Waikato Region
State Highways
Road Safety Report
2005 to 2009

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Introduction and general information

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

This report helps identify road safety issues in Waikato Region State Highways area ('the region') 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 Waikato Region State Highways. 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 is compared with a peer group of similar authorities (Group Z) along with data for all New Zealand.

The peer group used for comparison with Waikato Region State Highways is Group Z which consists of provincial city and hinterland. (Population under 400000 and/or rural crashes greater than 55 percent). Council authorities included in this group are listed in Figure 1.4a, however this may not be the most appropriate comparison for the state highways and should be considered with caution.

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 roads and state highways.

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 Figure 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 listed in Figure 9.5 are crash sites that have shown a statistically significant increase (at the 95 percent level of confidence) in reported crashes in 2009 compared with the previous five years (2004 to 2008). The sites are initially selected on the basis of 3 or more reported crashes at the sites. Sites are listed regardless of any recent remedial treatments and they may already be under investigation for treatment.

Crash Rates and Costs

Crash reporting rates

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

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

Figure 1.1 Reporting rate serious injuries to hospital admissions

Region	2005	2006	2007	2008	2009
Northland	30%	28%	34%	38%	27%
Auckland	17%	20%	16%	18%	18%
Waikato	40%	38%	50%	47%	40%
Bay of Plenty	32%	37%	38%	29%	27%
Gisborne	32%	26%	31%	28%	27%
Hawkes Bay	80%	75%	59%	68%	42%
Taranaki	55%	65%	79%	41%	36%
Manawatu-Wanganui	38%	34%	35%	36%	31%
Wellington	68%	61%	74%	55%	48%
Nelson-Marlborough	44%	52%	54%	50%	39%
West Coast	53%	55%	59%	53%	54%
Canterbury	47%	42%	49%	45%	43%
Otago	99%	85%	77%	69%	39%
Southland	78%	103%	73%	53%	39%
New Zealand	36%	35%	37%	35%	**33%**

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

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

Note: These values should be considered indicative only.

Figure 1.2 Crashes per 100 million vehicle kilometres travelled

	Council roads		State Highways	
	Urban	Rural	Urban	Rural
Waikato Region S.H.	40	29	22	19
Group Z	31	26	26	17
All NZ	37	29	27	18

Figure 1.3 Casualties per 100 million vehicle kilometres travelled

	Council roads		State Highways	
	Urban	Rural	Urban	Rural
Waikato Region S.H.	50	39	31	30
Group Z	40	38	36	27
All NZ	46	42	36	26

Figure 1.4 Peer group crash and casualty rates

Regions

Region name	Crashes per 10,000 Population (5 year average)	Crashes per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	Casualties per 10,000 Population (5 year average)	Casualties per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	2009 Population	% of rural crashes
Auckland	23	33	29	40	14	29	42	41	53	19	1454200	28
Bay of Plenty	16	28	29	17	17	22	35	43	24	27	371020	48
Gisborne	27	31	21	28	28	38	41	31	38	44	46200	47
Hawkes Bay	32	46	30	37	24	44	57	45	48	38	153270	47
Manawatu Wanganui	27	39	25	31	18	38	47	37	42	28	230000	54
Nelson Marlborough	25	39	23	22	20	33	47	35	27	29	136800	52
Southland	91	71	32	57	24	138	102	50	77	39	45330	50
Greater Wellington	27	41	37	32	14	34	49	50	43	20	386480	27
Canterbury	51	41	22	24	14	67	51	31	31	21	278450	30
Chathams	1109	n/a	n/a	n/a	n/a	91	n/a	n/a	n/a	n/a	640	n/a
Northland	26	34	34	20	22	39	43	49	32	39	185900	71
Otago	47	73	43	47	21	69	103	65	65	33	186150	45
Taranaki	28	45	31	30	22	39	58	45	38	33	108240	53
Waikato	32	40	29	22	19	45	50	39	31	30	384870	58
West Coast	38	35	24	20	22	55	48	34	30	33	32590	77
All New Zealand	26	38	29	28	18	36	48	42	38	26	4331000	41

N/A : Denotes that data for vehicle kilometres travelled (VKT) is not available or inappropriate for some categories.
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

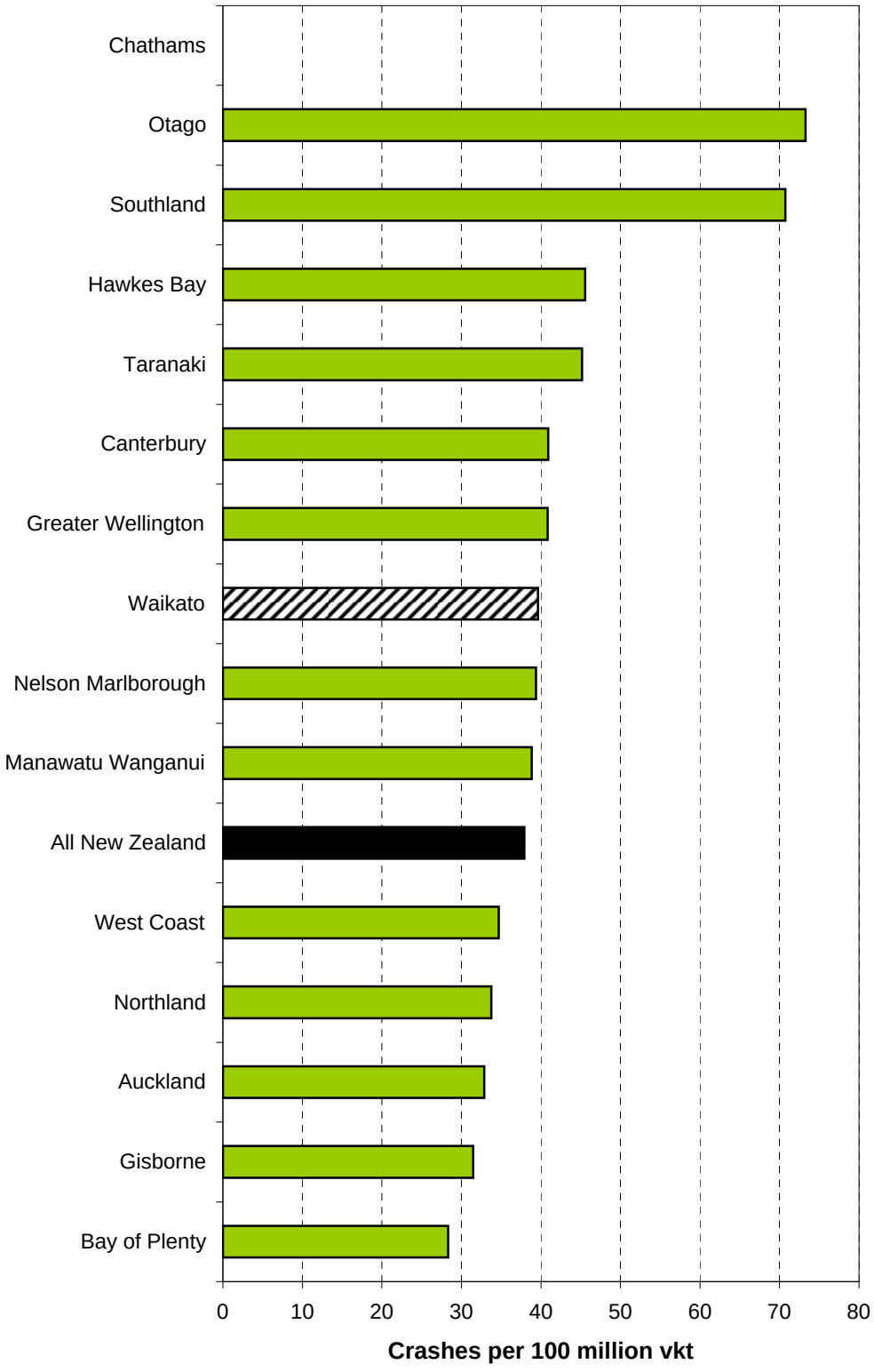


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural council roads

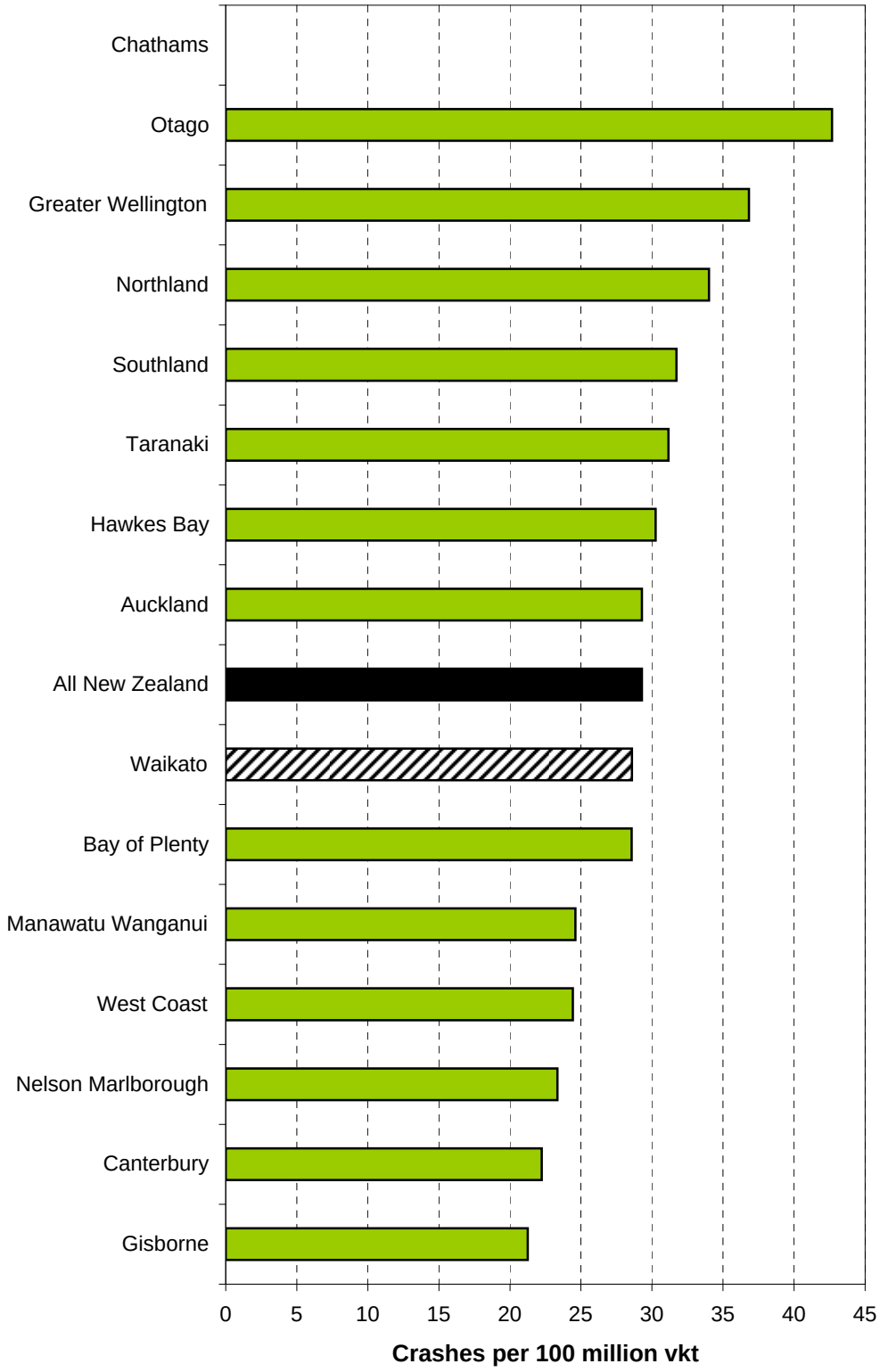


Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways

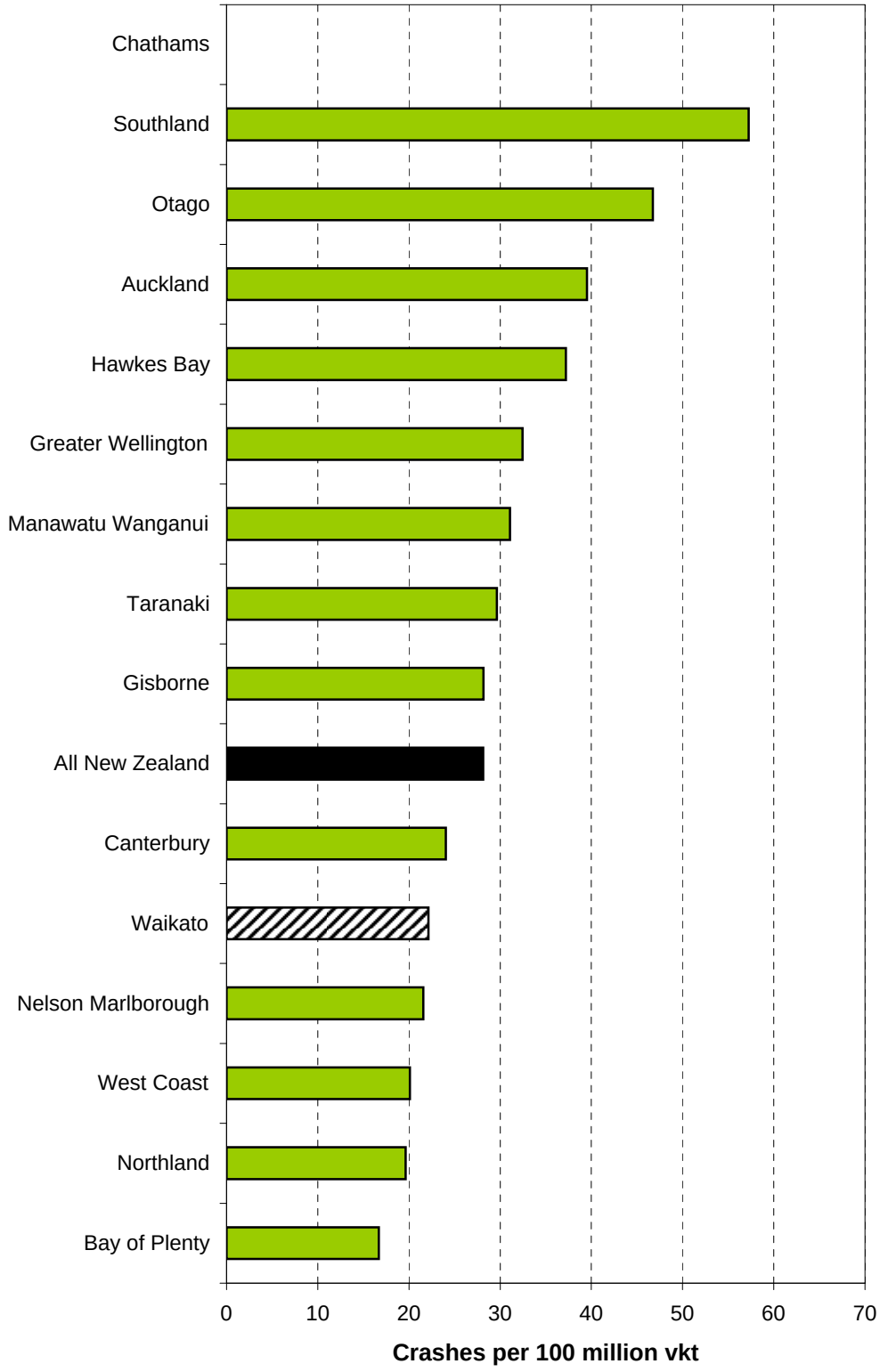


Figure 1.8 Crashes per 100 million vehicle-kilometres travelled - rural state highways

