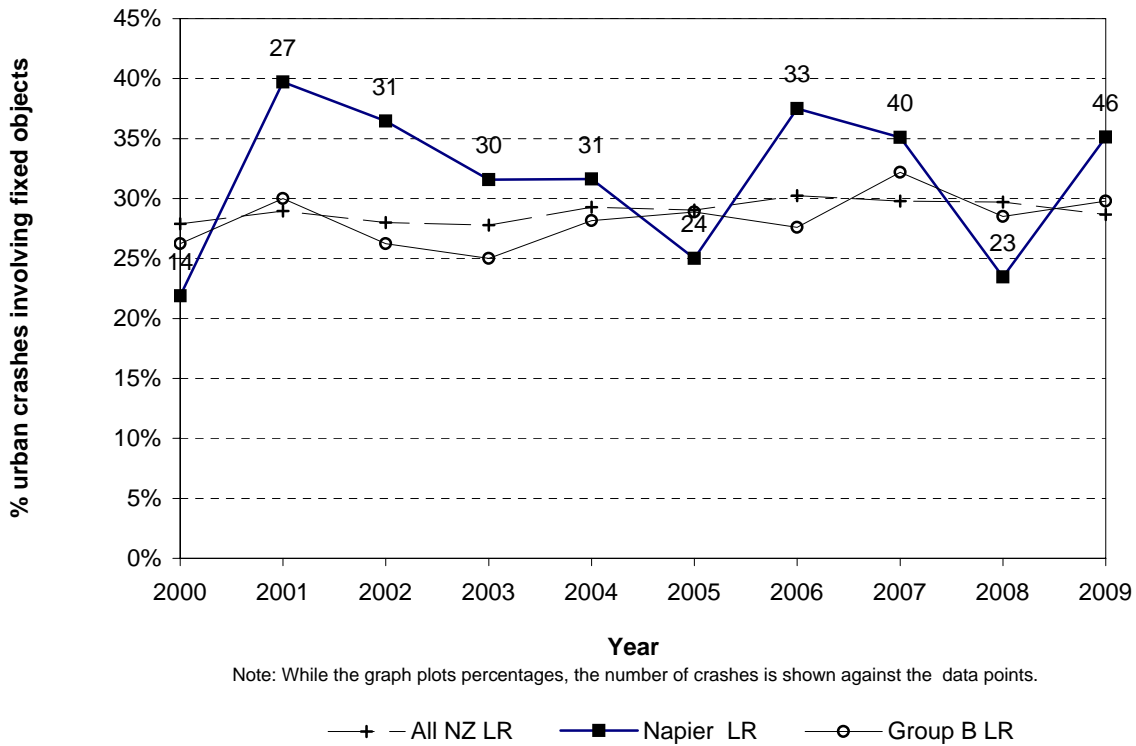
**Figure 8.21 Crashes on unsealed roads
Napier City - rural council roads**



