Papakura District
Road Safety Report
2005 to 2009

Performance Information
NZ Transport Agency
Private Bag 106602
Level 11 HSBC House 1 Queen St
AUCKLAND 1143

Ph. (09) 969 9800
Fax. (09) 969 9813

Web: www.nzta.govt.nz

NZ TRANSPORT AGENCY
WAKA KOTAHI

June 2010

Contents

Appendices

List of figures

List of figures continued

List of figures continued

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 Papakura District area ('the district') 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 Papakura District. 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 Papakura District 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
Papakura District	34	27	#DIV/0!	11
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
Papakura District	46	35	#DIV/0!	17
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	Crashes per 10,000 Population (5 year average)	Crashes per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	Casualties per 10,000 Population (5 year average)	Casualties per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	2009 Population	% of rural crashes
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

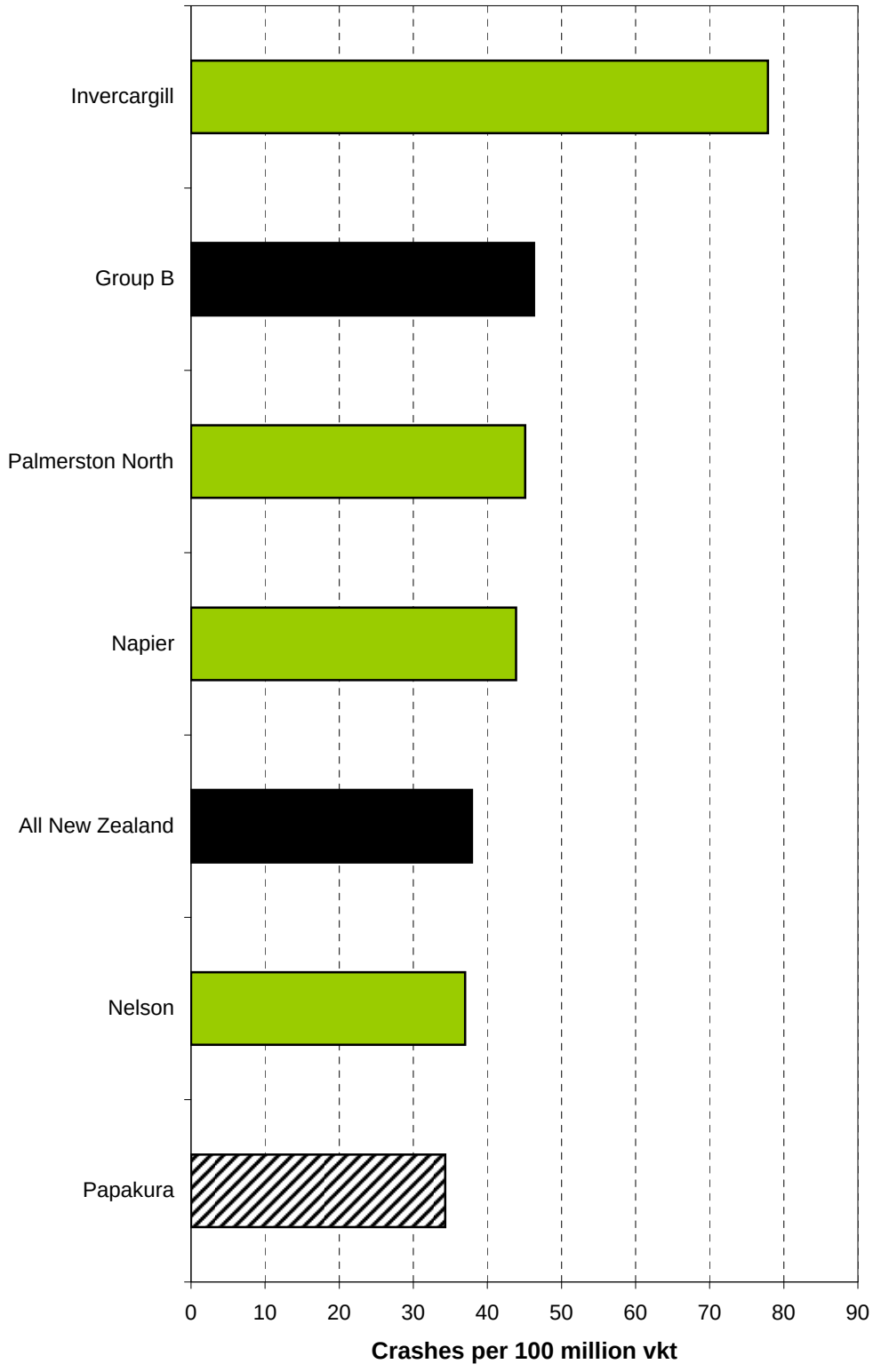


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural council roads

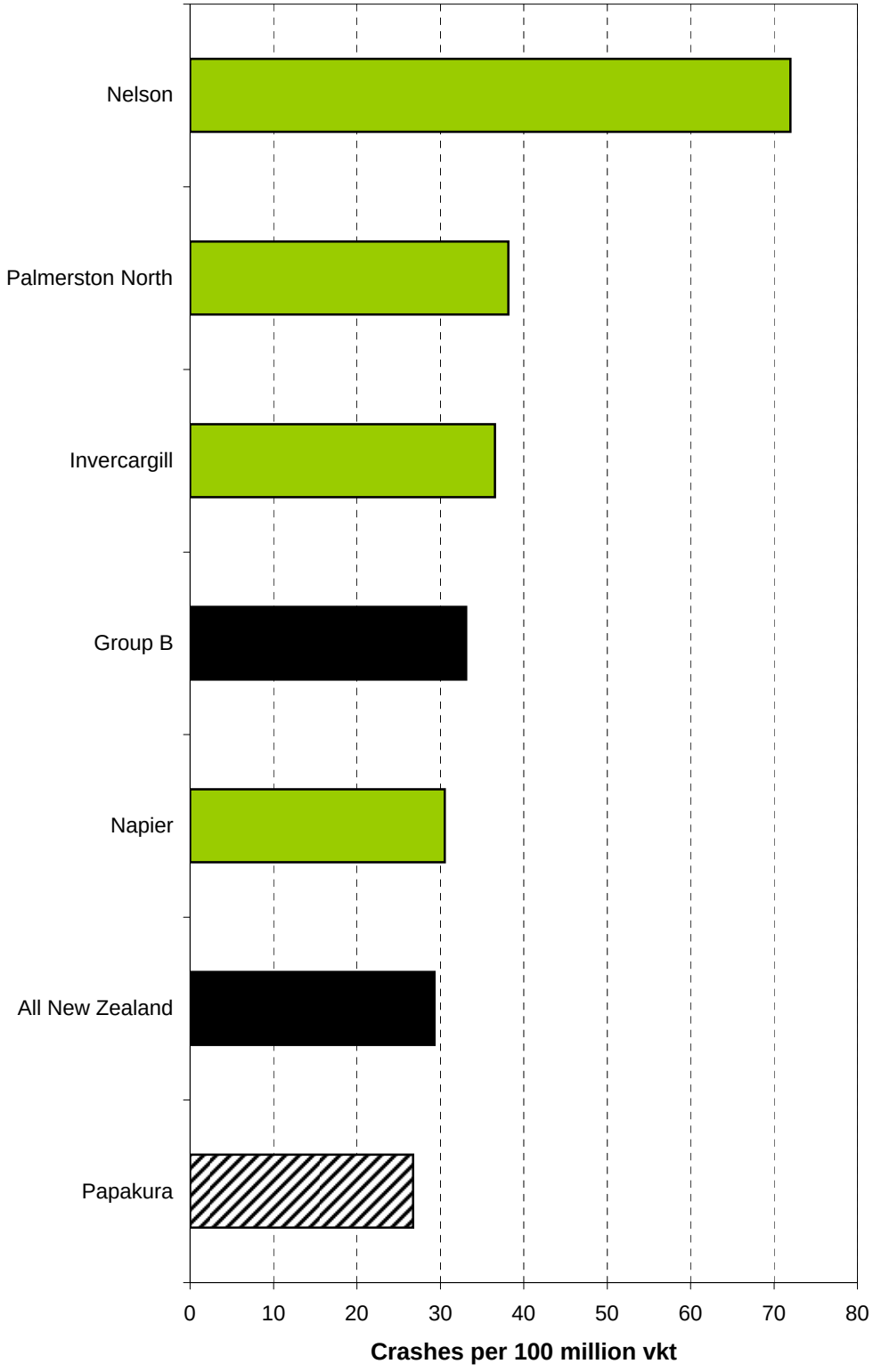


Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways

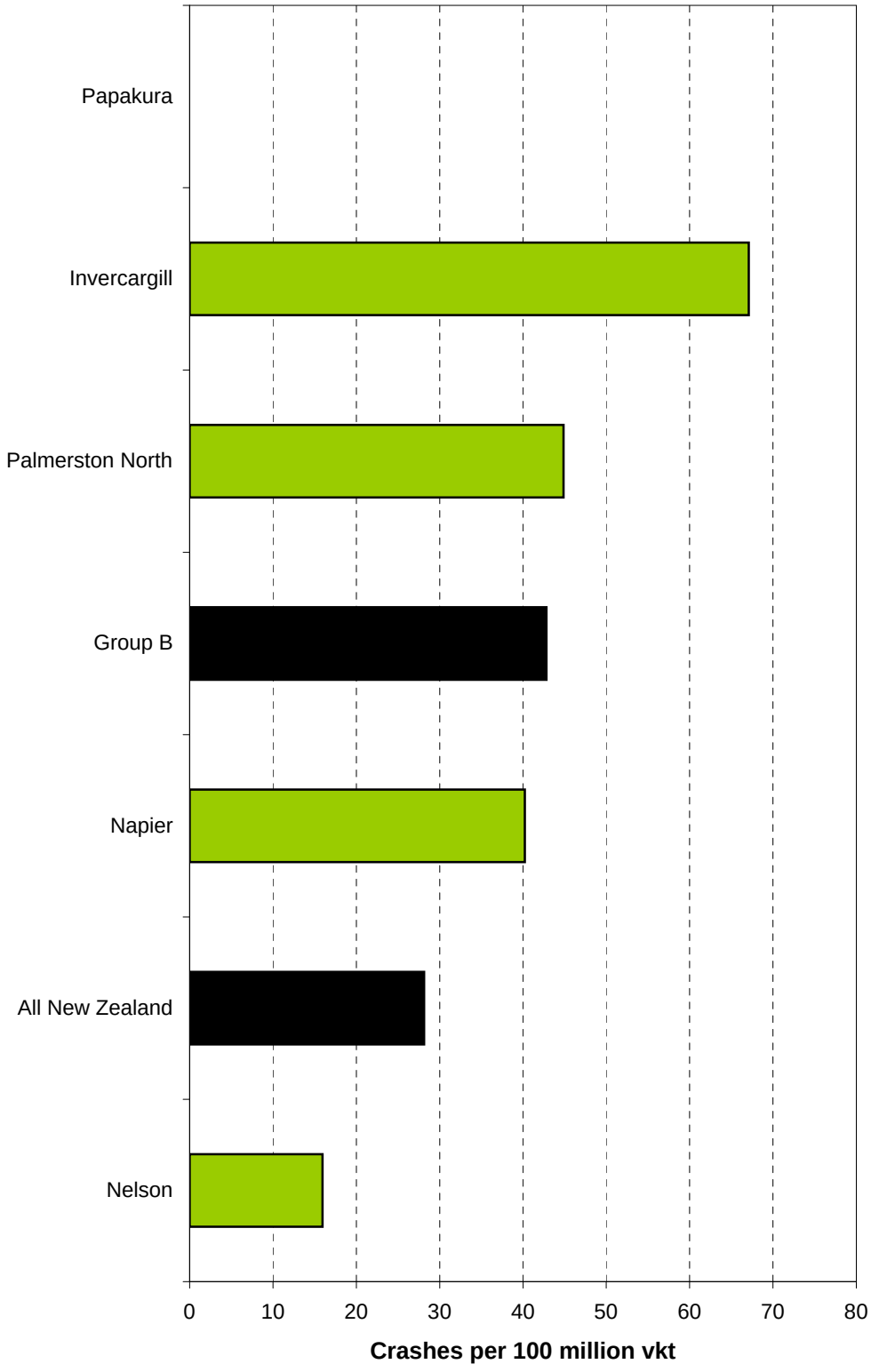


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways

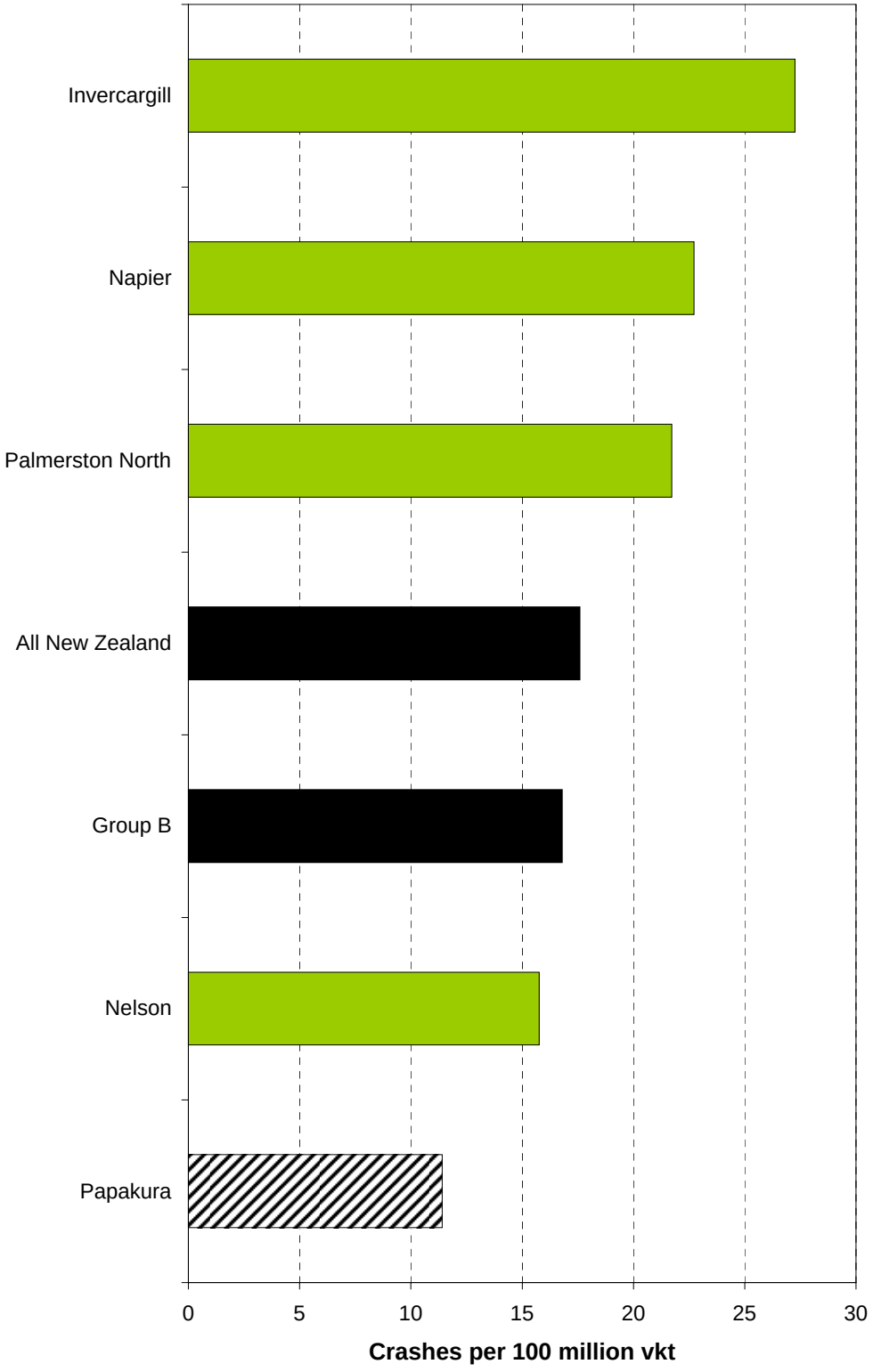


Figure 1.9 Crashes per 10,000 people
Papakura District

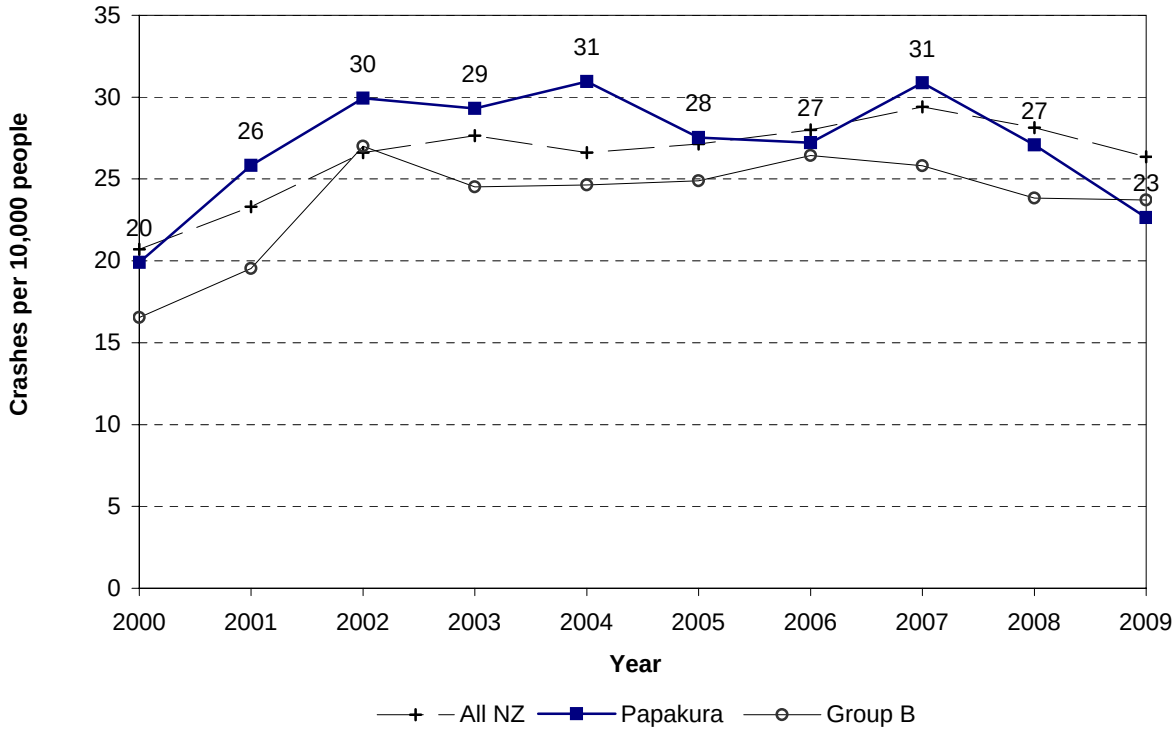


Figure 1.10 Casualties per 10,000 people
Papakura District

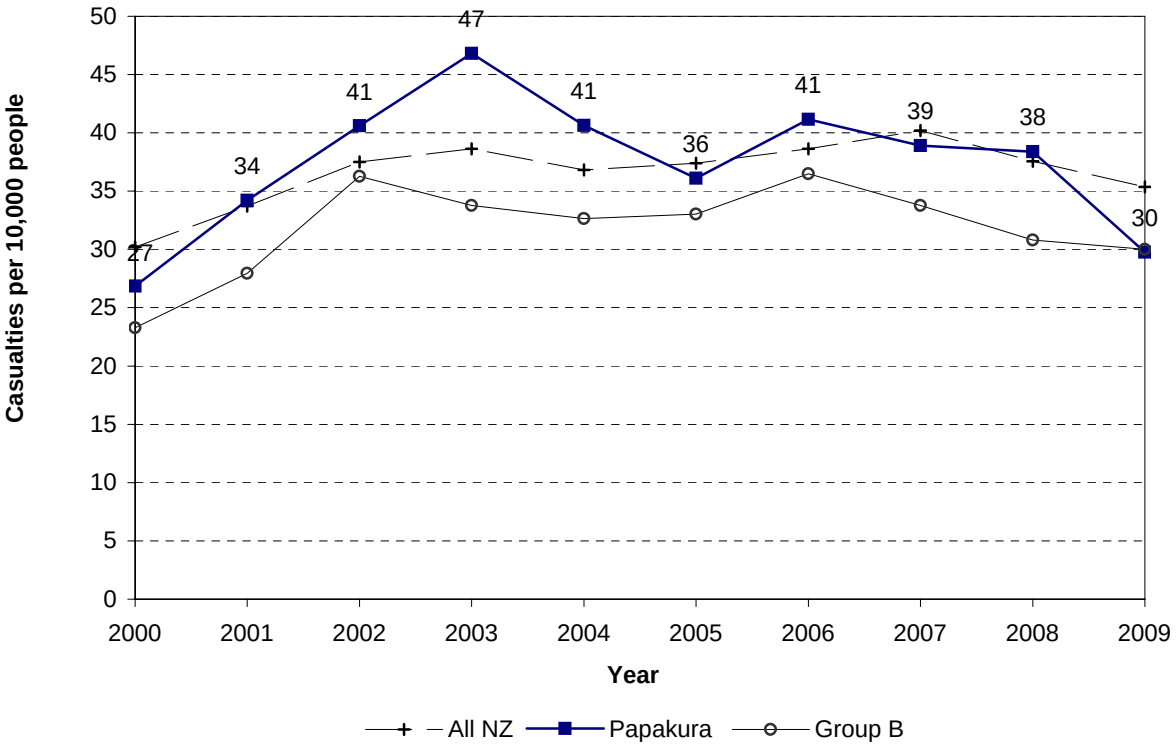


Figure 1.11 Social cost of crashes in Papakura District in 2009

		Papakura District	New Zealand
Council roads	urban rural	$15.41 $3.66	$1,607.40 $909.43
State Highways	urban rural	$0.28 $12.74	$299.76 $1,487.35
Total		**$32.10**	**$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 District

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	4	7	3	2	1	**17**	3%	2%
Serious crashes	13	18	14	19	19	**83**	13%	19%
Minor crashes	105	98	125	106	88	**522**	84%	79%
Total injury crashes	**122**	**123**	**142**	**127**	**108**	**622**	**100%**	**100%**
Non-injury crashes	384	399	403	342	339	1867		

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

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	1	3	1	0	0	5	1%	1%
Serious crashes	8	12	7	14	11	52	14%	18%
Minor crashes	59	64	81	63	52	319	85%	81%
Total injury crashes	**68**	**79**	**89**	**77**	**63**	**376**	**100%**	**100%**
Non-injury crashes	267	300	283	242	241	1333		

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

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal crashes	3	4	2	2	1	12	5%	5%
Serious crashes	5	6	7	5	8	31	13%	22%
Minor crashes	46	34	44	43	36	203	83%	72%
Total injury crashes	**54**	**44**	**53**	**50**	**45**	**246**	**100%**	**100%**
Non-injury crashes	117	99	120	100	98	534		

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

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal casualties	4	8	3	2	1	18	2%	2%
Serious casualties	17	25	16	25	22	105	12%	17%
Minor casualties	139	153	160	153	119	724	85%	82%
Total casualties	**160**	**186**	**179**	**180**	**142**	**847**	**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	4	1	0	0	6	1%	1%
Serious casualties	9	16	8	14	12	59	12%	16%
Minor casualties	72	101	102	92	71	438	87%	83%
Total casualties	**82**	**121**	**111**	**106**	**83**	**503**	**100%**	**100%**

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

	2005	2006	2007	2008	2009	Total	%	Group B
Fatal casualties	3	4	2	2	1	12	3%	4%
Serious casualties	8	9	8	11	10	46	13%	21%
Minor casualties	67	52	58	61	48	286	83%	76%
Total casualties	**78**	**65**	**68**	**74**	**59**	**344**	**100%**	**100%**

Figure 2.7 Number of injury crashes
Papakura District all roads (urban & rural)

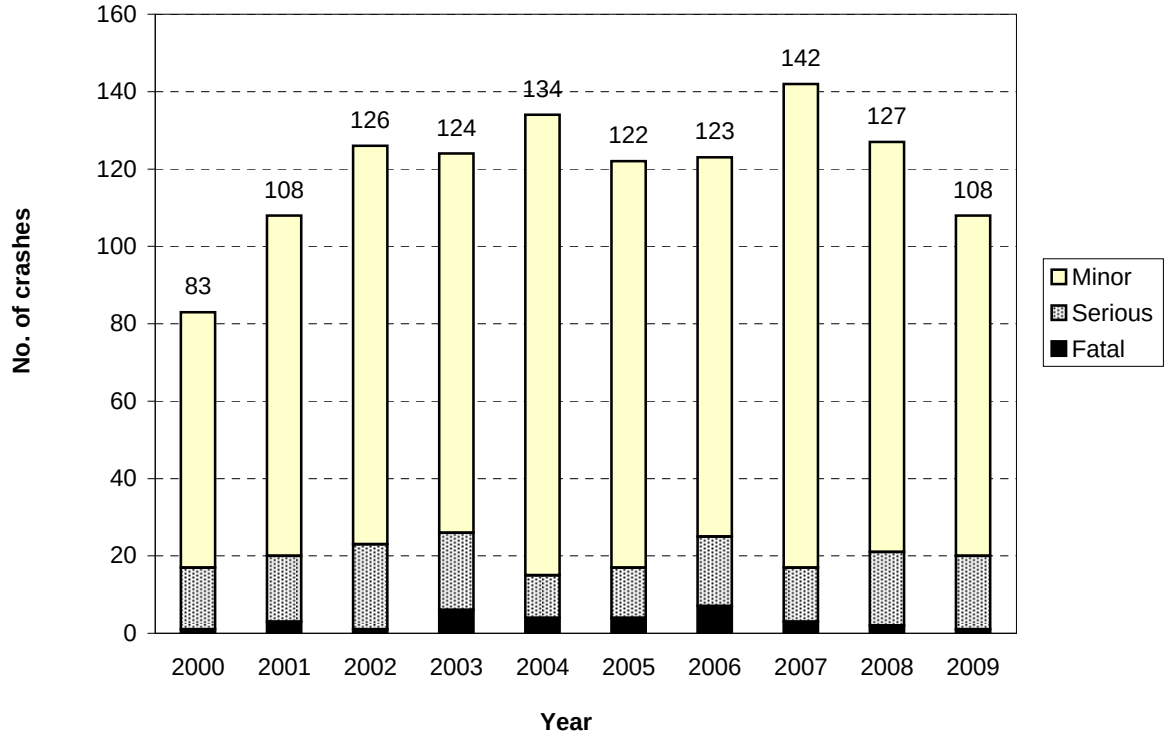


Figure 2.8 Number of casualties
Papakura District all roads (urban & rural)