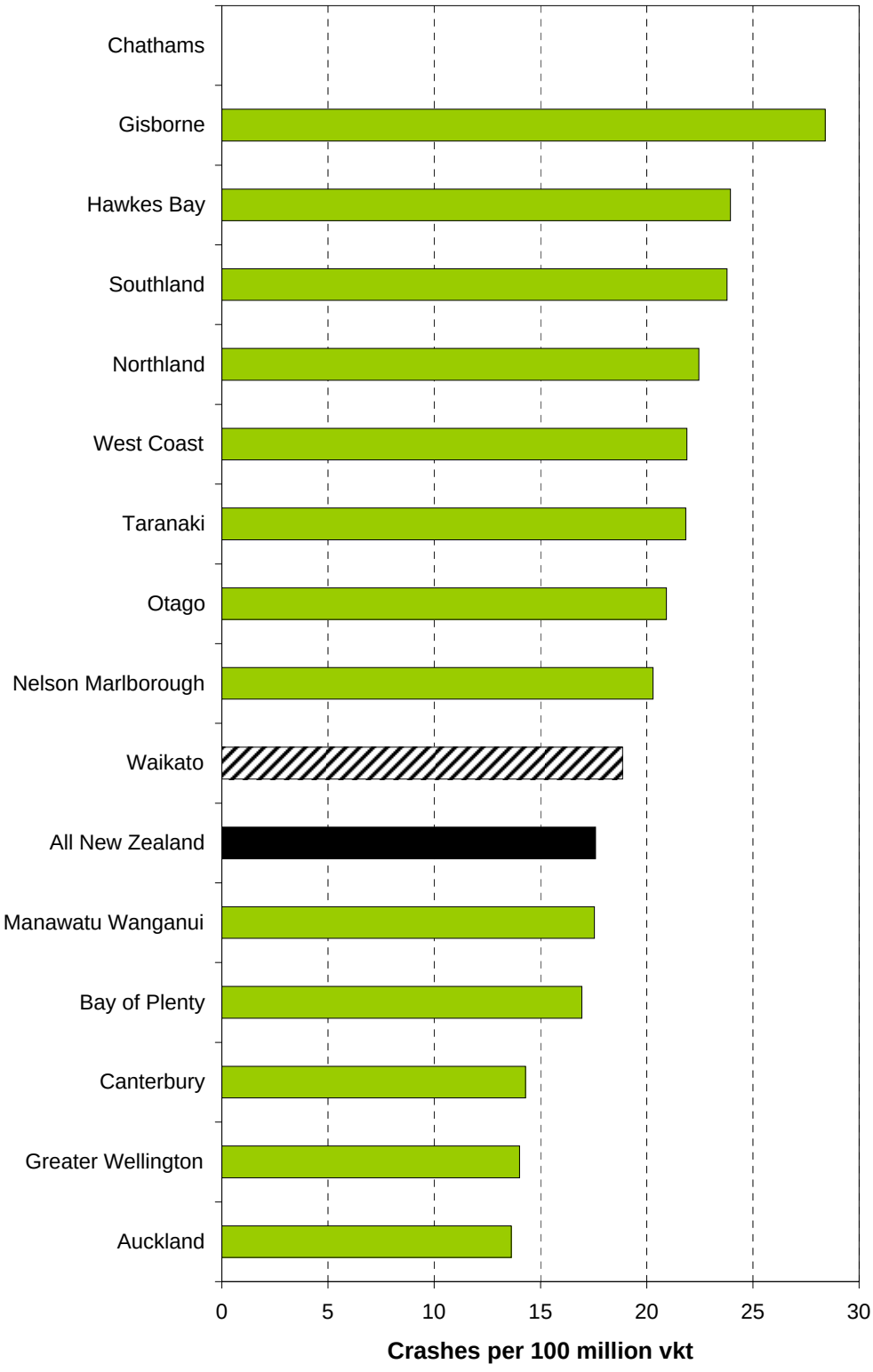


Figure 1.4a Peer group crash and casualty rates

Group Z

City or District name	Crashes per 10,000 Population (5 year average)	Crashes per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	Casualties per 10,000 Population (5 year average)	Casualties per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	2009 Population	% of rural crashes
Ashburton	21	36	16	17	7	29	47	23	24	10	29100	56
Buller	40	35	21	19	23	60	49	29	27	35	10000	79
Carterton	29	53	29	24	15	42	76	41	32	24	7420	71
Central Hawkes Bay	28	34	21	20	16	41	58	32	27	23	13350	77
Central Otago	40	38	30	47	20	60	47	44	62	32	17950	80
Chatham Islands	1109	n/a	n/a	n/a	n/a	91	n/a	n/a	n/a	n/a	640	n/a
Clutha	58	40	41	29	27	90	49	69	40	41	17400	86
Far North	35	29	34	26	26	54	44	52	35	42	58000	84
Franklin	31	33	35	0	7	44	43	51	0	11	64200	77
Hauraki	43	34	32	30	18	63	37	43	42	28	17800	81
Horowhenua	30	26	14	35	20	43	30	22	47	31	30600	63
Hurunui	61	25	20	16	21	94	30	27	21	34	11000	94
Kaikoura	58	19	35	12	20	78	23	68	14	26	3780	89
Kaipara	47	37	45	28	34	67	44	64	39	50	18750	83
Mackenzie	55	0	29	37	17	89	0	53	43	27	3960	94
Manawatu	31	30	24	34	15	45	38	36	46	23	29500	79
Matamata Piako	44	53	32	24	14	64	68	44	31	22	23300	79
Opotiki	33	66	15	55	19	50	106	15	86	30	9020	70
Otorohanga	43	49	25	38	30	61	59	37	50	44	9250	81
Queenstown Lakes	22	46	37	18	24	33	67	60	23	36	51500	65
Rangitikei	39	27	32	15	14	63	34	45	23	25	14900	86
Rodney	28	27	28	24	14	39	36	38	36	21	98100	69
Ruapehu	39	32	21	40	19	63	47	32	54	32	13600	82
Selwyn	25	18	19	7	12	35	21	27	9	19	38600	90

Group Z : Cities and districts where the percentage of vehicle kilometres travelled in urban areas is less than 30 percent.
N/A : Denotes that data for vehicle kilometres travelled (VKT) is not available or inappropriate for some categories.
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 estimates.

Figure 1.4a Peer group crash and casualty rates

GROUP Z

City or District name	Crashes per 10,000 Population (5 year average)	Crashes per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	Casualties per 10,000 Population (5 year average)	Casualties per 100 million vehicle kilometres travelled: Council roads Urban	Council roads Rural	State Highways Urban	State Highways Rural	2009 Population	% of rural crashes
South Taranaki	26	45	25	16	19	39	55	39	26	28	26800	73
South Waikato	31	24	28	19	19	49	31	42	34	32	22800	80
South Wairarapa	11	71	28	12	28	15	89	37	15	41	29300	84
Southland	36	43	32	41	25	57	62	48	60	42	46800	90
Stratford	9	51	33	14	27	12	59	48	20	39	33600	78
Tararua	25	40	28	27	20	35	53	41	35	29	26800	81
Tasman	25	28	21	21	23	35	34	30	26	34	47600	76
Taupo	30	43	26	21	18	45	53	38	27	30	46900	69
Waikato	44	39	28	16	17	64	46	37	24	26	45100	83
Waimakariri	40	32	30	9	10	55	44	43	11	14	20700	71
Waimate	5	39	18	25	13	7	51	27	31	18	44800	82
Waipa	36	40	27	27	15	51	52	37	35	23	34300	67
Wairoa	47	49	22	41	36	72	77	36	44	56	8420	78
Waitaki	93	54	31	51	17	132	67	42	62	29	10000	60
Waitomo	81	52	25	51	29	123	70	34	71	47	7420	86
Western Bay of Plenty	88	27	25	21	16	131	32	34	33	25	13350	84
Westland	23	21	19	35	20	36	42	24	61	30	17950	90
Whakatane	1378	30	26	24	18	2144	40	44	33	29	640	69
Group Z	33	34	28	24	19	48	44	41	33	28	1075000	77
All New Zealand	26	38	29	28	18	36	48	42	38	26	4331000	41

Group Z : Cities and districts where the percentage of vehicle kilometres travelled in urban areas is less than 30 percent.
N/A : Denotes that data for vehicle kilometres travelled (VKT) is not available or inappropriate for some categories.
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 1.9 Crashes per 10,000 people
Waikato Region state highways

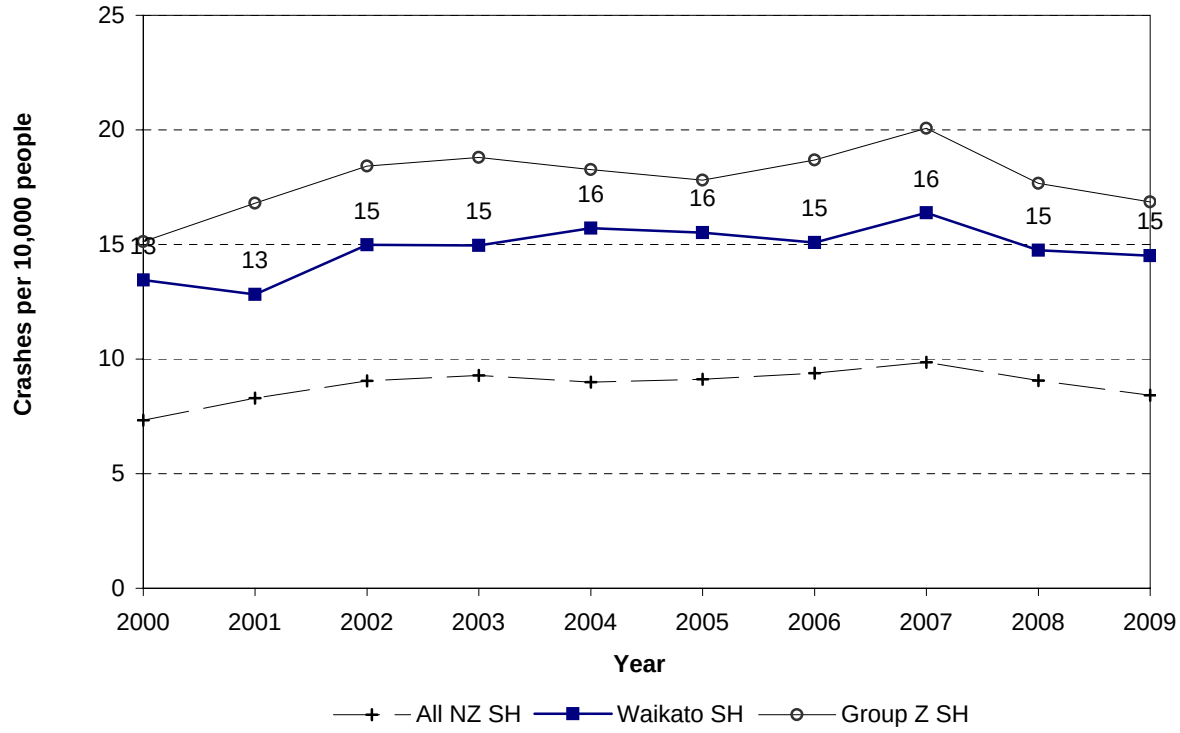


Figure 1.10 Casualties per 10,000 people
Waikato Region state highways

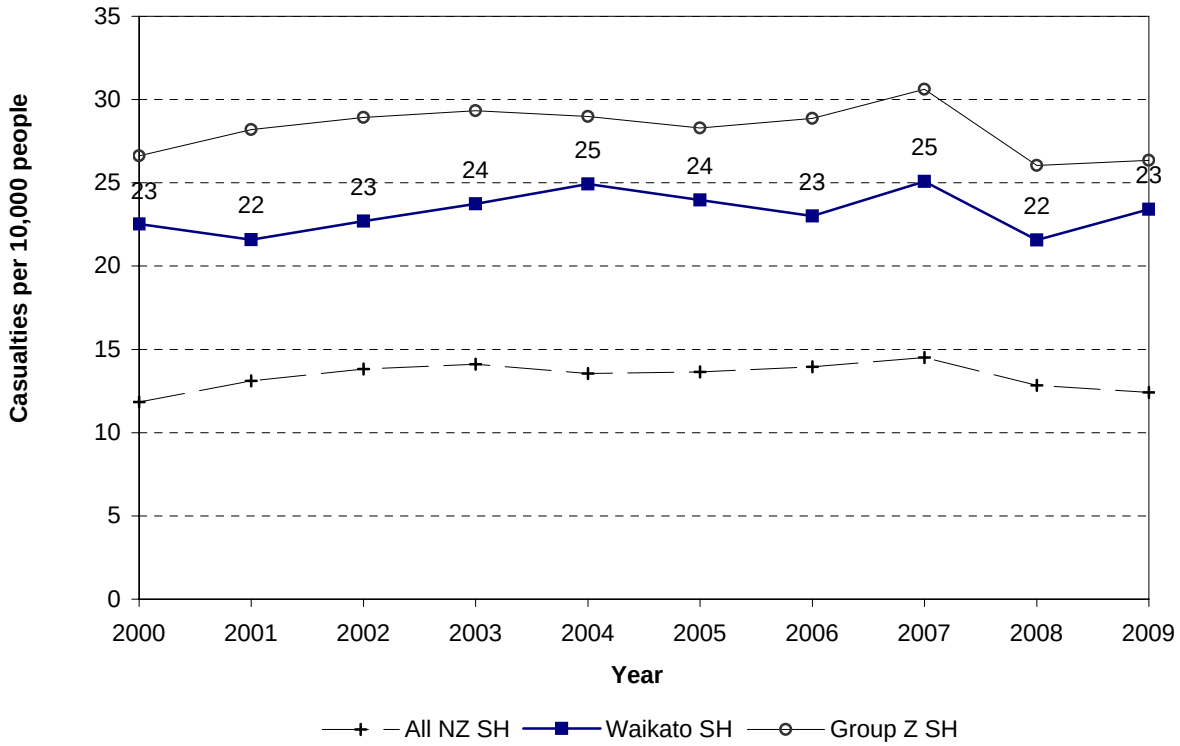


Figure 1.11 Social cost of crashes in Waikato Region in 2009

		Waikato Region	New Zealand
Council roads	urban rural	$104.93 $166.42	$1,607.40 $909.43
State Highways	urban rural	$41.11 $307.10	$299.76 $1,487.35
Total		**$619.56**	**$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 Region

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal crashes	51	35	49	39	43	**217**	7%	6%
Serious crashes	122	128	118	119	111	**598**	20%	23%
Minor crashes	433	433	486	435	436	**2223**	73%	71%
Total injury crashes	**606**	**596**	**653**	**593**	**590**	**3038**	**100%**	**100%**
Non-injury crashes	1150	1236	1186	1085	1082	5739		

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

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal crashes	8	2	7	6	2	25	4%	4%
Serious crashes	16	15	17	19	23	90	14%	17%
Minor crashes	94	98	93	125	113	523	82%	80%
Total injury crashes	**118**	**115**	**117**	**150**	**138**	**638**	**100%**	**100%**
Non-injury crashes	407	407	369	366	346	1895		

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

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal crashes	43	33	42	33	41	192	8%	7%
Serious crashes	106	113	101	100	88	508	21%	24%
Minor crashes	339	335	393	310	323	1700	71%	69%
Total injury crashes	**488**	**481**	**536**	**443**	**452**	**2400**	**100%**	**100%**
Non-injury crashes	743	829	817	719	736	3844		

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

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal casualties	70	41	59	46	54	270	6%	5%
Serious casualties	163	169	186	167	164	849	18%	21%
Minor casualties	703	699	755	654	734	3545	76%	74%
Total casualties	**936**	**909**	**1000**	**867**	**952**	**4664**	**100%**	**100%**

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

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal casualties	9	2	7	7	2	27	3%	3%
Serious casualties	22	16	25	27	26	116	13%	15%
Minor casualties	139	142	128	176	162	747	84%	82%
Total casualties	**170**	**160**	**160**	**210**	**190**	**890**	**100%**	**100%**

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

	2005	2006	2007	2008	2009	Total	%	Group Z
Fatal casualties	61	39	52	39	52	243	6%	5%
Serious casualties	141	153	161	140	138	733	19%	22%
Minor casualties	564	557	627	478	572	2798	74%	73%
Total casualties	**766**	**749**	**840**	**657**	**762**	**3774**	**100%**	**100%**

Figure 2.7 Number of injury crashes
Waikato Region state highways (urban & rural)

