

Manukau City
Road Safety Report
2005 to 2009



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June 2010

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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 Manukau 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 Manukau 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 A) along with data for all New Zealand.

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

Definitions of urban and rural

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

Definition of statistically significant

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

Road user compliance data

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

The appropriate web addresses are as follows:

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

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

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

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

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

The results of these surveys are available from:

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

General explanatory notes

1. Crash and casualty information in this report generally includes data for both council roads and state highways. Some tables and charts can separate this information, however figures 8.1–8.26 provide information for council roads only.
2. Crash and casualty rates are based on 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 1.4 Peer group crash and casualty rates

Group A

City or District	Crashes per					Casualties per					2009 Population	% of rural crashes
	10,000 Population (5 year average)	100 million vehicle kilometres travelled				10,000 Population (5 year average)	100 million vehicle kilometres travelled					
		Council roads		State Highways			Council roads		State Highways			
		Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural		
Auckland	26	32	74	54	15	33	40	111	71	19	444100	21
Christchurch	25	42	23	27	19	32	52	31	35	25	372600	9
Dunedin	40	83	67	63	19	57	118	95	91	32	123700	24
Hamilton	23	40	46	20	37	29	50	56	25	55	140700	10
Hutt	21	32	299	128	15	26	39	406	147	19	102100	23
Manukau	18	30	33	57	13	24	40	46	82	19	368600	22
North Shore	19	31	32	54	14	24	39	46	66	19	225800	20
Tauranga	15	24	*	11	15	19	29	*	14	24	112600	14
Waitakere	20	44	15	20	18	26	57	22	25	23	204500	16
Wellington	23	51	29	50	13	28	59	29	66	18	195500	15
Group A	23	37	33	31	15	30	47	46	40	21	2290200	17
All New Zealand	131	38	29	28	18	36	48	42	38	26	4331000	41

* due to small numbers of rural crashes values are not considered meaningful

Group A : Major urban areas with some rural areas on the outskirts. (Population > 97500 and/or rural crashes less than 30 percent).
 Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (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

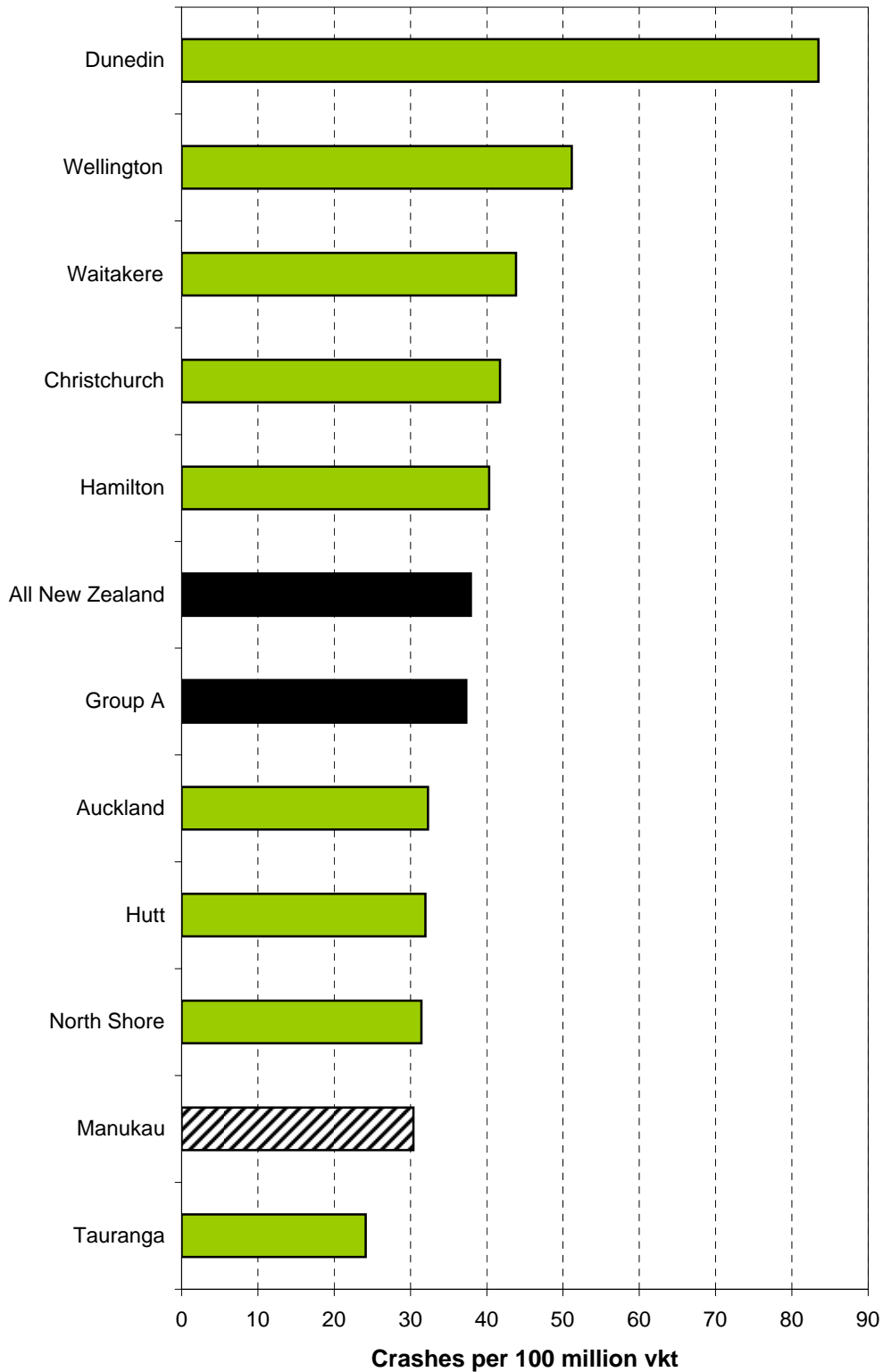
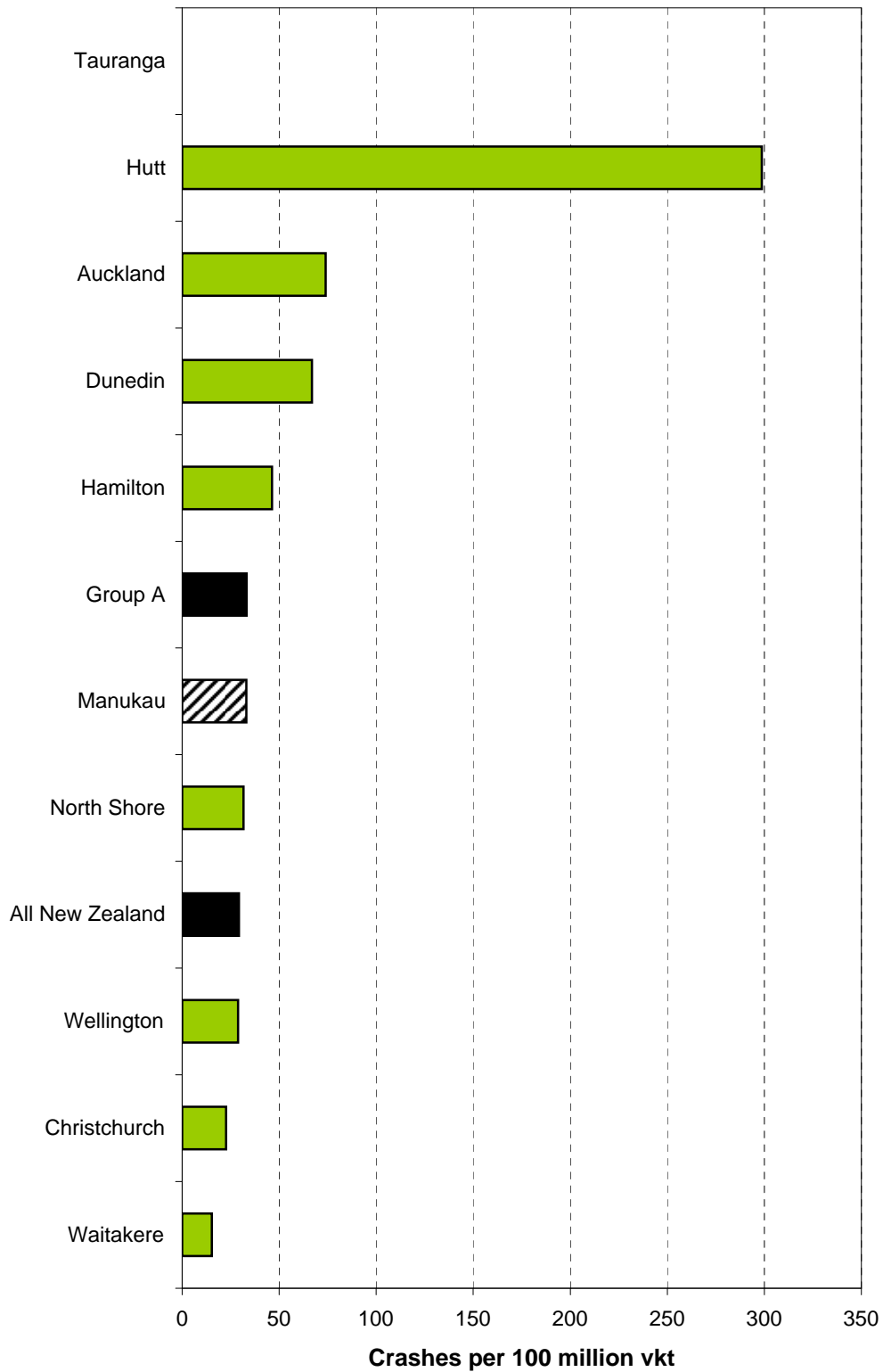


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural council roads



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

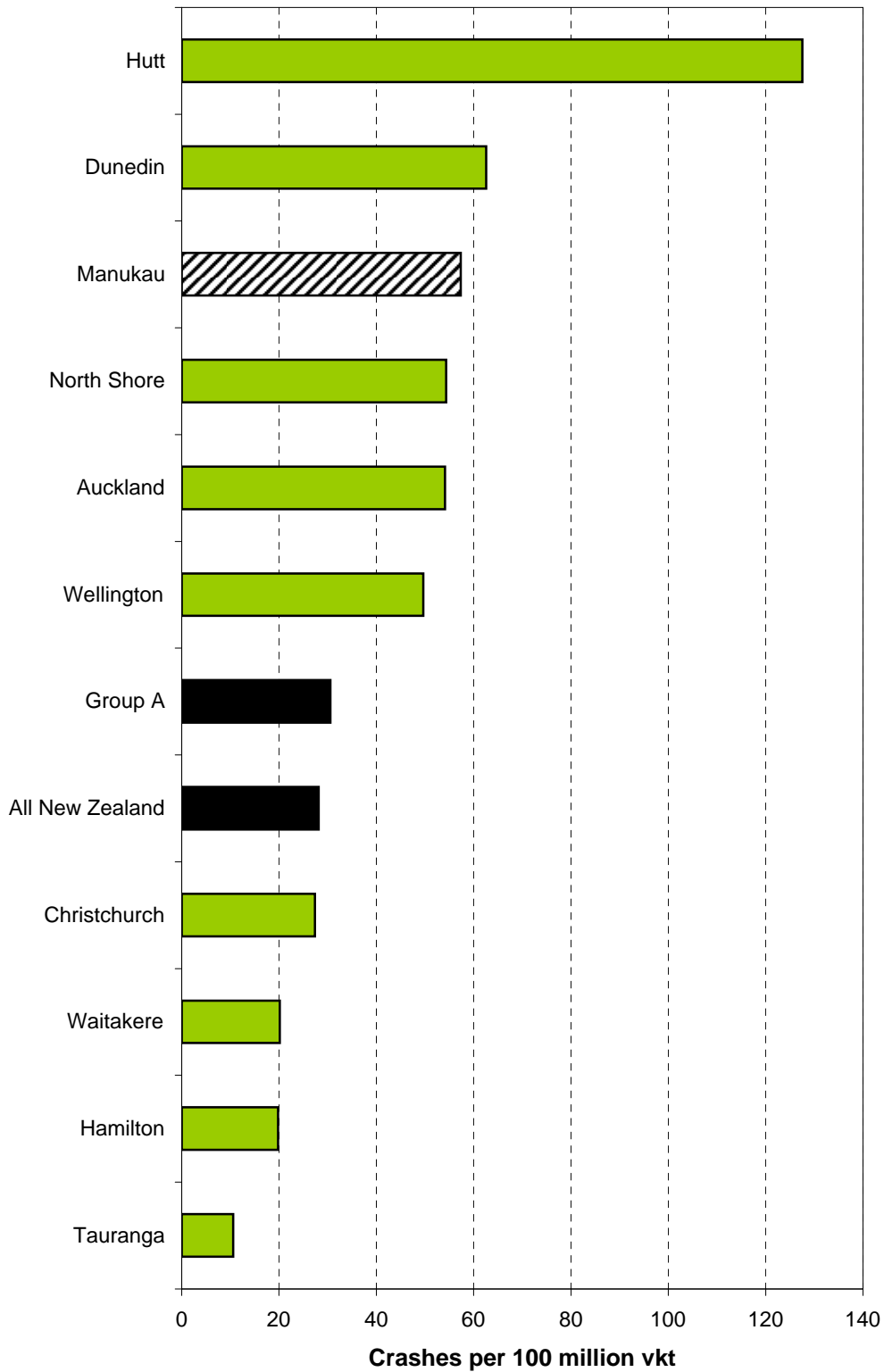


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways

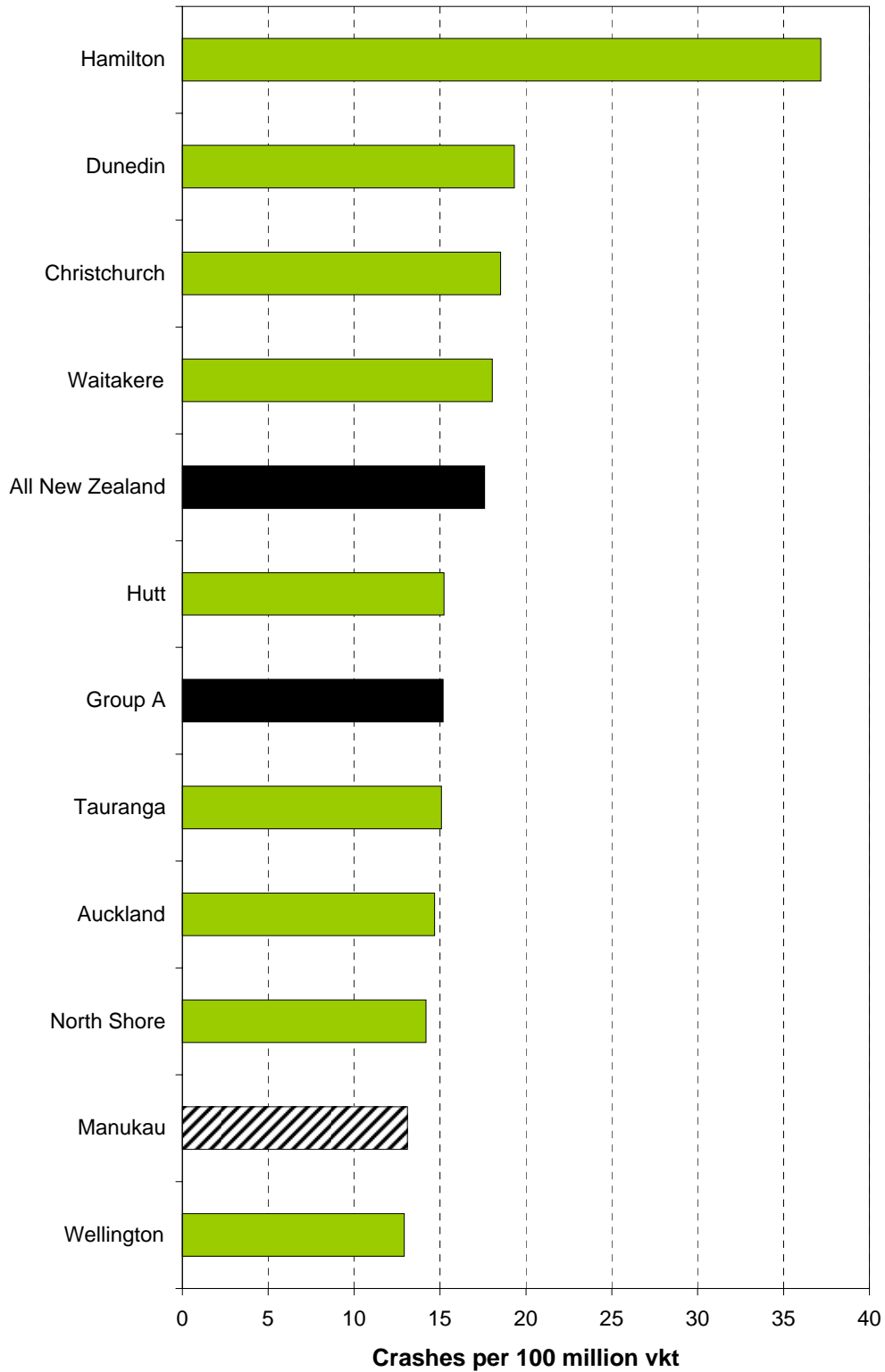
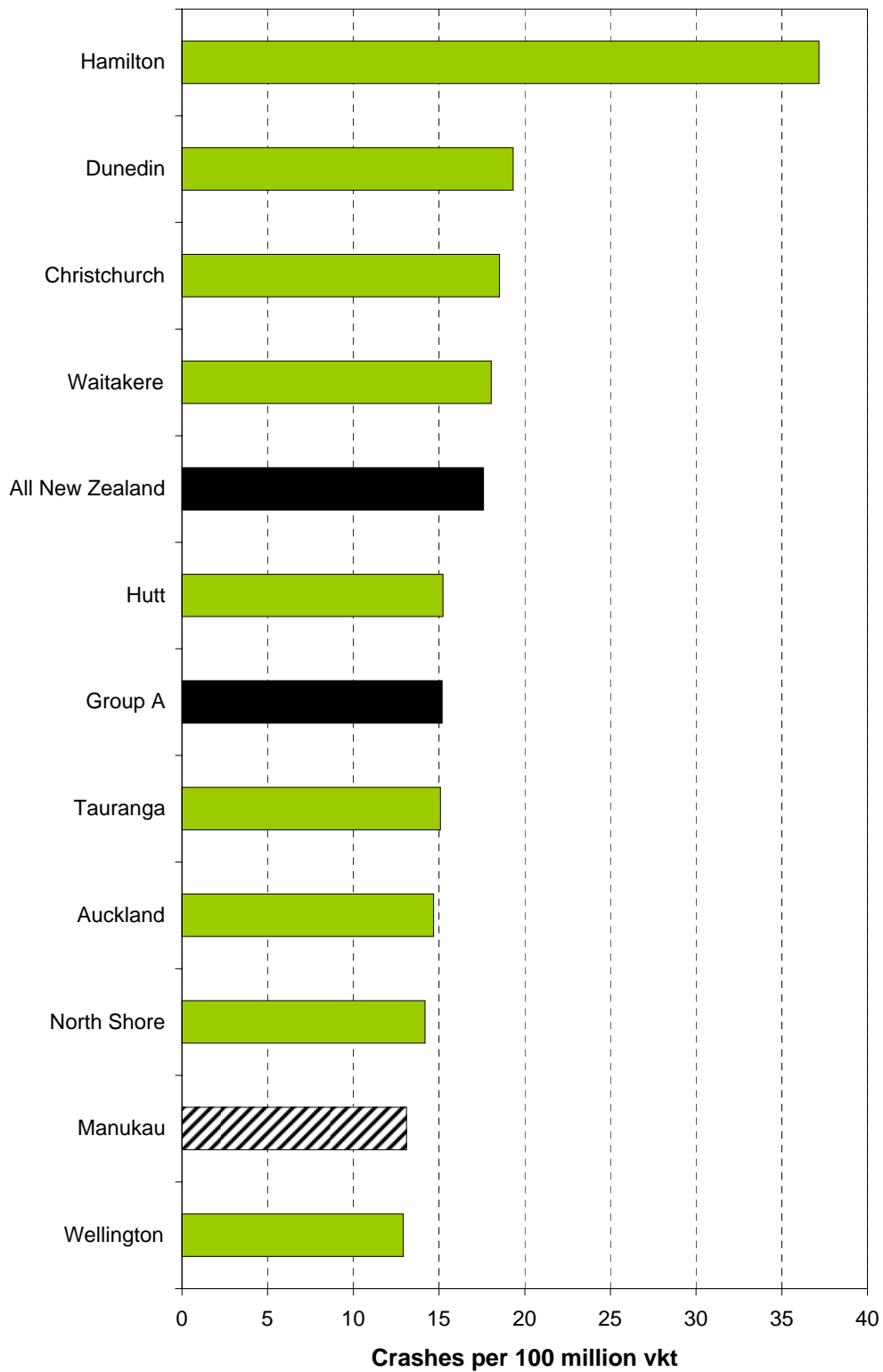


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways



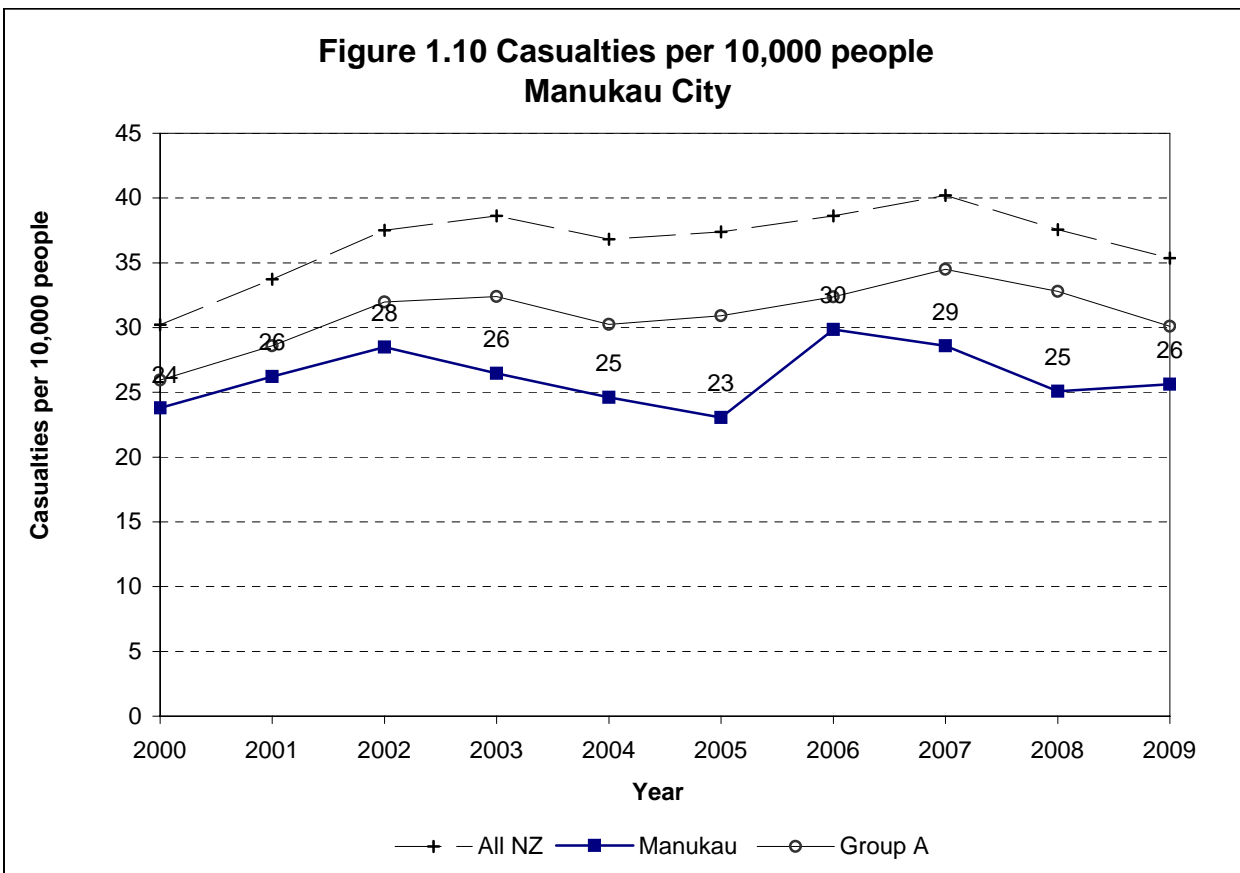
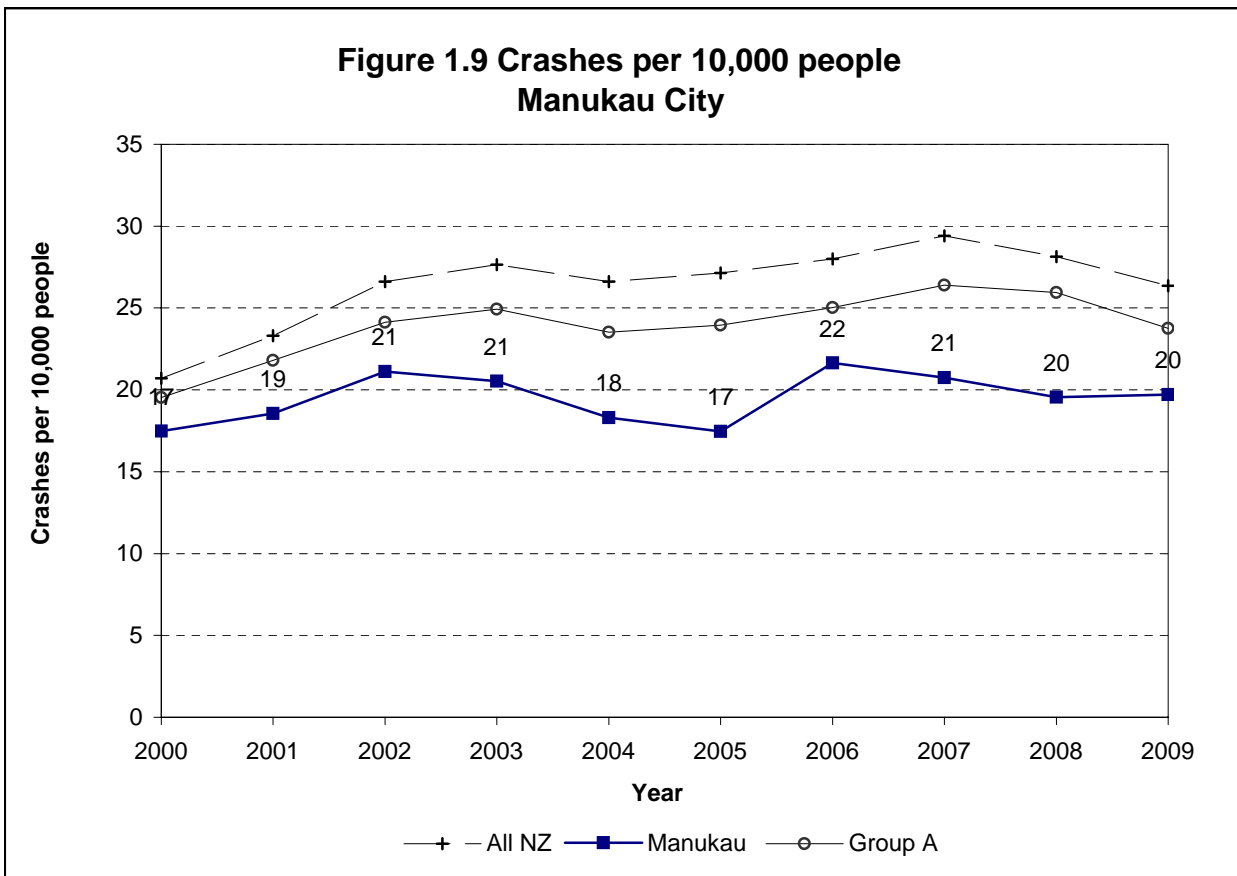


Figure 1.11 Social cost of crashes in Manukau City in 2009

		Manukau City	New Zealand
Council roads	urban	\$160.69	\$1,607.40
	rural	\$23.17	\$909.43
State Highways	urban	\$5.73	\$299.76
	rural	\$24.08	\$1,487.35
Total		\$213.67	\$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 A
Fatal crashes	16	15	14	15	13	73	2%	1%
Serious crashes	70	120	86	96	106	478	14%	15%
Minor crashes	474	581	603	568	580	2806	84%	84%
Total injury crashes	560	716	703	679	699	3357	100%	100%
Non-injury crashes	2052	2309	2493	2420	2219	11493		

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

	2005	2006	2007	2008	2009	Total	%	Group A
Fatal crashes	11	8	9	7	11	46	2%	1%
Serious crashes	50	98	72	83	82	385	15%	15%
Minor crashes	359	454	471	458	458	2200	84%	84%
Total injury crashes	420	560	552	548	551	2631	100%	100%
Non-injury crashes	1756	2001	2145	2073	1896	9871		

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

	2005	2006	2007	2008	2009	Total	%	Group A
Fatal crashes	5	7	5	8	2	27	4%	2%
Serious crashes	20	22	14	13	24	93	13%	14%
Minor crashes	115	127	132	110	122	606	83%	84%
Total injury crashes	140	156	151	131	148	726	100%	100%
Non-injury crashes	296	308	348	347	323	1622		

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

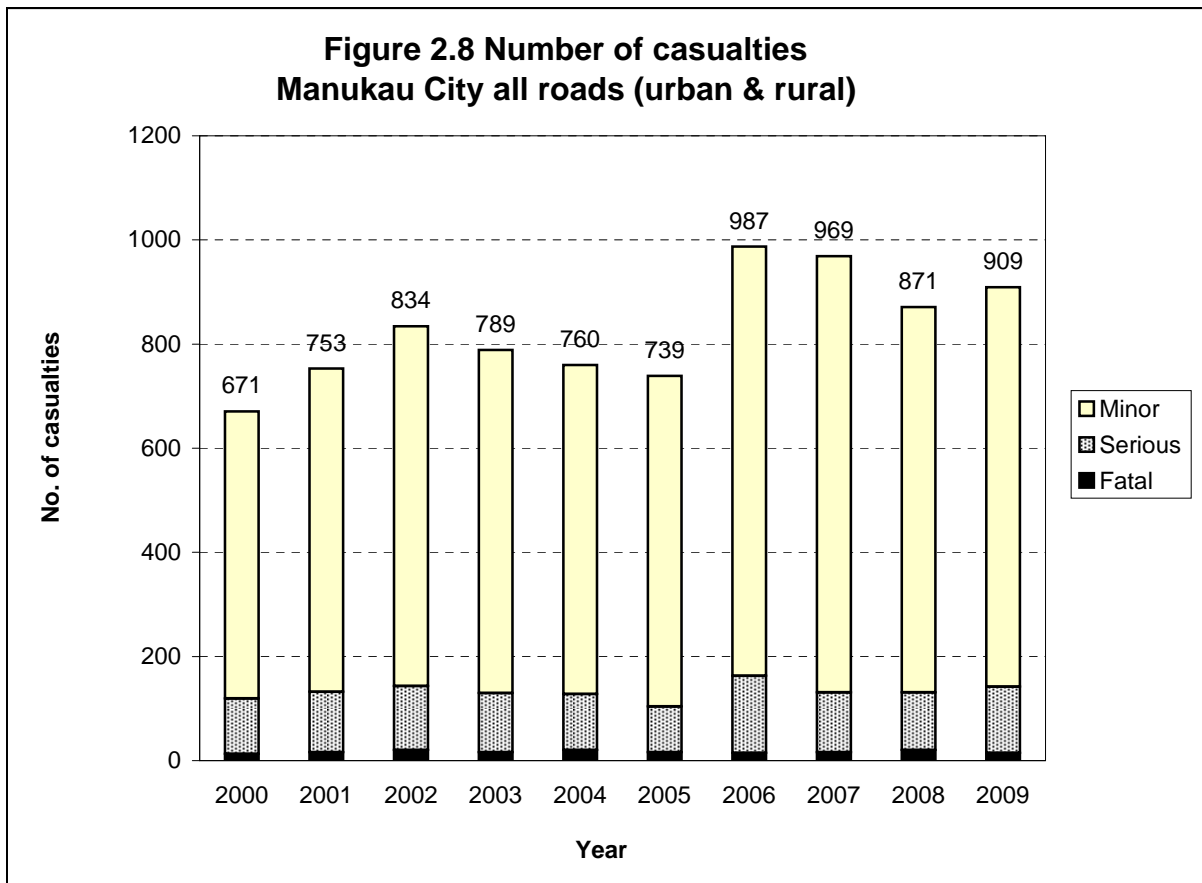
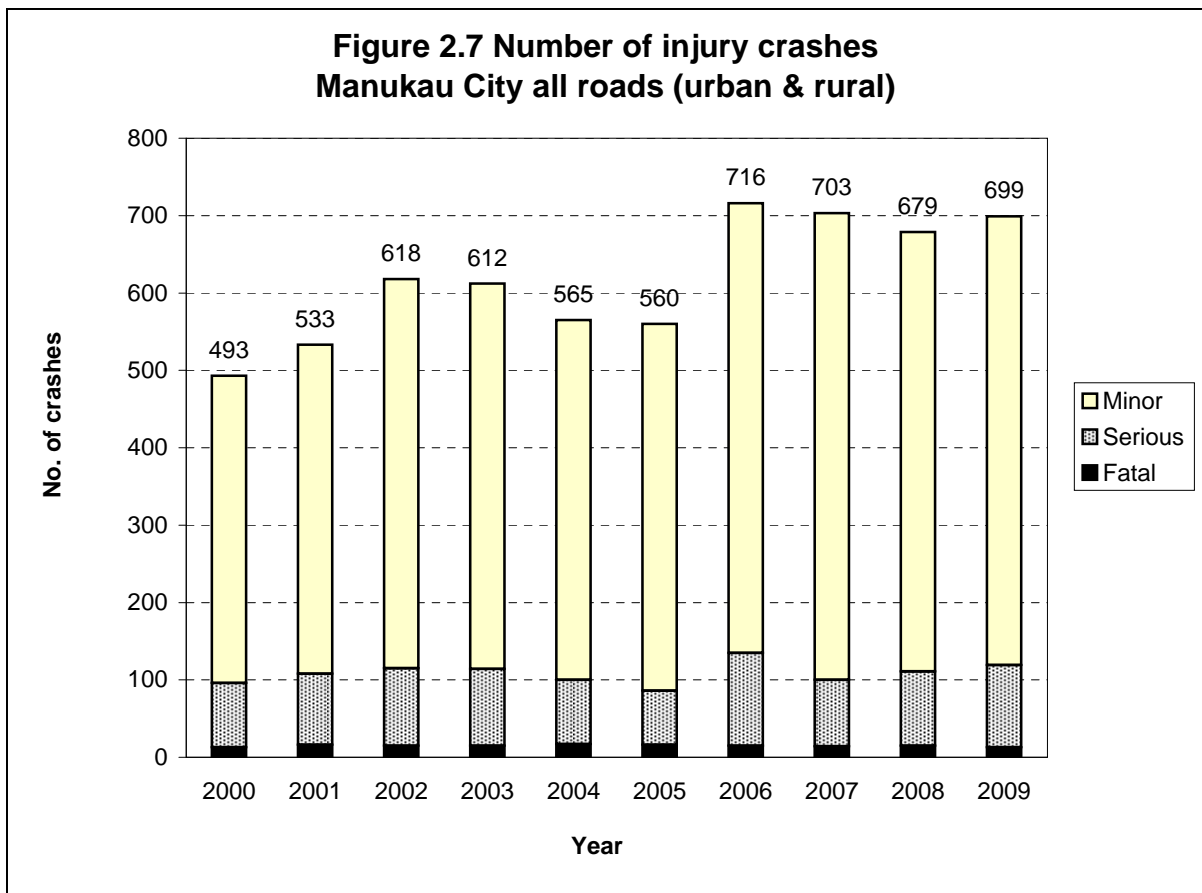
	2005	2006	2007	2008	2009	Total	%	Group A
Fatal casualties	16	15	16	20	15	82	2%	1%
Serious casualties	88	148	115	111	127	589	13%	13%
Minor casualties	635	824	838	740	767	3804	85%	86%
Total casualties	739	987	969	871	909	4475	100%	100%

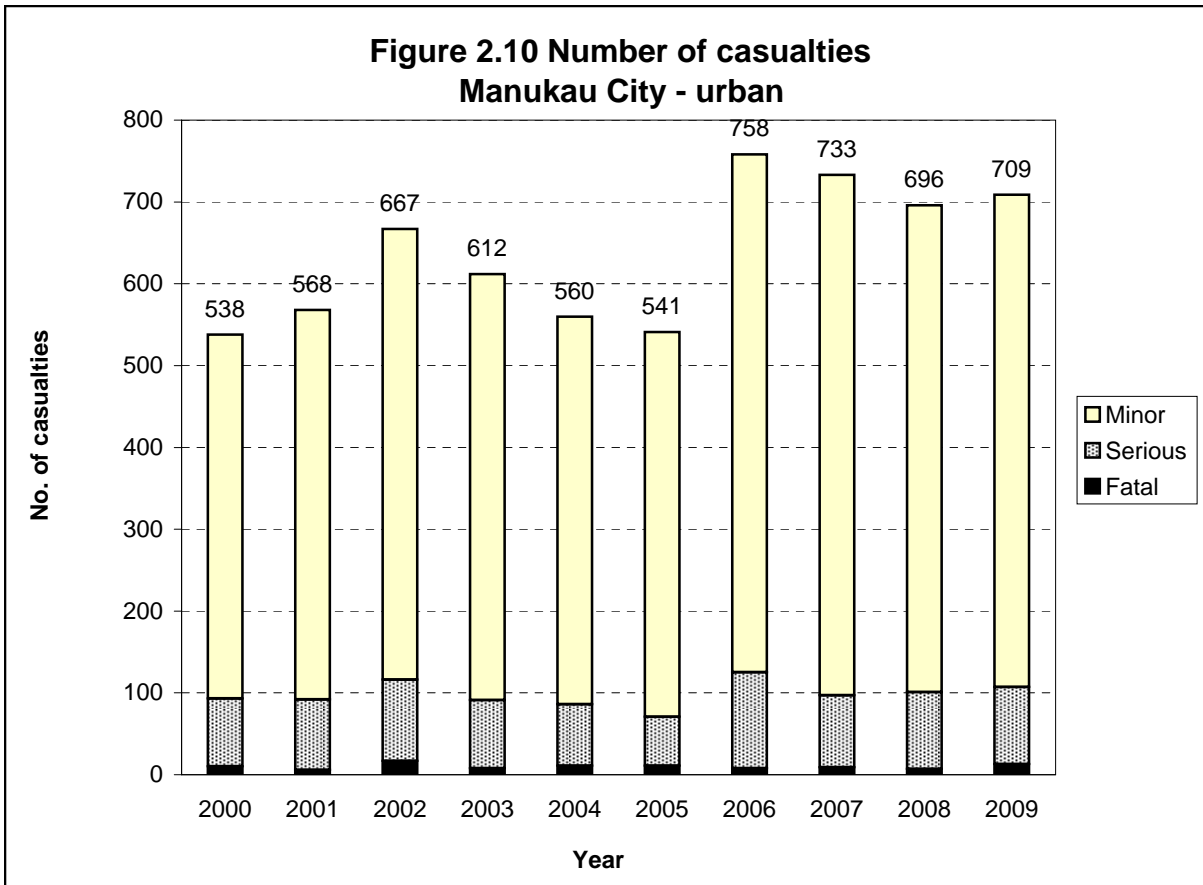
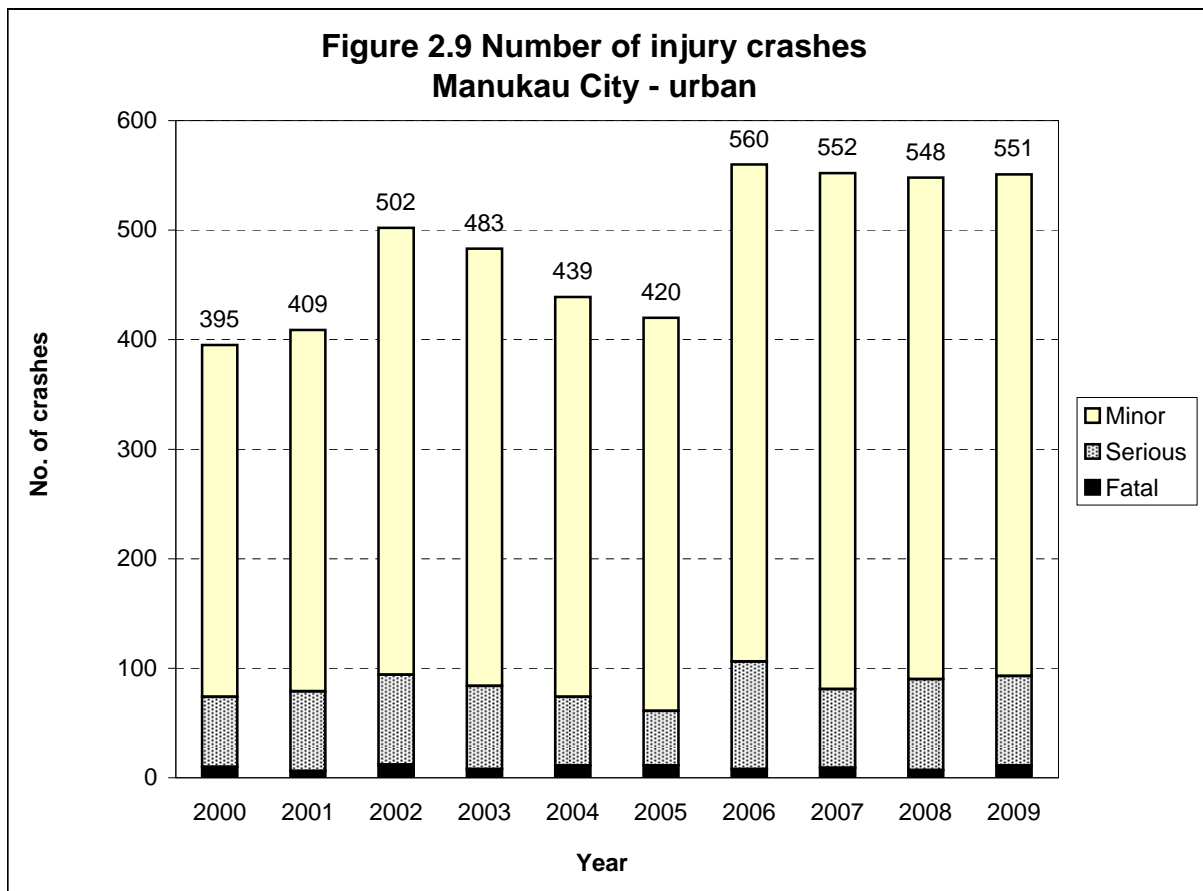
Figure 2.5: Casualty numbers and severity 2005 to 2009 - urban roads

	2005	2006	2007	2008	2009	Total	%	Group A
Fatal casualties	11	8	9	7	13	48	1%	1%
Serious casualties	60	117	88	94	94	453	13%	13%
Minor casualties	470	633	636	595	602	2936	85%	86%
Total casualties	541	758	733	696	709	3437	100%	100%