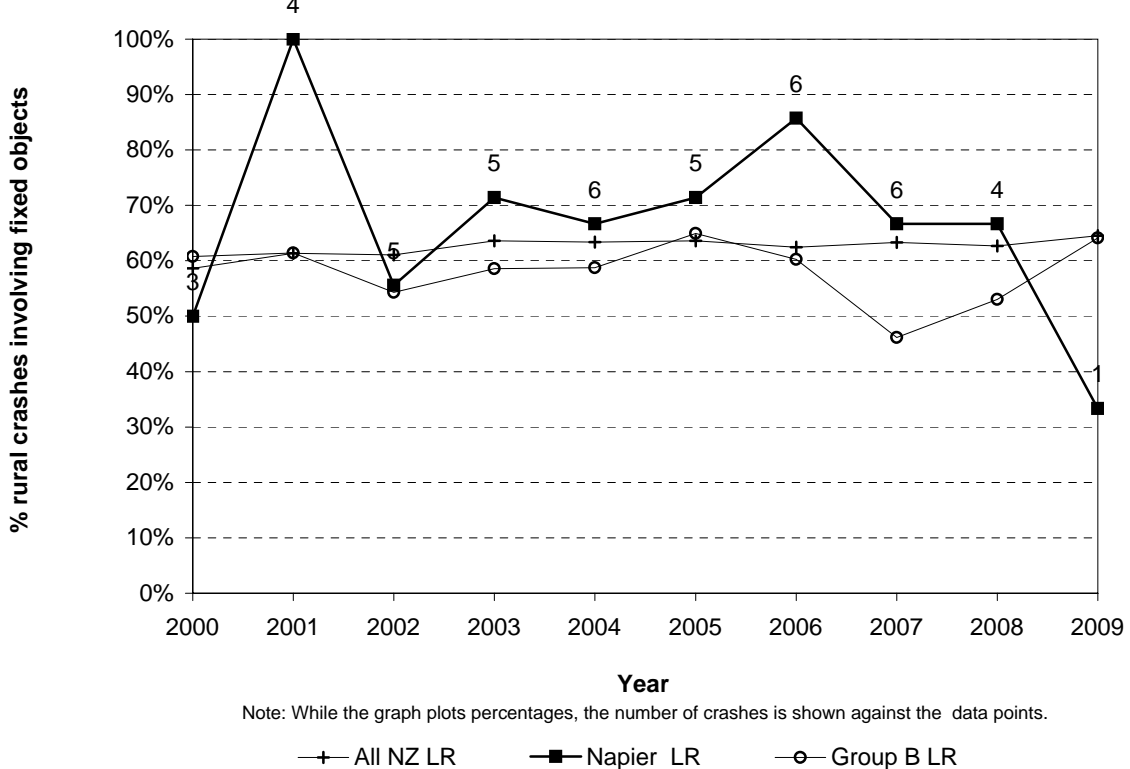
**Figure 8.22 Icy road crashes
Napier City - rural council roads**



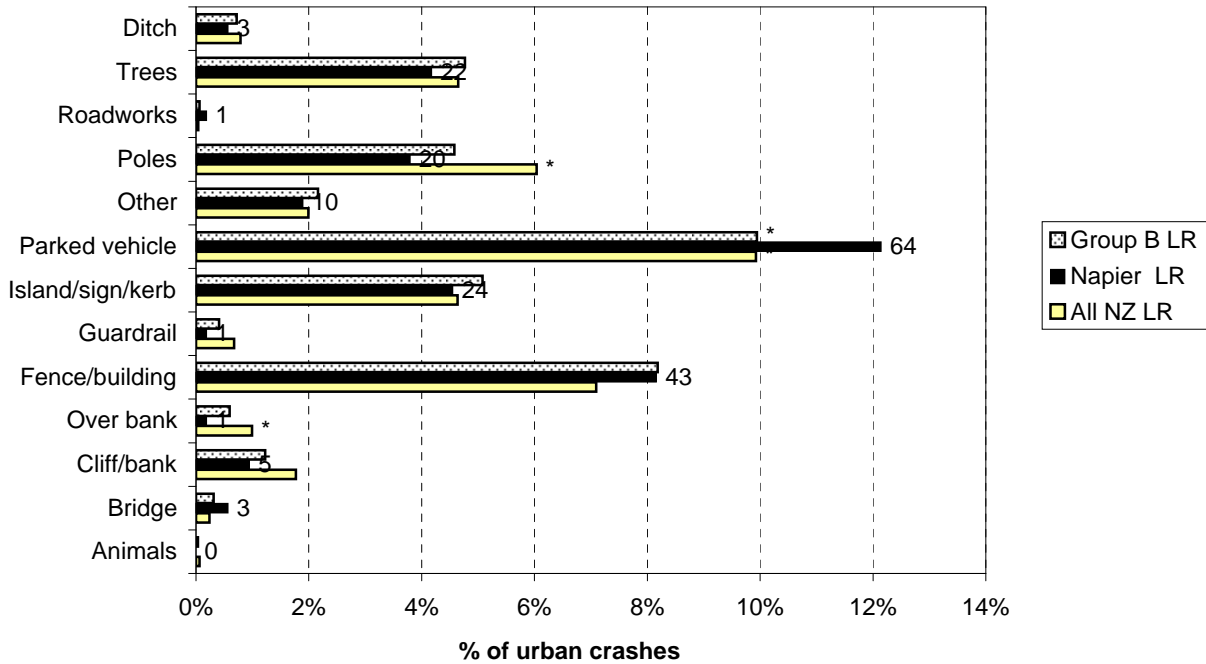
**Figure 8.23 Collisions with objects
Napier City - urban council roads**