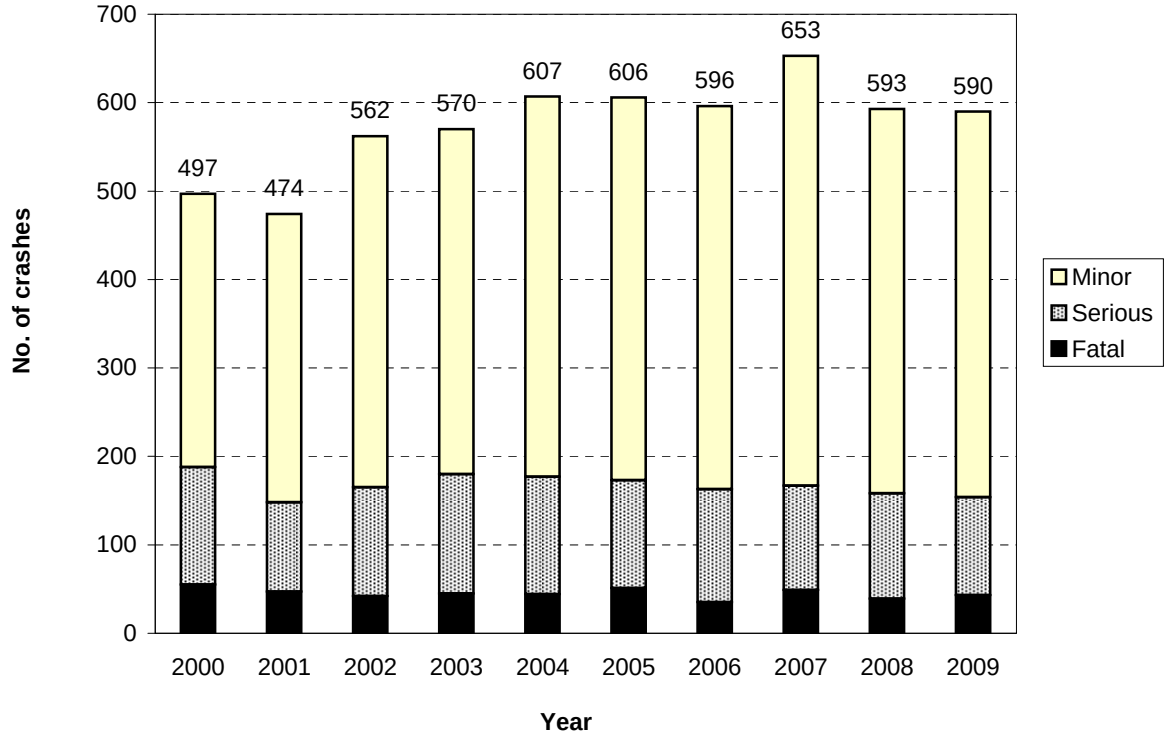


Figure 2.8 Number of casualties
Waikato Region state highways (urban & rural)