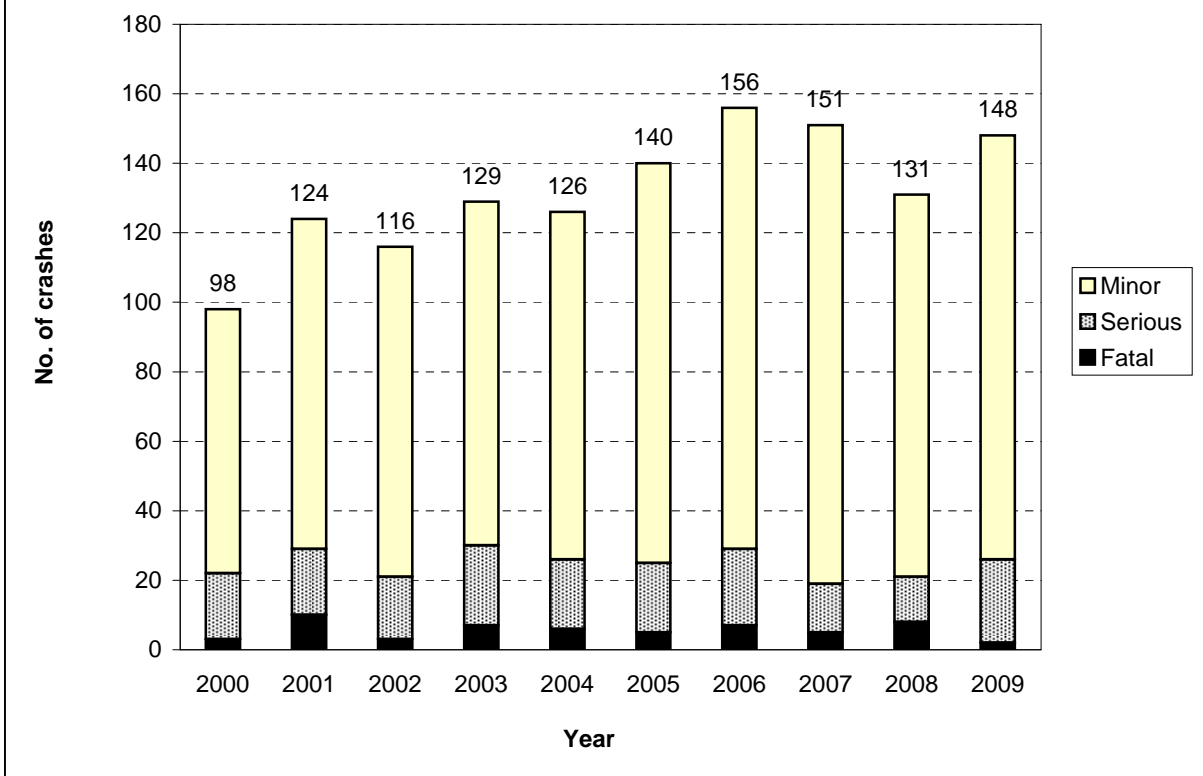
Figure 2.6: Casualty numbers and severity 2005 to 2009 - rural roads

	2005	2006	2007	2008	2009	Total	%	Group A
Fatal casualties	5	7	7	13	2	34	3%	2%
Serious casualties	28	31	27	17	33	136	13%	13%
Minor casualties	165	191	202	145	165	868	84%	85%
Total casualties	198	229	236	175	200	1038	100%	100%

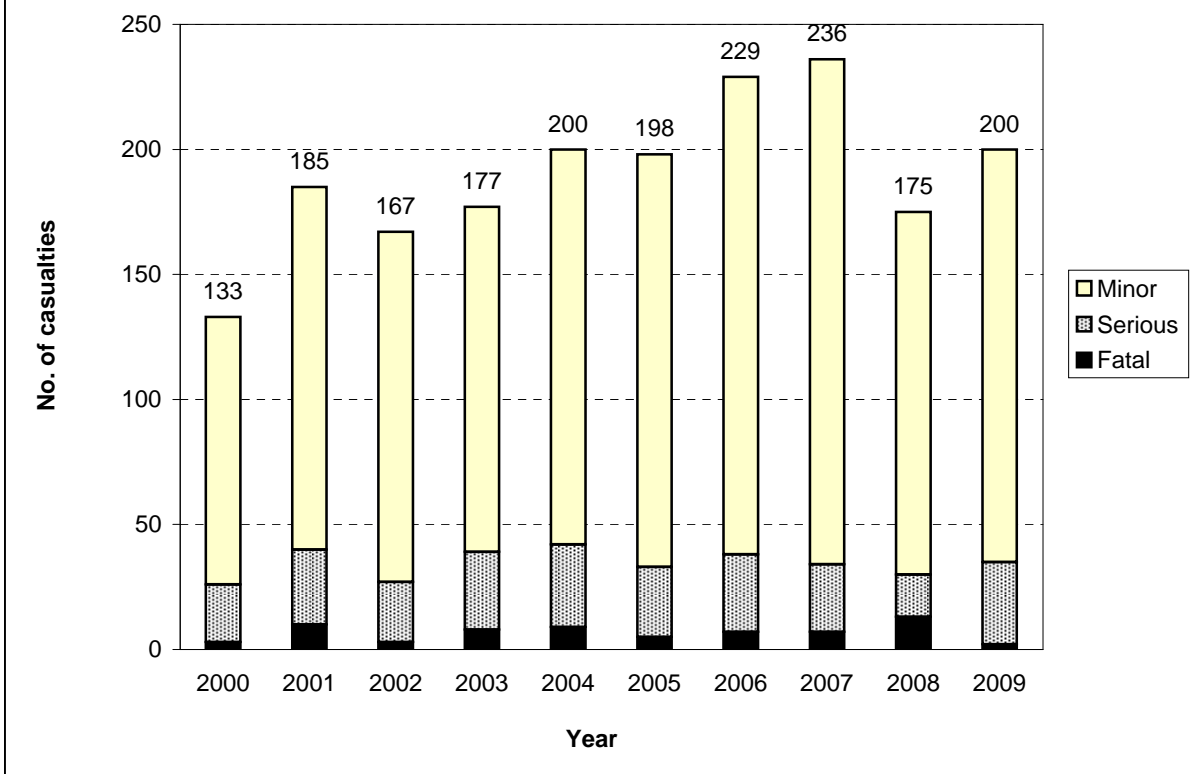


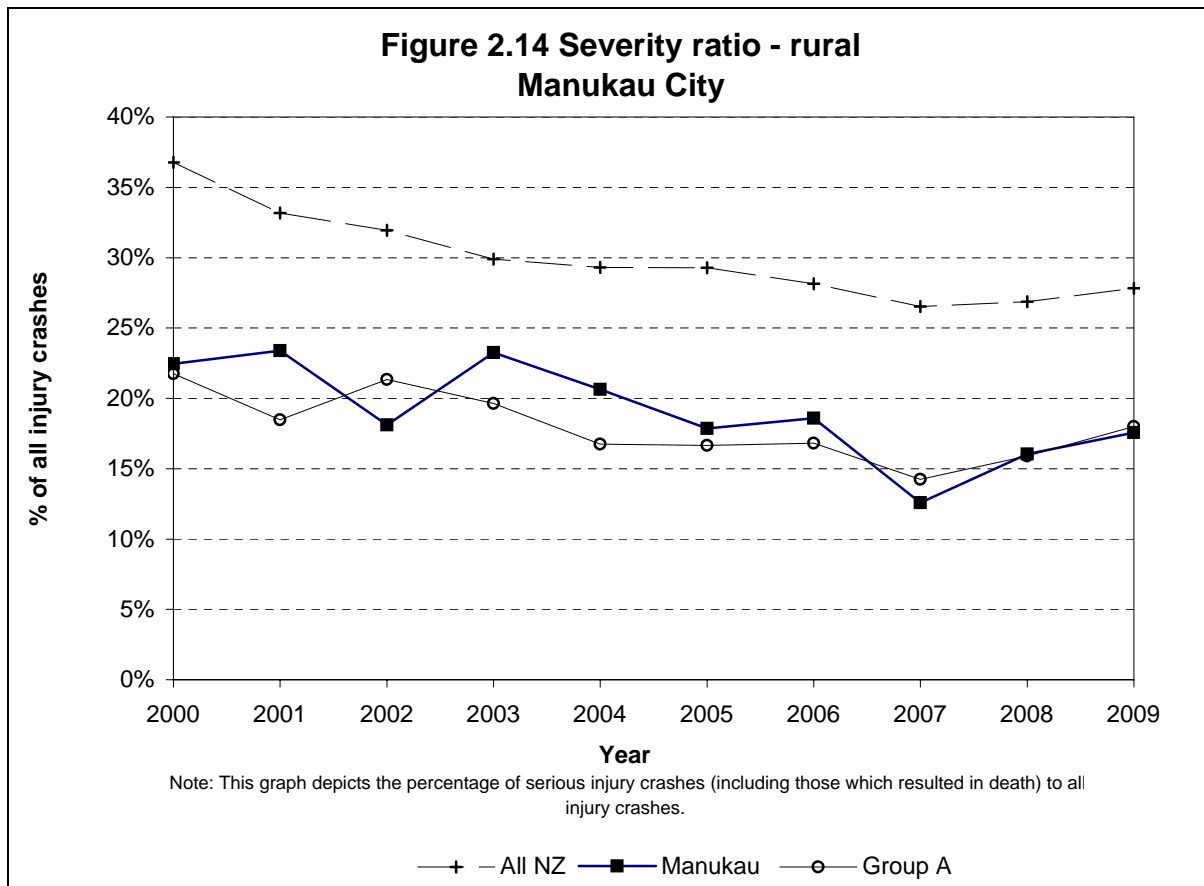
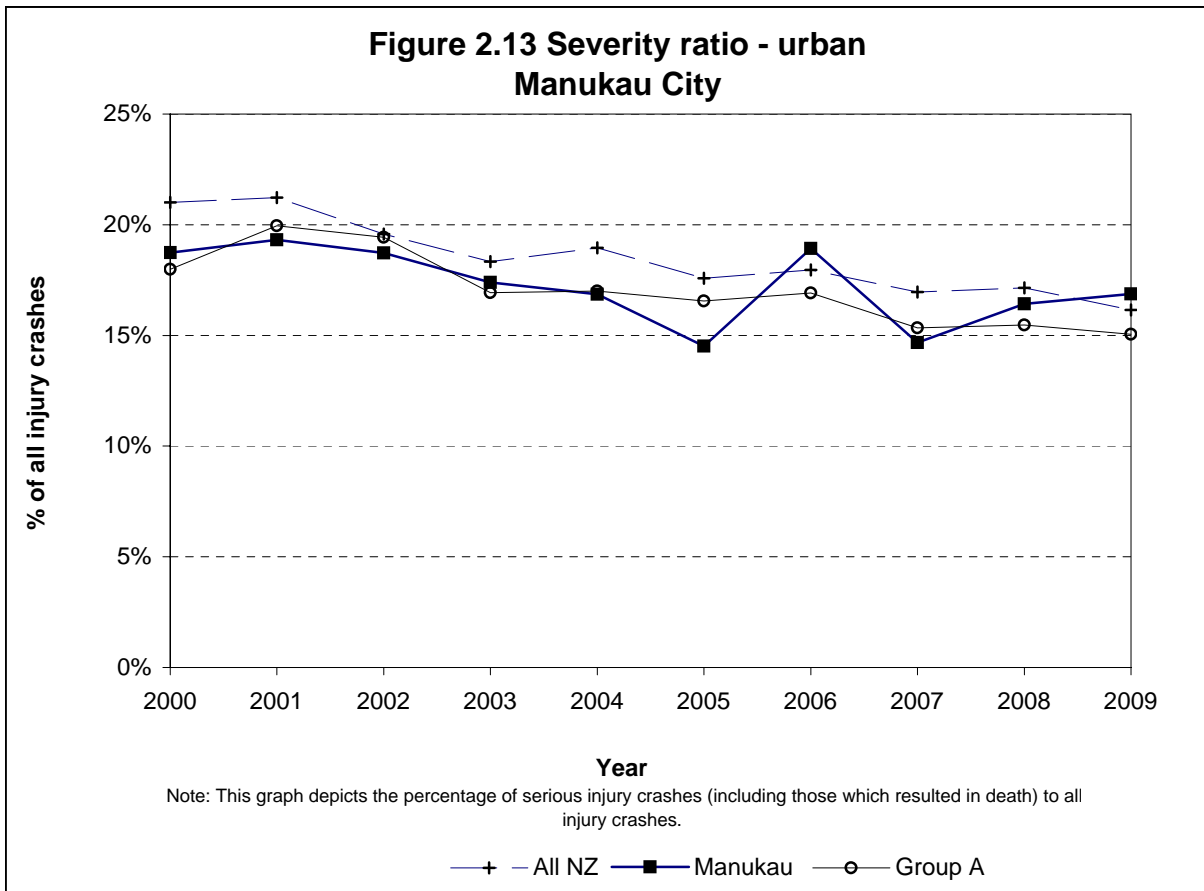


**Figure 2.11 Number of injury crashes
Manukau City - rural**



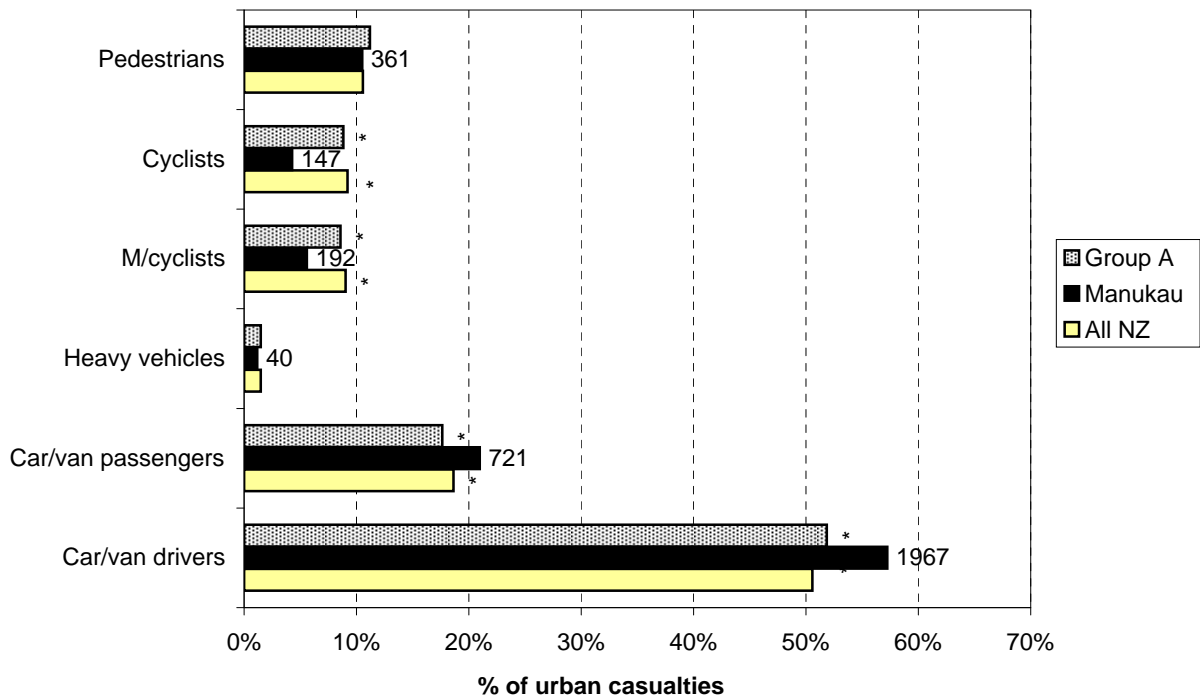
**Figure 2.12 Number of casualties
Manukau City - rural**





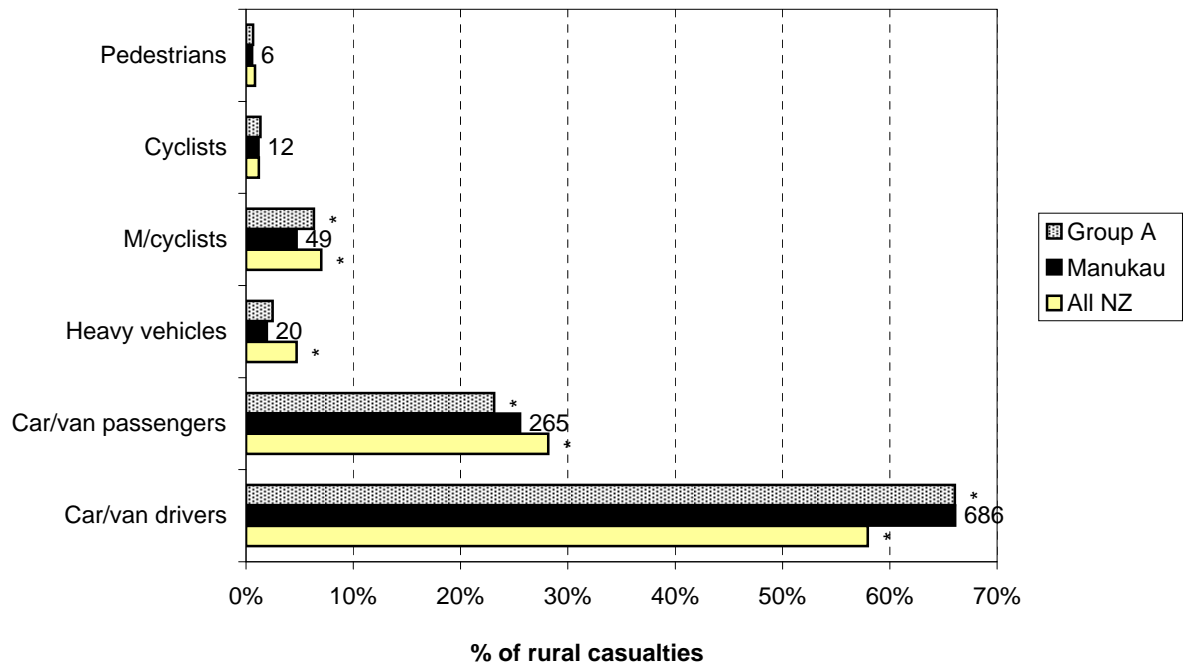
Road User Statistics

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



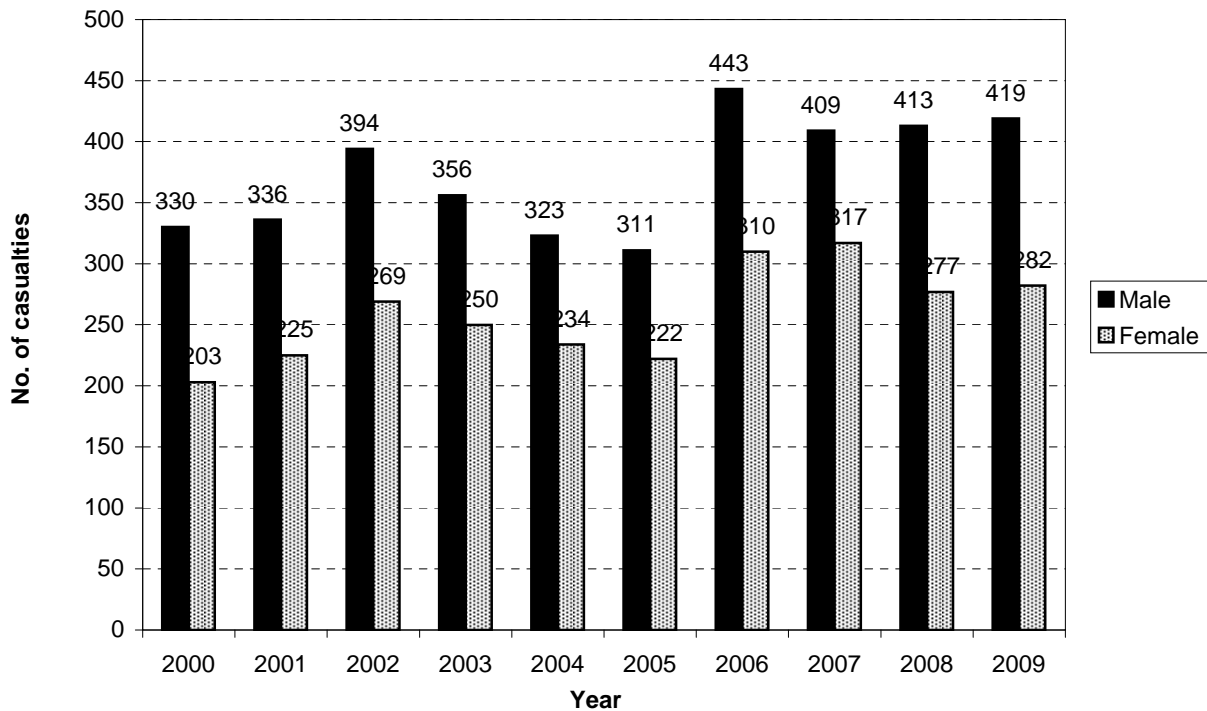
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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



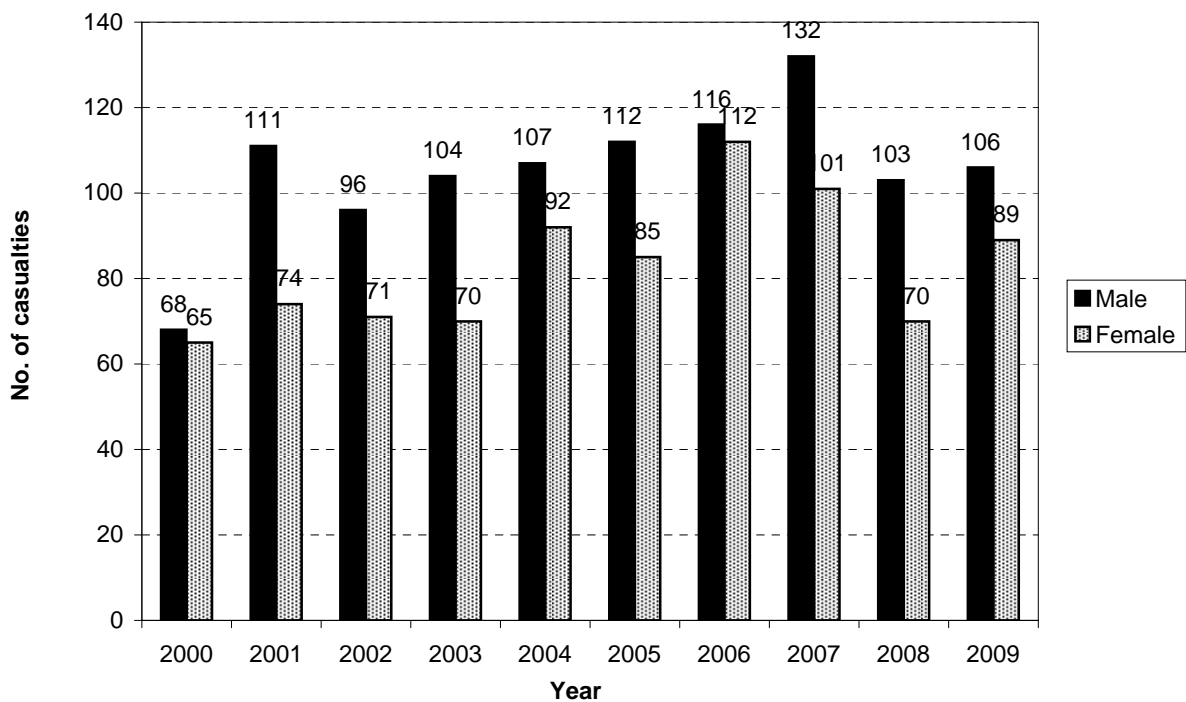
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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



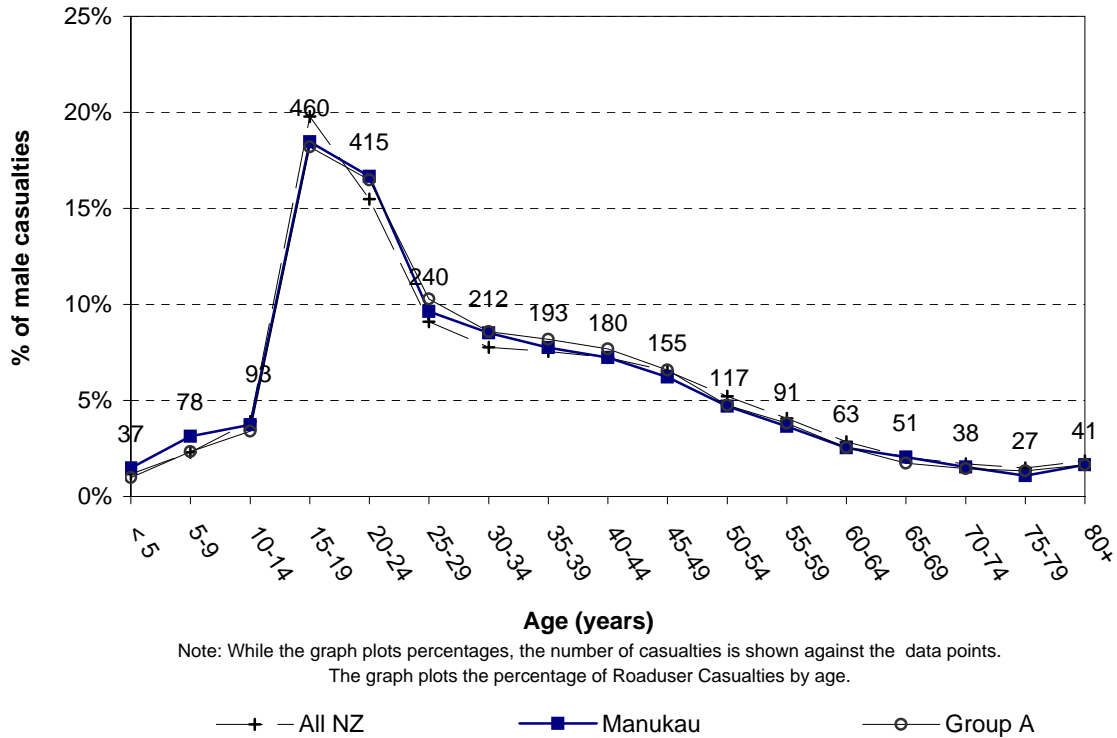
Note: This graph shows the number of male and female roadusers injured

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

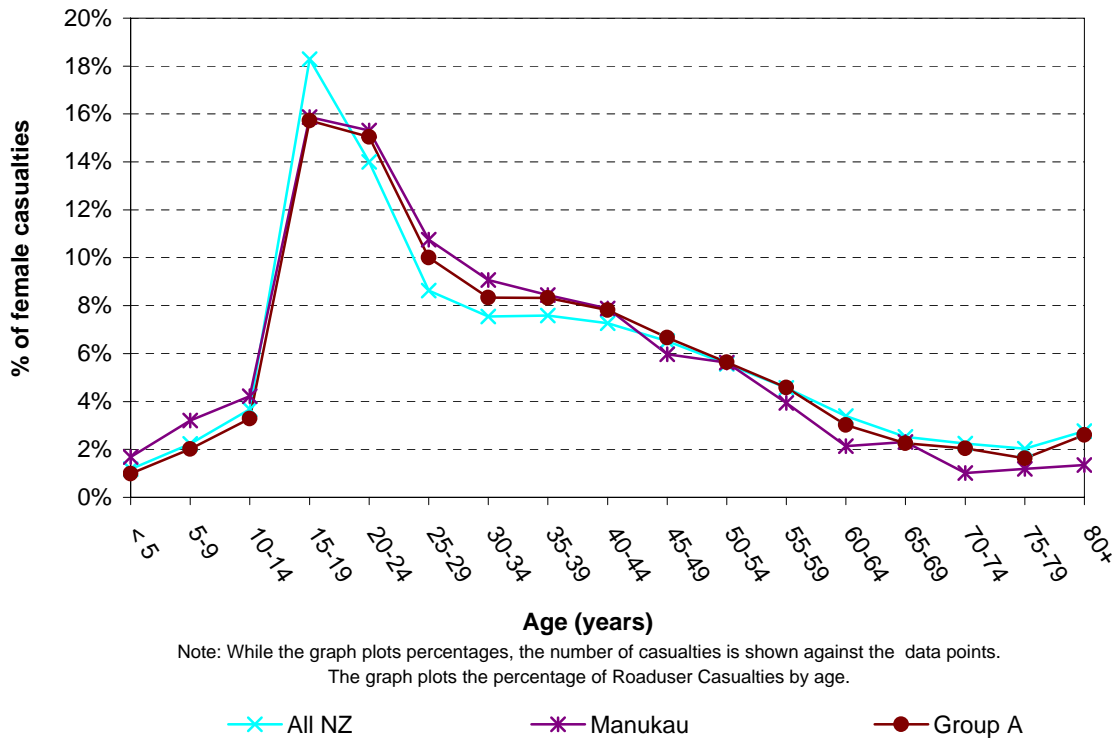


Note: This graph shows the number of male and female roadusers injured

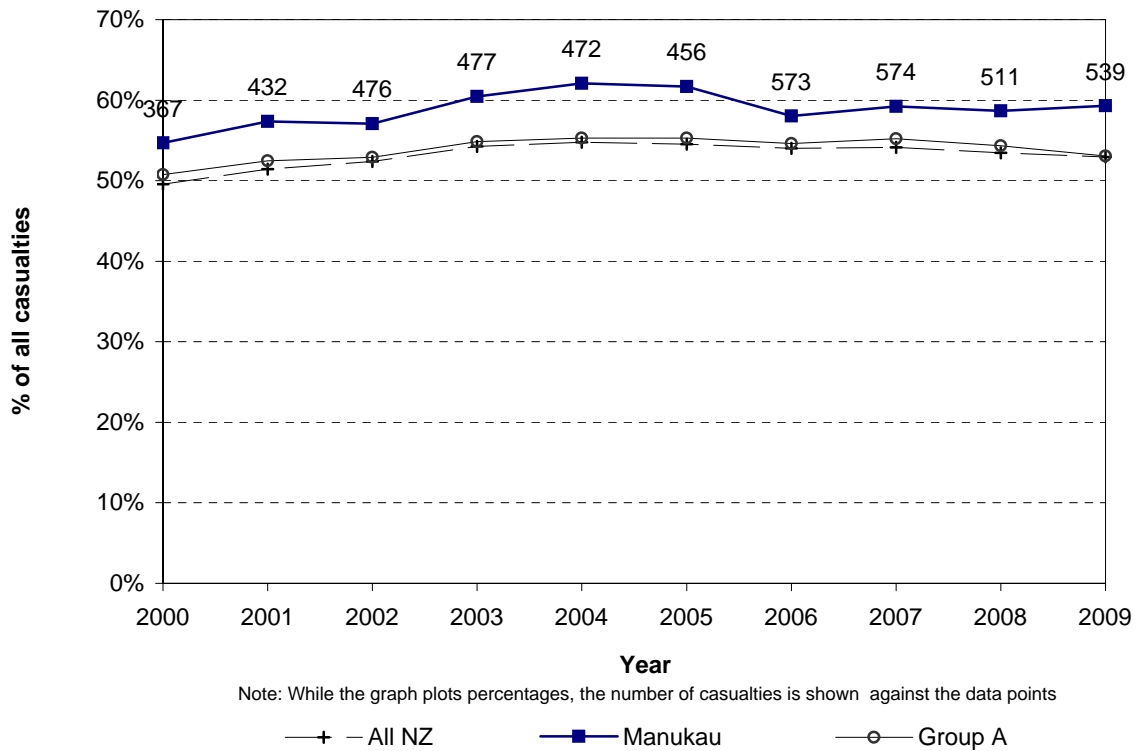
**Figure 3.5 Male casualties by age
Manukau City (2005-2009)**



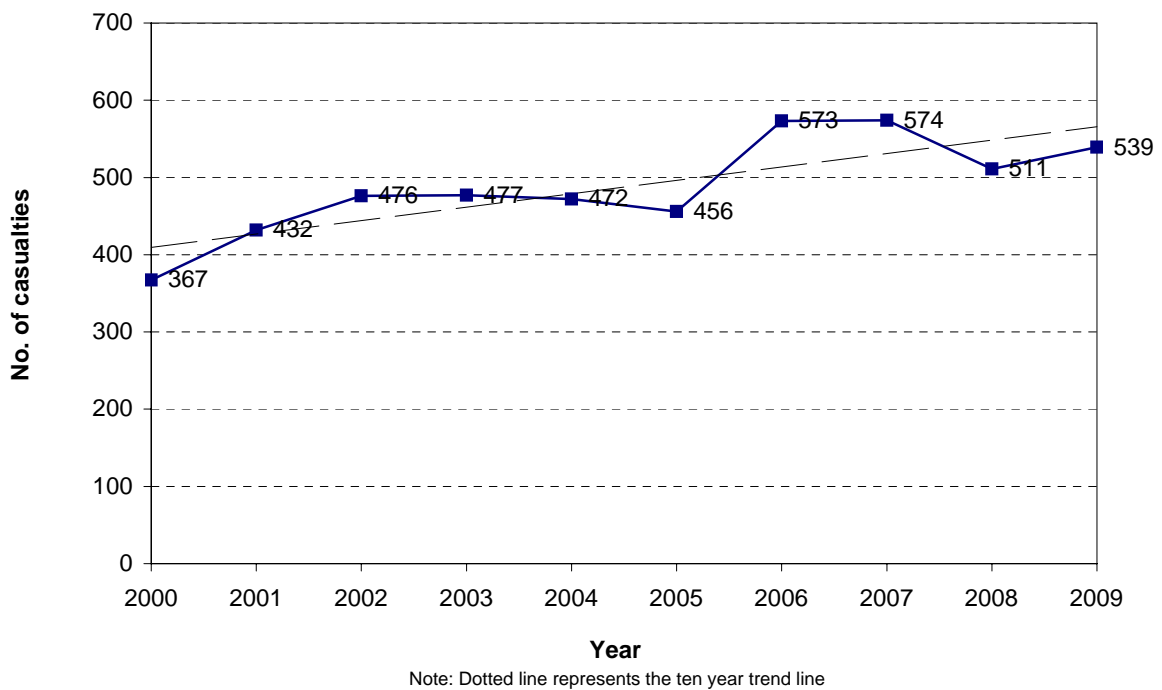
**Figure 3.6 Female casualties by age
Manukau City (2005-2009)**



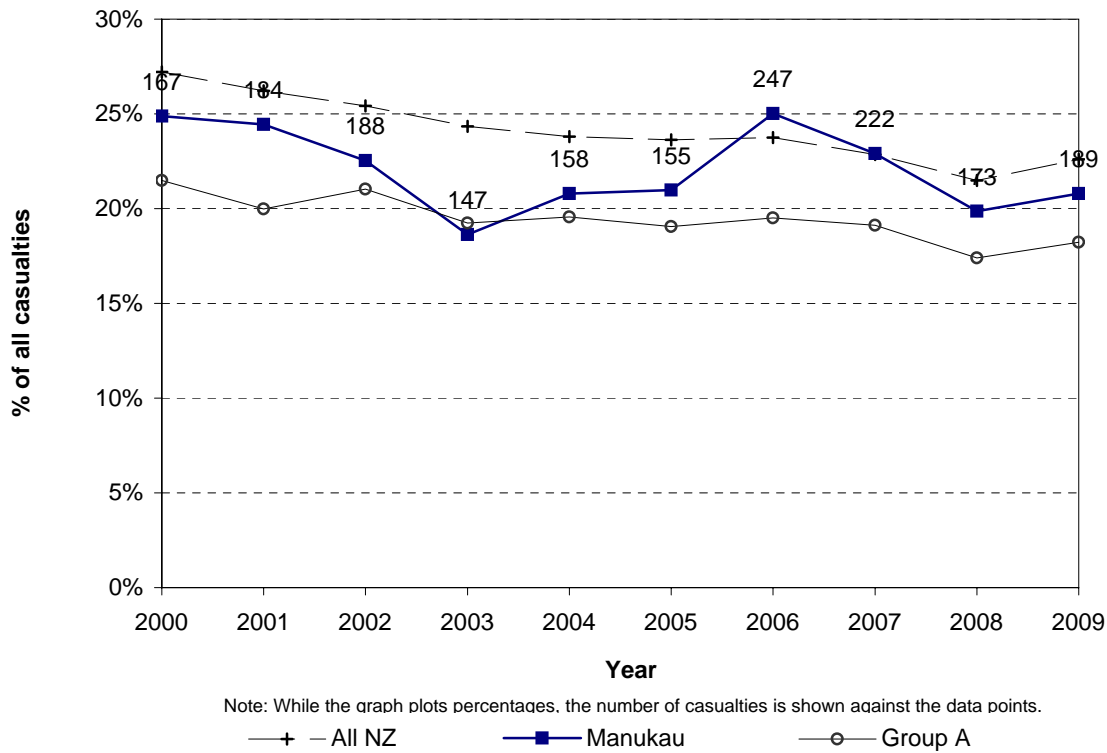
**Figure 3.7 Car/van driver casualties
Manukau City**



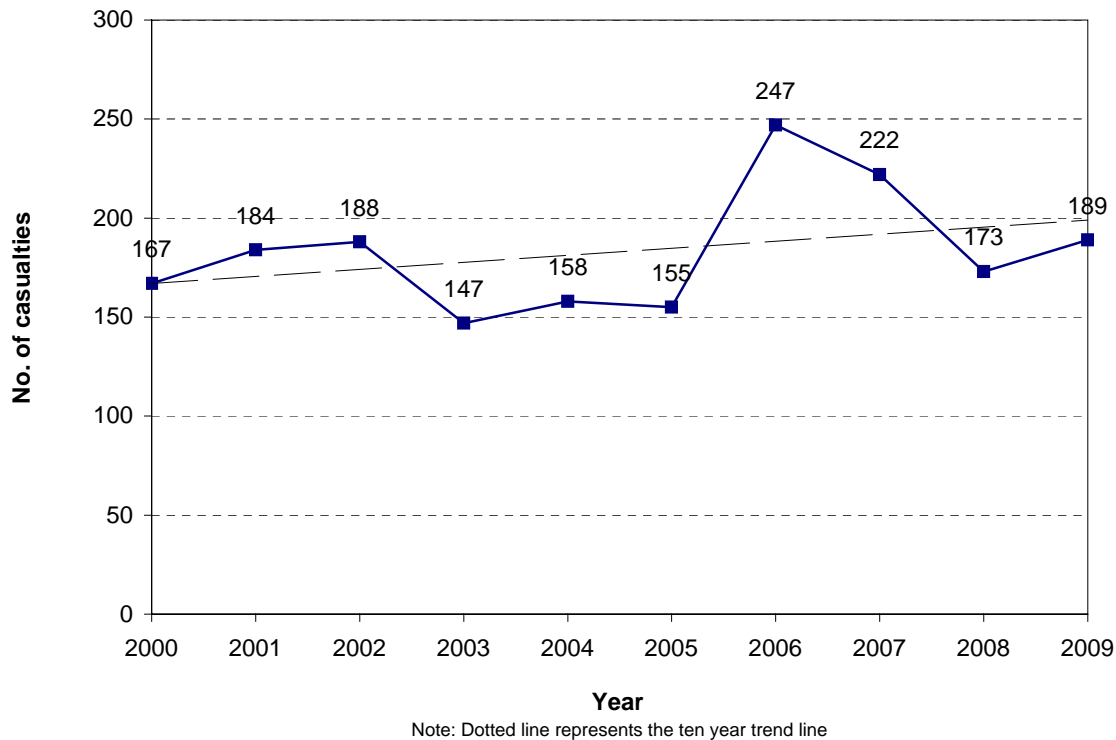
**Figure 3.8 Car/van driver casualties
Manukau City**



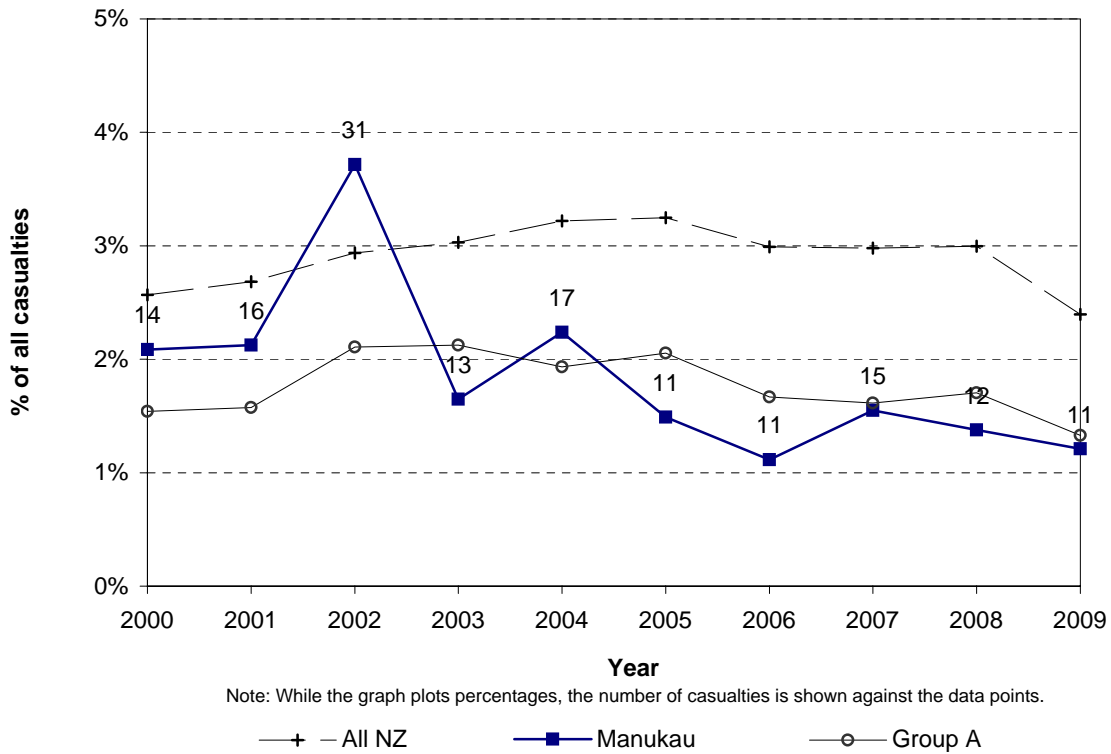
**Figure 3.9 Car/van passenger casualties
Manukau City**



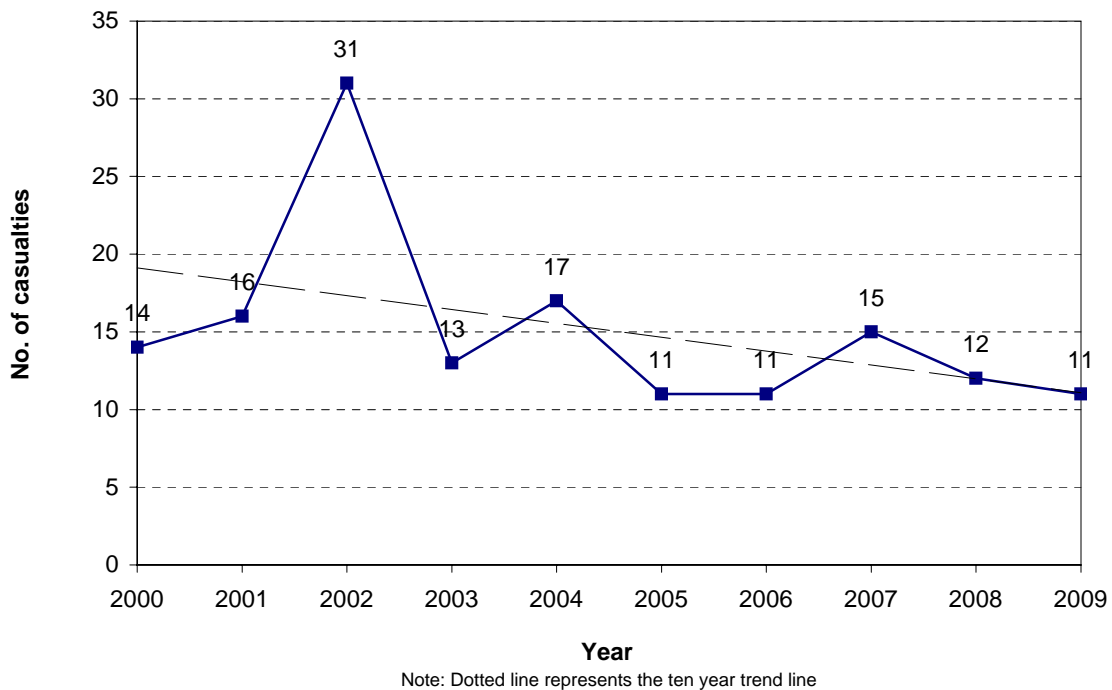
**Figure 3.10 Car/van passenger casualties
Manukau City**