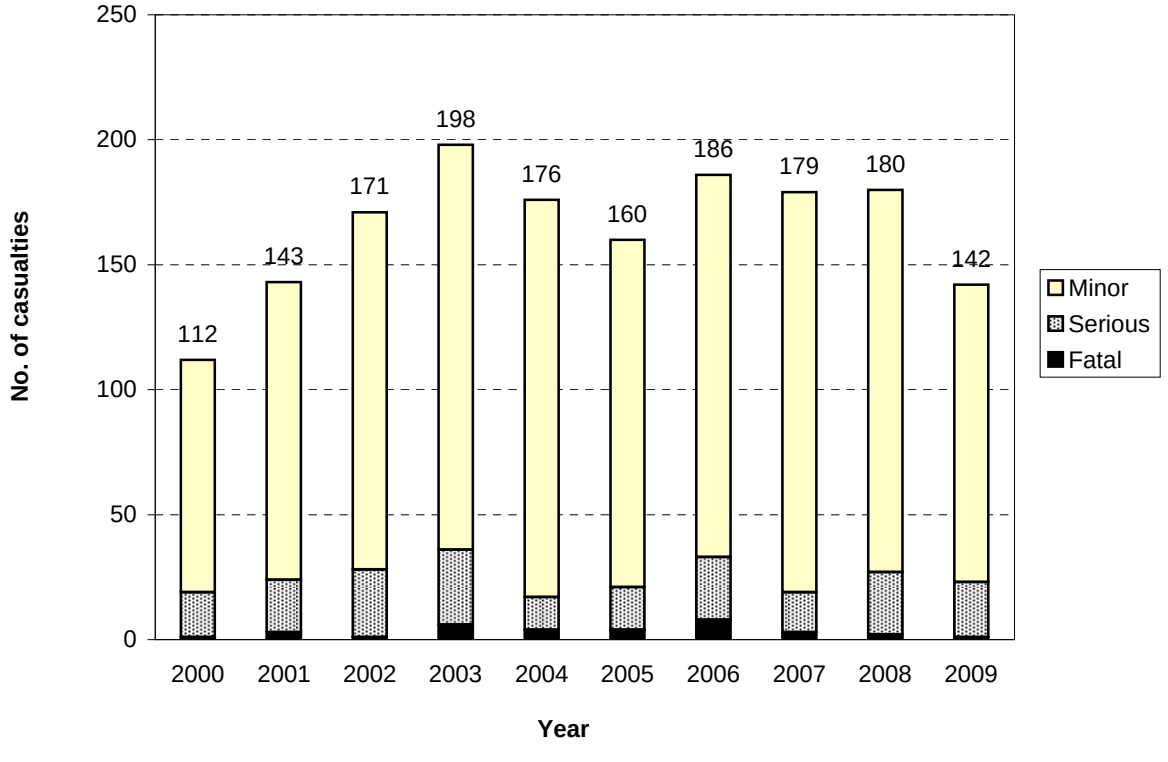


Figure 2.9 Number of injury crashes
Papakura District - urban

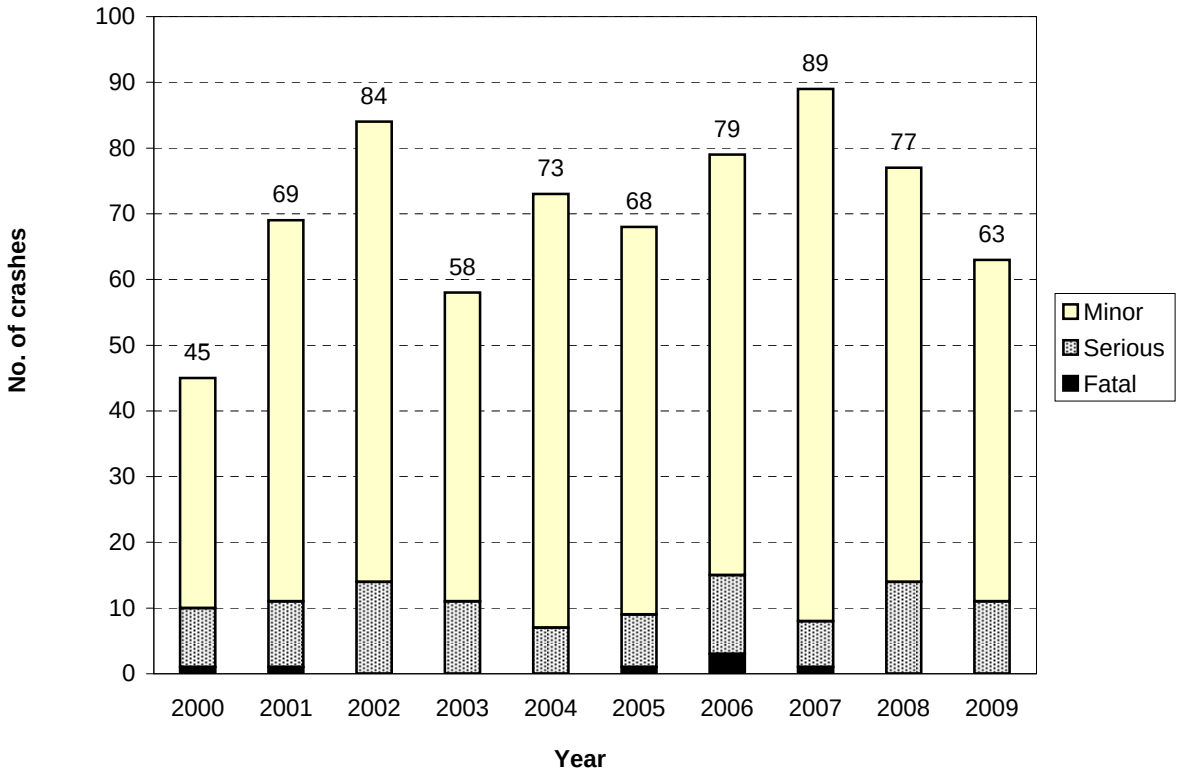


Figure 2.10 Number of casualties
Papakura District - urban

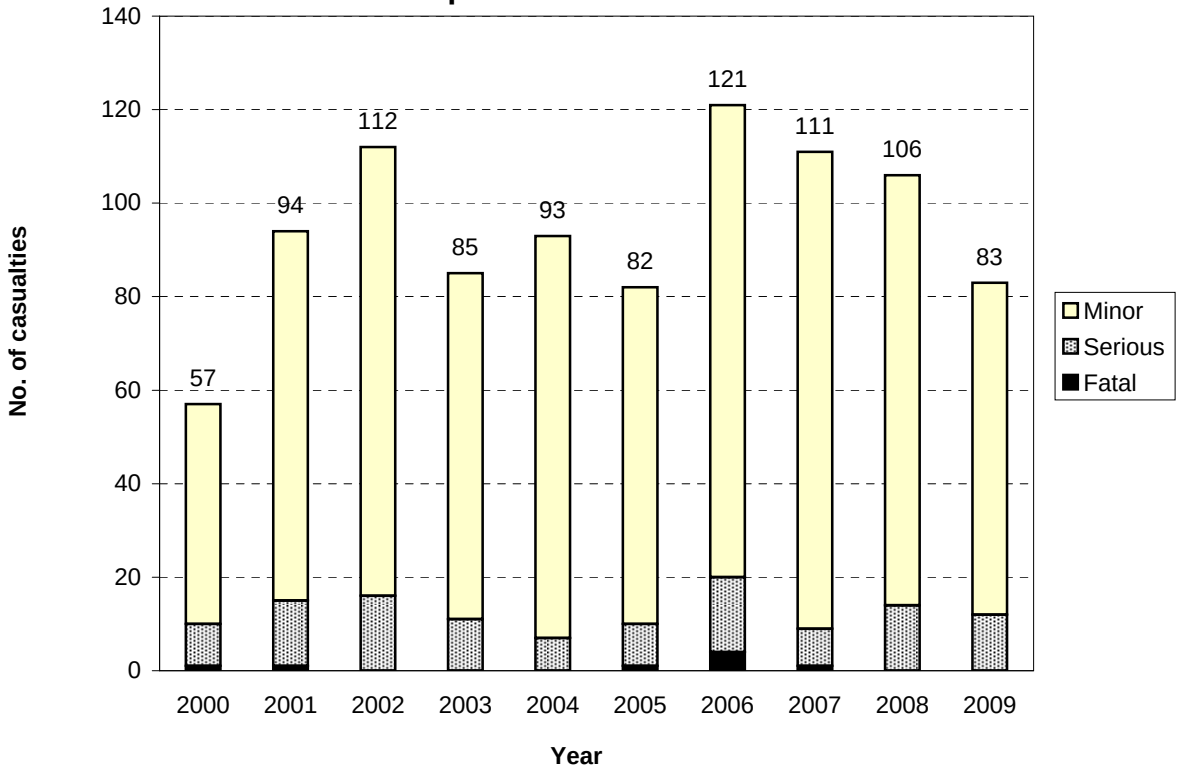


Figure 2.11 Number of injury crashes
Papakura District - rural

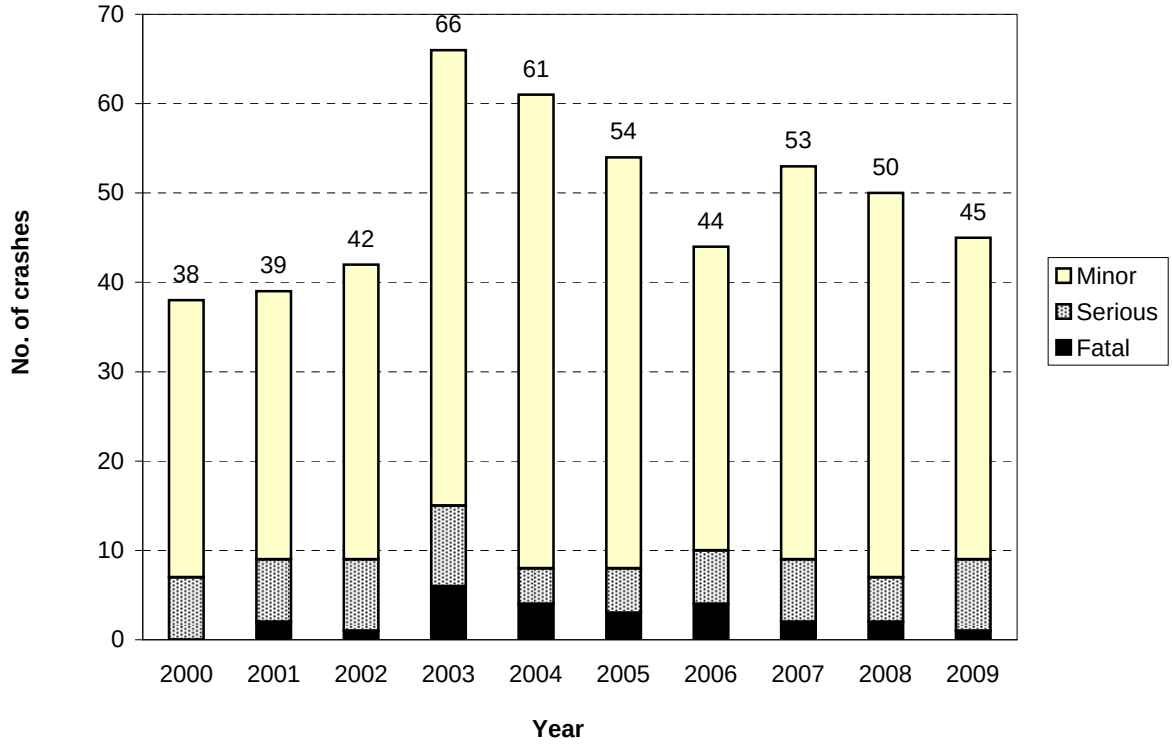


Figure 2.12 Number of casualties
Papakura District - rural

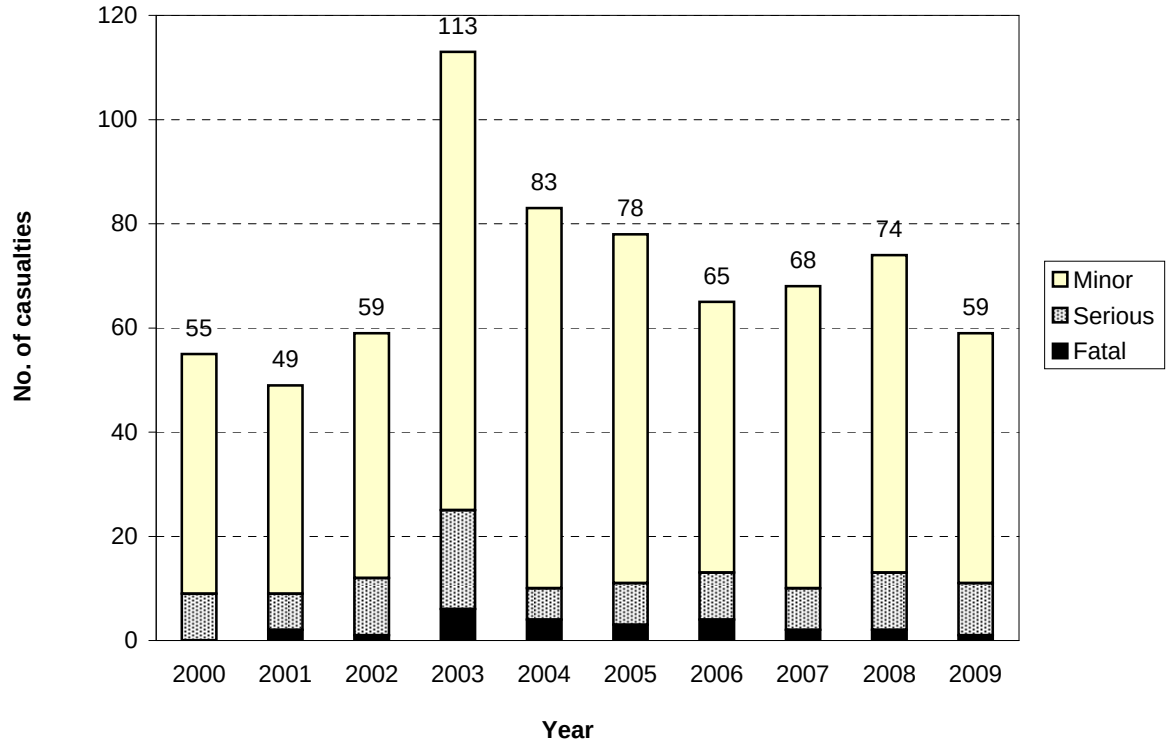
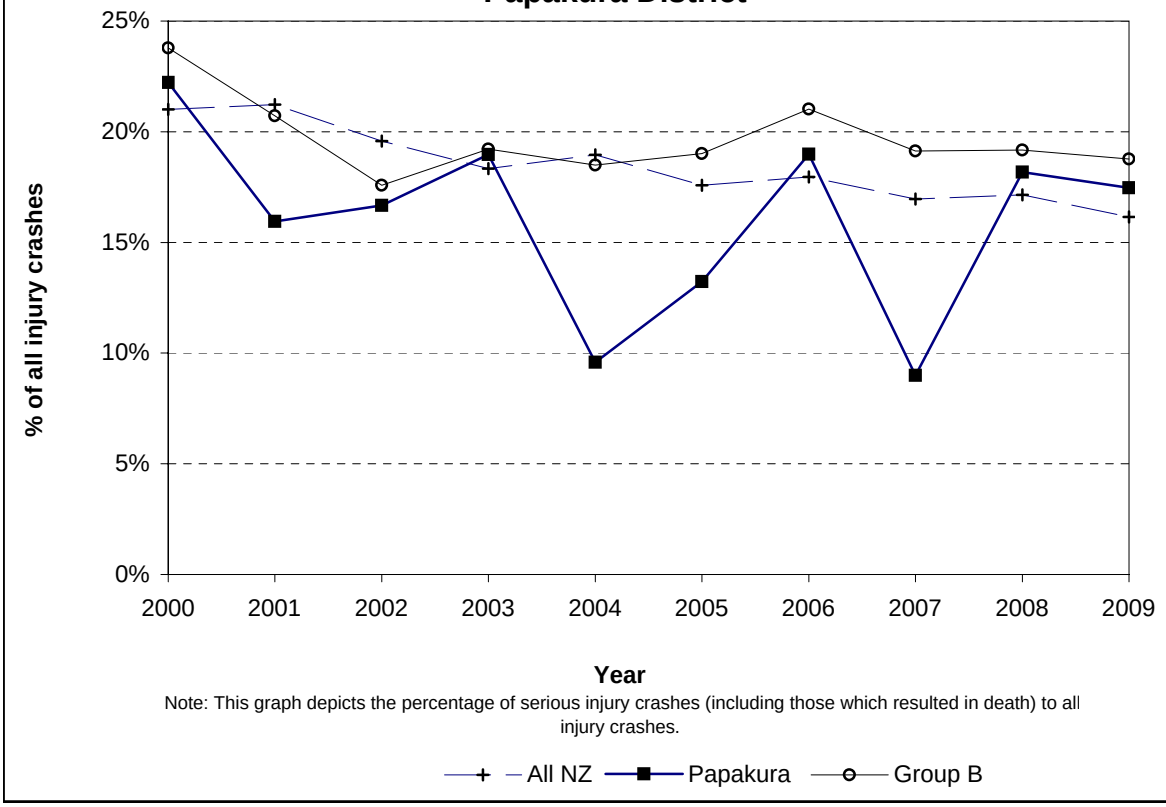
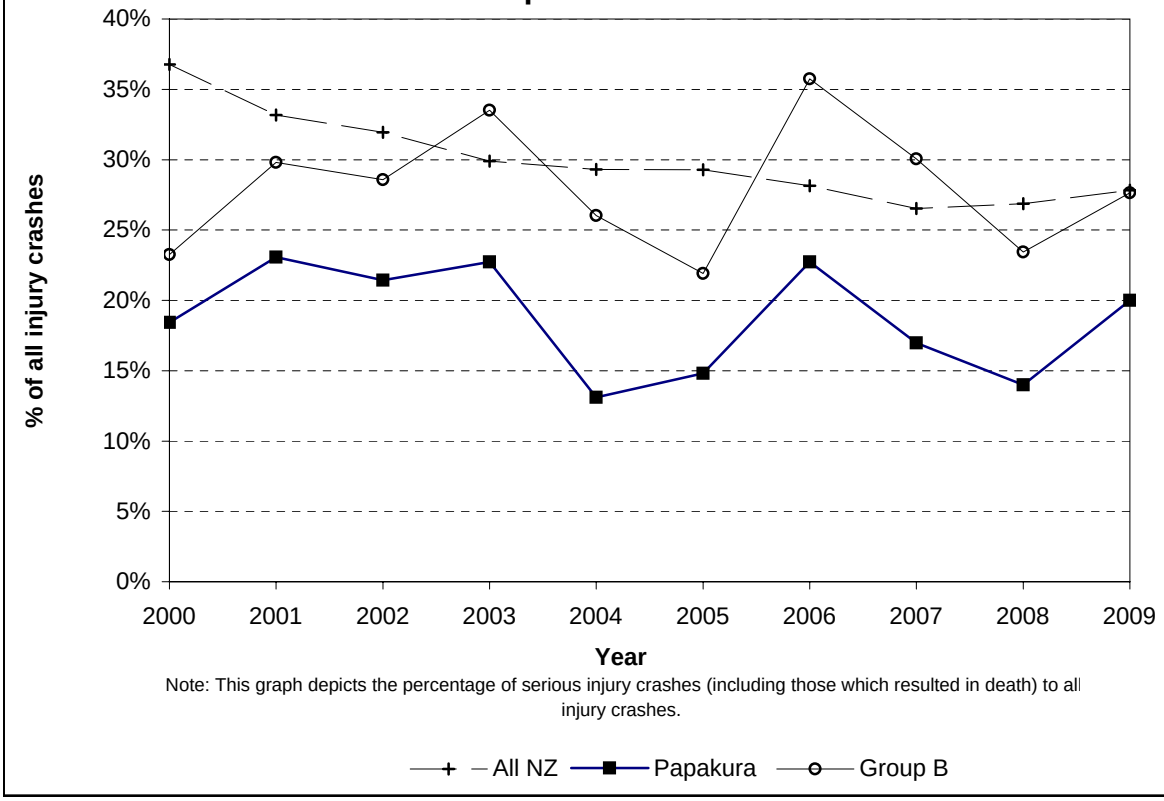


Figure 2.13 Severity ratio - urban Papakura District



Note: This graph depicts the percentage of serious injury crashes (including those which resulted in death) to all injury crashes.

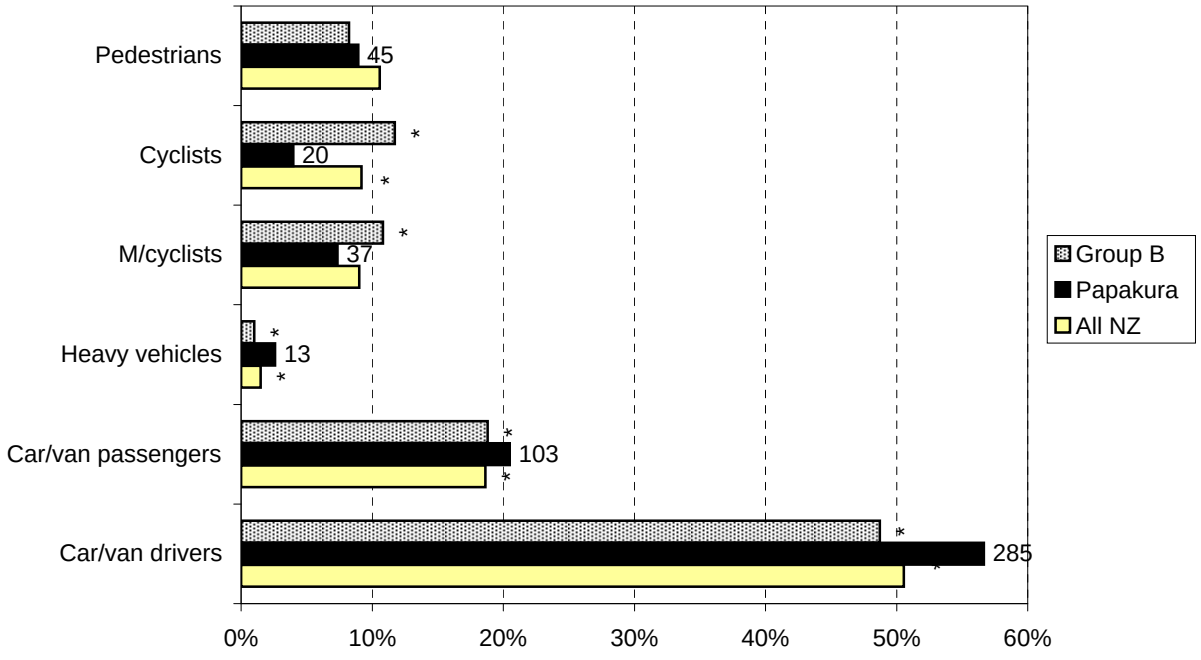
Figure 2.14 Severity ratio - rural Papakura District



Note: This graph depicts the percentage of serious injury crashes (including those which resulted in death) to all injury crashes.

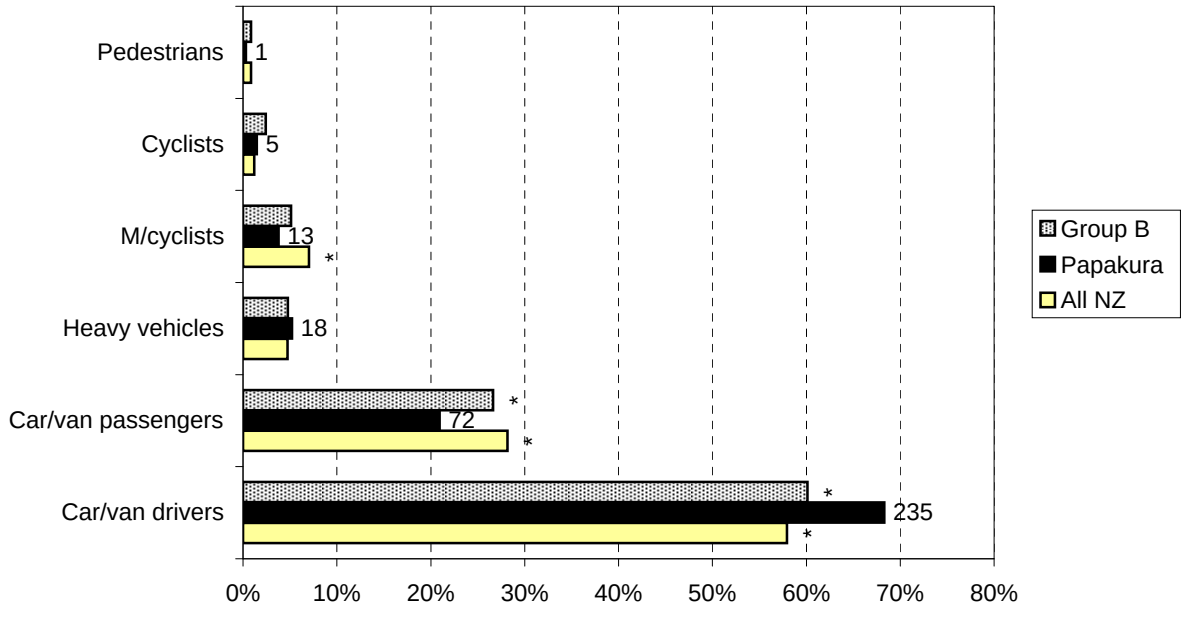
Road User Statistics

Figure 3.1 Road user casualties - urban
Papakura District (2005-2009)



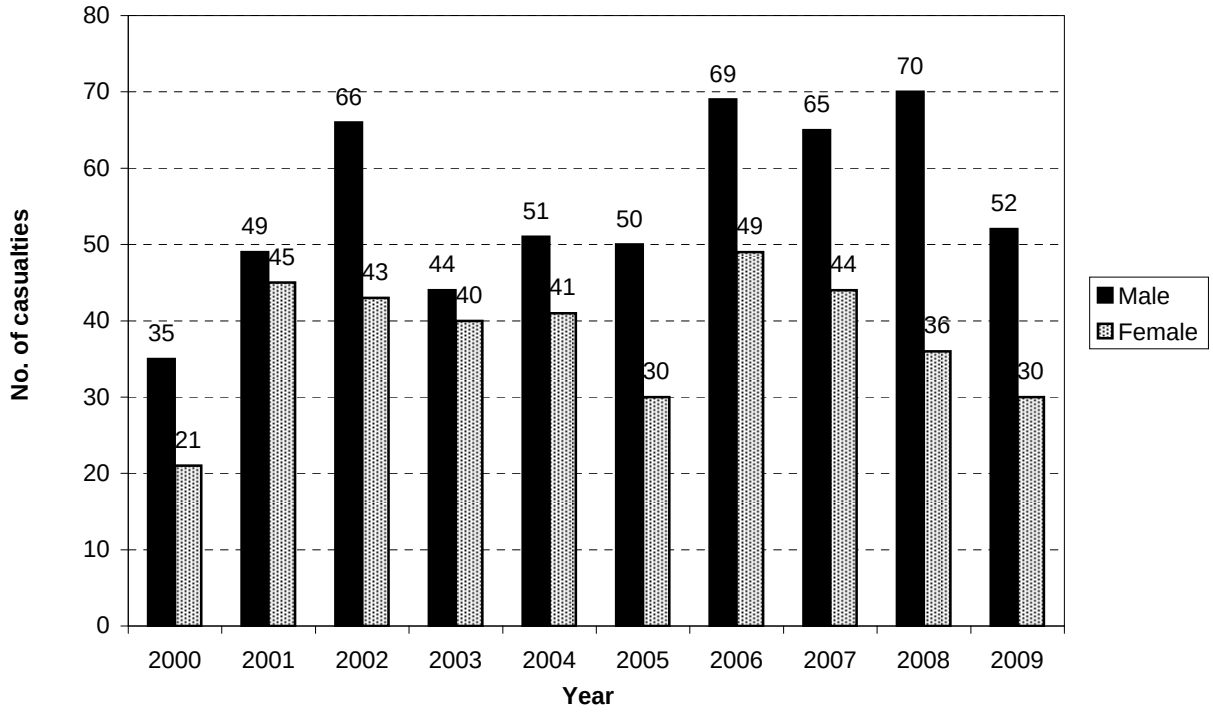
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.2 Road user casualties - rural
Papakura District (2005-2009)



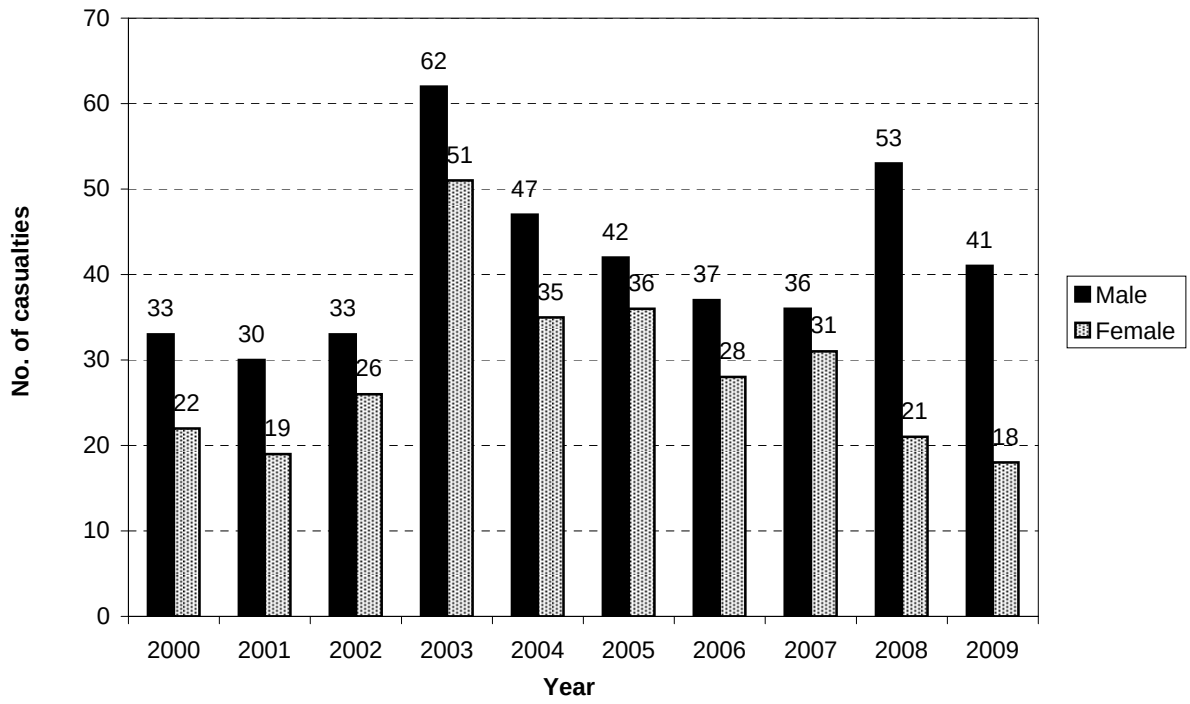
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.3 Male/female casualties - urban Papakura District



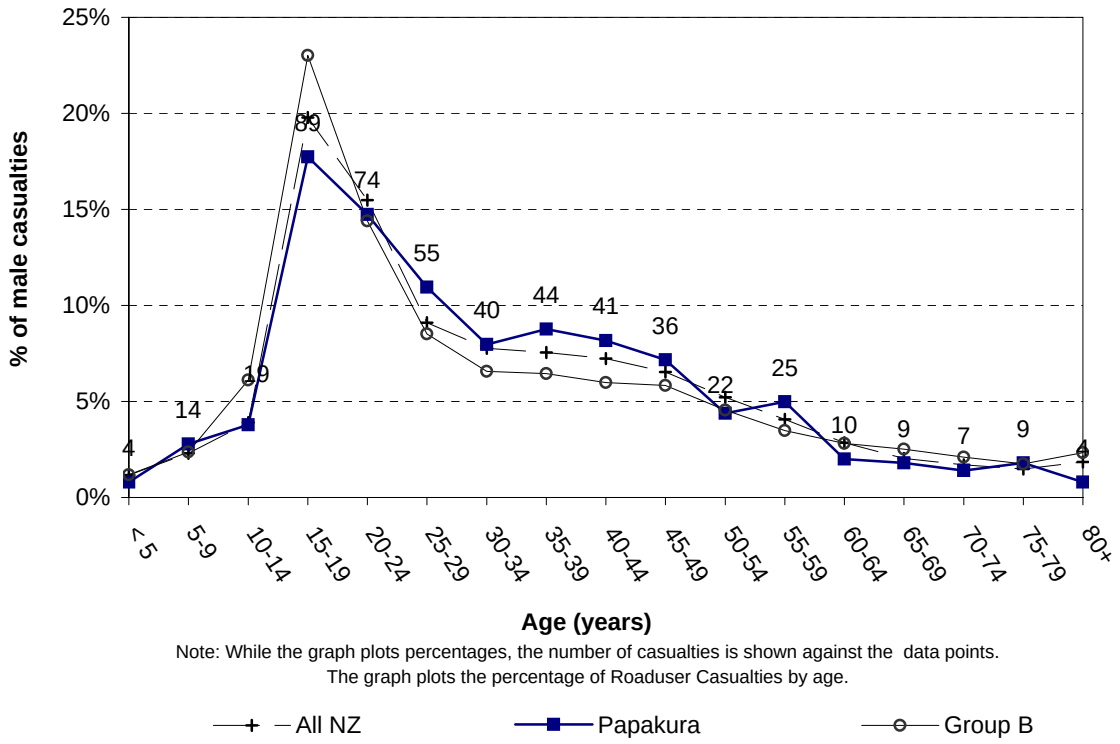
Note: This graph shows the number of male and female roadusers injured

Figure 3.4 Male/female casualties - rural Papakura District



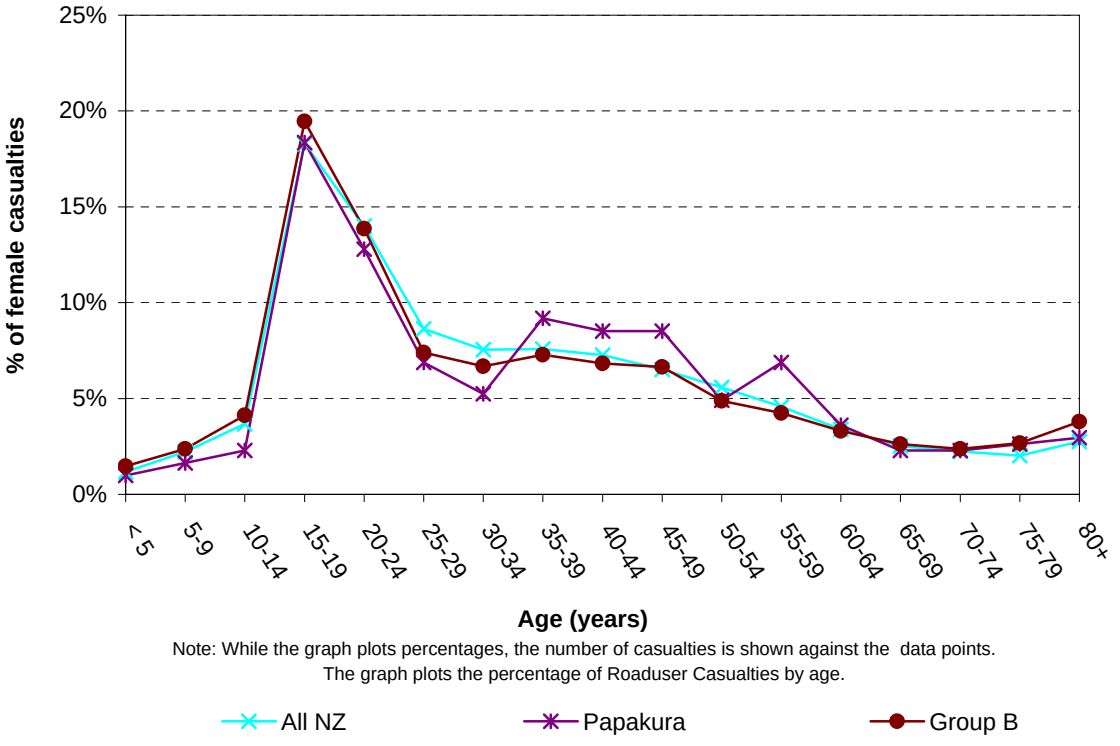
Note: This graph shows the number of male and female roadusers injured

Figure 3.5 Male casualties by age
Papakura District (2005-2009)



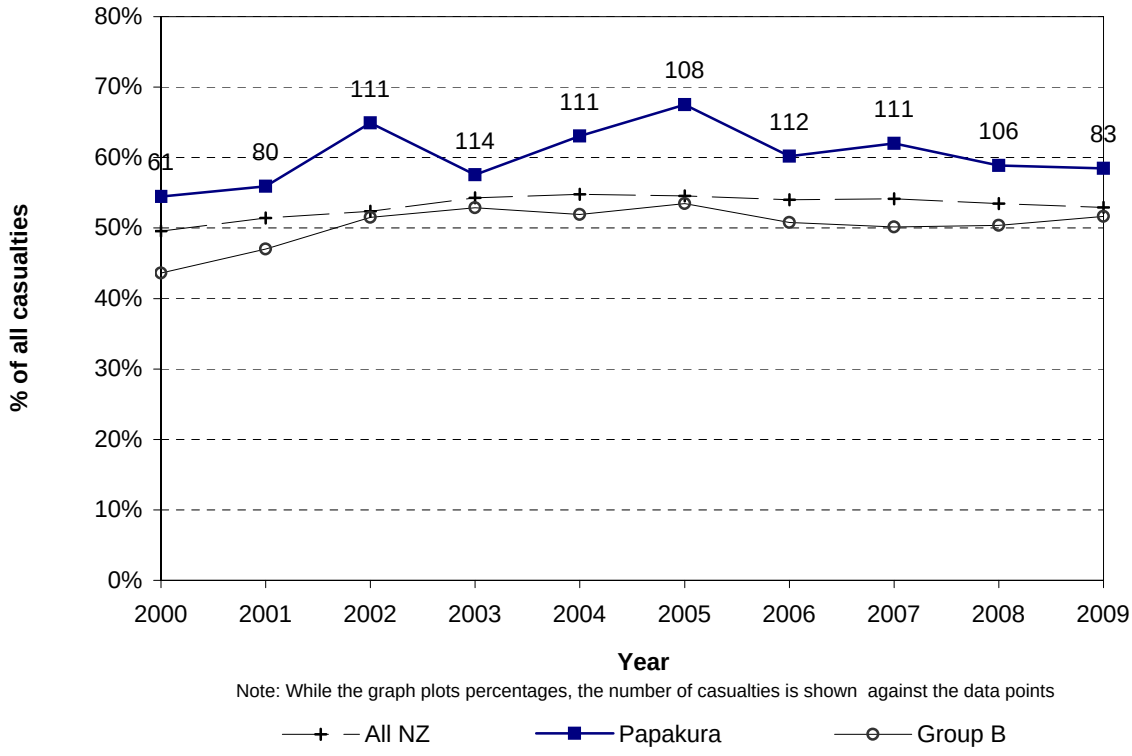
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The graph plots the percentage of Roaduser Casualties by age.

Figure 3.6 Female casualties by age
Papakura District (2005-2009)



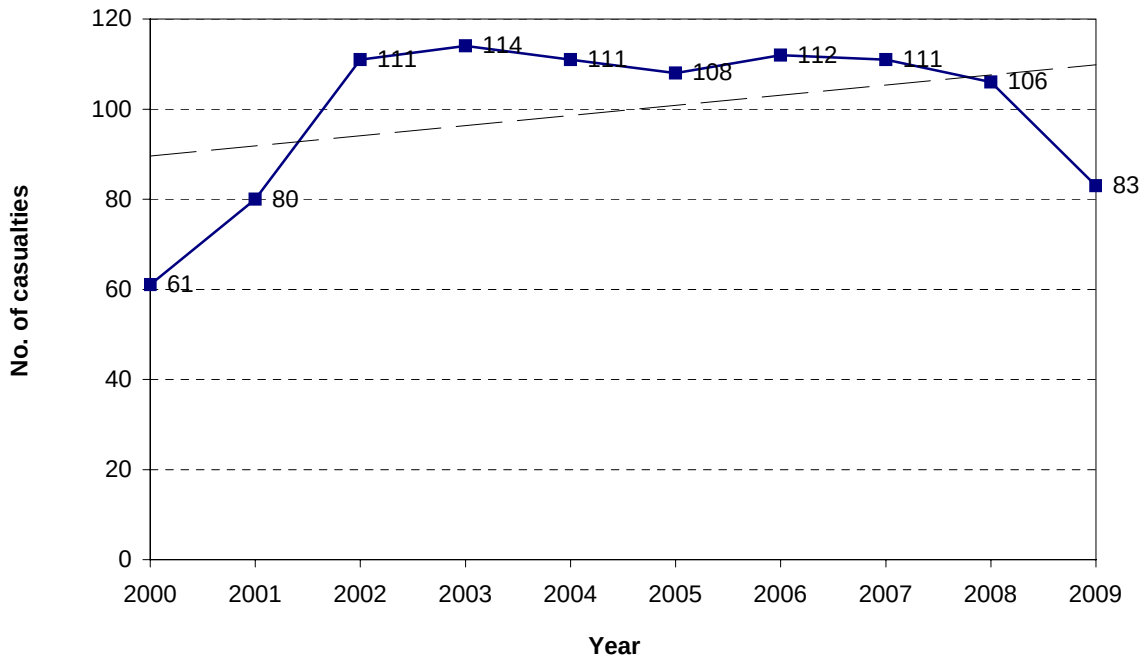
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The graph plots the percentage of Roaduser Casualties by age.

Figure 3.7 Car/van driver casualties
Papakura District



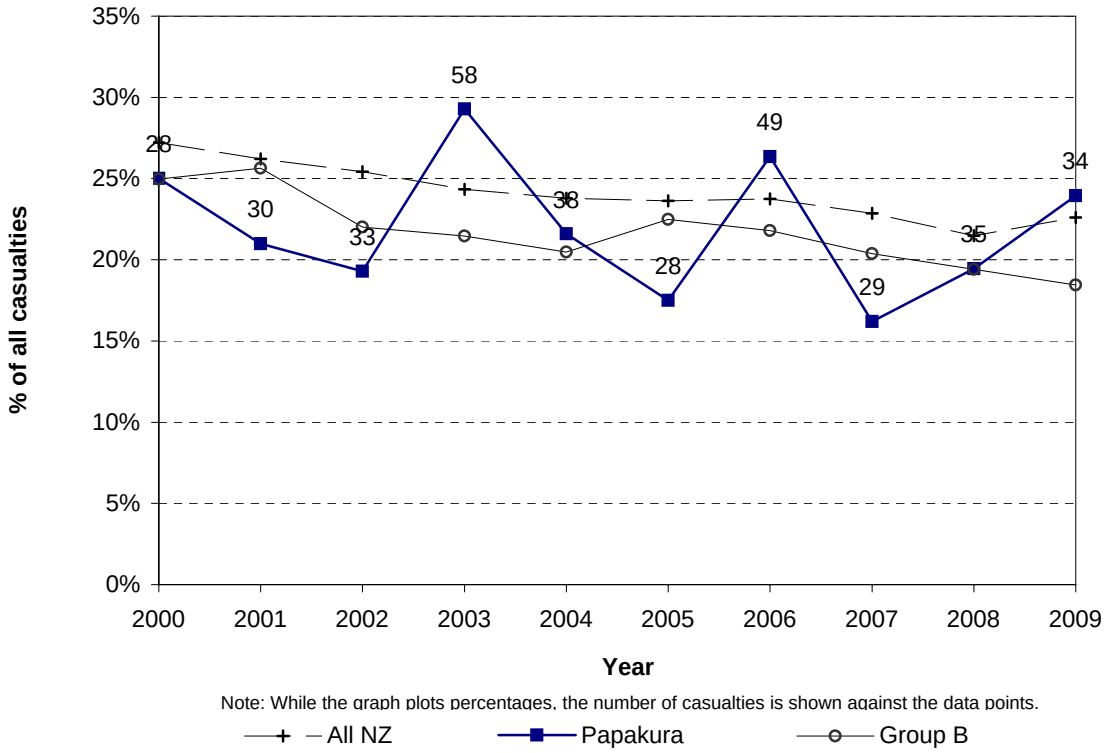
Note: While the graph plots percentages, the number of casualties is shown against the data points

Figure 3.8 Car/van driver casualties
Papakura District



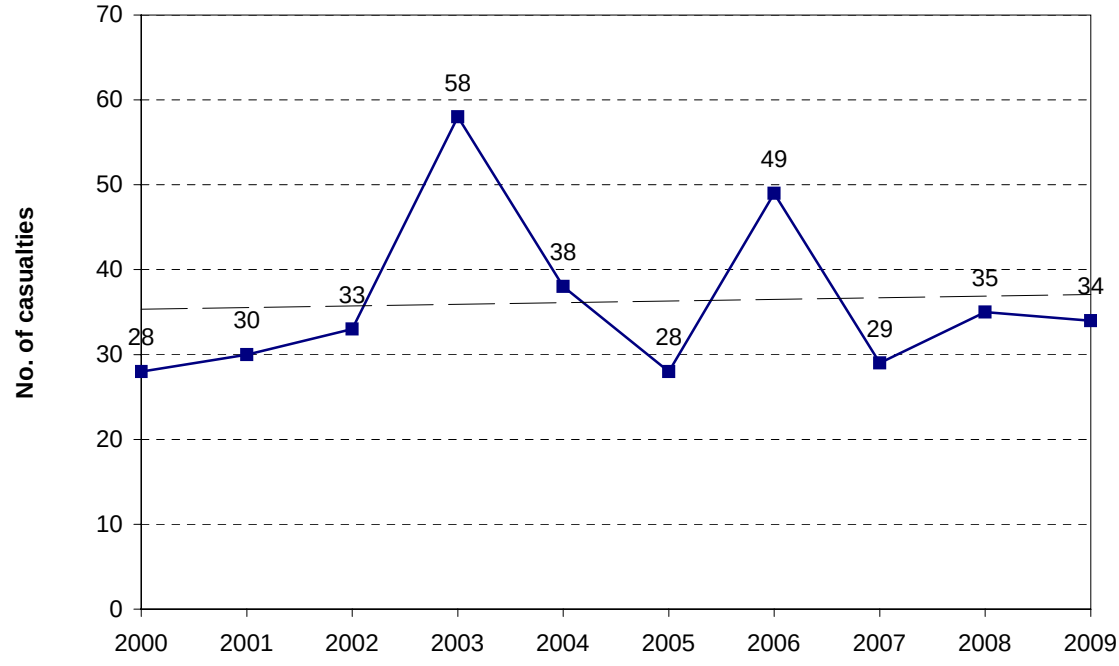
Note: Dotted line represents the ten year trend line

Figure 3.9 Car/van passenger casualties
Papakura District



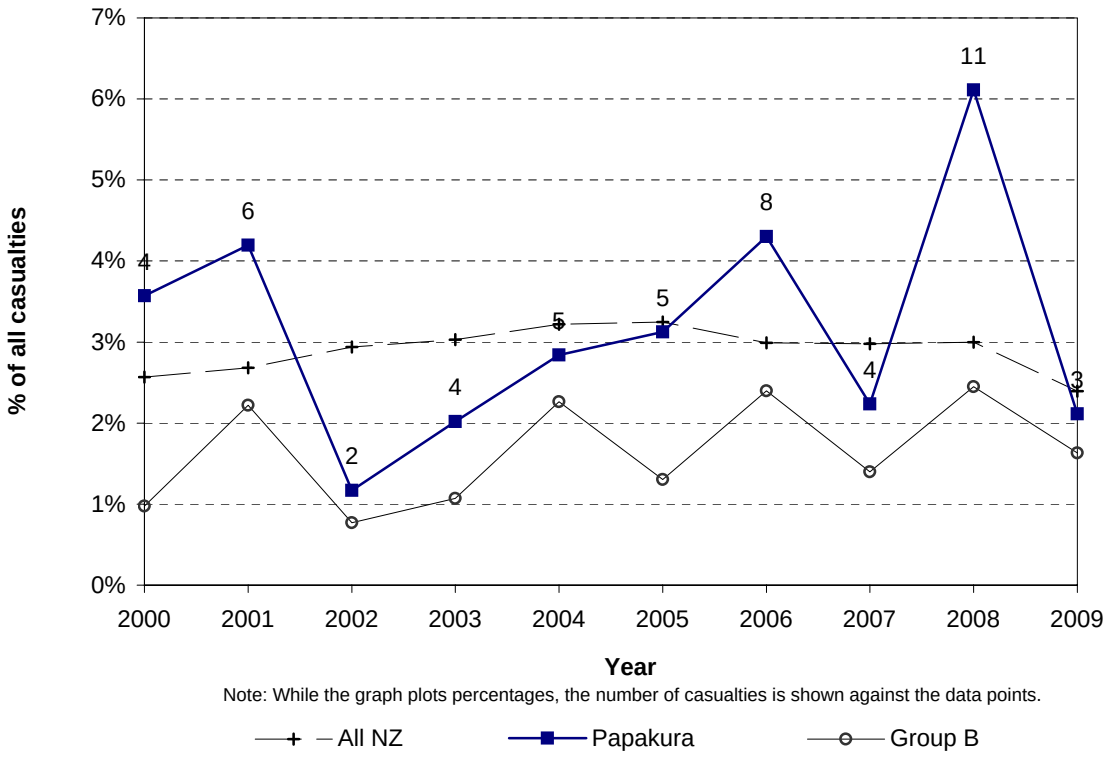
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.10 Car/van passenger casualties
Papakura District



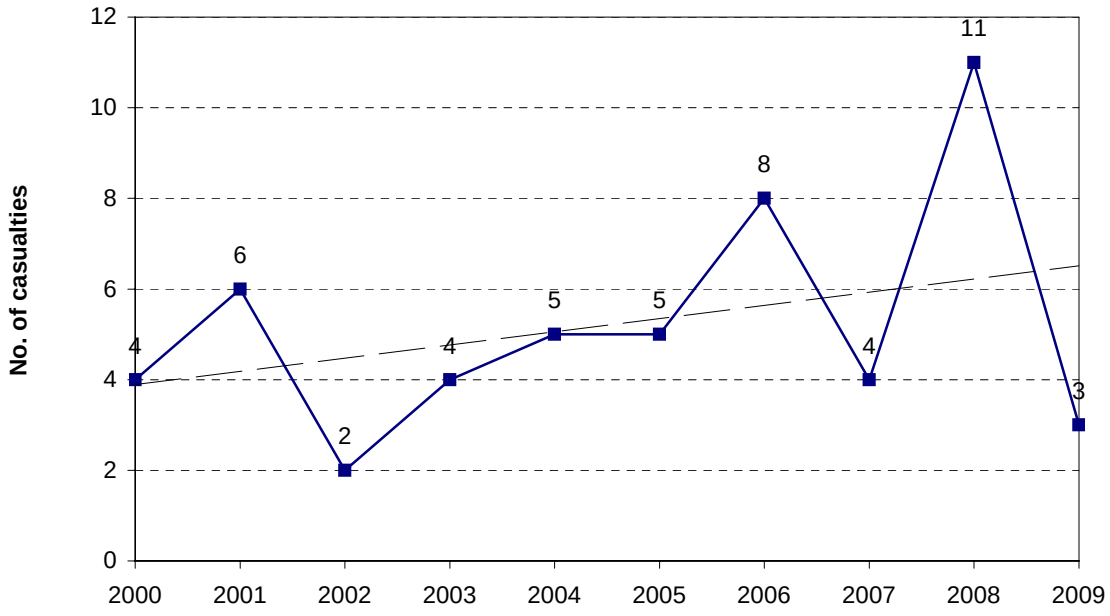
Note: Dotted line represents the ten year trend line