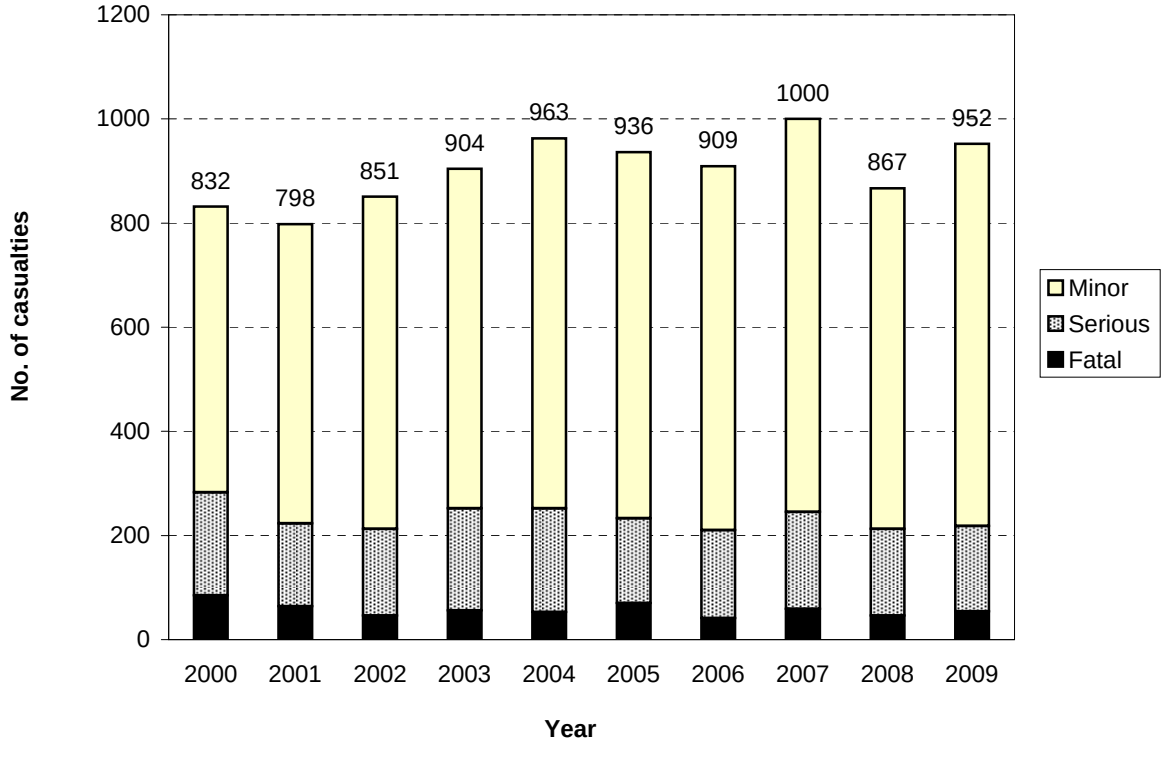


Figure 2.9 Number of injury crashes
Waikato Region - urban state highways

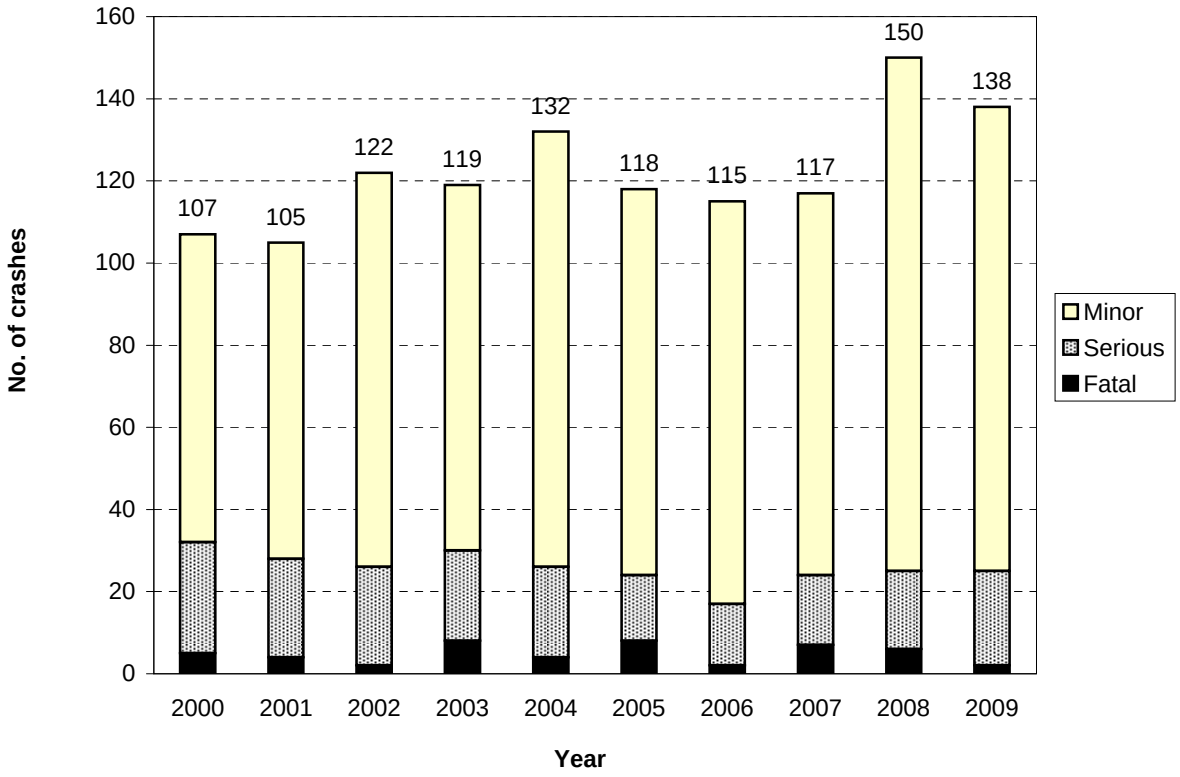


Figure 2.10 Number of casualties
Waikato Region - urban state highways

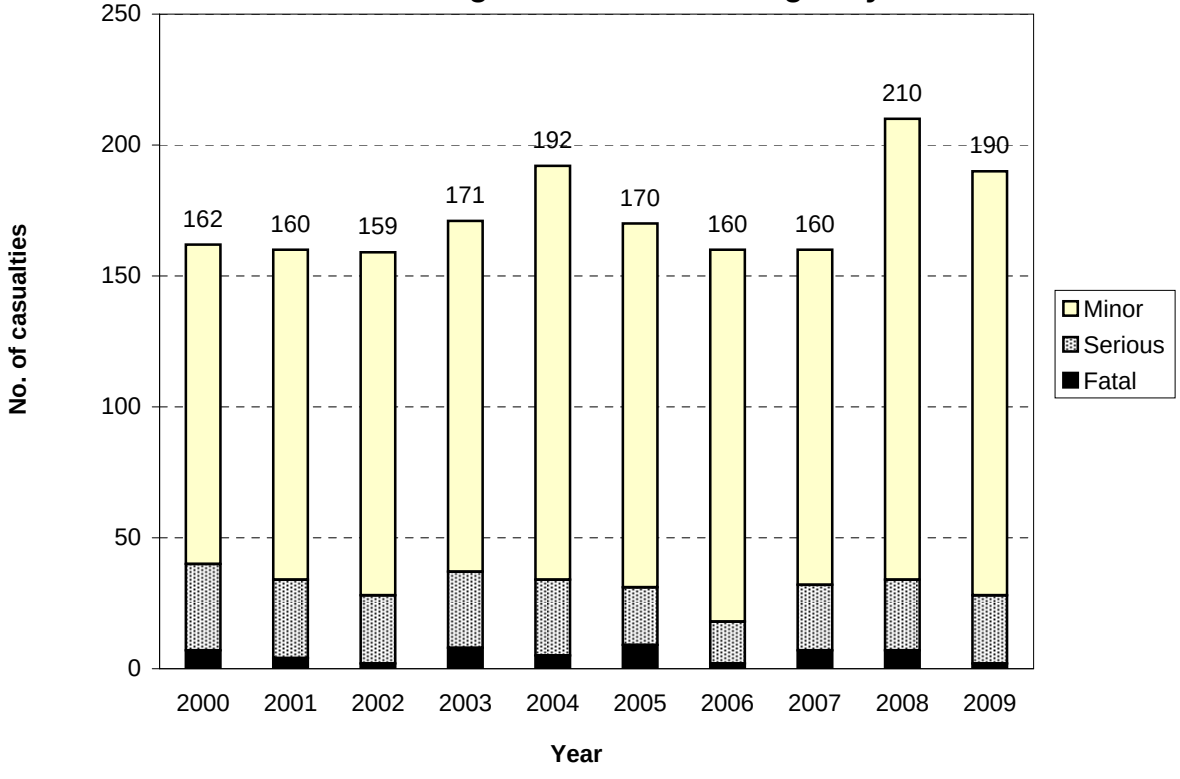


Figure 2.11 Number of injury crashes
Waikato Region - rural state highways

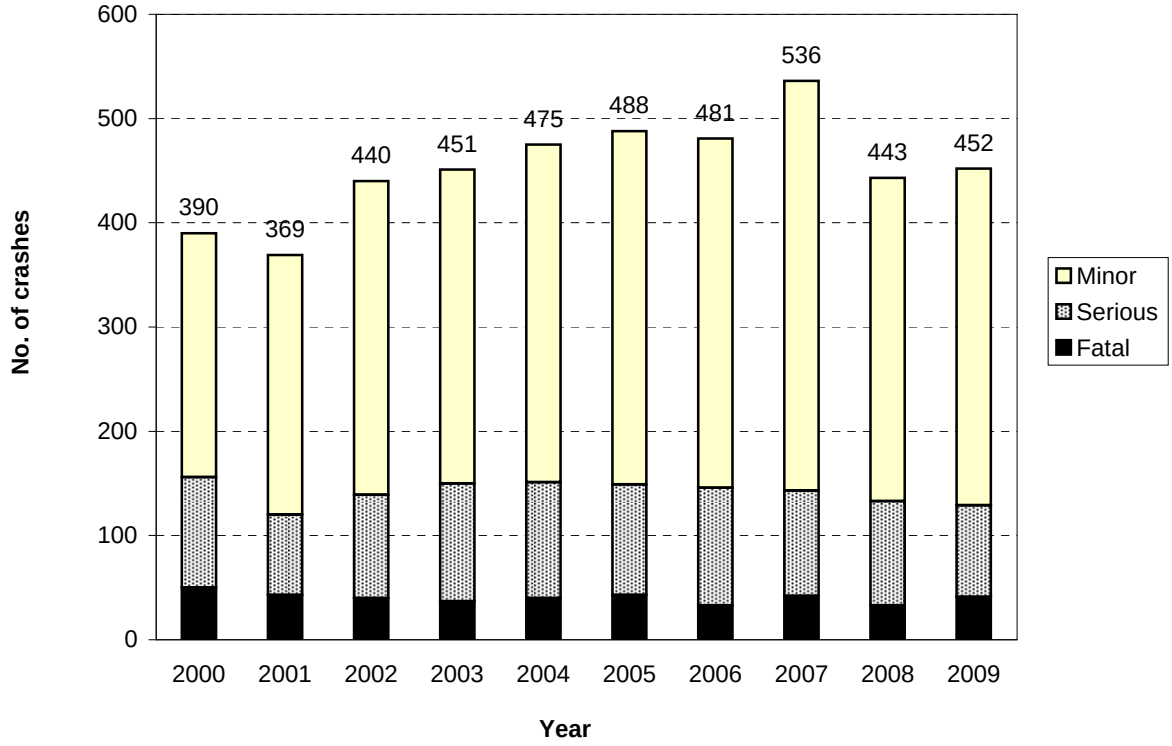


Figure 2.12 Number of casualties
Waikato Region - rural state highways

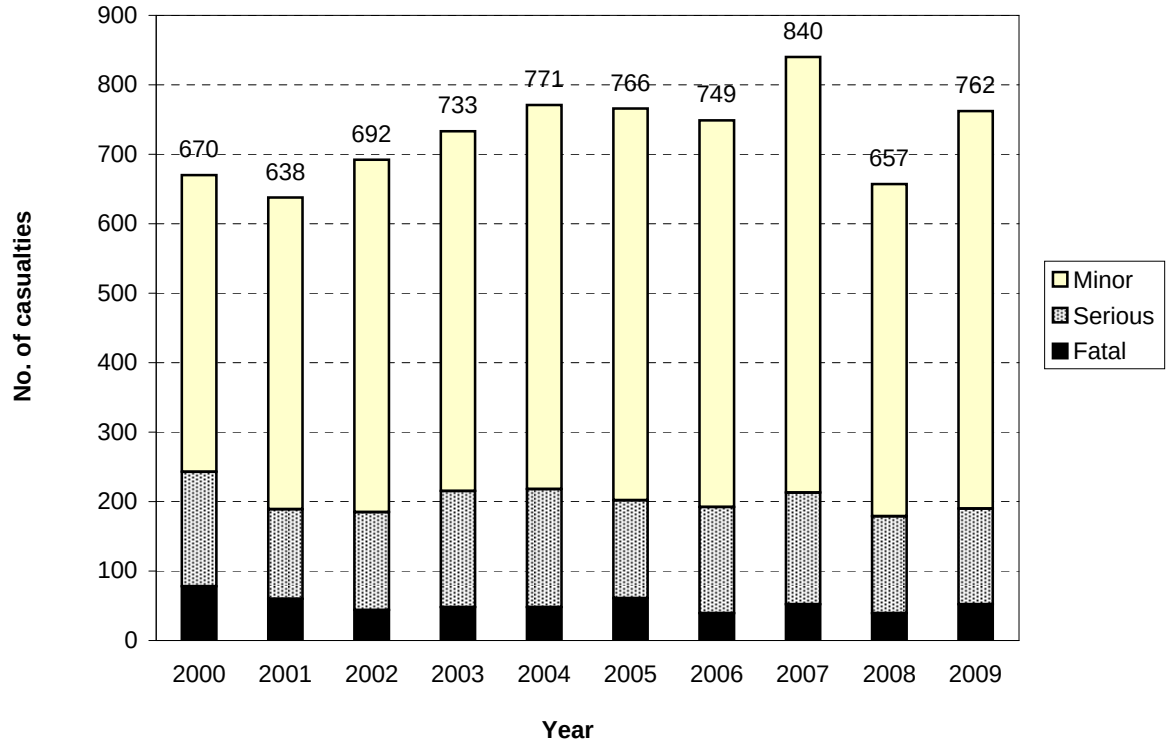
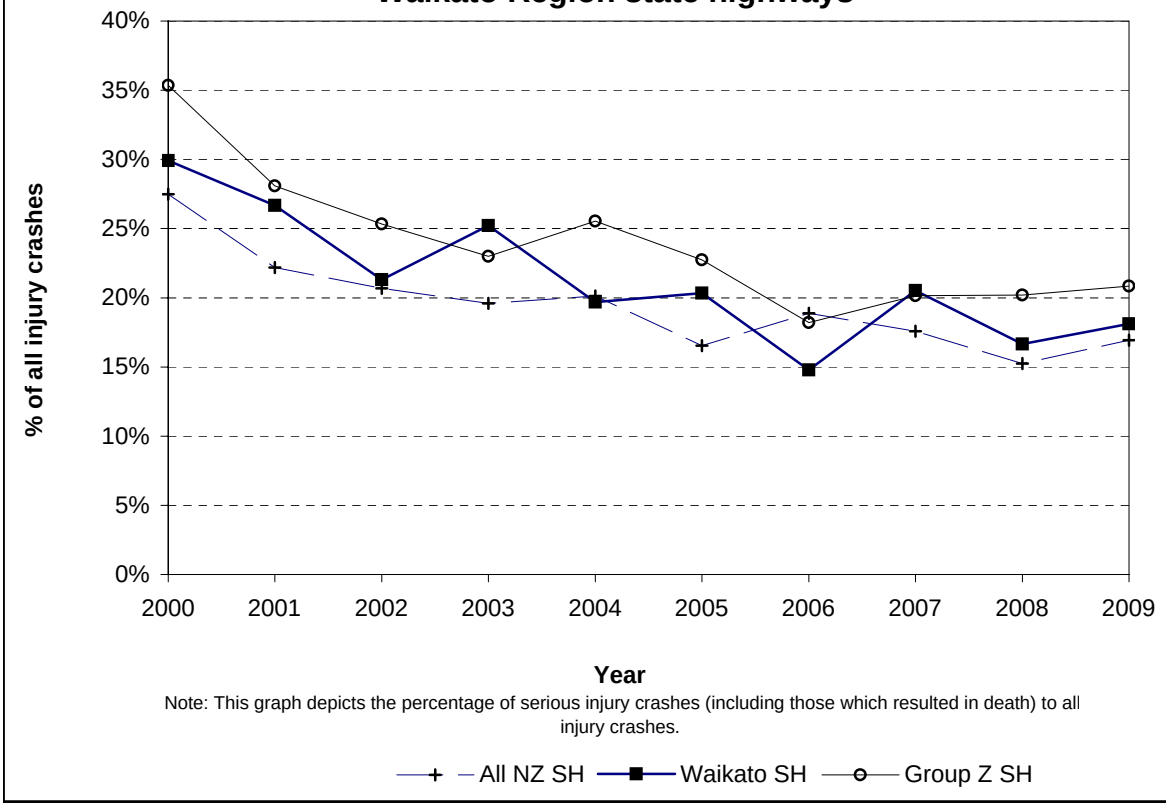
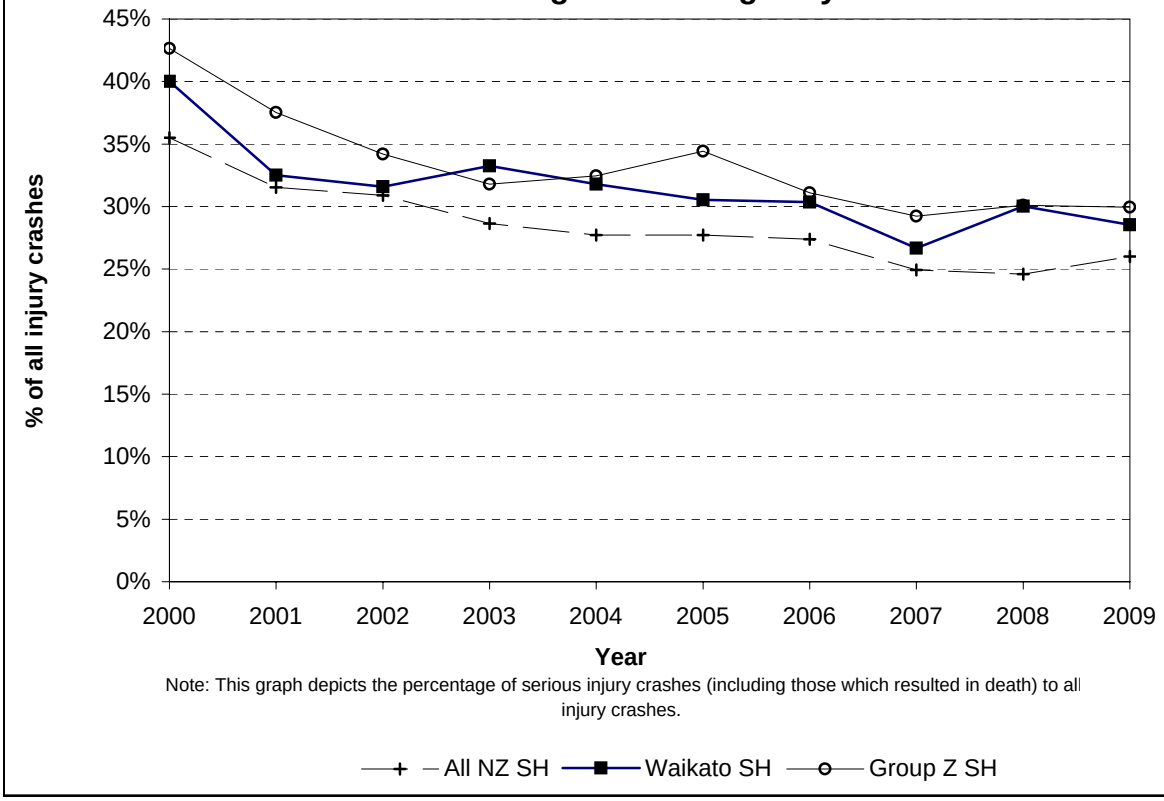


Figure 2.13 Severity ratio - urban
Waikato Region state highways



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

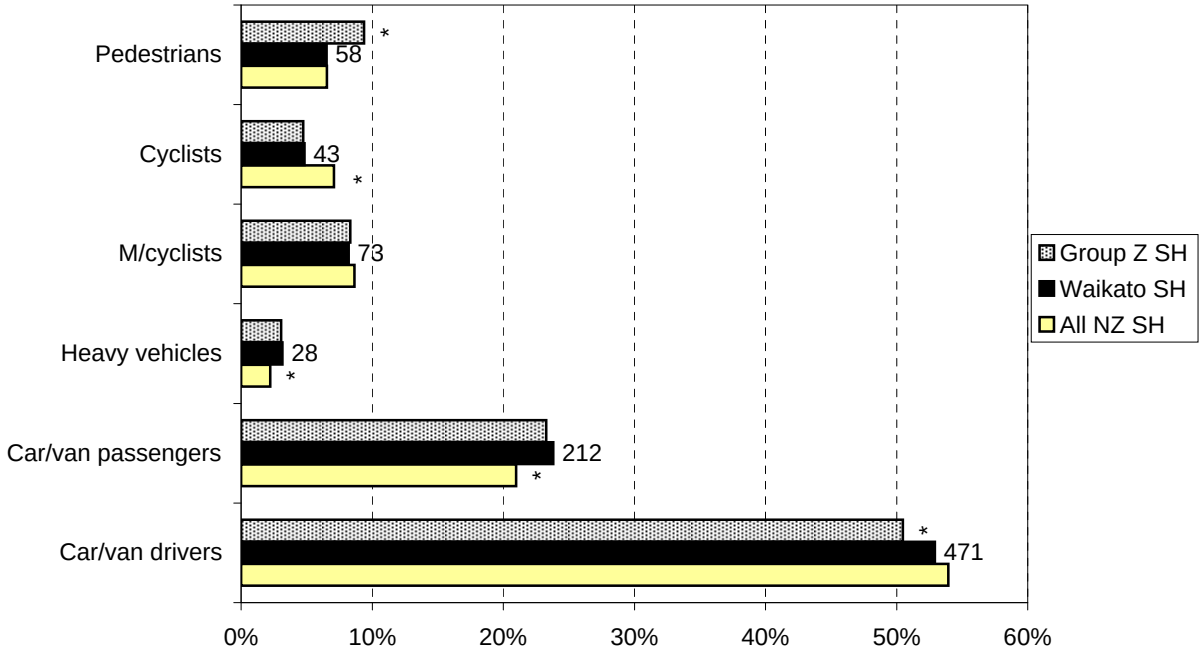
Figure 2.14 Severity ratio - rural
Waikato Region state highways



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

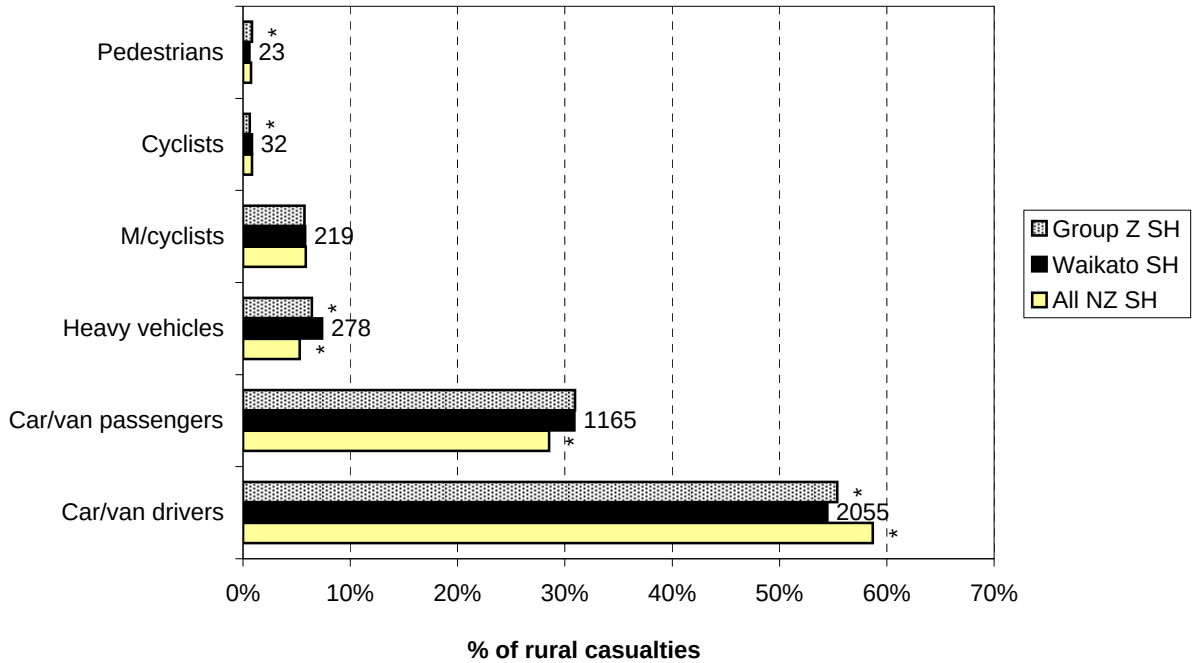
Road User Statistics

Figure 3.1 Road user casualties - urban
Waikato Region state highways (2005-2009)



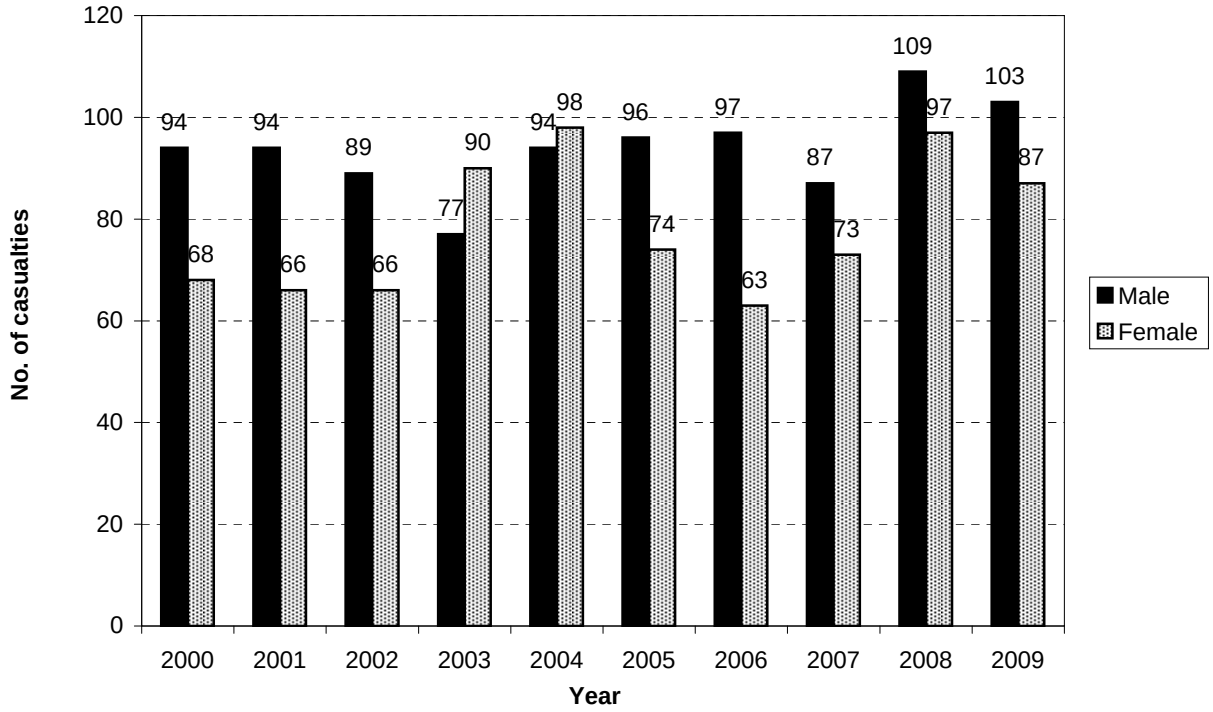
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.2 Road user casualties - rural
Waikato Region state highways (2005-2009)



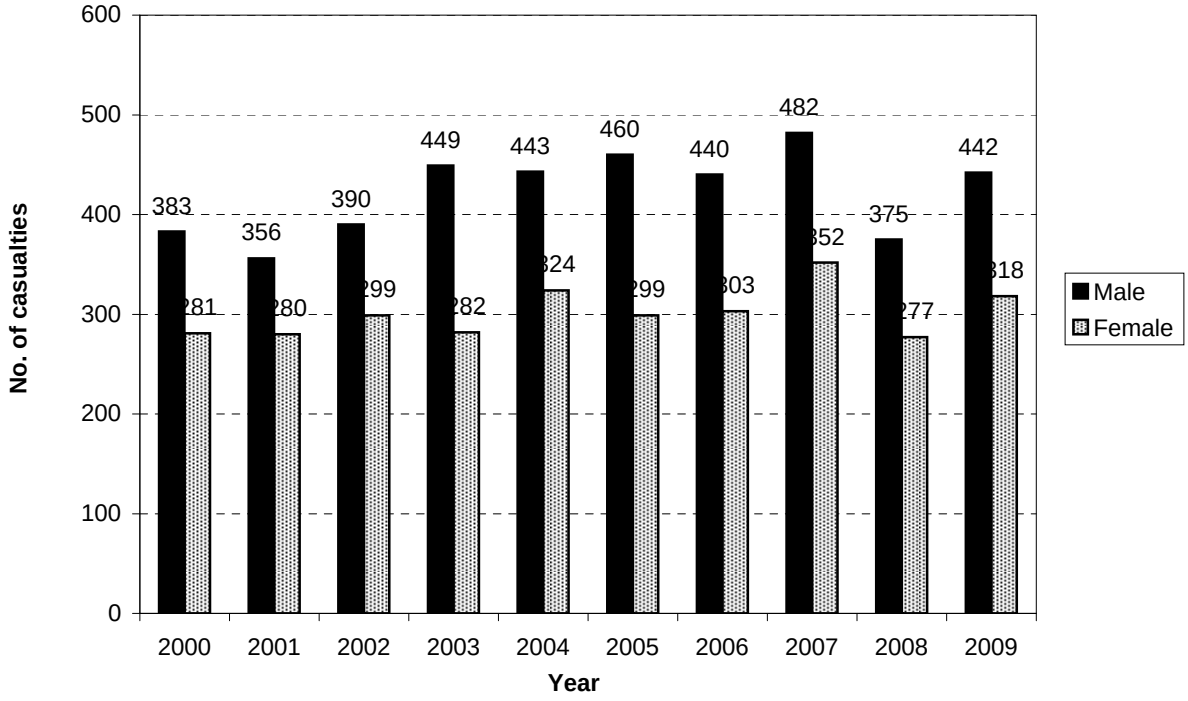
Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Figure 3.3 Male/female casualties - urban
Waikato Region state highways