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

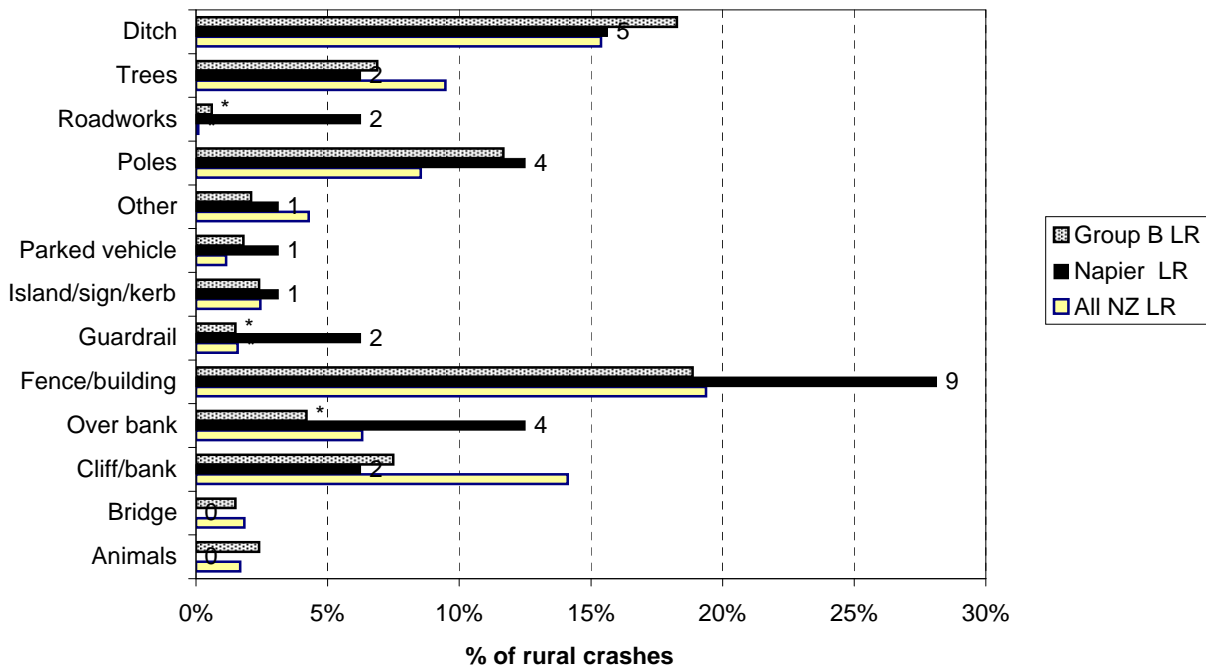


**Figure 8.25 Objects struck - urban
Napier City council roads (2005-2009)**



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
Napier City council roads (2005-2009)**