Figure 3.11 Heavy vehicle casualties
Papakura District



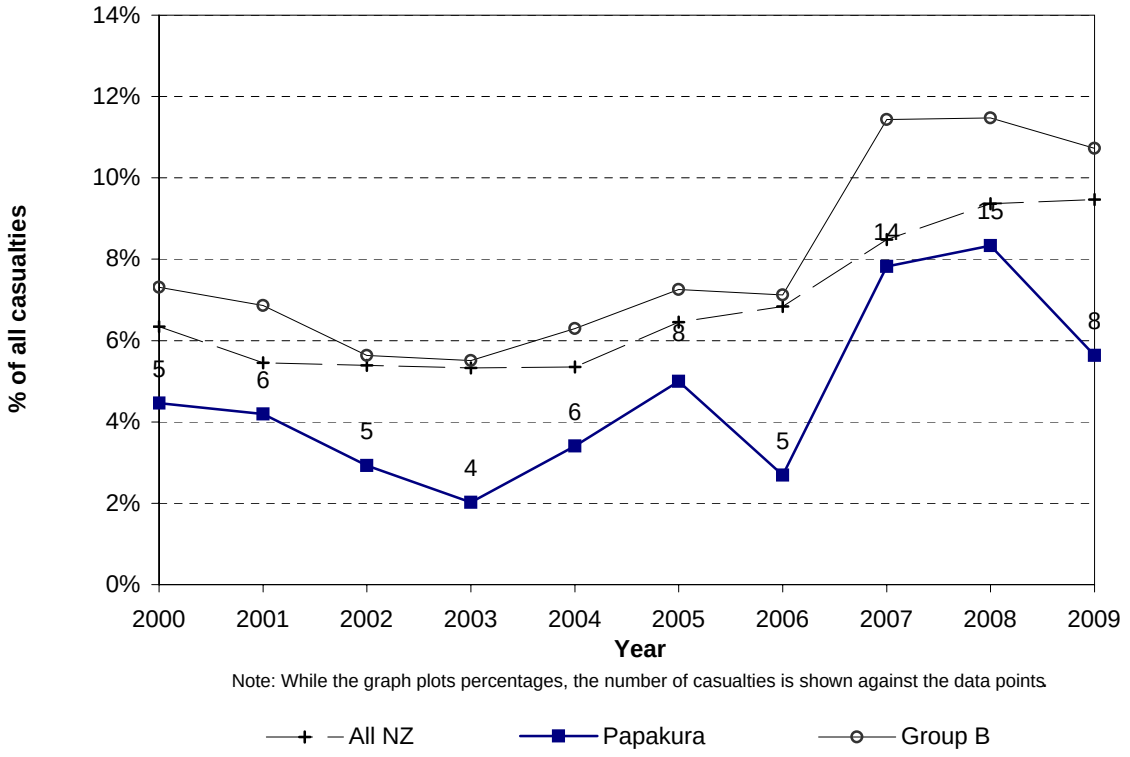
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.12 Heavy vehicle casualties
Papakura District



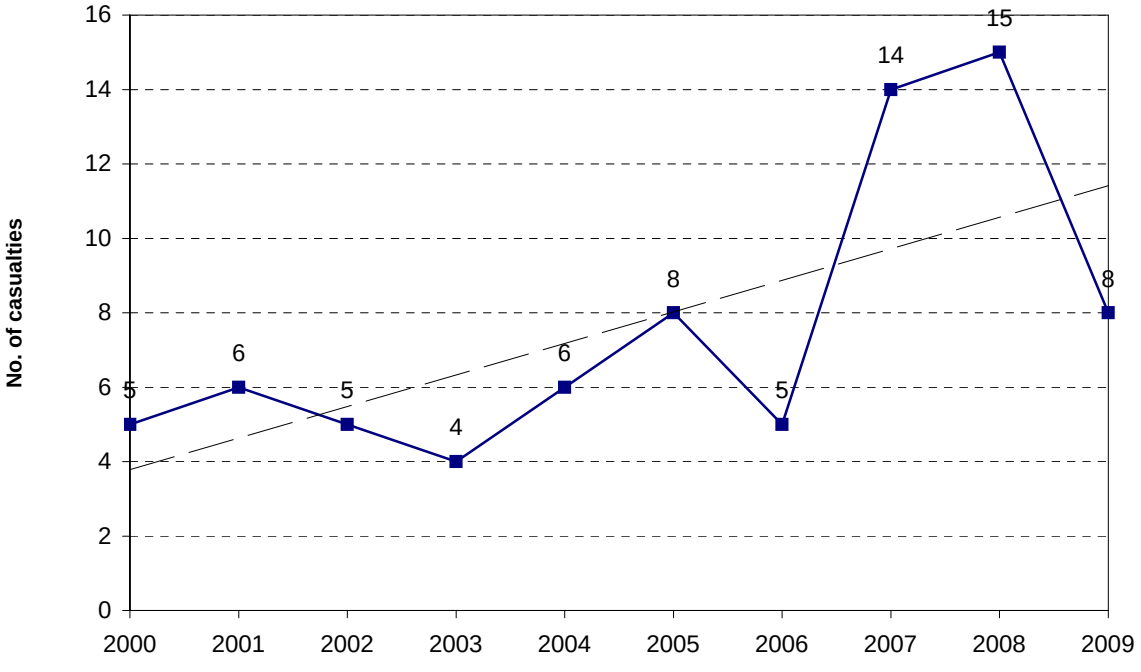
Note: Dotted line represents the ten year trend line

Figure 3.13 Motorcyclist casualties
Papakura District



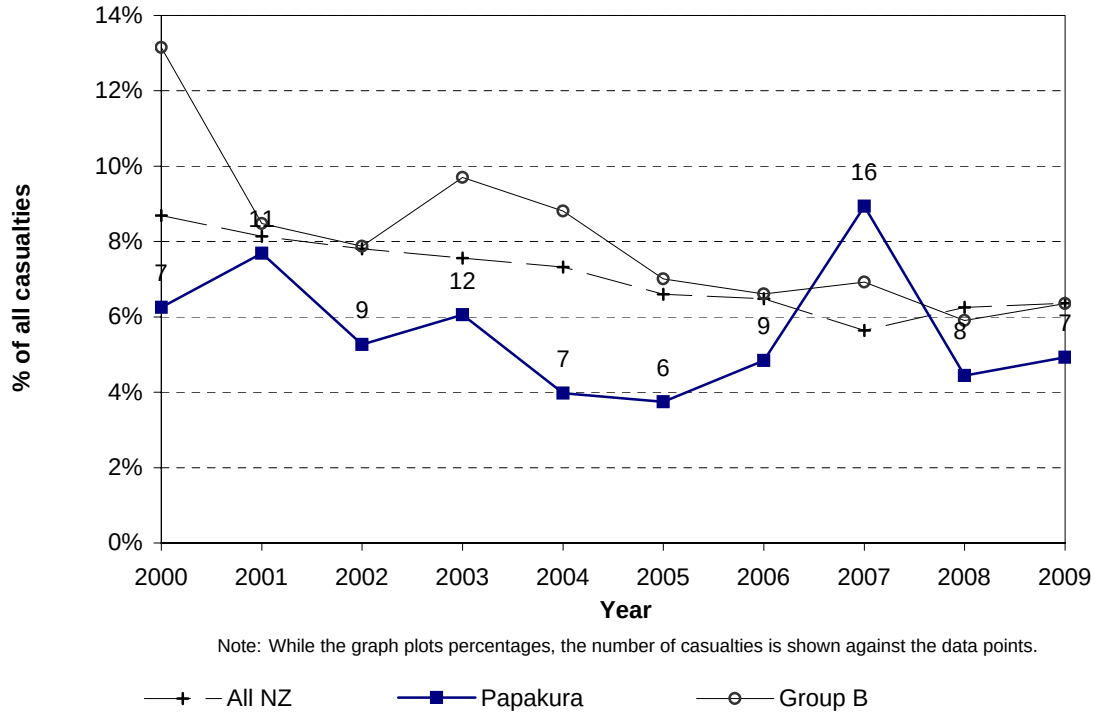
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.14 Motorcyclist casualties
Papakura District



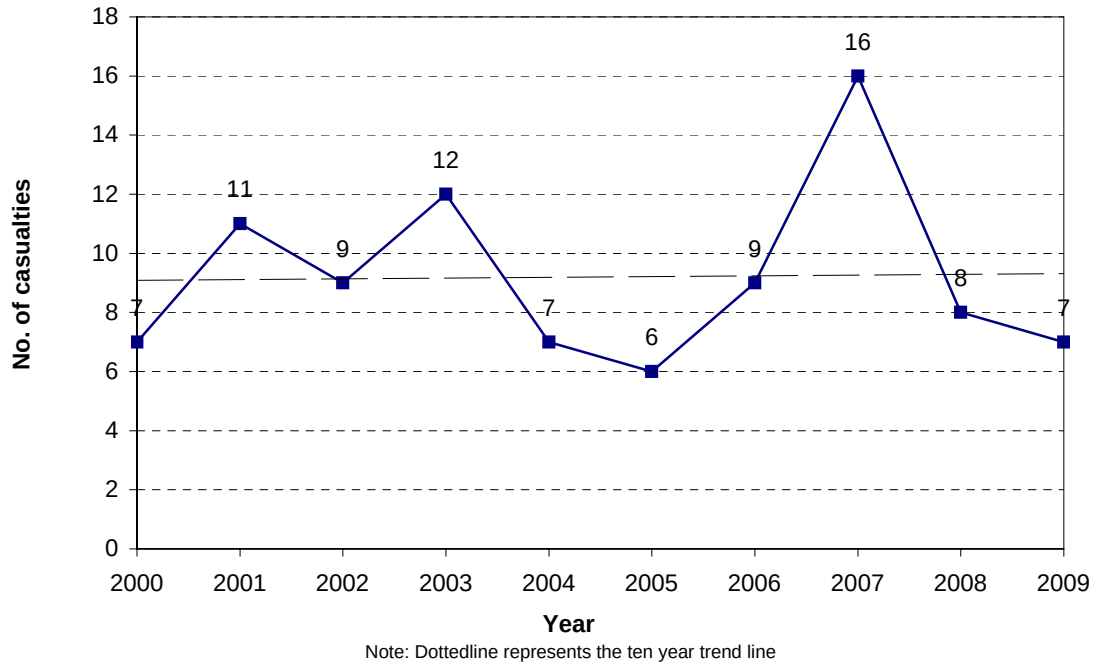
Note: Dotted line represents the ten year trend line

Figure 3.15 Pedestrian casualties
Papakura District



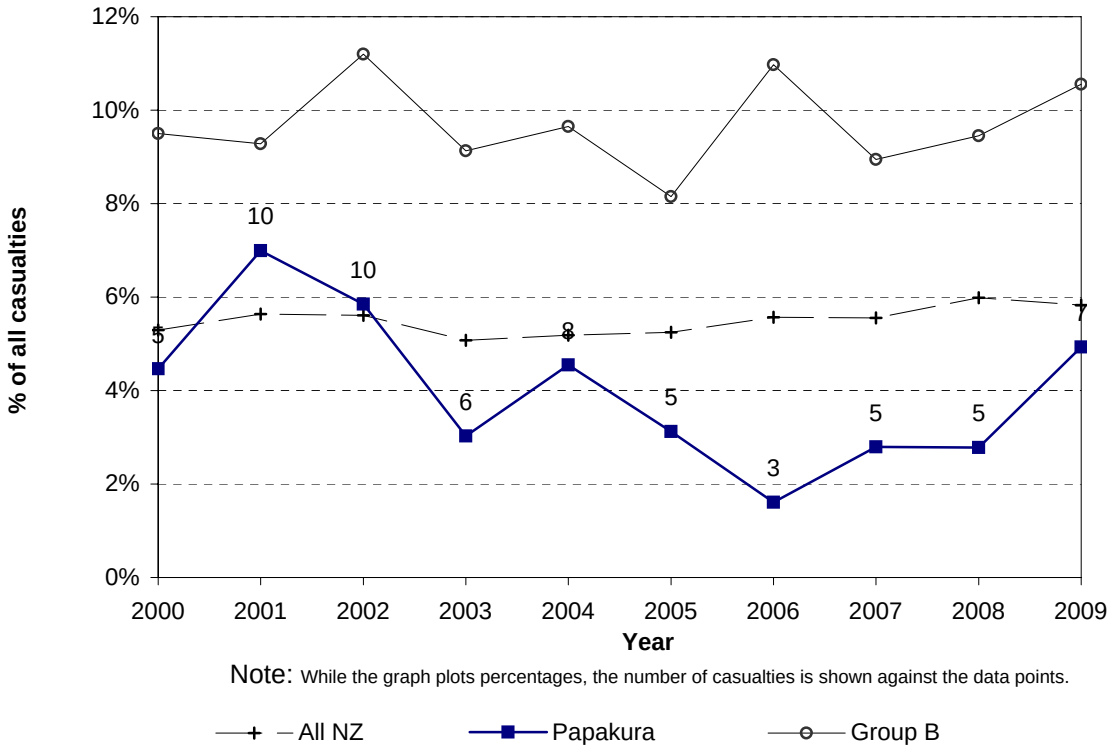
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.16 Pedestrian casualties
Papakura District



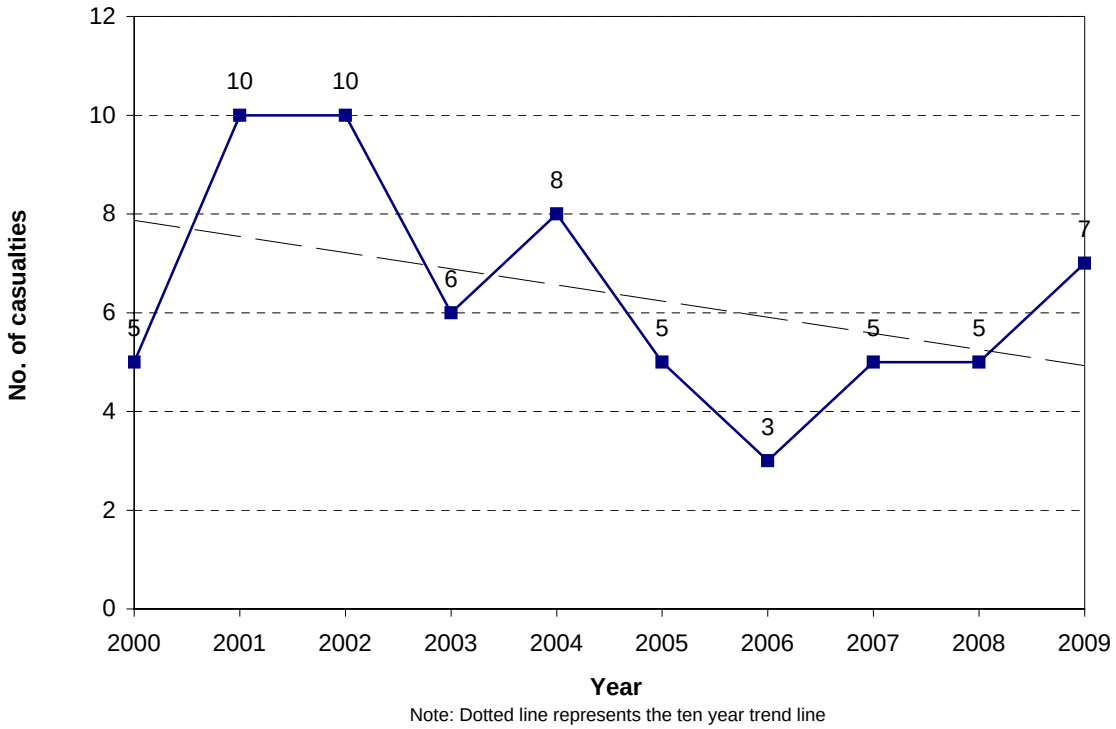
Note: Dottedline represents the ten year trend line

Figure 3.17 Cyclist casualties
Papakura District



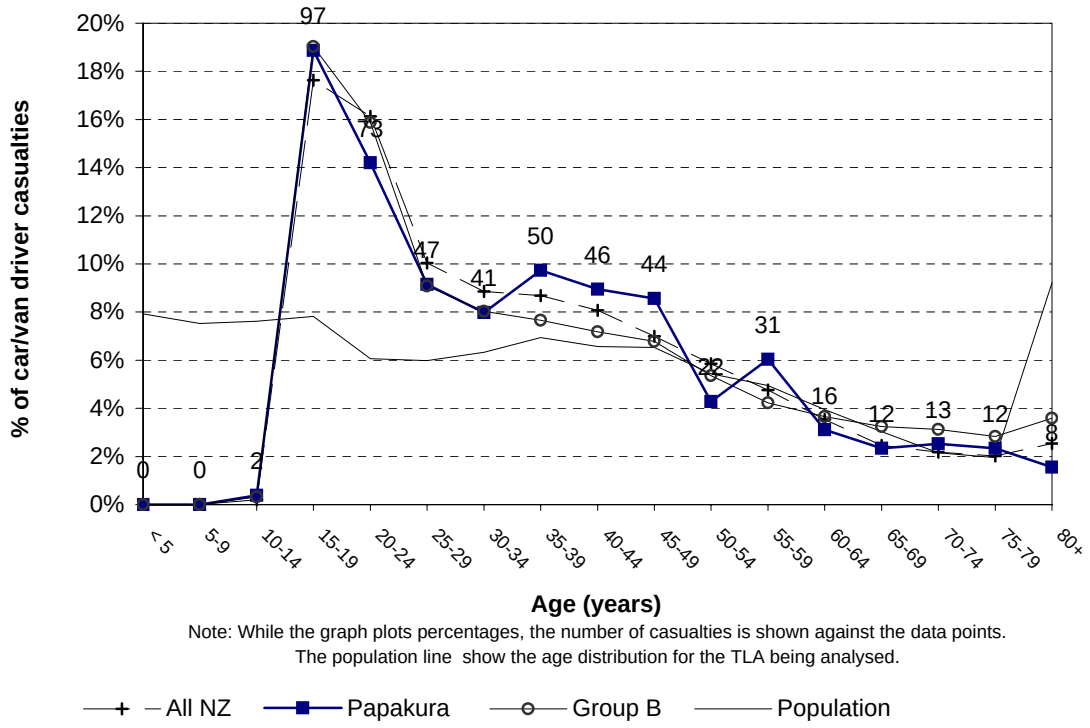
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.18 Cyclist casualties
Papakura District



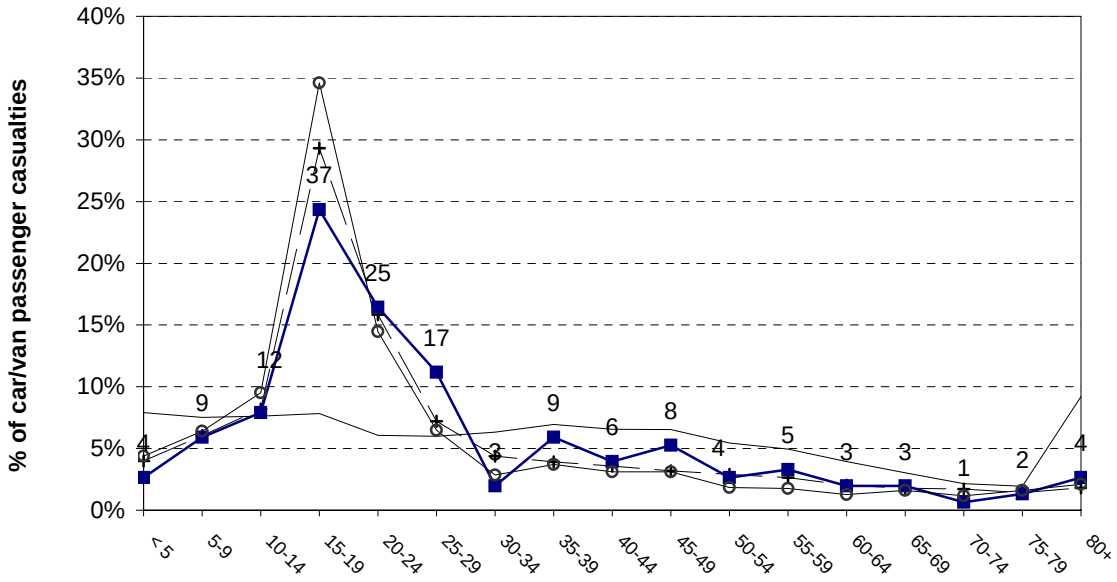
Note: Dotted line represents the ten year trend line

Figure 3.19 Car/van driver casualty age
Papakura District (2005-2009)



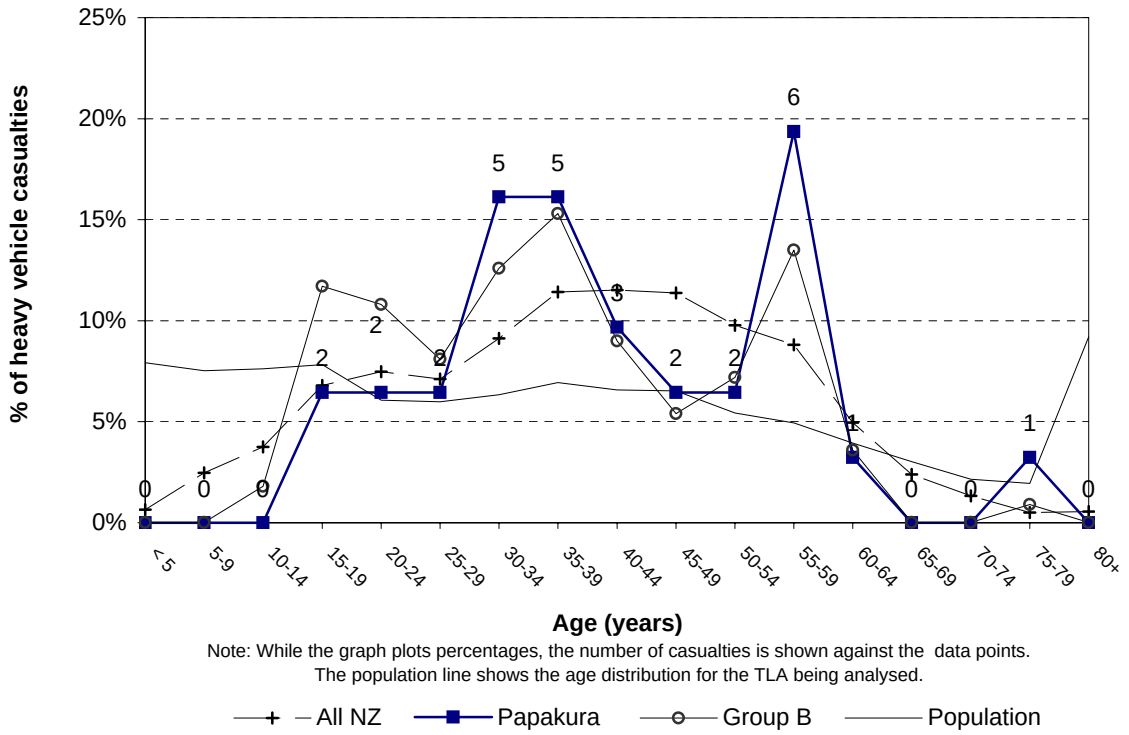
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line show the age distribution for the TLA being analysed.

Figure 3.20 Car/van passenger casualty age
Papakura District (2005-2009)



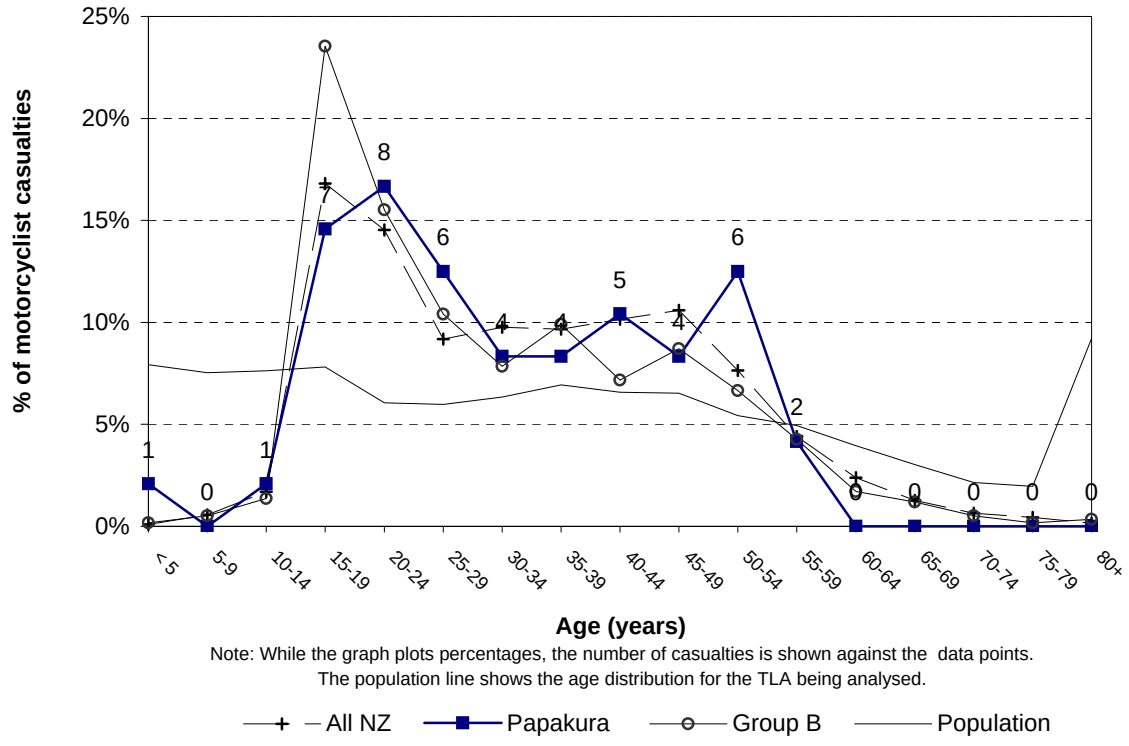
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.21 Heavy vehicle casualty age
Papakura District (2005-2009)



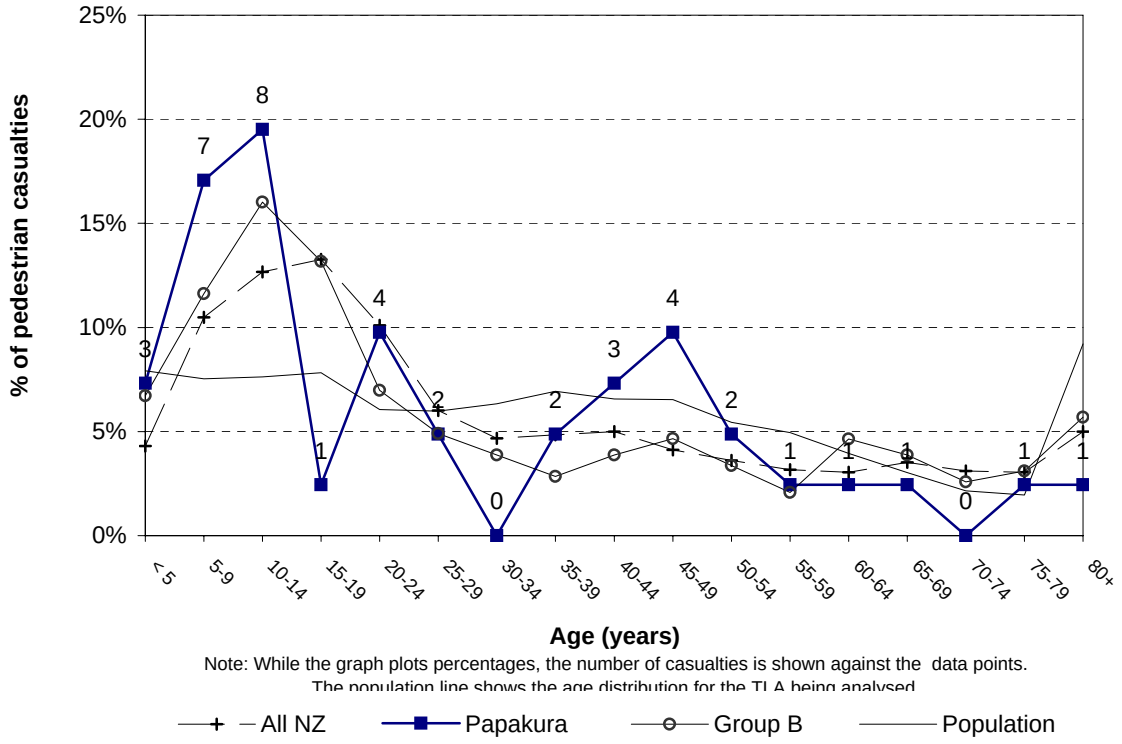
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.22 Motorcyclist casualty age
Papakura District (2005-2009)



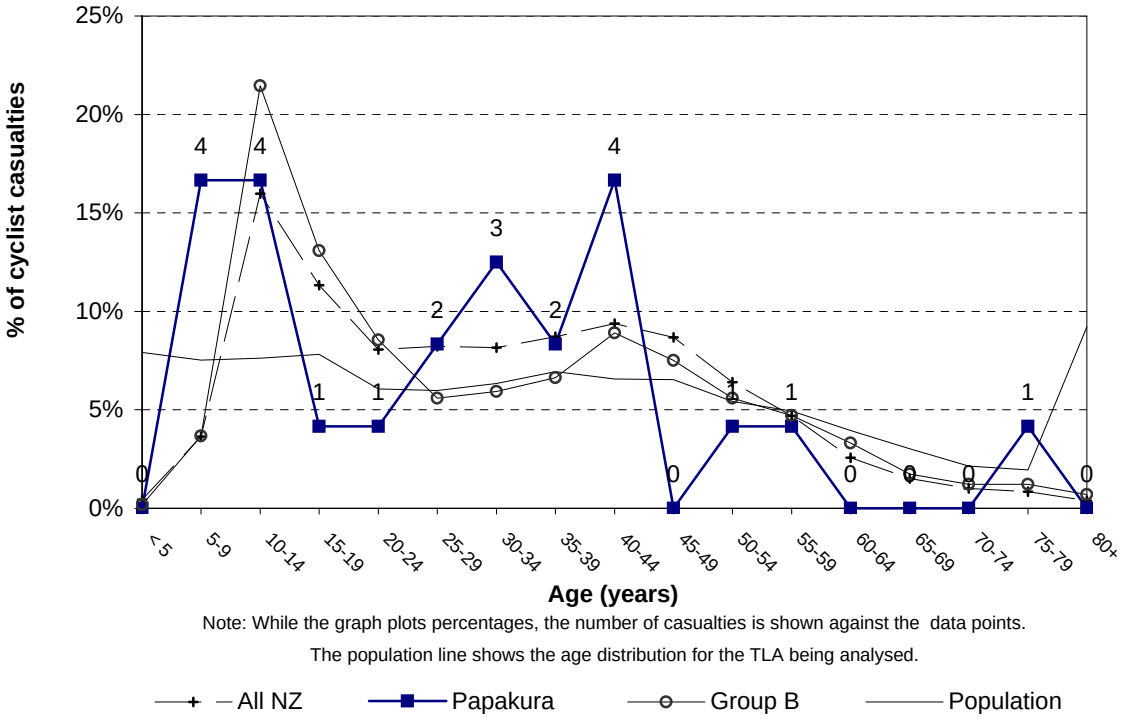
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.23 Pedestrian casualty age
Papakura District (2005-2009)



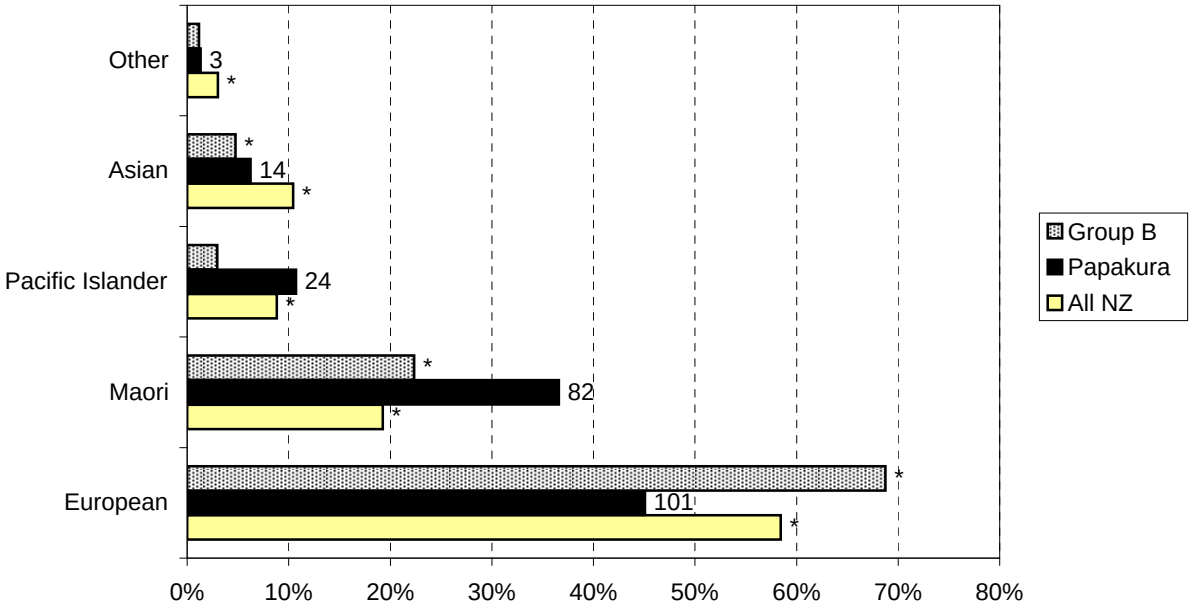
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed

Figure 3.24 Cyclist casualty age
Papakura District (2005-2009)



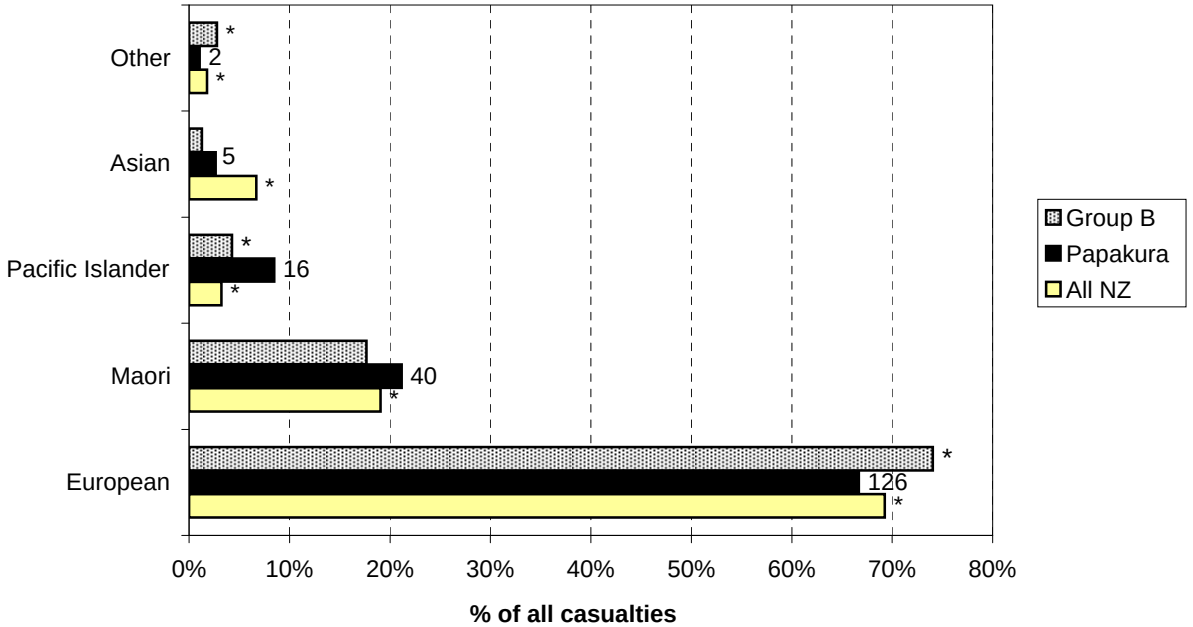
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.25 Casualty ethnicity - urban
Papakura District (2005-2009)



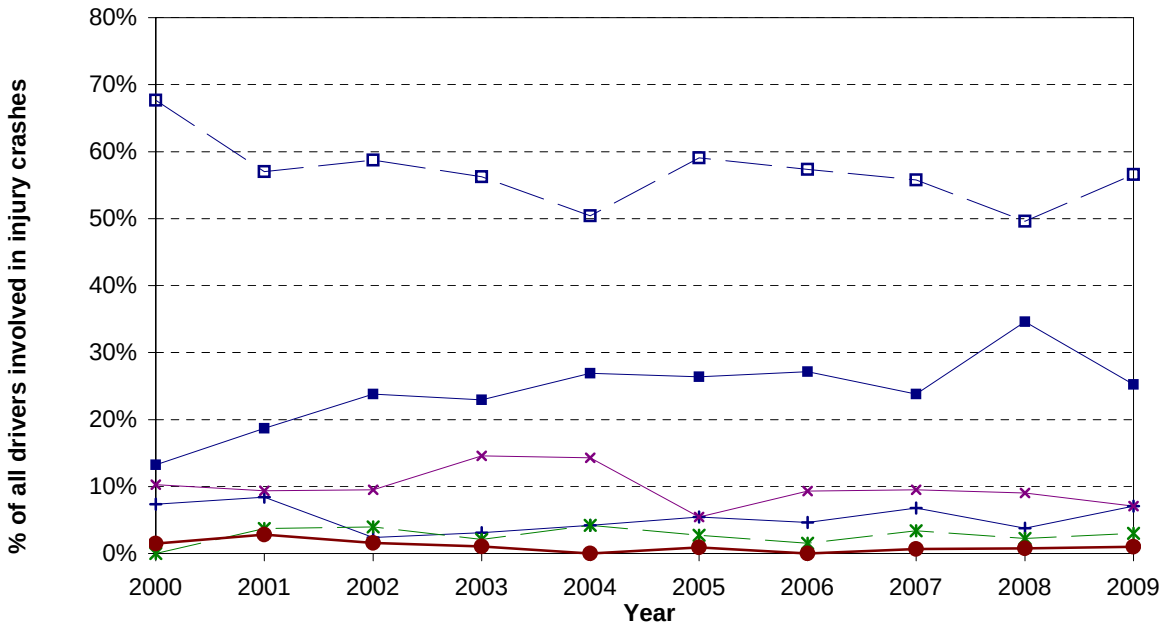
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.26 Casualty ethnicity - rural
Papakura District (2005-2009)



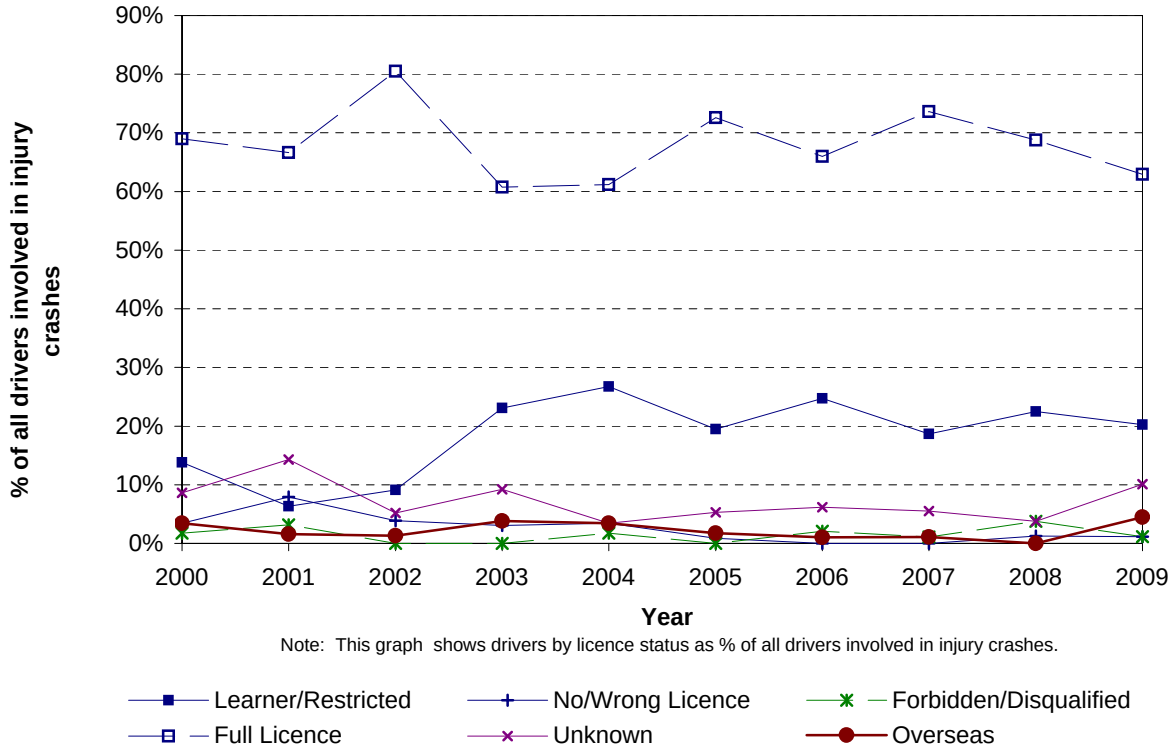
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.27 Licence status - urban
Papakura District



Note: This graph shows drivers by licence status as % of all drivers involved in injury crashes.