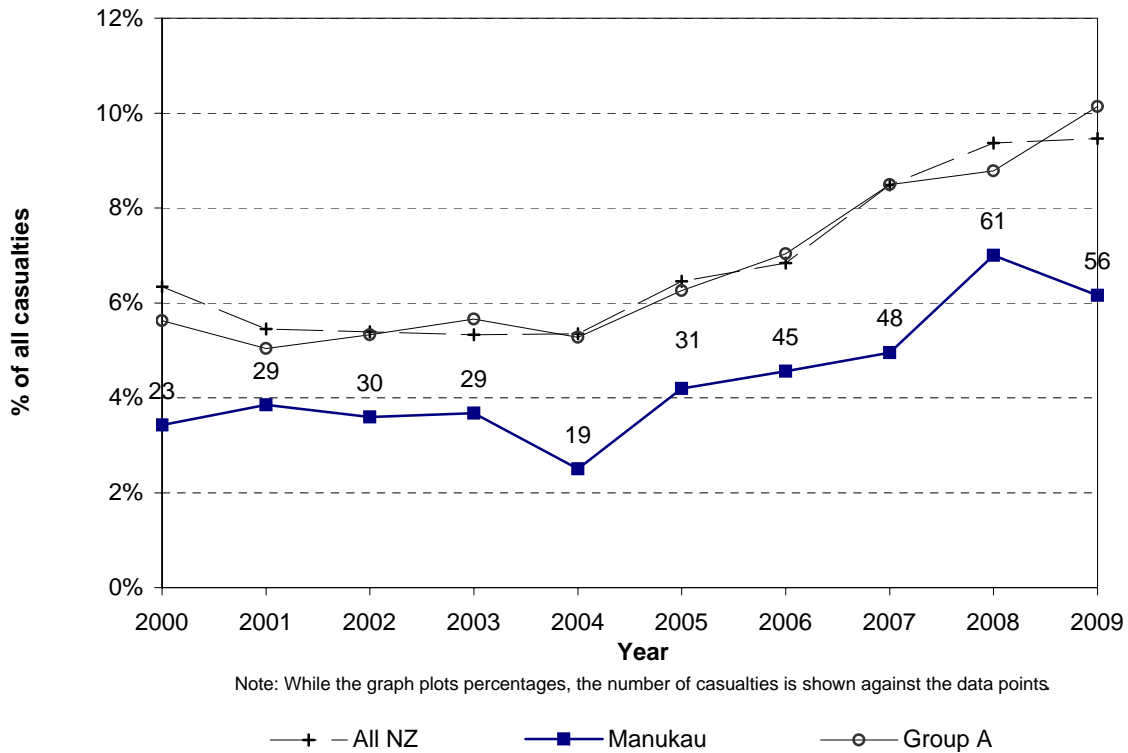
**Figure 3.11 Heavy vehicle casualties
Manukau City**



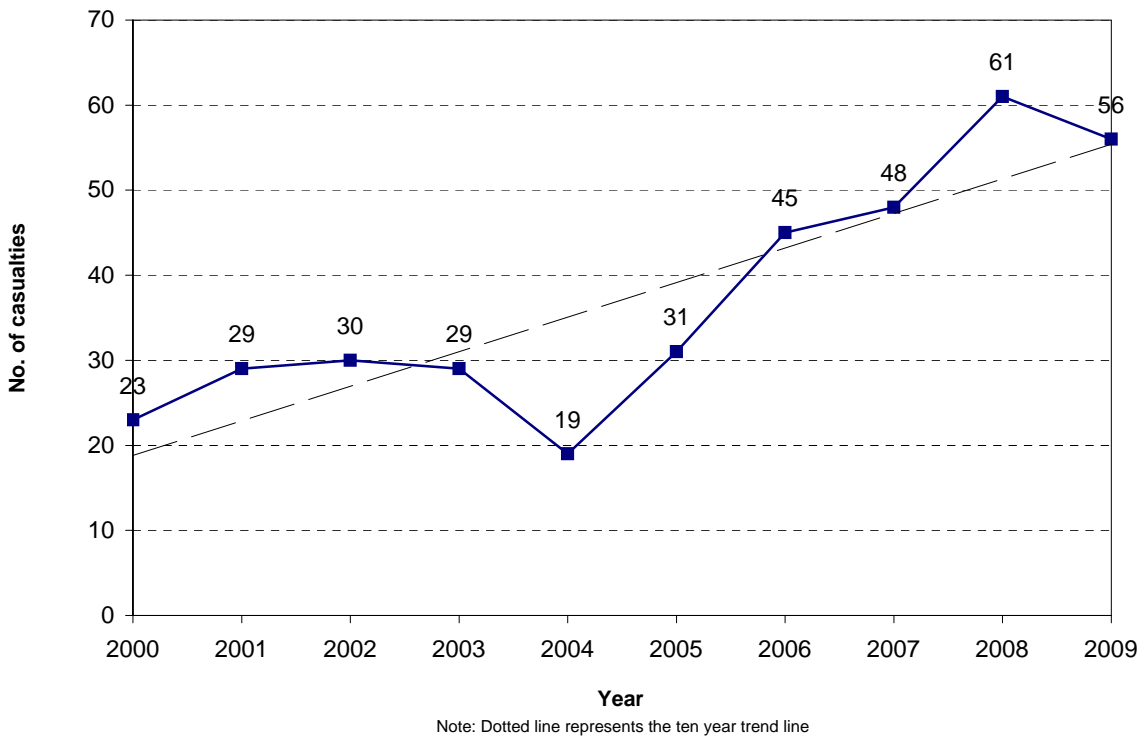
**Figure 3.12 Heavy vehicle casualties
Manukau City**



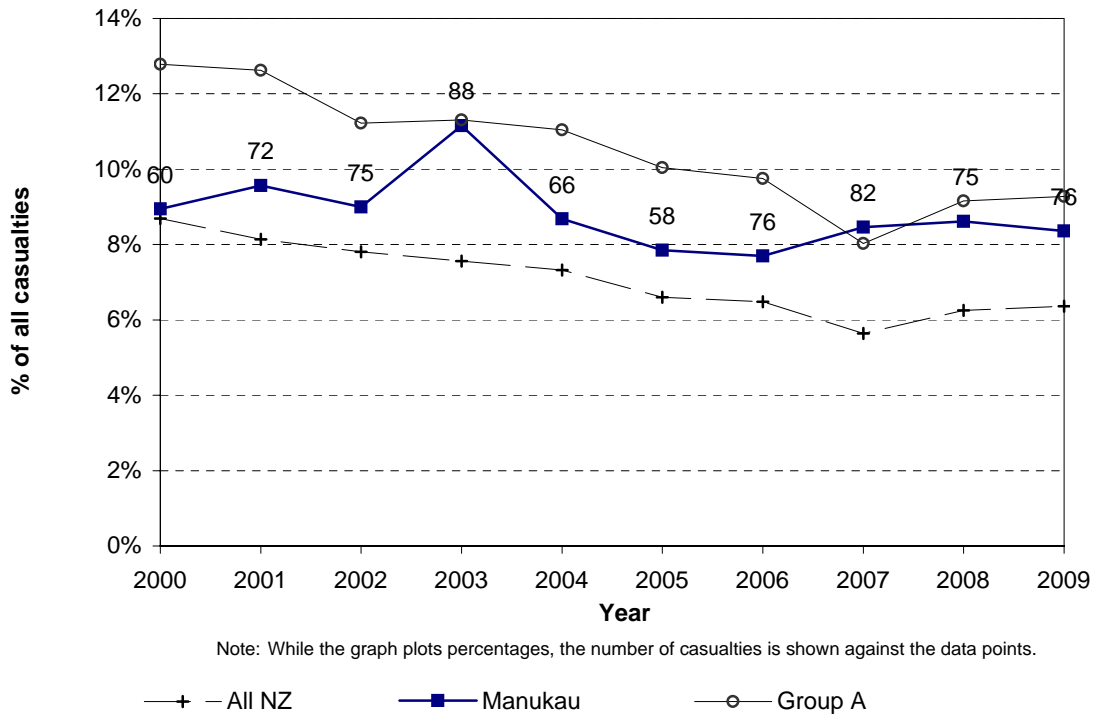
**Figure 3.13 Motorcyclist casualties
Manukau City**



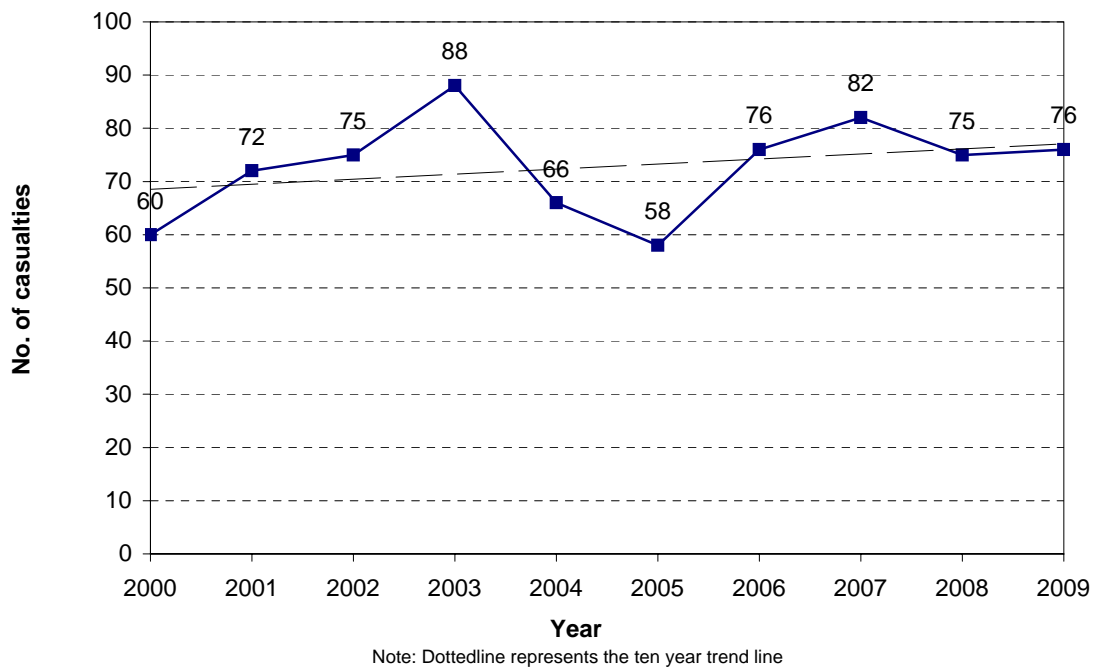
**Figure 3.14 Motorcyclist casualties
Manukau City**



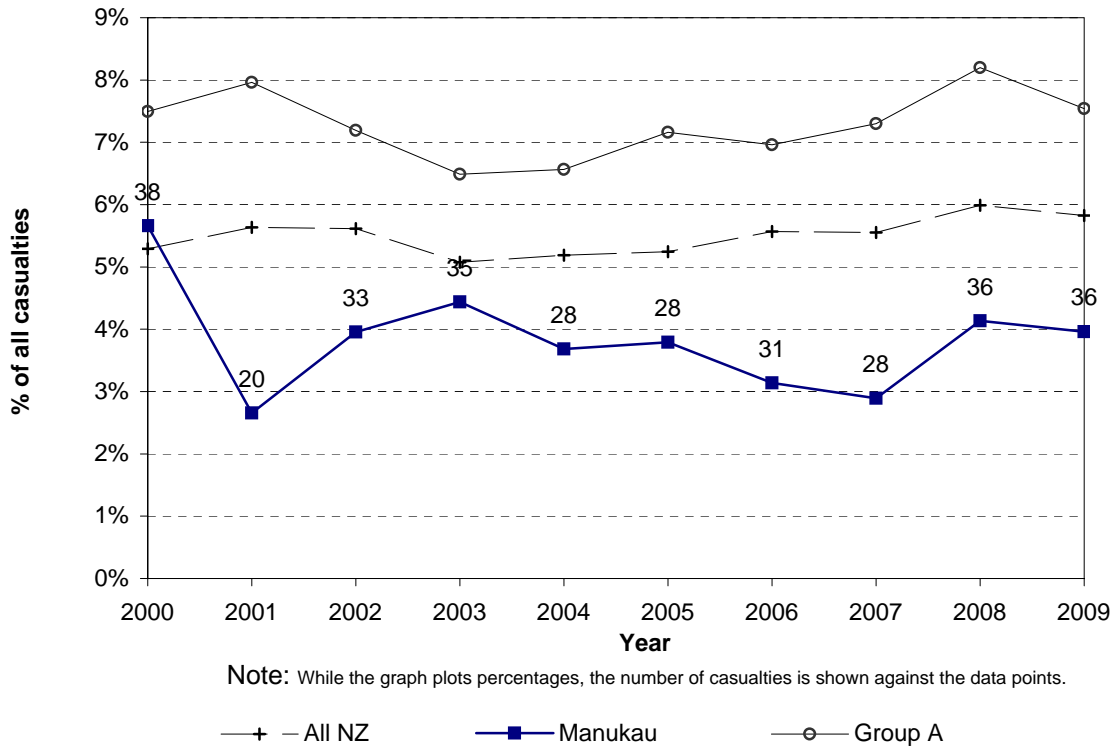
**Figure 3.15 Pedestrian casualties
Manukau City**



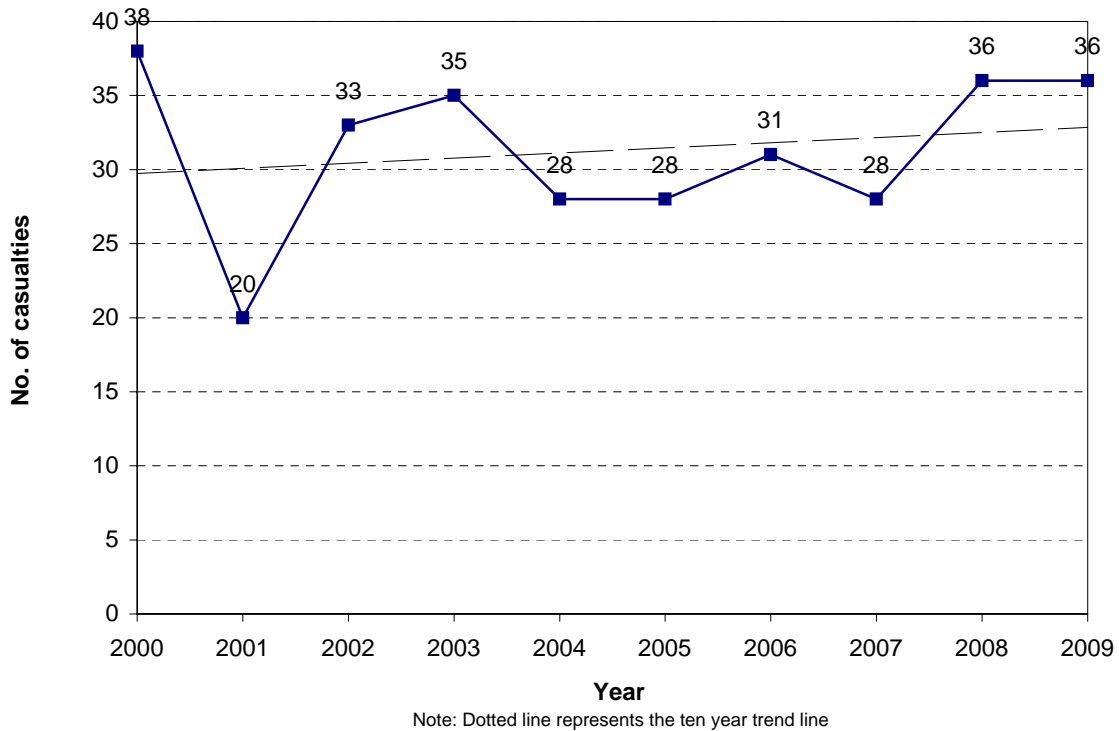
**Figure 3.16 Pedestrian casualties
Manukau City**



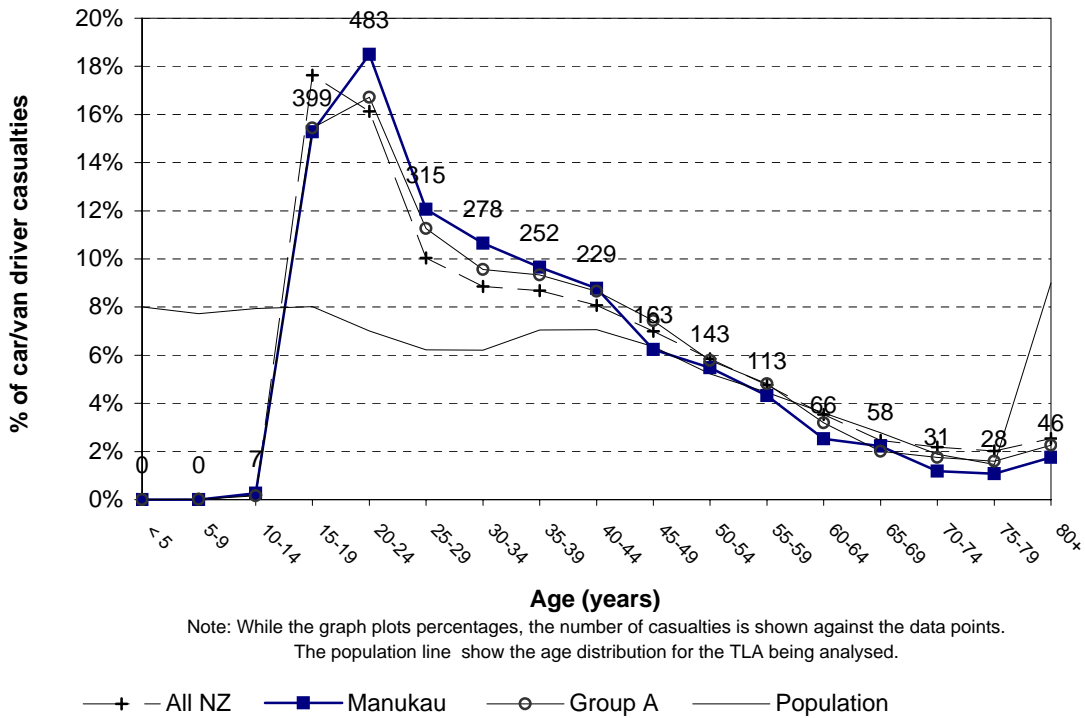
**Figure 3.17 Cyclist casualties
Manukau City**



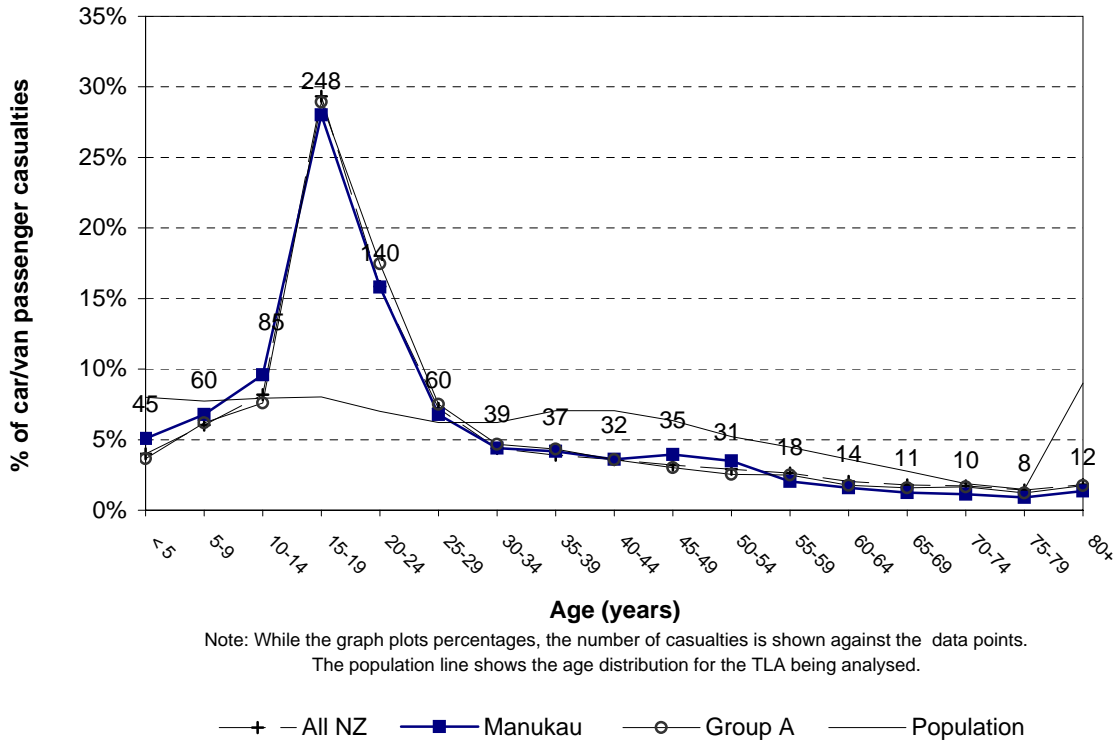
**Figure 3.18 Cyclist casualties
Manukau City**



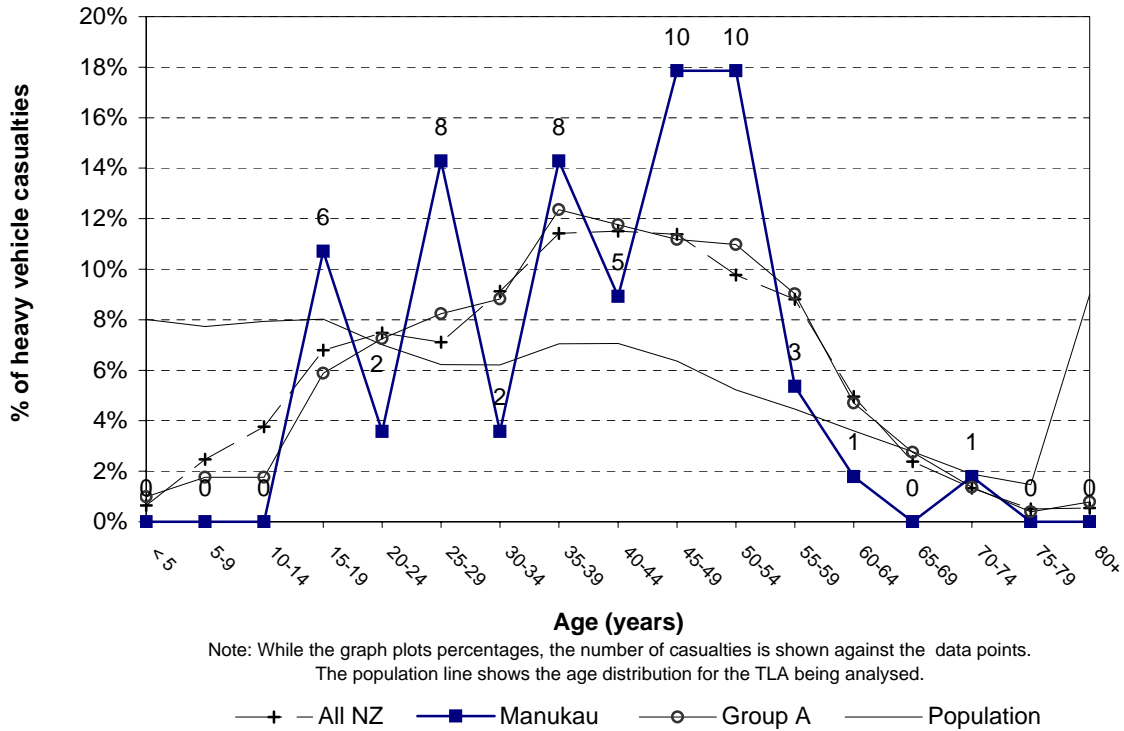
**Figure 3.19 Car/van driver casualty age
Manukau City (2005-2009)**



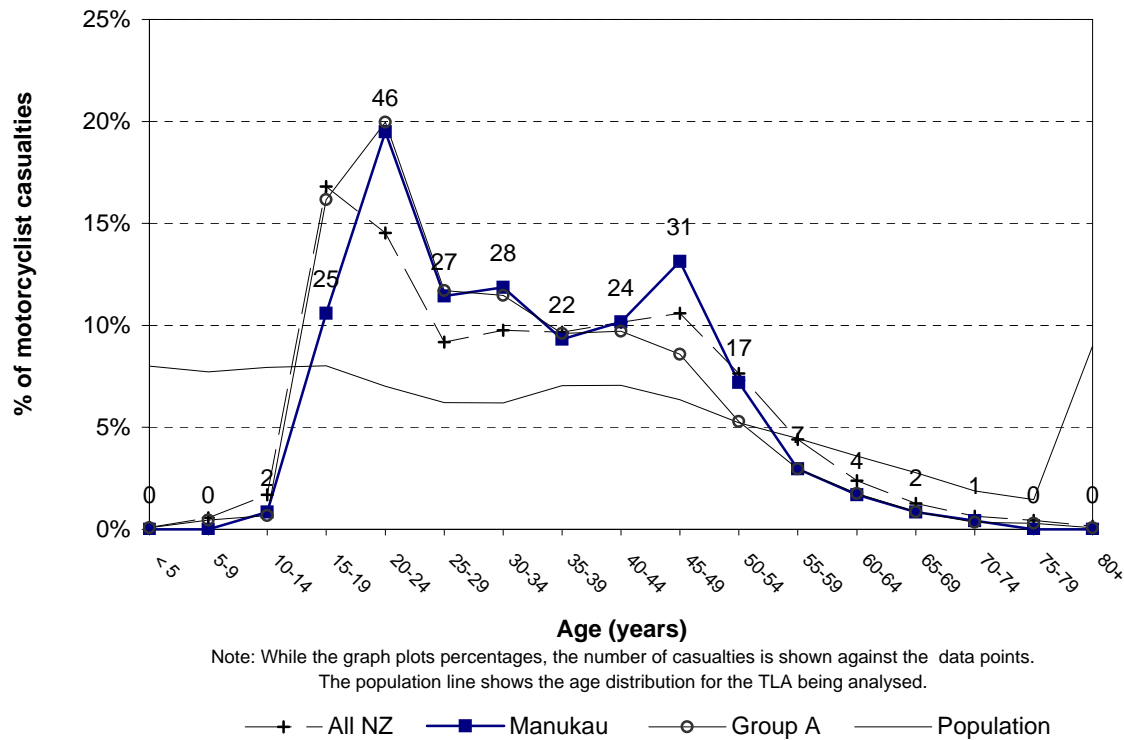
**Figure 3.20 Car/van passenger casualty age
Manukau City (2005-2009)**



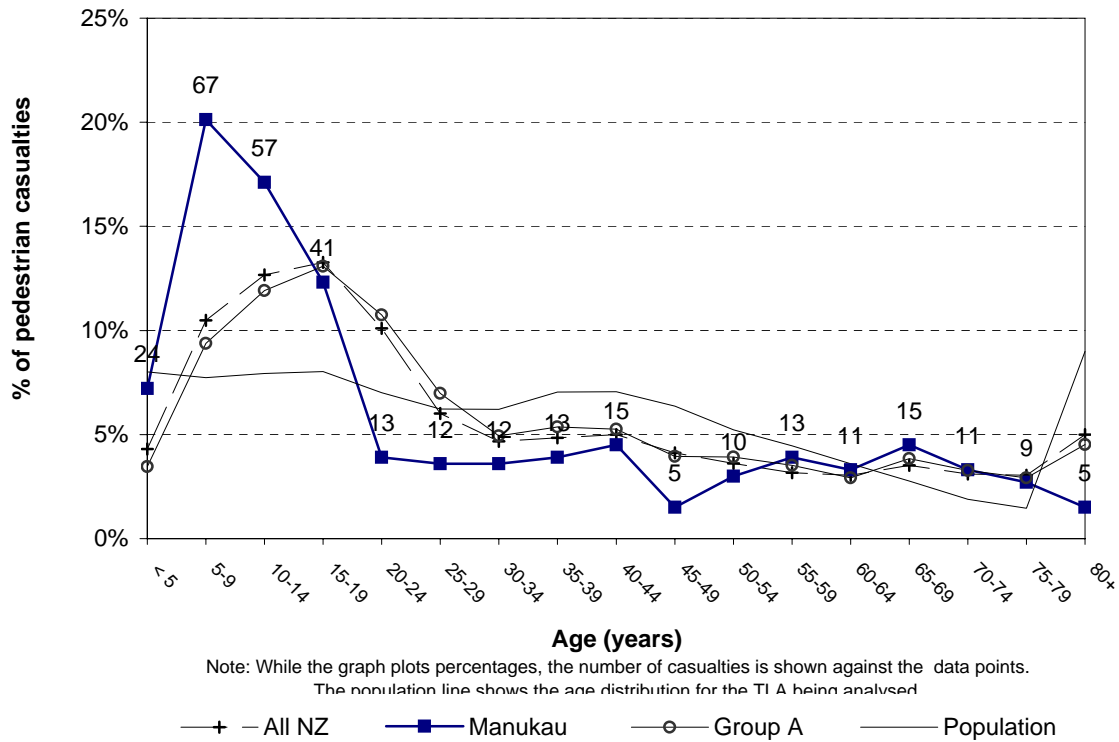
**Figure 3.21 Heavy vehicle casualty age
Manukau City (2005-2009)**



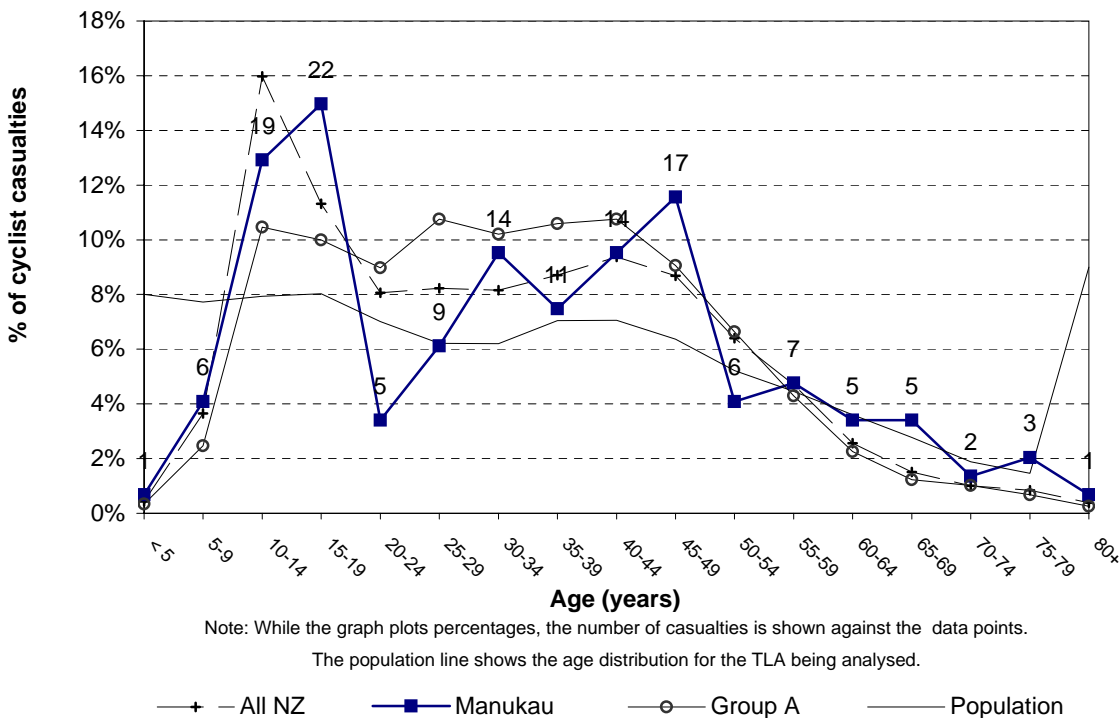
**Figure 3.22 Motorcyclist casualty age
Manukau City (2005-2009)**



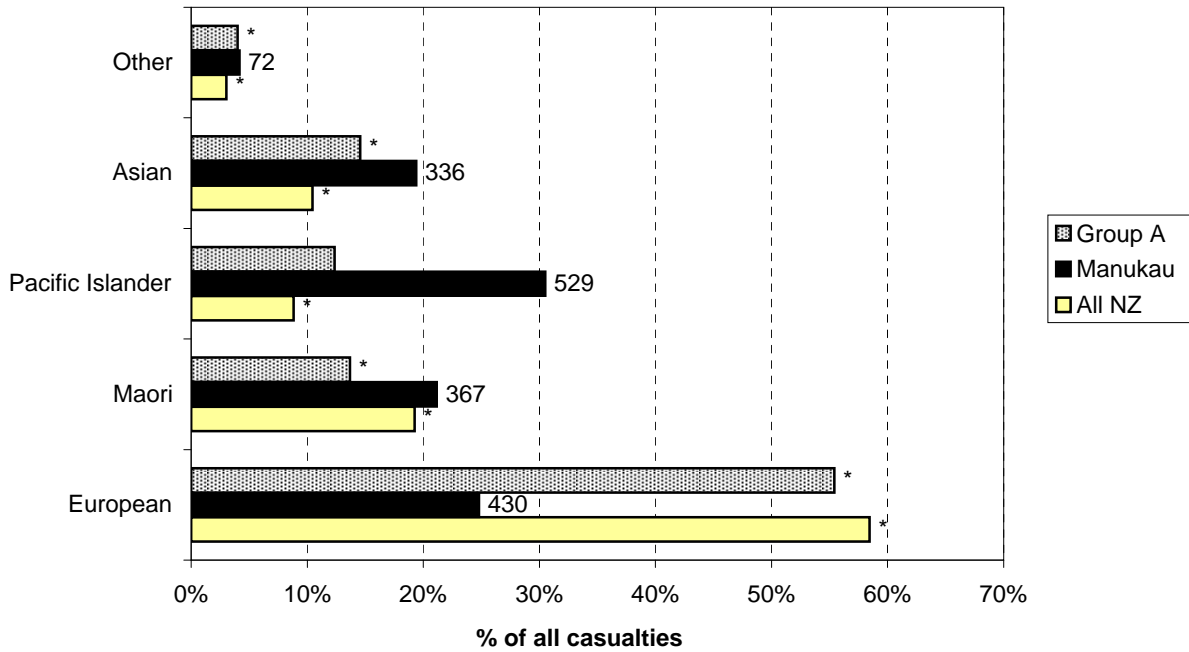
**Figure 3.23 Pedestrian casualty age
Manukau City (2005-2009)**



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

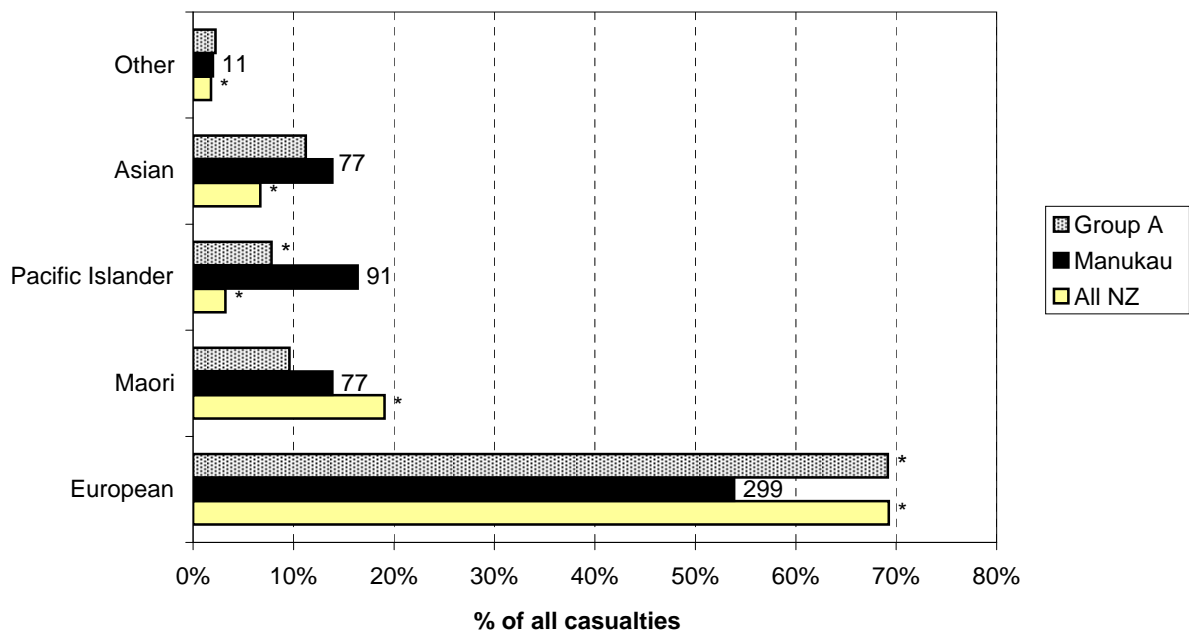


**Figure 3.25 Casualty ethnicity - urban
Manukau City (2005-2009)**



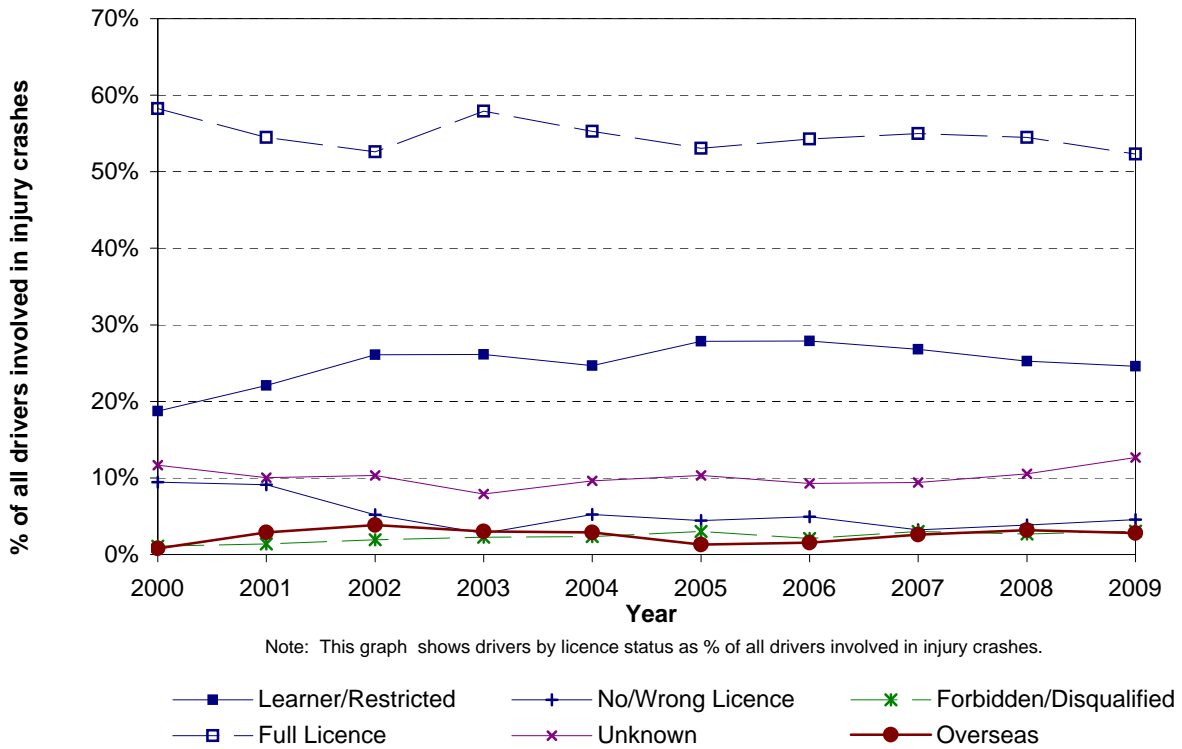
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