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 \$250000 in social costs

CRASH ROAD	SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
KENNEDY ROAD	I DOUGLAS MCLEAN AVENU	6	2	5	4	3	20	16	25	25	\$1,533,929
LEE ROAD	I GLOUCESTER ST	3	2	4	3	4	16	10		6	\$1,522,430
WESTMINSTER AVENUE	I WHARERANGI ROAD	1	1	4		1	7	3	43	14	\$1,308,630
WYCLIFFE ST	I RIVERBEND ROAD	2	5	1	1	1	10	6		30	\$1,277,566
ODOWD ROAD	I GLOUCESTER ST	1	1		1	5	8	5	38	25	\$1,275,526
PREBENSEN DRIVE	I SEVERN ST		4	4	3	4	15	9	20	20	\$1,202,520
YORK AVENUE	I GLOUCESTER ST	2	1	5	3	6	17	10	29	29	\$1,142,317
KENNEDY ROAD	I WELLESLEY ROAD	4	6	1	4	6	21	17	19	29	\$1,063,909
DICKENS ST	I TENNYSON ST	4	4	3	1	2	14	8	21	7	\$1,036,268
LATHAM ST	I WELLESLEY ROAD	4	2	5	4	1	16	12	13	25	\$975,907
YORK AVENUE	I AUCKLAND ROAD	2		4	3	3	12	7	17	58	\$950,758
CARLYLE ST	I FARADAY ST	2	1	3	1	4	11	5	27	27	\$941,784
BROWNING ST	I SHAKESPEARE ROAD	3	3	1	7	5	19	16	16	32	\$928,575
KENNEDY ROAD	I MAADI ROAD	4	4	2	1	2	13	9	15	15	\$927,238
KENNEDY ROAD	I JULL ST	2	4	1	1	4	12	8	25	33	\$904,694
KENNEDY ROAD	I RIVERBEND ROAD	5	4	1	1	2	13	10		15	\$877,542
KENNEDY ROAD	I WYCLIFFE ST	4	3	4	4	1	16	14	13	25	\$874,801
KENNEDY ROAD	I MCDONALD ST		2	2	3	2	9	5	44	56	\$849,034
KENNEDY ROAD	I TRINITY CRESCENT	3			5	2	10	7	20	20	\$816,592
DOUGLAS MCLEAN AVENU I	HERRICK ST	2		4	2	1	9	6	22		\$799,208
SALE ST	I MUNROE ST		2	3	2	2	9	6	33		\$794,982
MILTON ROAD	I CAMERON ROAD	3	3	2	2		10	7	20	50	\$772,064
PUKETAPU ROAD	I CHURCH ROAD	1	2			1	4			50	\$766,260
MEEANEE ROAD	I POWDRELL ROAD			1	2	1	4	2	25	50	\$755,033
TENNYSON ST	I MILTON ROAD	2	2	2	2	2	10	9	30	60	\$712,980
KENNEDY ROAD	50 S DOUGLAS MCLEAN AVENU	2	2		1	2	7	5	14	14	\$710,500
THACKERAY ST	I TENNYSON ST	3	5	4	5	8	25	20	8	28	\$698,991
RIVERBEND ROAD	I VENABLES AVENUE	1	2	2	1		6	4		17	\$697,478
MURPHY ROAD	I JEFFARES PLACE		3				3			33	\$697,460
ELLISON ST	I CHAMBERS ST			3	2	1	6	4	50	17	\$697,360
AUSTIN ST	I FORD ROAD			1	1	3	5	3	60	20	\$679,970
SHAKESPEARE ROAD	50 W BREWSTER ST			1	2	1	4	2	50	100	\$662,580
AUSTIN ST	I LIPTON PLACE		2		2		4	2	25	50	\$661,720
DICKENS ST	I CLIVE SQUARE EAST	1		1		1	3	1			\$650,350
CONSTABLE CRESCENT	10 N CRANBY CRESCENT	2			1		3	1		33	\$650,344
WYCLIFFE ST	I ALEXANDER AVENUE	1		1	2	2	6	5	33	33	\$647,664
MARINE PARADE	70 N BROWNING ST	2			2	1	5	3		40	\$635,244
COVENTRY AVENUE	I LEICESTER AVENUE	1	1		2	1	5	4	20	40	\$630,336
TAIT DRIVE	I CURRIE ST	1			1	2	4	3	50	25	\$612,884
RANFURLY ST	10 W LYTTTELTON CRESCENT		2		2		4	3	50	75	\$608,652
WESTMINSTER AVENUE	I COVENTRY AVENUE	1	1		1	1	4	3	25	75	\$608,584
GUPPY ROAD	30 S BURNESSE ROAD		2			1	3	2	33	33	\$595,624
TRINITY CRESCENT	I DOWNING AVENUE		1	2			3	2	100	33	\$595,562
SYMONS LANE	300 N PUKETAPU ROAD	1		1		1	3	2	33		\$595,494
GLOUCESTER ST	140 S WHITE ST		1		2		3	2		33	\$591,200
ALBION ST	I HASTINGS ST	2	1			2	5	4	20	20	\$585,616
MEEANEE ROAD	I GUPPY ROAD	2	5	1	3	5	16	10	19	25	\$581,844
PREBENSEN DRIVE	I AUSTIN ST	1	2	3	2	3	11	5	36	27	\$563,744
KENNEDY ROAD	I OWEN ST	3	5	2	4	2	16	11	13	19	\$535,526
DALTON ST	I DICKENS ST	6	2	4	1	2	15	11	13	13	\$464,864