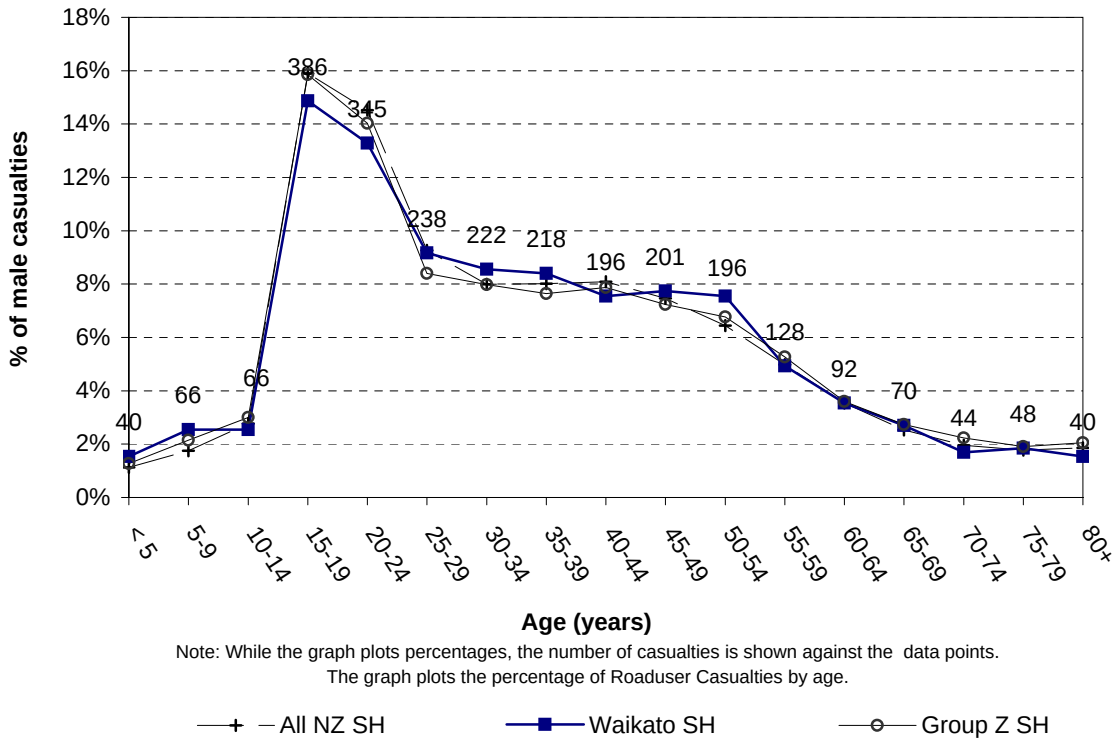
Note: This graph shows the number of male and female roadusers injured

Figure 3.4 Male/female casualties - rural
Waikato Region state highways



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

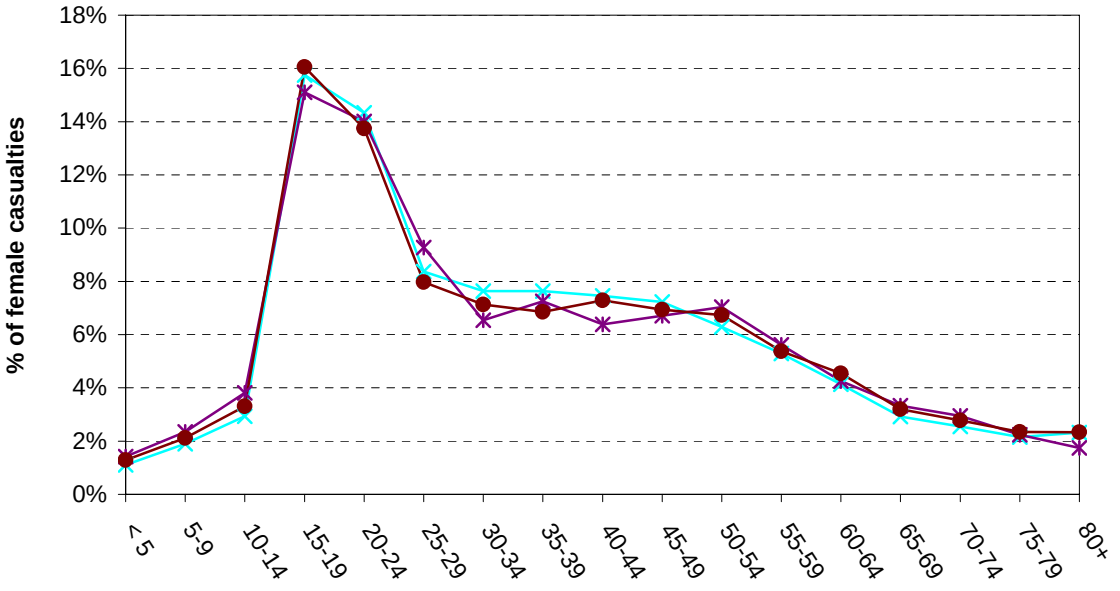
Figure 3.5 Male casualties by age
Waikato Region state highways (2005-2009)



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

All NZ SH — Waikato SH — Group Z SH

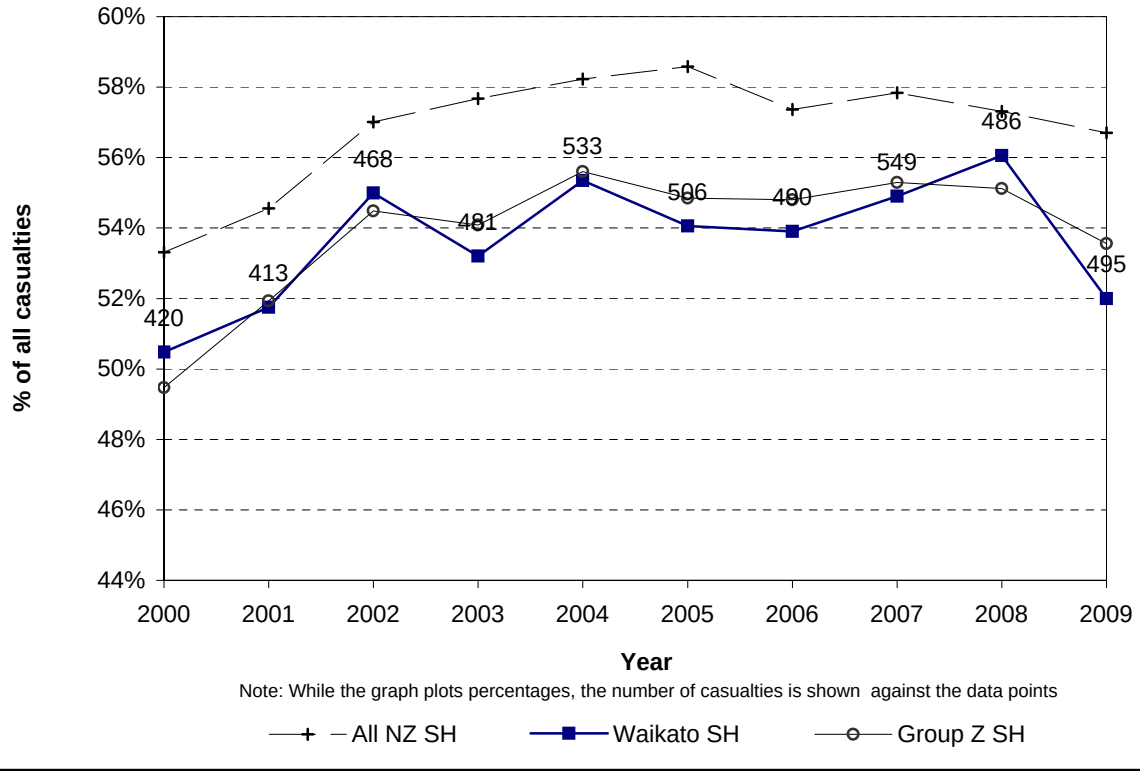
Figure 3.6 Female casualties by age
Waikato Region state highways (2005-2009)



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

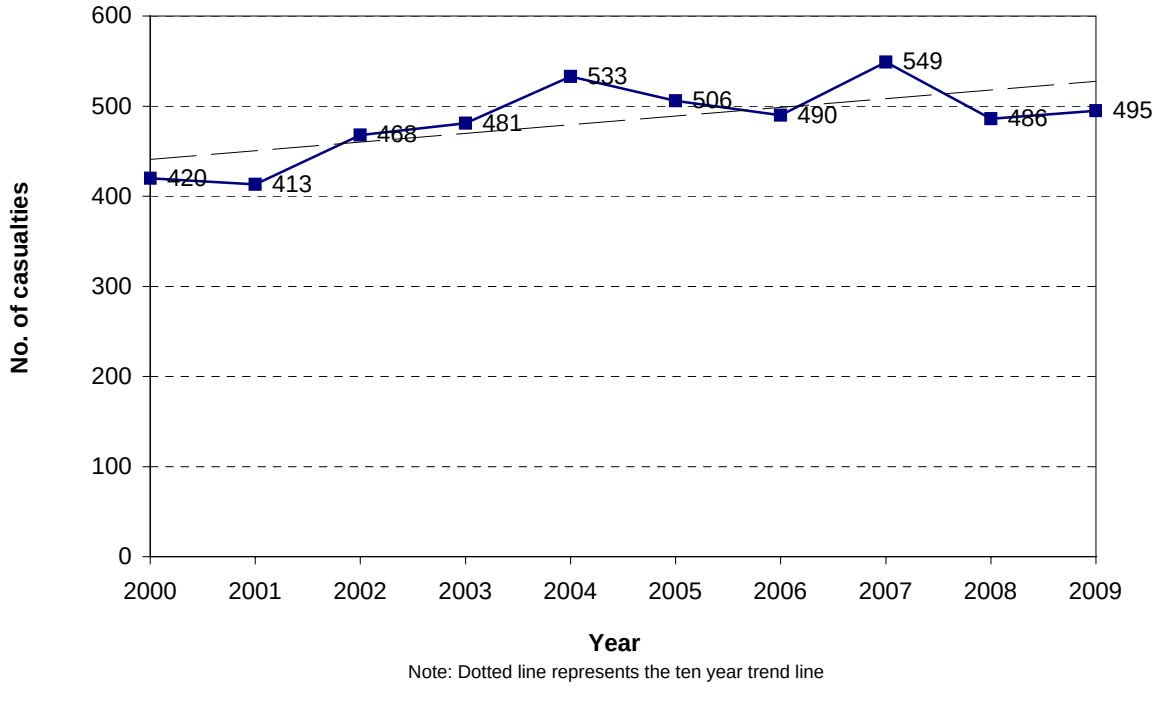
All NZ SH — Waikato SH — Group Z SH

Figure 3.7 Car/van driver casualties
Waikato Region state highways



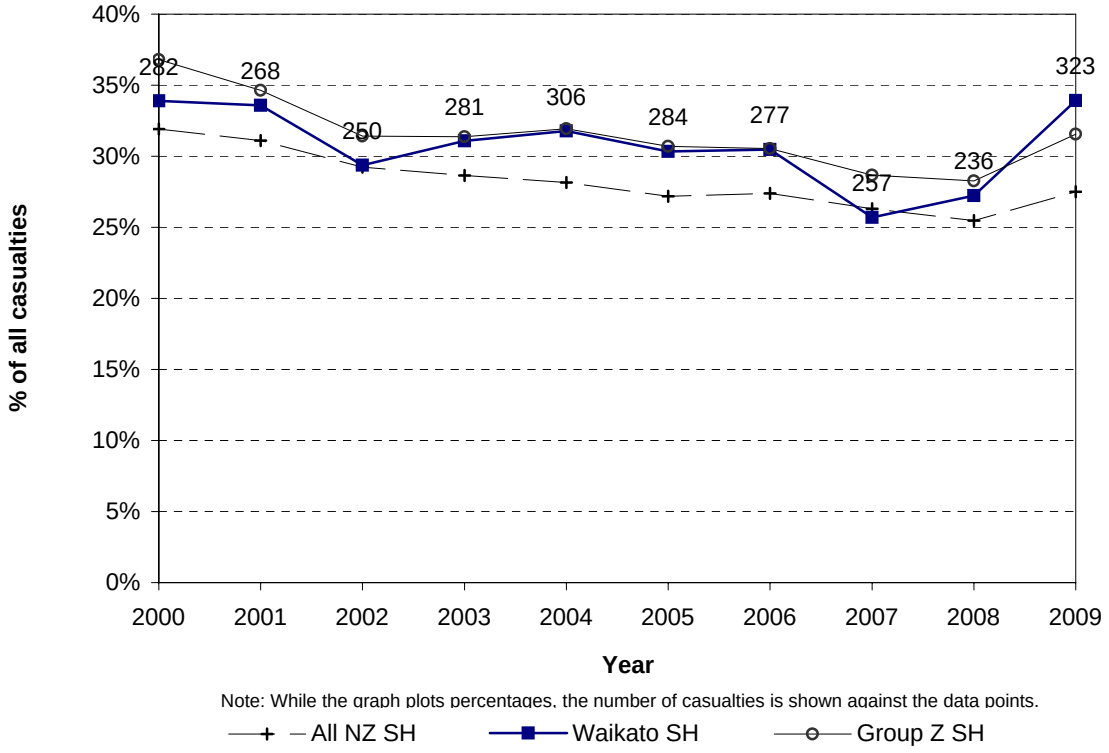
Note: While the graph plots percentages, the number of casualties is shown against the data points

Figure 3.8 Car/van driver casualties
Waikato Region state highways



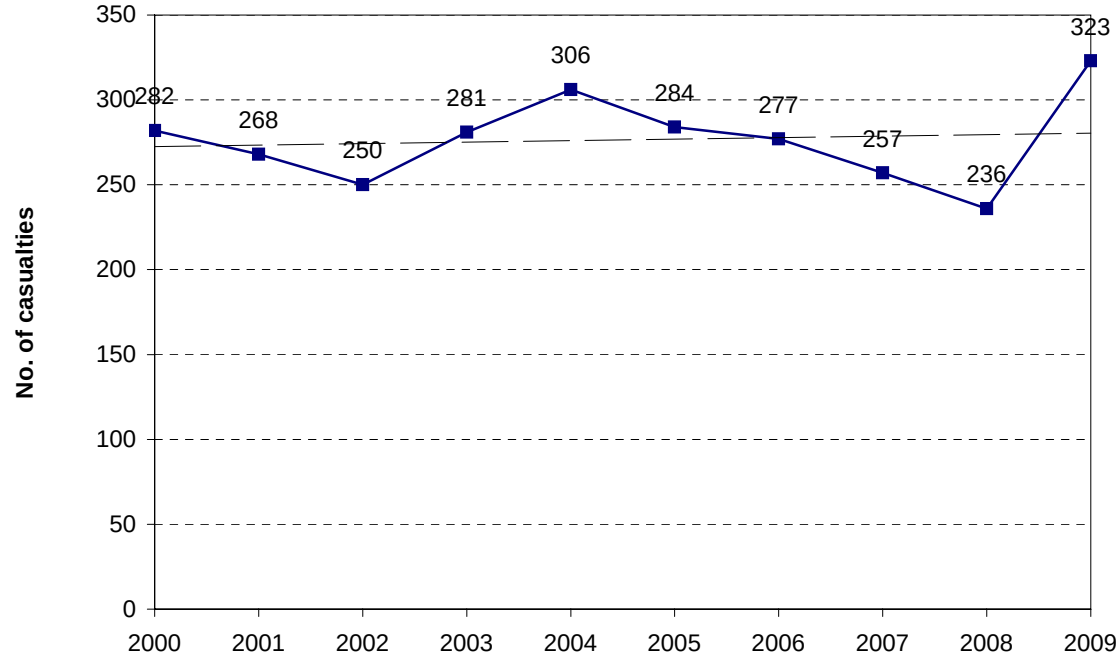
Note: Dotted line represents the ten year trend line