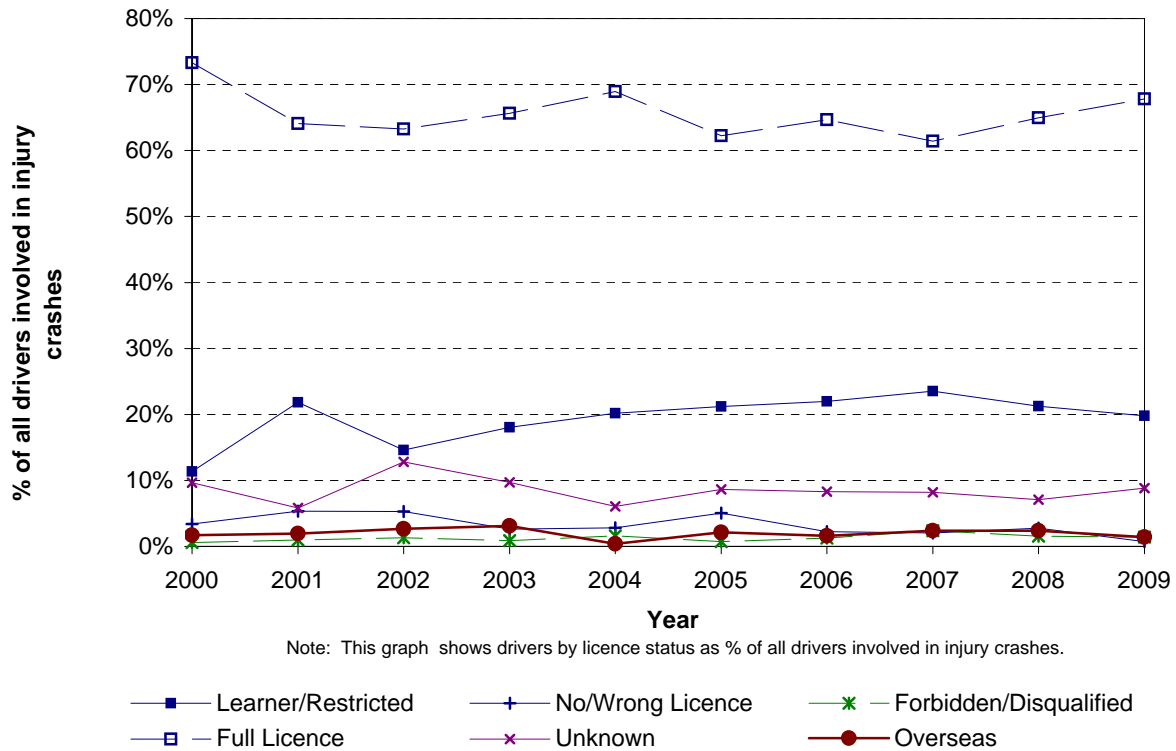


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

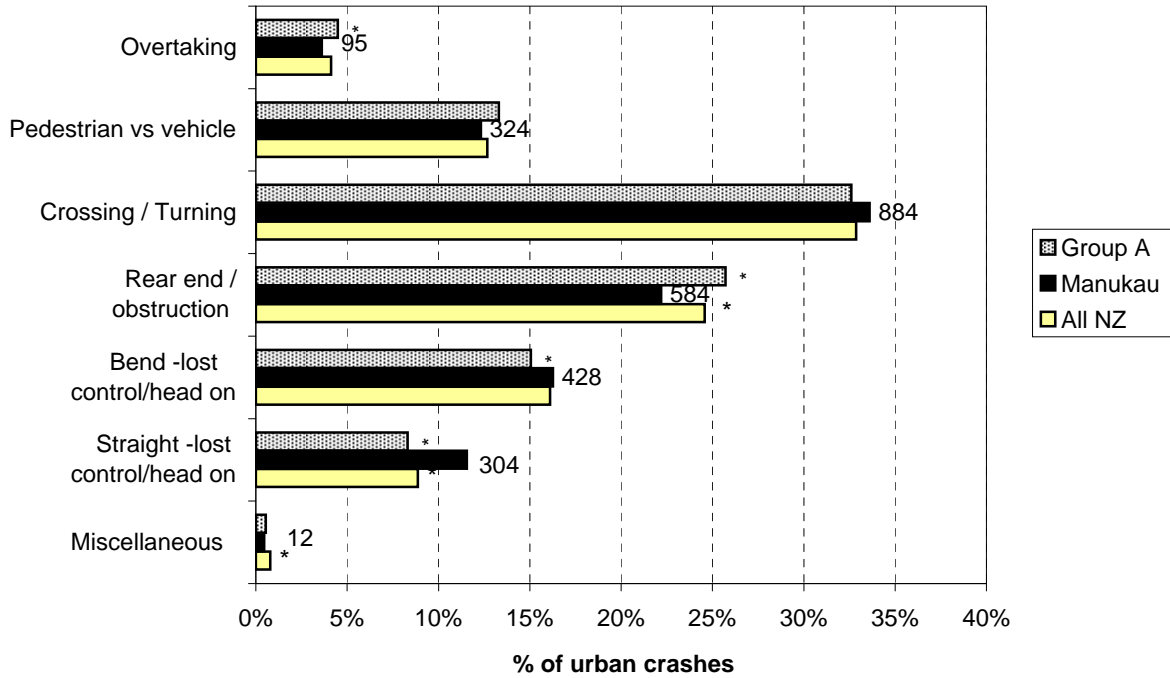


**Figure 3.28 Licence status - rural
Manukau City**



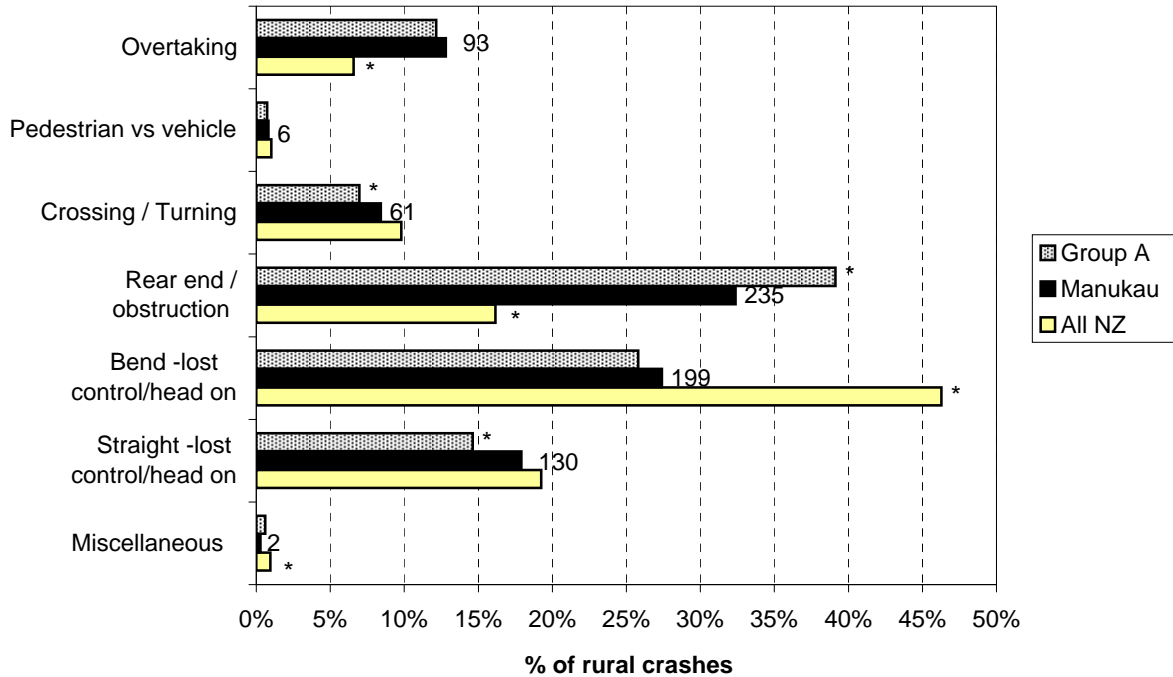
Crash Type Statistics

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



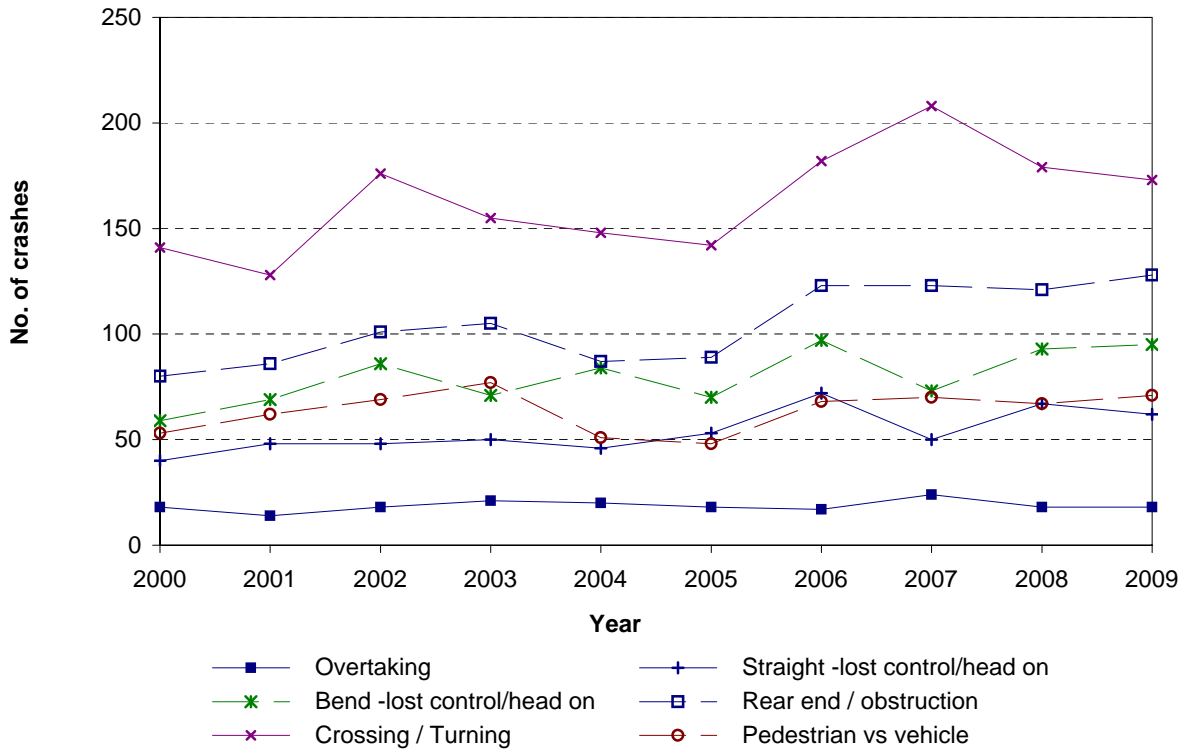
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

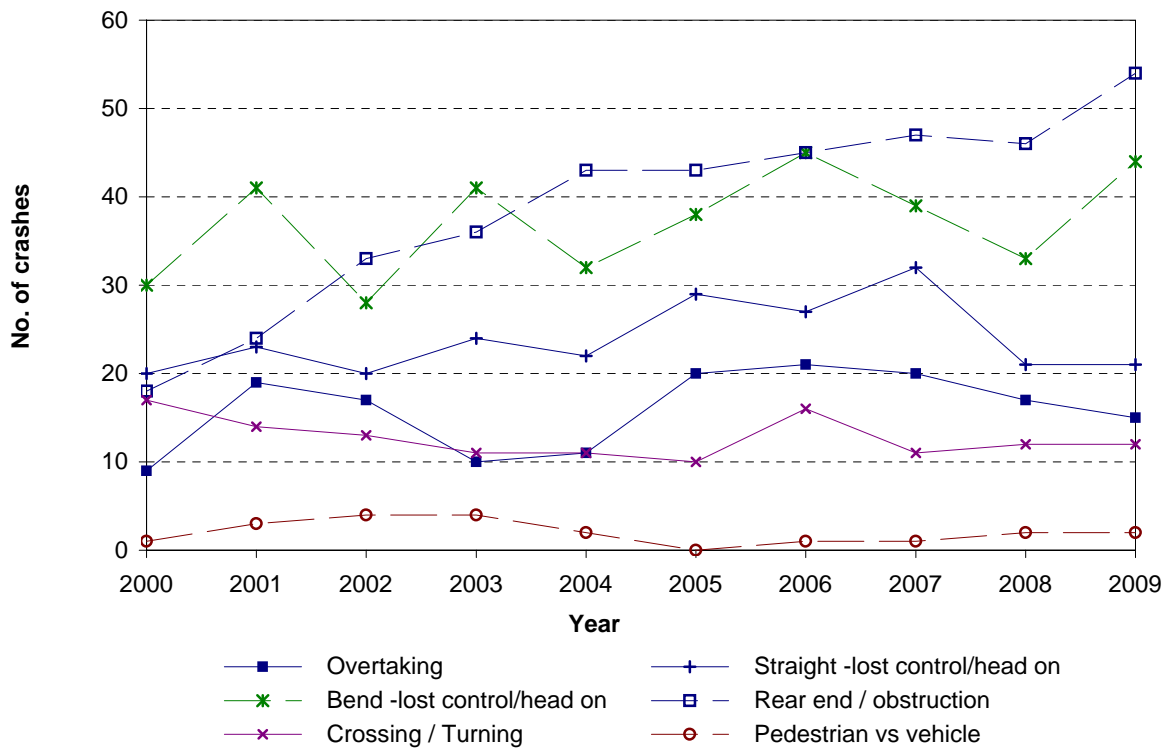


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

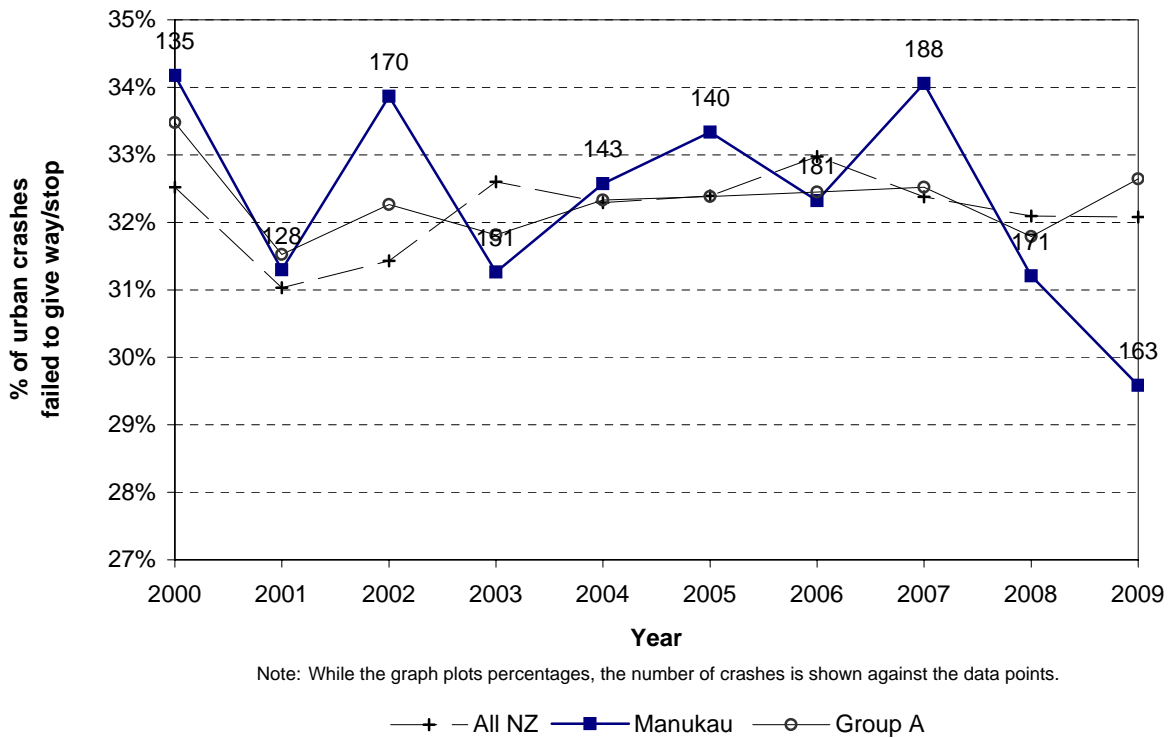
**Figure 4.3 Crash movement type - trends
Manukau City - urban roads**



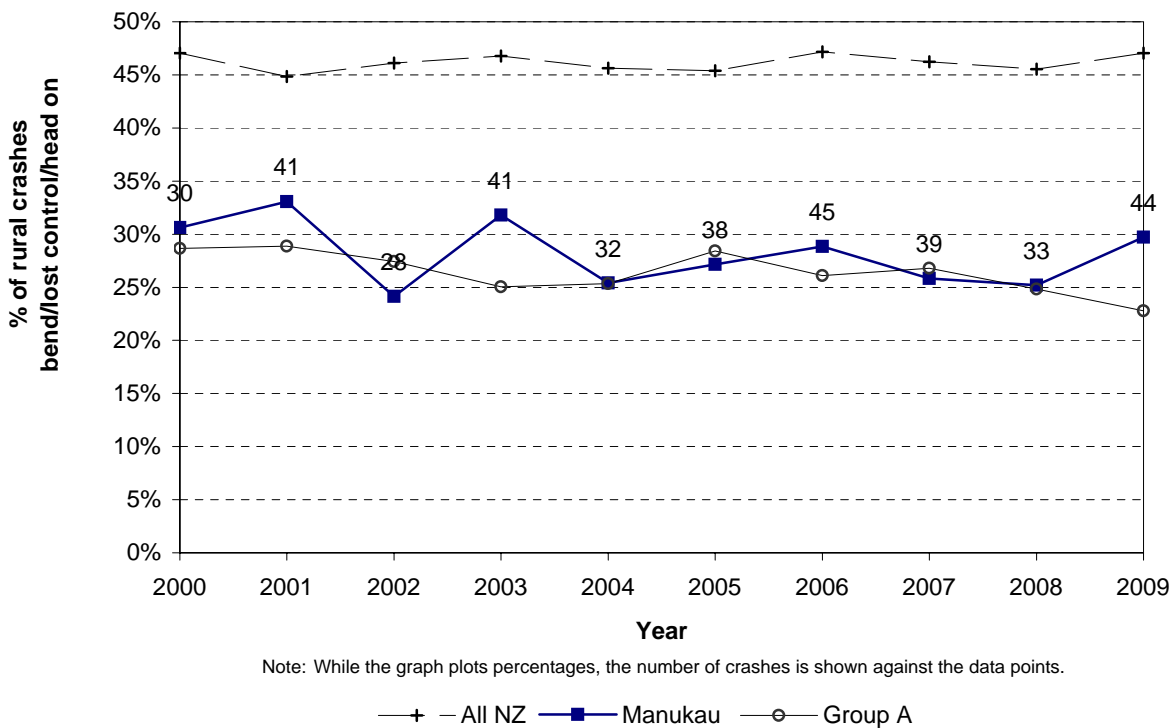
**Figure 4.4 Crash movement type - trends
Manukau City - rural roads**



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

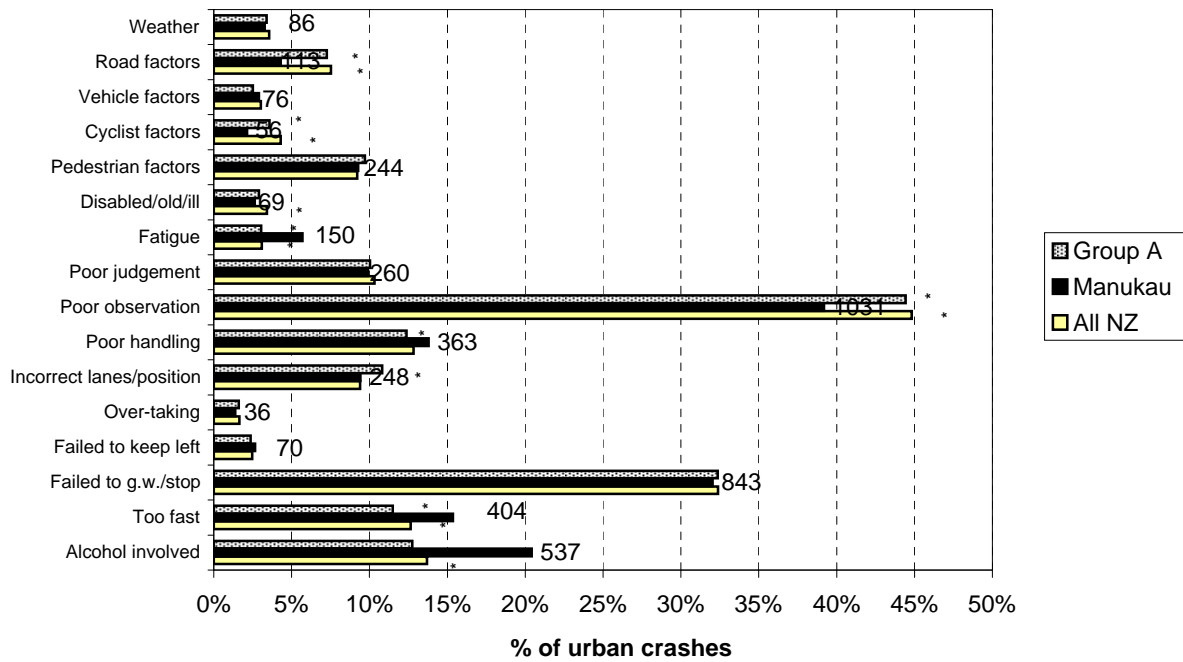


**Figure 4.6 Bend - lost control / head - on
Manukau City - rural roads**



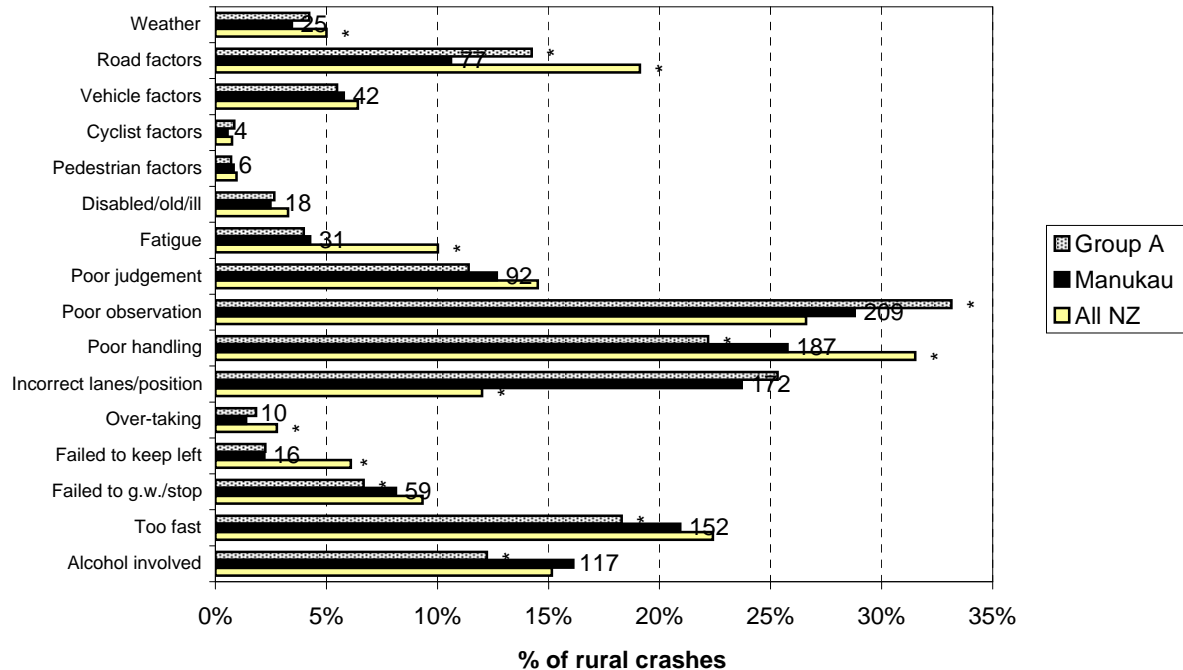
Crash Factor Statistics

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



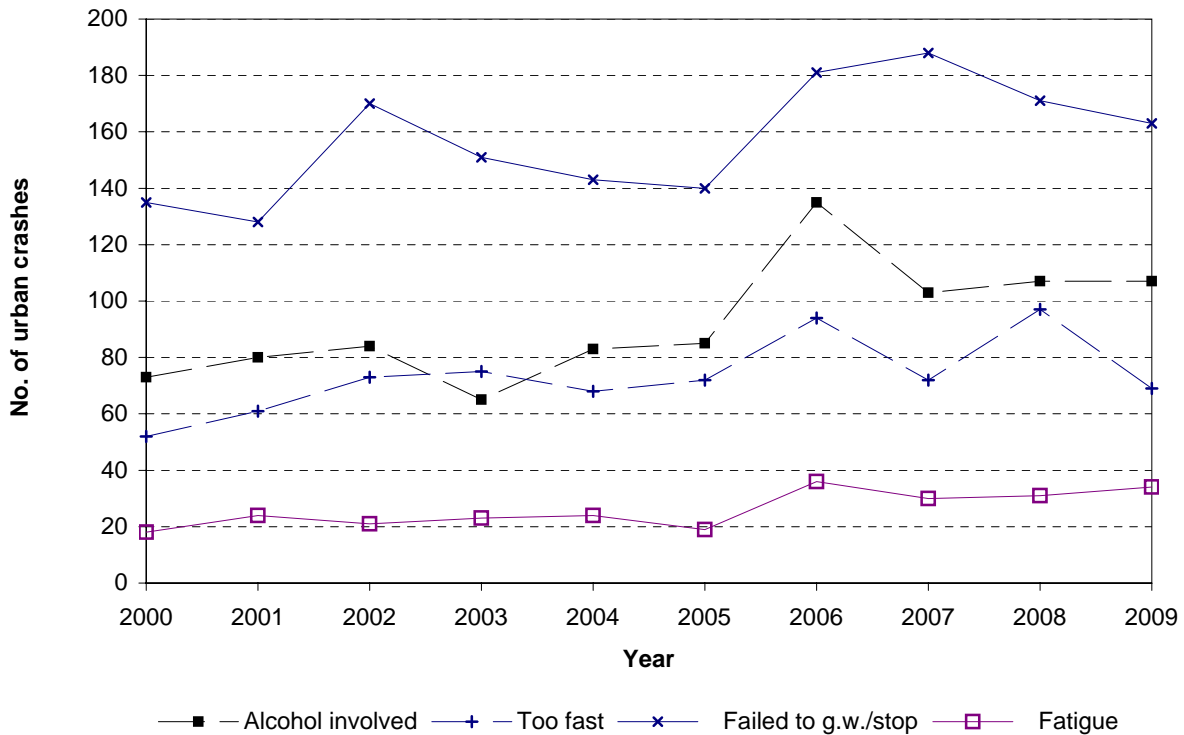
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

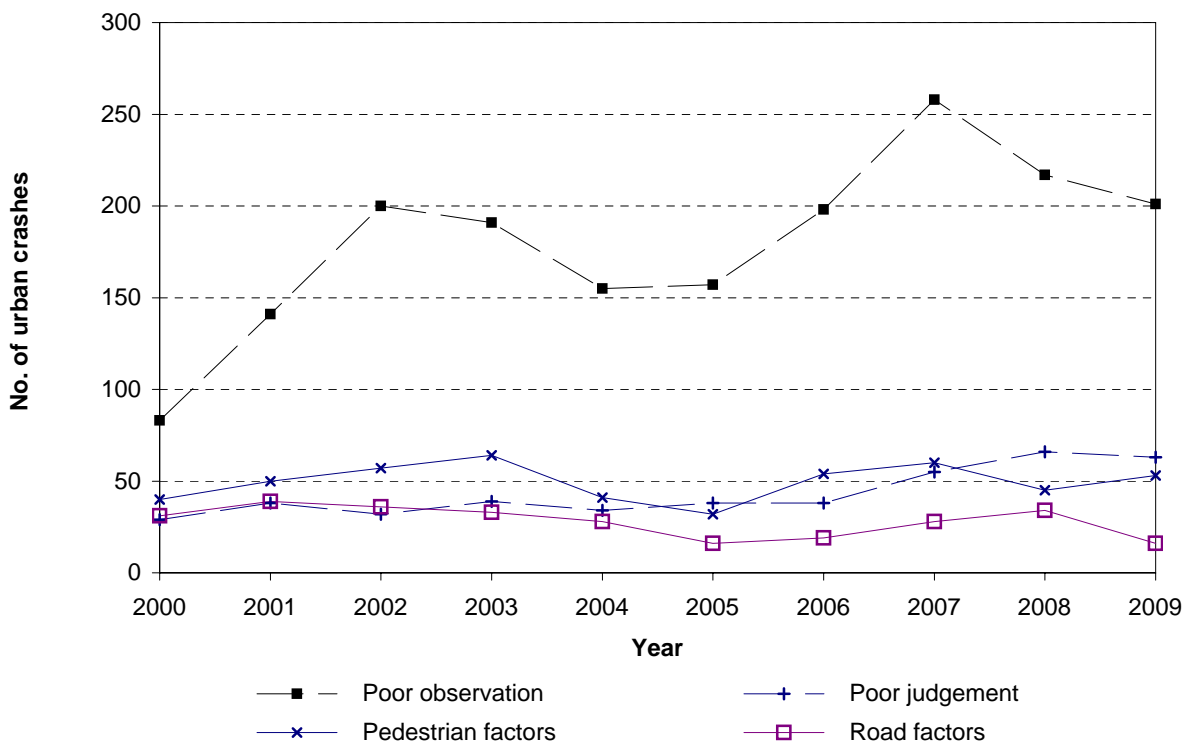


Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

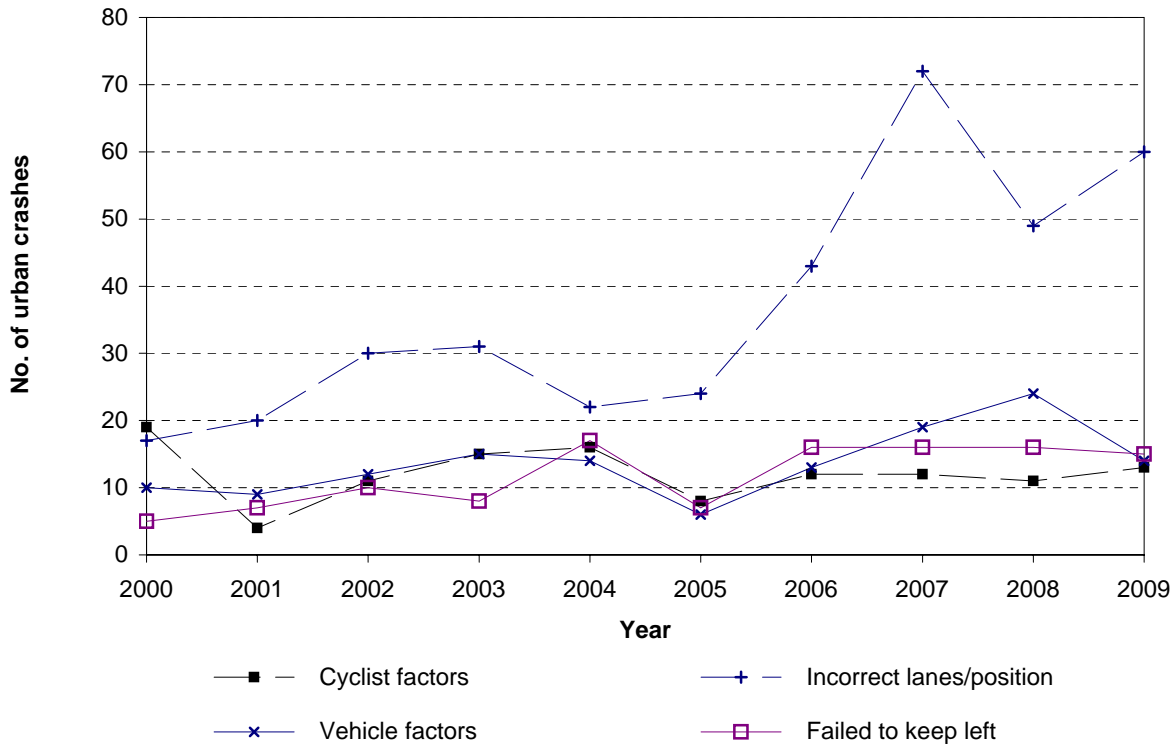
**Figure 5.3 Contributing factor trends
Manukau City - urban roads**



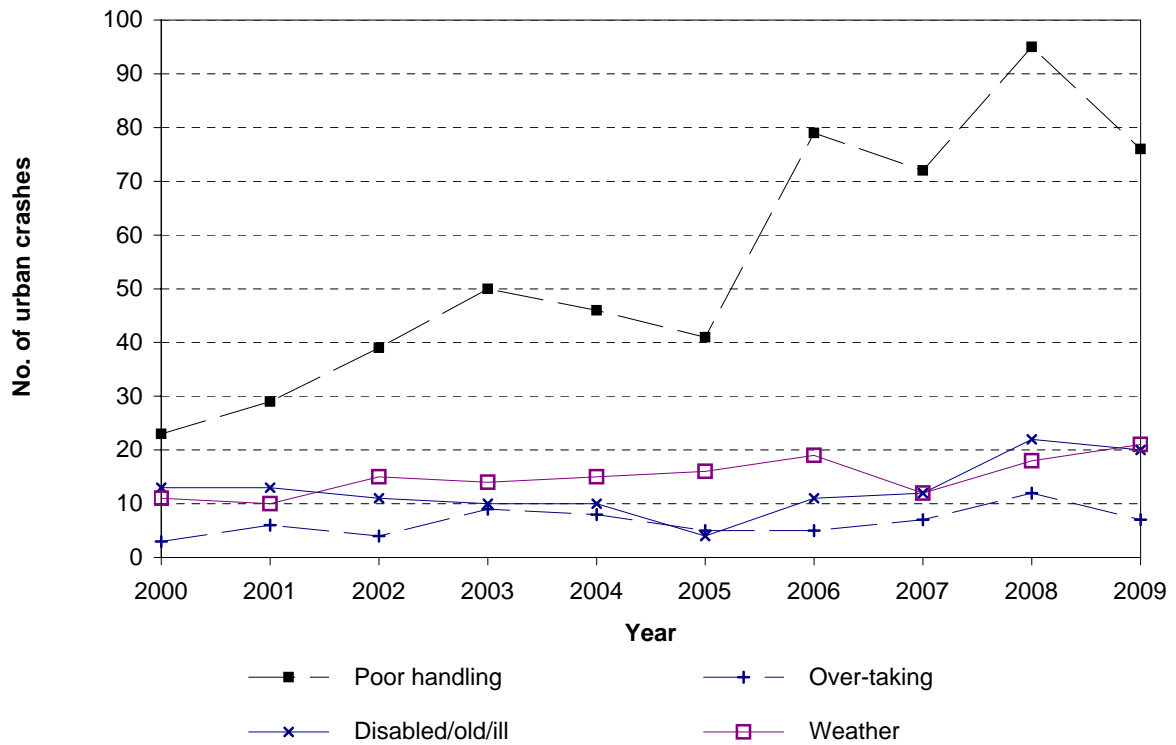
**Figure 5.4 Contributing factor trends
Manukau City - urban roads**



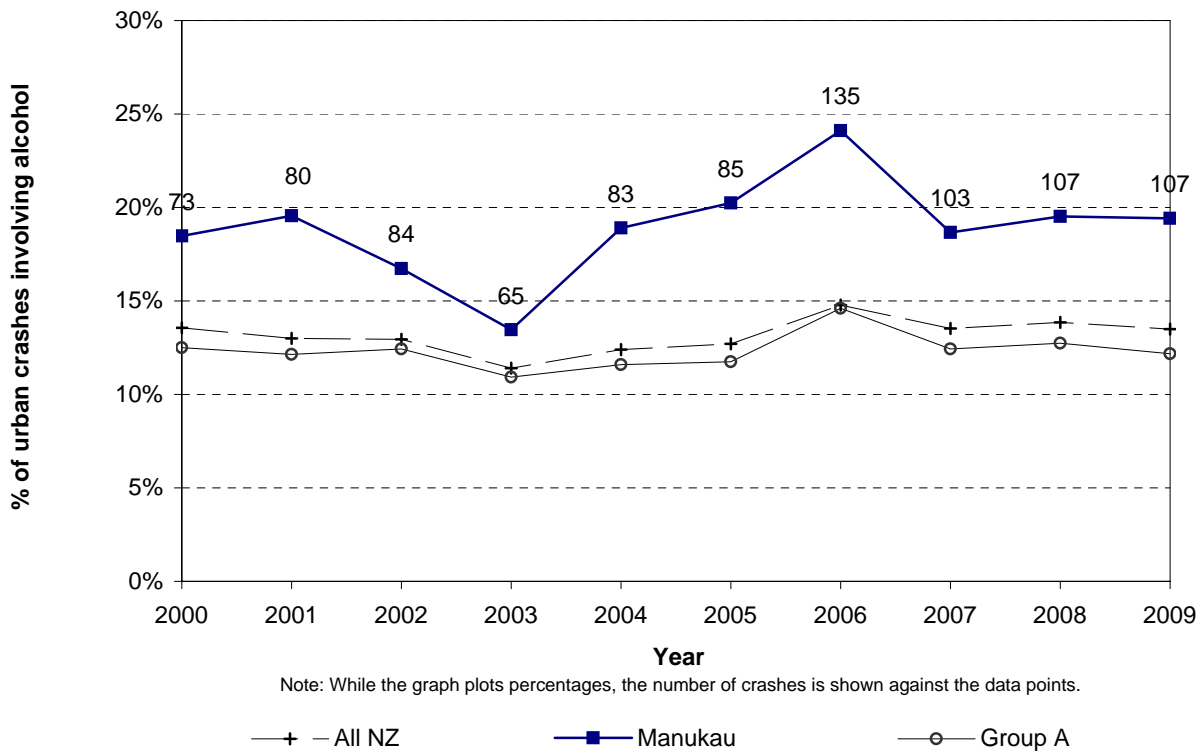
**Figure 5.5 Contributing factor trends
Manukau City - urban roads**



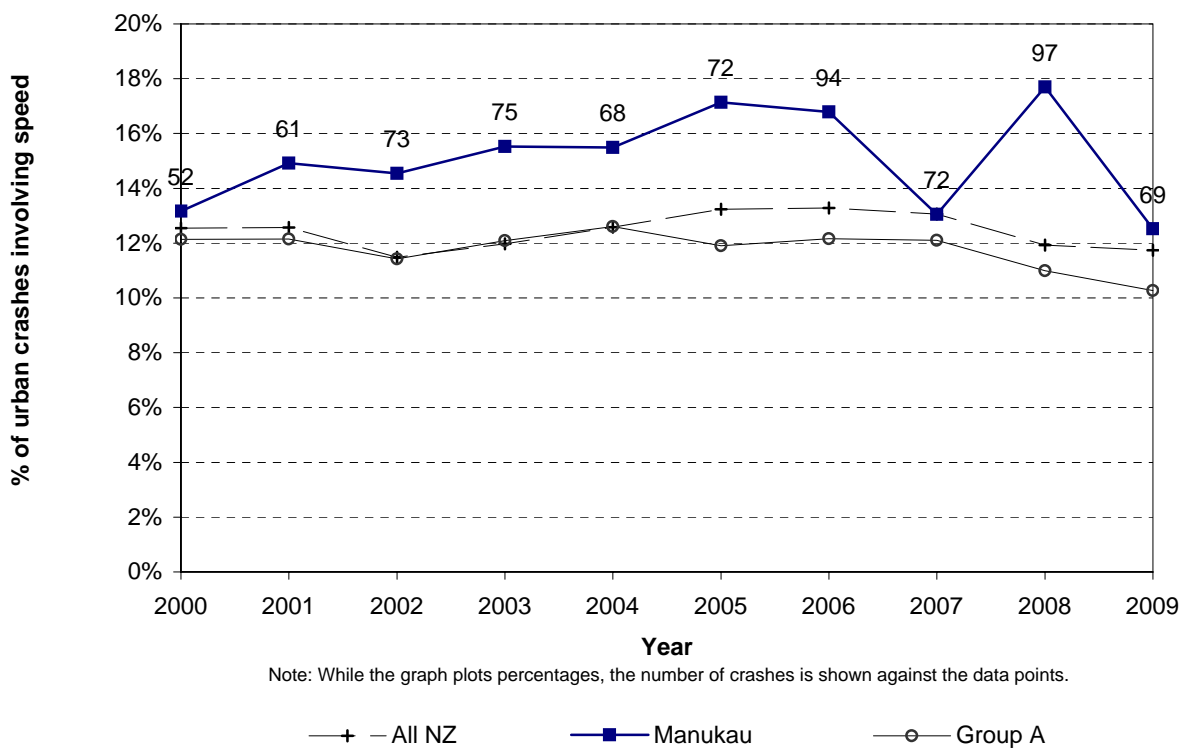
**Figure 5.6 Contributing factor trends
Manukau City - urban roads**



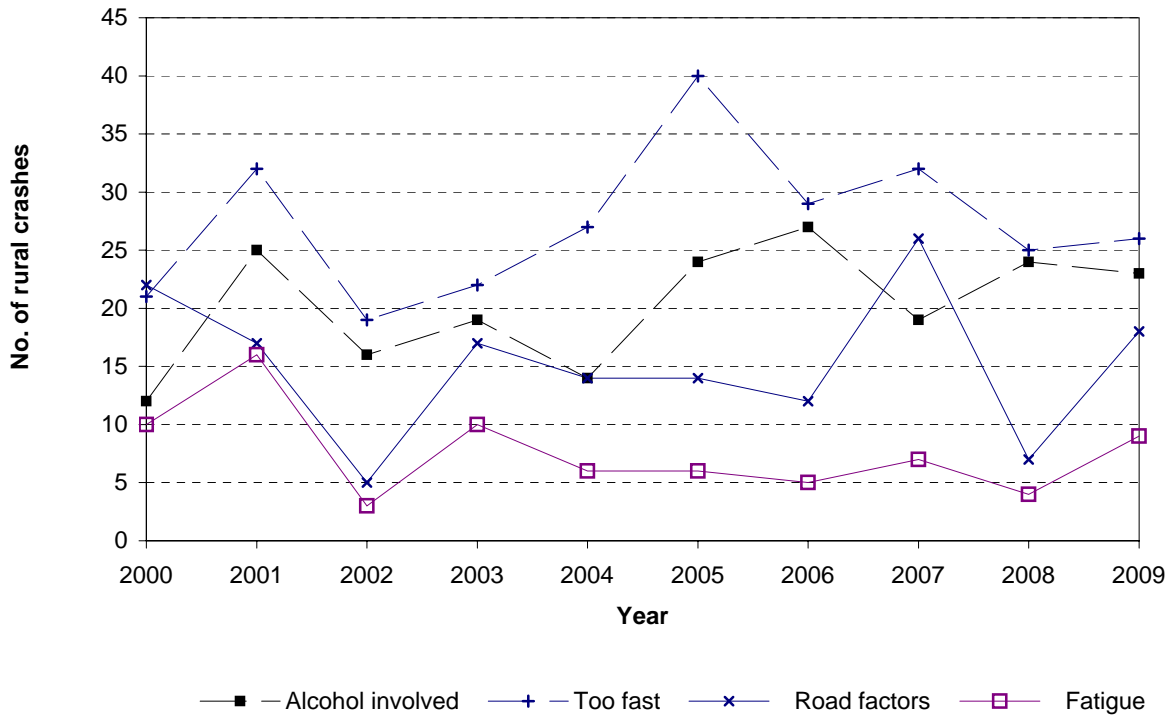
**Figure 5.7 Alcohol involved trend
Manukau City - urban roads**



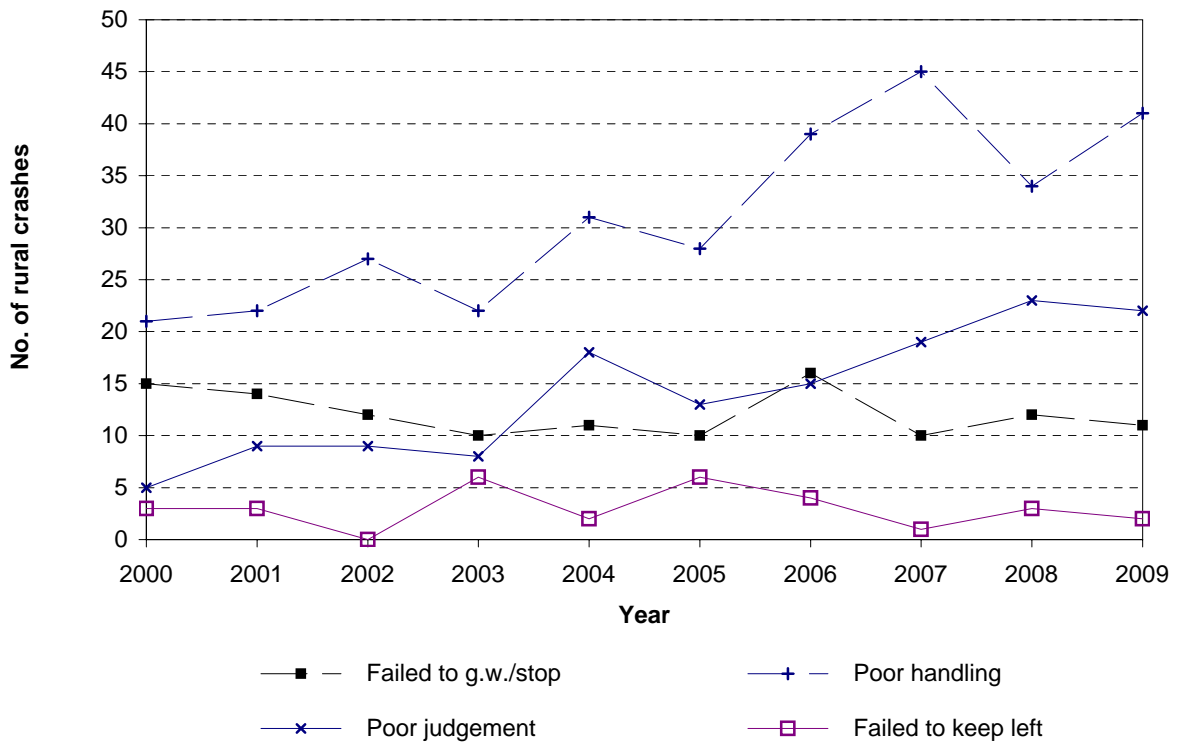
**Figure 5.8 Speed involved trend
Manukau City - urban roads**



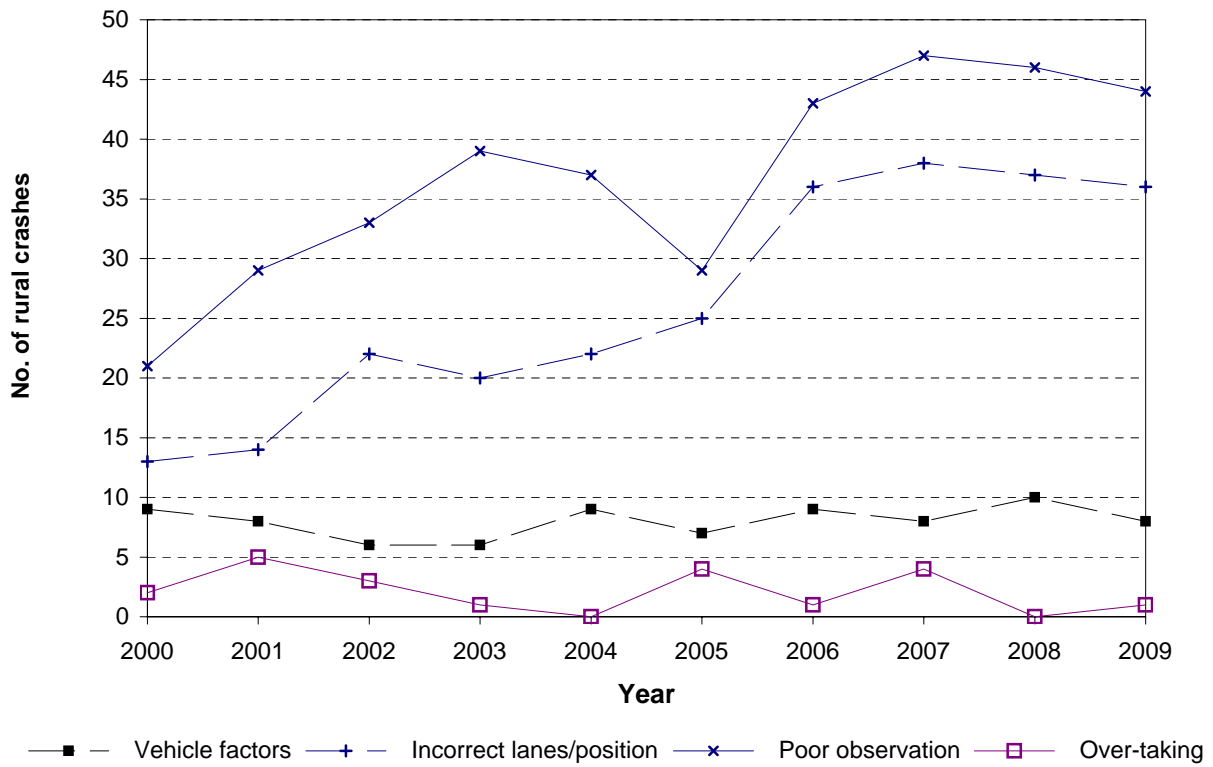
**Figure 5.9 Contributing factor trends
Manukau City - rural roads**