**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 \$250000 in social costs

CRASH ROAD		SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
TARADALE ROAD	I	COVENTRY AVENUE	5	3	3	2	1	14	10	7	21	\$447,542
THACKERAY ST	I	JULL ST	1	1	1	3	3	9	4	11	22	\$410,182
TENNYSON ST	I	CARLYLE ST	1	5	3	2	3	14	11	14	29	\$396,212
LEE ROAD	I	MEEANEE ROAD	2	4	2	3	1	12	9	17	42	\$361,364
KENNEDY ROAD	I	BILL HERCOCK ST	2		4	5		11	8	36	36	\$340,348
SHAKESPEARE ROAD	I	COOTE ROAD	2	2	2	3	1	10	7	20	50	\$328,248
RIVERBEND ROAD	I	LATHAM ST	3		2	1	4	10	7	10	30	\$328,118
TENNYSON ST	I	HASTINGS ST	2	2	4	5		13	11	8	62	\$325,562
KENNEDY ROAD	I	TARADALE ROAD	3	6	1	1	1	12	10	42	50	\$316,958
CARLYLE ST		100 W FARADAY ST	1	1		3	1	6	2	33	33	\$306,534
GLOUCESTER ST	A	WAIOHIKI ROAD		1	2		3	6	3	67	17	\$288,840
TENNYSON ST	I	DALTON ST	4	2	1	3	3	13	12	15	31	\$279,239
BLEDISLOE ROAD	I	LONGFELLOW AVENUE	2			2	3	7	4	29	29	\$275,954
KENNEDY ROAD	I	SH 50				3	1	4			25	\$268,320
LEE ROAD	I	GLOUCESTER ST S	4		1	4		9	7		11	\$266,198
GLOUCESTER ST	I	OSIER ROAD	2	1	2		1	6	3			\$263,792
PUKETAPU ROAD	I	SYMONS LANE	1		1		2	4	1	25	25	\$223,790
YORK AVENUE	I	WHARERANGI ROAD	1		1		1	3				\$206,400
GLOUCESTER ST	I	HOWARD ROAD				2	1	3				\$201,240

**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 \$250000 in social costs

CRASH ROAD		SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
RIVERBEND ROAD	I	THE LOOP		1	2	1		4	1		75	\$4,998,497
HILL ROAD		500 S SH 5		2	1	1		4	2		50	\$4,315,852
PUKETITIRI ROAD		50 S FRYER ROAD		1	1	3	1	6	3	17	50	\$1,043,149
BROOKFIELDS ROAD		510 S KING ROAD		4		1	1	6	4	17	50	\$997,342
CHURCH ROAD	I	PUKETITIRI ROAD	2		1	2		5	4	20	60	\$907,141
SANDY ROAD		450 N BROOKFIELDS ROAD	1		2			3	2	33	100	\$830,870
AWATOTO ROAD	I	MEEANEE ROAD	1	3	1	2	3	10	9	20	70	\$427,404
WILLOWBANK AVENUE	I	RIVERBEND ROAD	1		2	4	1	8	7	25	25	\$348,255
SANDY ROAD	I	HALES ROAD	2	1	2			5	3			\$296,206
WAVERLEY ROAD	I	ULYATT ROAD	2	1				3			33	\$279,300