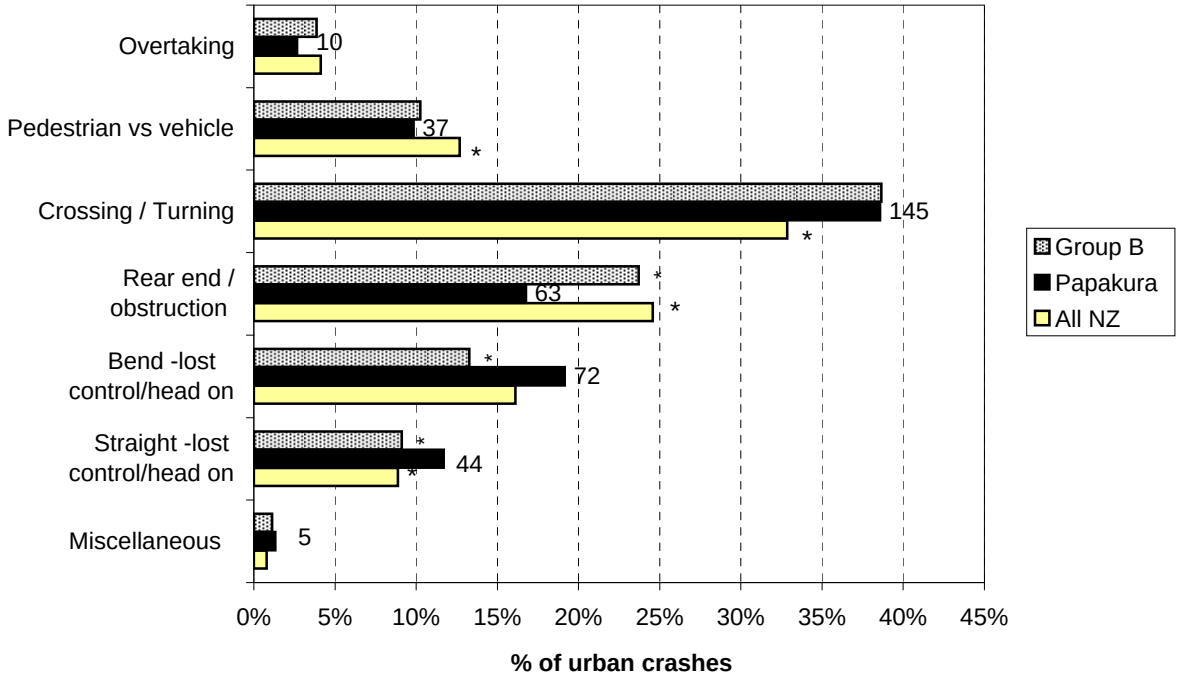
Figure 3.28 Licence status - rural
Papakura District



Note: This graph shows drivers by licence status as % of all drivers involved in injury crashes.

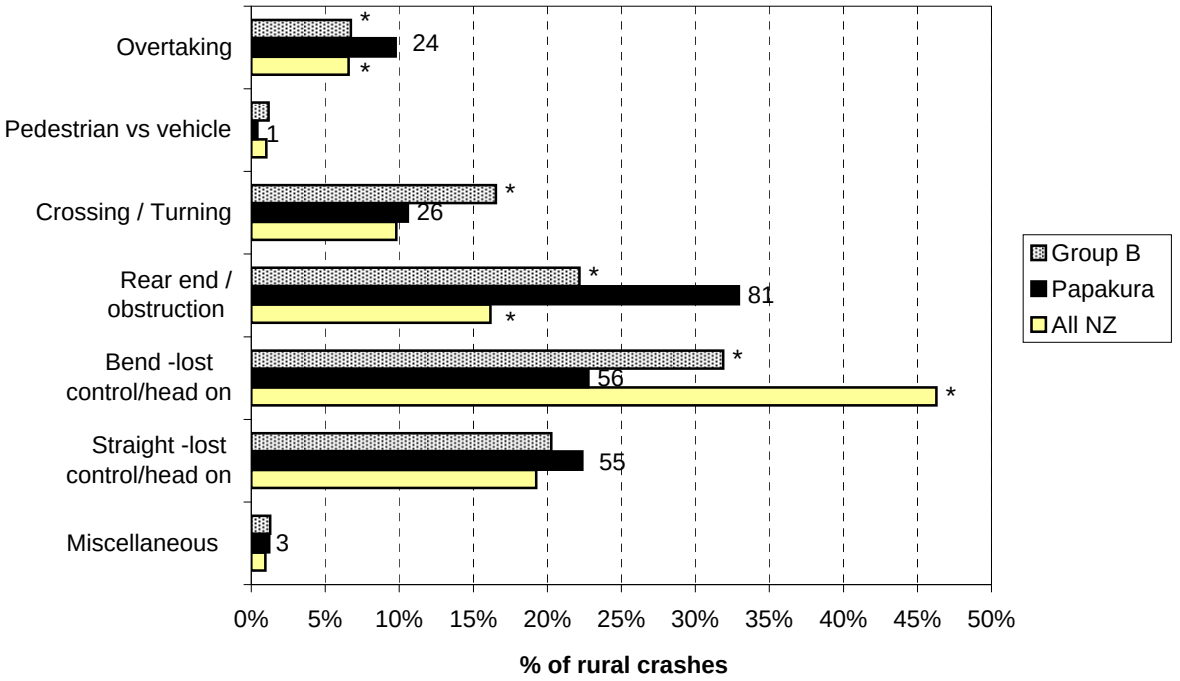
Crash Type Statistics

Figure 4.1 Crash movement type - urban Papakura District (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 Papakura District 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
Papakura District - urban roads

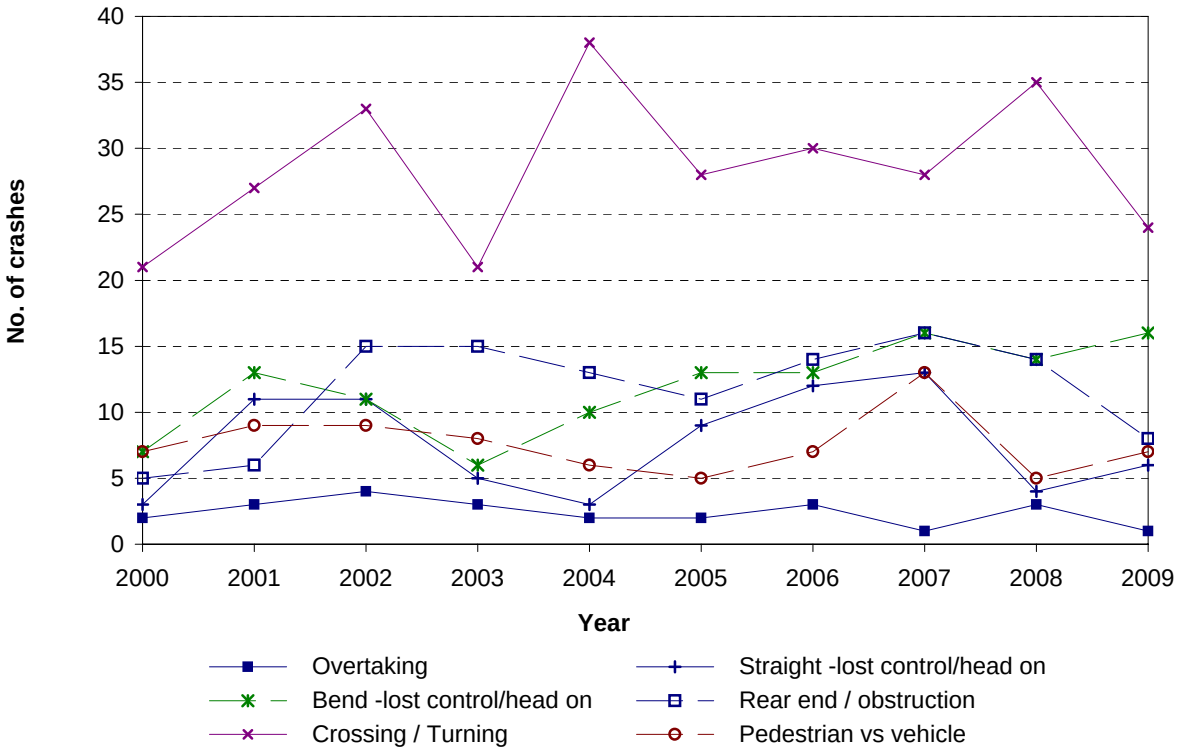


Figure 4.4 Crash movement type - trends
Papakura District - rural roads

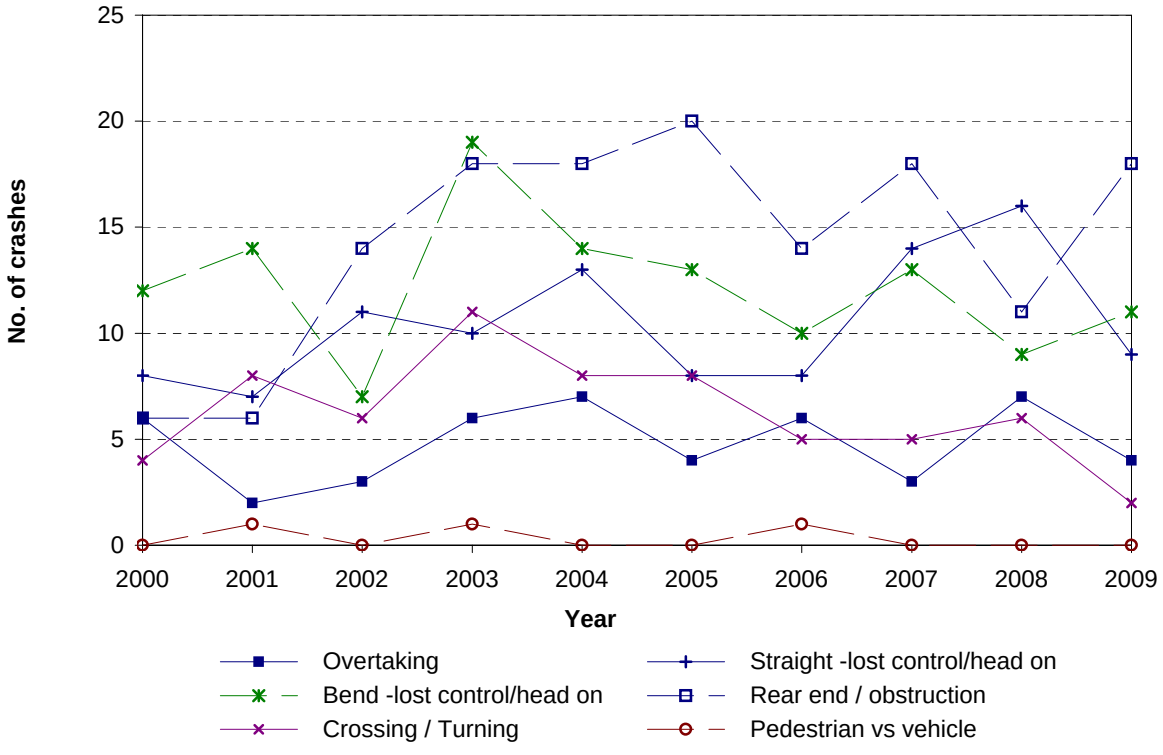
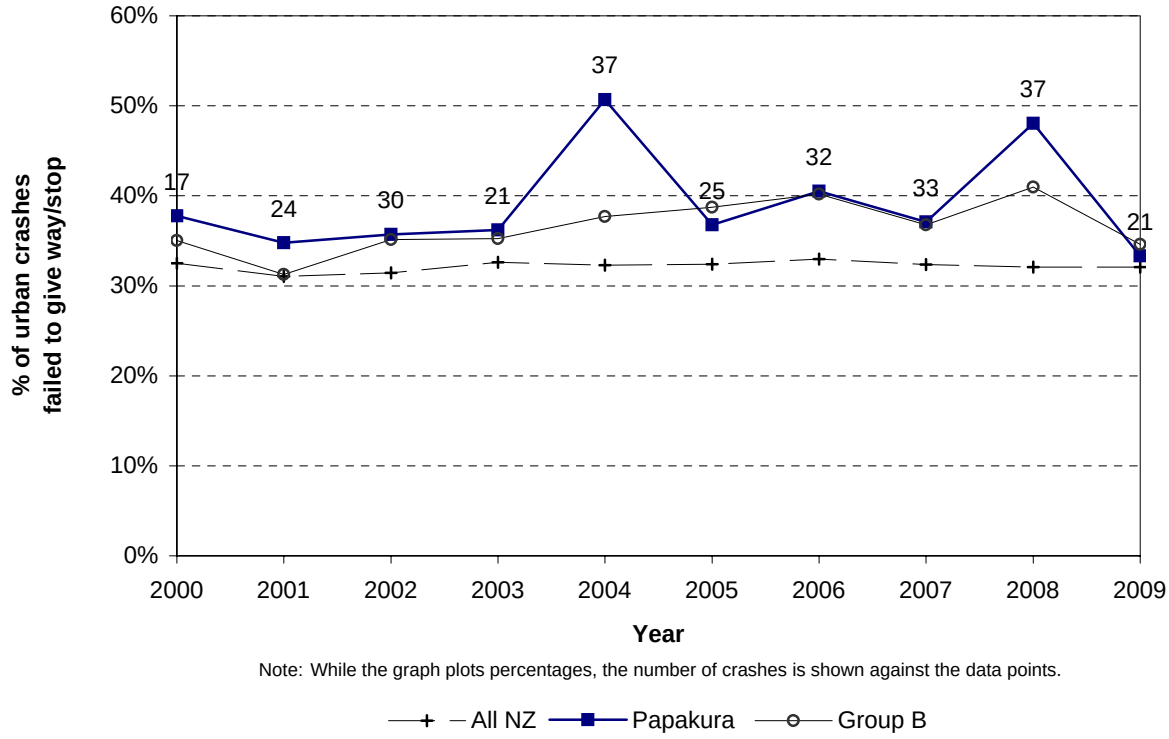
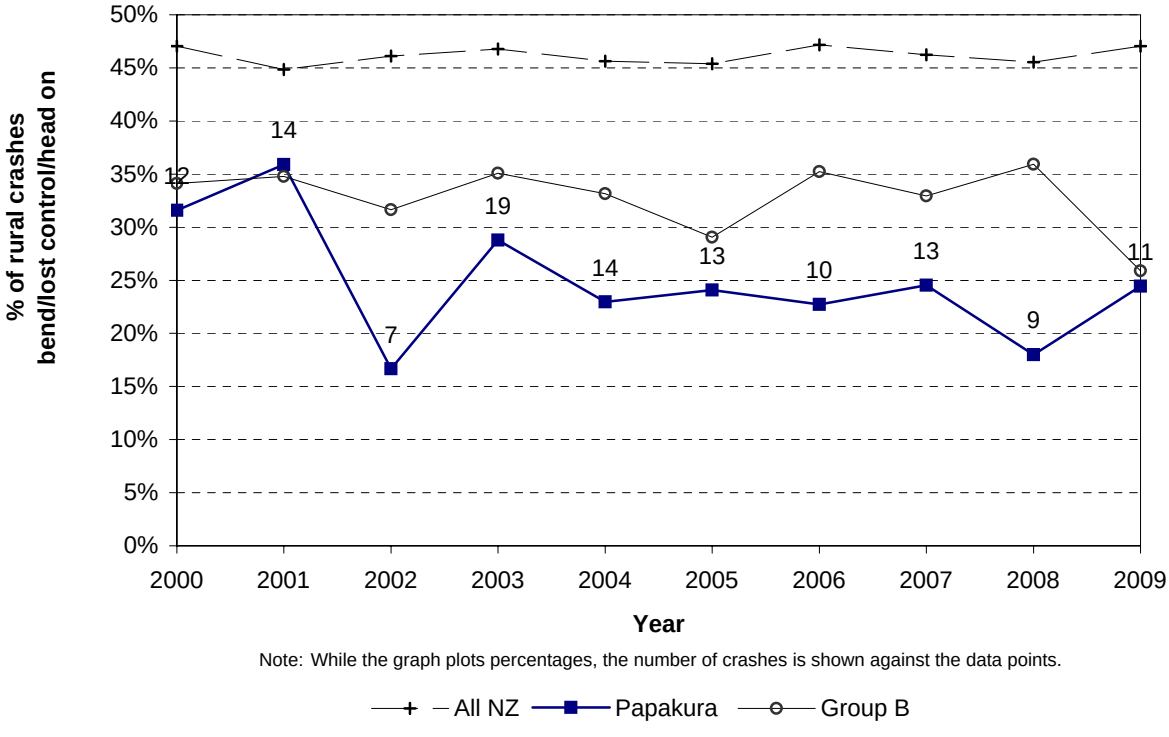


Figure 4.5 Failed to give way / stop
Papakura District - urban roads



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

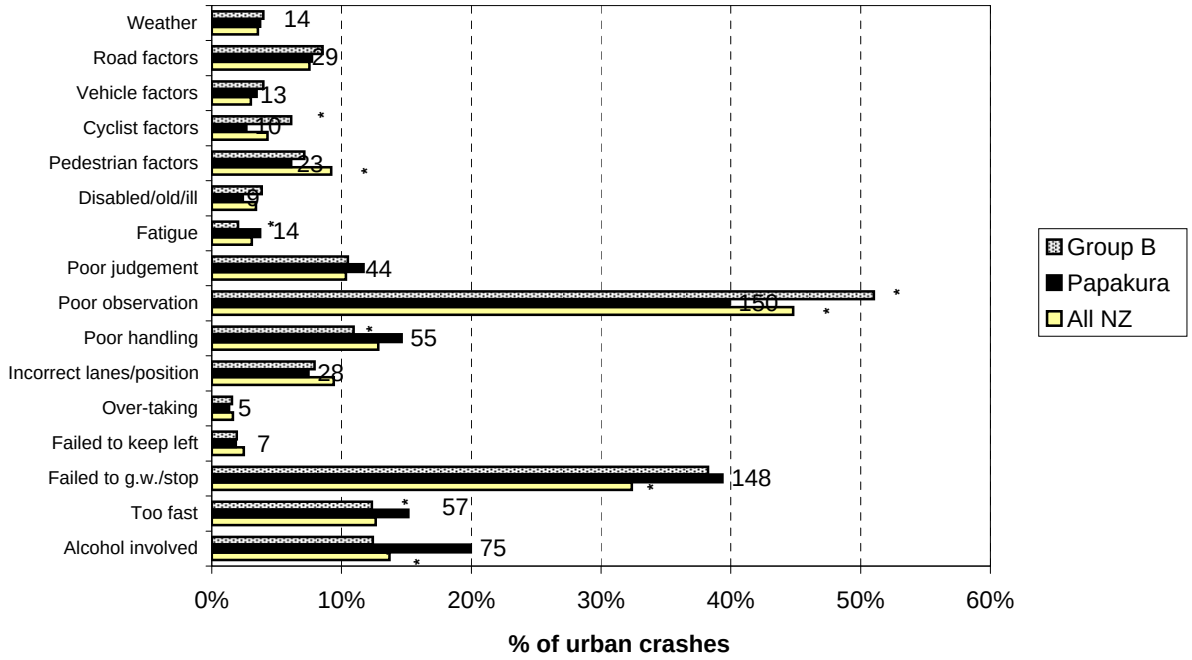
Figure 4.6 Bend - lost control / head - on
Papakura District - rural roads



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

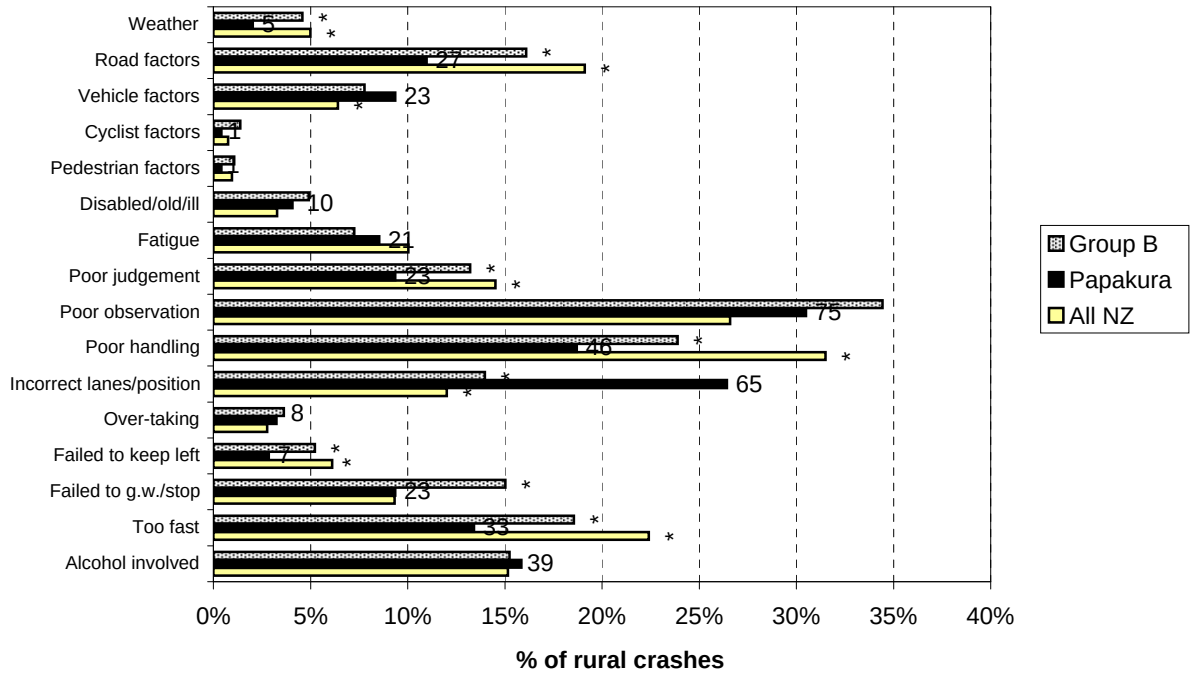
Crash Factor Statistics

Figure 5.1 Contributing factors - urban Papakura District (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 Papakura District (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
Papakura District - urban roads

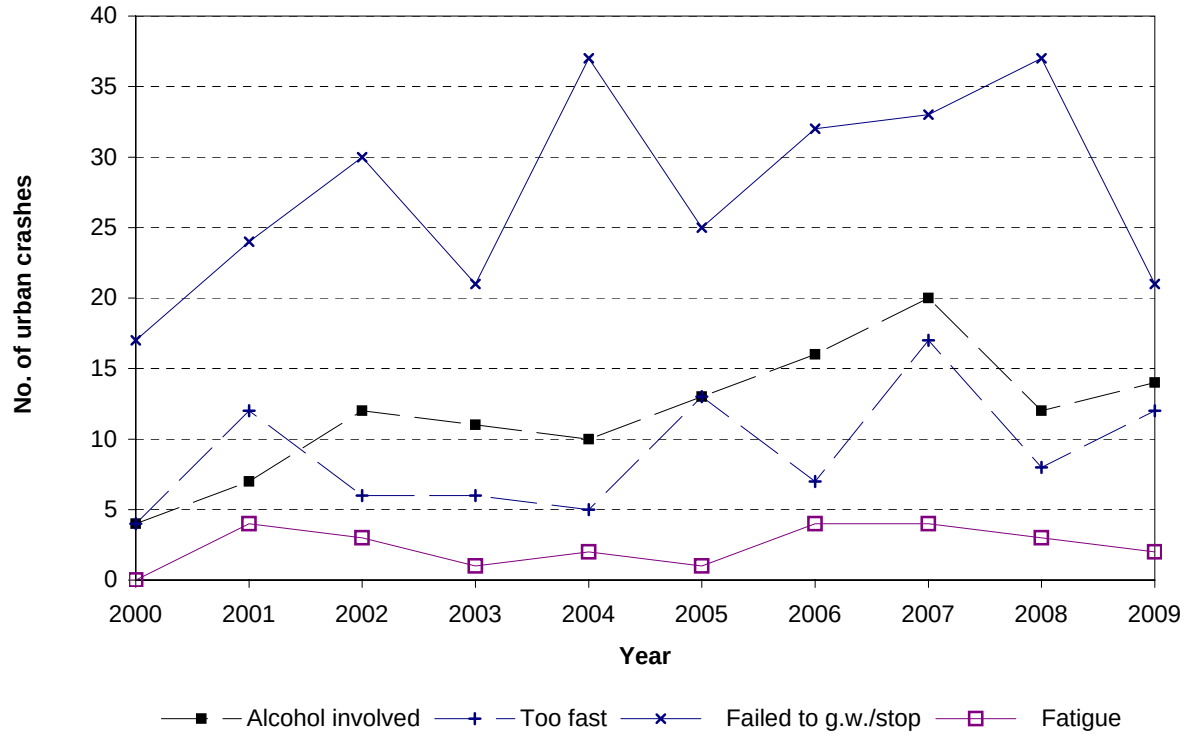


Figure 5.4 Contributing factor trends
Papakura District - urban roads

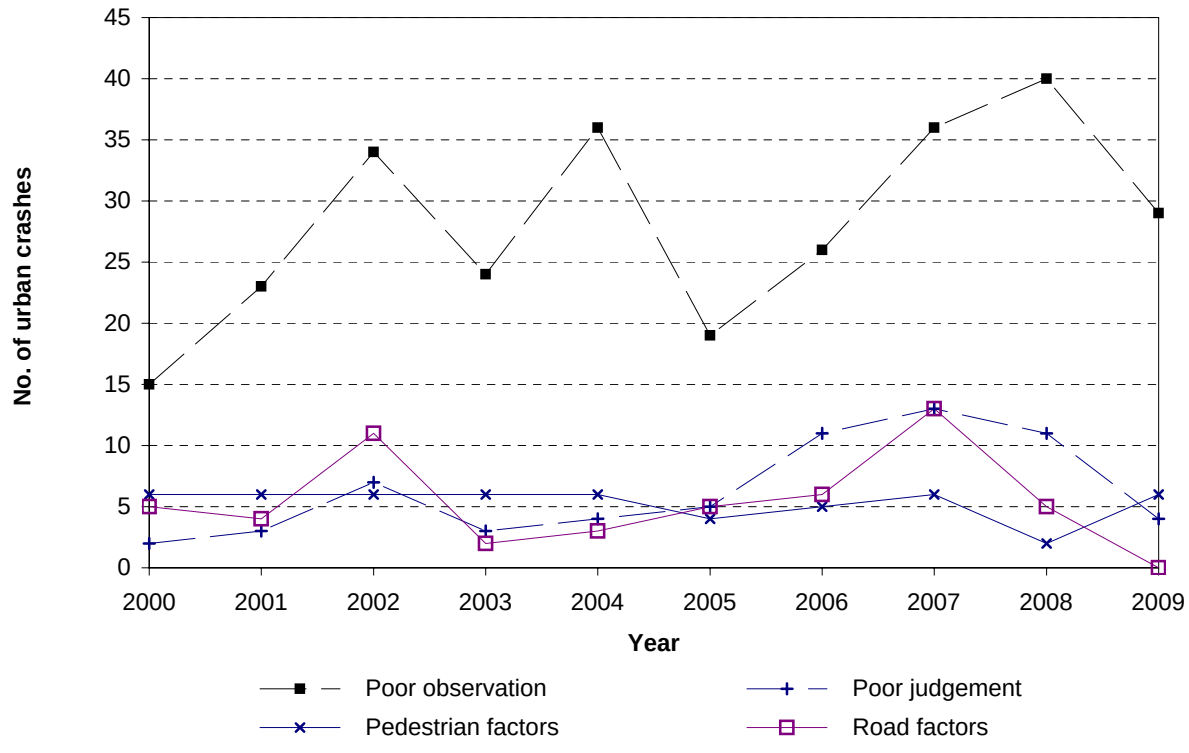


Figure 5.5 Contributing factor trends
Papakura District - urban roads

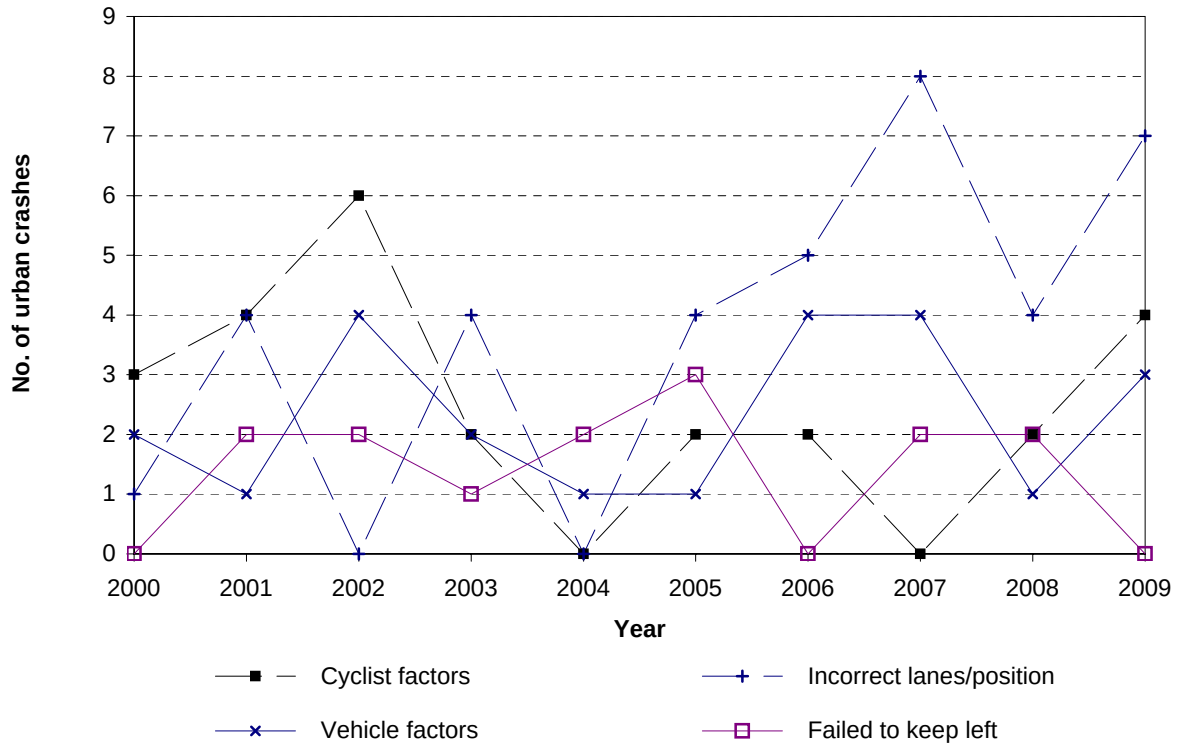


Figure 5.6 Contributing factor trends
Papakura District - urban roads

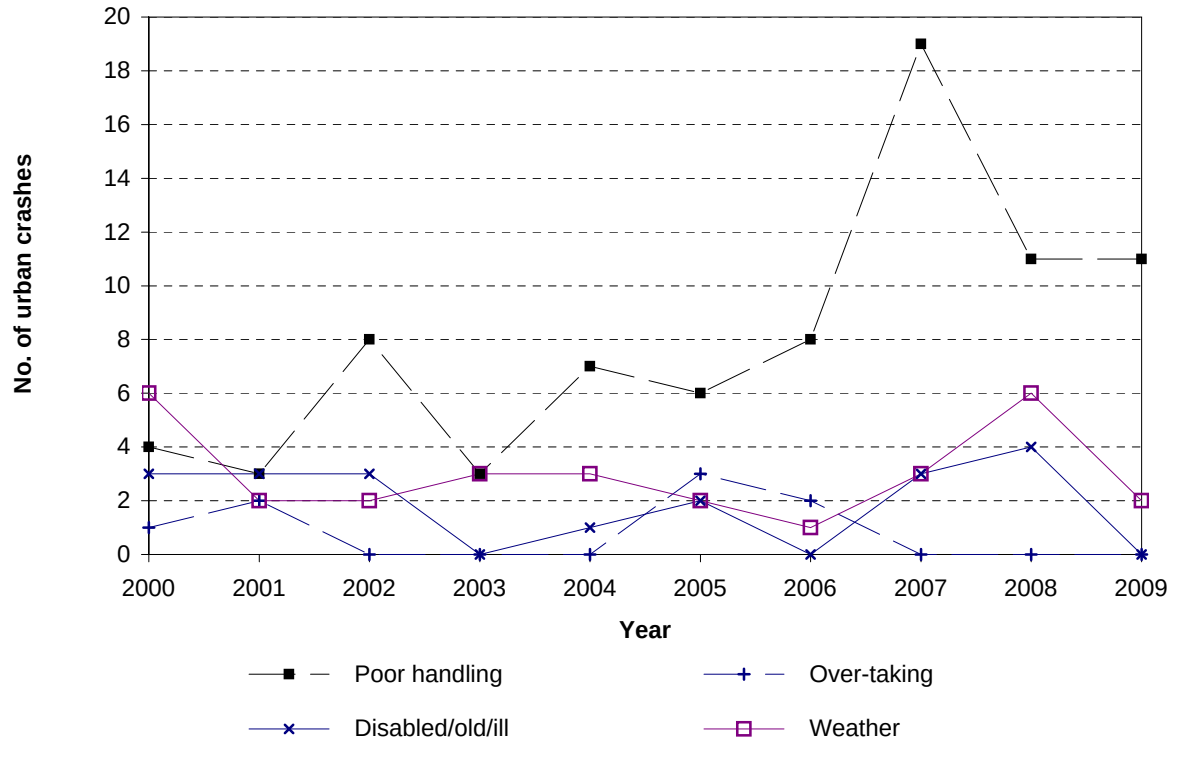
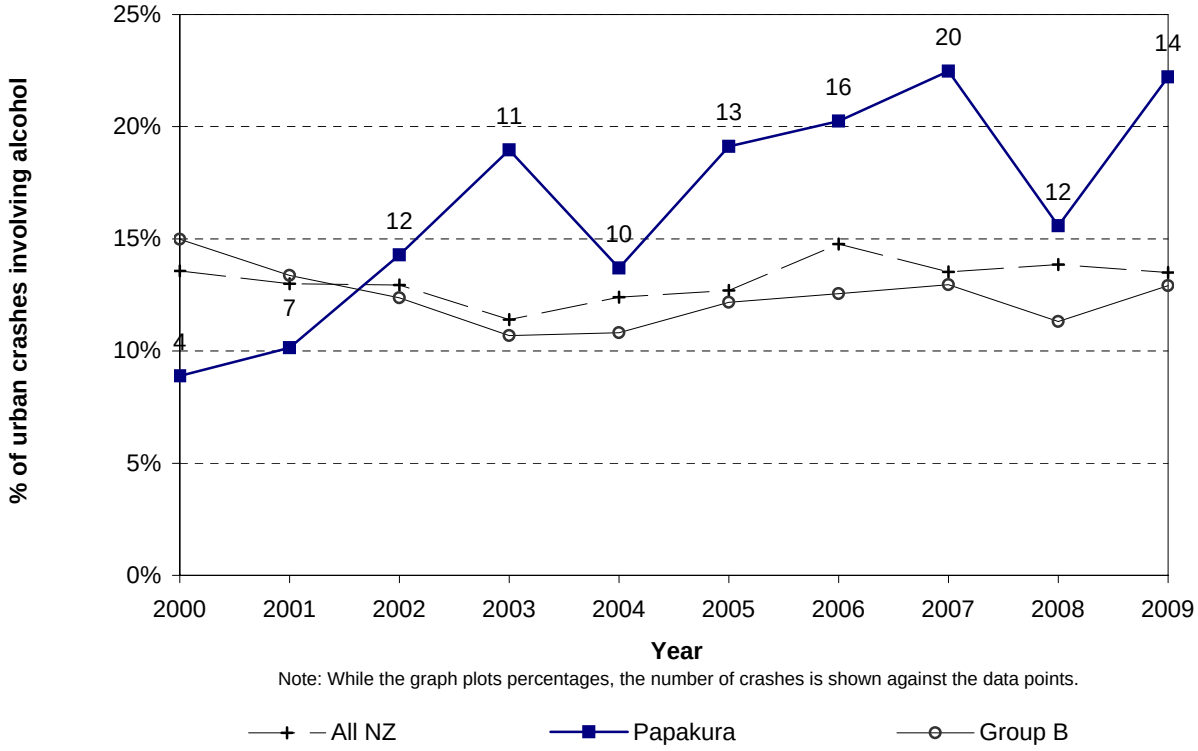
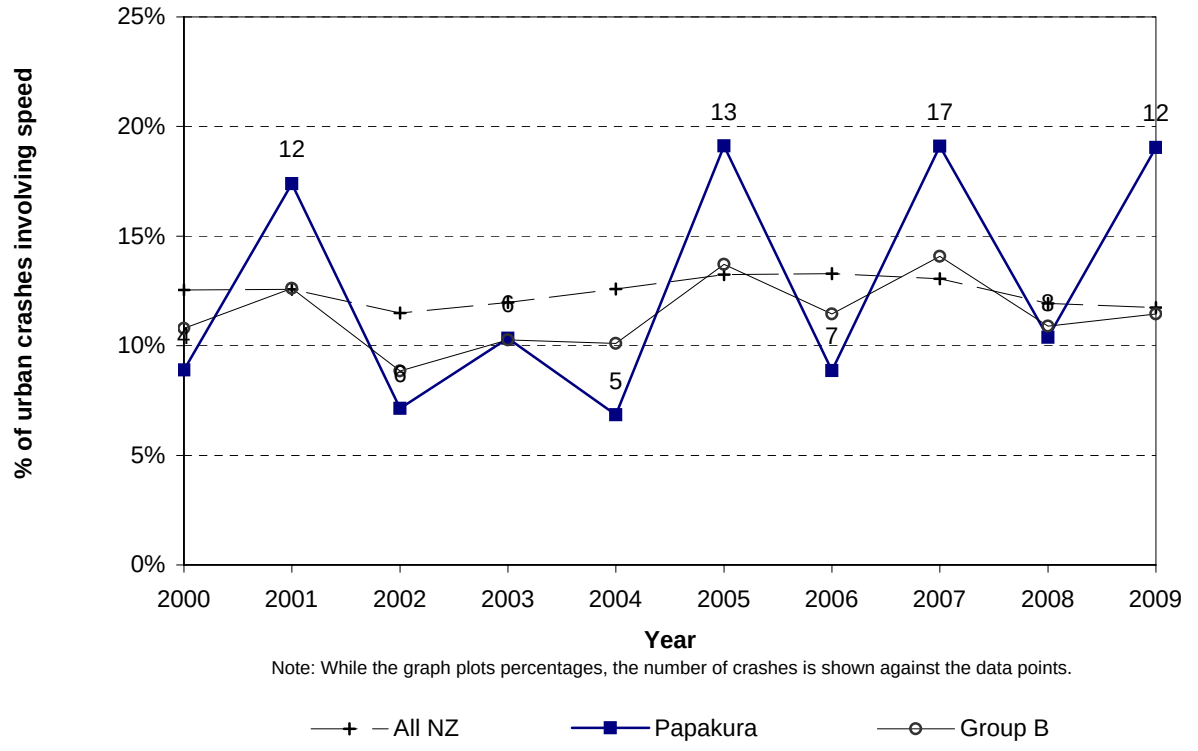