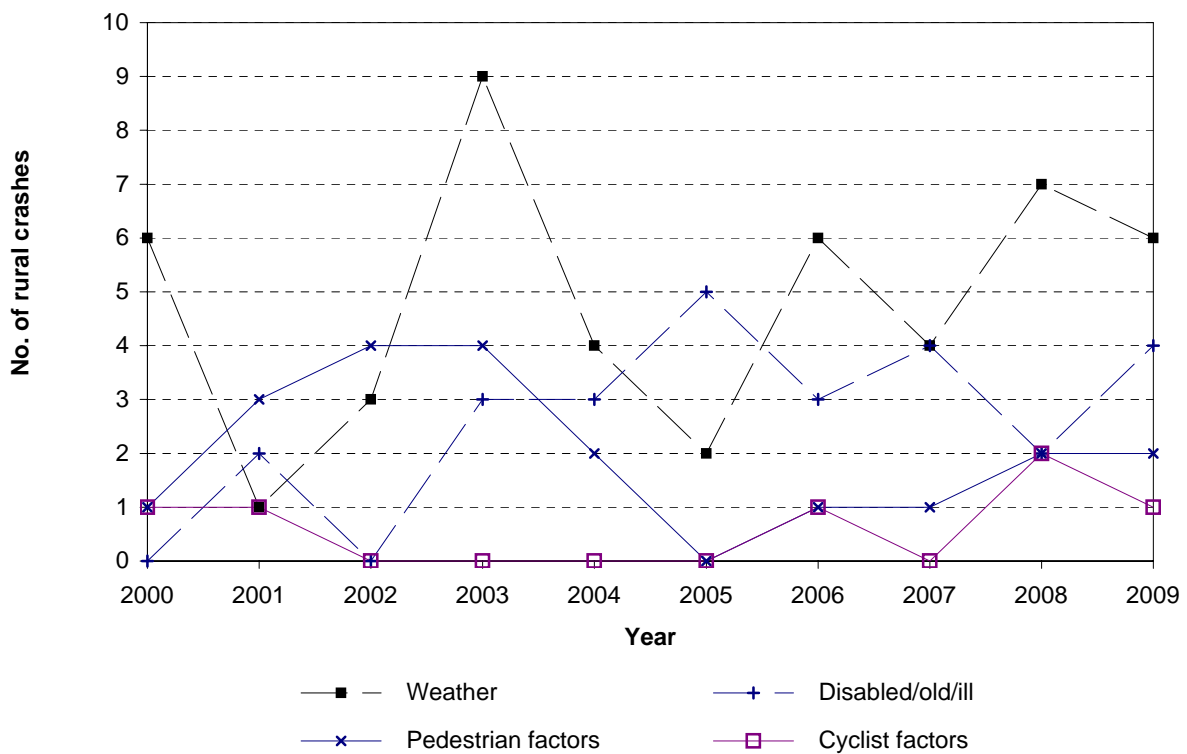
**Figure 5.10 Contributing factor trends
Manukau City - rural roads**



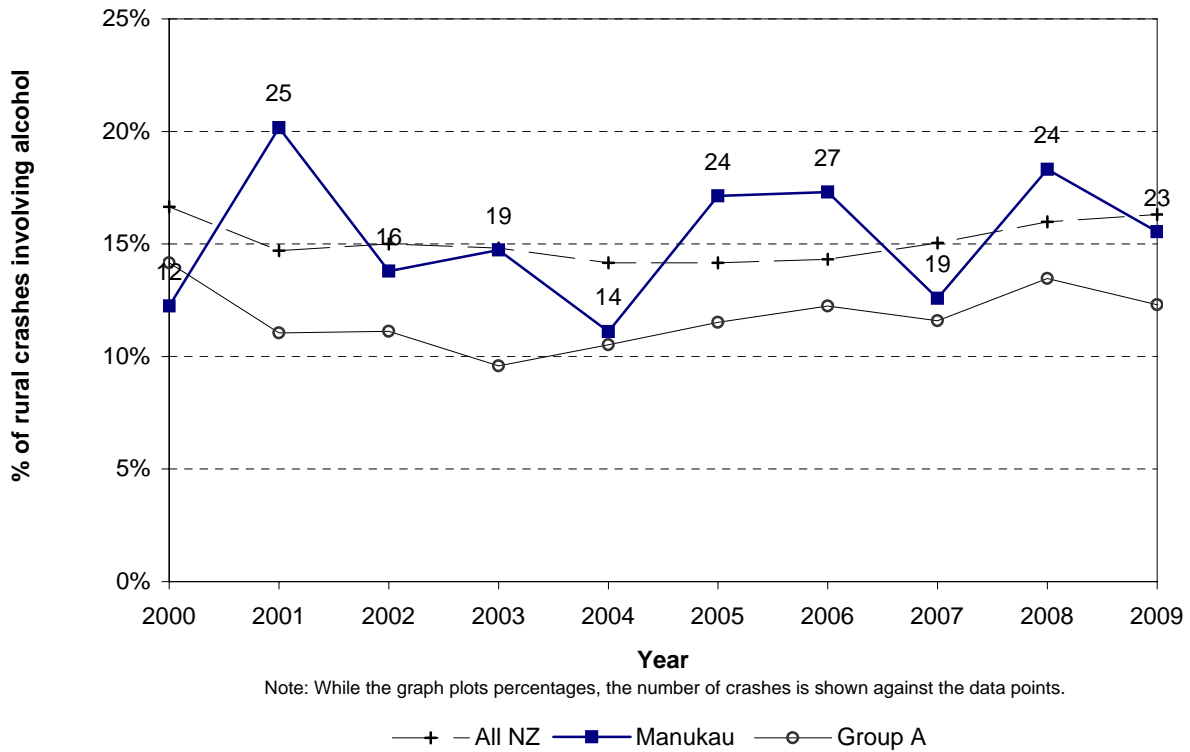
**Figure 5.11 Contributing factor trends
Manukau City - rural roads**



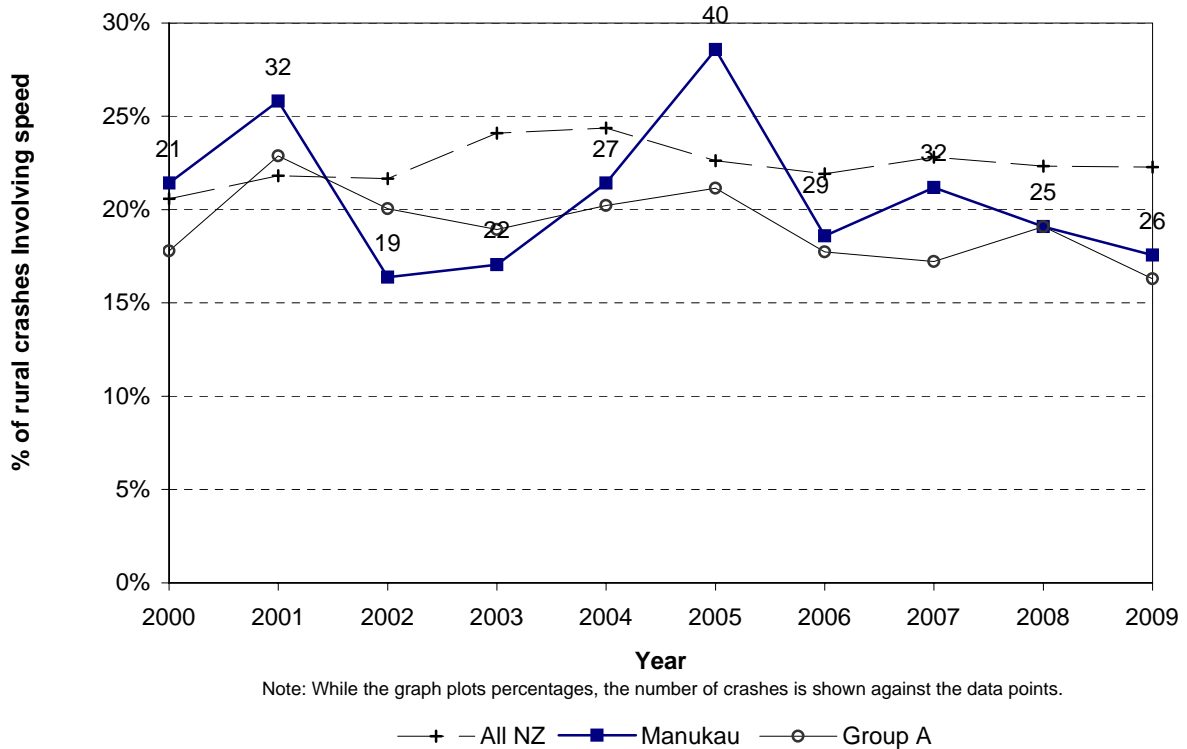
**Figure 5.12 Contributing factor trends
Manukau City - rural roads**



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

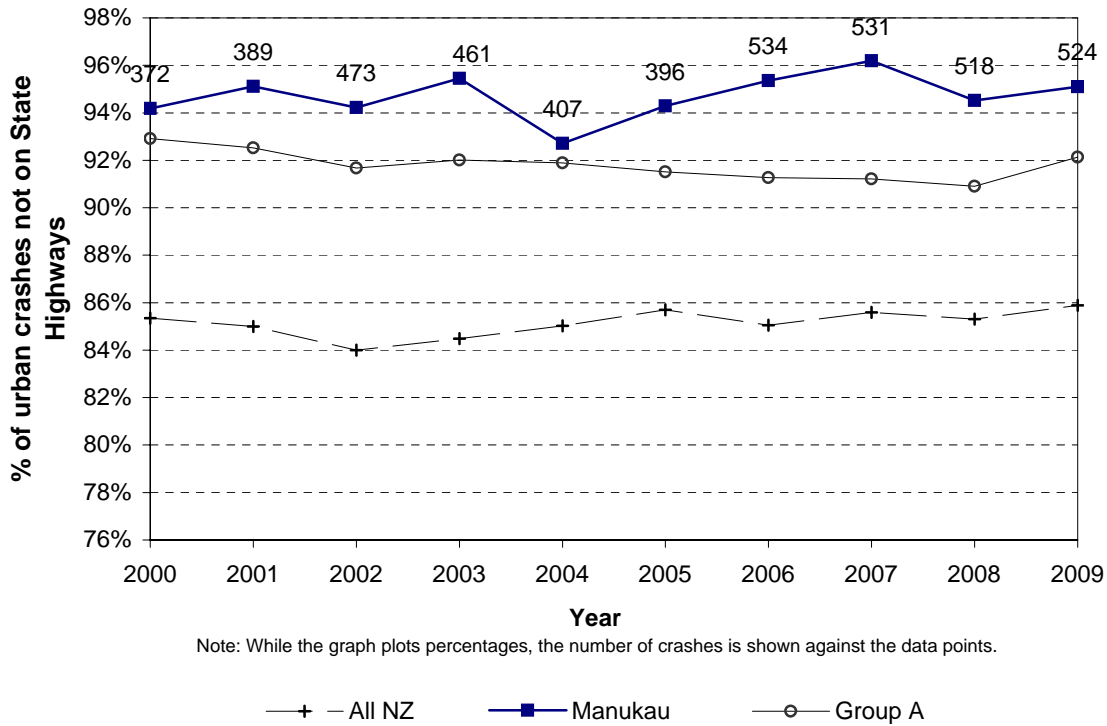


**Figure 5.14 Speed involved trend
Manukau City - rural roads**

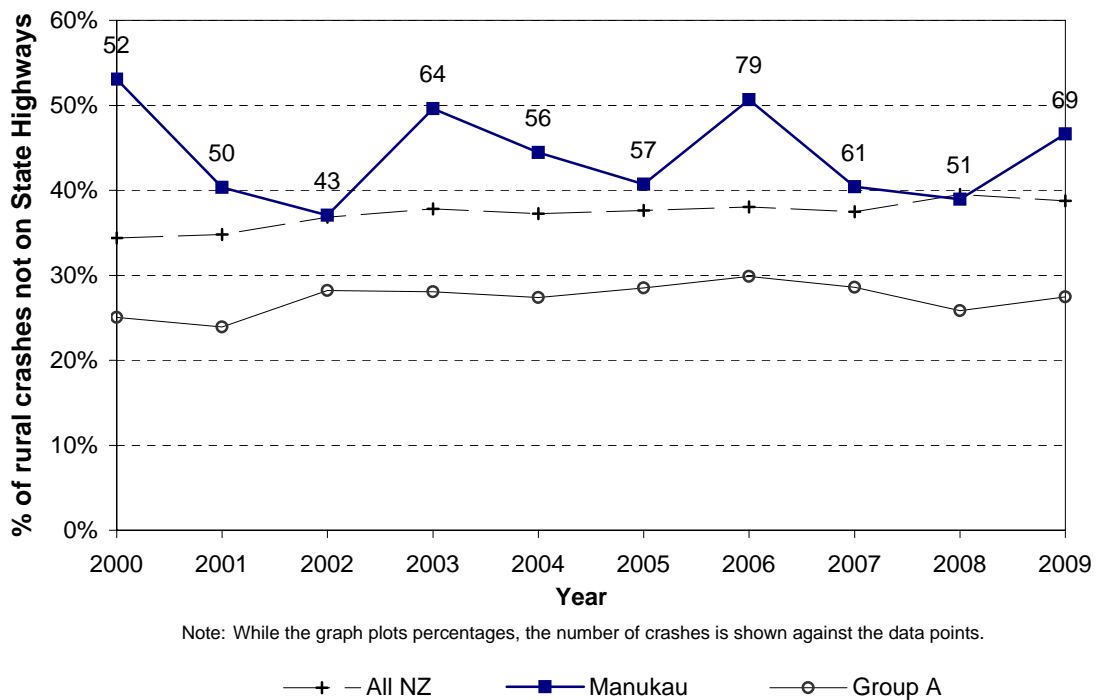


Environmental Statistics

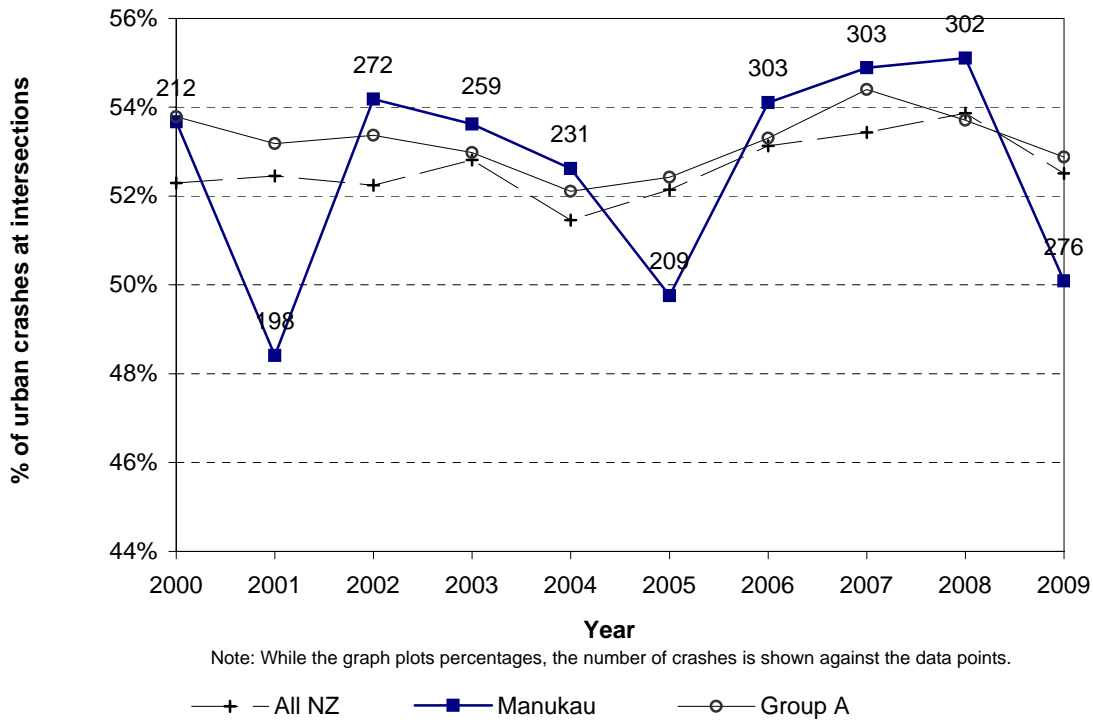
**Figure 6.1 Crashes not on state highways
Manukau City - urban roads**



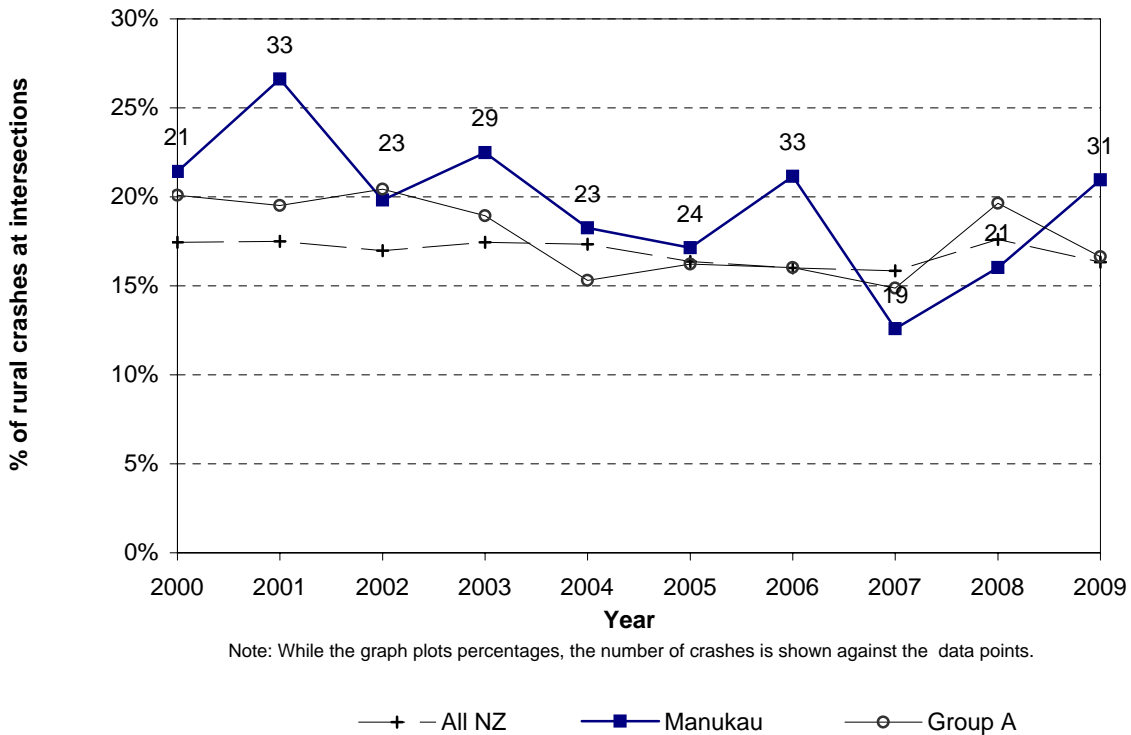
**Figure 6.2 Crashes not on state highways
Manukau City - rural roads**



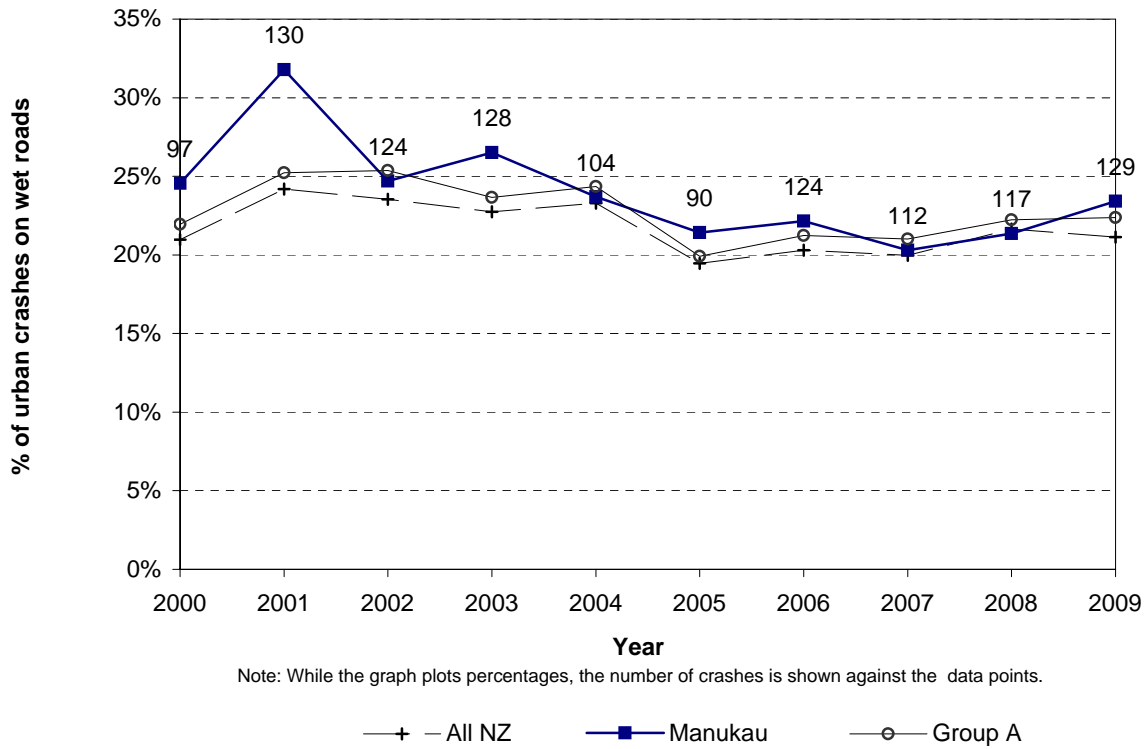
**Figure 6.3 Intersection crashes
Manukau City - urban roads**



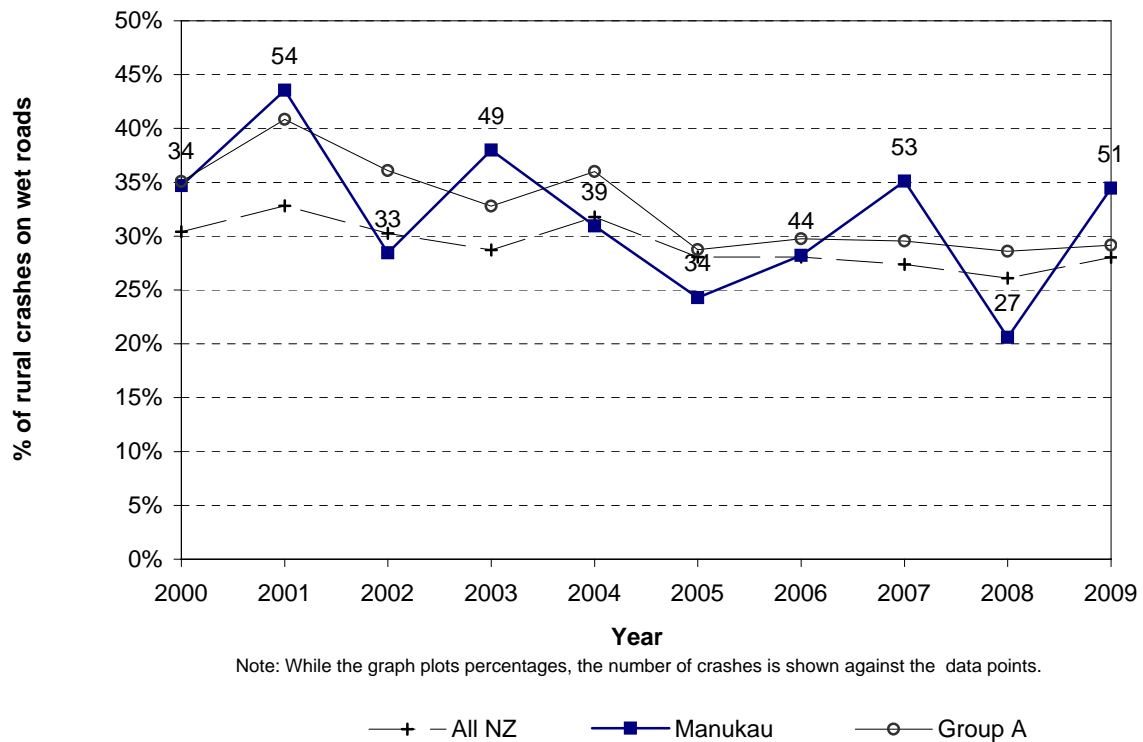
**Figure 6.4 Intersection crashes
Manukau City - rural roads**



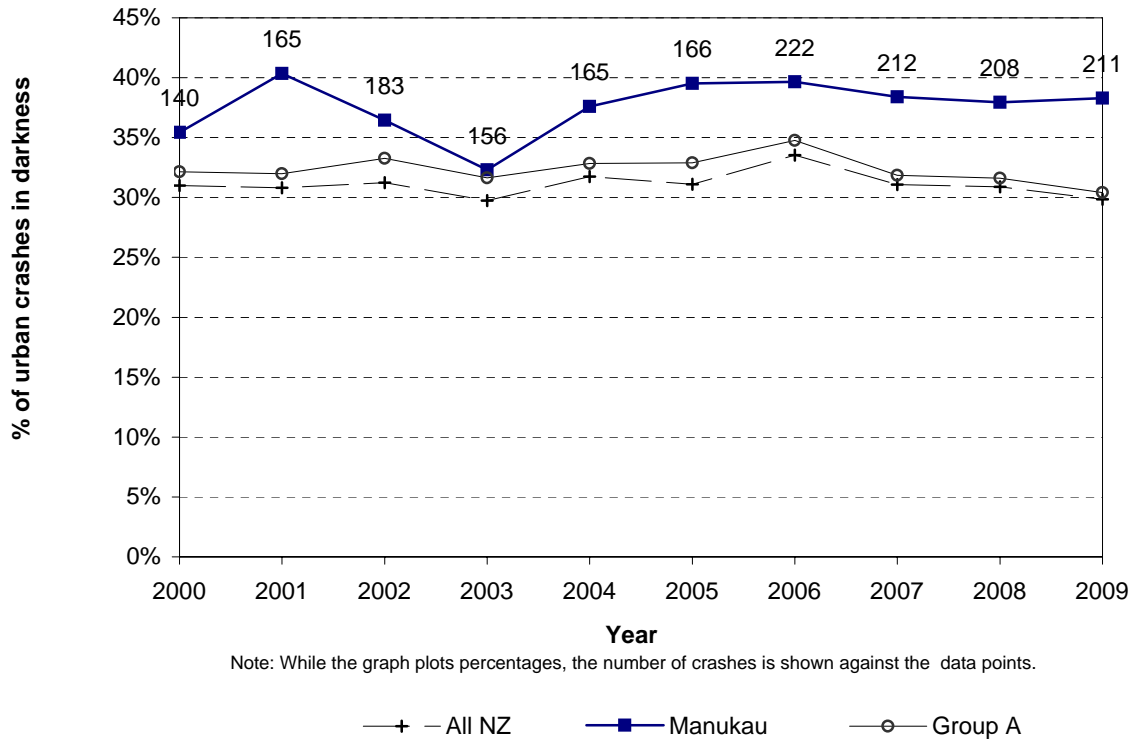
**Figure 6.5 Wet road crashes
Manukau City - urban roads**



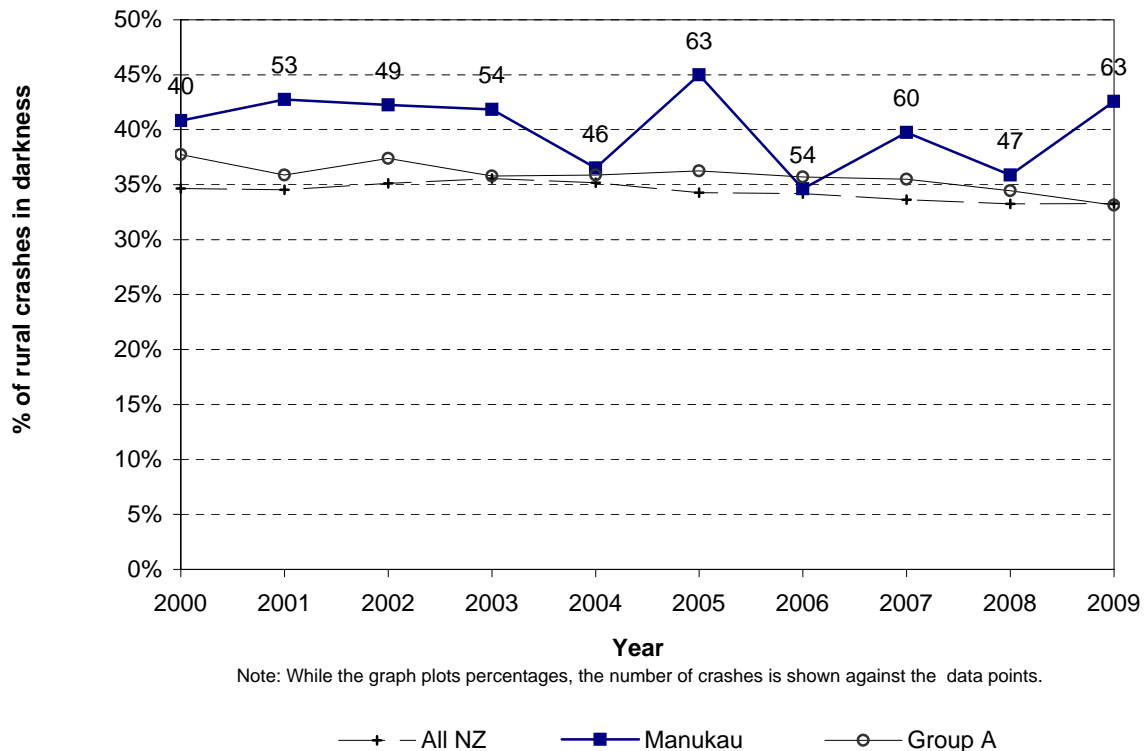
**Figure 6.6 Wet road crashes
Manukau City - rural roads**



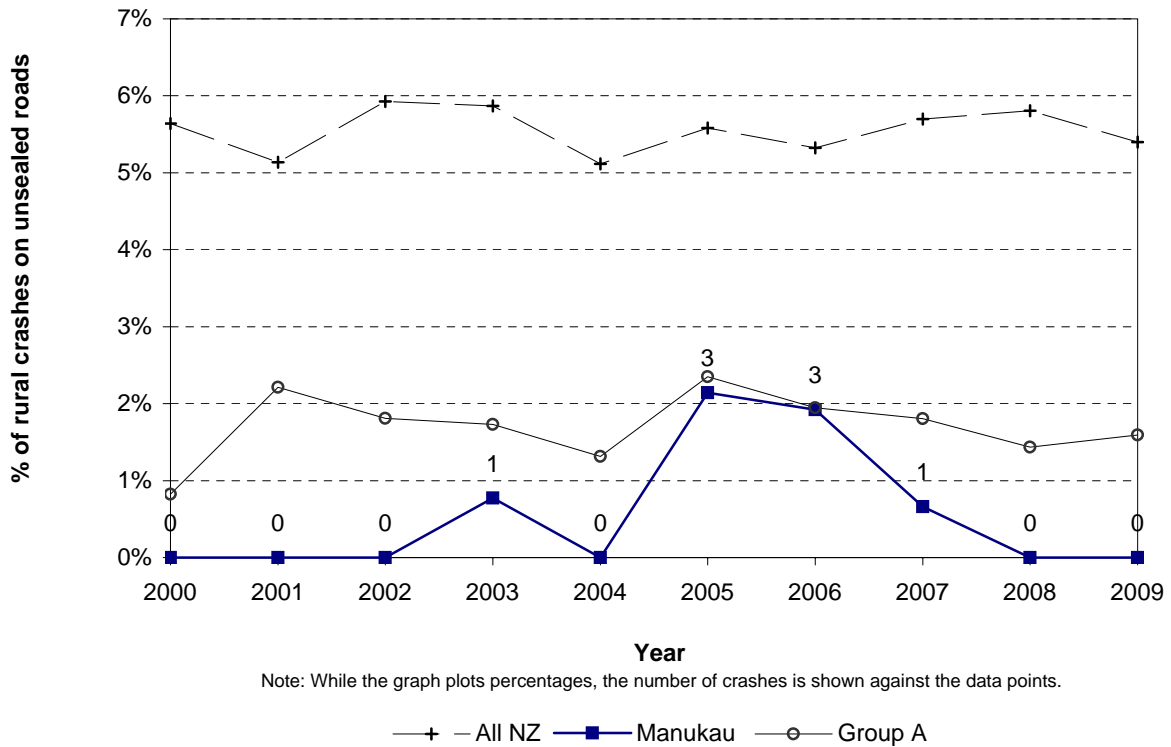
**Figure 6.7 Crashes in darkness
Manukau City - urban roads**



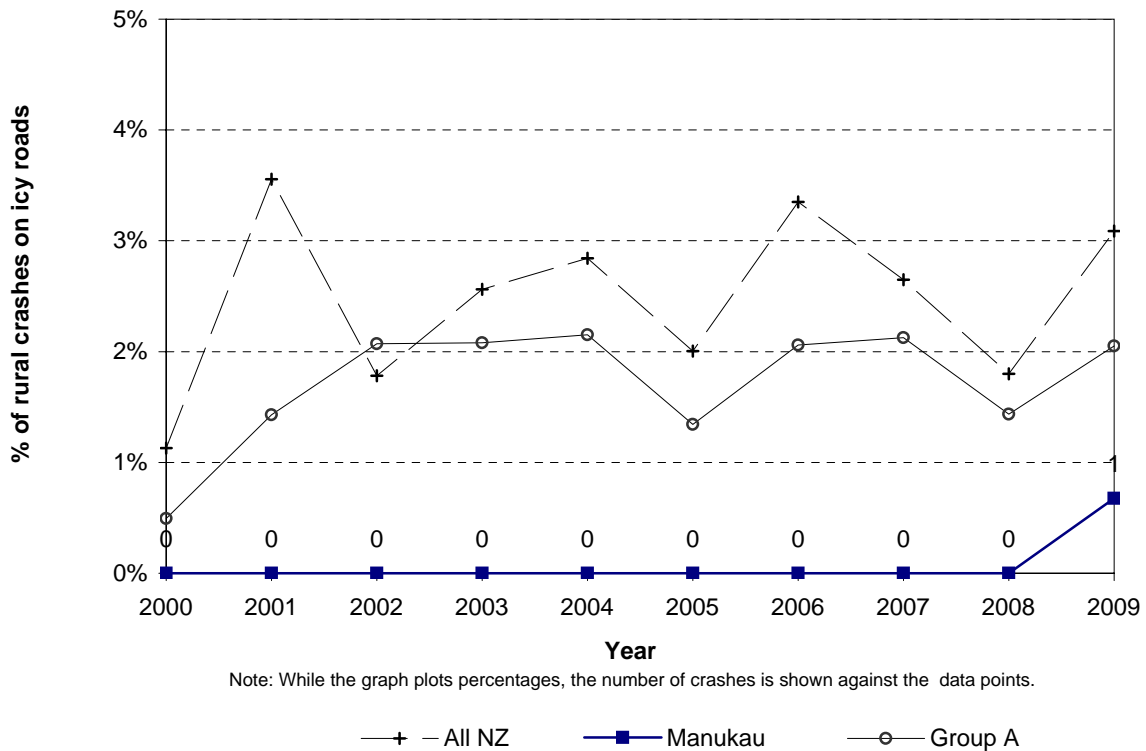
**Figure 6.8 Crashes in darkness
Manukau City - rural roads**



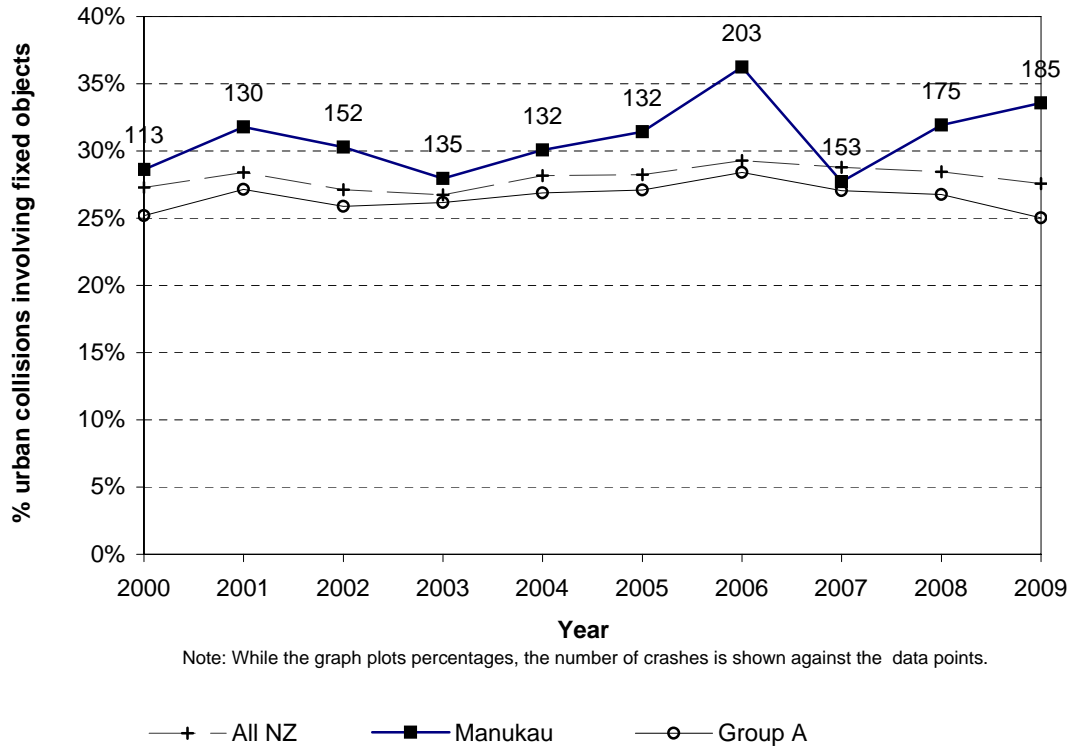
**Figure 6.9 Unsealed road crashes
Manukau City - rural roads**



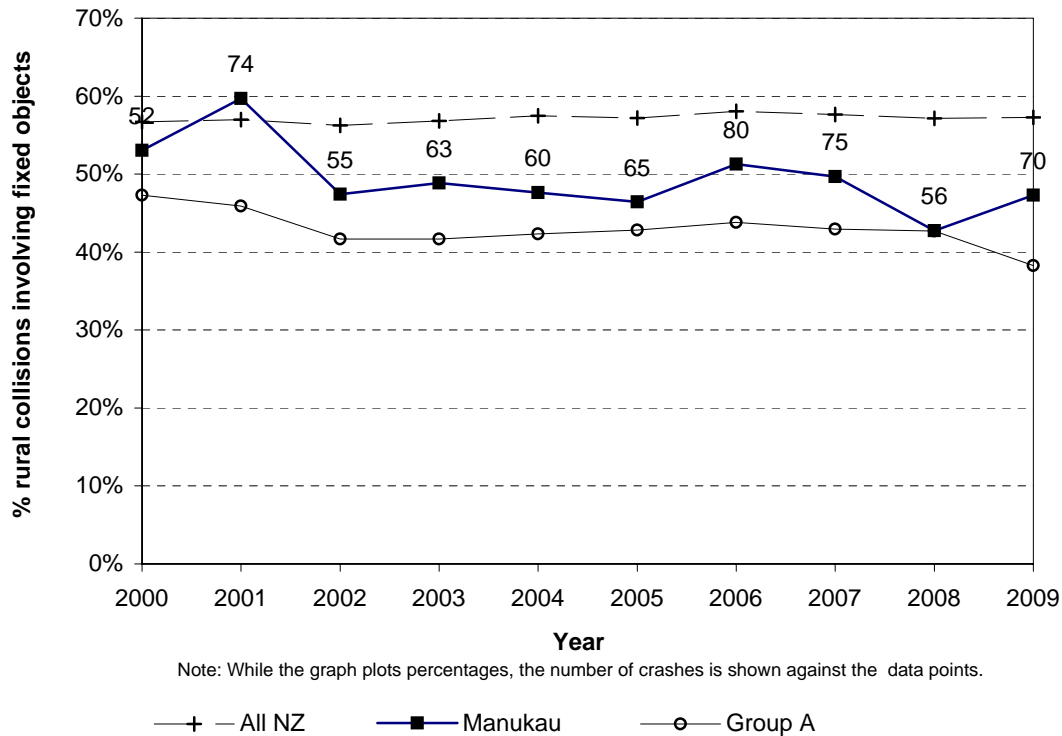
**Figure 6.10 Icy road crashes
Manukau City - rural roads**



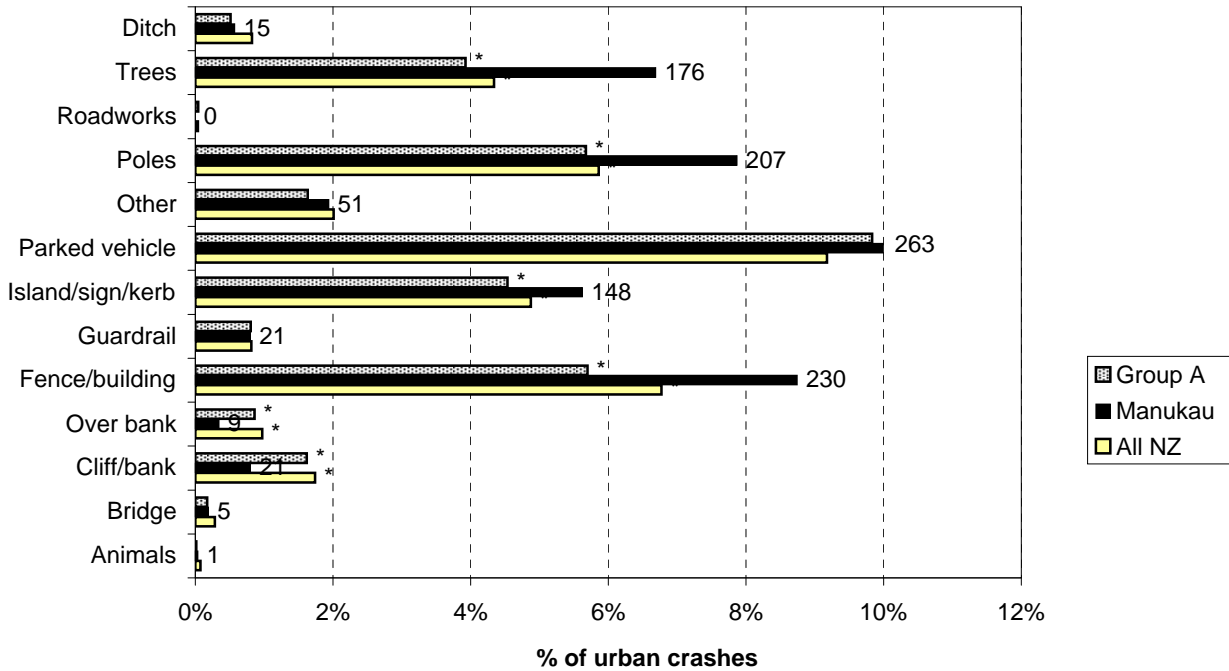
**Figure 6.11 Collisions with objects
Manukau City - urban roads**