**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 \$500000 in social costs

CRASH ROAD		SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non- Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 2	I	SH 5	3	4	1	3	2	13	5	15	15	\$7,598,037
SH 50	I	MEEANEE ROAD	13	11	14	3	2	43	32	23	37	\$6,867,374
SH 50	A	TUTAEKURI BR	4	3	4	1	2	14	11	29	14	\$4,739,930
SH 2		200 N ONEHUNGA ROAD	0	1	1	0	1	3	1	0	0	\$4,633,657
SH 2		1400 S ELLISON ST	1	2	3	1	1	8	4	13	38	\$4,568,523
SH 2	I	WAITANGI ROAD	3	0	3	1	0	7	3	14	29	\$4,551,350
SH 50		1500 N MEEANEE ROAD	2	0	2	2	0	6	5	17	50	\$4,328,818
SH 50		600 S KENNEDY OFF NBD	1	1	1	0	0	3	1	0	33	\$4,271,256
SH 2B		920 N PREBENSEN DRIVE	1	0	0	0	2	3	1	0	0	\$4,267,234
SH 2		2000 S MARINE PARADE	0	0	3	0	1	4	3	0	25	\$4,249,791
SH 2	I	WATCHMAN ROAD	5	6	2	6	6	25	14	4	8	\$3,417,873
SH 2	I	AWATOTO ROAD	1	0	3	2	1	7	3	14	0	\$3,063,011
SH 2	I	HILL ROAD	0	0	1	1	3	5	1	20	20	\$2,388,757
SH 2	I	LATHAM ST	4	6	9	5	9	33	28	27	24	\$1,808,965
SH 50	I	TRINITY CRESCENT	6	3	2	0	5	16	12	31	6	\$1,420,520
SH 2	I	BEACH ACCESS ROAD	0	2	1	1	2	6	2	17	33	\$1,077,034
SH 2	A	WAITANGI BR	1	1	1	4	0	7	5	14	43	\$1,031,220
SH 2	I	WEST QUAY	2	1	3	3	5	14	8	7	7	\$1,030,928
SH 2	I	KENNEDY ROAD	3	7	2	3	3	18	14	0	33	\$1,014,380
SH 50		600 S MEEANEE ROAD	0	1	1	5	1	8	7	50	13	\$1,013,777
SH 2		1200 S AWATOTO ROAD	1	1	1	1	0	4	1	0	75	\$949,934
SH 50		800 N MEEANEE ROAD	1	1	1	1	2	6	5	33	50	\$920,561
SH 2		640 N FRANKLIN ROAD	0	0	0	2	1	3	1	0	0	\$879,557
SH 50	I	SH 2	10	7	9	10	2	38	34	16	18	\$863,333
SH 2		2200 N WATCHMAN ROAD	2	0	0	2	0	4	2	25	25	\$853,410
SH 2B	I	TAMATEA DRIVE	1	2	0	0	1	4	1	0	25	\$843,114
SH 50	I	SH 2	3	2	3	4	1	13	11	31	23	\$819,196
KENNEDY ROAD	I	KENNEDY OFF NBD	4	4	5	1	2	16	7	31	6	\$742,762
SH 50		1000 S MEEANEE ROAD	4	1	1	4	2	12	8	17	42	\$661,904
SH 2		15 E ANDREW ST	0	1	0	0	2	3	1	33	67	\$648,630
SH 2	A	HAWKES BAY AIRPORT	2	1	1	1	4	9	6	56	33	\$494,677
SH 2		590 S AWATOTO ROAD	2	2	0	1	1	6	1	17	17	\$494,336
SH 2B	I	PREBENSEN DRIVE	1	1	2	2	1	7	4	43	43	\$379,619
SH 2	I	MCGRATH ST	2	4	2	1	3	12	9	42	50	\$378,018
SH 2		100 S MARINE PARADE	1	2	1	1	0	5	2	20	40	\$333,730

**Table 9.4 : Urban Council Road Crash Sites
with a Significant Increase in Crashes in 2009
(Injury and Non-Injury Crashes)**

**Site Radius =
30 metres**

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
TENNYSON ST	I	THACKERAY ST	1	3	5	4	5	8	26	21	8	27
YORK AVENUE	I	GLOUCESTER ST	1	2	1	5	3	6	18	11	28	33
RIVERBEND ROAD	I	LATHAM ST	1	3	0	2	1	4	11	8	18	36
HASTINGS ST	I	SALE ST	2	3	0	0	1	4	10	8	40	20
ODOWD ROAD	I	GLOUCESTER ST	1	1	1	0	1	5	9	6	33	22
LATHAM ST	I	VIGOR BROWN ST	2	2	0	0	0	3	7	5	57	0
GLOUCESTER ST	A	WAIOHKI ROAD	0	0	1	2	0	3	6	3	67	17
KENNEDY ROAD		100 W DOUGLAS MCLEAN AVENUE	0	2	0	0	1	3	6	6	0	17
AUSTIN ST	I	FORD ROAD	1	0	0	1	1	3	6	3	50	17
BEDFORD ROAD	I	LATHAM ST	0	0	0	2	1	3	6	4	17	50
GLOUCESTER ST	I	WORCESTER ST	0	0	0	0	1	2	3	2	33	33
MARINE PARADE		30 S TENNYSON ST	0	0	0	0	1	2	3	2	0	33
RUSSELL ROAD	I	KENNEDY ROAD	0	0	0	1	0	2	3	2	0	0
TENNYSON ST		50 E DALTON ST	0	0	0	0	1	2	3	2	33	0
MARINE PARADE		20 S FAULKNER LANE	1	0	0	0	0	2	3	3	33	0
NASH ST	I	NUFFIELD AVENUE	1	0	0	0	0	2	3	3	0	33