Figure 3.9 Car/van passenger casualties
Waikato Region state highways



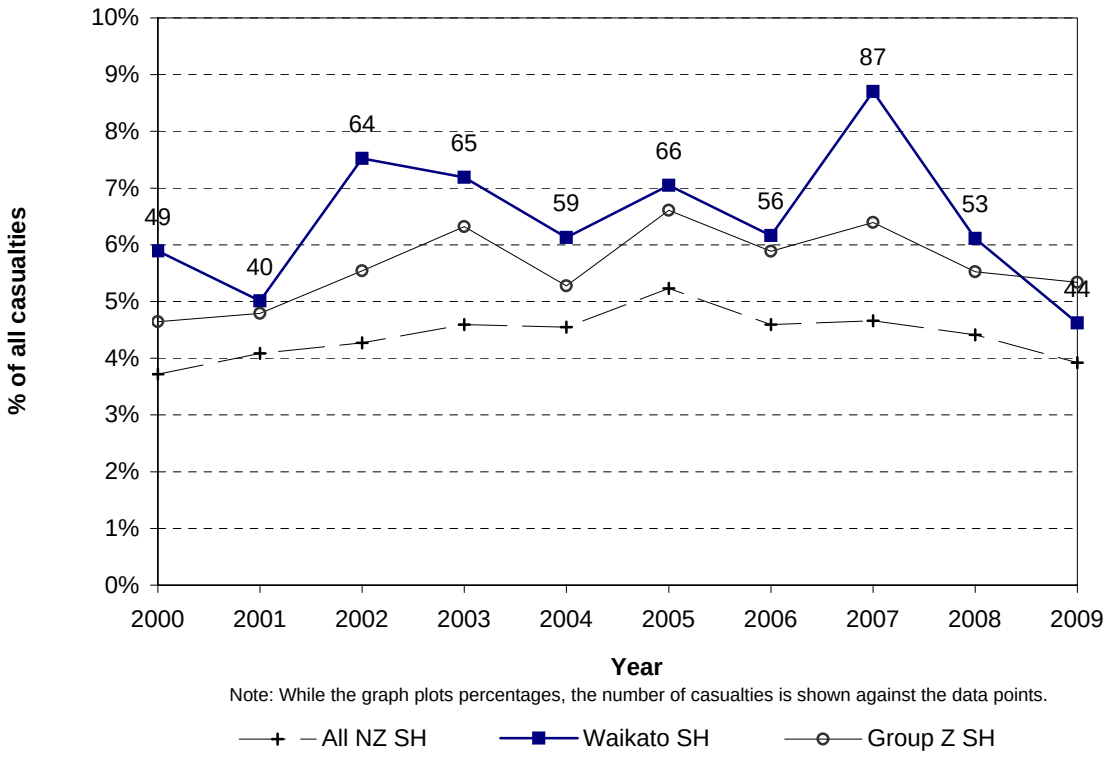
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.10 Car/van passenger casualties
Waikato Region state highways



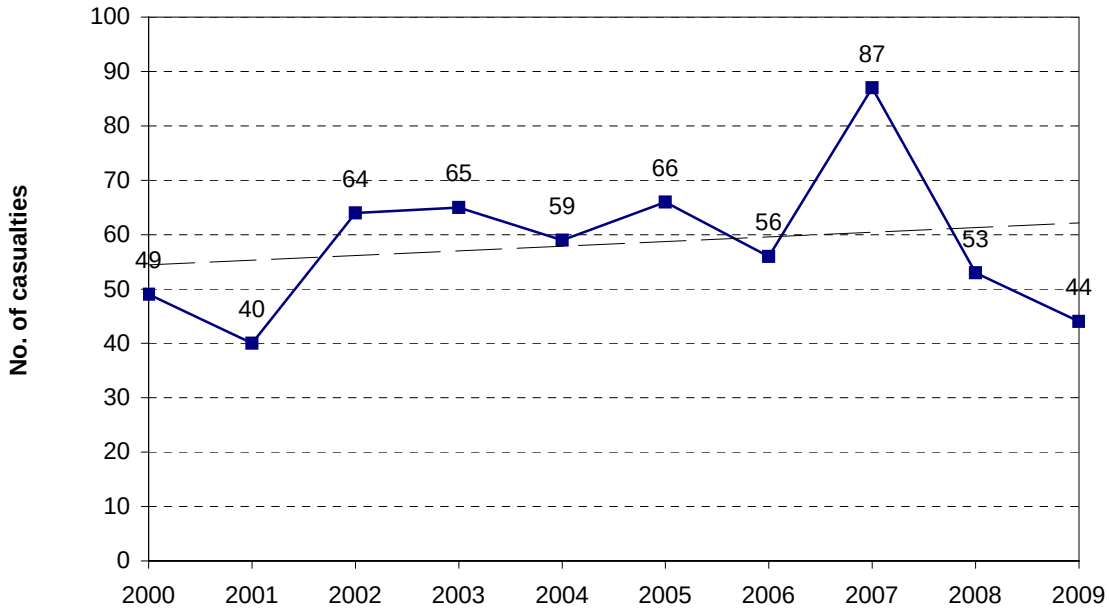
Note: Dotted line represents the ten year trend line

Figure 3.11 Heavy vehicle casualties
Waikato Region state highways



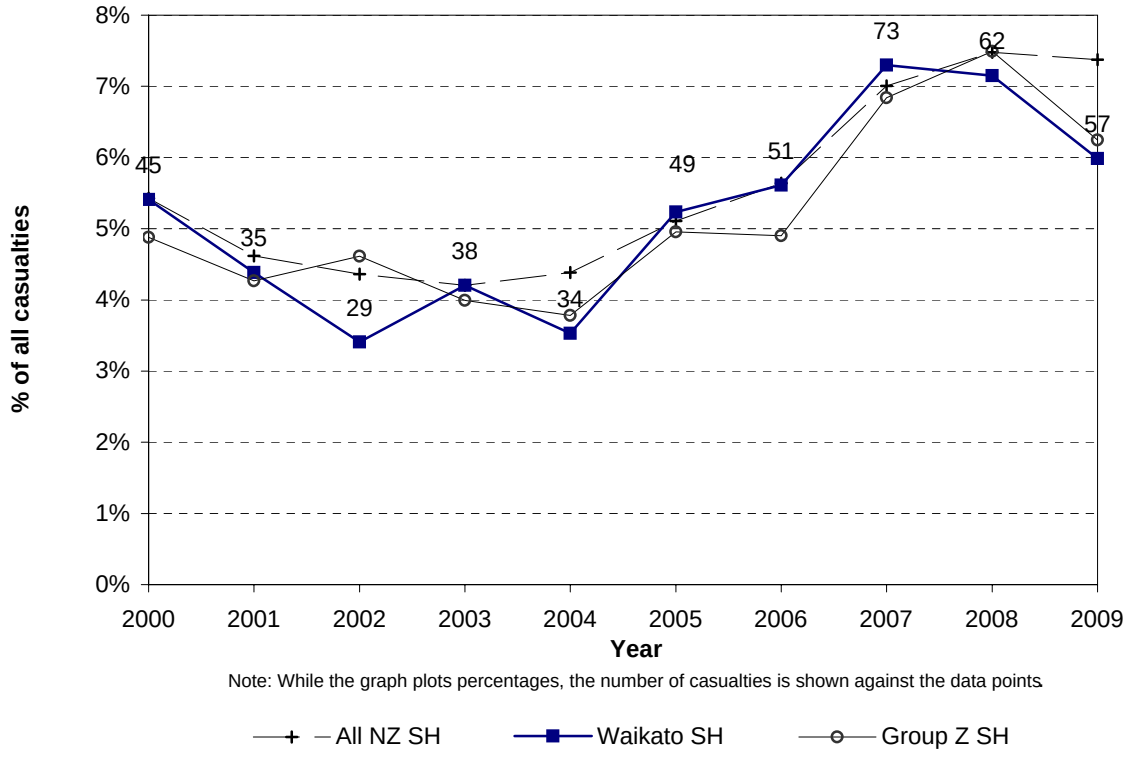
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.12 Heavy vehicle casualties
Waikato Region state highways



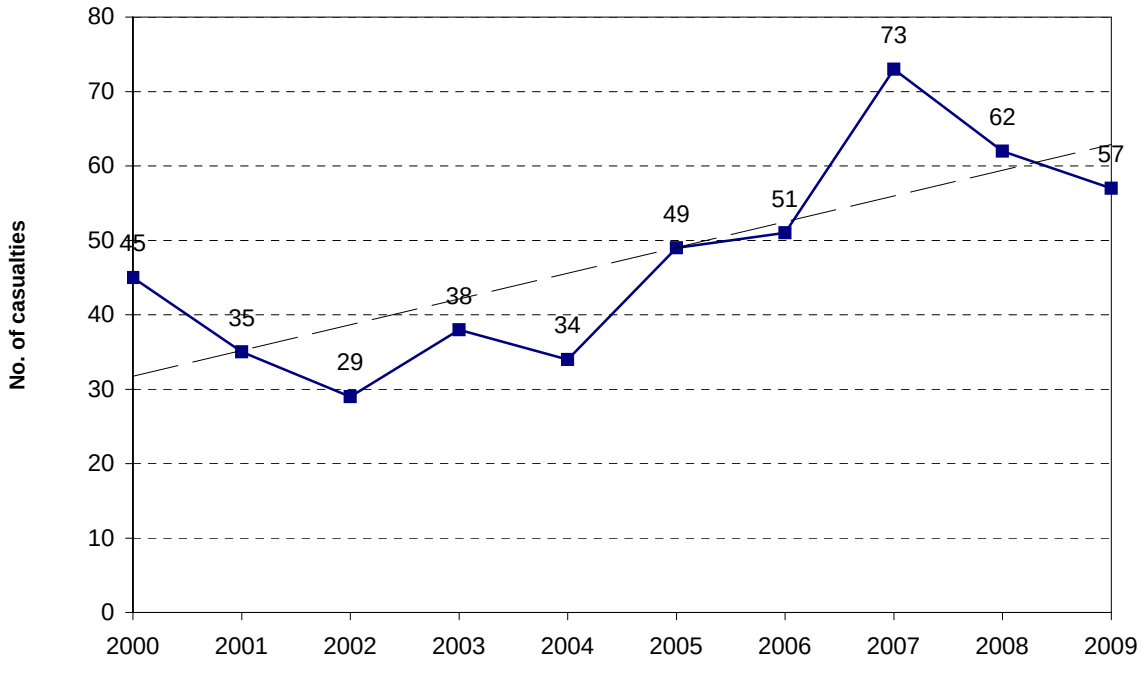
Note: Dotted line represents the ten year trend line

Figure 3.13 Motorcyclist casualties
Waikato Region state highways



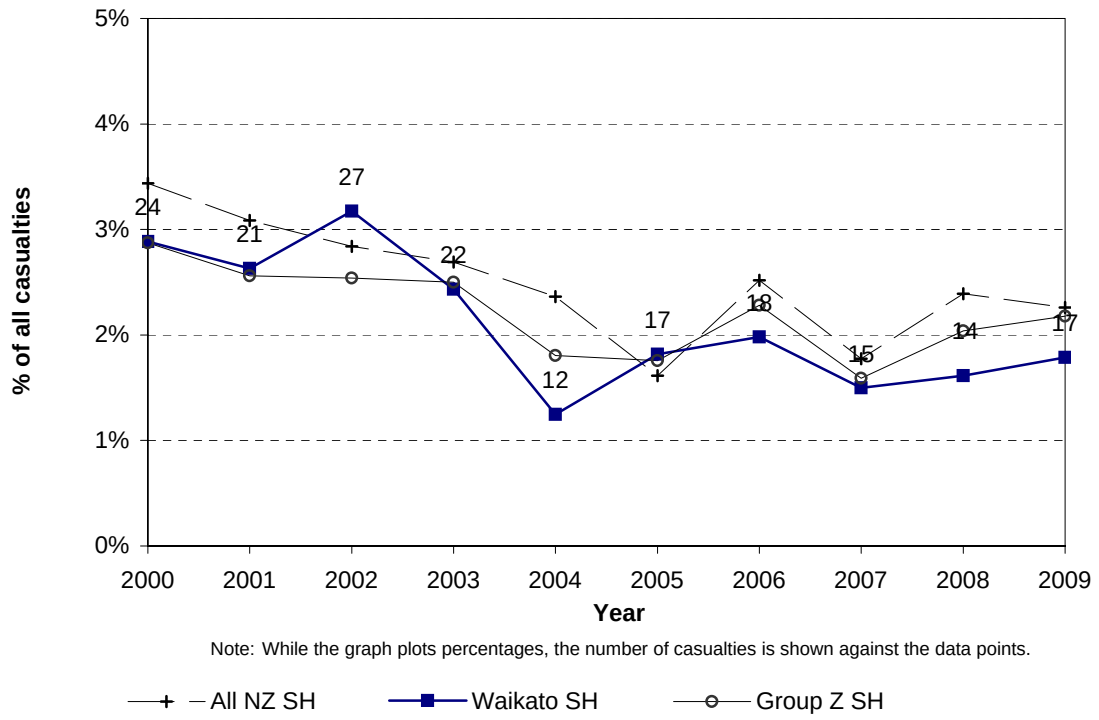
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.14 Motorcyclist casualties
Waikato Region state highways



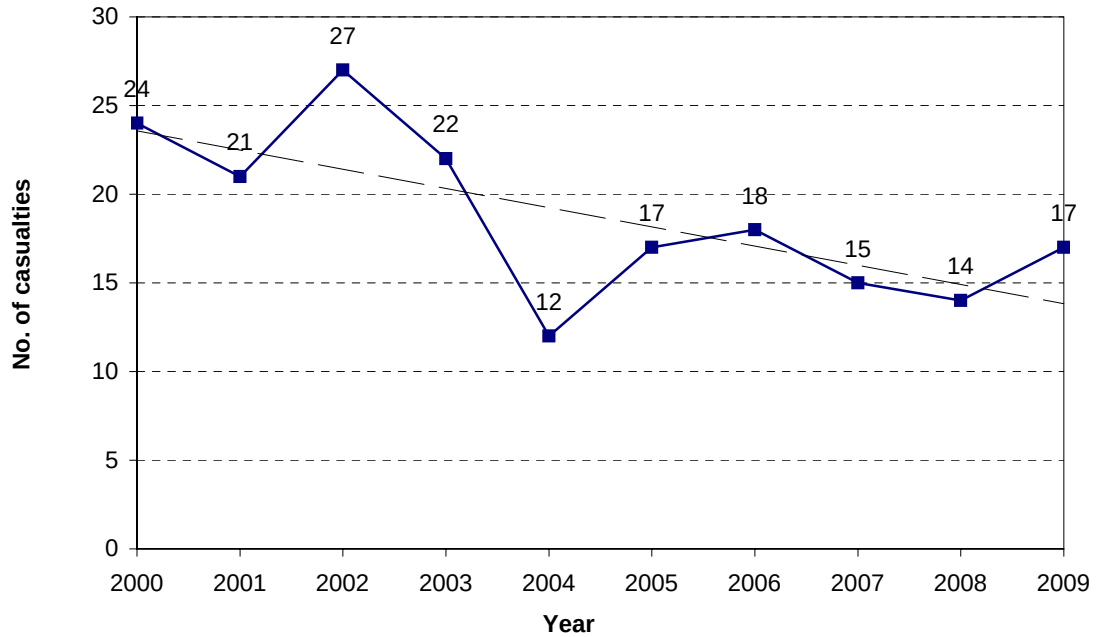
Note: Dotted line represents the ten year trend line

Figure 3.15 Pedestrian casualties
Waikato Region state highways



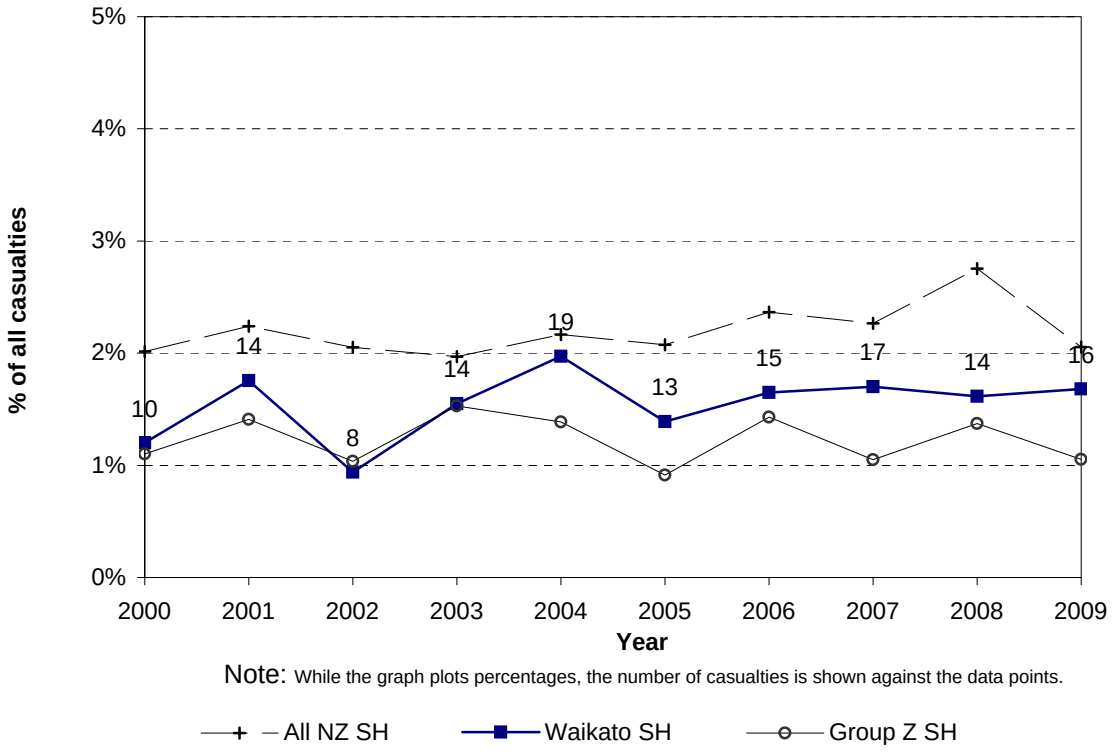
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.16 Pedestrian casualties
Waikato Region state highways