Figure 5.7 Alcohol involved trend
Papakura District - urban roads



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

Figure 5.8 Speed involved trend
Papakura District - urban roads



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

Figure 5.9 Contributing factor trends
Papakura District - rural roads

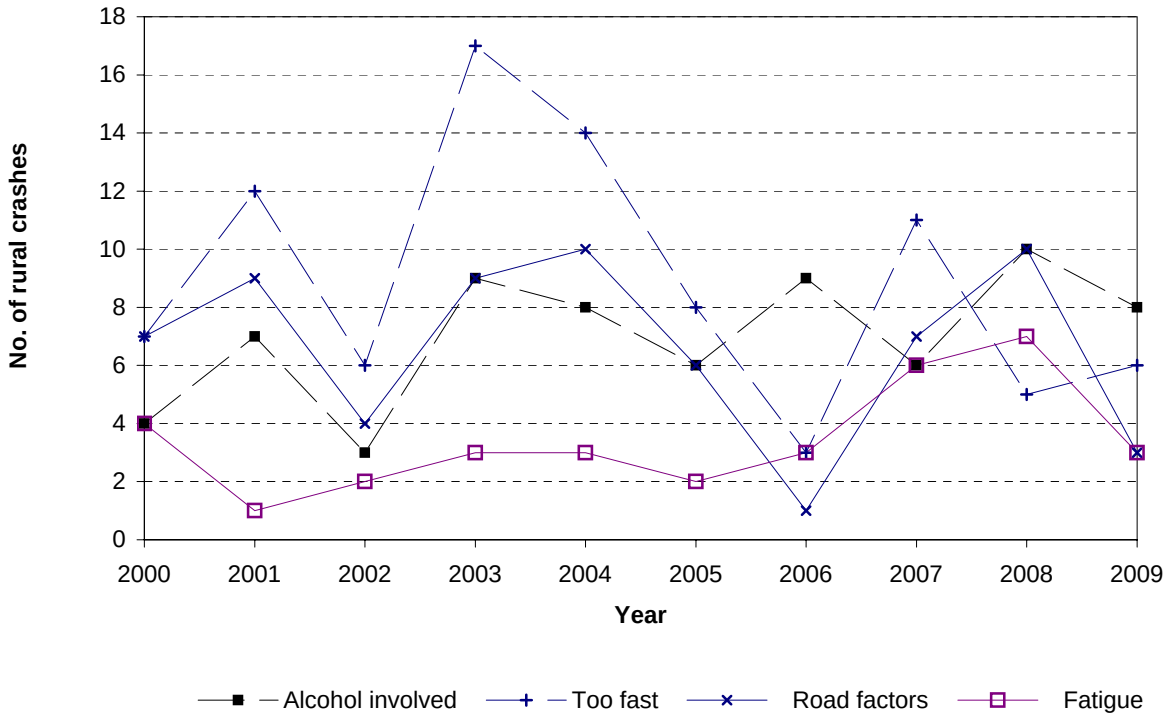


Figure 5.10 Contributing factor trends
Papakura District - rural roads

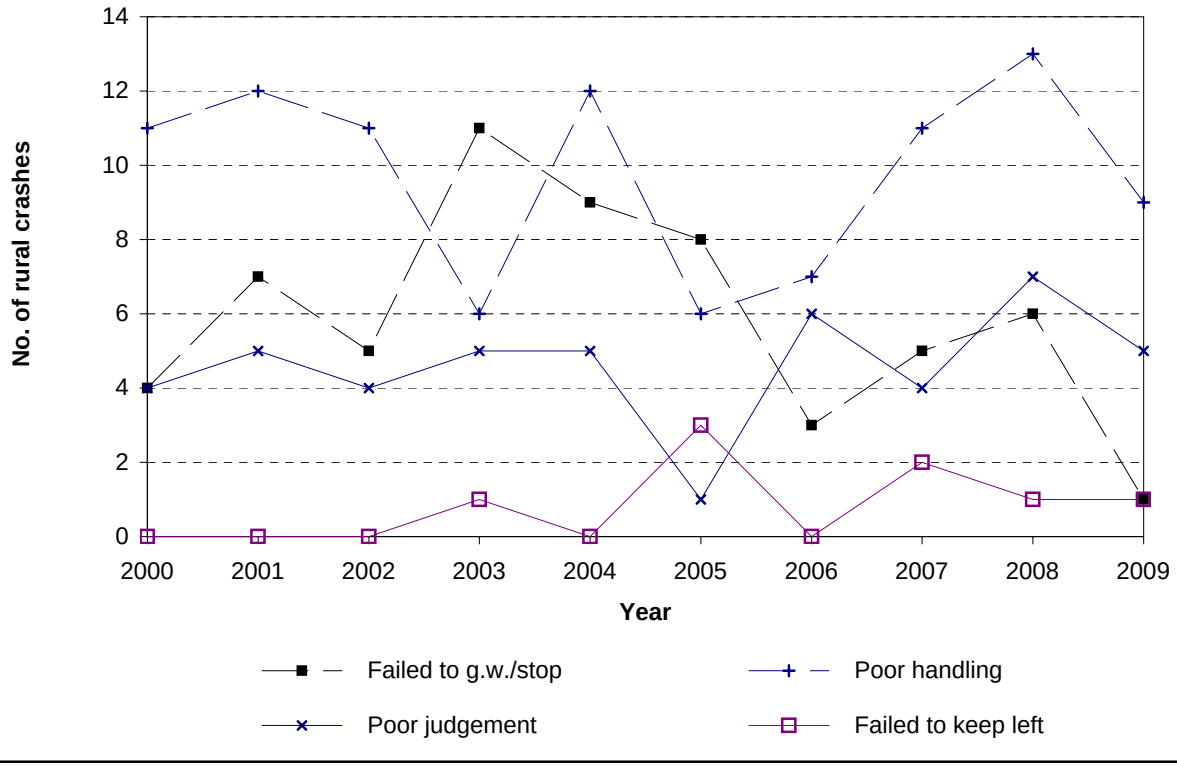


Figure 5.11 Contributing factor trends
Papakura District - rural roads

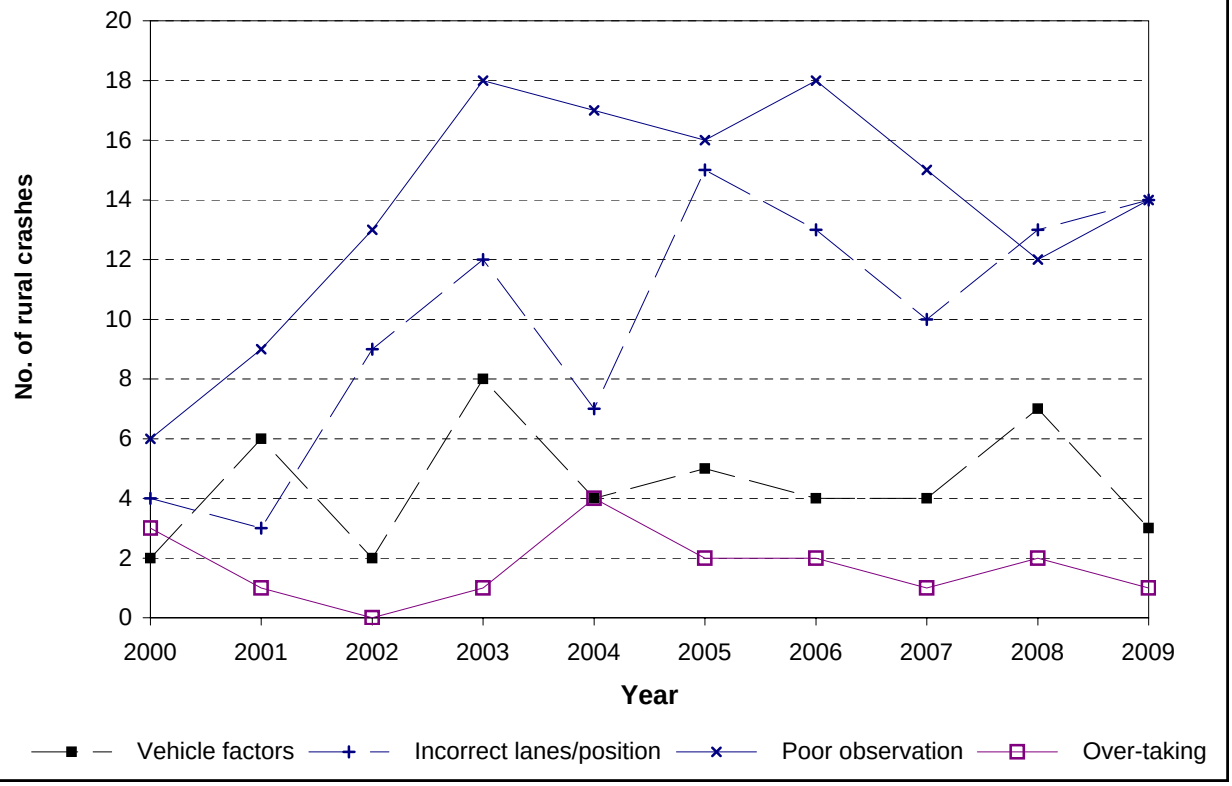


Figure 5.12 Contributing factor trends
Papakura District - rural roads

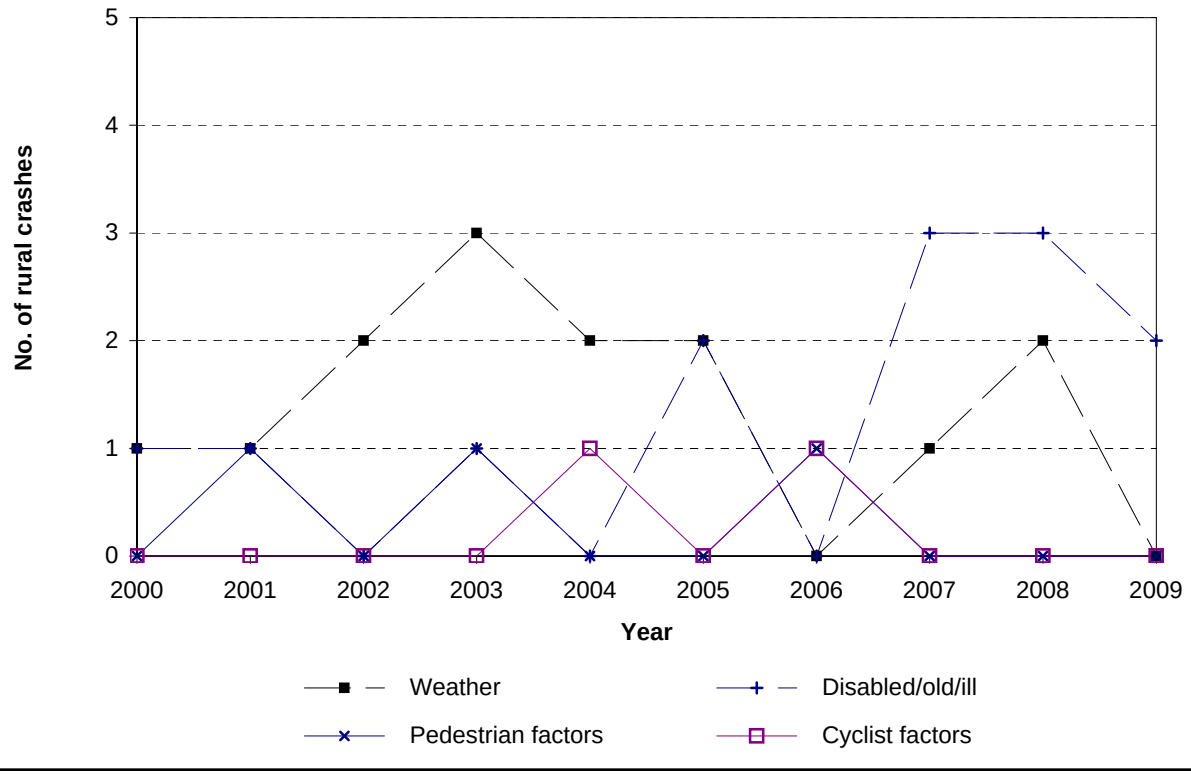
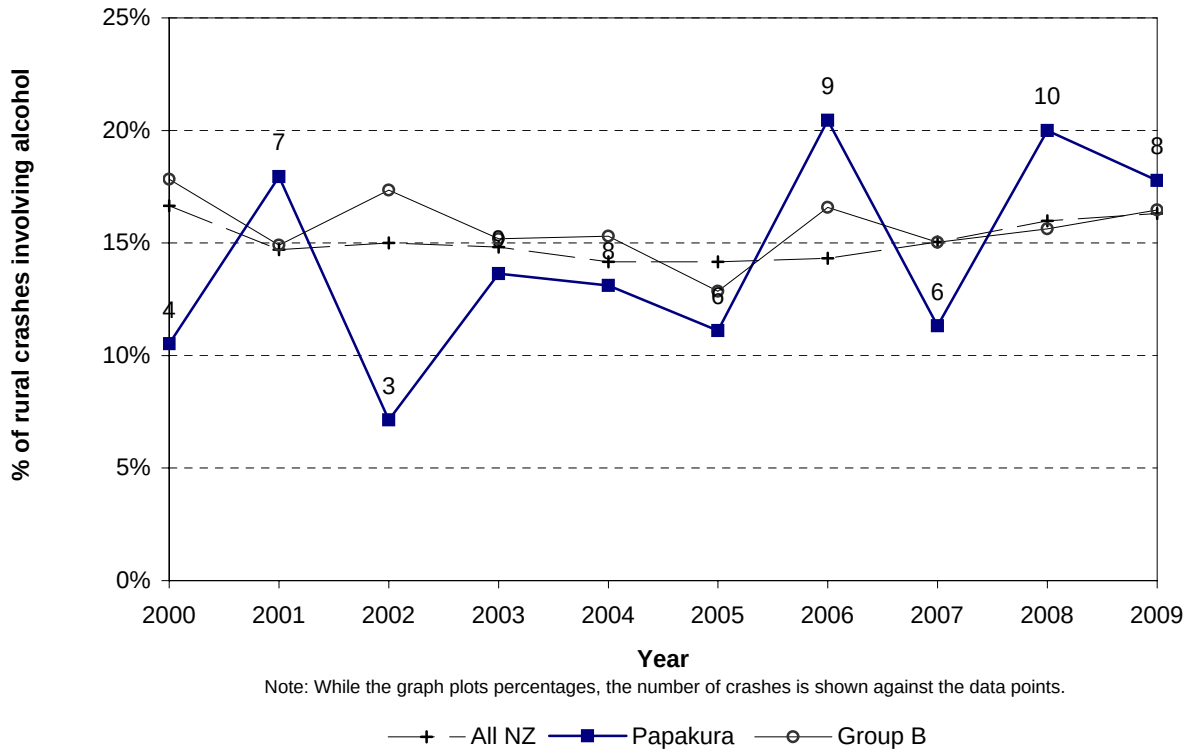
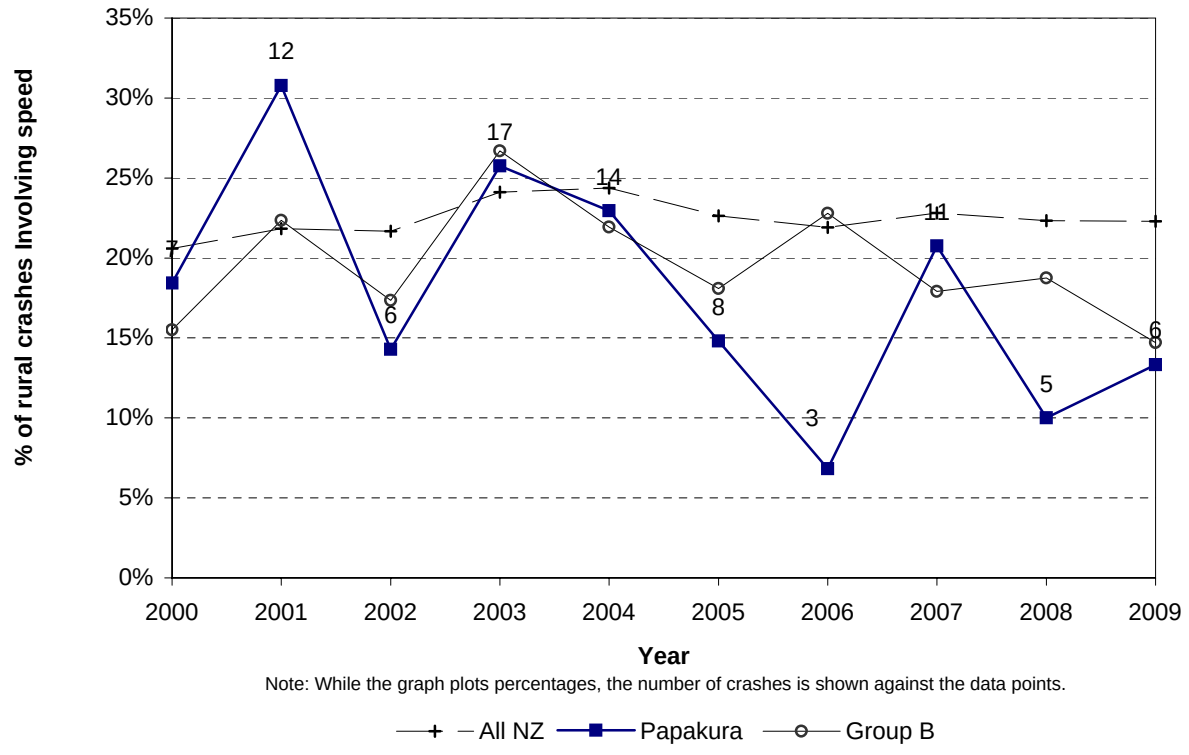


Figure 5.13 Alcohol involved trend
Papakura District - rural roads



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

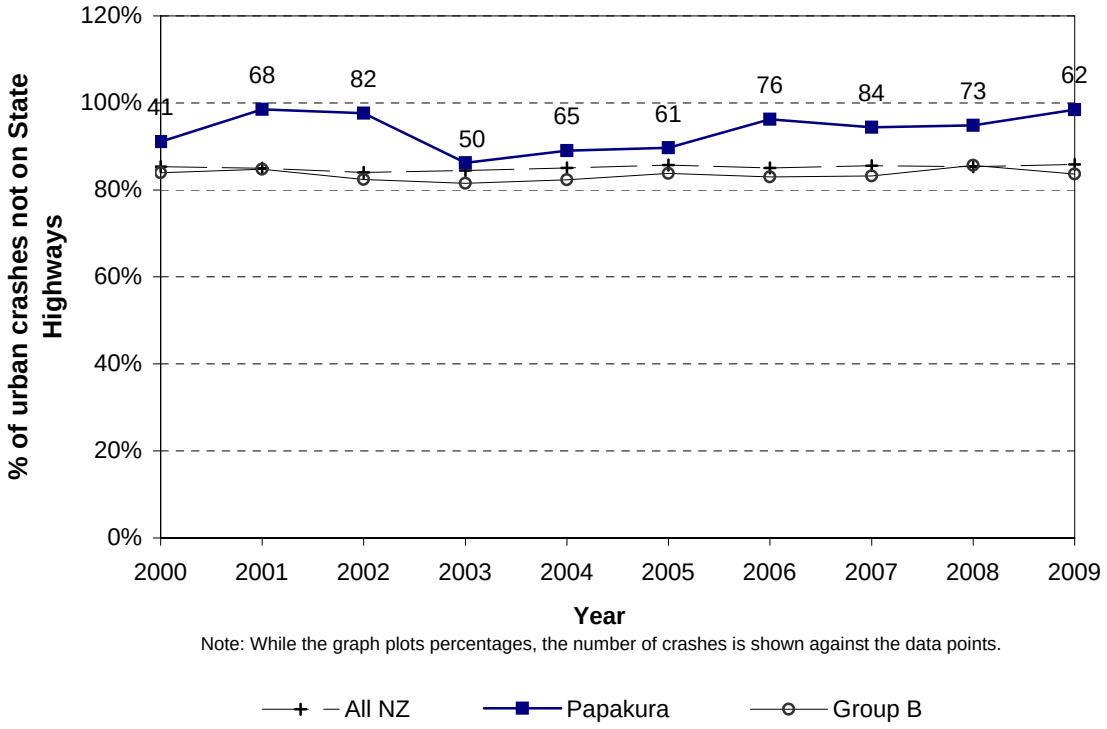
Figure 5.14 Speed involved trend
Papakura District - rural roads



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

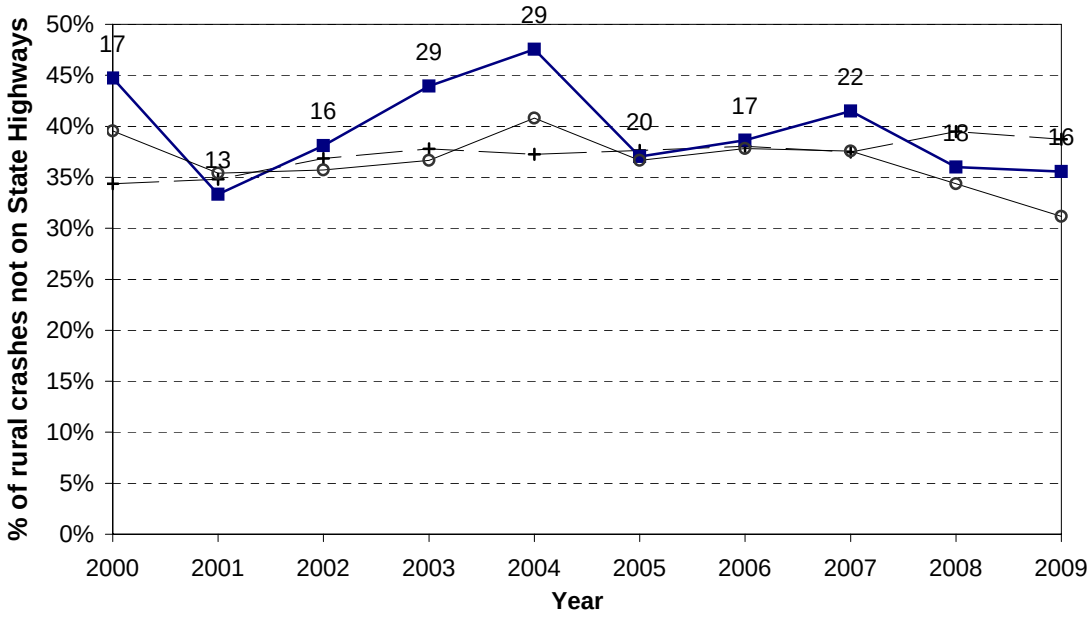
Environmental Statistics

Figure 6.1 Crashes not on state highways
Papakura District - urban roads



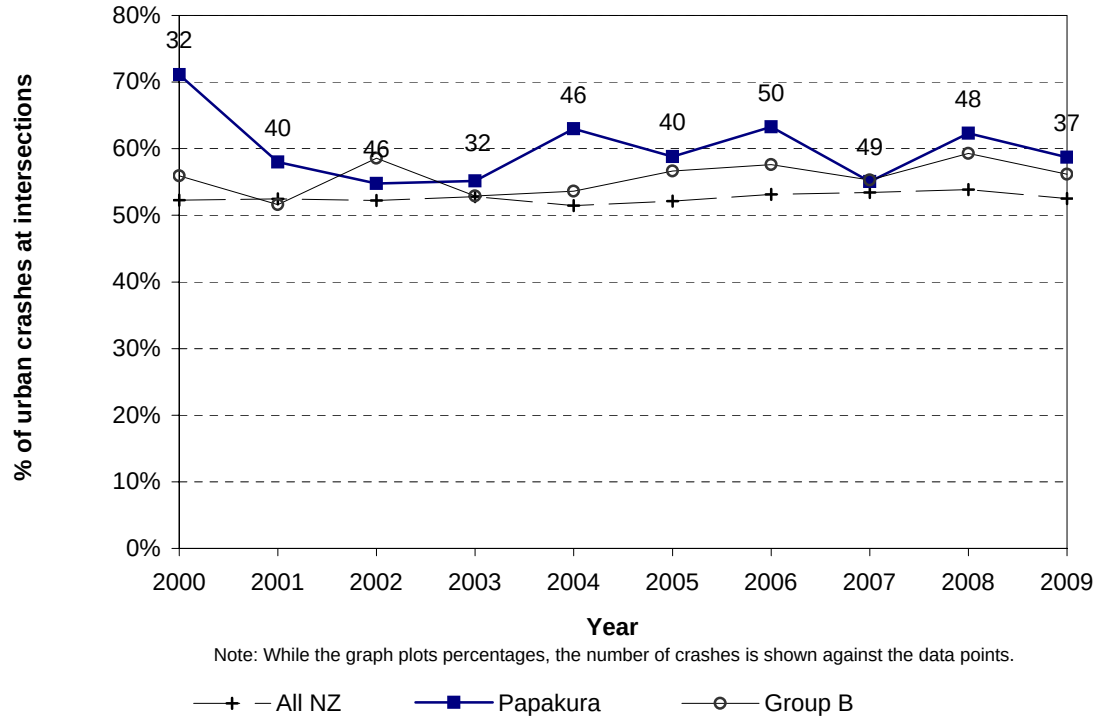
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.2 Crashes not on state highways
Papakura District - rural roads



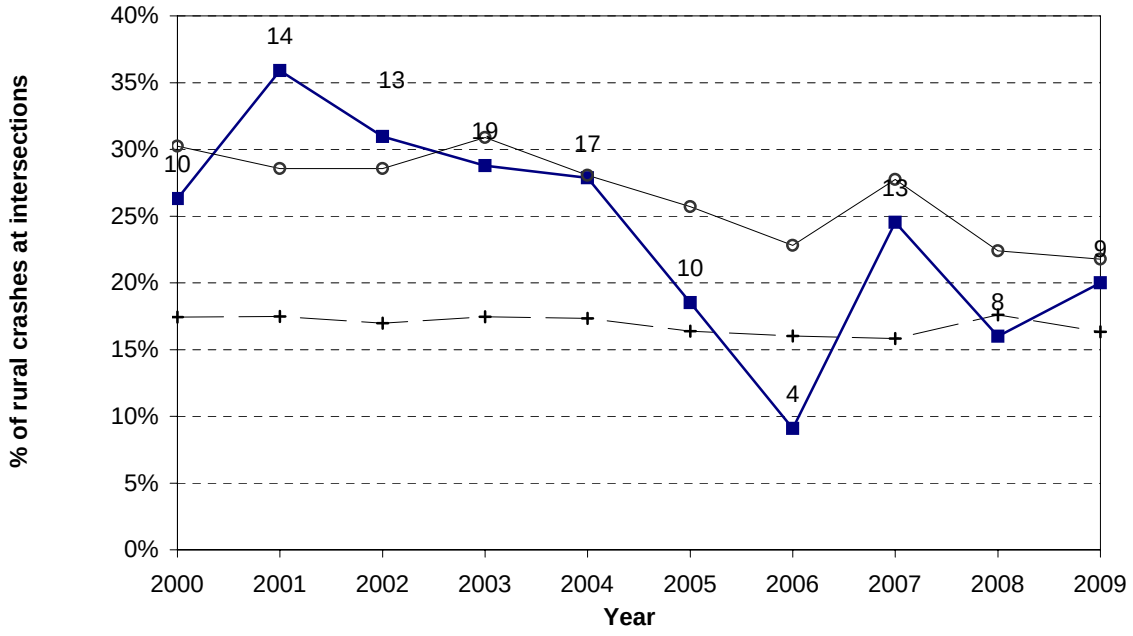
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.3 Intersection crashes
Papakura District - urban roads



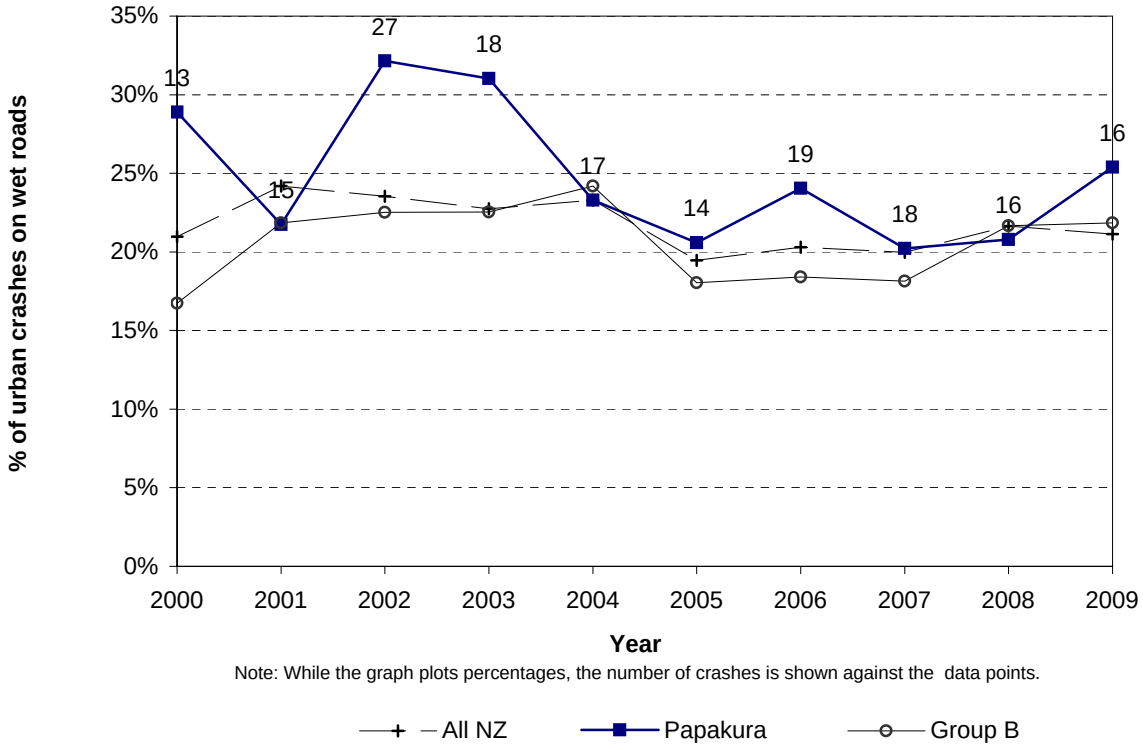
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.4 Intersection crashes
Papakura District - rural roads



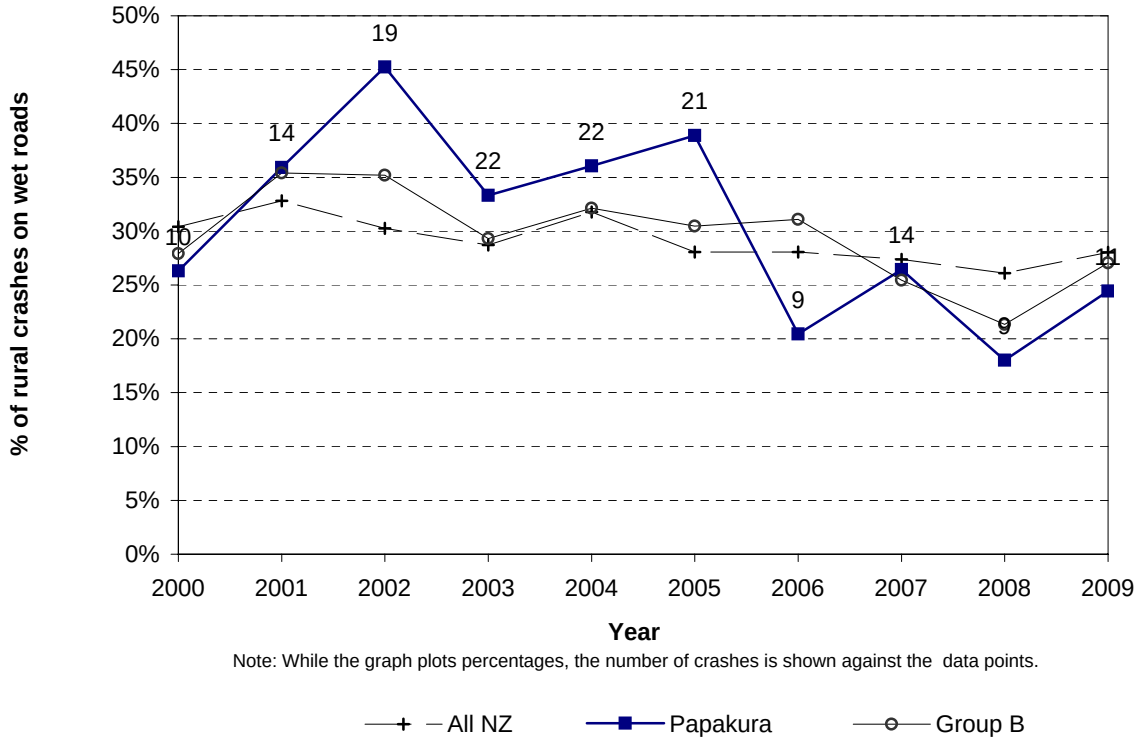
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.5 Wet road crashes
Papakura District - urban roads



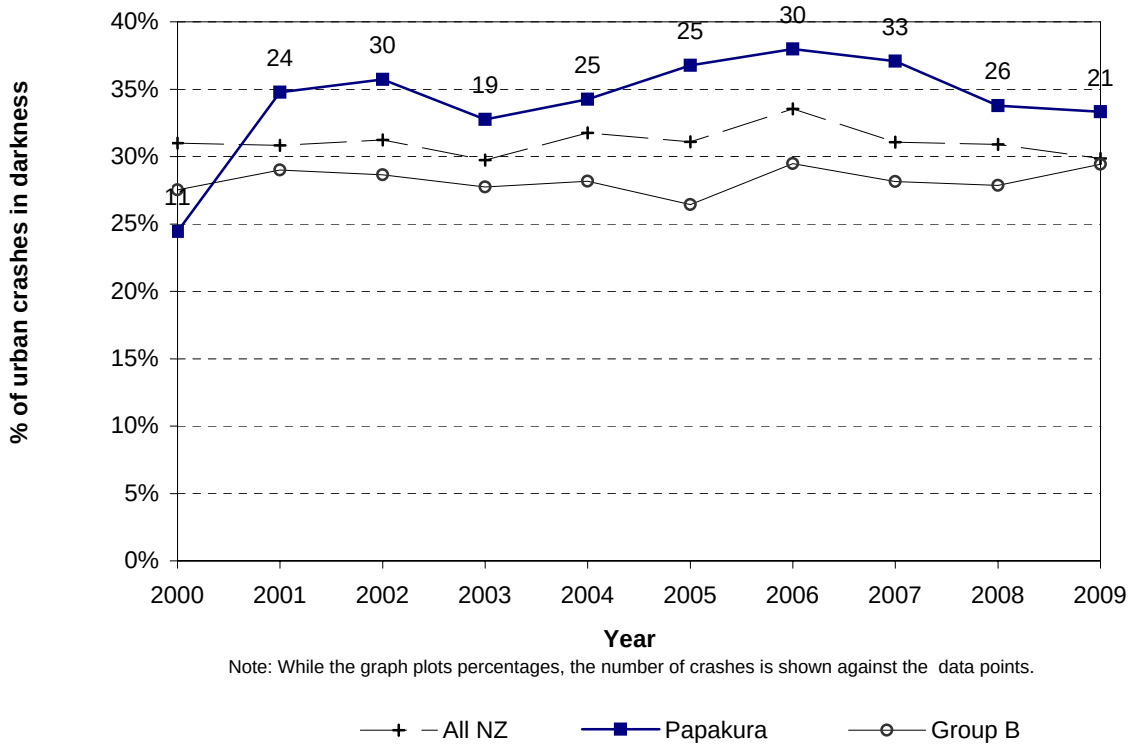
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.6 Wet road crashes
Papakura District - rural roads



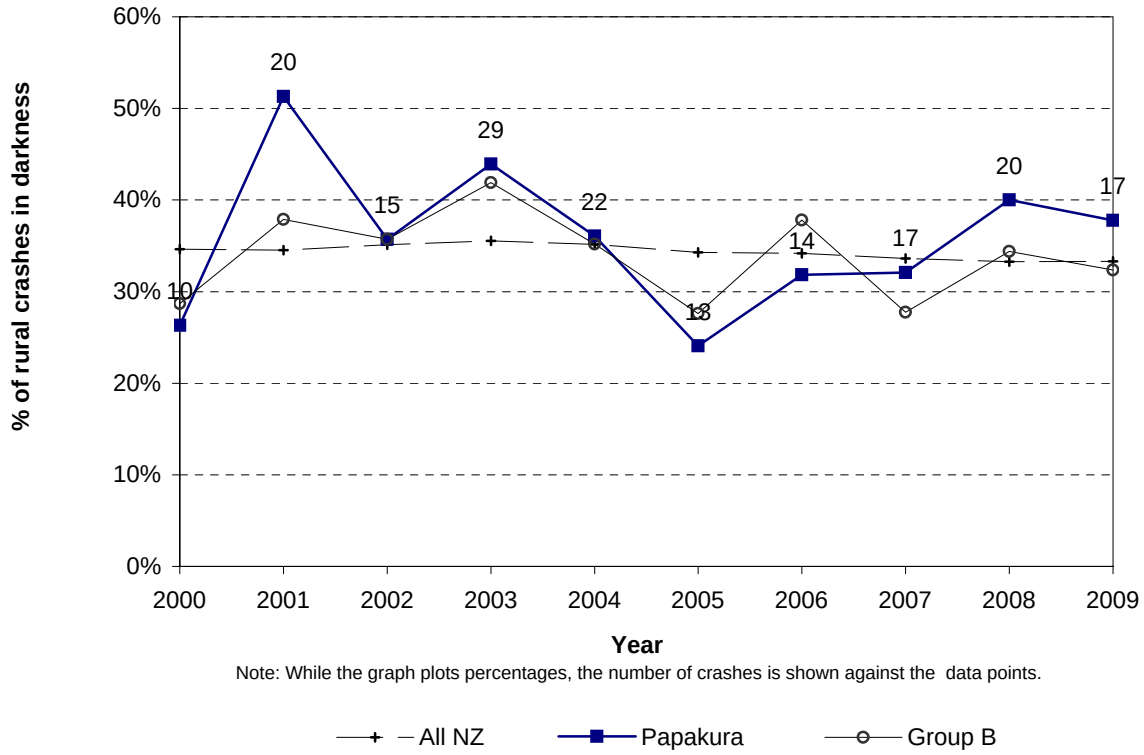
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.7 Crashes in darkness
Papakura District - urban roads



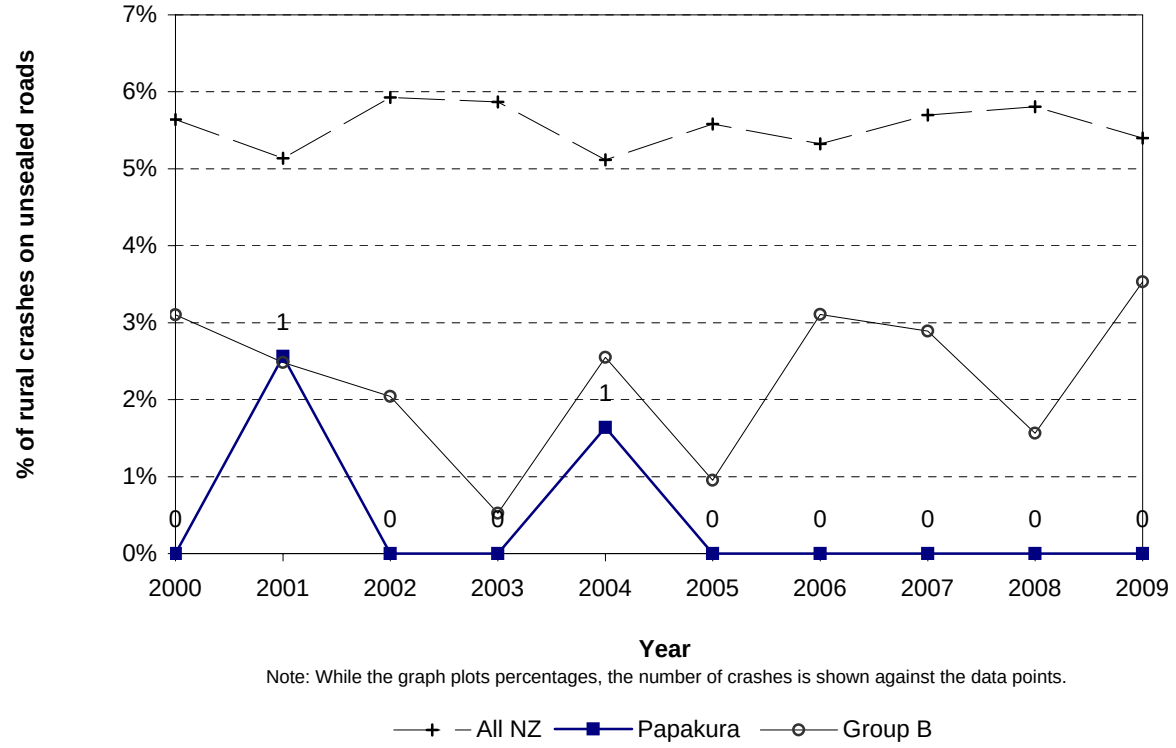
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.8 Crashes in darkness
Papakura District - rural roads