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

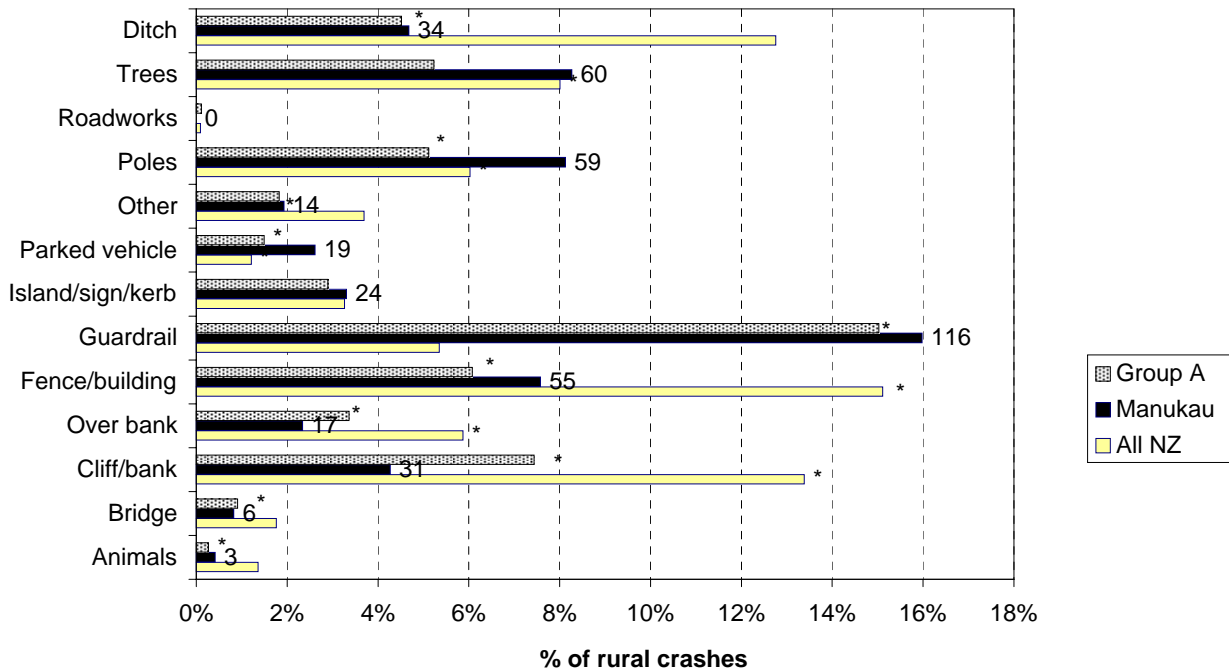


**Figure 6.13 Objects struck - urban
Manukau City (2005-2009)**



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

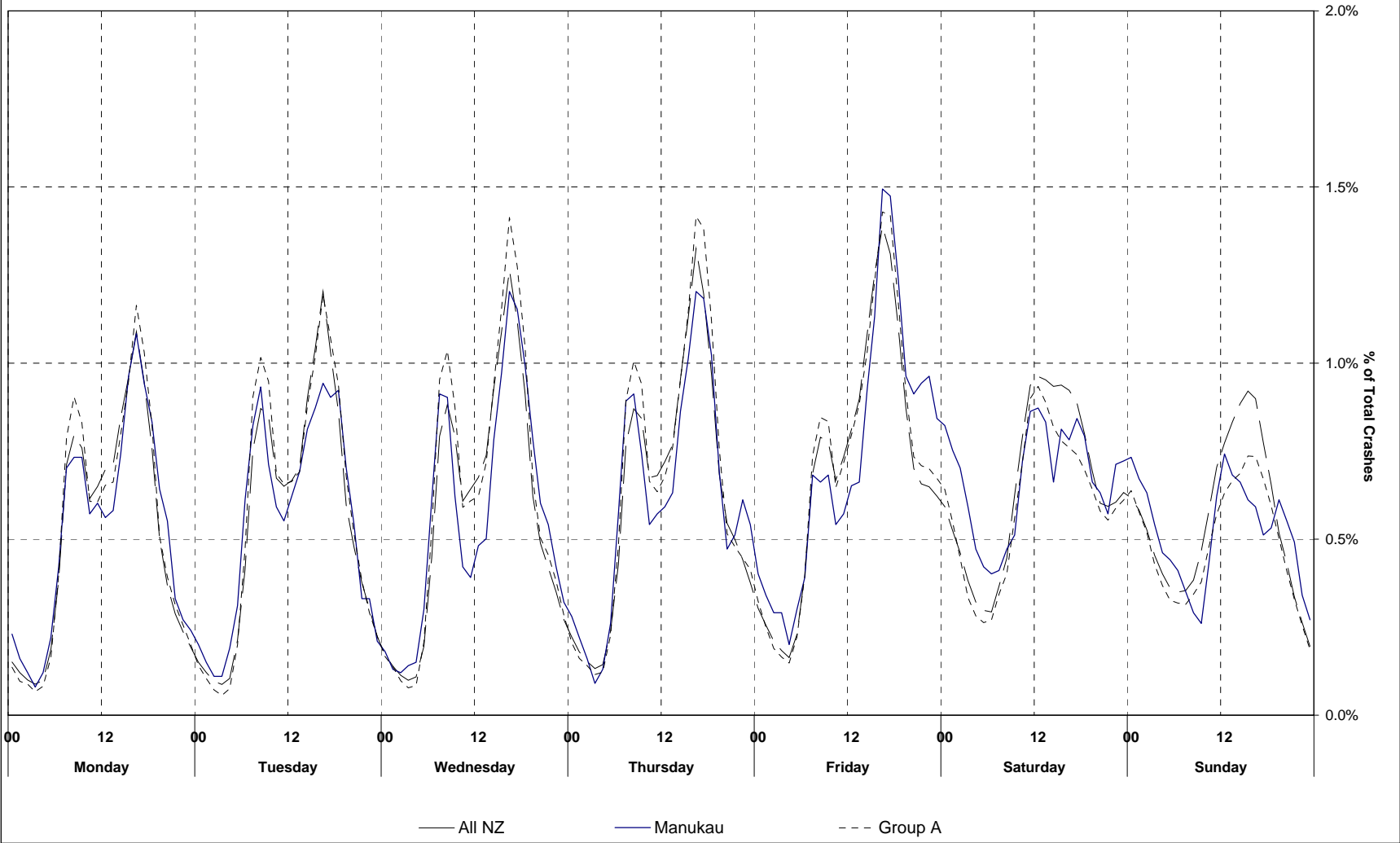
**Figure 6.14 Objects struck - rural
Manukau City (2005-2009)**



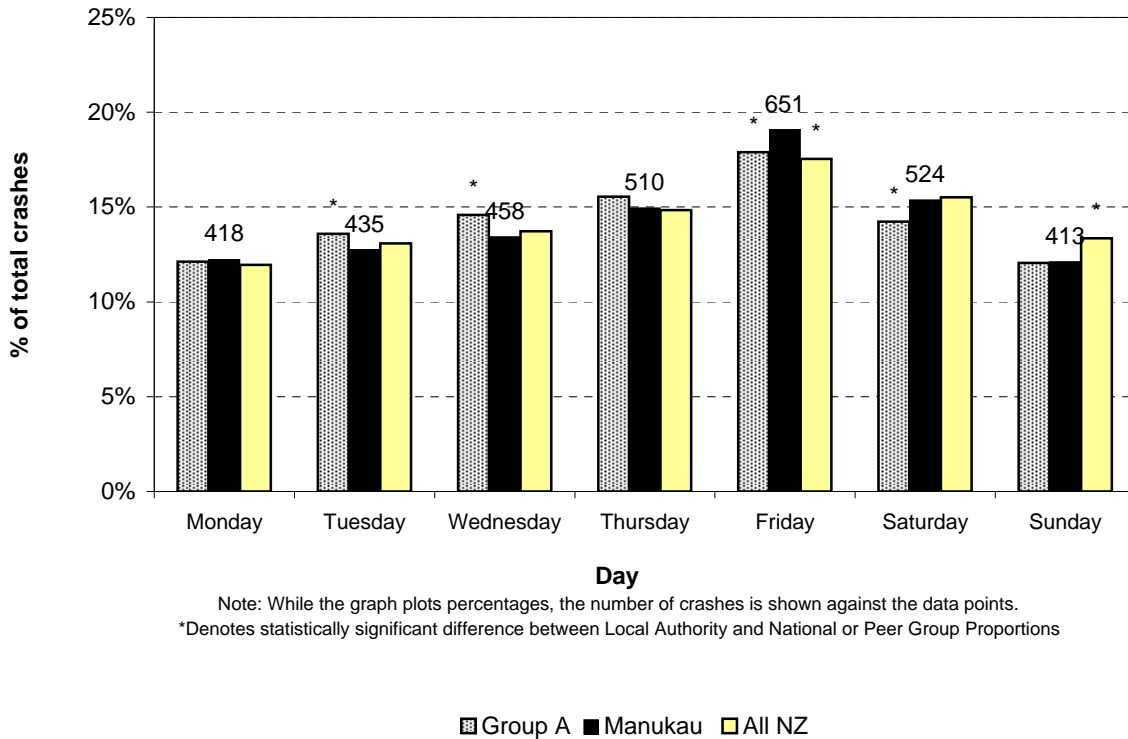
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Date and Time Statistics

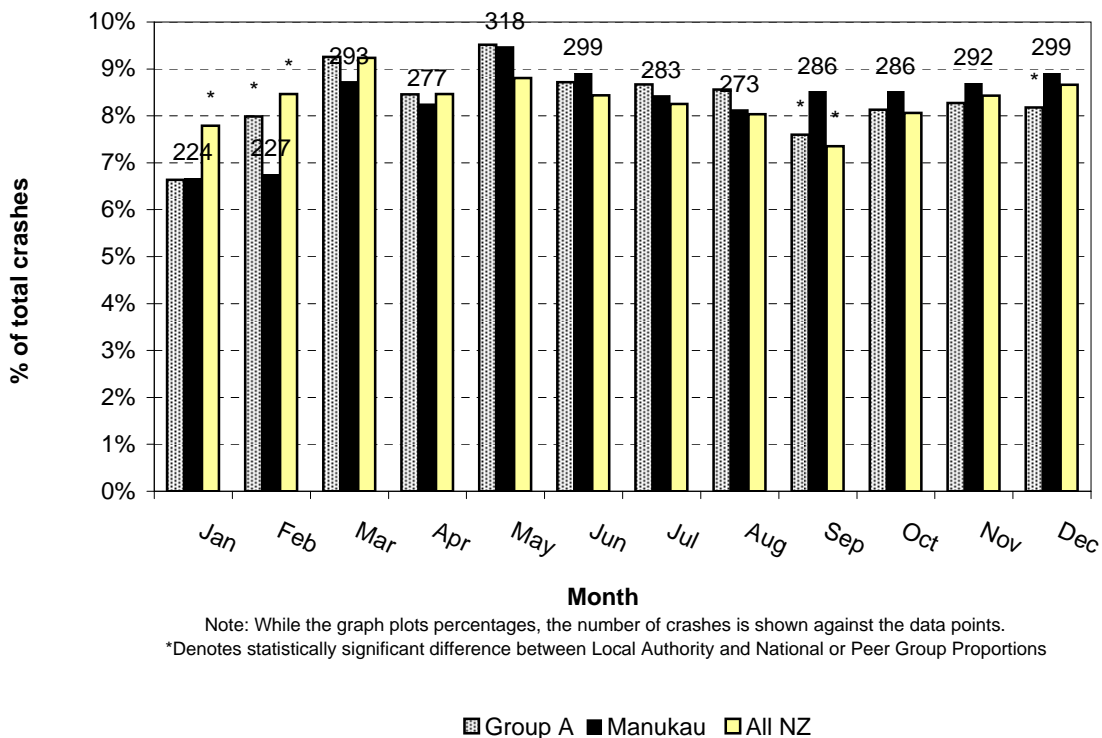
Figure 7.1 Time pattern over average week
Manukau City (2005-2009)



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



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



Local Road Statistics

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

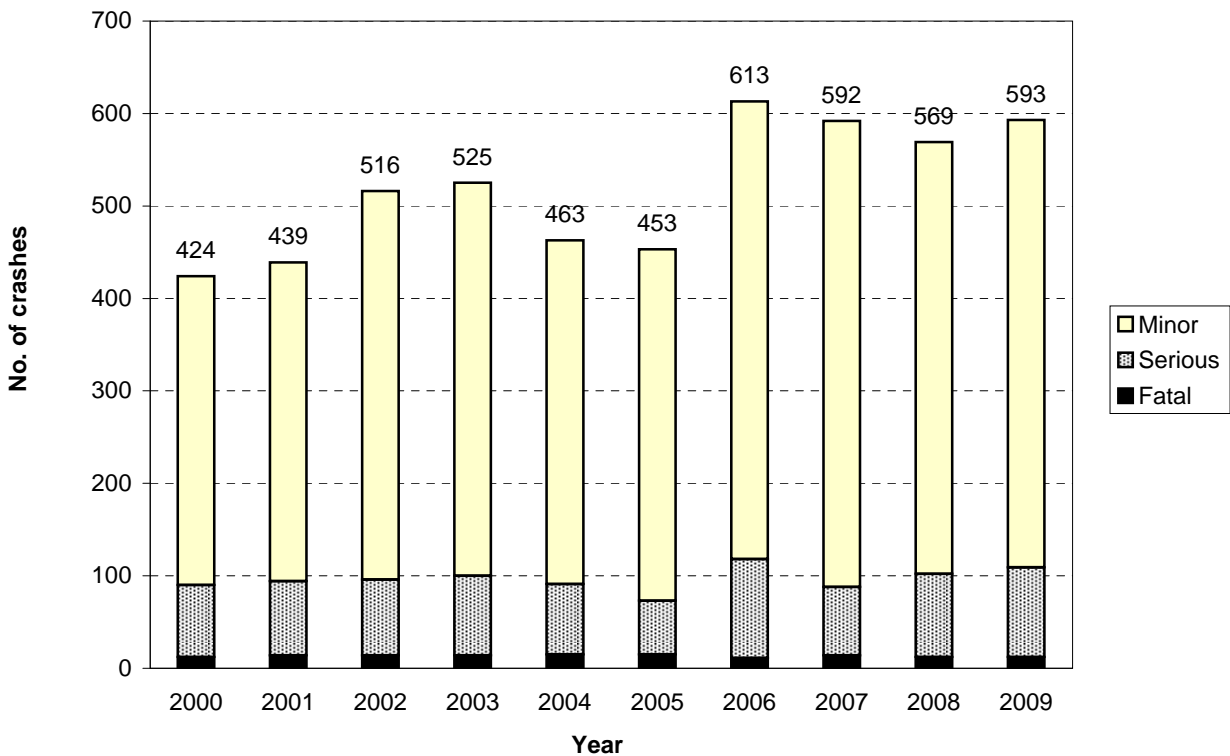
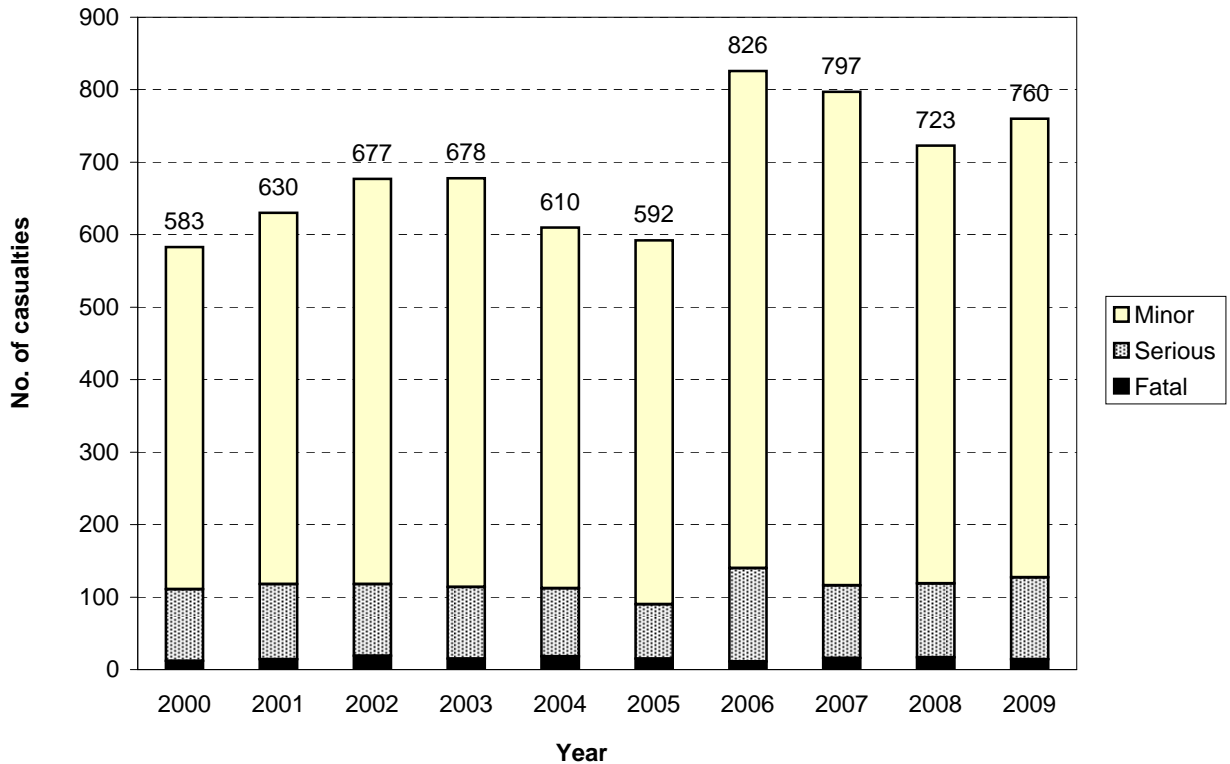
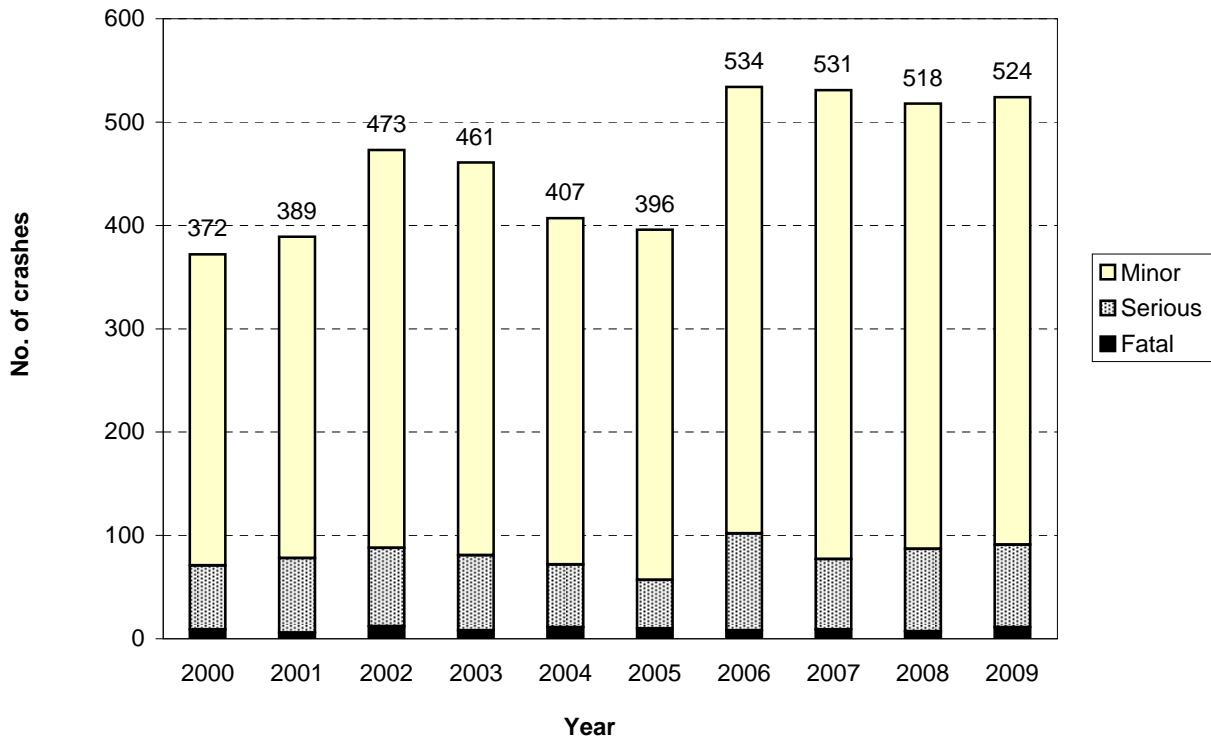


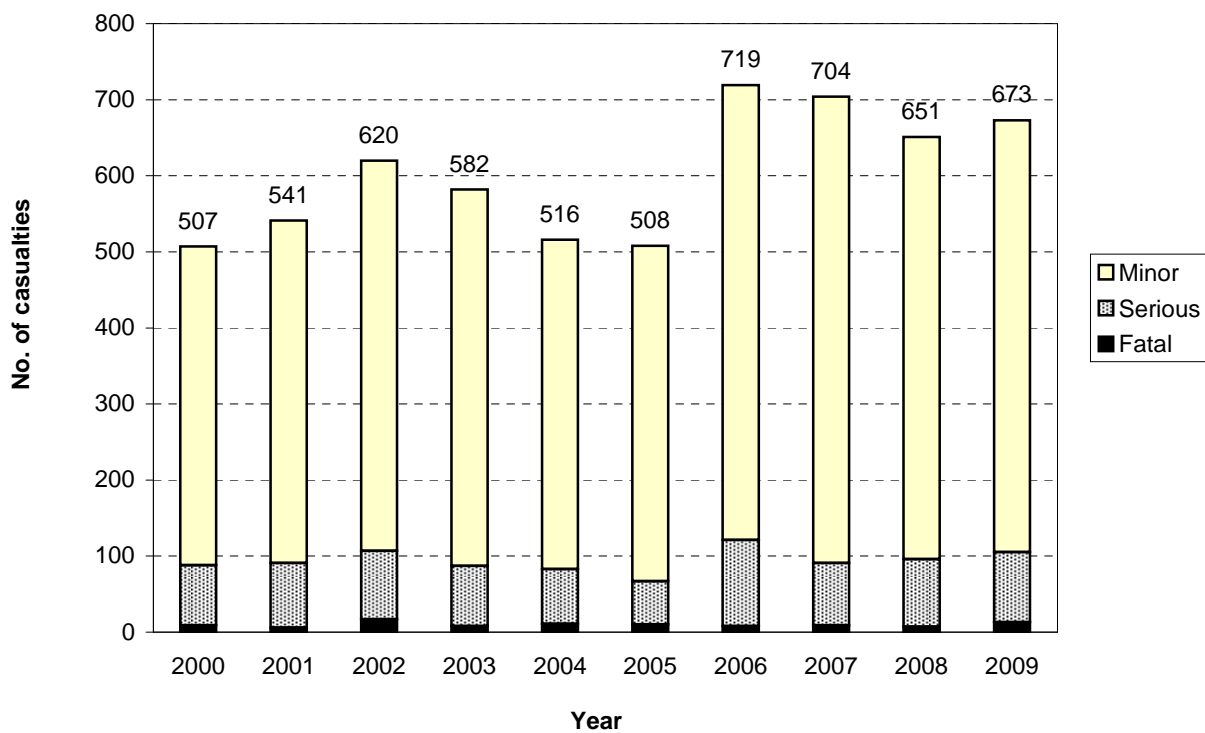
Figure 8.2 Number of casualties
Manukau City - council roads (urban & rural)



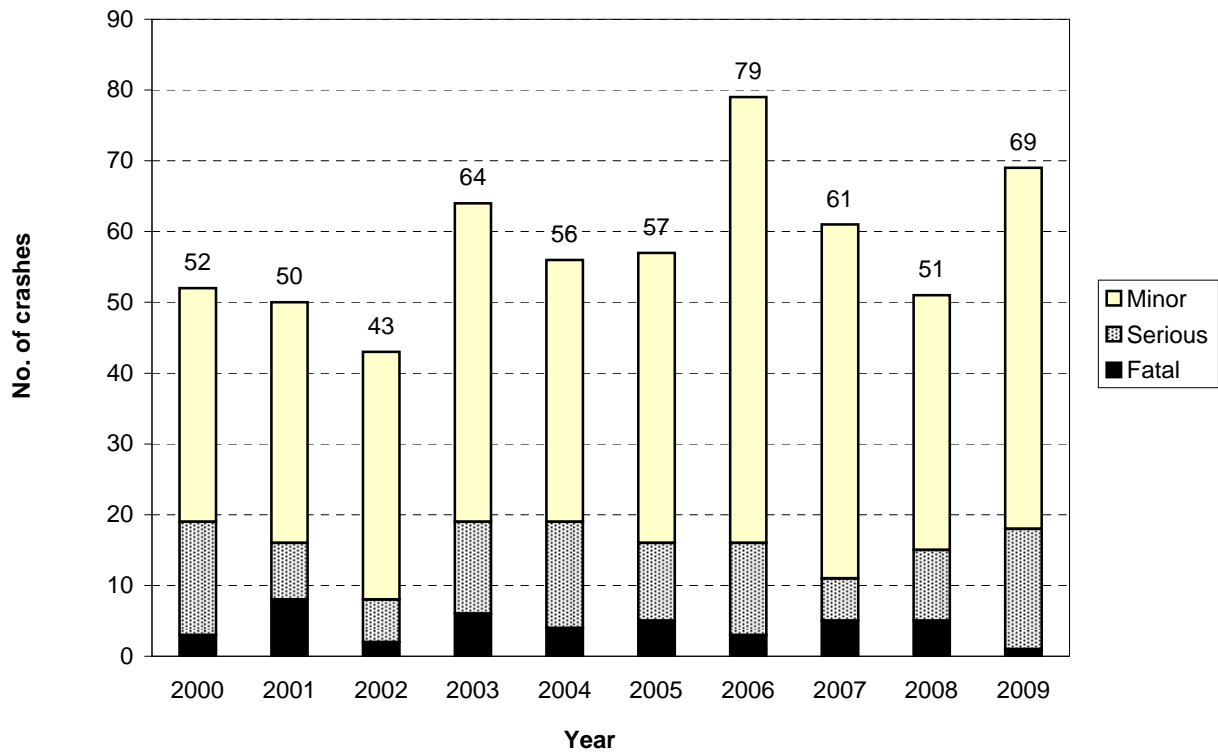
**Figure 8.3 Number of injury crashes
Manukau City - urban council roads**



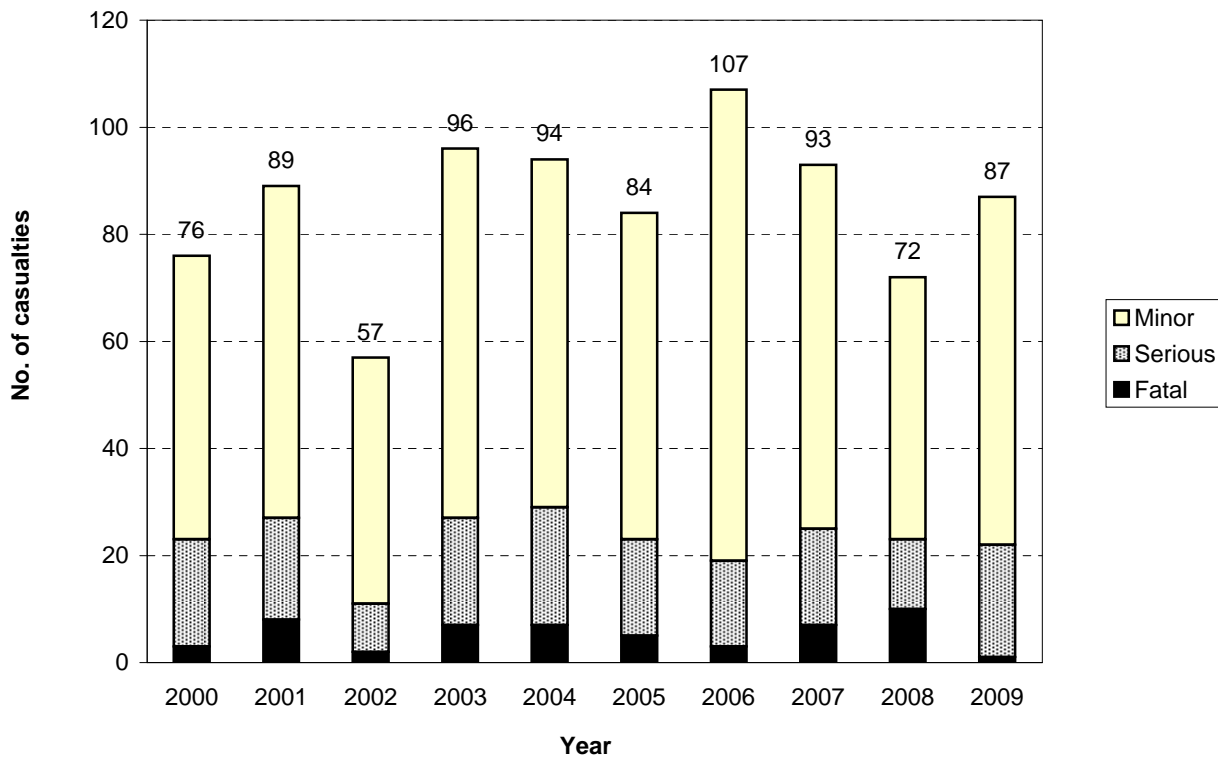
**Figure 8.4 Number of casualties
Manukau City - urban council roads**



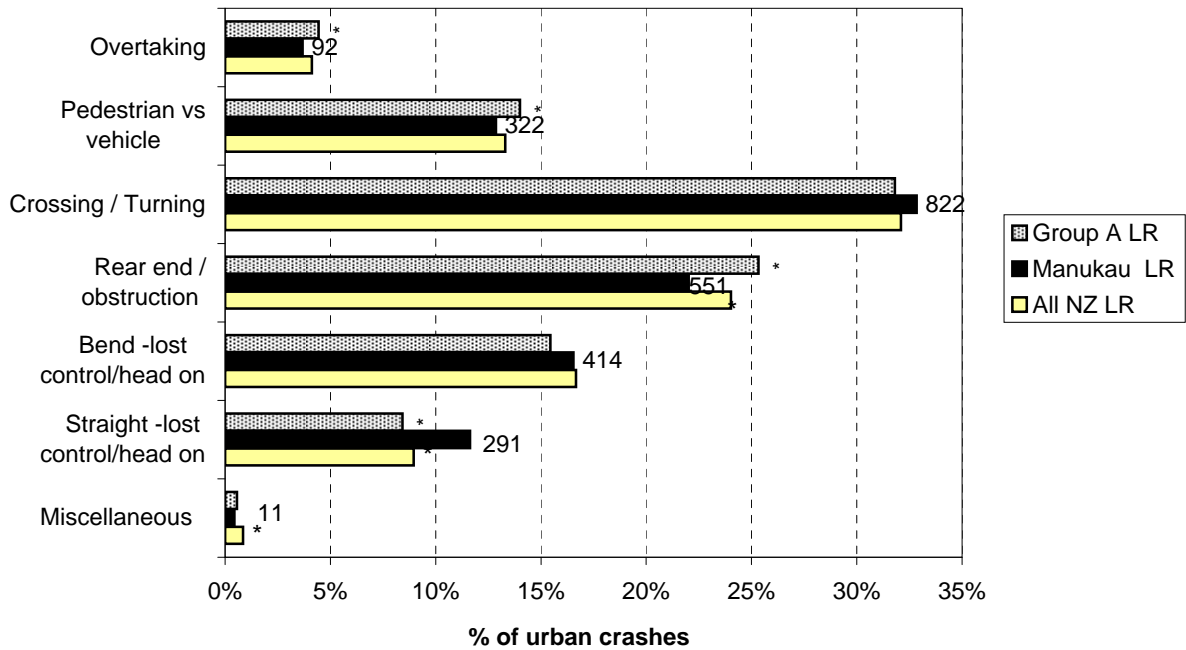
**Figure 8.5 Number of injury crashes
Manukau City - rural council roads**



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

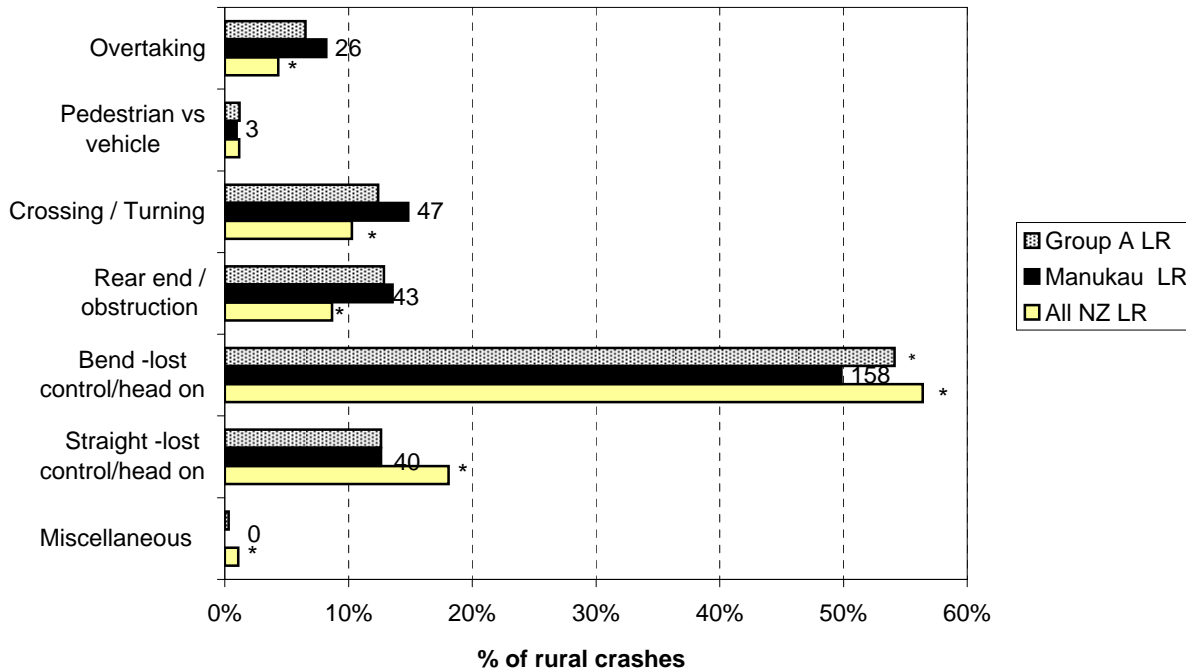


**Figure 8.7 Crash movement type - urban
Manukau City council roads (2005-2009)**



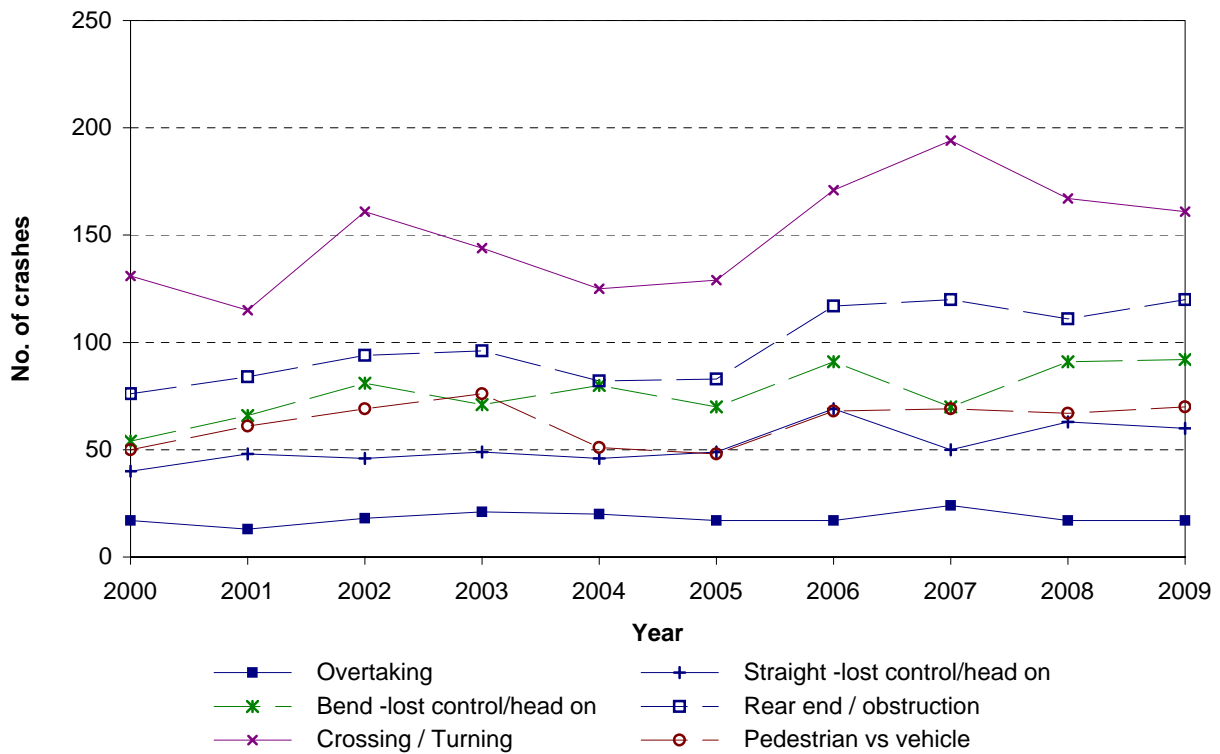
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

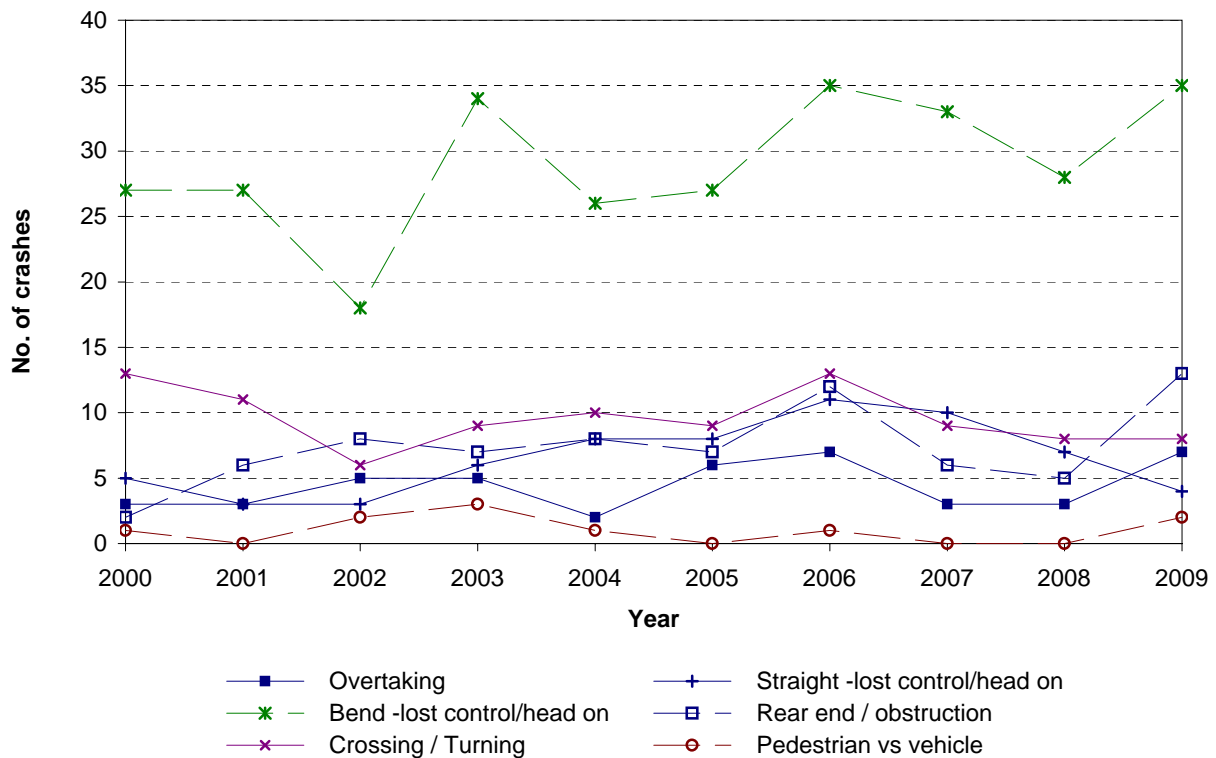


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

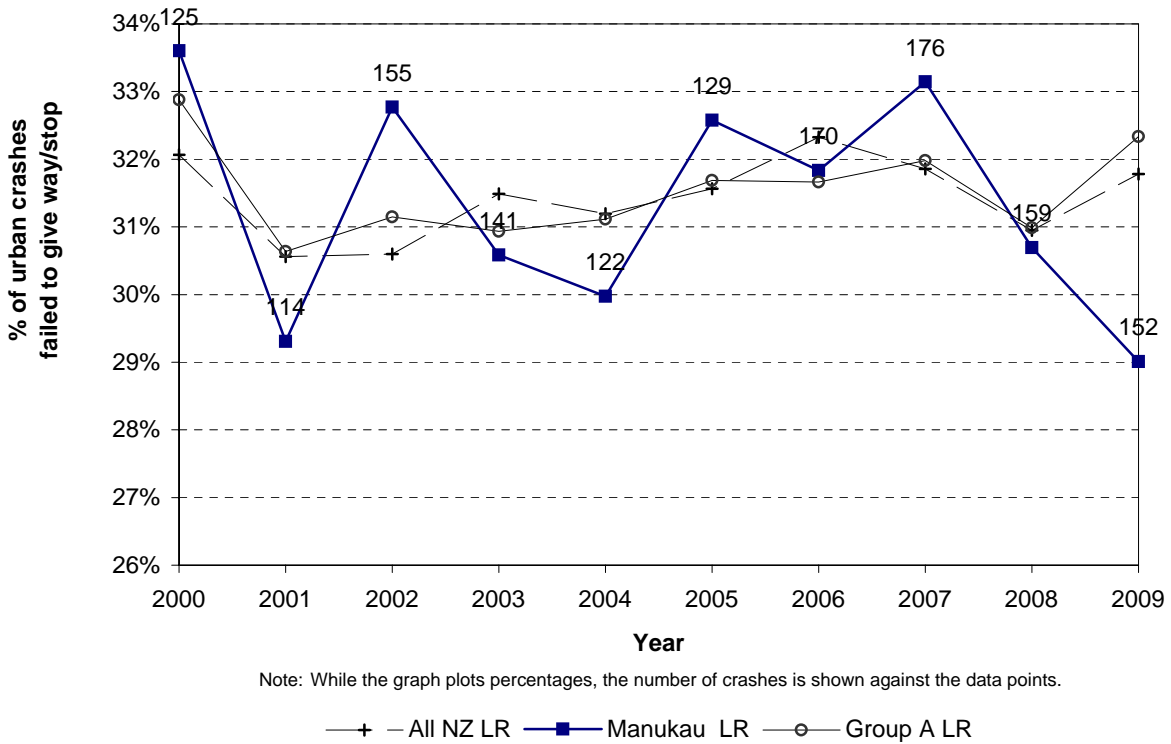
**Figure 8.9 Crash movement type - Trends
Manukau City - urban council roads**