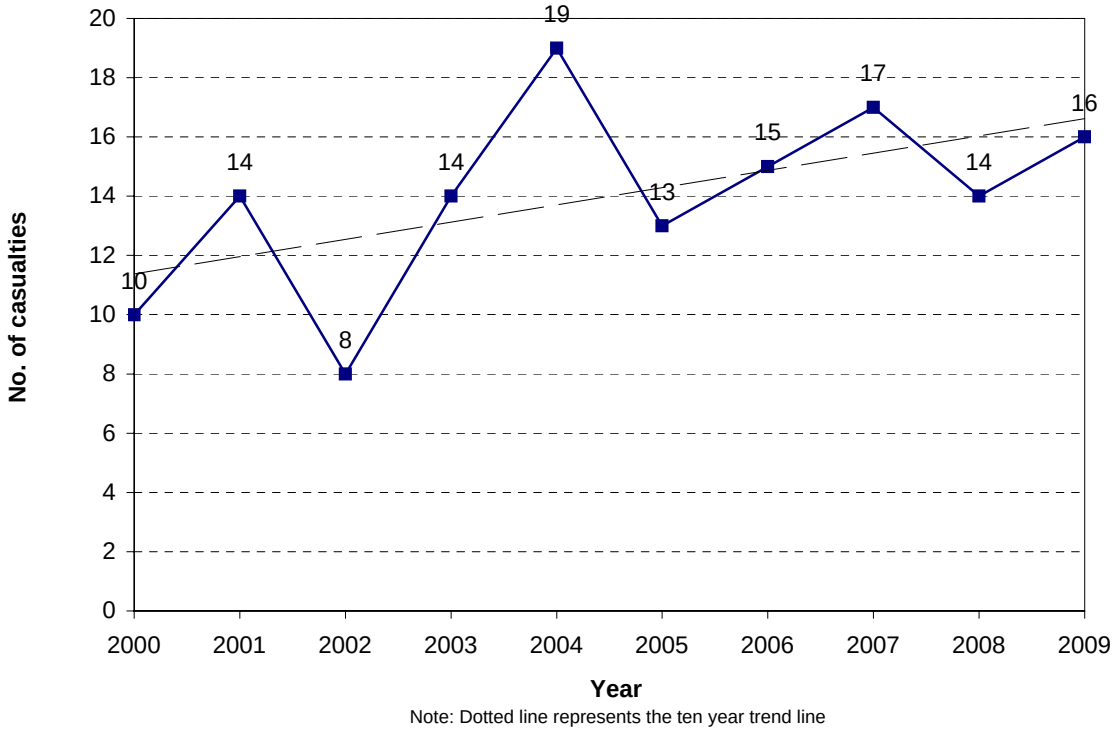
Note: Dottedline represents the ten year trend line

Figure 3.17 Cyclist casualties
Waikato Region state highways



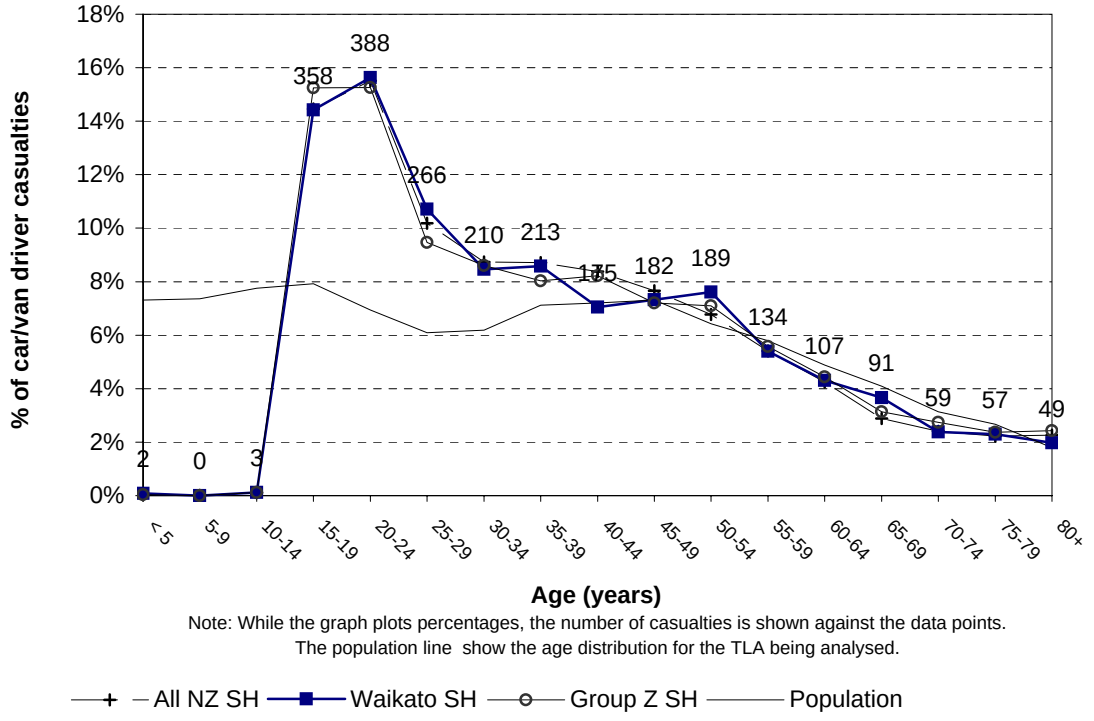
Note: While the graph plots percentages, the number of casualties is shown against the data points.

Figure 3.18 Cyclist casualties
Waikato Region state highways



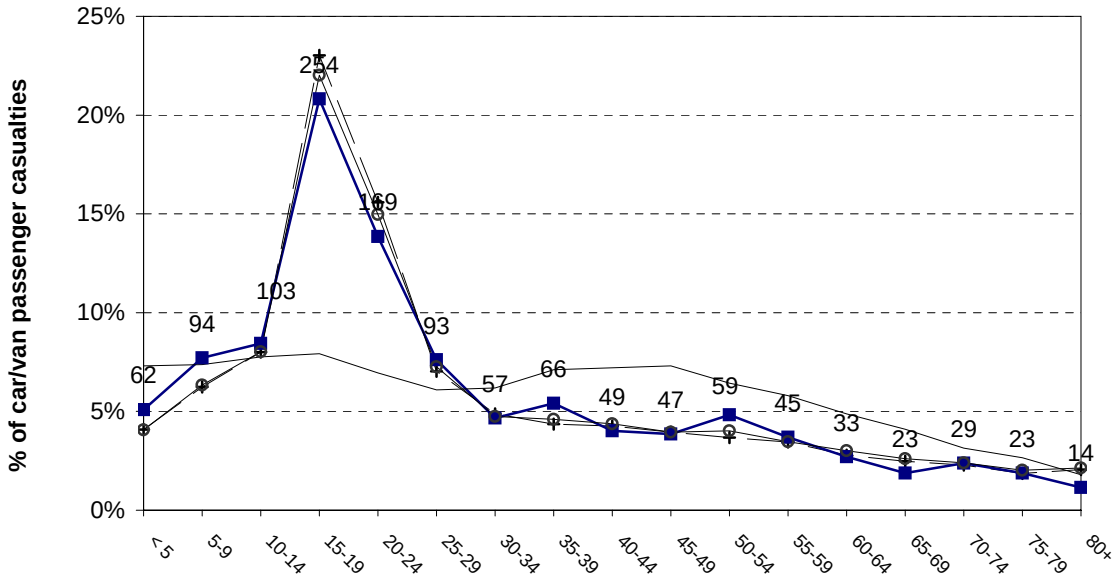
Note: Dotted line represents the ten year trend line

Figure 3.19 Car/van driver casualty age
Waikato Region state highways (2005-2009)



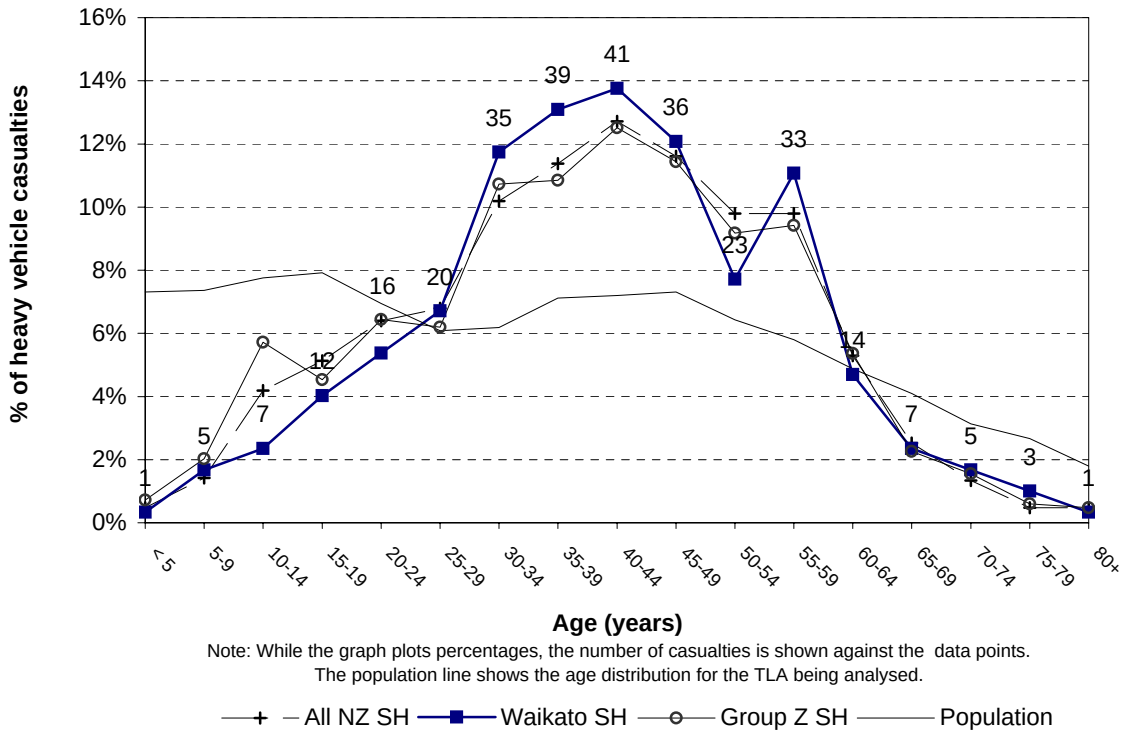
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line show the age distribution for the TLA being analysed.

Figure 3.20 Car/van passenger casualty age
Waikato Region state highways (2005-2009)



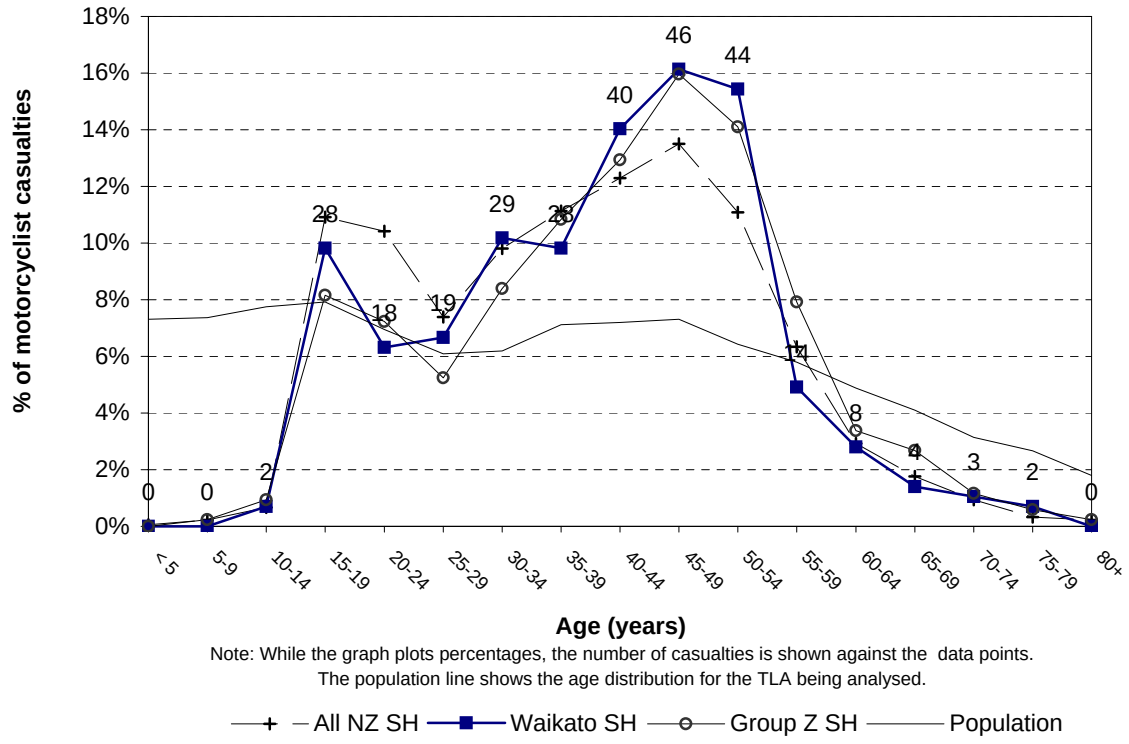
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.21 Heavy vehicle casualty age Waikato Region state highways (2005-2009)



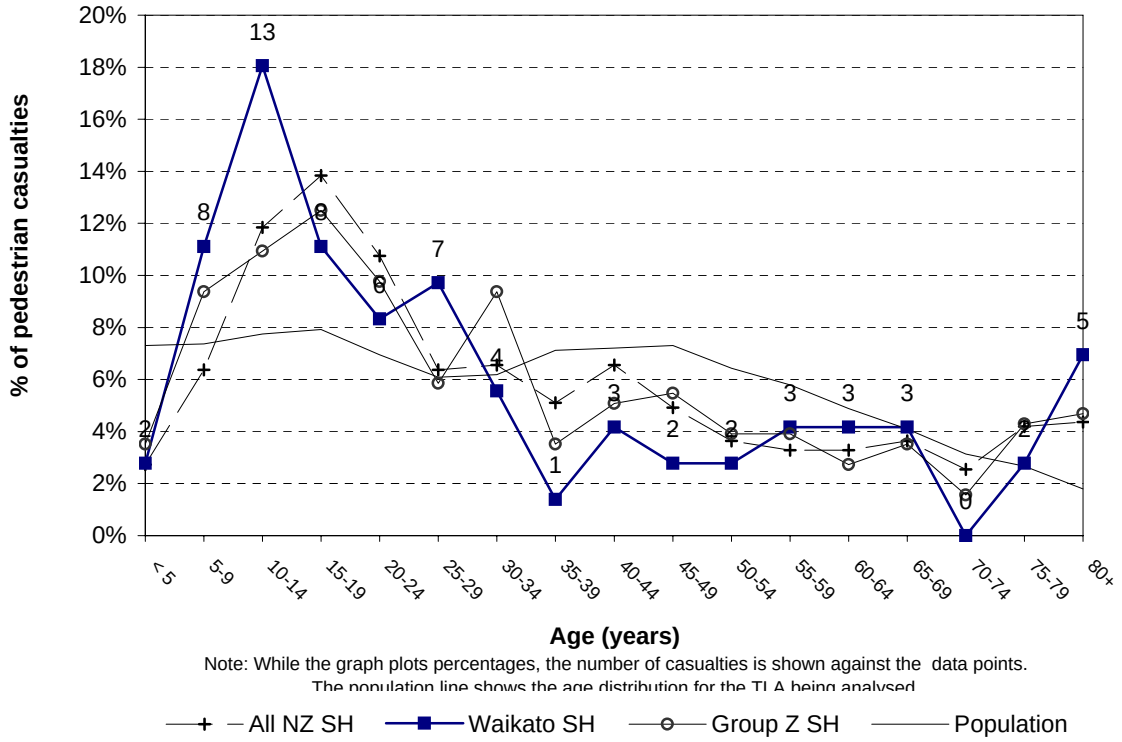
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.22 Motorcyclist casualty age Waikato Region state highways (2005-2009)