Table 9.4a : Rural Council Road Crash Sites

Site Radius =

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
There are no rural alarm sites												

**Table 9.5 : State Highway Crash Sites
with a Significant Increase in Crashes in 2009
(Injury and Non-Injury Crashes)**

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

CRASH ROAD		SIDE ROAD	2004	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
SH 50	I	SH 2B	0	1	1	2	2	6	12	11	17	33
SH 2B	I	TAMATEA DRIVE	1	1	1	3	1	4	11	9	0	9
SH 2	A	HAWKES BAY AIRPORT	0	2	1	1	1	4	9	6	56	33
SH 2	I	HILL ROAD	0	0	0	1	1	3	5	1	20	20
SH 2		15 E ANDREW ST	0	0	1	0	0	2	3	1	33	67
SH 2		40 W STOPFORD ST	0	0	0	1	0	2	3	3	0	0
SH 2B		920 N PREBENSEN DRIVE	0	1	0	0	0	2	3	1	0	0

appendix



- Groupings of crash types
- Grouping of contributing factors
- General factor list
- General movement types

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
Straight - Lost control / Head on	GE	GB	BA	CA	CB	CC	BE
	 OVERTAKING VEHICLE	 LEFT SIDE SIDE SWIPE	 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
Crossing / Turning	FC	FD	FE	FF	GA	GD	GF
	 PEDESTRIAN	 QUEUE	 SIGNALS	 OTHER	 REAR OF LEFT TURNING VEHICLE	 NEAR CENTRE LINE	 TWO TURNING
Pedestrian vs Vehicle	MA	MB	MC	MD	ME	MF	MG
	 PARKING OR LEAVING	 'U' TURN	 'U' TURN	 DRIVEWAY MANOEUVRE	 PARKING OPPOSITE	 ENTERING OR LEAVING	 REVERSING ALONG ROAD
Miscellaneous	GC	HA	JA	JC	KA	KB	KC
	 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
Pedestrian vs Vehicle	LA	LB	NA	NB	NC	ND	NE
	 STOPPED WAITING TO TURN	 MAKING TURN	 LEFT SIDE	 RIGHT SIDE	 LEFT TURN LEFT SIDE	 RIGHT TURN RIGHT SIDE	 LEFT TURN RIGHT SIDE
Miscellaneous	NF	NG	PA	PB	PC	PD	PE
	 RIGHT TURN LEFT SIDE	 MANOEUVRING VEHICLE	 WALKING WITH TRAFFIC	 WALKING FACING TRAFFIC	 WALKING ON FOOTPATH	 CHILD PLAYING (TRICYCLE)	 ATTENDING TO VEHICLE
Miscellaneous	PF	QA	QB	QC	QD	QE	QF
	 ENTERING OR LEAVING VEHICLE	 FELL WHILE BOARDING OR ALIGHTING	 FELL FROM MOVING VEHICLE	 TRAIN	 PARKED VEHICLE RAN AWAY	 EQUESTRIAN	 FELL INSIDE VEHICLE
Miscellaneous	QG						
	 TRAILER OR LOAD						

Groupings of contributing factors

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

VEHICLE MOVEMENT CODING SHEET

For use with crash data from CAS (Version 2.8 May 2010)