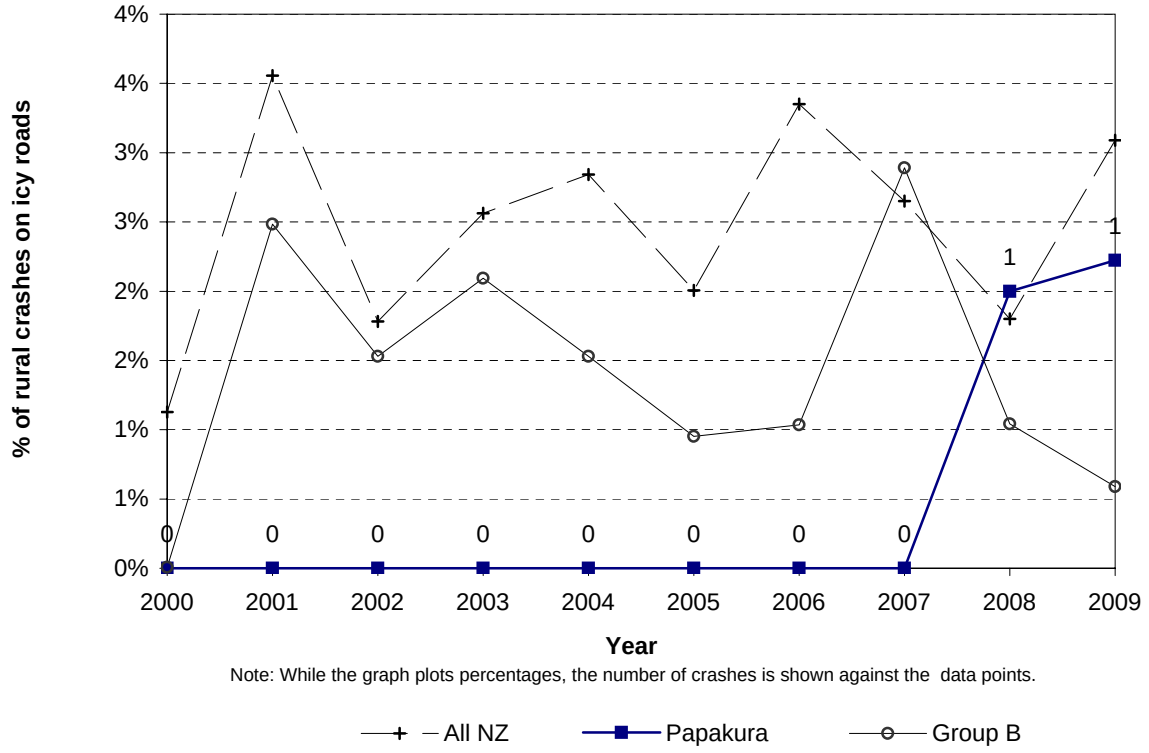
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.9 Unsealed road crashes
Papakura District - rural roads



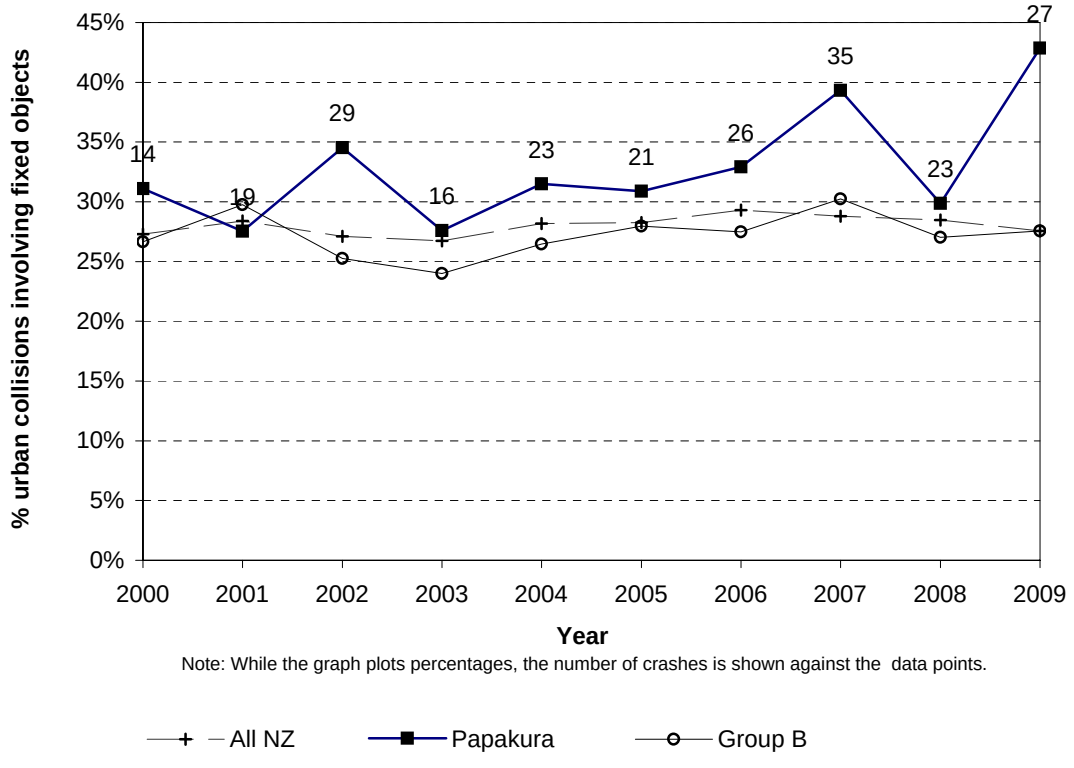
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.10 Icy road crashes
Papakura District - rural roads



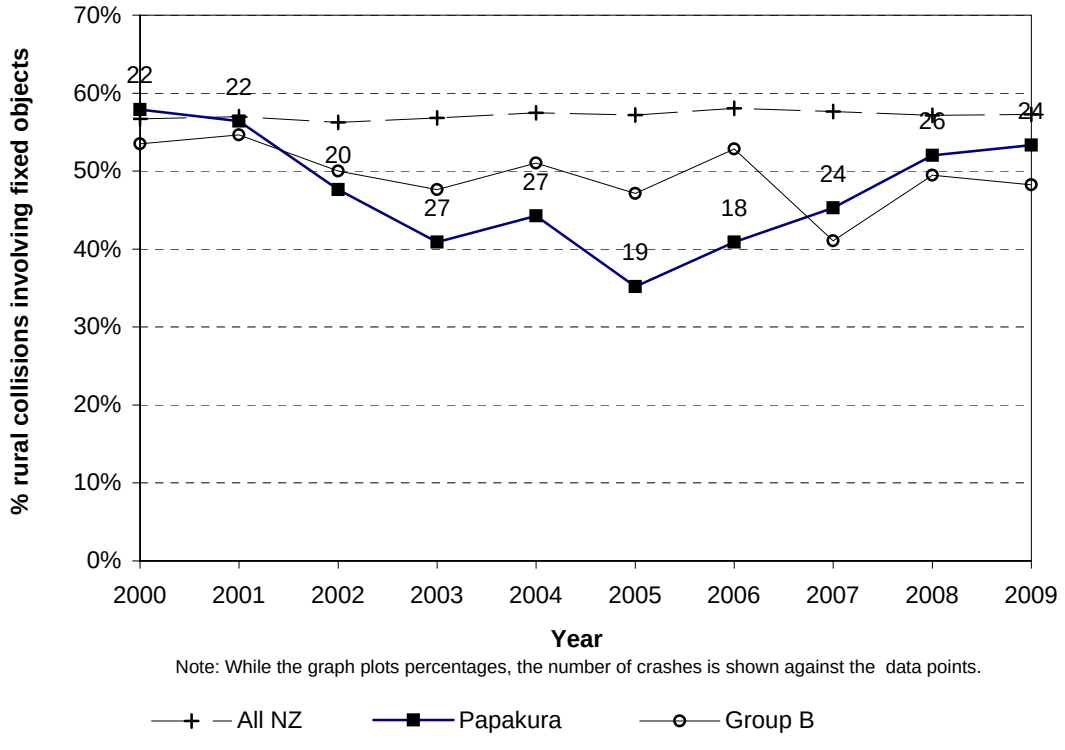
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.11 Collisions with objects
Papakura District - urban roads



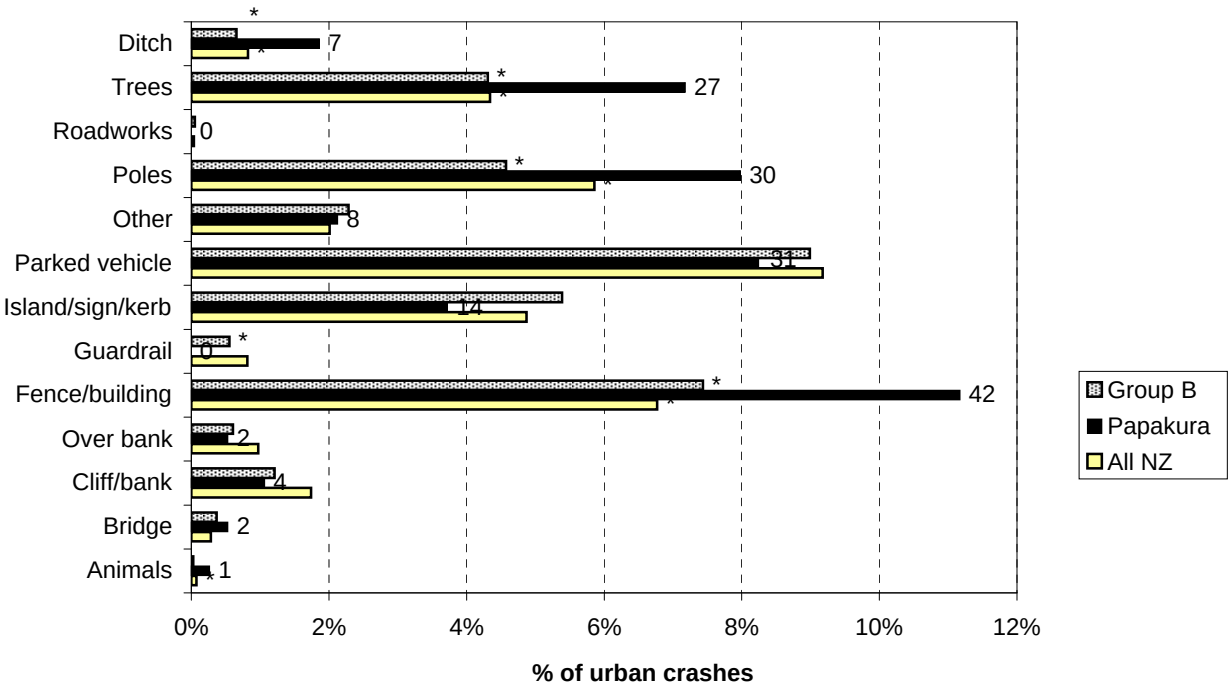
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.12 Collisions with objects
Papakura District - rural roads



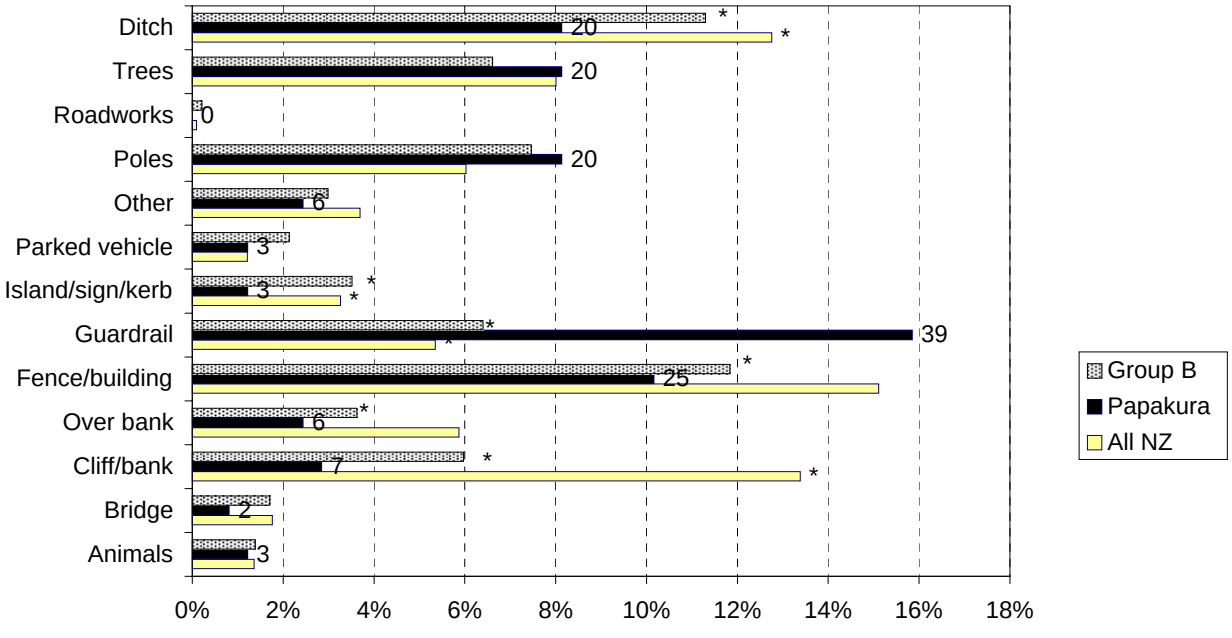
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.13 Objects struck - urban Papakura District (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 Papakura District (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

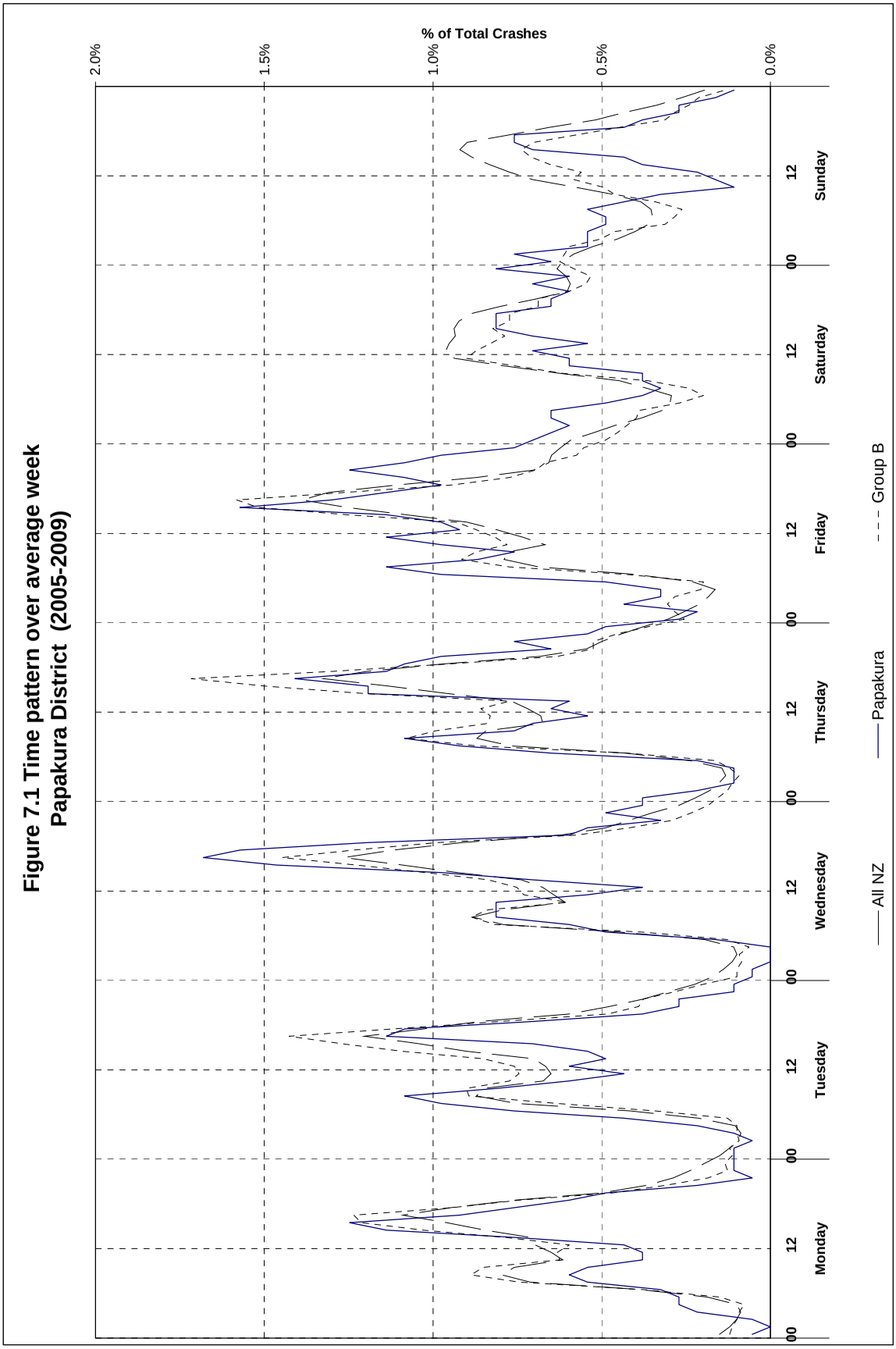
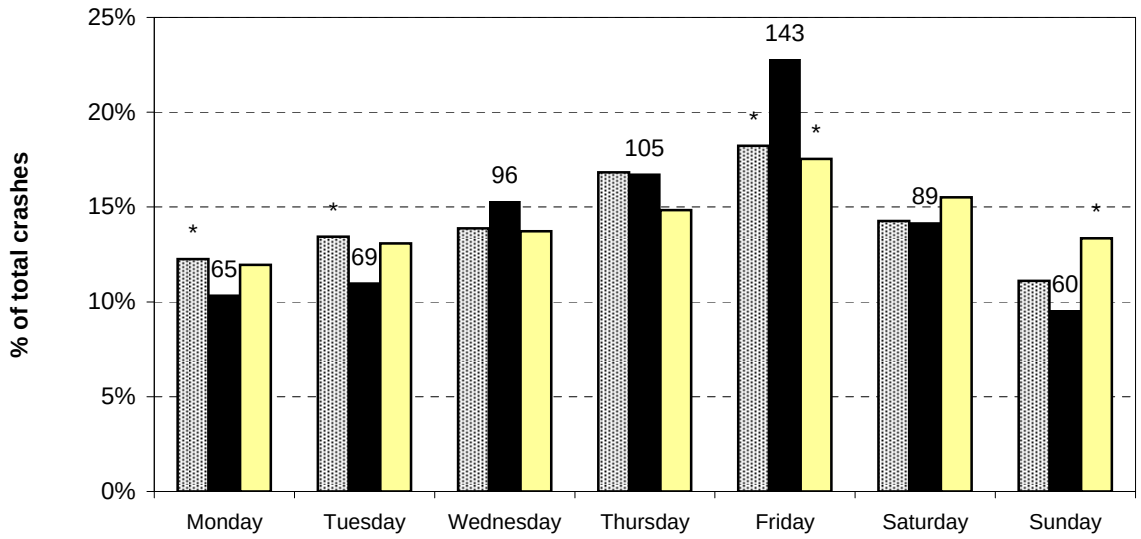


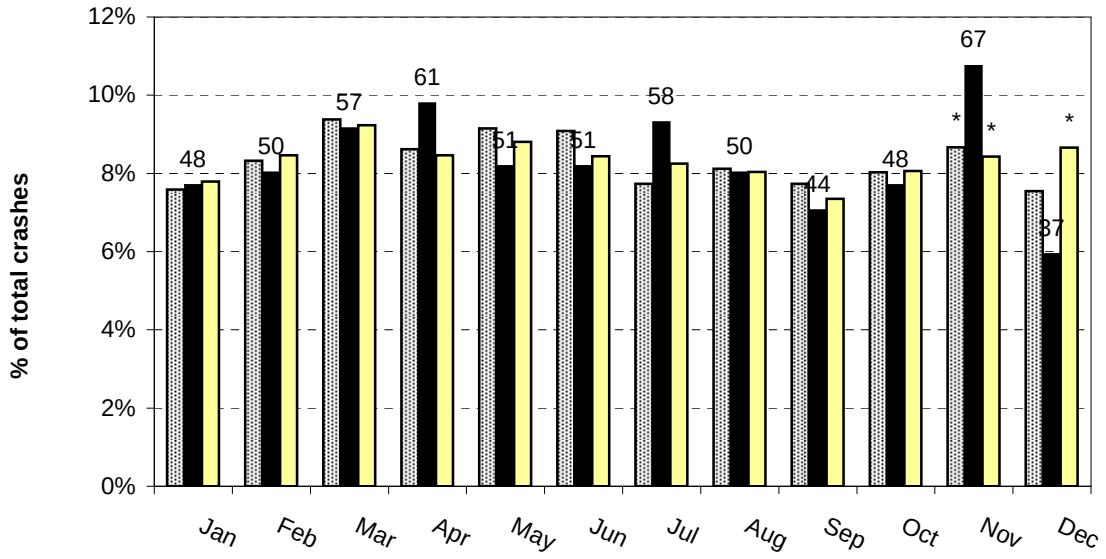
Figure 7.1 Time pattern over average week
Papakura District (2005-2009)

Figure 7.2 Day of week (6 a.m. to 6 a.m.)
Papakura District (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 7.3 Month of year
Papakura District (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

Local Road Statistics

Figure 8.1 Number of injury crashes
Papakura District - council roads (urban & rural)

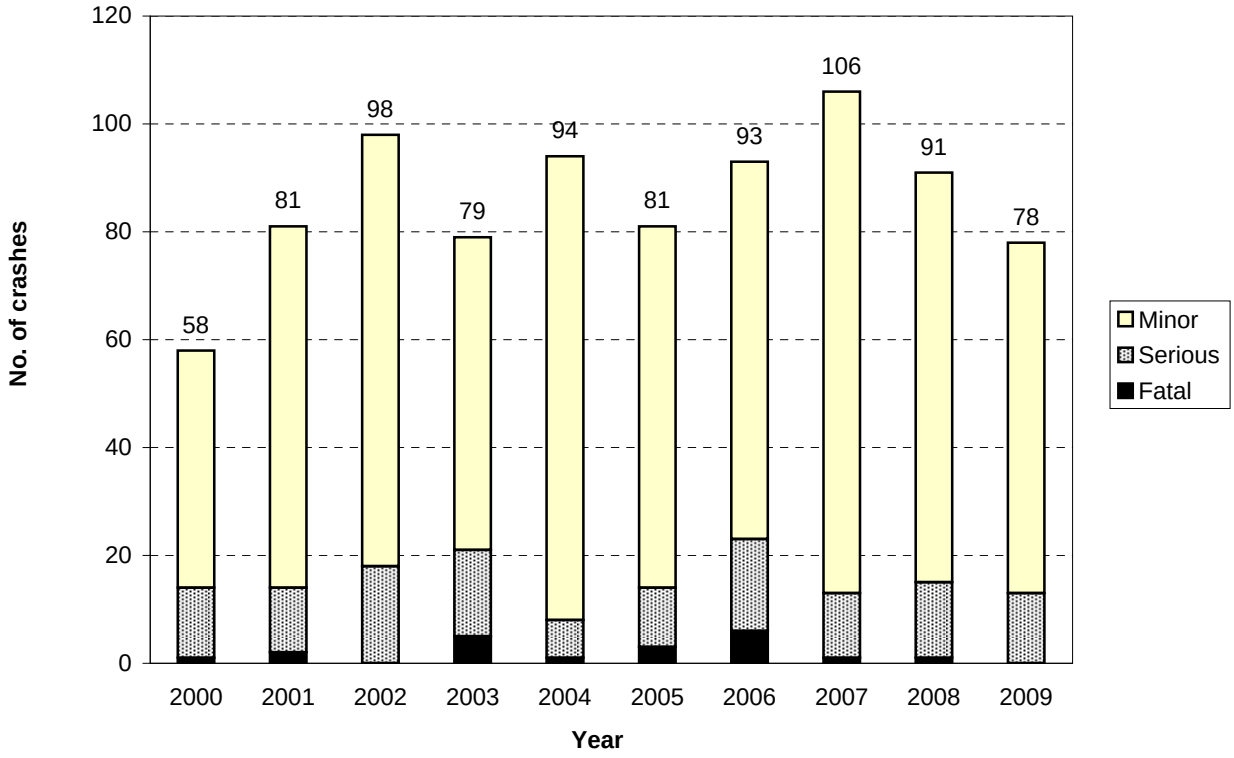


Figure 8.2 Number of casualties
Papakura District - council roads (urban & rural)

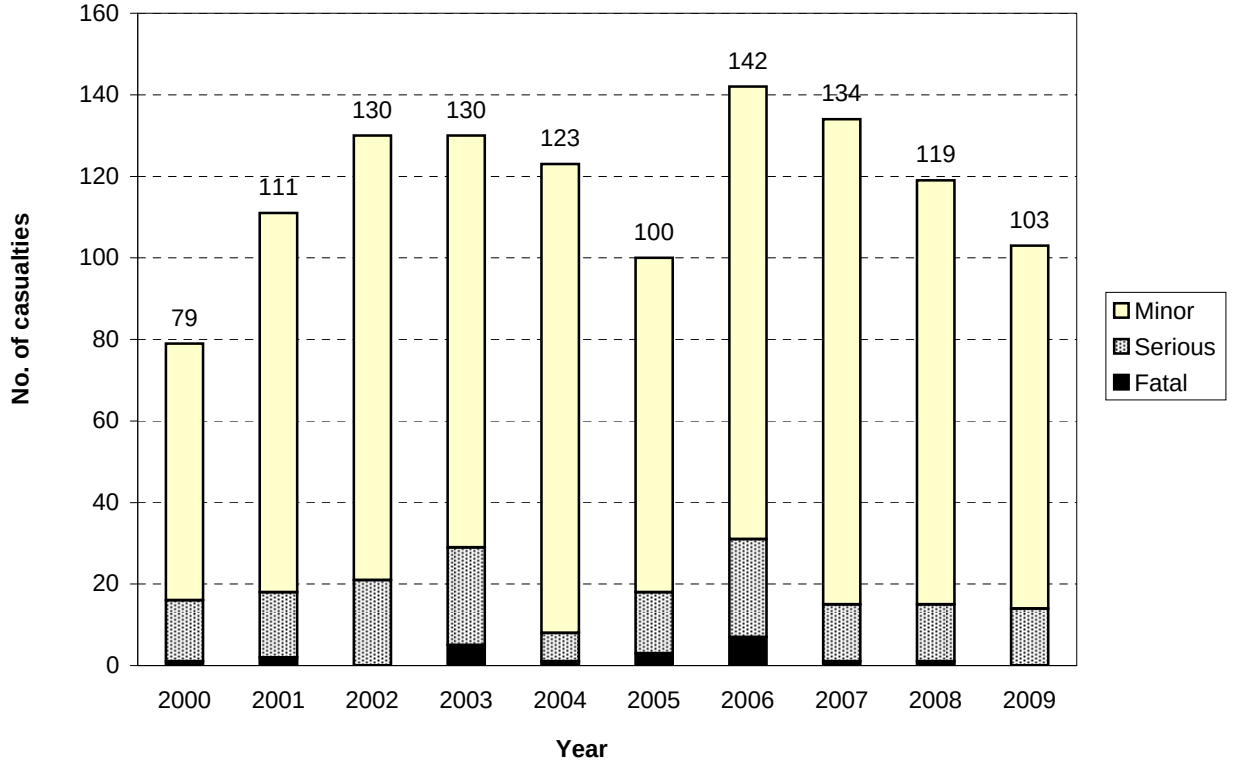


Figure 8.3 Number of injury crashes
Papakura District - urban council roads

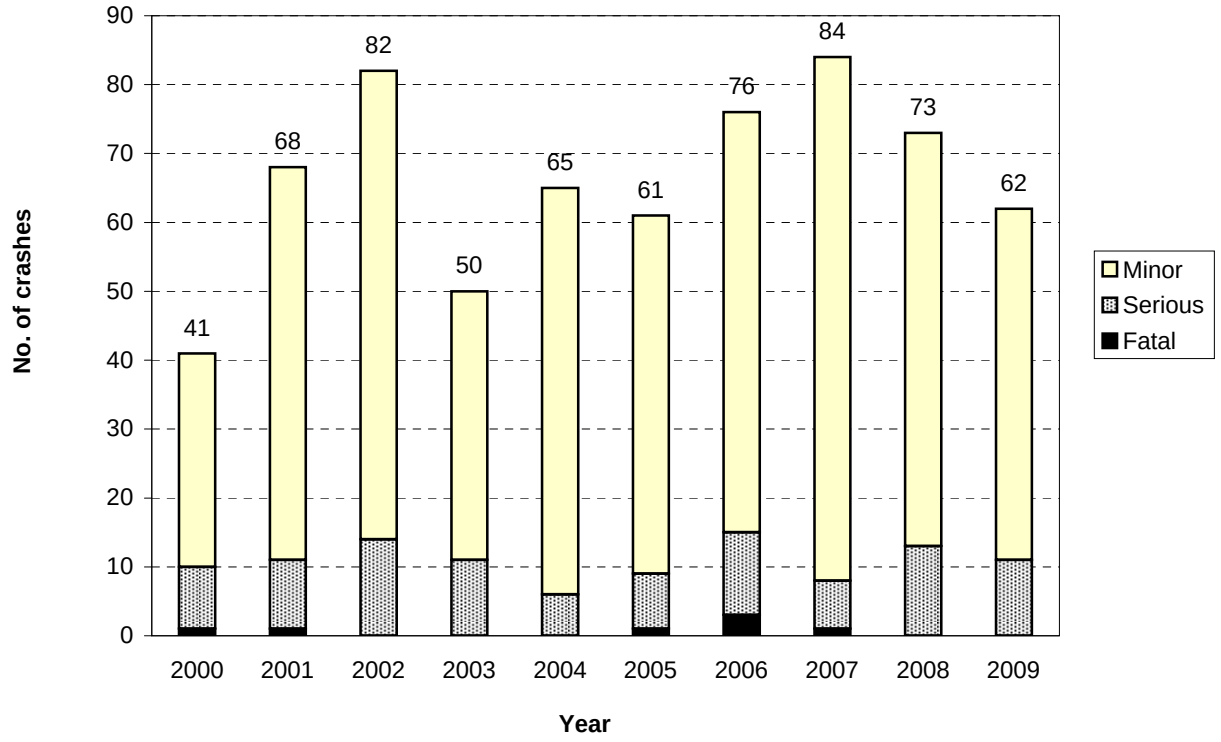


Figure 8.4 Number of casualties
Papakura District - urban council roads

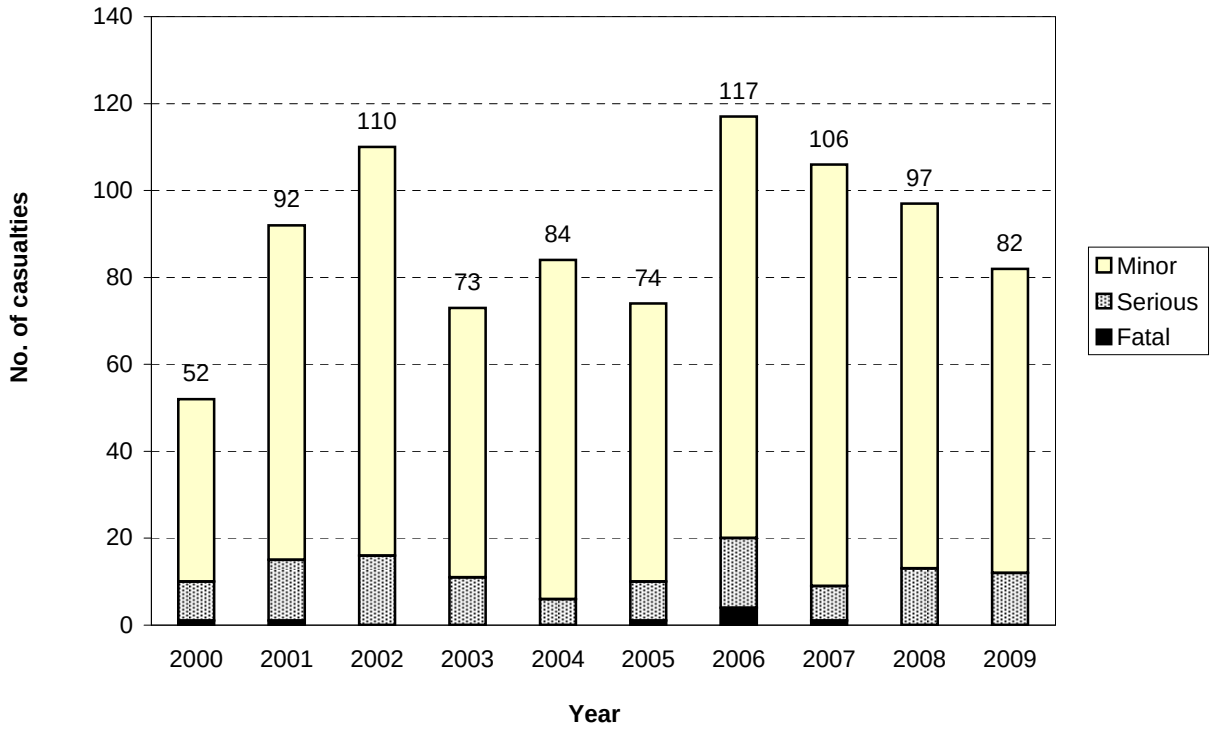


Figure 8.5 Number of injury crashes
Papakura District - rural council roads

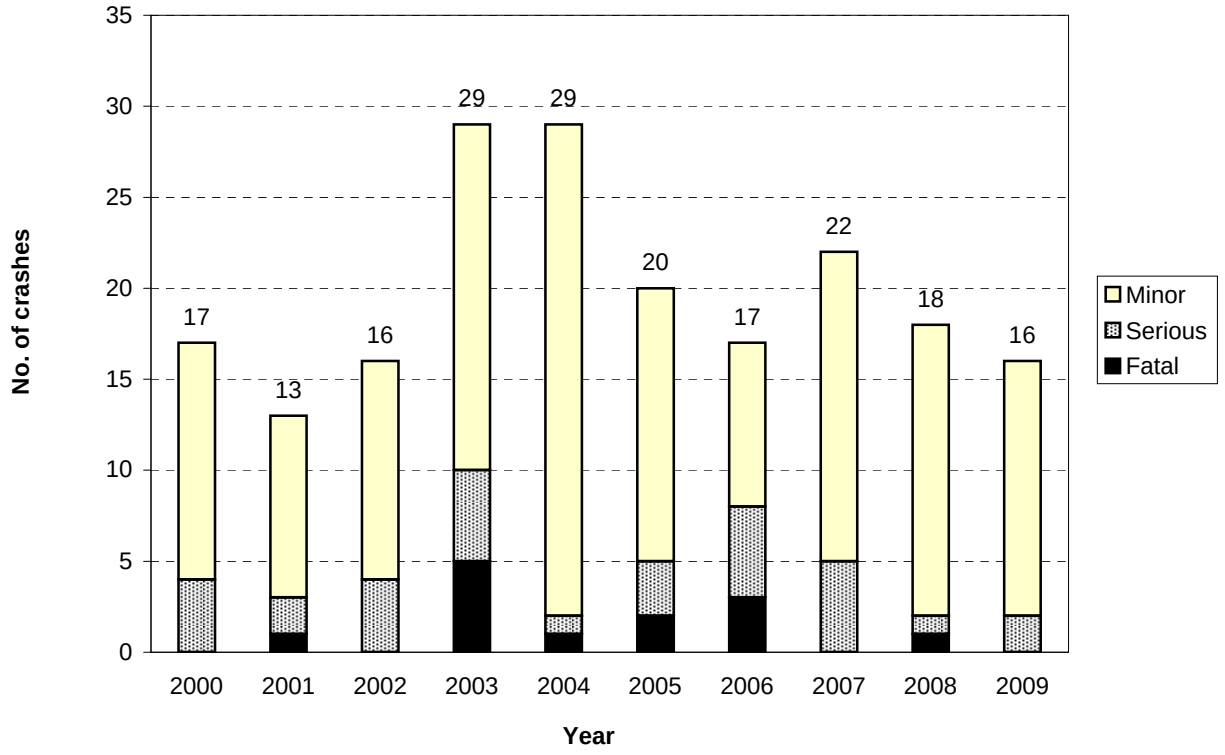


Figure 8.6 Number of casualties
Papakura District - rural council roads

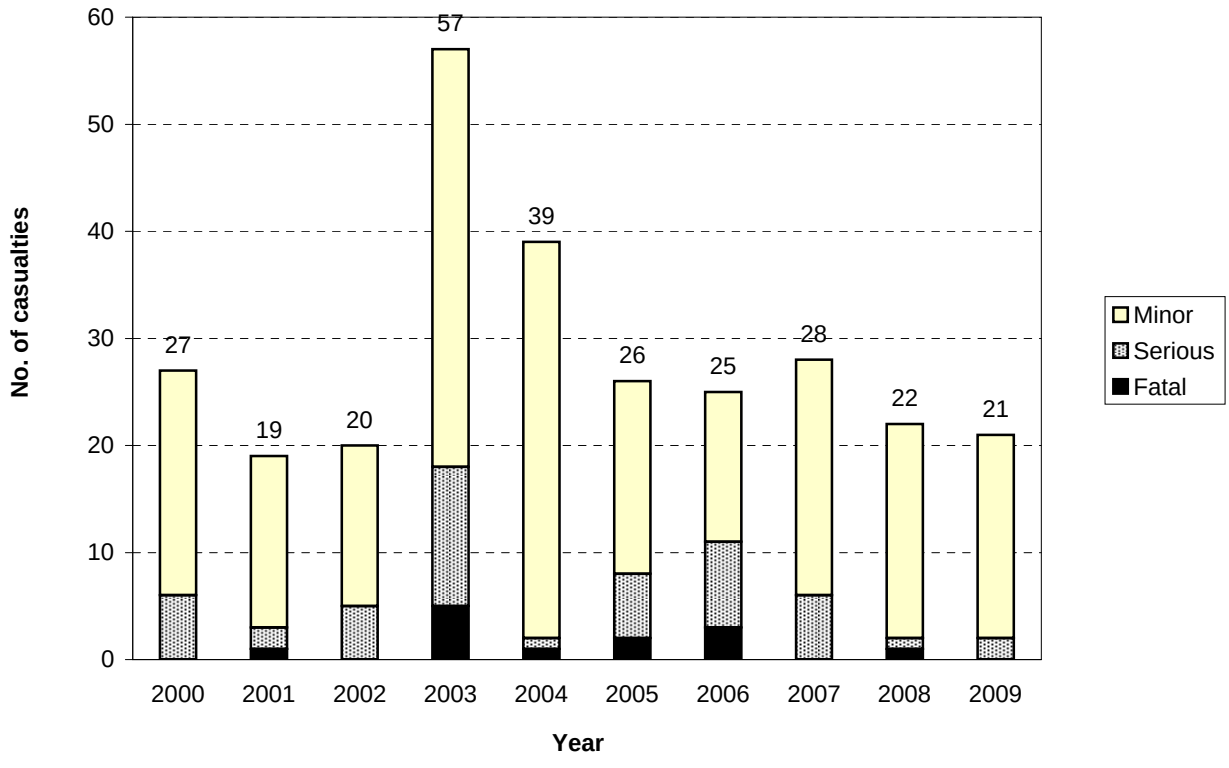
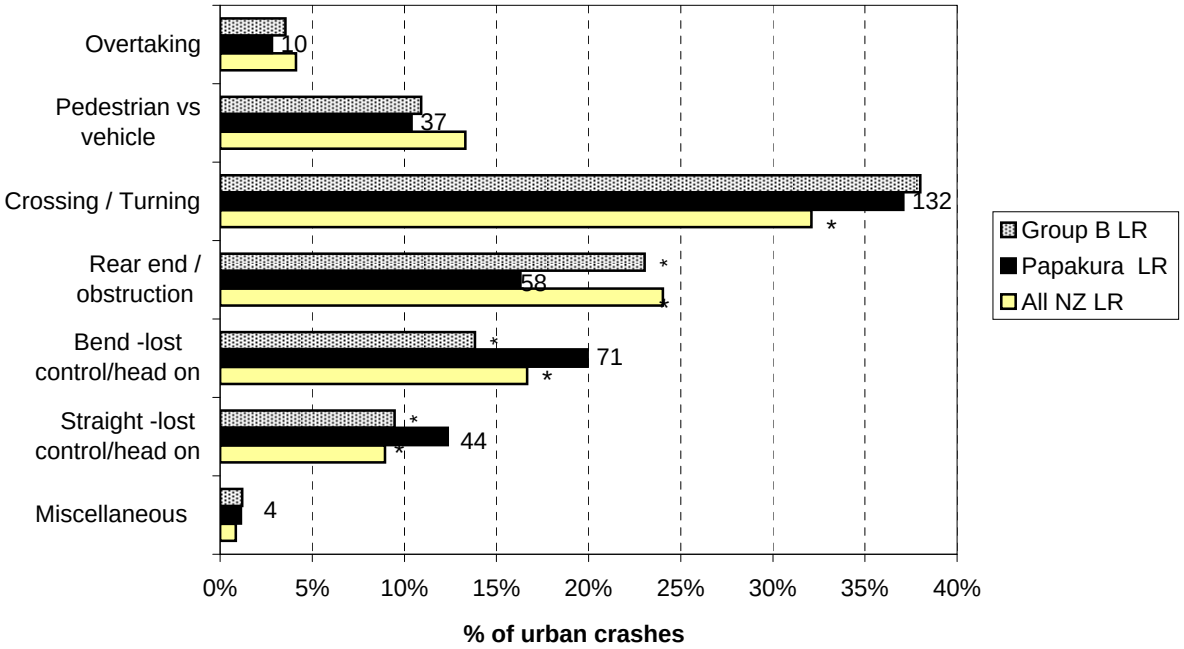
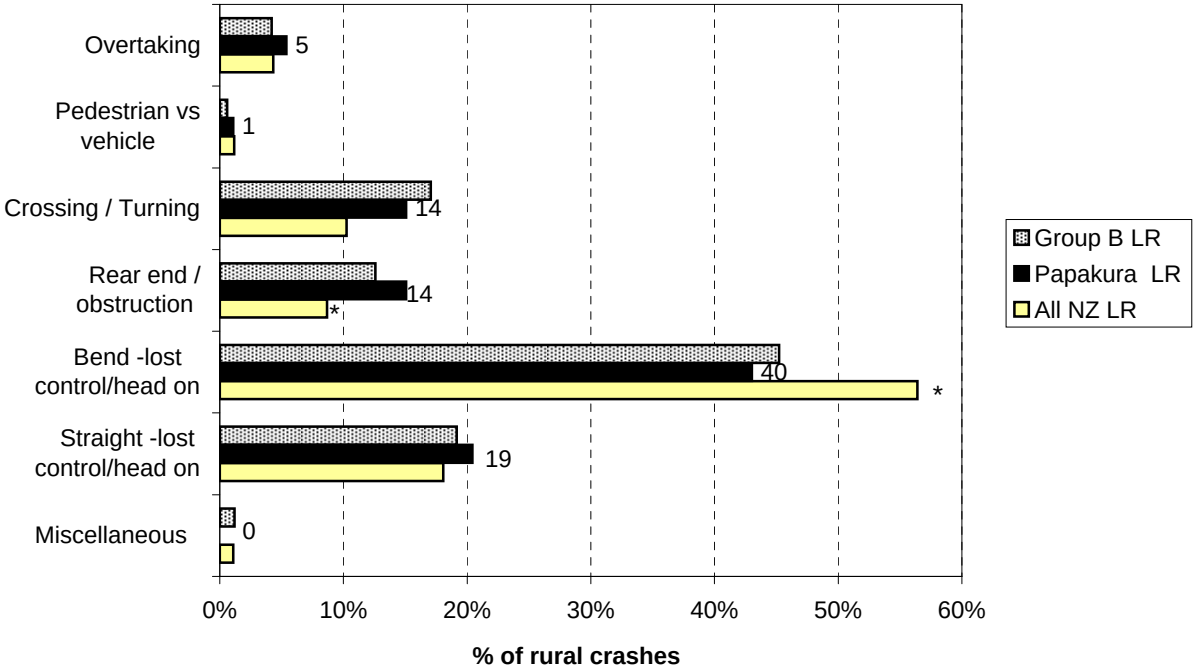