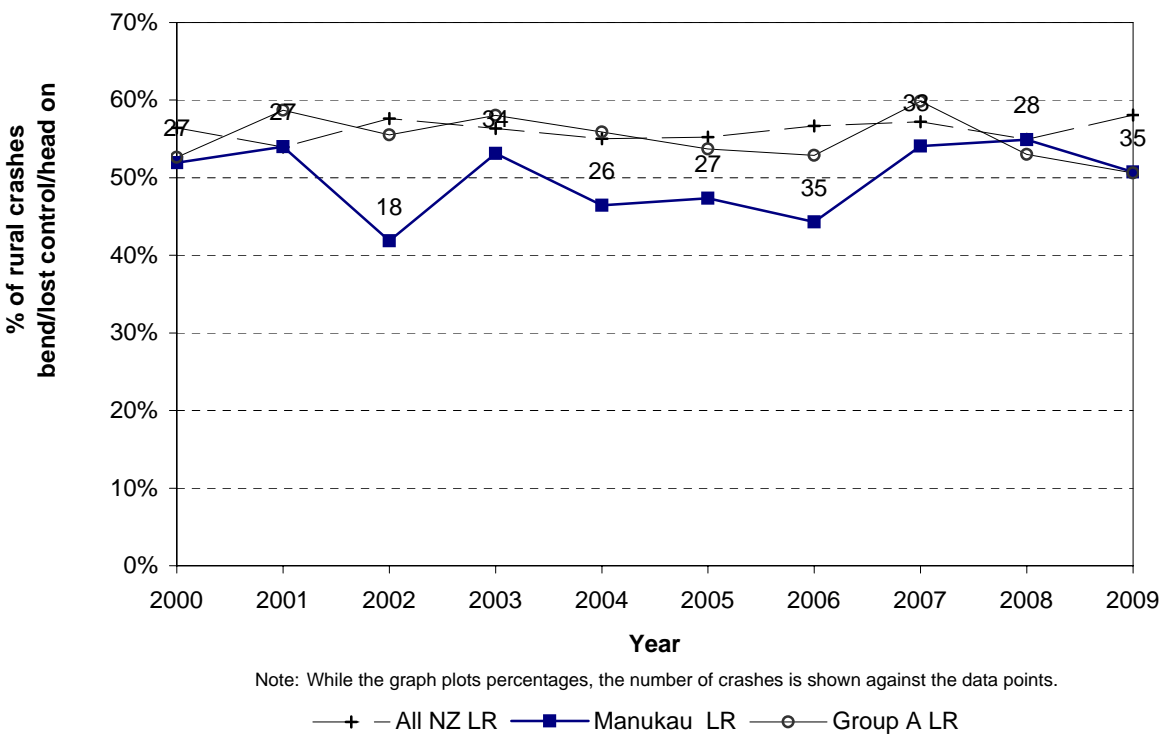
**Figure 8.10 Crash movement type - Trends
Manukau City - rural council roads**



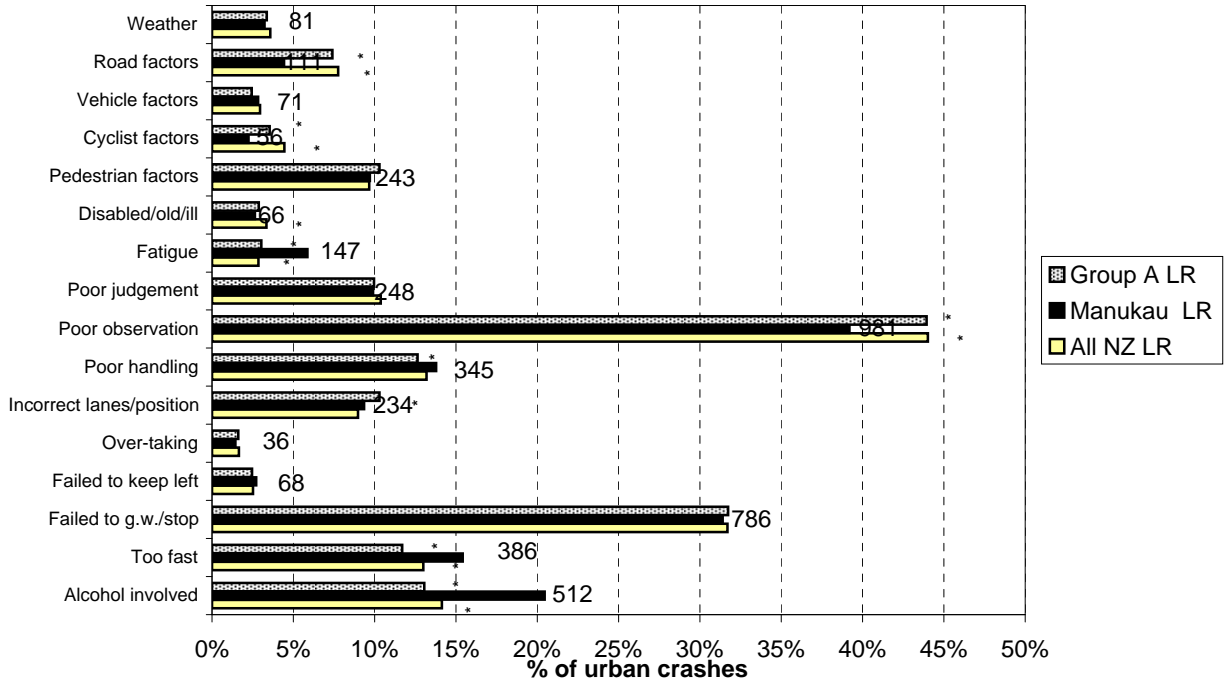
**Figure 8.11 Failed to give way/stop
Manukau City - urban council roads**



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

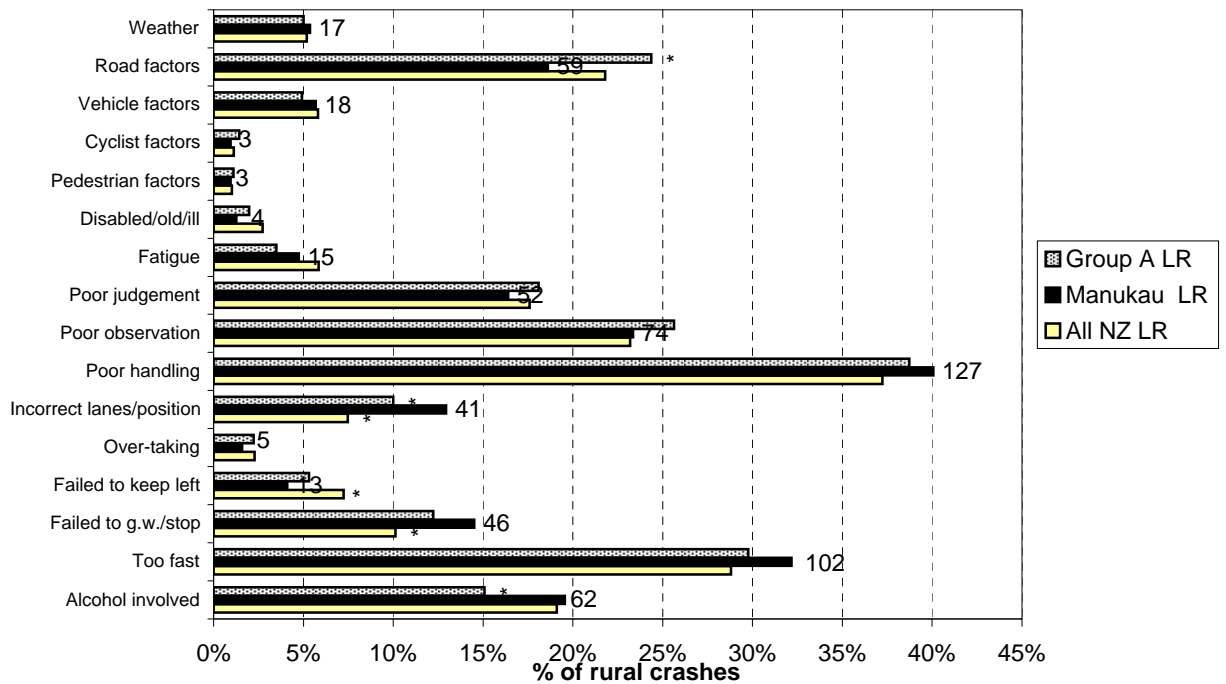


**Figure 8.13 Contributing factors - urban
Manukau City council roads (2005-2009)**



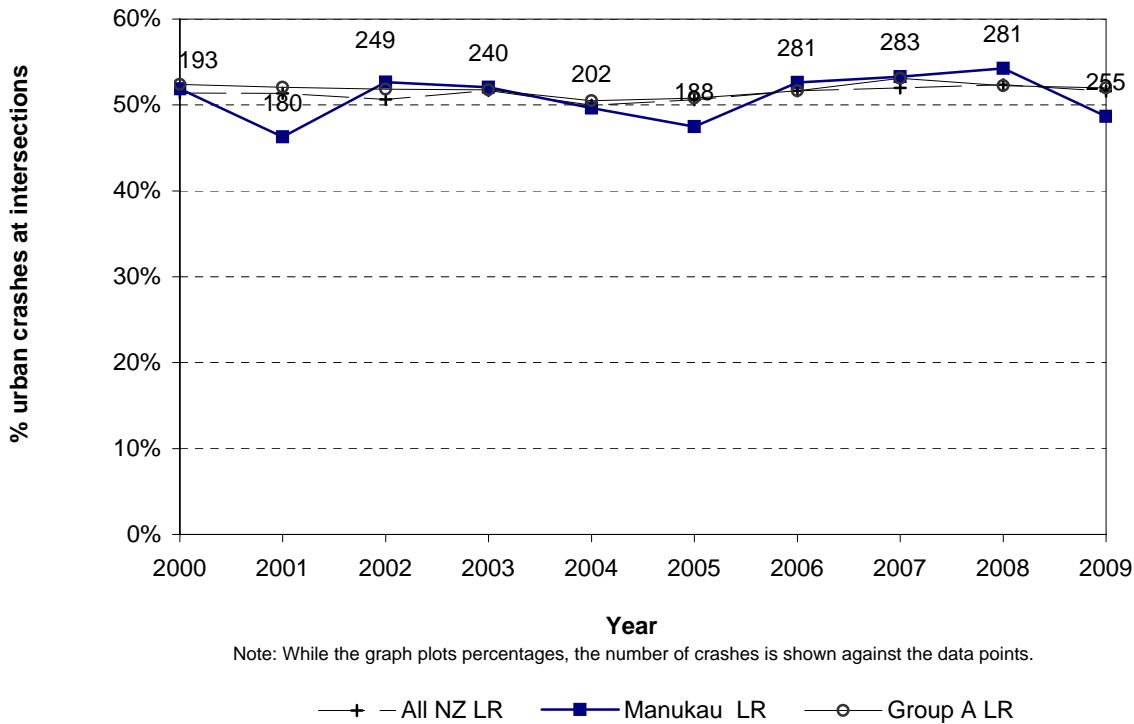
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

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

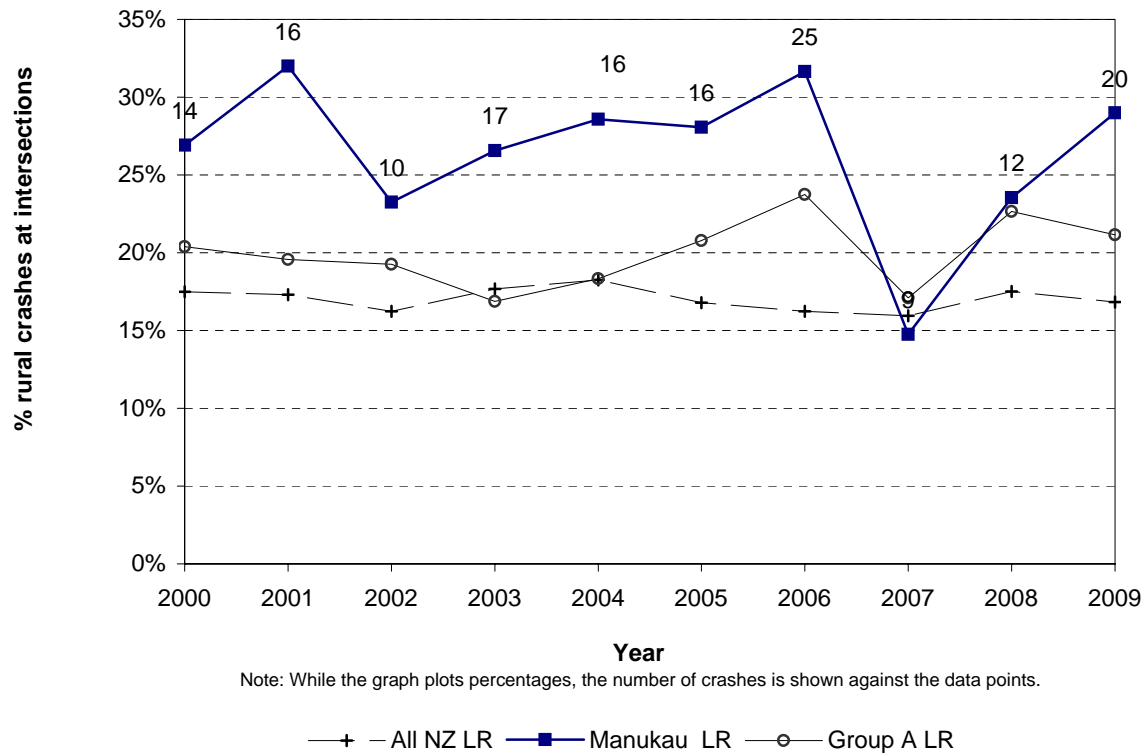


Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

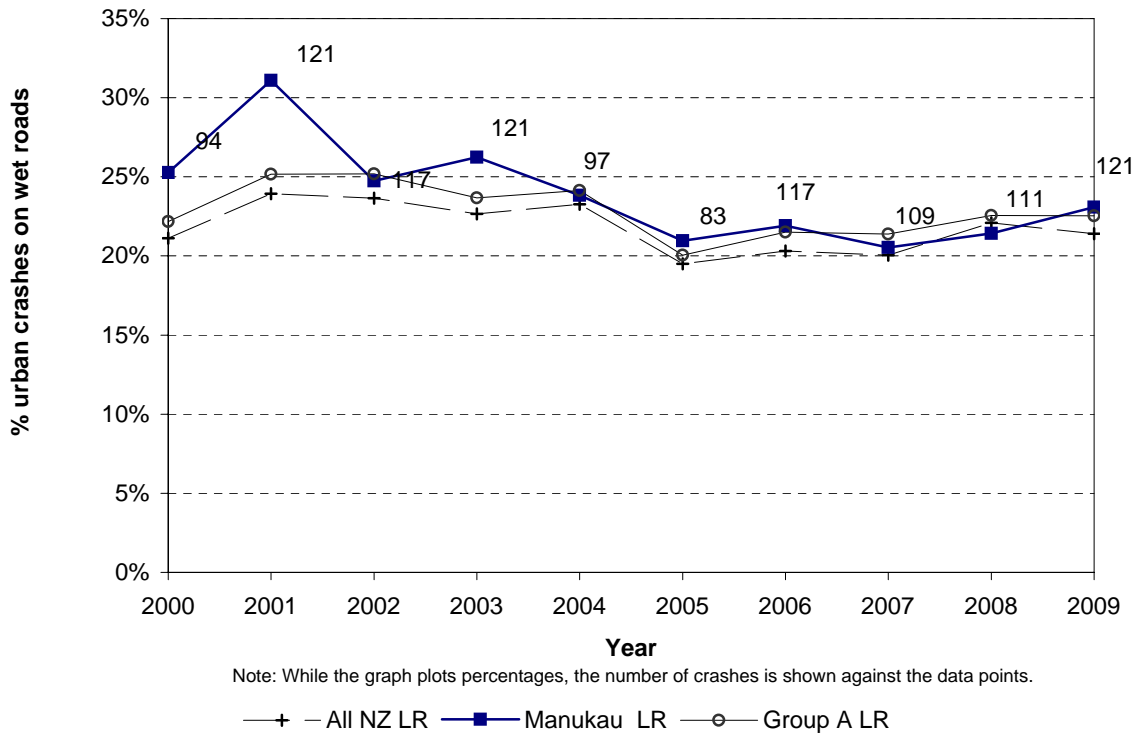
**Figure 8.15 Intersection crashes
Manukau City - urban council roads**



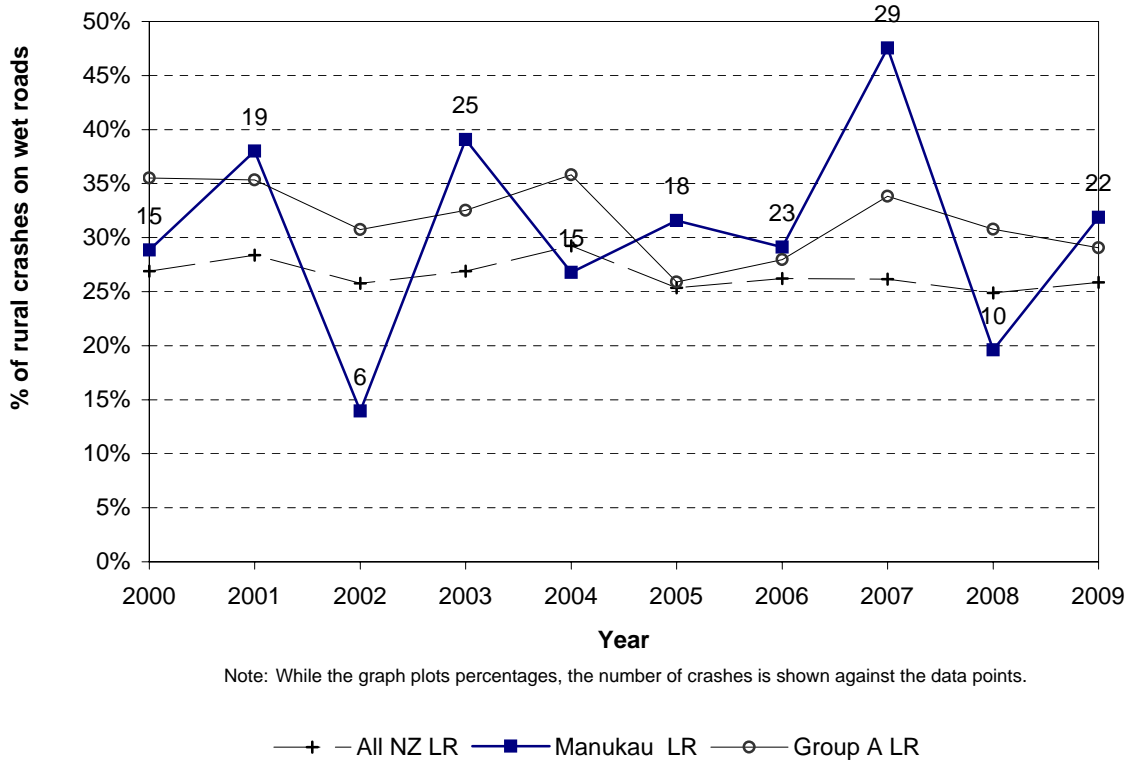
**Figure 8.16 Intersection crashes
Manukau City - rural council roads**



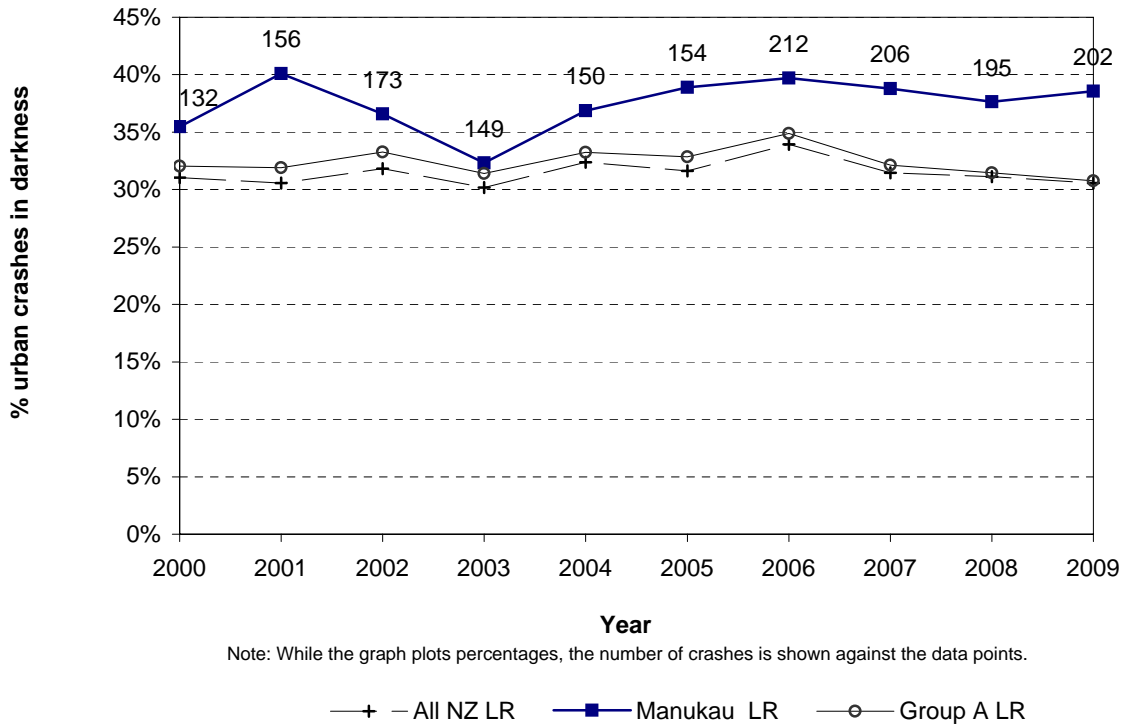
**Figure 8.17 Wet road crashes
Manukau City - urban council roads**



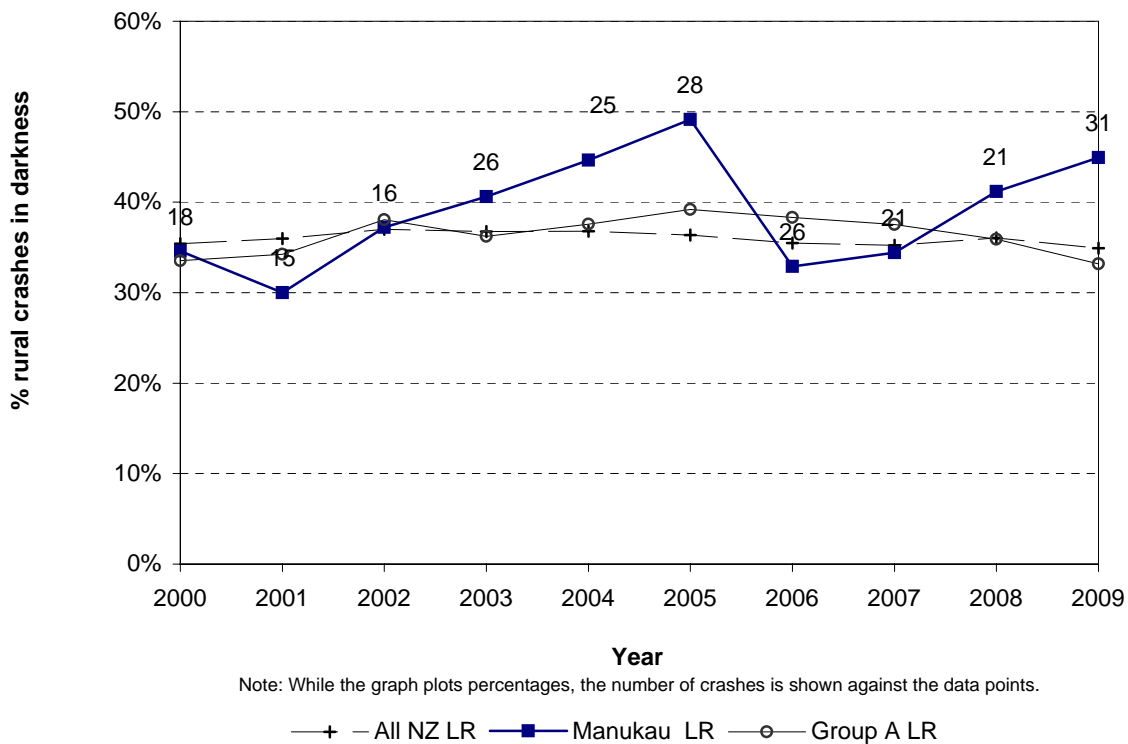
**Figure 8.18 Wet road crashes
Manukau City - rural council roads**



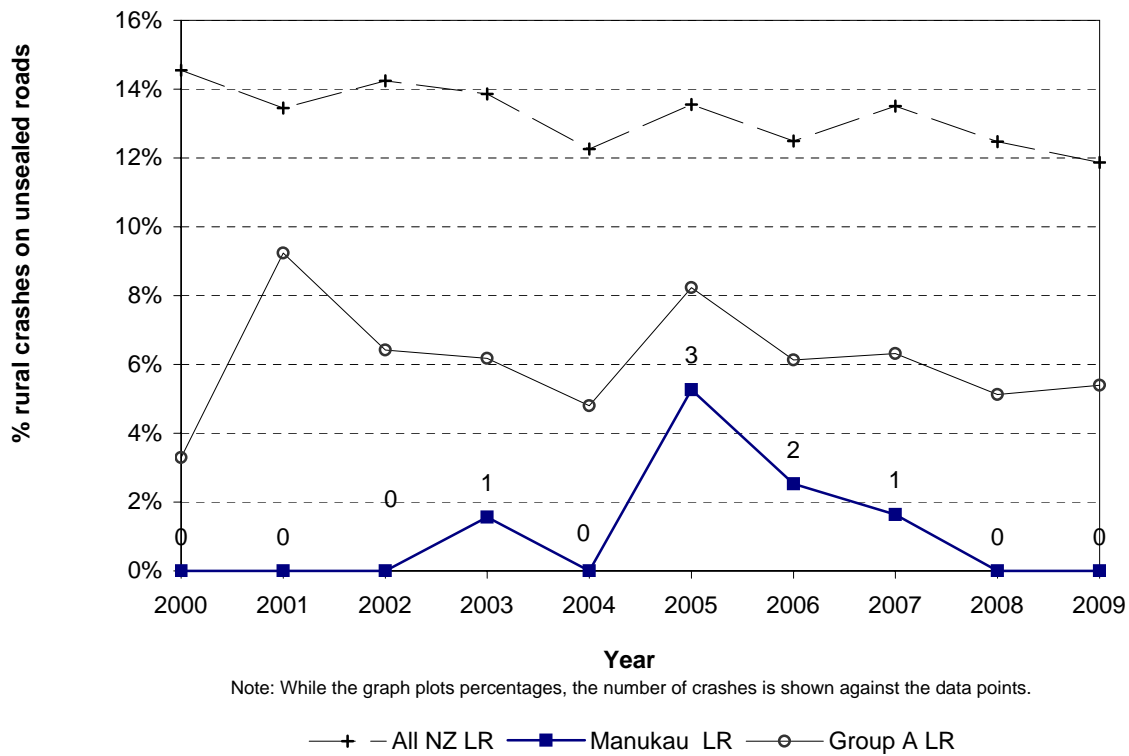
**Figure 8.19 Crashes in darkness
Manukau City - urban council roads**



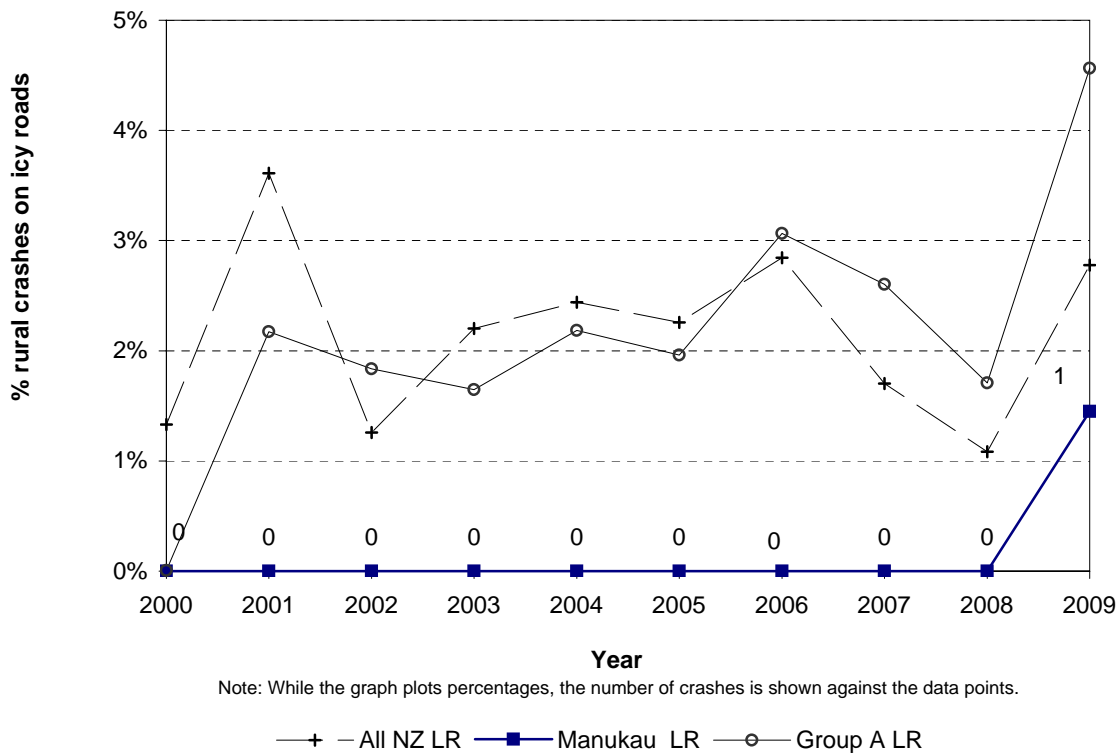
**Figure 8.20 Crashes in darkness
Manukau City - rural council roads**



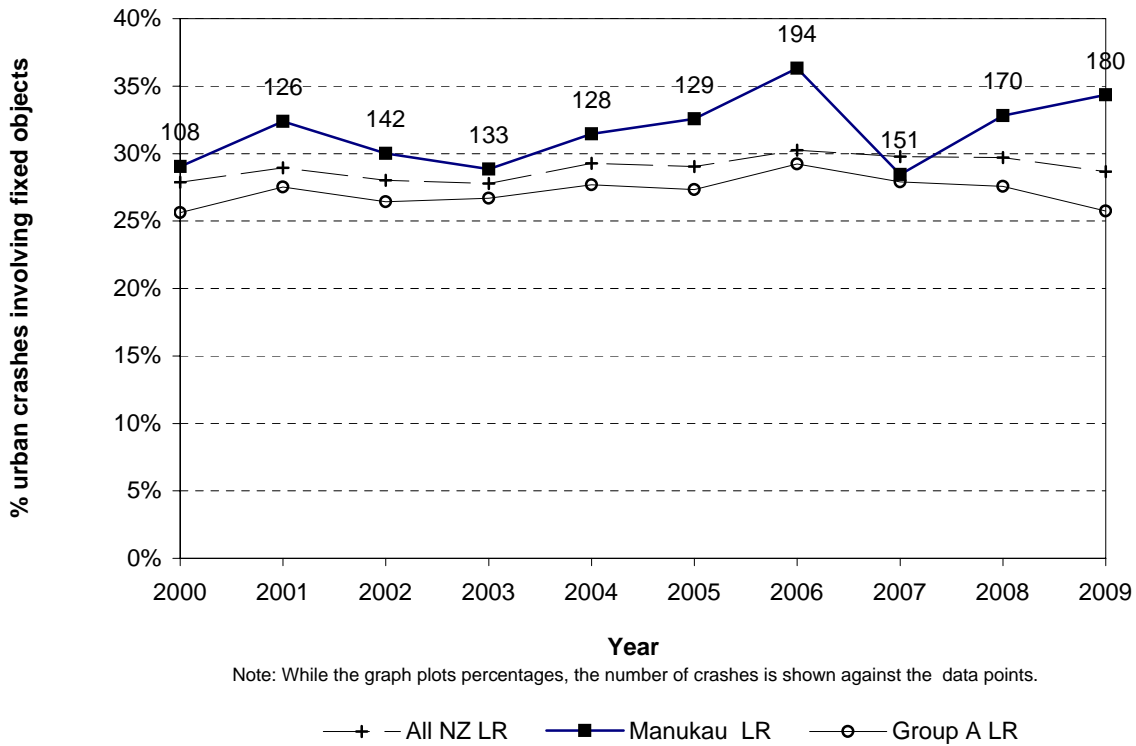
**Figure 8.21 Crashes on unsealed roads
Manukau City - rural council roads**



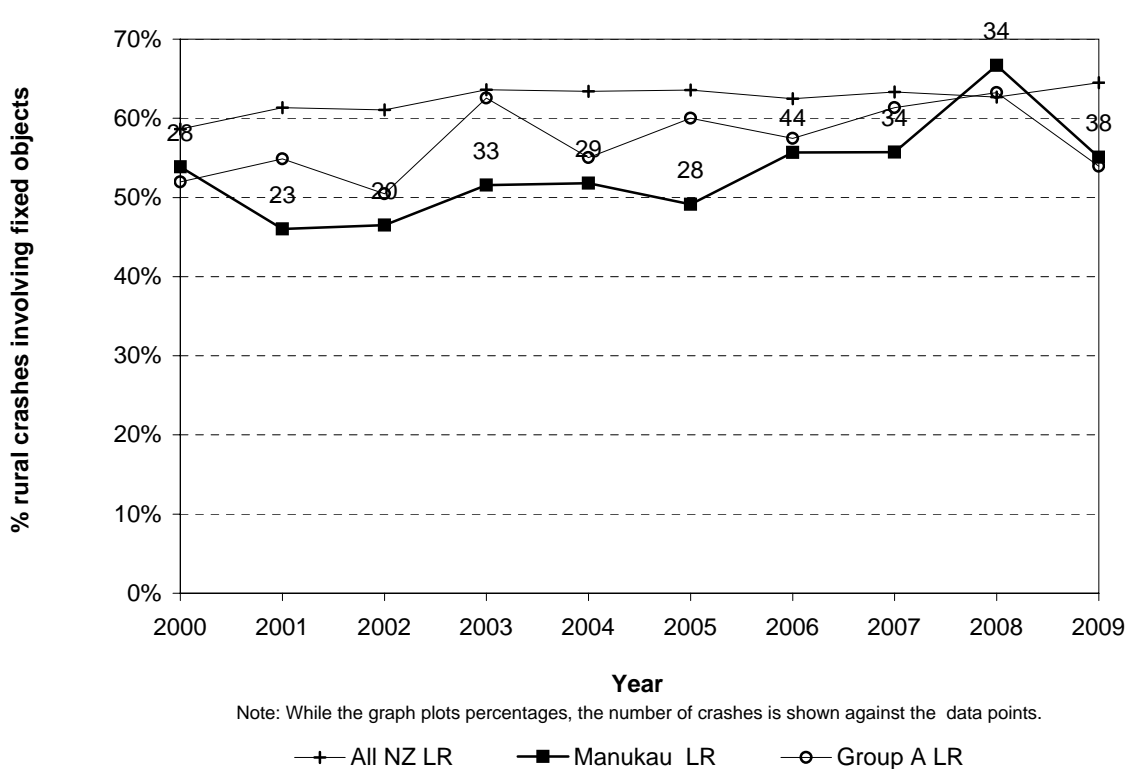
**Figure 8.22 Icy road crashes
Manukau City - rural council roads**



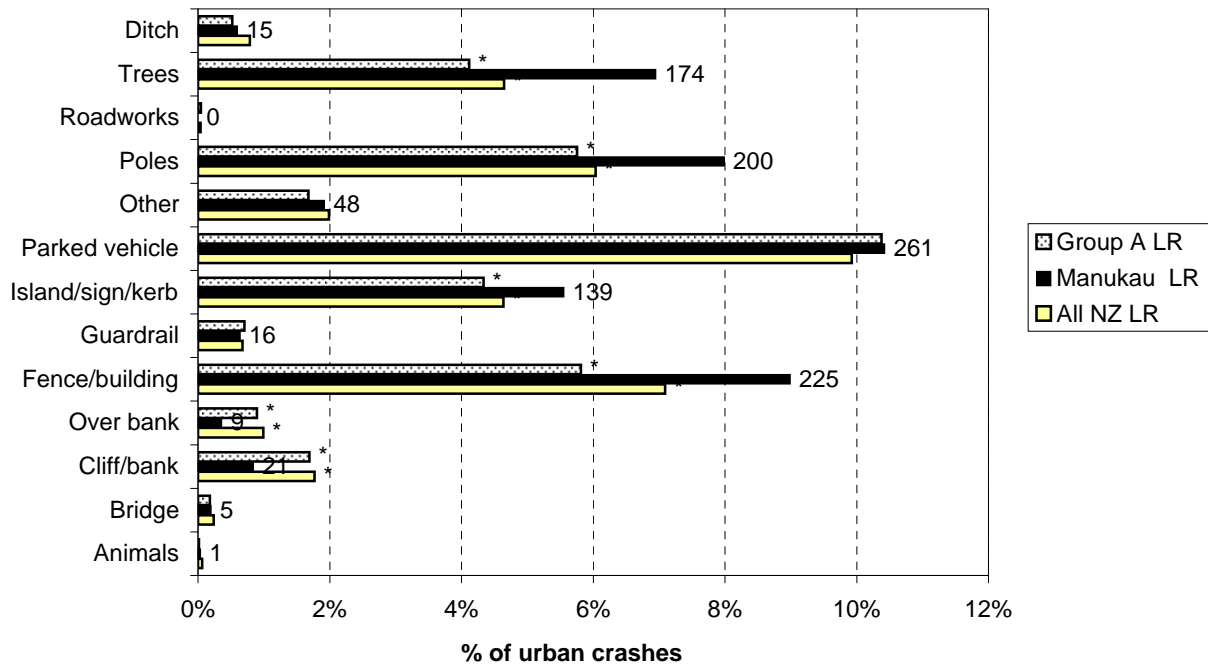
**Figure 8.23 Collisions with objects
Manukau City - urban council roads**



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

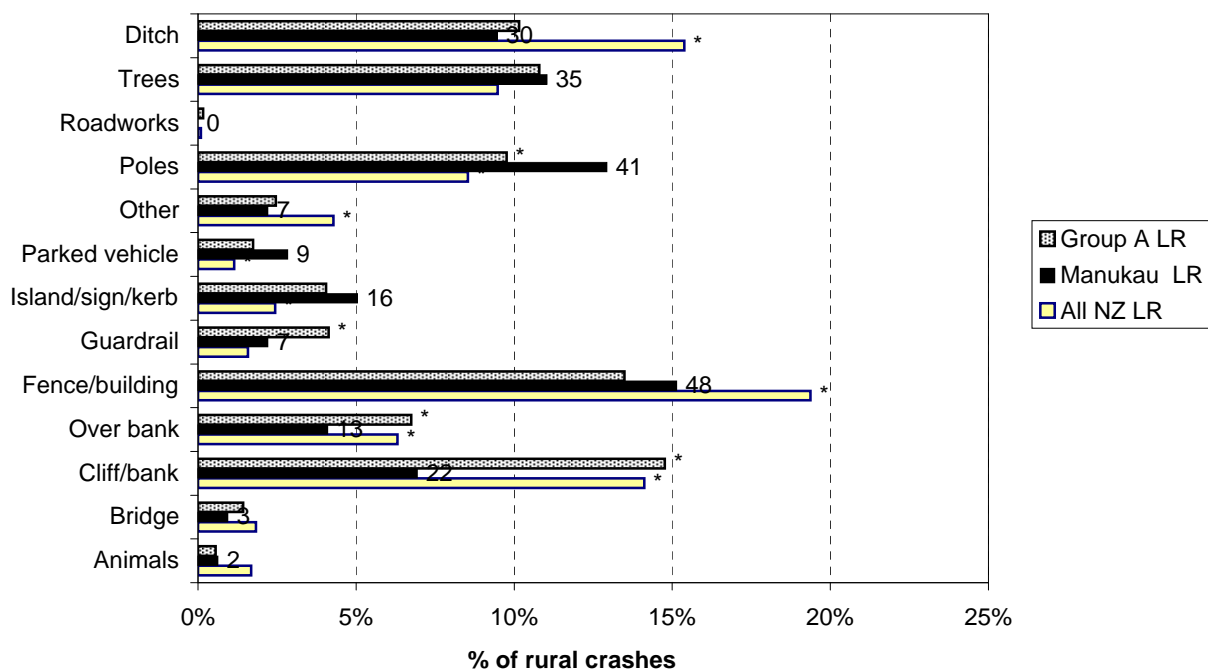


**Figure 8.25 Objects struck - urban
Manukau City council roads (2005-2009)**



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
Manukau 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 5 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
BOUNDARY ROAD	ISRAEL AVENUE	2	2	1	1		6	1	17		\$4,441,230
PORCHESTER ROAD	HYPERION DRIVE	3	3	2	1	2	11	9	36	45	\$3,989,767
PRESTON ROAD	FLAT BUSH ROAD	11	3	4	2		20	15	15	40	\$3,938,355
GREAT SOUTH ROAD	KERRS ROAD	4	1	10	4	6	25	22	16	28	\$3,912,071
CAVENDISH DRIVE	SHARKEY ST	5	5	6	4	2	22	16	23	9	\$3,910,251
BOTANY ROAD	MILLHOUSE DRIVE	6	7	4	3	7	27	23	11	33	\$3,858,373
CHAPEL ROAD	KILIMANJARO DRIVE	1	2	2	2		7	6	14	43	\$3,845,974
SPRINGS ROAD	VALDER AVENUE	2	2		1	2	7	6	14	29	\$3,845,967
FINLAYSON AVENUE	BURUNDI AVENUE	1	1	1	3	2	8	5	50	50	\$3,498,626
MASSEY ROAD	THOMAS ROAD		1	4	1		6	3	50	33	\$3,465,510
MARAETAI DRIVE	OMANA BEACH ROAD	2	1			2	5	4	40	60	\$3,340,190
GREAT SOUTH ROAD	TE IRIRANGI DRIVE	10	19	14	16	23	82	71	18	33	\$2,913,497
GREAT SOUTH ROAD	ALFRISTON ROAD	11	11	17	11	20	70	57	20	47	\$2,799,451
KERRS ROAD	DRUCES ROAD	4	8	7	14	7	40	29	18	23	\$2,617,617
TI RAKAU DRIVE	TE IRIRANGI DRIVE E	11	18	18	17	12	76	67	20	38	\$2,559,792
GREAT SOUTH ROAD	RONWOOD AVENUE	6	15	9	16	9	55	43	22	40	\$2,484,089
EAST TAMAKI ROAD	BAIRDS ROAD	19	19	13	10	19	80	73	18	33	\$2,213,109
MASSEY ROAD	ROSELLA ROAD	7	5	13	10	9	44	34	25	20	\$2,185,852
GREAT SOUTH ROAD	REAGAN ROAD	12	22	16	17	13	80	74	28	35	\$2,153,314
PAKURANGA ROAD	TI RAKAU DRIVE	14	16	8	24	10	72	64	26	28	\$2,128,620
MASSEY ROAD	VINE ST	5	5	2	3	4	19	12	21	42	\$2,043,290
MASSEY ROAD	BUCKLAND ROAD	13	12	10	21	7	63	54	24	51	\$2,034,334
PAKURANGA ROAD	AVIEMORE DRIVE	10	8	10	9	13	50	37	20	40	\$2,019,768
PUHINUI ROAD	ROSCOMMON ROAD NORT	1	2	1	6	8	18	12	28	28	\$1,959,697
WALLACE ROAD	KIRKBRIDE ROAD		2		3	2	7	3	29	100	\$1,909,690
TI RAKAU DRIVE	PAKURANGA HIGHWAY	7	19	17	15	15	73	62	30	47	\$1,861,670
EAST TAMAKI ROAD	FERGUSON ROAD	3	10	9	6	2	30	23	30	27	\$1,798,623
MAHIA ROAD	HOLMES ROAD	3	6	2	1		12	8	33	42	\$1,770,708
GREAT SOUTH ROAD	BROWNS ROAD	18	12	9	10	19	68	58	16	43	\$1,724,796
HILLCREST ROAD	STATION ROAD	1	7	5	3	10	26	19	15	27	\$1,723,915
LAMBIE DRIVE	CAVENDISH DRIVE S	11	10	14	11	11	57	52	18	18	\$1,702,922
MAHIA ROAD	SYKES ROAD	1		1	5	1	8	4	25	50	\$1,677,754
HARRIS ROAD	TI RAKAU DRIVE	9	11	12	15	9	56	47	18	20	\$1,674,672
ROGERS ROAD	WEYMOUTH ROAD	11	5	3	7	5	31	27	13	35	\$1,637,661
BOUNDARY ROAD	OTHELLO DRIVE	3	3	4	5	3	18	11	39	39	\$1,577,728
MASSEY ROAD	ROBERTSON ROAD	5	7	8	6	7	33	24	18	36	\$1,499,589
MASSEY ROAD	TIDAL ROAD	1	5	7	2	3	18	13	17	28	\$1,464,712
PAKURANGA ROAD	SIR LLOYD DRIVE	2	1	3	2	6	14	8	36	36	\$1,449,816
PRESTON ROAD	ORMISTON ROAD	3	7	5		4	19	15	37	37	\$1,435,104
DAWSON ROAD	TE IRIRANGI DRIVE	5	14	8	3	8	38	32	18	29	\$1,431,815
MANGERE ROAD	HOSPITAL ROAD	4	10	8	9	6	37	31	24	57	\$1,409,951
HARRIS ROAD	ALLENS ROAD	3	3	5	10	2	23	21	30	30	\$1,392,205
BOTANY ROAD	GOLFLAND DRIVE S	8	5	2	5	6	26	21	31	27	\$1,331,561
TI RAKAU DRIVE	PALM AVENUE	6	1	2	7	2	18	11	17	44	\$1,284,252
PAKURANGA ROAD	GRAMMAR SCHOOL ROAD		1	2	2	4	9	5	33	11	\$1,260,850
MCKENZIE ROAD	CORONATION ROAD S	2	2	4	3		11	8	18	45	\$1,238,318
BROWNS ROAD	DALGETY DRIVE	5	4	4	8	6	27	21	19	33	\$1,234,015
MASSEY ROAD	MASCOT AVENUE	3		2	5		10	7	10	60	\$1,220,798
SPRINGS ROAD	KERWYN AVENUE	8	10	10	9	4	41	32	24	20	\$1,207,045
OTHELLO DRIVE	DAWSON ROAD	2	2		4	1	9	6	22	44	\$1,201,818