	TYPE	A	B	C	D	E	F	G	O
A	OVERTAKING AND LANE CHANGE	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	OTHER
B	HEAD ON	ON STRAIGHT	CUTTING CORNER	SWINGING WIDE	BOTH OR UNKNOWN	LOST CONTROL ON STRAIGHT	LOST CONTROL ON CURVE		OTHER
C	LOST CONTROL OR OFF ROAD (STRAIGHT ROADS)	OUT OF CONTROL ON ROADWAY	OFF ROADWAY TO LEFT	OFF ROADWAY TO RIGHT					OTHER
D	CORNERING	LOST CONTROL TURNING RIGHT	LOST CONTROL TURNING LEFT	MISSED INTERSECTION OR END OF ROAD					OTHER
E	COLLISION WITH OBSTRUCTION	PARKED VEHICLE	CRASH OR BROKEN DOWN	NON VEHICULAR OBSTRUCTIONS (INCLUDING ANIMALS)	WORKMANS VEHICLE	OPENING DOOR			OTHER
F	REAR END	SLOWER VEHICLE	CROSS TRAFFIC	PEDESTRIAN	QUEUE	SIGNALS	OTHER		OTHER
G	TURNING VERSUS SAME DIRECTION	REAR OF LEFT TURNING VEHICLE	LEFT TURN SIDE SIDE SWIPE	STOPPED OR TURNING FROM LEFT SIDE	NEAR CENTRE LINE	OVERTAKING VEHICLE	TWO TURNING		OTHER
H	CROSSING (NO TURNS)	RIGHT ANGLE (70° TO 110°)							OTHER
J	CROSSING (VEHICLE TURNING)	RIGHT TURN RIGHT SIDE	OPPOSING RIGHT TURNS	TWO TURNING					OTHER
K	MERGING	LEFT TURN IN	RIGHT TURN IN	TWO TURNING					OTHER
L	RIGHT TURN AGAINST	STOPPED WAITING TO TURN	MAKING TURN						OTHER
M	MANOEUVRING	PARKING OR LEAVING	"U" TURN	"U" TURN	DRIVEWAY MANOEUVRE	ENTERING OR LEAVING FROM OPPOSITE SIDE	ENTERING OR LEAVING FROM SAME SIDE	REVERSING ALONG ROAD	OTHER
N	PEDESTRIANS CROSSING ROAD	LEFT SIDE	RIGHT SIDE	LEFT TURN LEFT SIDE	RIGHT TURN RIGHT SIDE	LEFT TURN RIGHT SIDE	RIGHT TURN LEFT SIDE	MANOEUVRING VEHICLE	OTHER
P	PEDESTRIANS OTHER	WALKING WITH TRAFFIC	WALKING FACING TRAFFIC	WALKING ON FOOTPATH	CHILD PLAYING (INCLUDING TRICYCLE)	ATTENDING TO VEHICLE	ENTERING OR LEAVING VEHICLE		OTHER
Q	MISCELLANEOUS	FELL WHILE BOARDING OR ALIGHTING	FELL FROM MOVING VEHICLE	TRAIN	PARKED VEHICLE RAN AWAY	EQUESTRIAN	FELL INSIDE VEHICLE	TRAILER OR LOAD	OTHER

* = Movement applies for left and right hand bends, curves or turns

FACTORS PROBABLY CONTRIBUTING TO CRASHES (Version 1.8- 2 November 2009)

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 Intoxicated non-driver (pedestrian / cyclist / passenger)
- 106 (MOT only) dead driver not suspect, tested neg
- 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
- 179 Long vehicle tracked outside lane

180 In line of traffic

- 181 Following too closely
- 182 Travelling unreasonably slowly
- 183 Motorist crowded cyclist
- 184 Incorrect merging /diverging manoeuvre

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
- 199 Avoiding approaching emergency vehicle

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
- 210 Cyclist riding on ped-xing / ped signals

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 Vehicle slowing, stopping or stationary 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 /road rage
- 358 Cigarette, radio, heater, AC, glove box, obj under drivers feet/pedals etc
- 359 Cell phone
- 360
- 361 Navigation device
- 362 CB radio/ non cell comms device
- 363 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 unfamiliar vehicle
- 404 Overseas / migrant driver fails to adjust to NZ road rules and road 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 or caught under pedal
- 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 / drifting
- 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 blow-out
- 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 to /from school bus
- 730 Pedestrian behind reversing / manoeuvring vehicle
- 731 Overseas pedestrian
- 732 Pedestrian attention diverted eg cigarette, cell phone, music player

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