Figure 8.7 Crash movement type - urban Papakura District council roads (2005-2009)



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 Papakura District 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
Papakura District - urban council roads

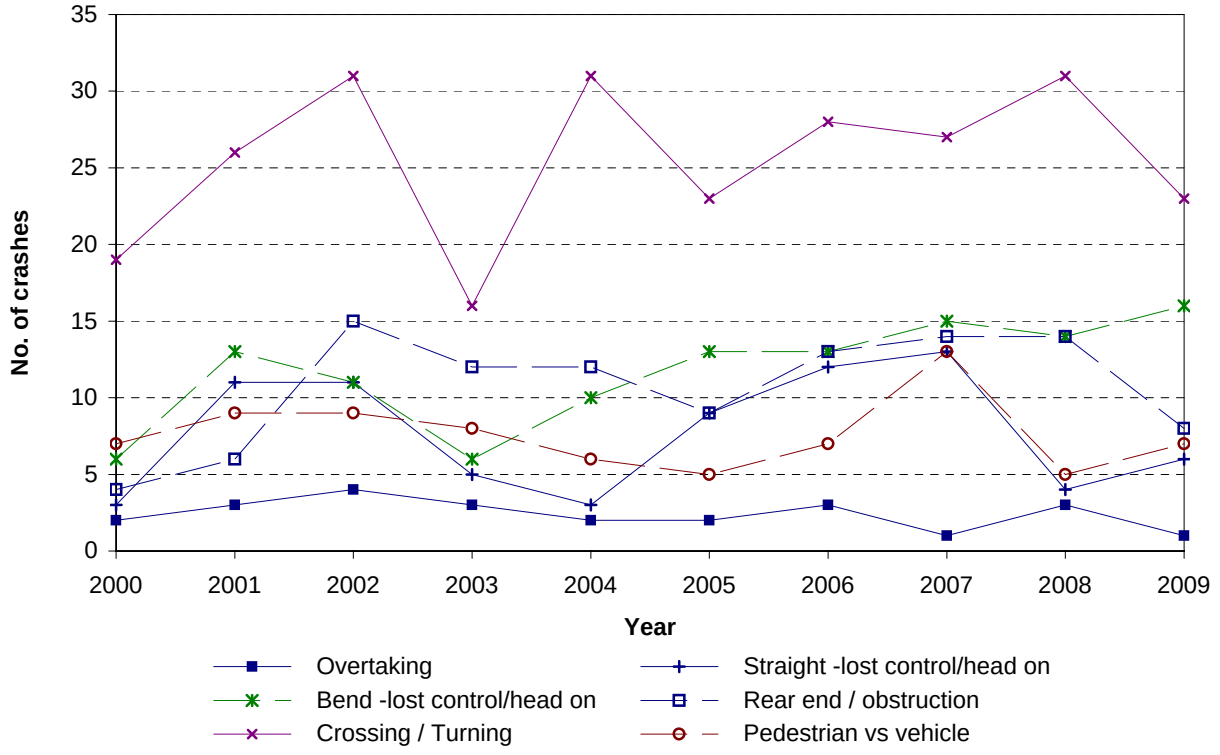


Figure 8.10 Crash movement type - Trends
Papakura District - rural council roads

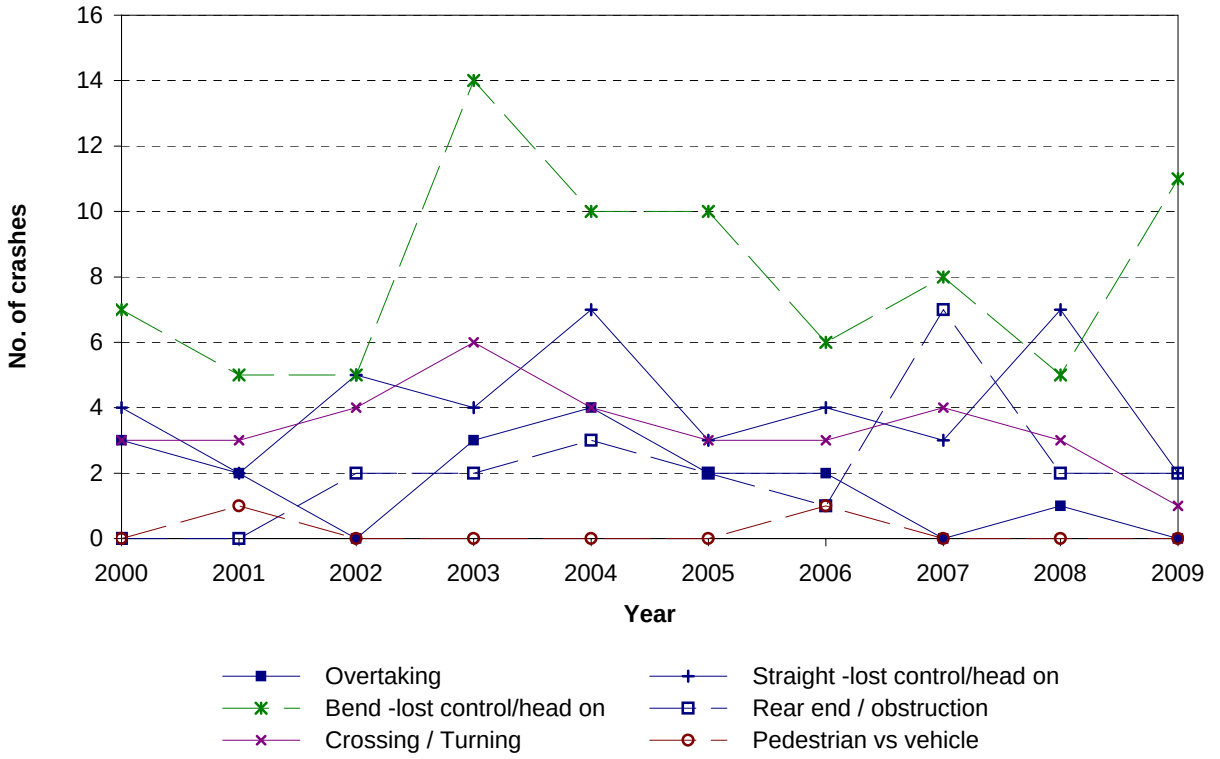
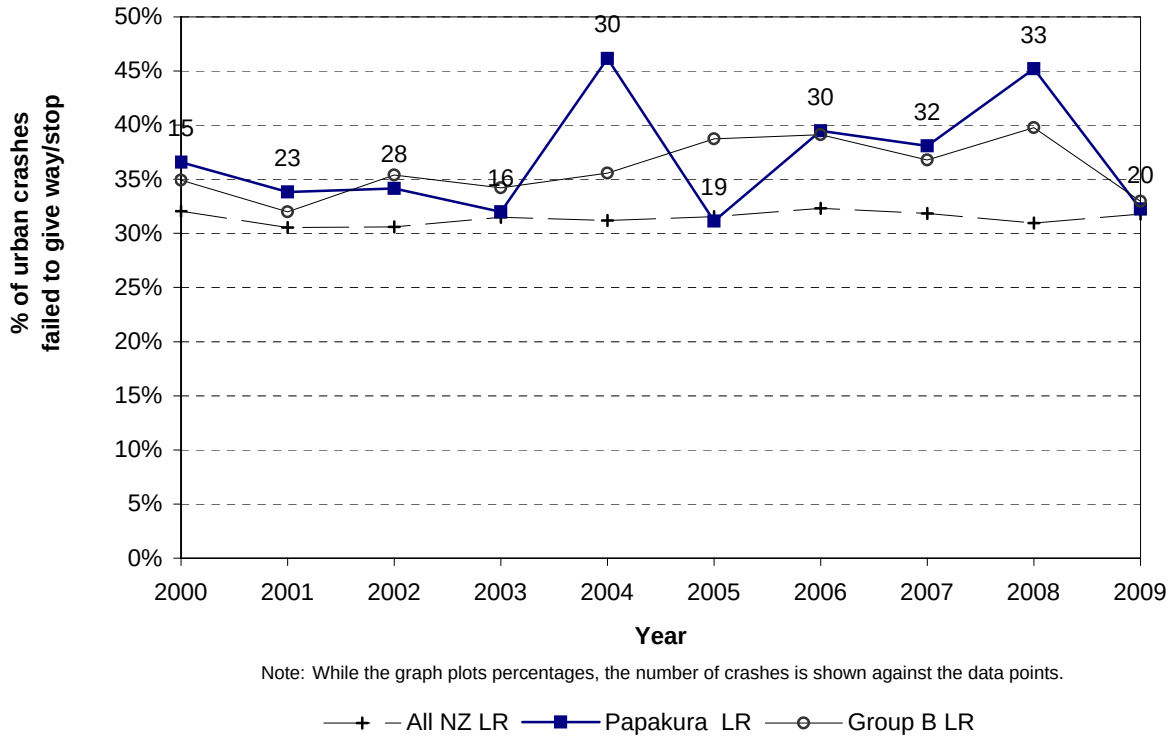
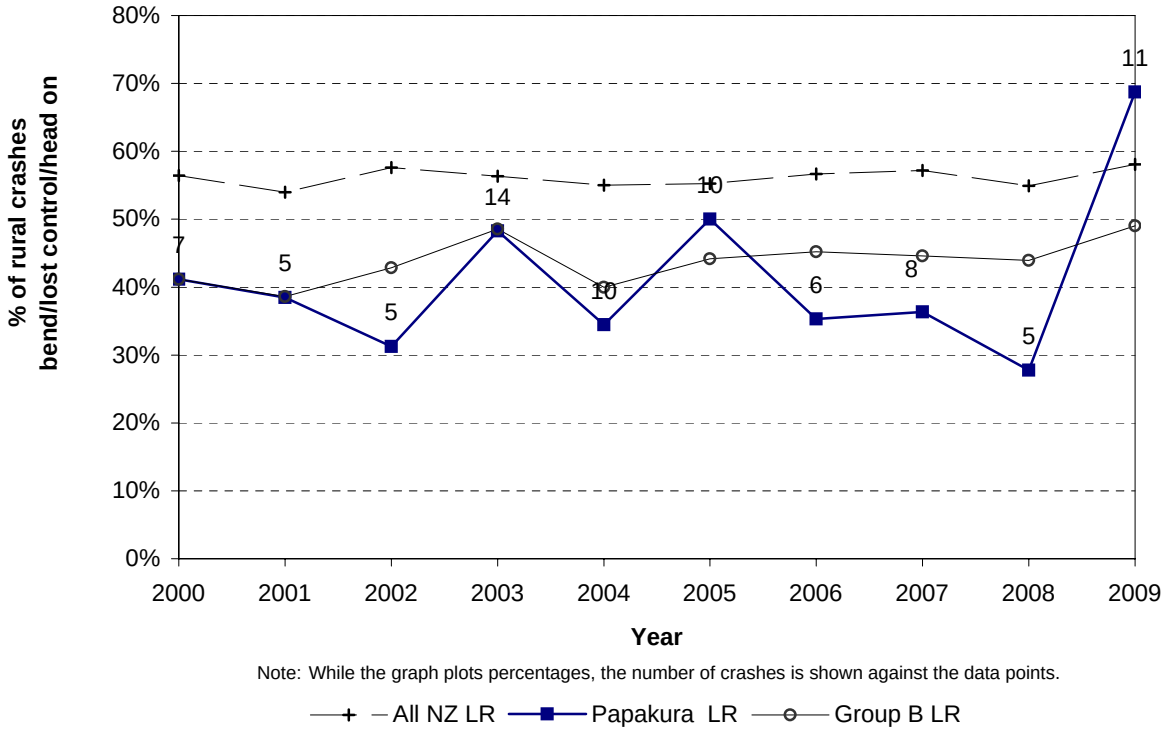


Figure 8.11 Failed to give way/stop
Papakura District - urban council roads



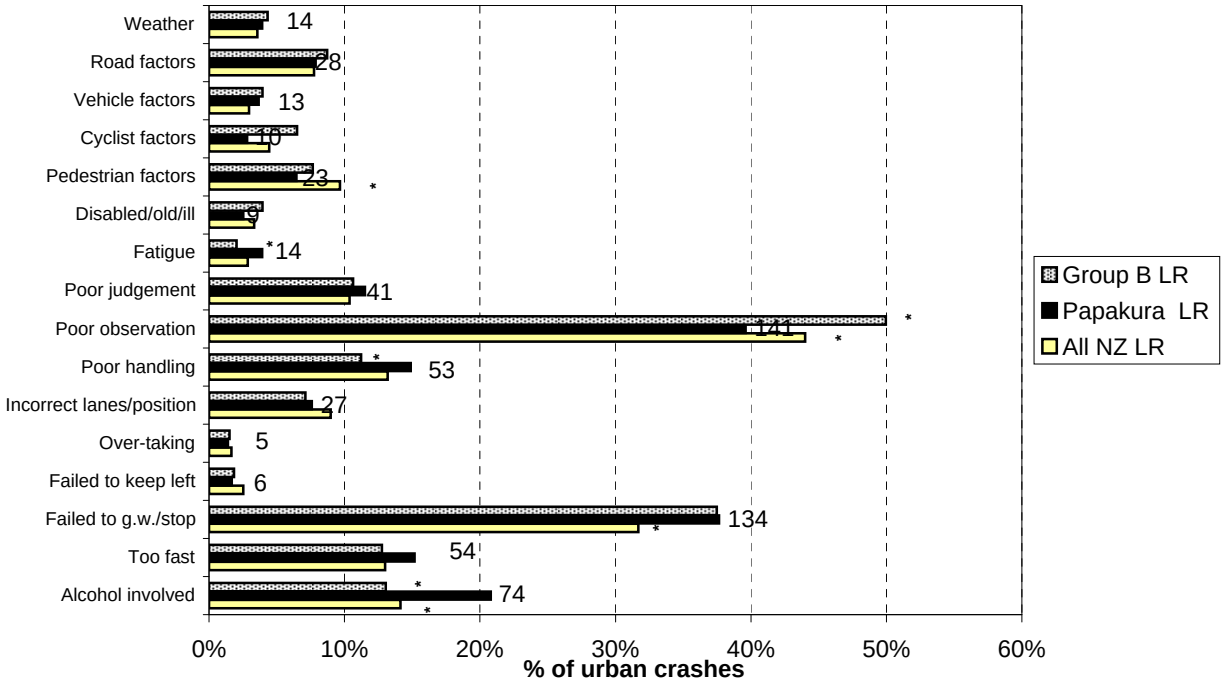
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.12 Bend - lost control / head - on
Papakura District - rural council roads



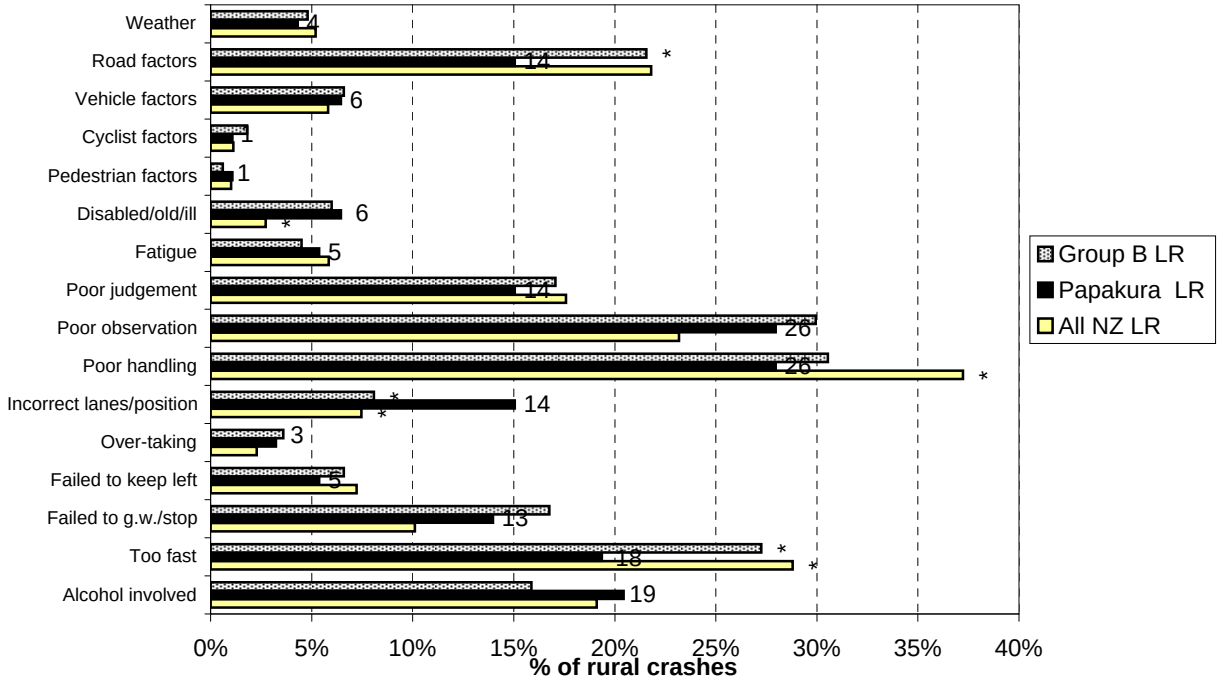
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.13 Contributing factors - urban Papakura District council roads (2005-2009)



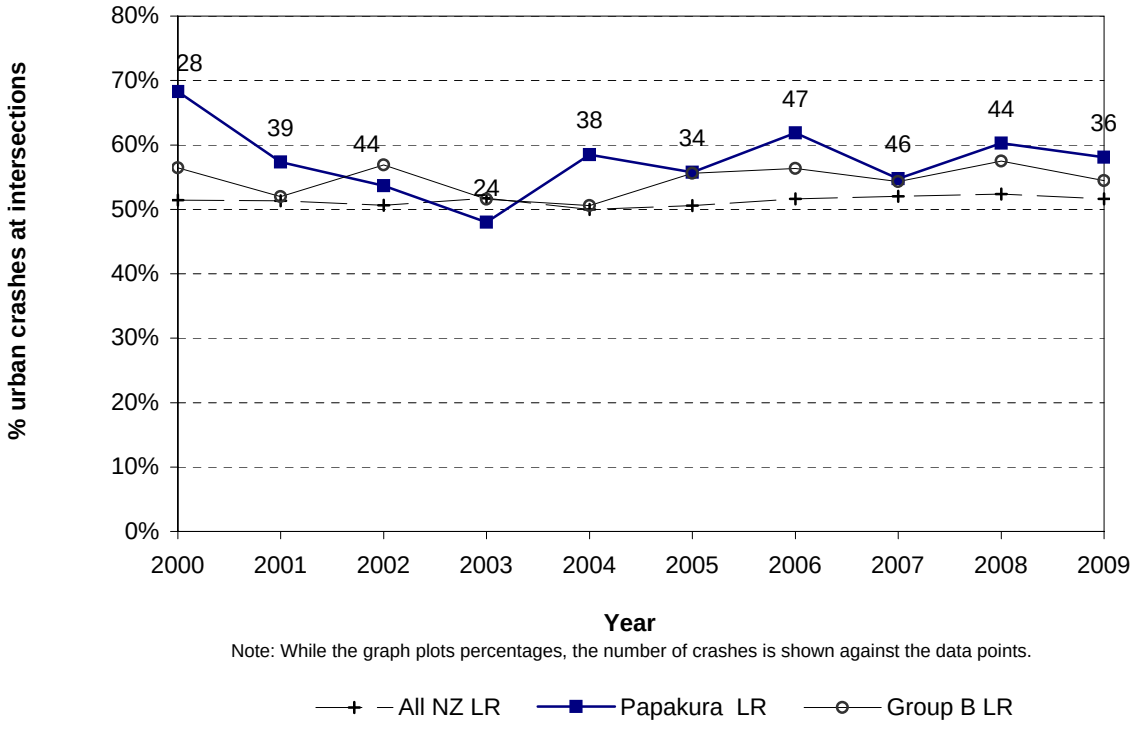
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 8.14 Contributing factors - rural Papakura District council roads (2005-2009)



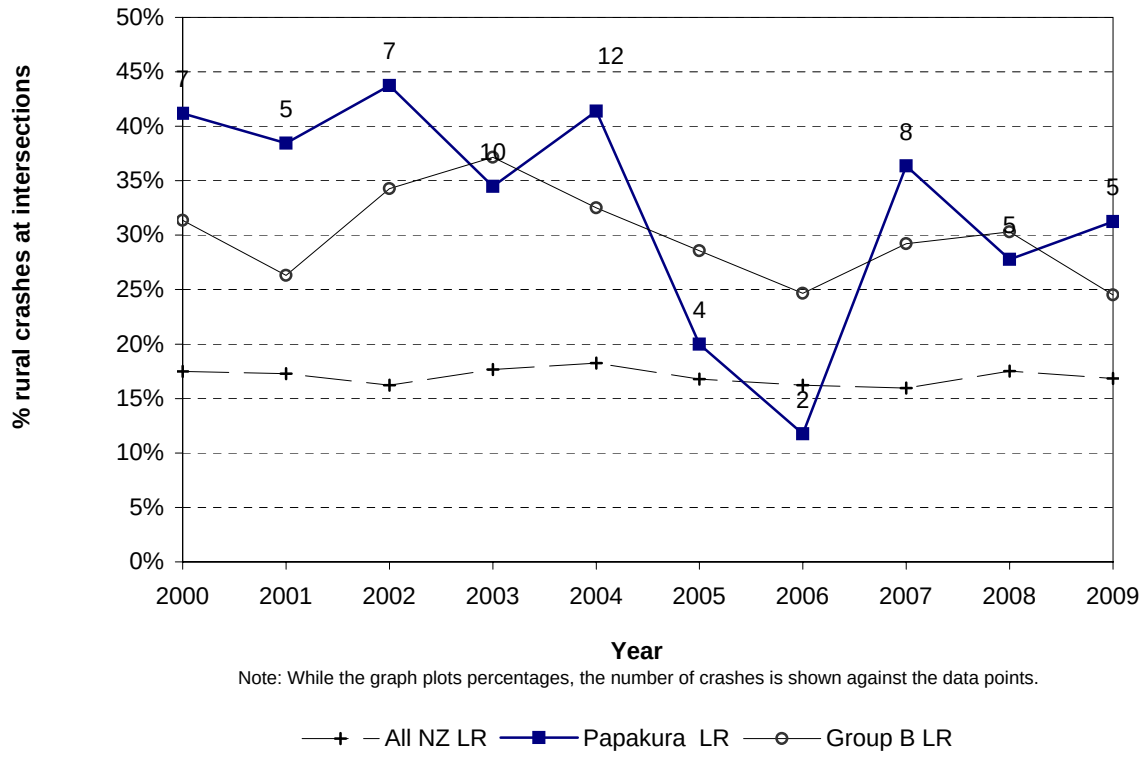
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 8.15 Intersection crashes
Papakura District - urban council roads



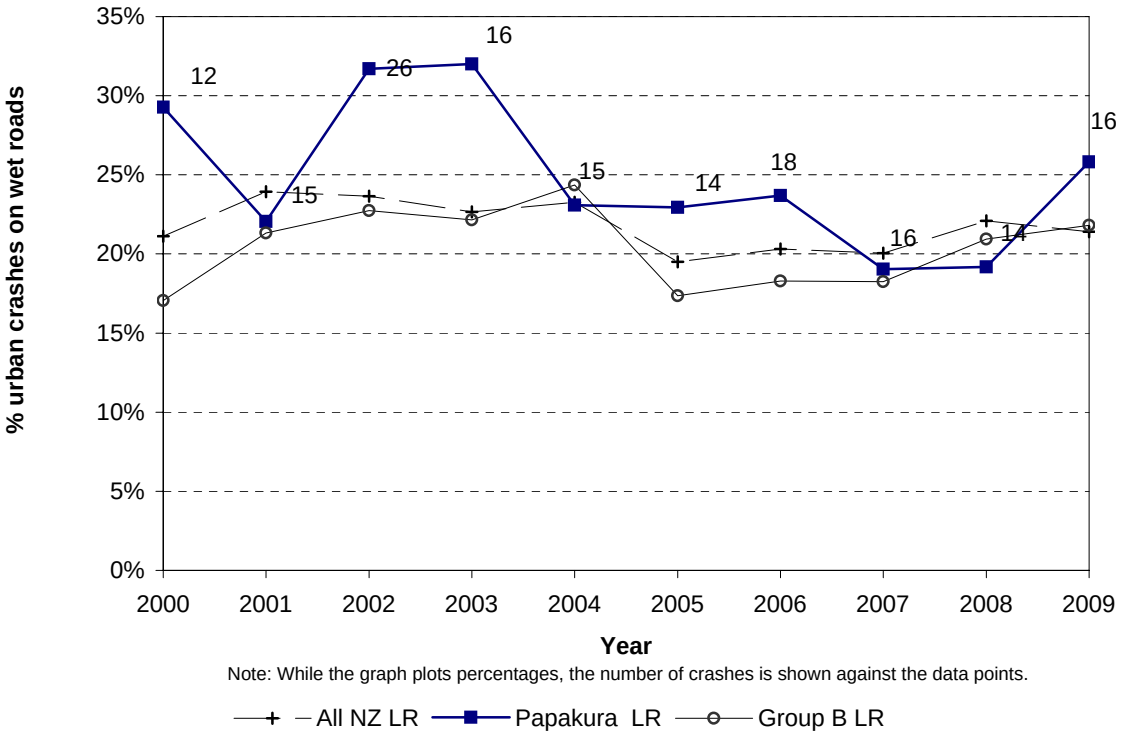
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.16 Intersection crashes
Papakura District - rural council roads



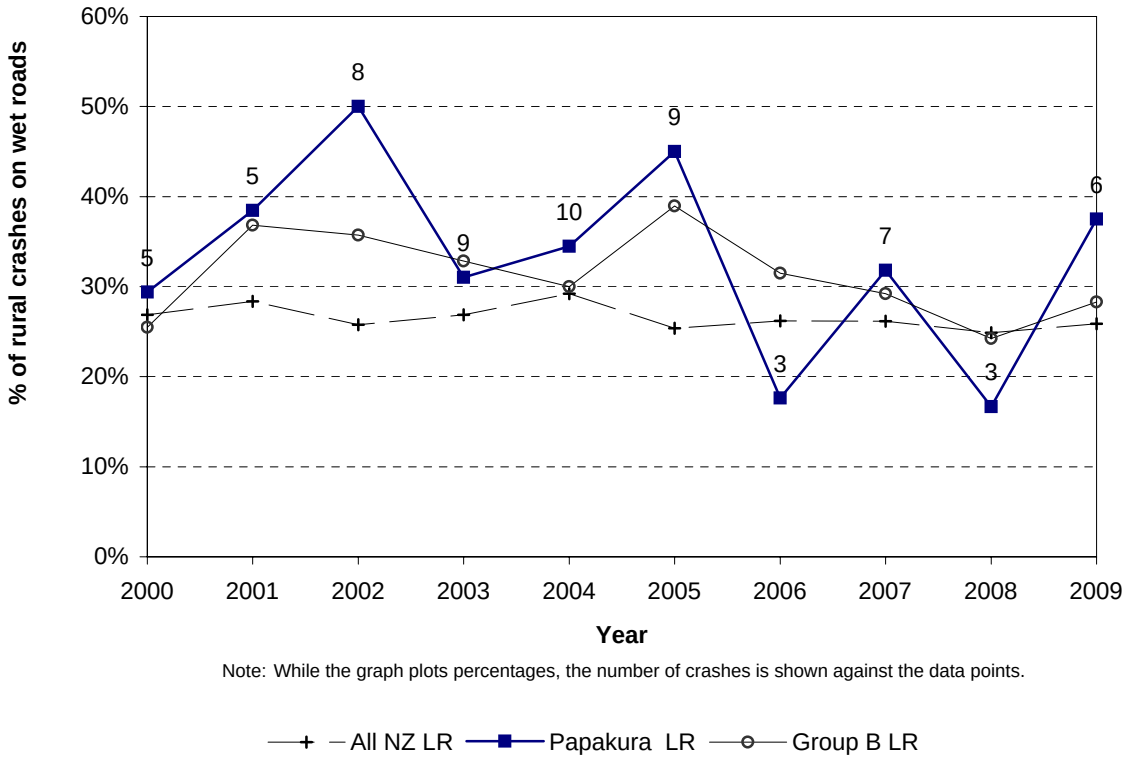
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.17 Wet road crashes
Papakura District - urban council roads



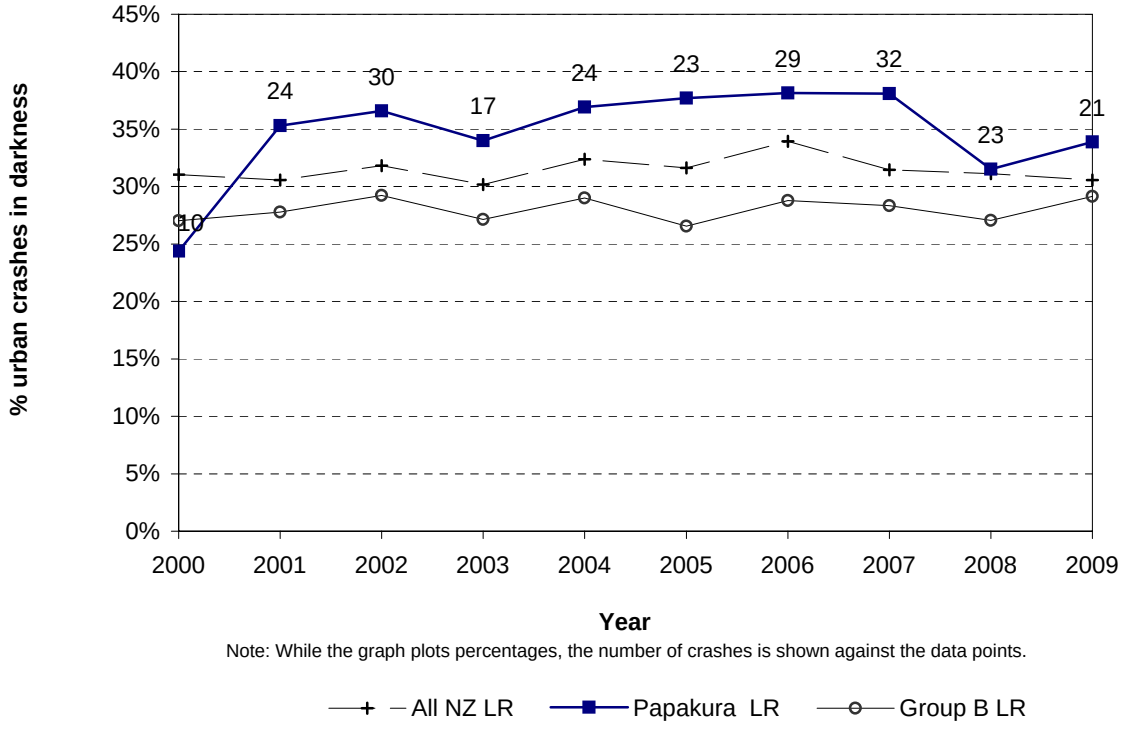
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.18 Wet road crashes
Papakura District - rural council roads



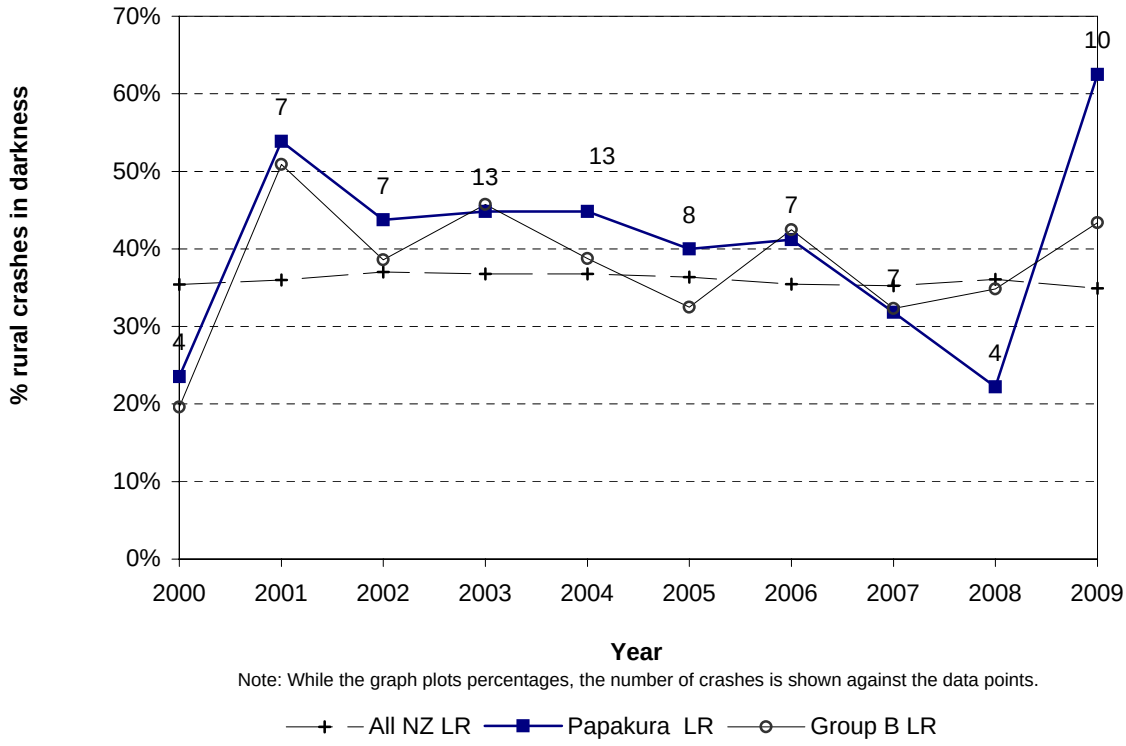
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.19 Crashes in darkness
Papakura District - urban council roads