**Table 9.1: Council Roads Black Spot List Urban
(Injury and Non-Injury Crashes)**
Site Radius = 30 metres
Sites with 5 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
ROSCOMMON ROAD	I	BROWNS ROAD	4	8	12	12	6	42	36	19	43	\$1,199,873
COXHEAD ROAD	I	WEYMOUTH ROAD	3	6	7	6	5	27	22	37	44	\$1,185,253
TE IRIRANGI DRIVE	I	HOLLYFORD DRIVE	6	5	7	7	2	27	22	7	15	\$1,184,325
EAST TAMAKI ROAD	I	NEWBURY ST	5	1	10	1	6	23	17	30	26	\$1,165,995
MEADOWLAND DRIVE	I	GOOCH PLACE	1	1		2	2	6	3	17	50	\$1,149,524
GREAT SOUTH ROAD	I	CASPAR ROAD	3	4	6	7	2	22	17	14	27	\$1,095,475
MASSEY ROAD	I	YATES ROAD	7	5	6	4	2	24	20	17	21	\$1,080,739
WEYMOUTH ROAD	I	KIRTON CRESCENT		1	1	3		5	3	20	60	\$1,077,352
GREAT SOUTH ROAD	I	LAKEWOOD COURT	5	3	2	5	8	23	19	22	57	\$1,058,133
GREAT SOUTH ROAD	I	BAIRDS ROAD	6	8	1	4	3	22	18	32	36	\$1,050,383
STANCOMBE ROAD	I	CHAPEL ROAD		3	4	6	2	15	9	13	27	\$1,021,856
GREAT SOUTH ROAD	I	TUI ROAD	8	8	10	9	8	43	38	14	37	\$1,020,762
WEYMOUTH ROAD	I	FRIEDLANDERS ROAD	2	5	2	4	7	20	16	10	40	\$1,011,995
WEYMOUTH ROAD	I	RUSSELL ROAD	5	9	6	10	6	36	29	22	39	\$1,005,241
PAKURANGA ROAD	I	CASCADES ROAD	1	3	4	7	8	23	20	26	26	\$1,001,581
TI RAKAU DRIVE	I	FREMANTLE PLACE	5	3	9	15	10	42	37	12	43	\$999,634
GREAT SOUTH ROAD	I	GRANDE VUE ROAD	2	4	3	1	3	13	7	23	46	\$998,120
HALVER ROAD	I	GREAT SOUTH ROAD	4	4	4	3	4	19	15		16	\$994,531
GREAT SOUTH ROAD	I	SHIRLEY ROAD	7	11	5	8	9	40	35	15	25	\$965,207
CHAPEL ROAD	I	SMALES ROAD	2	2	6	3	4	17	15	18	47	\$961,816
PAKURANGA ROAD	A	FORTUNES ROAD		10	6	10	6	32	25	22	28	\$935,643
BROWNS ROAD	I	JELLICOE ROAD	3	3	2	4	1	13	8	38	54	\$933,928
GREAT SOUTH ROAD	I	MAHIA ROAD	7	5	8	13	8	41	37	22	37	\$929,226
BADER DRIVE	I	IDLEWILD AVENUE	1	3	3	1	4	12	7	17	42	\$918,208
BAIRDS ROAD	I	WYMONDLEY ROAD	5	4	4	2	3	18	15	28	28	\$918,115
WALMSLEY ROAD	I	DONNELL AVENUE	4	8	4	11	4	31	24	26	45	\$916,447
CHAPEL ROAD	I	TOWN CENTRE DRIVE	4		3	2	2	11	8	9	45	\$909,199
PAKURANGA ROAD		120 W LEWIS ROAD	2	1	2	1	2	8	2	13	13	\$903,436
PAH ROAD	I	HILLSIDE ROAD	2	2	2	3	5	14	10	36	14	\$903,237
SMALES ROAD	I	SIR WILLIAM AVENUE	2	1	3	2	2	10	7	40		\$896,249
BUCKLANDS BEACH ROAD	I	GILLS ROAD	4	2	3	2	2	13	9	38	31	\$895,300
FAVONA ROAD	I	ROBERTSON ROAD	3	4	4	2	3	16	13	31	44	\$887,578
AVIEMORE DRIVE	I	HIGHLAND PARK DRIVE	3	1	2	2	4	12	8	25	33	\$868,456
WORDSWORTH ROAD	I	JOHN WALKER DRIVE	1	1		3	3	8	3	25	50	\$857,990
CHAPEL ROAD	I	TI RAKAU DRIVE	5	4	9	5	8	31	27	23	29	\$856,736
PUHINUI ROAD	I	GRAYSON AVENUE	2		2	5	2	11	7	27	36	\$845,838
BOTANY ROAD	I	CASCADES ROAD	1	6	6	9	8	30	24	40	40	\$842,505
CAMBRIDGE TERRACE	I	BRIDGE ST	1	6	2	2	2	13	10	38	69	\$838,860
TI RAKAU DRIVE	I	BURSWOOD DRIVE W	4	4	9	2	1	20	11	20	45	\$829,640
GRAY AVENUE	I	ROSELLA ROAD	1	2	5	2	3	13	10	23	38	\$829,277
WEYMOUTH ROAD	I	PALMERS ROAD	5	2	5	3	1	16	14	13	31	\$828,361
ROSCOMMON ROAD	I	ROBERT ROSS PLACE	3	3	5	1	1	13	10	23	23	\$827,668
GREAT SOUTH ROAD	I	CHARLES ST	7	9	9	6	4	35	31	14	31	\$825,003
GREAT SOUTH ROAD	I	RYAN PLACE	3	3				6	3	33	67	\$821,044
GREAT SOUTH ROAD	I	EAST TAMAKI ROAD	6	7	9	15	7	44	43	25	39	\$818,690
DAMIAN WAY	I	MAHIA ROAD	1	1	2	4	1	9	5	44	67	\$816,230
HARRIS ROAD	I	CRYERS ROAD	1	4	9	5	3	22	14	27	18	\$814,625
TI RAKAU DRIVE	I	TRUGOOD DRIVE	4	2	3	5	11	25	18	16	12	\$813,653
TI RAKAU DRIVE		320 W TE IRIRANGI DRIVE		1	2	3	3	9	5	33	11	\$811,132
MASSEY ROAD	I	GRAY AVENUE	4	6	5	5	8	28	22	36	43	\$807,707
PAKURANGA ROAD	I	STANNILAND ST		4	4	2	1	11	8	27	18	\$796,284

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Sites with 5 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	
BOTANY ROAD	I	GOLFLAND DRIVE N	2	4	2	1	2	11	8	18	9	\$796,272
TE IRIRANGI DRIVE	I	EVERGLADE DRIVE	9	3	7	8	6	33	29	21	27	\$793,415
GREAT SOUTH ROAD	I	MAXWELL AVENUE	5	3	4		1	13	11	8	15	\$782,204
BROWNS ROAD	I	STURDEE ROAD	3	1	3	2	1	10	7	20	30	\$778,820
BOTANY ROAD	I	BRADBURY ROAD	2	1	4	3	3	13	11	23	31	\$777,867
HUIA ROAD	I	KIMPTON ROAD	1	3	1	2	3	10	7	10	20	\$777,168
TI RAKAU DRIVE	I	EDGEWATER DRIVE N	2	1	3	3	4	13	11	23	23	\$774,421
EAST TAMAKI ROAD	I	PRESTON ROAD	10	8	7	2	2	29	24	21	21	\$773,713
EAST TAMAKI ROAD	I	HOLROYD PLACE	3	6	8	8	4	29	24	17	38	\$770,315
GREAT SOUTH ROAD	I	HOTEO AVENUE	1	3	4	3	1	12	10	8	8	\$757,160
NEALES ROAD	I	CARPENTER ROAD		2	2	1		5	1	20	40	\$749,312
ALFRISTON ROAD	I	SCOTTS ROAD	2	3	3	2	1	11	9	18	36	\$747,442
RATA VINE DRIVE	I	GREAT SOUTH ROAD	1	2	2	1		6	4	33	67	\$745,730
WOODWARD AVENUE	I	CHURCH ROAD		2	3			5	1	40	60	\$744,950
WORDSWORTH ROAD	I	SWALLOW DRIVE	1	3			4	8	5	13	75	\$744,046
BADER DRIVE	I	ORLY AVENUE	2	4	4		1	11	9	9	27	\$743,210
FAVONA ROAD	I	FORBES ROAD		4	1	3	3	11	9	18	27	\$741,496
TE IRIRANGI DRIVE	I	ACCENT DRIVE	2	3		3	2	10	8	10	30	\$730,052
TE IRIRANGI DRIVE	100 S	TI RAKAU DRIVE	1	2			2	5	3			\$727,951
GREAT SOUTH ROAD	I	CENTRAL AVENUE	2	2	1	4	1	10	8	20	50	\$724,038
ROSCOMMON ROAD	I	MONCRIEFF AVENUE	3	3		3	1	10	8	30	50	\$722,368
GREAT SOUTH ROAD	250 N	BAIRDS ROAD		4			1	5	2		20	\$697,964
PAKURANGA ROAD	100 W	ABERFELDY AVENUE	2	2			1	5	2			\$697,828
CORONATION ROAD	I	SHIRLEY ROAD		2	2	1	3	8	6	13	25	\$695,222
COXHEAD ROAD	I	KOHIWI ROAD	1	1	3	2	1	8	6	13	50	\$695,154
WALMSLEY ROAD	I	WALMSLEY ON SBD	3	3			2	8	6		25	\$692,760
TE IRIRANGI DRIVE	I	SHALIMAR PLACE		2	1	1	2	6	5	67	33	\$692,053
ASCOT ROAD	I	ANDREW BAXTER DRIVE	1		3		1	5	2		20	\$691,820
PAKURANGA ROAD	I	WILLIAMS AVENUE	3	1	2	2		8	6	13	38	\$690,910
WYLLIE ROAD	I	PAH ROAD	8	1	8	1	3	21	15	43	33	\$690,877
PICTON ST	I	SELWYN ROAD	1	2			2	5	2	40	60	\$690,156
WEYMOUTH ROAD	I	GLENVEAGH PARK DRIVE	1		3	4	3	11	10	55	18	\$686,455
MATTHEWS ROAD	I	ASPIRING AVENUE	3	1	1	1		6	5	17	50	\$685,180
BAIRDS ROAD	I	SANDBROOK AVENUE	1	3	1	1	1	7	5	14	29	\$677,888
REDOUBT ROAD	20 W	HOLLYFORD DRIVE	2	2	2	1		7	5	29	29	\$673,526
ROSCOMMON ROAD	100 N	WEYMOUTH ROAD	1			2	4	7	5	29	14	\$671,750
BAIRDS ROAD	I	HELLABYS ROAD			4	3		7	5	43	14	\$670,030
PORTAGE ROAD	I	PARK AVENUE	1	5	2		2	10	9	10	10	\$669,374
ALFRISTON ROAD	I	PORCHESTER ROAD	5	3	4	7	4	23	18	17	30	\$669,223
BAIRDS ROAD	I	ASHTON AVENUE	1	3	1		1	6	4		33	\$662,156
GEORGE BOLT MEMORIAL	I	TOM PEARCE DRIVE	6	5	3	3	5	22	17	27	59	\$660,501
MURPHYS ROAD	I	REDOUBT ROAD	2		2	7	4	15	9	20	7	\$660,496
BAIRDS ROAD	100 E	GILBERT ROAD	2		1	2	1	6	4	17	50	\$656,074
WINTERE ROAD	I	TUI ROAD	3		2		1	6	4	17	33	\$656,068
GREAT SOUTH ROAD	20 N	SH 20	1			2	3	6	4		33	\$654,360
BROWNS ROAD	I	RUSSELL ROAD	3	8	6	6	5	28	25	29	36	\$648,447
ALFRISTON ROAD	I	CLAUDE ROAD	5	3	5	2	3	18	12	17	28	\$645,611
TI RAKAU DRIVE	300 E	GOSSAMER DRIVE	1	3		1		5	3	40	60	\$644,766
WELLS ROAD	I	BUCKLANDS BEACH ROAD	1	3		1		5	3		40	\$644,766
FERGUSON ROAD	I	HANNAH ROAD		3	1	1		5	3		60	\$643,114
KIRKBRIDE ROAD	20 E	SH 20A	1	1			3	5	3	60	40	\$642,984
PRESTON ROAD	I	FISHER CRESCENT	2	1		1	1	5	3		20	\$642,978
PAKURANGA ROAD	100 E	BUCKLANDS BEACH ROAD		5	2	1		8	7	38	13	\$642,278
BUCKLANDS BEACH ROAD	I	SEA SPRAY DRIVE	1					4	5	3	20	\$635,244
SWAFFIELD ROAD	I	WOOLFIELD ROAD	1			2	2	5	3	60	20	\$635,244

**Table 9.1: Council Roads Black Spot List Urban
(Injury and Non-Injury Crashes)**
Site Radius = 30 metres
Sites with 5 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
GREAT SOUTH ROAD	I	ALLENBY ROAD	1	3	2	1	1	8	7	25	63	\$634,470
WICKMAN WAY	I	GARUS AVENUE	2	1	4		1	8	7	13	50	\$634,340
SANDSPIT ROAD	I	MEADOWLAND DRIVE	3	1	4			8	7	50	38	\$634,334
ROSCOMMON ROAD		50 N PALMERS ROAD	6		2			8	7	13	38	\$634,254
PAKURANGA ROAD	I	BOTANY ROAD	2	5	5	5	4	21	16	29	38	\$632,797
FERGUSON ROAD	I	BOND ST	1	3		2	1	7	6	14	43	\$618,806
ST GEORGE ST	I	KOLMAR ROAD	3	2	7	4	7	23	19	13	30	\$612,597
JORDAN ROAD	I	KIRKBRIDE ROAD		1	1	3	1	6	5		33	\$599,572
NEALES ROAD	I	CRYERS ROAD		1	2	2	1	6	5	17	33	\$599,572
PAKURANGA ROAD	I	GOSSAMER DRIVE	1	1	5	12	6	25	22	32	52	\$594,197
CORONATION ROAD	I	CORONATION ON NBD		2	1	1	1	5	4	40	60	\$589,922
GOODWOOD DRIVE		30 E HURSTBOURN PRIORS		1	1	2	1	5	4	20	40	\$582,182
UXBRIDGE ROAD	I	PICTON ST		1		2	2	5	4	20		\$582,182
WHITFORD ROAD	I	UNION ROAD			1		4	5	4		40	\$582,120
RUSSELL ROAD	I	SWALLOW DRIVE	4	6	4	1	5	20	16	25	25	\$565,773
PLUNKET AVENUE	I	LIVERPOOL AVENUE	3	1	3	5	5	17	12	35	35	\$564,771
MILAN ROAD	I	KENDERDINE ROAD	2	4	2	4	5	17	12	18	59	\$563,174
ROSCOMMON ROAD	I	BURUNDI AVENUE	2	5	5	3	5	20	16	15	35	\$562,277
MOORE ST	I	VINCENT ST	9	3	6	2		20	16	10	25	\$562,111
HARANIA AVENUE	I	FAVONA ROAD	4	6			3	13	7	15	46	\$558,722
TI RAKAU DRIVE	I	GREENMOUNT DRIVE	6	2	10	6	2	26	24	23	15	\$558,489
EAST TAMAKI ROAD	I	OTARA ROAD	4	6	5	2	8	25	23	12	20	\$546,463
HILLS ROAD	I	EAST TAMAKI ROAD	6	6	7	2	4	25	23	24	48	\$543,005
PAKURANGA ROAD	I	PIGEON MOUNTAIN ROAD	3	5	6	2	6	22	19	23	36	\$542,263
WHITFORD ROAD	I	MILLHOUSE DRIVE	4		4	10	4	22	19	27	50	\$541,947
REDOUBT ROAD	I	MILL ROAD	2	5	2	9	3	21	19	90	14	\$537,574
GREAT SOUTH ROAD	I	SUTTON CRESCENT	5	4	2	3	1	15	10	20	33	\$531,822
GREAT SOUTH ROAD	I	STATION ROAD	5	10	1	4	6	26	25	19	35	\$505,861
CHAPEL ROAD	I	BAVERSTOCK ROAD	1	3		4	1	9	4	44	33	\$483,161
REDOUBT ROAD	I	HILLTOP ROAD		3	5	2	1	11	6	36	45	\$457,126

**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 \$500000 in social costs

CRASH ROAD	SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs	
MILL ROAD	I	POLO PRINCE DRIVE	3	2	4	3	2	14	8	29	29	\$9,129,470
BROOKBY ROAD	270 E	ALFRISTON ROAD	1	1		1		3	1		67	\$8,517,596
MURPHYS ROAD	I	FLAT BUSH SCHOOL ROAD	1	2	1	4		8	4	13	25	\$5,855,446
GEORGE BOLT MEMORIAL I		IHUMATAO ROAD	5	10	5	1	1	22	14	27	36	\$5,444,735
WHITFORD ROAD	5 S	GRIGGS ROAD	1	1	1	1	1	5	2	20	80	\$5,117,574
WHITFORD PARK ROAD	I	SANDSTONE ROAD	1	3			2	6	2	67	33	\$4,628,289
NORTH ROAD	3000 E	CLEVEDON-KAWAKAWA RC	1	1		1		3	1		33	\$4,417,174
FITZPATRICK ROAD	I	BROOKBY ROAD	1		2	1		4	3		50	\$4,401,507
WHITFORD-MARAETAI ROA I		WAIKOPIUA ROAD		1	3			4	3	25	25	\$4,400,629
CLEVEDON-KAWAKAWA RC	2000 E	PAPAKURE-CLEVEDON RO	1		2	1		4	1	50	25	\$4,397,757
CLEVEDON-KAWAKAWA RC	400 W	TOWNSON ROAD	1	2				3	2	33		\$4,368,589
RANFURLY ROAD	I	MILL ROAD		1	2			3	2	33	67	\$4,363,872
NORTH ROAD	4100 N	TWILIGHT ROAD	1		1	1		3				\$4,361,000
NORTH ROAD	3000 S	MARAETAI COAST ROAD	2			1		3	2	33		\$4,266,750
SMALES ROAD	I	TE IRIRANGI DRIVE E	6	8	5	2	9	30	19	23	23	\$3,382,705
WHITFORD ROAD	740 E	POINT VIEW DRIVE	7	7	6	2	2	24	15	83	29	\$3,080,553
TE IRIRANGI DRIVE	I	ORMISTON ROAD	7	12	7	11	7	44	29	18	52	\$2,984,365
WHITFORD-MARAETAI ROA I	200 N	OKARORO DRIVE	1		1	2	4	8	3	38	50	\$2,234,911
CLEVEDON-TAKANINI ROAI I		PAPAKURA-CLEVEDON RO	1	1	1	1	3	7	2		43	\$2,182,290
ROSCOMMON ROAD	I	HAUTU DRIVE	5	4	5	1	2	17	9	24	47	\$2,165,741
TE IRIRANGI DRIVE	I	BANVILLE ROAD	1	4	1		1	7	4	57	14	\$2,109,540
REDOUBT ROAD	I	MILL ROAD	4	6	5	4	2	21	14	57	24	\$1,704,604
TE IRIRANGI DRIVE	I	ACCENT DRIVE	5	4	4	4		17	9	35	35	\$1,626,904
PAPAKURA-CLEVEDON RO I		WEST ROAD			1		3	4		50	25	\$1,458,240
BROOKBY ROAD	810 W	WEST ROAD			1	2	2	5	2	40	60	\$1,446,494
ROSCOMMON ROAD	I	BOLDERWOOD PLACE	3	3	5	2	1	14	9	21	36	\$1,355,546
WEST ROAD	580 W	PAPAKURA-CLEVEDON RO	1	1		1		3	1	33	33	\$1,349,774
WHITFORD ROAD	1000 E	SOMERVILLE ROAD	3	2	2	1	2	10	6	50	10	\$1,136,312
PAKURANGA HIGHWAY	I	TI RAKAU DRIVE	3	6	5	3	5	22	17	45	50	\$1,074,791
WHITFORD ROAD	400 E	SOMERVILLE ROAD	1	2	3		1	7	5	71	43	\$940,080
WHITFORD-MARAETAI ROA I	480 N	BEACHLANDS ROAD	1	1	2		2	6	3	17	50	\$931,327
WHITFORD-MARAETAI ROA I		BEACHLANDS ROAD	3	4	3	3	1	14	6	29	50	\$930,695
MILL ROAD	350 N	RANFURLY ROAD		4				5	2	60	20	\$918,111
PUHINUI ROAD	280 E	TOM PEARCE DRIVE	1		2	1	1	5	2	40	20	\$894,754
WHITFORD-MARAETAI ROA I		TRIG ROAD		1	1	1	2	5	2	40	80	\$891,814
CLEVEDON-KAWAKAWA RC	150 W	MCNICOL ROAD	1	2			1	4	3	75	25	\$760,645
TWILIGHT ROAD	60 W	KIMPTONS ROAD		1		2		3	2	67		\$719,252
CLEVEDON-TAKANINI ROAI	350 W	PAPAKURA-CLEVEDON RO			2		1	3	2		67	\$717,374
WHITFORD-MARAETAI ROA I	710 N	CLIFTON ROAD			1	1	1	3	2	33	67	\$717,374
TE IRIRANGI DRIVE	I	HAVEN DRIVE	4	2	4	1	3	14	11	14	50	\$678,993
BROWNS ROAD	I	ROSCOMMON ROAD	3	2	4	4	2	15	14	7	13	\$611,884
WHITFORD ROAD	1500 E	SOMERVILLE ROAD	3	1	3		2	9	4	67	44	\$589,621
WHITFORD-MARAETAI ROA I		TRIG ROAD E	2	1	3		2	8	4	63	63	\$497,501
MURPHYS ROAD	I	THOMAS ROAD	1	1	2	2	3	9	6	33	44	\$485,060
MILL ROAD	400 S	REDOUBT ROAD	2	2	2	1		7	3	57	29	\$462,623
ORMISTON ROAD	1160 S	CALDWELLS ROAD	1	1	2	1		5	1	40	20	\$388,577
CLEVEDON-KAWAKAWA RC	1210 N	NESS VALLEY ROAD		2	1	2		5	1	40	20	\$385,637
WHITFORD-MARAETAI ROA I	50 S	JACK LACHLAN DRIVE		1	2	1	2	6	3	33	33	\$369,971
TE IRIRANGI DRIVE	I	BISHOP DUNN PLACE	1	1	1	1	1	5	2		40	\$340,074
PAKURANGA HIGHWAY	A	PAKURANGA BR E		1		3		4	1		25	\$294,416

**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 \$500000 in social costs

CRASH ROAD	SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
CLEVEDON-KAWAKAWA RC	4000 E PAPAKURA-CLEVEDON RO	1		1	1		3		33	100	\$262,640
WEST ROAD	1250 W TYLDENS ROAD		1	1	1		3		67		\$259,700
CLIFTON ROAD	650 N WHITFORD-MARAETAI ROA			1	1	1	3		67	67	\$255,780
WHITFORD-MARAETAI ROA	1000 E WAIKOPUA ROAD			1		2	3			33	\$255,780

**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 1N	I	MANUKAU OFF NBD	14	9	11	22	15	71	52	37	25	\$12,572,013
SH 1N	I	MANUKAU ON SBD	13	18	17	19	22	89	64	37	31	\$9,635,457
ROSCOMMON ROAD	I	WIRI STATION ROAD S	6	19	9	14	11	59	48	17	36	\$6,440,297
SH 20A	I	KIRKBRIDE ROAD	9	6	6	8	10	39	29	26	44	\$6,367,983
SH 1N		400 S REDOUBT OBR	4	4	2	4	7	21	17	29	29	\$5,751,153
SH 1N		40 S ALFRISTON OBR	8	8	4	3	6	29	21	38	34	\$5,706,668
SH 20	I	MCLAUGHLINS ROAD	3	3	2	2	0	10	7	0	40	\$5,292,987
SH 20A		400 S KIRKBRIDE ROAD	3	6	2	3	0	14	8	36	29	\$5,021,664
SH 1N	I	HIGHBROOK ON SBD	13	11	14	11	14	63	45	29	33	\$4,386,658
SH 20	I	GREAT SOUTH ROAD	22	19	26	15	24	106	95	18	37	\$3,780,981
SH 1N		250 S EAST TAMAKI OBR	8	12	12	11	21	64	50	30	27	\$3,634,217
SH 1N	I	OTARA OFF NBD	17	16	11	8	11	63	51	29	32	\$3,521,970
SH 1N		500 S MANUKAU OFF NBD	7	7	9	7	8	38	24	42	24	\$3,258,403
SH 1N	I	HIGHBROOK ON NBD	8	3	18	15	18	62	49	37	39	\$2,930,464
SH 1N	I	TE IRIRANGI OFF SBD	10	12	8	11	12	53	38	34	40	\$2,700,077
SH 1N	A	REAGAN OBR	10	5	10	10	13	48	35	40	33	\$2,452,347
SH 20	I	MANUKAU ON SBD	4	5	2	9	15	35	26	17	29	\$2,433,755
SH 1N		500 N EAST TAMAKI OBR	6	7	6	2	3	24	17	33	54	\$2,361,885
SH 20		100 S PUHINUI OFF NBD	3	2	8	5	4	22	15	32	32	\$2,303,123
SH 1N		400 N REDOUBT OBR	8	2	4	2	6	22	15	14	32	\$2,301,432
SH 1N		200 S ORAMS OBR	5	7	7	7	13	39	35	21	15	\$2,217,168
SH 20	I	RIMU ON NBD	8	8	9	12	9	46	37	15	35	\$2,170,572
SH 20B	I	ORRS ROAD	1	2	1	1	1	6	3	33	50	\$2,088,809
SH 20	I	CORONATION ON NBD	6	5	8	5	4	28	19	21	25	\$2,062,548
SH 1N		1100 S EAST TAMAKI OBR	5	5	4	4	10	28	19	21	43	\$2,057,725
SH 1N		120 S Highbrook OBR	4	7	12	13	7	43	36	30	35	\$1,937,552
SH 1N	I	MANUREWA OFF SBD	9	4	9	7	11	40	32	35	23	\$1,864,930
SH 20B	I	CAMPANA ROAD	1	1	2	2	5	11	6	18	45	\$1,788,460
MASSEY ROAD	I	MASSEY ON SBD	2	7	5	6	4	24	16	8	46	\$1,733,665
SH 1N		1600 S EAST TAMAKI OBR	3	2	5	5	1	16	5	13	50	\$1,704,582
SH 1N		1000 N TAKANINI ON NBD	3	4	7	1	5	20	15	25	15	\$1,554,079
SH 20	I	MASSEY OFF NBD	3	1	6	5	4	19	13	32	32	\$1,553,248
SH 20		200 S RIMU OBR	11	2	4	9	6	32	26	25	22	\$1,511,568
PUHINUI ROAD	I	SH 20	3	1	4	2	7	17	11	29	41	\$1,501,981
SH 20B	I	PRICES ROAD	2	1	0	2	0	5	3	20	60	\$1,426,044
SH 1N		2000 S EAST TAMAKI OBR	5	8	7	7	2	29	23	28	24	\$1,391,925
SH 1N		1500 N GT SOUTH OBR	7	5	5	3	4	24	15	13	17	\$1,353,507
MASSEY ROAD	I	MASSEY OFF NBD	7	7	3	4	5	26	19	31	35	\$1,328,047
SH 1N		50 S TE IRIRANGI OBR	6	0	9	10	7	32	29	28	31	\$1,325,432
SH 20		220 S PORTAGE OBR	1	1	5	5	2	14	9	14	29	\$1,320,347
SH 1N		200 S HILL OBR	2	5	0	6	2	15	12	20	13	\$1,272,410
SH 20	I	SH 20A	2	7	2	5	8	24	17	29	42	\$1,252,640
SH 20		50 N WIRI STATION ROAD	2	4	6	4	1	17	13	47	29	\$1,247,366
SH 20		500 W BADER OBR	1	4	2	4	3	14	11	43	50	\$1,231,018
SH 20	I	PLUNKET AVENUE	7	6	7	12	4	36	29	19	22	\$1,165,233
SH 20A		200 S SH 20 OBR	2	1	2	3	1	9	6	33	22	\$1,064,138
SH 1N	A	OTAHUHU OFF NBD	7	2	5	5	2	21	16	24	33	\$1,049,774
SH 20		1000 N WALMSLEY OBR	5	6	3	3	1	18	11	22	44	\$1,038,490
SH 20		420 N RIMU ON NBD	4	1	1	1	1	8	5	13	38	\$1,030,853
SH 1N		300 N MANUREWA ON NBD	3	5	5	6	3	22	18	32	36	\$1,022,368

**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 1N	1000 S MANUKAU OFF NBD	5	6	3	5	4	23	20	30	22	\$1,022,117
SH 20	1000 S MASSEY OFF NBD	1	2	2	0	5	10	9	30	70	\$981,186
PUHINUI OFF SBD	100 N PUHINUI ROAD	4	1	3	6	2	16	9	25	38	\$904,436
SH 20	1000 N MASSEY OBR	3	4	2	3	6	18	14	39	44	\$871,421
TE IRIRANGI DRIVE	I TE IRIRANGI OFF SBD	2	5	4	10	3	24	19	29	42	\$858,774
SH 20	I MASSEY ON NBD	2	3	3	6	2	16	11	38	38	\$843,816
SH 20	I MANUKAU ON NBD E	4	1	4	1	3	13	11	8	62	\$814,244
RIMU ROAD	I RIMU ON NBD	2	1	2	2	1	8	6	25	63	\$812,626
SH 20	I WALMSLEY ON SBD	3	6	1	7	0	17	14	18	29	\$777,314
SH 20A	I MONTGOMERIE ROAD	4	3	3	3	5	18	15	22	33	\$770,211
SH 20	I PUHINUI OFF NBD	3	2	1	4	3	13	7	15	15	\$770,090
PUHINUI OFF NBD	I PUHINUI ROAD	1	5	4	7	7	24	20	25	38	\$751,471
EAST TAMAKI ROAD	I OTARA ON SBD	6	4	5	6	5	26	21	27	54	\$749,886
TE IRIRANGI DRIVE	I TE IRIRANGI ON NBD	6	3	6	3	0	18	12	28	56	\$716,872
OTARA ON NBD	I EAST TAMAKI ROAD	4	3	5	7	0	19	14	32	47	\$703,047
SH 20	I ASH ROAD	4	4	4	5	6	23	21	35	17	\$673,337
SH 20	I VOGLER DRIVE	1	2	4	3	4	14	10	29	36	\$663,580
GRANDE VUE ROAD	I MANUREWA ON NBD	3	8	3	2	3	19	13	32	32	\$654,772
SH 20	1000 N PUHINUI OBR	4	4	2	2	0	12	8	8	33	\$648,985
SH 1N	500 N GT SOUTH OBR	1	2	2	5	1	11	7	18	45	\$608,955
SH 20A	I BADER OFF NBD	4	2	3	1	1	11	8	45	64	\$574,867
BADER OFF NBD	I BADER DRIVE	1	0	2	0	0	3	2	0	67	\$564,625
SH 20	I LANGLEY ROAD	3	3	3	4	1	14	12	21	29	\$546,347
GREAT SOUTH ROAD	I MANUKAU OFF NBD	2	4	4	5	8	23	22	35	48	\$535,342
SH 20	I DAVIES AVENUE	3	4	4	2	1	14	10	29	29	\$523,646
SH 20	200 N PUHINUI ON NBD	2	2	1	3	1	9	6	22	56	\$489,695
SH 20	150 S VOGLER DRIVE	2	1	2	1	2	8	4	25	25	\$488,767
SH 20	I RIMU OFF SBD	1	0	6	2	0	9	6	11	56	\$445,197

**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	TE IRIRANGI DRIVE	7	10	19	14	16	23	89	78	20	33
GREAT SOUTH ROAD	I	ALFRISTON ROAD	10	11	11	17	11	20	80	64	24	49
GREAT SOUTH ROAD	I	BROWNS ROAD	11	18	12	9	10	19	79	68	15	44
STATION ROAD	I	HILLCREST ROAD	6	1	7	5	3	10	32	23	19	22
TI RAKAU DRIVE	I	TRUGOOD DRIVE	4	4	2	3	5	11	29	21	21	14
GREAT SOUTH ROAD	I	LAKEWOOD COURT	5	5	3	2	5	8	28	24	21	50
PAKURANGA ROAD	I	CASCADES ROAD	4	1	3	4	7	8	27	23	22	30
PUHINUI ROAD	I	ROSCOMMON ROAD NORTH	4	1	2	1	6	8	22	15	36	27
GLENMORE ROAD	I	PAKURANGA ROAD N	1	3	2	2	5	8	21	20	24	29
CHAPEL ROAD	I	WHITFORD ROAD		1	4	4	3	9	21	21	10	10
GREAT SOUTH ROAD	I	GT SOUTH ROAD	2	1	3	5	2	6	19	19	21	37
BAIRDS ROAD	I	HAYMAN ST	1		5	5	2	6	19	17	32	42
WYLLIE ROAD	I	PUHINUI ROAD	6	1		3	2	6	18	14	6	6
PAKURANGA ROAD	I	SIR LLOYD DRIVE	4	2	1	3	2	6	18	10	33	39
PUHINUI ROAD	A	KENDERDINE ROAD	2	1	3	1	3	6	16	13	38	56
HILLSIDE ROAD	I	PAH ROAD	1	2	2	2	3	5	15	10	33	13
GREAT SOUTH ROAD	I	NORTHCREST WAY	2	4	1	1	2	5	15	13	27	33
CARRUTH ROAD	I	ALLENBY ROAD	1	2	3	1	2	5	14	11	21	29
CHAPEL ROAD		5 S ORMISTON ROAD		3	2			7	12	10	25	33
PALMERS ROAD		5 W WEYMOUTH ROAD	2	2		1	1	6	12	11	33	8
AVIEMORE DRIVE	I	BRADBURY ROAD		1	1	4	1	4	11	7	18	18
TE IRIRANGI DRIVE	I	DIORELLA DRIVE		2	2		3	4	11	10	36	27
PAKURANGA ROAD	I	GRAMMAR SCHOOL ROAD	2		1	2	2	4	11	5	36	9
SWALLOW DRIVE	I	WORDSWORTH ROAD	2	1	3			4	10	7	20	70
EVERGLADE DRIVE	I	EUGENIA RISE			1	2	2	4	9	8	33	22
WHITFORD ROAD	I	UNION ROAD	3			1		4	8	6		38
ROSCOMMON ROAD		100 N WEYMOUTH ROAD		1			2	4	7	5	29	14
GREAT SOUTH ROAD	I	MANUKAU OFF NBD		1			1	5	7	6	14	14
ANDREW MCKEE AVENUE	I	GEORGE BOLT MEMORIAL DRIV		1	2	1		3	7	6	14	43
BLEAKHOUSE ROAD	I	PATON ROAD	1			1	1	3	6	4		33
MAURICE PAYKEL PLACE	I	HIGHBROOK DRIVE					3	3	6	3	17	17
CORIN AVENUE	I	GREAT SOUTH ROAD		2			1	3	6	5	33	67
MASSEY ROAD	I	FRIESIAN DRIVE					3	3	6	5	17	17
CHESTNUT ROAD	I	KENDERDINE ROAD		1	1		1	3	6	5	50	50
PLUNKET AVENUE		5 N SH 20		1		2		3	6	6	17	17
GREAT SOUTH ROAD		60 N KAUTAMI AVENUE	1			1	1	3	6	4	33	33
BUCKLANDS BEACH ROAD	I	SEA SPRAY DRIVE		1				4	5	3	20	40
PUHINUI ROAD		50 E GRAYSON AVENUE	1		1			3	5	3		60
HIGHBROOK ROAD	I	HIGHBROOK DRIVE				2		3	5	3	20	
WYLLIE ROAD	I	GIFFORD ROAD		1			1	3	5	5	40	60
CORONATION ROAD		50 S RIMU ROAD				1		3	4	4		25
KOLMAR ROAD	I	WENTWORTH AVENUE	1					3	4	4		25
CHAPEL ROAD		200 S TI RAKAU DRIVE						4	4	2	25	25
PAKURANGA ROAD		40 E FORTUNES ROAD			1			3	4	4		50
TE IRIRANGI DRIVE	I	TE IRIRANGI ON NBD					1	3	4	3		
ROSCOMMON ROAD		190 N HAUTU DRIVE			1			3	4	4		25
EAST TAMAKI ROAD		50 W PRESTON ROAD						4	4	2	25	50
CRYERS ROAD	I	CRYERS ROAD NORTH					1	3	4	2	75	
TINGTON AVENUE		10 S MCQUARRIE ROAD					1	2	3	2		
PENNELL PLACE	I	AYLESBURY ST		1				2	3	1	67	33
MOUNTAIN ROAD		70 N PUTINI ROAD	1					2	3	3	33	33
ORANGWOOD DRIVE		140 E CASABELLA COURT				1		2	3	2	67	33

**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 %
PAH ROAD	110 E HILLSIDE ROAD						3	3	2	33	33
KIRKBRIDE ROAD	100 E ASCOT ROAD				1		2	3	3	33	33
TI RAKAU DRIVE	100 S EDGEWATER DRIVE S	1					2	3	2	33	100
SELWYN ROAD	50 S LUPTON ROAD	1					2	3	3		
ALLENBY ROAD	I BUCKINGHAM CRESCENT N		1				2	3	2	67	
PUKAKI ROAD	50 N CYCLAMEN ROAD				1		2	3	1		33
SIMMENTAL CRESCENT	530 N CHIANIA PLACE	1					2	3	3	33	67
RANSOM SMYTH DRIVE	30 E PALMETTO PLACE			1			2	3	3	67	33
HILLCREST ROAD	70 E ALABASTER DRIVE				1		2	3	2	67	
CARRUTH ROAD	50 E BIRDWOOD AVENUE	1					2	3	2	33	
SMALES ROAD	50 E HARRIS ROAD				1		2	3	3	33	
BUCKLAND ROAD	50 E BEN LORA PLACE				1		2	3	2	67	33
CHARNTAY AVENUE	I DIORELLA DRIVE	1					2	3	2		
PAKURANGA ROAD	100 W GOSSAMER DRIVE			1			2	3	3		33
CARNOUSTIE DRIVE	100 S TINGTON AVENUE	1					2	3	3	67	67
REDOUBT ROAD	600 S MURPHYS ROAD	1					2	3	3	67	33
AVIEMORE DRIVE	450 S HIGHLAND PARK DRIVE		1				2	3	1	33	67
TOM PEARCE DRIVE	I TAHINGA DRIVE			1			2	3	1	33	
GIBRALTAR ST	240 W MOORE ST		1				2	3	3	33	33
BROWNS ROAD	40 E STURDEE ROAD			1			2	3	2	67	33
MAHUNGA DRIVE	20 S MIRO ROAD				1		2	3	3		33
TREVOR HOSKEN DRIVE	I MARBLE PLACE					1	2	3	3	67	
PIGEON MOUNTAIN ROAD	I GILLS ROAD	1					2	3	2	33	67
GRACECHURCH DRIVE	I BALTERSAN DRIVE				1		2	3	1		33
WHITFORD ROAD	50 N DANA PLACE					1	2	3	1		100
PICTON ST	I MOORE ST					1	2	3	3	33	33
DAWSON ROAD	100 E CHAPEL ROAD				1		2	3	2		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 %
WHITFORD-MARAETAI ROAD	I JACK LACHLAN DRIVE	1		1	2	1	4	9	4	33	44
WHITFORD-MARAETAI ROAD	200 N OKARORO DRIVE		1		1	2	3	7	3	29	43
CLEVEDON-TAKANINI ROAD	I PAKURA-CLEVEDON ROAD		1	1	1	1	3	7	2		43
PAPAKURA-CLEVEDON ROAD	I WEST ROAD	2			1		3	6	1	50	33
WHITFORD-MARAETAI ROAD	60 S HENSON ROAD N	1					3	4	3	25	
GEORGE BOLT MEMORIAL DRIV	220 N NIXON ROAD				1		2	3	2		
WHITFORD-MARAETAI ROAD	1000 E WAIKOPUA ROAD				1		2	3			33
RANFURLY ROAD	I STRATFORD ROAD					1	2	3	3	33	33

**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		250 S EAST TAMAKI OBR	17	8	12	12	11	21	81	63	30	26
SH 1N	I	HIGHBROOK ON NBD	13	8	3	18	15	18	75	59	36	39
SH 1N		200 S ORAMS OBR	4	5	7	7	7	13	43	38	19	21
SH 20	I	MANUKAU ON SBD	5	4	5	2	9	15	40	30	18	28
GREAT SOUTH ROAD	I	MANUKAU OFF NBD	5	2	4	4	5	8	28	25	36	50
SH 20B	I	PUHINUI ON SBD	1	3	1	4	2	7	18	12	28	44
SH 20B	I	CAMPANA ROAD	1	1	1	2	2	5	12	7	17	42
SH 20		300 S BADER OBR	1	2	2	1	1	5	12	10	33	50
SH 20		1000 S MASSEY OFF NBD	2	1	2	2	0	5	12	11	25	58
HIGHBROOK DRIVE	I	HIGHBROOK ON NBD	0	0	2	1	2	5	10	8	20	40
SH 1N		1500 S MANUREWA OFF SBD	0	0	0	1	3	3	7	6	0	29
BARROWCLIFFE PLACE	I	WIRI STATION ROAD S	1	0	0	1	1	3	6	6	33	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						
Miscellaneous	LA	LB	NA	NB	NC	ND	NE	NF	NG				
	 STOPPED WAITING TO TURN	 MAKING TURN	 LEFT SIDE	 RIGHT SIDE	 LEFT TURN LEFT SIDE	 RIGHT TURN RIGHT SIDE	 LEFT TURN RIGHT SIDE	 RIGHT TURN LEFT SIDE	 MANOEUVRING VEHICLE				
Miscellaneous	PA	PB	PC	PD	PE	PF	QA	QB	QC	QD	QE	QF	QG
	 FELL WHILE BOARDING OR ALIGHTING	 FELL FROM MOVING VEHICLE	 TRAIN	 PARKED VEHICLE RAN AWAY	 EQUESTRIAN	 FELL INSIDE VEHICLE	 TRAILER OR LOAD						

Groupings of contributing factors








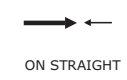
















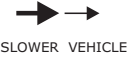











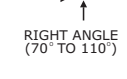









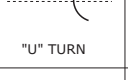
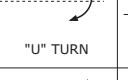

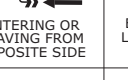
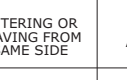






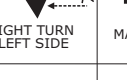





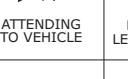
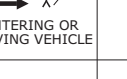
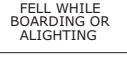


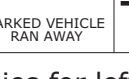

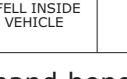
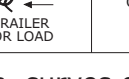
Factor group	Factor codes included
Alcohol involved	100 – 101 103 – 109
Too fast	110 – 119 430 – 432
Failed to give way or stop	300 – 314 320 – 328
Failed to keep left	120 – 128 205
Overtaking	150 – 161
Incorrect lanes or position	129 170 – 183 200 – 204 206 – 209 440 – 448
Poor handling	130 – 134 137 – 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