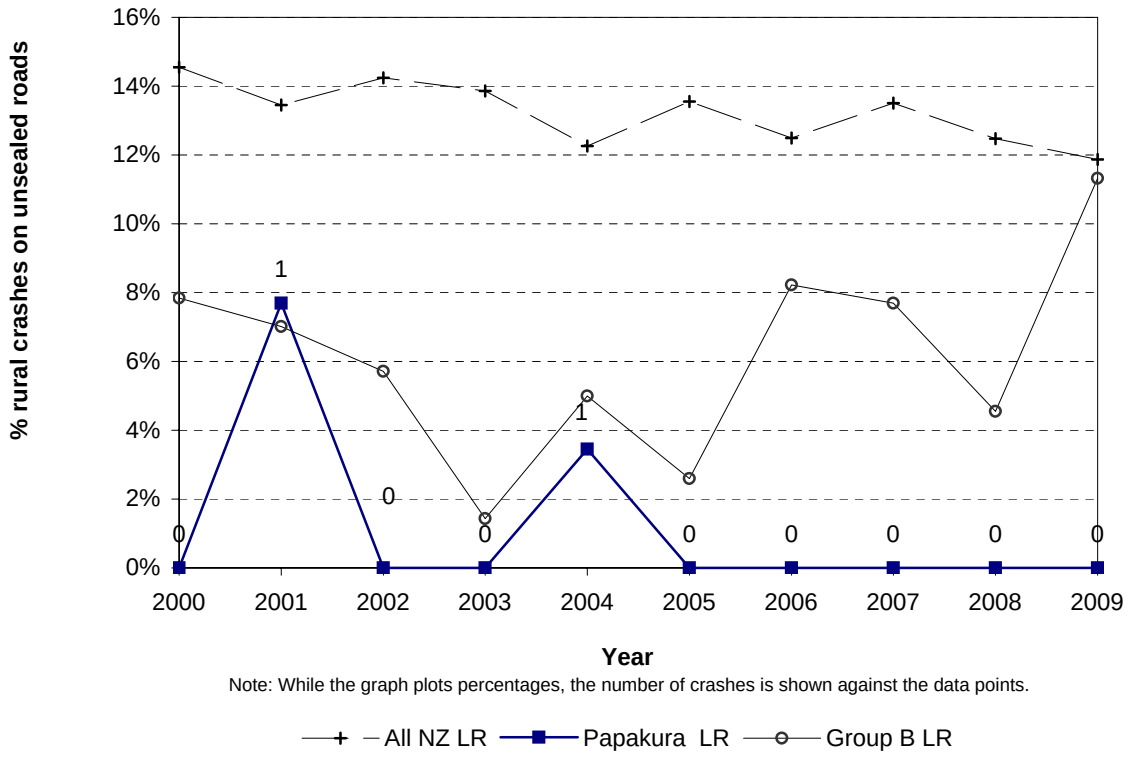
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.20 Crashes in darkness
Papakura District - rural council roads



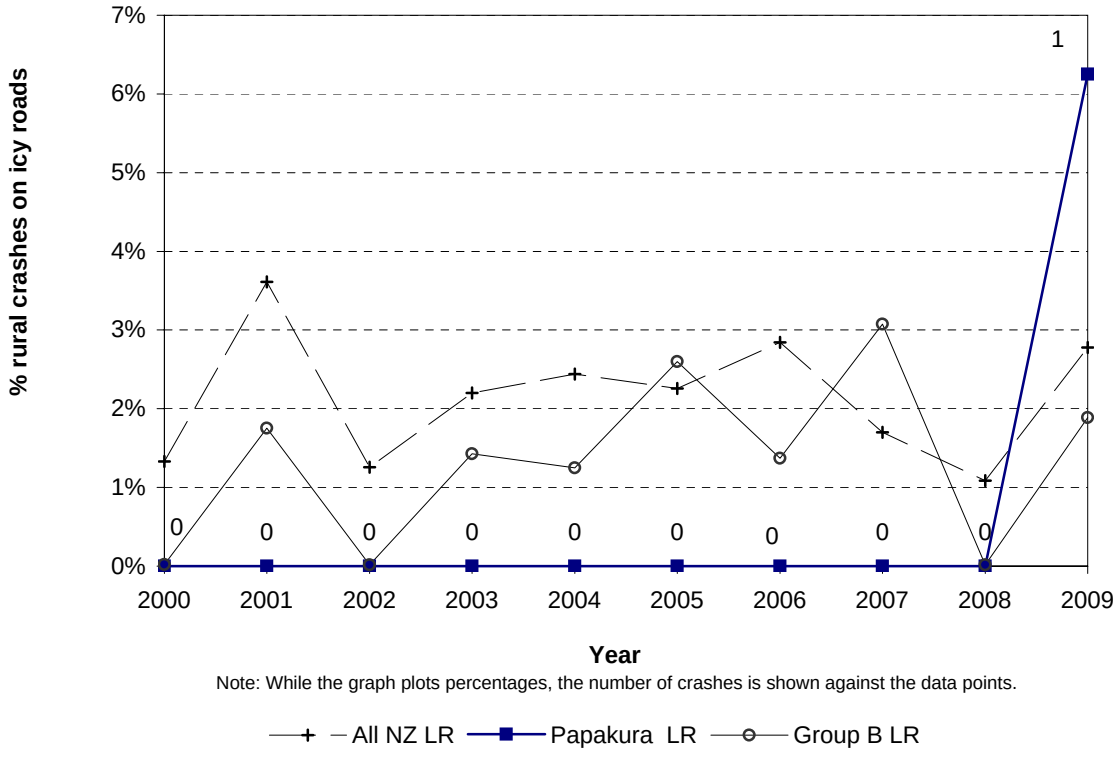
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.21 Crashes on unsealed roads
Papakura District - rural council roads



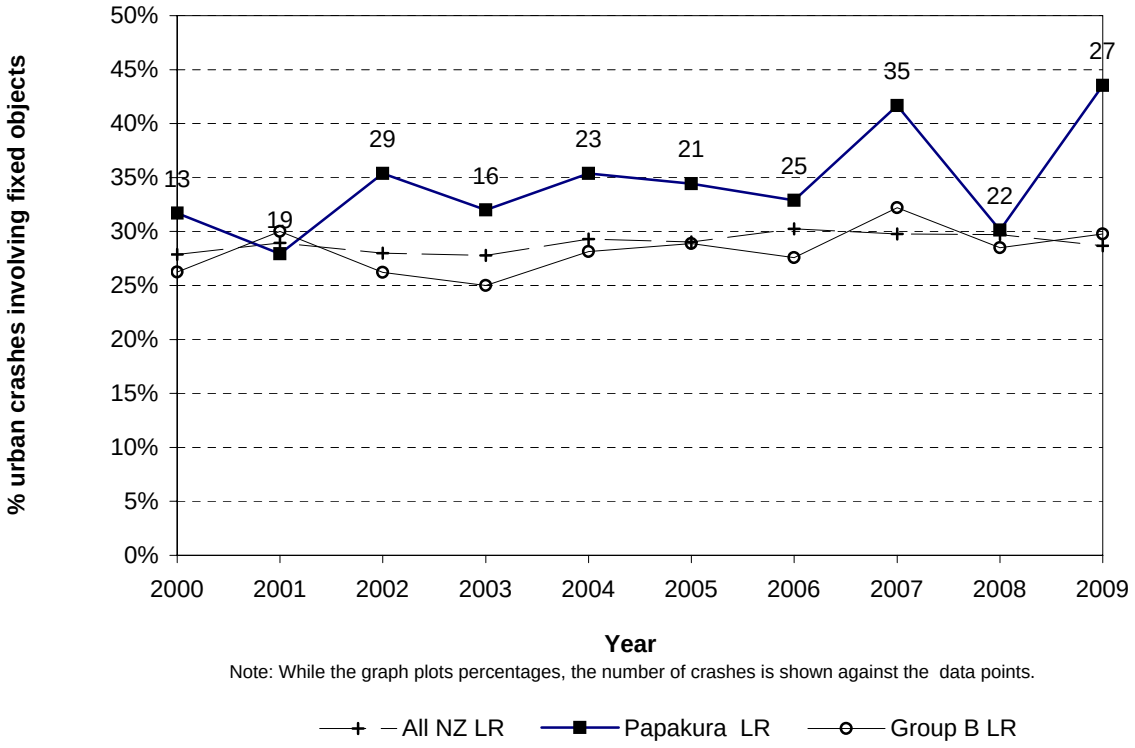
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.22 Icy road crashes
Papakura District - rural council roads



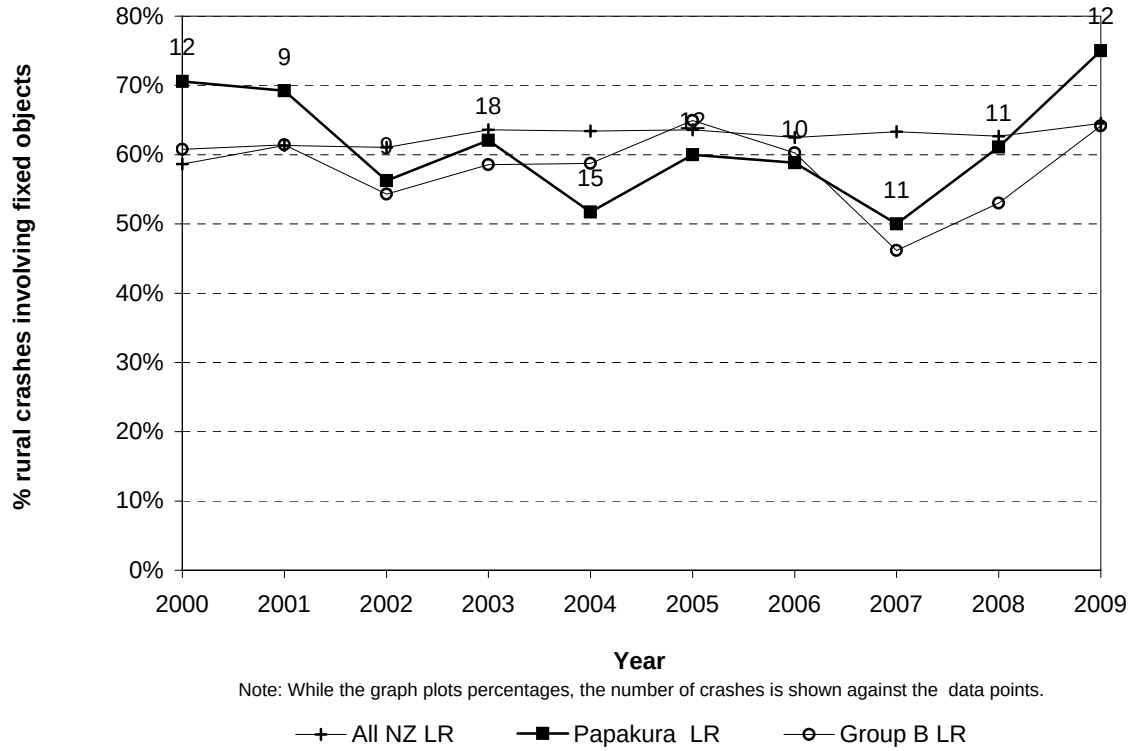
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.23 Collisions with objects
Papakura District - urban council roads



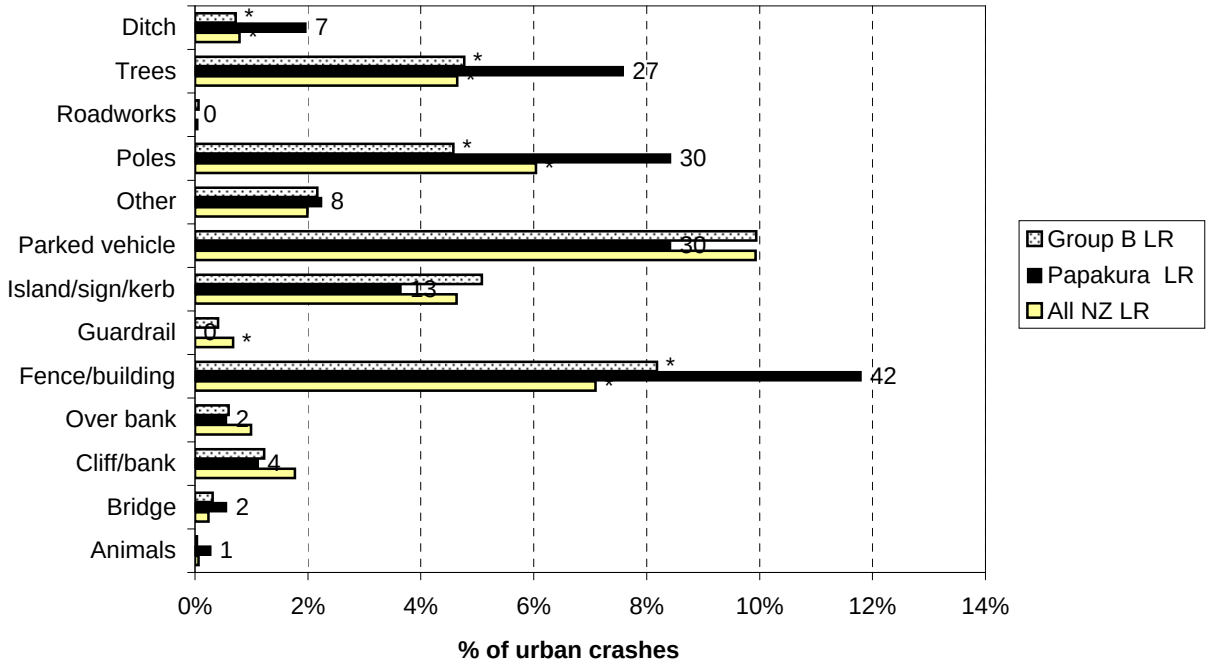
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.24 Collisions with objects
Papakura District - rural council roads



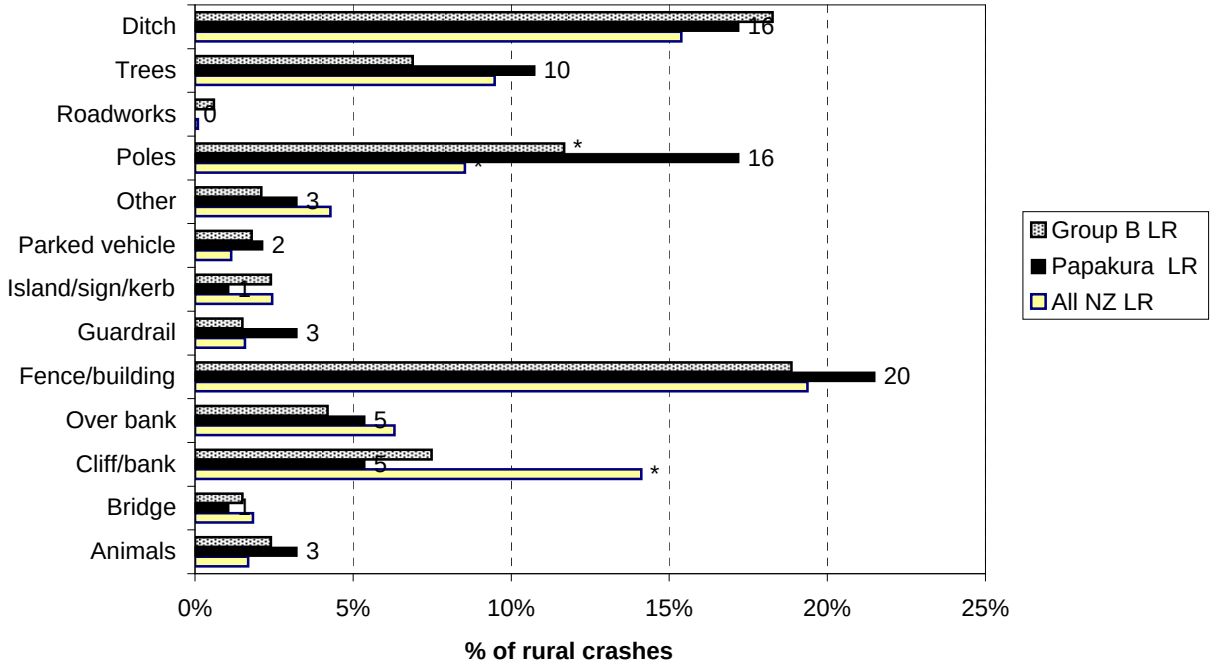
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 8.25 Objects struck - urban Papakura District 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 Papakura District 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 $150000 in social costs

CRASH ROAD			SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
EAST ST	I		WOOD ST	2	4	2	3	2	13	10	15	23	$3,589,072
GREAT SOUTH ROAD	I		SPARTAN ROAD	9	9	11	11	11	51	37	14	10	$2,881,756
GREAT SOUTH ROAD	I		SETTLEMENT ROAD S	11	8	4	8	5	36	31	17	36	$1,337,545
CLEVEDON ROAD	I		RON KEAT DRIVE	2		2	3		7	4		14	$1,166,914
MILL ROAD	I		AIRFIELD ROAD	2			1	3	6	4	33	33	$1,094,668
GROVE ROAD	I		OLD WAIROA ROAD	4	7	3	6	2	22	17	23	32	$1,092,338
EAST ST	I		ELLIOTT ST	3	1	5	7	2	18	13	28	50	$1,020,755
GREAT SOUTH ROAD	I		TAKA ST	3	6	2	4	3	18	15	33	33	$918,188
GREAT SOUTH ROAD	I		MANUIA ROAD	4	3	6	3	4	20	18	25	40	$897,921
PORCHESTER ROAD	I		MANUROA ROAD	1	4	1	2	2	10	7	30	80	$885,681
COSGRAVE ROAD	I		OLD WAIROA ROAD	1	3	5	2	2	13	9	15	46	$882,468
QUEEN ST	I		EAST ST	8	6	3	2	1	20	12	20	35	$788,347
DOMINION ROAD	I		ELSIE MORTON PLACE			2	2	2	6	2	50	50	$758,900
CLEVEDON ROAD	I		DOMINION ROAD	2	1	2	3		8	5	25	50	$742,258
ELLIOTT ST	I		RAY SMALL DRIVE N	1	2	1	2	2	8	6	38	38	$689,196
WALTERS ROAD	I		PORCHESTER ROAD	5	6	1	4	5	21	16	33	57	$636,286
MANUROA ROAD	I		GREAT SOUTH ROAD	6	3	5	7	6	27	24	30	41	$635,963
BRIGHTWELL ST	I		OLD WAIROA ROAD	1	1	1		1	4	2	100	50	$625,594
SETTLEMENT ROAD	I		HARPER ST		1	1	1		3	1		67	$608,210
GREAT SOUTH ROAD	I		MARU ROAD	2	1		2		5	4	20	40	$583,896
CLEVEDON ROAD	I		VALENTINE ST	2			1	1	4	3		50	$566,444
BEACH ROAD	I		ELLIOTT ST	5	3	2	3	2	15	11	40	33	$478,630
SPARTAN ROAD	I		OAKLEIGH AVENUE	2	3	3	1	3	12	7	17	17	$476,162
GREAT SOUTH ROAD	I		LONGFORD PARK DRIVE	5	4	4	4	3	20	18	20	30	$457,725
AIRFIELD ROAD	I		PORCHESTER ROAD	3	3	6		4	16	14	13	38	$388,115
GREAT SOUTH ROAD	I		GRAHAM ROAD	3	2	2	5	6	18	17	22	28	$366,257
CLEVEDON ROAD	I		COSGRAVE ROAD	2	4		2	3	11	8	18		$356,020
MANUROA ROAD	I		TAKANINI SCHOOL ROAD	1	3	4	2	1	11	8	36	18	$350,860
CLEVEDON ROAD	I		GROVE ROAD	3	4	3	3	1	14	12	7	14	$349,950
KELVIN ROAD	I		SHEEHAN AVENUE	3	5	2	2	5	17	16	6	24	$349,053
WALTERS ROAD	I		GROVE ROAD	2	2	2	1	1	8	5	38	38	$344,217
GREAT SOUTH ROAD	I		WAIHOEHOE ROAD	4	2	3	2	2	13	11	38	31	$335,876
GREAT SOUTH ROAD	I		WOOD ST	1	5	3	3	1	13	11	23	46	$334,292
ELLIOTT ST	I		WOOD ST		1	4	3	2	10	7	60	10	$333,352
WILLIS ROAD	I		MARNE ROAD	2	1	4	3	3	13	11	23	23	$332,381
GREAT SOUTH ROAD	I		GLENORA ROAD	4	4	3	3		14	13	43	36	$298,472
GREAT SOUTH ROAD	I		SUBWAY ROAD	3	6	3	2		14	13	21	29	$296,944
BROADWAY	I		RAILWAY ST WEST	1	3	1	1	1	7	4		71	$286,404
CLEVEDON ROAD	I		KELVIN ROAD	3		4	1	1	9	7	33	33	$269,644
GREAT SOUTH ROAD	I		OPAHEKE ROAD			3	3	2	8	6	38	38	$245,380
BROADWAY ROAD	I		GREAT SOUTH ROAD	2	2	3	3	1	11	10		36	$244,532
GREAT SOUTH ROAD	I		OSHANNESSEY ST	4	4	3	2	1	14	14	21	14	$243,684
PORCHESTER ROAD	I		OLD WAIROA ROAD	2		2		3	7	5	57	43	$231,424
DOMINION ROAD	I		SETTLEMENT ROAD	3	1	2	2	2	10	9	10	40	$230,520
GREAT SOUTH ROAD	I		CLARK ROAD	2	5	3			10	9	50	20	$228,986
GREAT SOUTH ROAD		100 S	YOUNGS ROAD			2	1	1	4	1			$228,950
GREAT SOUTH ROAD	I		AVERILL ST	2	3	3	1	1	10	9	20	30	$227,204
OPAHEKE ROAD	I		SETTLEMENT ROAD	3	5	1			9	8	11		$211,590
CLEVEDON ROAD	I		PRICTOR ST	1	5		1	2	9	8	11		$209,944
SETTLEMENT ROAD	I		HUNUA ROAD	1	3	2	1	2	9	8		22	$209,820

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 $150000 in social costs

CRASH ROAD			SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
GREAT SOUTH ROAD	I		THE FURLONG	2	2	2	2	1	9	8	22	22	$209,752
GREAT SOUTH ROAD	I		TAKANINI ON SBD S	2	1	2	2	2	9	8	11	11	$209,690
COSGRAVE ROAD	I		WALTERS ROAD		2	2			4	2	50	25	$202,384
GREAT SOUTH ROAD	I		YOUNGS ROAD	1	1	2	1		5	3	20	80	$196,712
GREAT SOUTH ROAD	I		COLES CRESCENT N	1	2	3	2		8	7	13	38	$192,368
GREAT SOUTH ROAD	I		TAKANINI ON SBD	1	2	1	1	1	6	5	17	50	$181,467
TAKANINI SCHOOL ROAD	I		AIRFIELD ROAD	1	2	1	1	1	6	5	17	33	$179,577
TAKANINI SCHOOL ROAD	I		SPARTAN ROAD	3			1	2	6	5	33	67	$179,422
MANUROA ROAD	I		PRINCESS ST	1		3	1	2	7	6	14	14	$178,300
ELLIOTT ST	I		RAY SMALL DRIVE	1	1	1	3	1	7	6	29	43	$176,574
FIRTH ST	I		NORRIE ROAD				4		4	2	25	25	$175,820
GREAT SOUTH ROAD		50 N	ELLIOT ST			3		1	4	2	25		$175,820
GREAT SOUTH ROAD	I		ROSEHILL DRIVE		2	1	3	1	7	6	29	29	$174,984
BEACH ROAD	I		GREAT SOUTH ROAD	1	2	1		3	7	6			$174,978
KINDERGARTEN DRIVE	I		ROUNTREE PLACE	1	1			1	3	1	67	33	$161,932
OSHANNESSEY ST		160 E	GREAT SOUTH ROAD	1			1	1	3	1	33		$161,870
PORCHESTER ROAD	I		CLARICE PLACE	1	1	1			3	1		33	$160,144
GREAT SOUTH ROAD	I		CROSS ST	1	1	1	1	2	6	5	17		$157,526

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 $150000 in social costs

CRASH ROAD		SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
PORCHESTER ROAD	I	POPES ROAD	2	3	3	4	3	15	11	20	20	$9,742,379
PAPAKURA-CLEVEDON RO	I	HAMLIN ROAD	3	1	3	2	1	10	4	40	10	$4,781,447
MILL ROAD	400 S	ALFRISTON ROAD	2		1			3	1	33	100	$4,315,254
MILL ROAD	I	ALFRISTON ROAD	3	3	5	3	3	17	11	18	29	$2,070,878
MILL ROAD	I	RANFURLY ROAD	3	1	1	2	1	8	6	38	75	$1,538,193
COSGRAVE ROAD	I	WALTERS ROAD	4	7		4	1	16	11	25	44	$1,442,271
PAPAKURA-CLEVEDON RO	I	PARISH LINE ROAD		2	1	2		5	3	20	40	$843,148
HUNUA ROAD	1900 N	MIDDLETON ROAD			1	1	2	4	3	50	50	$754,131
MILL ROAD	150 N	HAMLIN ROAD		1	1	1		3	2		67	$719,252
AIRFIELD ROAD	I	MILL ROAD	4		5	5	2	16	14	38	56	$696,143
MILL ROAD	I	POPES ROAD	4	2	2	1	1	10	7	20	40	$531,966
PAPAKURA-CLEVEDON RO	I	BULLENS ROAD	1	2		2	2	7	3	57	43	$466,011
PORCHESTER ROAD	I	MARENGO PARKWAY	1	2		1	4	8	6	25	25	$397,575
CLEVEDON-TAKANINI ROAI	I	ALFRISTON-ARDMORE RO/	1	3		2	2	8	7	13	50	$350,951
MULLINS ROAD	I	PAPAKURA-CLEVEDON RO	1	3	1	1		6	4	50	50	$330,043
SUTTON ROAD	400 N	YORK ST	1	1	4			6	4	50	50	$322,183
HUNUA ROAD	1000 E	DOMINION ROAD		1	1	1	2	5	3	60	80	$284,711
MILL ROAD	350 S	POPES ROAD		1	2		1	4	2	25	25	$247,954
ALFRISTON-ARDMORE RO/	1000 E	ALFRISTON ROAD	2	1				3	1	67	33	$220,814
HUNUA ROAD	60 E	HAYS CREEK ROAD		2	1			3	1	67		$215,117
HUNUA ROAD	2000 E	DOMINION ROAD	1				2	3	1	33	100	$210,034
ALFRISTON ROAD	530 S	RANFURLY ROAD	1	1	1	1		4	3	50	50	$204,269
ALFRISTON ROAD	I	WASTNEY ROAD	1	1		1	1	4	3	50	100	$200,166
PAPAKURA-CLEVEDON RO	I	CREIGHTONS ROAD		1		1	2	4	3	25	50	$197,409
WAIHOEHOE ROAD	150 E	FITZGERALD ROAD		1			3	4	3	100	50	$197,409
PONGA ROAD	250 E	JACK PATERSON ROAD			1	3		4	3	75		$195,531
WAIHOEHOE ROAD	70 W	COSSEY ROAD	1			1	1	3	2		67	$165,634
OPAHEKE ROAD	50 W	WALKER ROAD	2			1		3	2			$164,287
AIRFIELD ROAD	250 E	CORSAIR LANE		1	1		1	3	2	100	67	$160,652
ALFRISTON ROAD	I	ALFRISTON-ARDMORE RO/		1	1	1		3	2			$160,652
PAPAKURA-CLEVEDON RO	620 E	PARISH LINE ROAD	1	1		2		4	4	25	50	$151,663

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 $150000 in social costs

CRASH ROAD				SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N	I			TAKANINI OFF SBD	18	10	20	12	13	73	51	22	30	$8,589,627
SH 22	I			JESMOND ROAD	0	2	3	1	3	9	6	44	0	$5,243,940
SH 22	I			DRURY OFF SBD	5	0	4	5	1	15	12	13	20	$4,709,071
SH 1N		2000	N	ARARIMU OBR	1	0	1	3	1	6	4	33	50	$4,523,524
SH 22		280	W	OIRA ROAD	0	0	2	0	2	4	2	25	25	$4,447,254
SH 1N	I			TAKANINI OFF NBD	7	8	10	7	14	46	28	28	33	$3,127,449
SH 1N	I			PAPAKURA ON NBD	12	10	8	8	10	48	41	23	44	$2,671,215
SH 1N		100	S	WALTER STREVENS OBR	5	6	2	2	7	22	15	18	23	$2,296,573
SH 1N		2000	S	GT SOUTH OBR	3	3	7	3	4	20	14	20	20	$2,157,262
SH 1N		1000	S	TAKANINI ON SBD	6	4	4	2	4	20	12	30	30	$1,734,665
SH 1N		2000	N	PAPAKURA ON NBD	3	2	2	2	6	15	8	20	47	$1,485,389
SH 1N	I			DRURY OFF SBD	6	3	8	6	3	26	17	38	23	$1,430,776
SH 22		300	E	OIRA ROAD	2	1	0	2	0	5	3	20	20	$1,425,166
SH 1N		400	N	GT SOUTH OBR	1	2	1	3	3	10	4	20	40	$1,229,846
SH 1N	I			PAPAKURA OFF SBD	10	3	3	3	1	20	13	15	25	$1,122,214
SH 22	I			GREAT SOUTH ROAD	2	0	1	1	1	5	1	60	20	$945,217
SH 22	I			MERCER ST	4	1	3	8	3	19	15	21	37	$881,858
SH 22	I			MCPHERSON ROAD	1	1	0	3	1	6	4	17	83	$880,783
SH 1N		800	N	BEACH OBR	11	2	2	3	0	18	15	33	28	$847,359
SH 1N		1000	N	PAPAKURA OFF SBD	2	3	5	3	1	14	8	14	29	$824,950
SH 1N	I			TAKANINI ON NBD	4	2	1	2	8	17	13	29	18	$818,042
SH 1N		1300	S	PAPAKURA OFF NBD	3	1	6	3	2	15	10	33	7	$814,265
SH 22	I			DRURY ON NBD E	2	5	2	2	2	13	7	31	46	$765,210
HINGAIA ROAD	I			PAPAKURA OFF NBD	1	2	1	2	1	7	4	29	43	$726,724
SH 1N		500	S	PAPAKURA OFF NBD	3	4	4	0	2	13	12	46	38	$542,127
SH 1N		970	S	PARK ESTATE OBR	4	2	5	1	1	13	12	38	38	$541,127
SH 1N		500	N	BREMNER OBR	0	2	3	5	1	11	9	9	45	$505,089
SH 22	I			OIRA ROAD	0	3	3	1	1	8	5	38	25	$447,242
SH 1N		50	N	QUARRY OBR	1	1	3	1	1	7	4	14	71	$411,546
BEACH ROAD	I			PAPAKURA OFF SBD	1	4	4	7	2	18	17	6	11	$368,051
GREAT SOUTH ROAD	I			TAKANINI ON NBD	2	1	5	2	2	12	10	17	8	$362,870
GREAT SOUTH ROAD	I			TAKANINI OFF SBD W	2	3	1	5	1	12	10	42	42	$360,973
HINGAIA ROAD	I			PAPAKURA ON NBD	1	2	2	3	0	8	5	25	63	$303,732
SH 1N		1930	S	BEACH OBR	2	1	2	0	1	6	5	17	33	$280,540
SH 22	I			FIRTH ST	2	0	2	0	0	4	2	25	25	$245,810
SH 1N		1000	N	BREMNER OBR	1	0	1	1	1	4	3	25	50	$198,287
SH 1N		1000	S	PAPAKURA OFF NBD	1	4	0	0	0	5	5	40	60	$194,056
SH 1N		100	S	PAPAKURA OFF NBD	3	0	0	2	0	5	5	40	40	$192,055
SH 1N		800	S	QUARRY OBR	2	0	0	0	1	3	2	0	33	$168,390
SH 1N		1000	N	DRURY OFF NBD	1	2	0	0	0	3	2	0	67	$167,329
GREAT SOUTH ROAD	I			TAKANINI OFF NBD	1	3	0	0	1	5	4	0	40	$163,758

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 %
GREAT SOUTH ROAD	I		GRAHAM ROAD	1	3	2	2	5	6	19	18	21	26
RAILWAY ST WEST	I		AVERILL ST	0	1	1	0	2	4	8	8	25	0
MILL ROAD	I		AIRFIELD ROAD	1	2	0	0	1	3	7	4	29	29
PORCHESTER ROAD	I		OLD WAIROA ROAD	0	2	0	2	0	3	7	5	57	43
SETTLEMENT ROAD	I		KING EDWARD AVENUE	0	1	1	1	0	3	6	6	0	17
PORCHESTER ROAD	I		SUBWAY ROAD	1	0	0	1	1	3	6	5	0	0
BEACH ROAD	I		PAPAKURA OFF NBD	0	0	0	0	1	2	3	2	33	67
BRYLEE DRIVE	I		WALTER STREVENS DRIVE	0	1	0	0	0	2	3	3	33	67
WALTERS ROAD		50 E	PORCHESTER ROAD	0	0	1	0	0	2	3	2	33	67
PORCHESTER ROAD		100 S	HYPERION DRIVE	1	0	0	0	0	2	3	2	33	67
ELLIOTT ST	I		RUSHGREEN AVENUE	0	1	0	0	0	2	3	2	67	33
KING EDWARD AVENUE	I		ALEXANDER ST	0	0	1	0	0	2	3	3	33	33

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

Site Radius = 250 metres

CRASH ROAD			SIDE ROAD	2004	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
PORCHESTER ROAD	I		MARENGO PARKWAY	0	1	2	0	1	4	8	6	25	25
WAIHOEHOE ROAD		150 E	FITZGERALD ROAD	1	0	1	0	0	3	5	4	80	40
HUNUA ROAD		2000 E	DOMINION ROAD	0	1	0	0	0	2	3	1	33	100
RANFURLY ROAD		50 E	STRATFORD ROAD	0	0	0	1	0	2	3	3	33	0

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 1N	I		TAKANINI ON NBD	3	4	2	1	2	8	20	16	35	20
SH 1N		2000 N	PAPAKURA ON NBD	3	2	2	2	2	6	17	9	18	35

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.

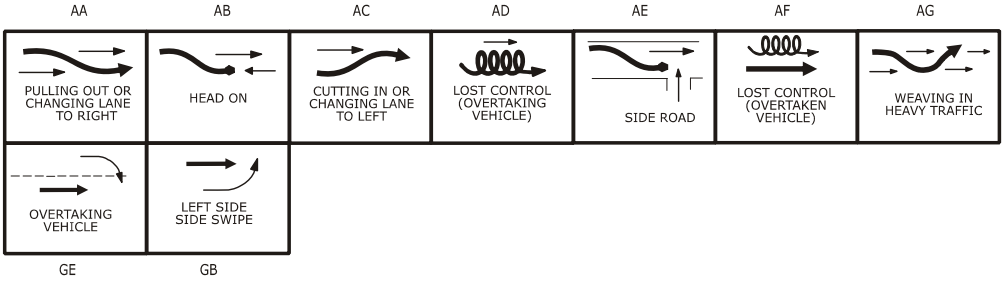
4. The factor group ‘poor handling’ includes factor codes that were only introduced in 1998. This could explain why there may have been a sudden change at this time.

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.

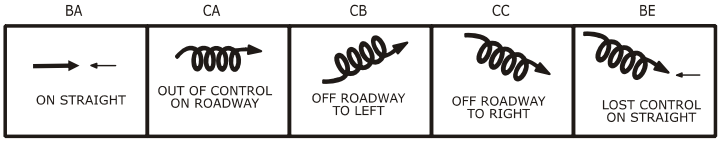
6. It should be noted that a traffic crash generally has more than one contributing factor. Therefore, adding the number of crashes on graphs showing the number of crashes with a given factor or factor group will be greater than the total number of crashes in the city or district.

Groupings of crash types

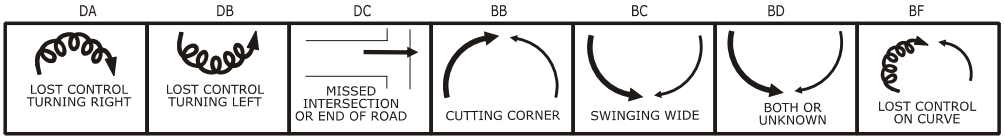
Overtaking



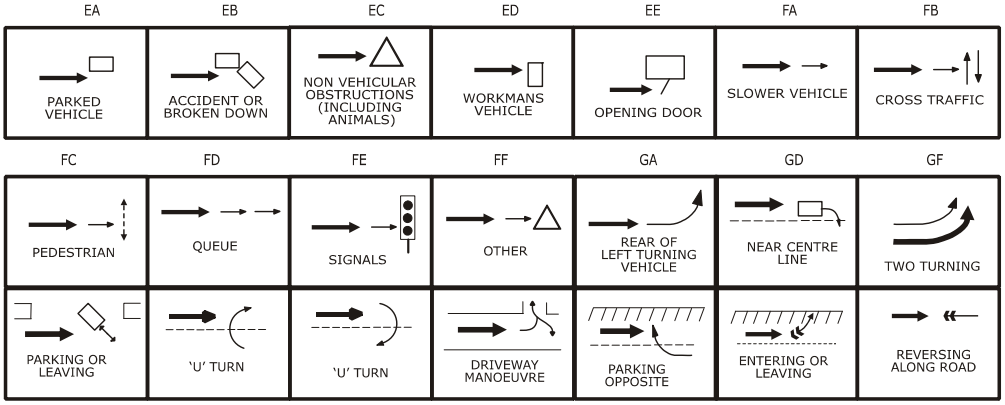
Straight - Lost control / Head on



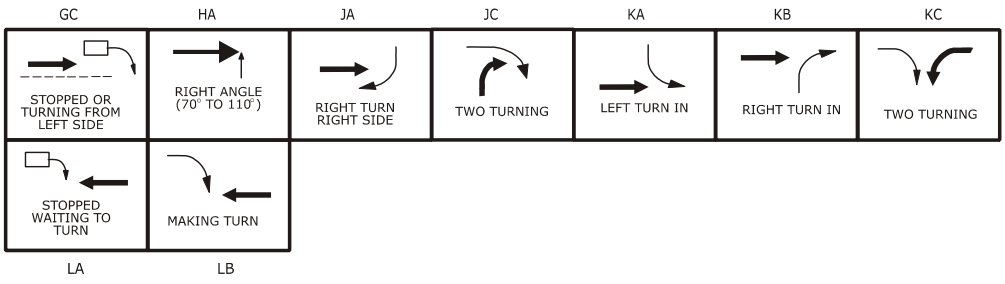
Bend - Lost control / Head on



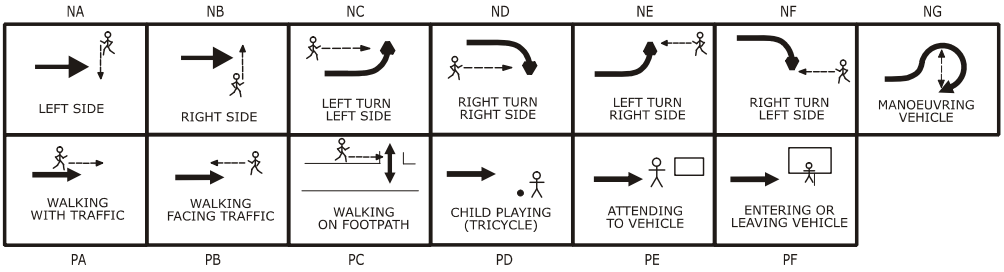
Rear end / Obstruction



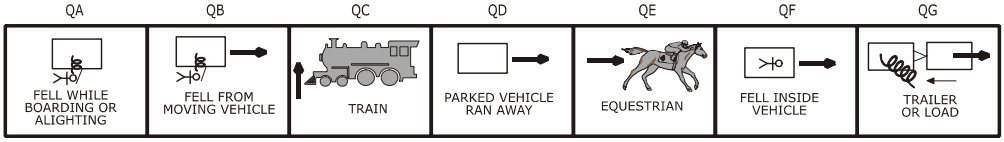
Crossing / Turning



Pedestrian vs Vehicle



Miscellaneous



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.

NZ TRANSPORT AGENCY
WAKA KOTAHI

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

New Zealand Government

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**