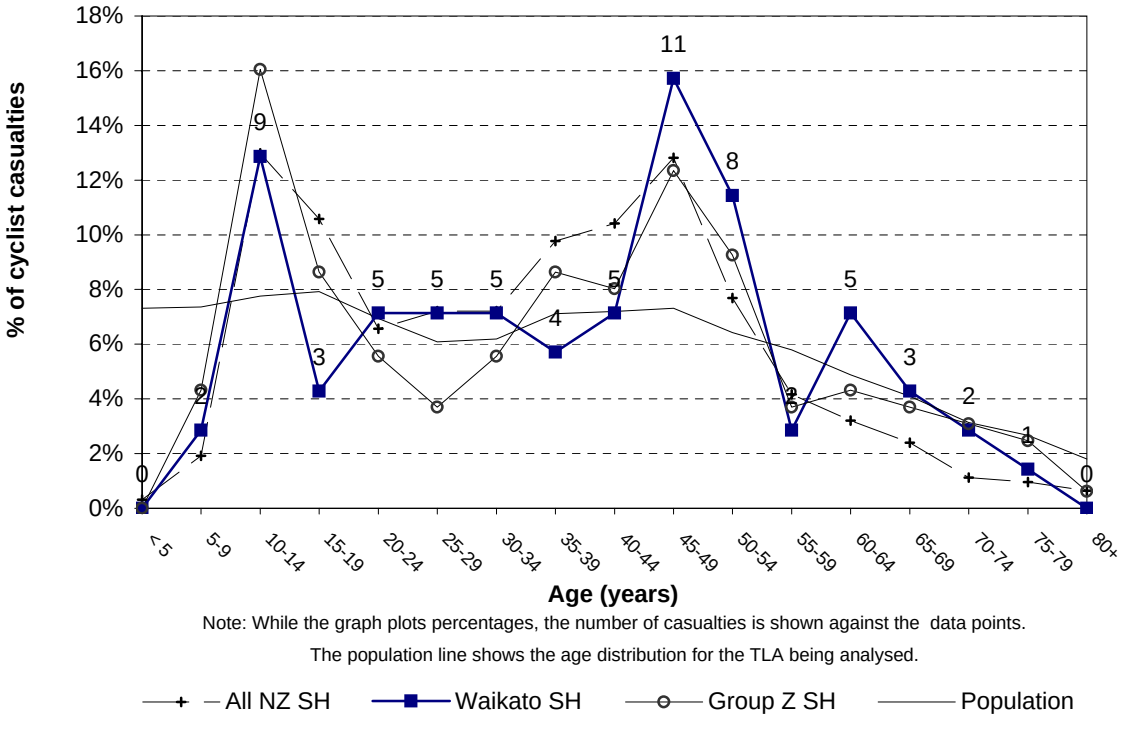
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.23 Pedestrian casualty age
Waikato Region state highways (2005-2009)



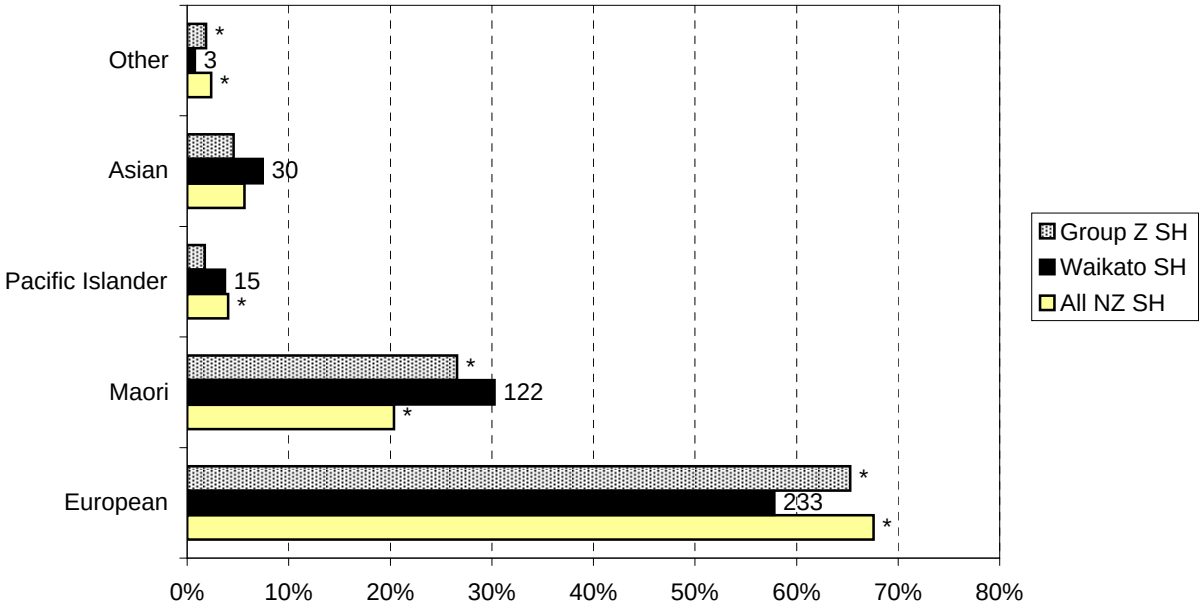
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed

Figure 3.24 Cyclist casualty age
Waikato Region state highways (2005-2009)



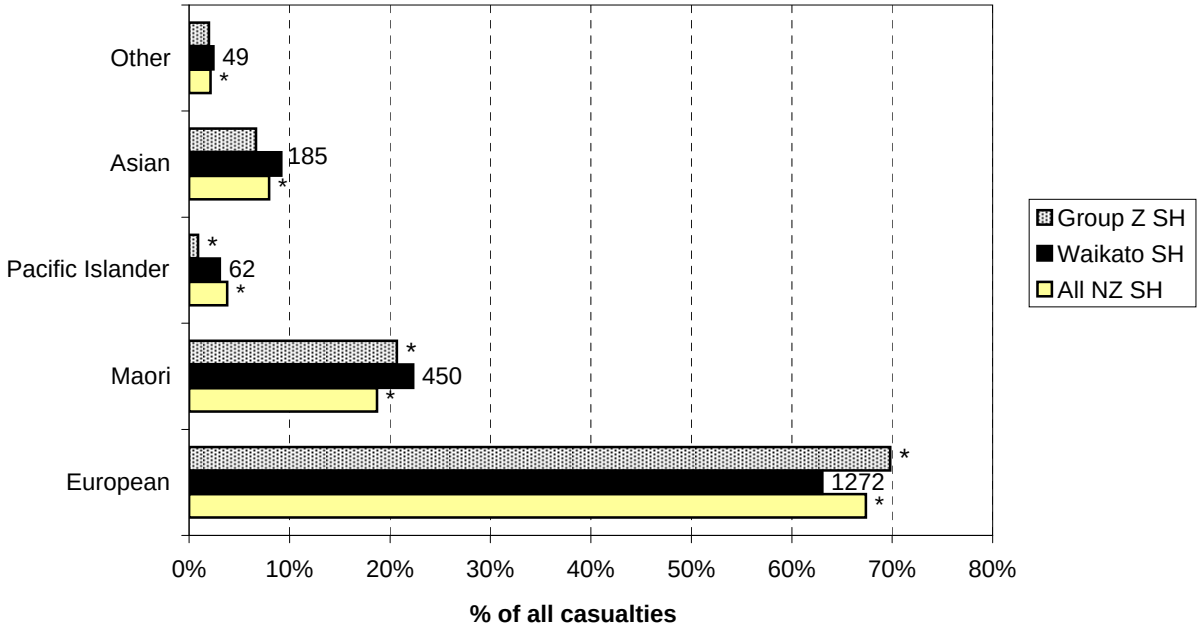
Note: While the graph plots percentages, the number of casualties is shown against the data points.
The population line shows the age distribution for the TLA being analysed.

Figure 3.25 Casualty ethnicity - urban
Waikato Region state highways (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
Waikato Region state highways (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
Waikato Region state highways

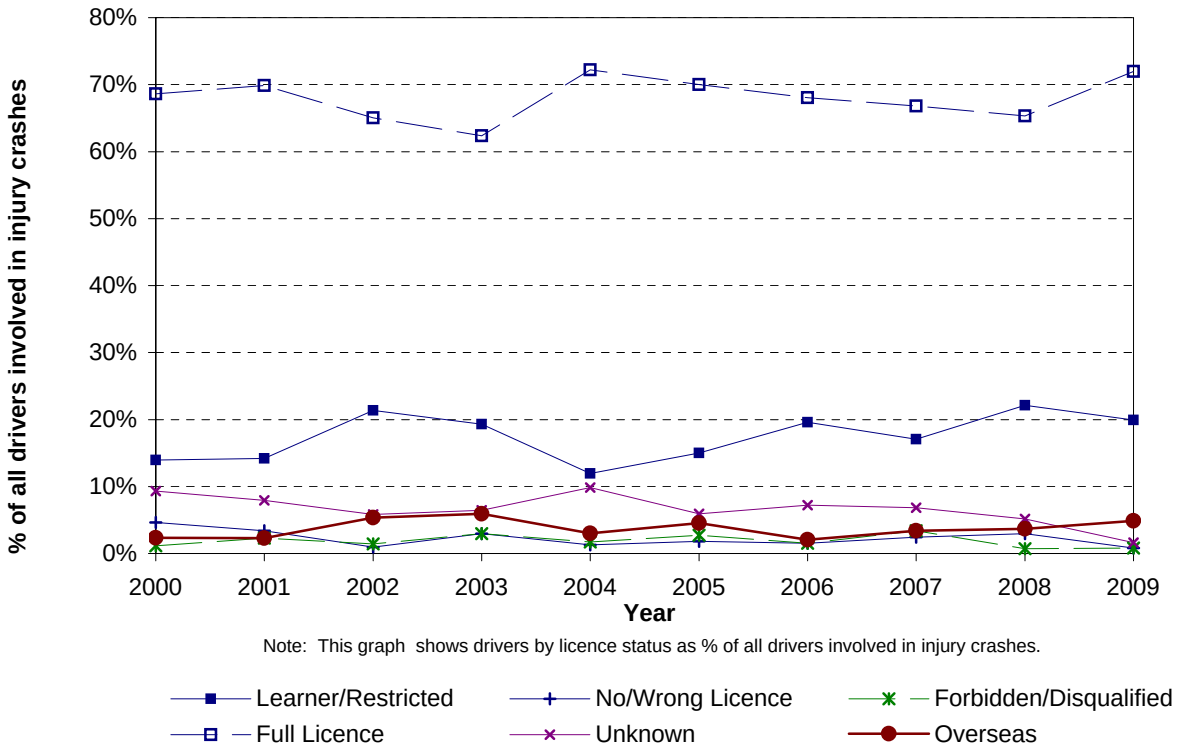
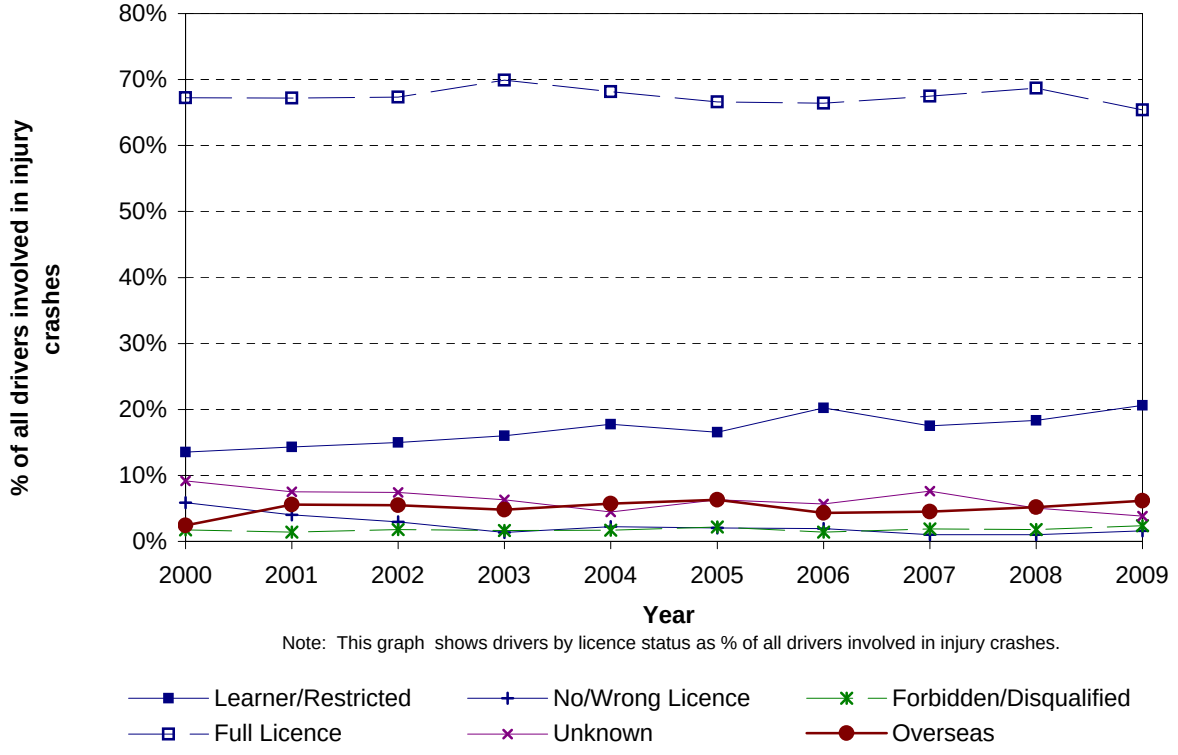
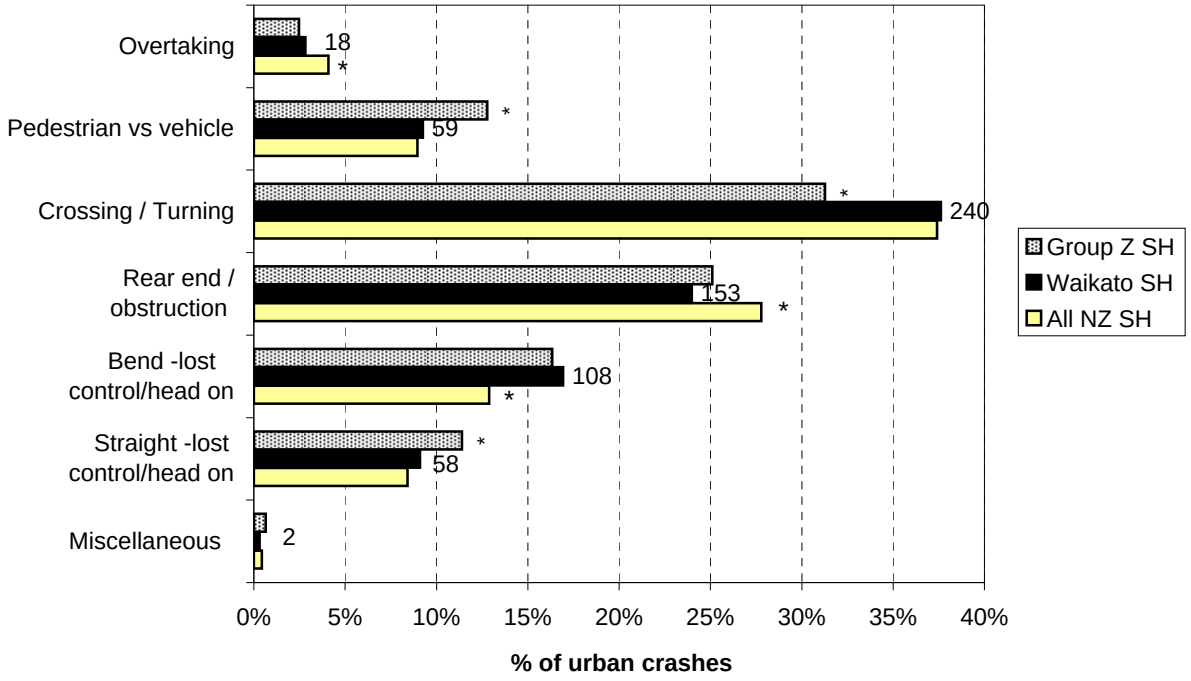


Figure 3.28 Licence status - rural
Waikato Region state highways



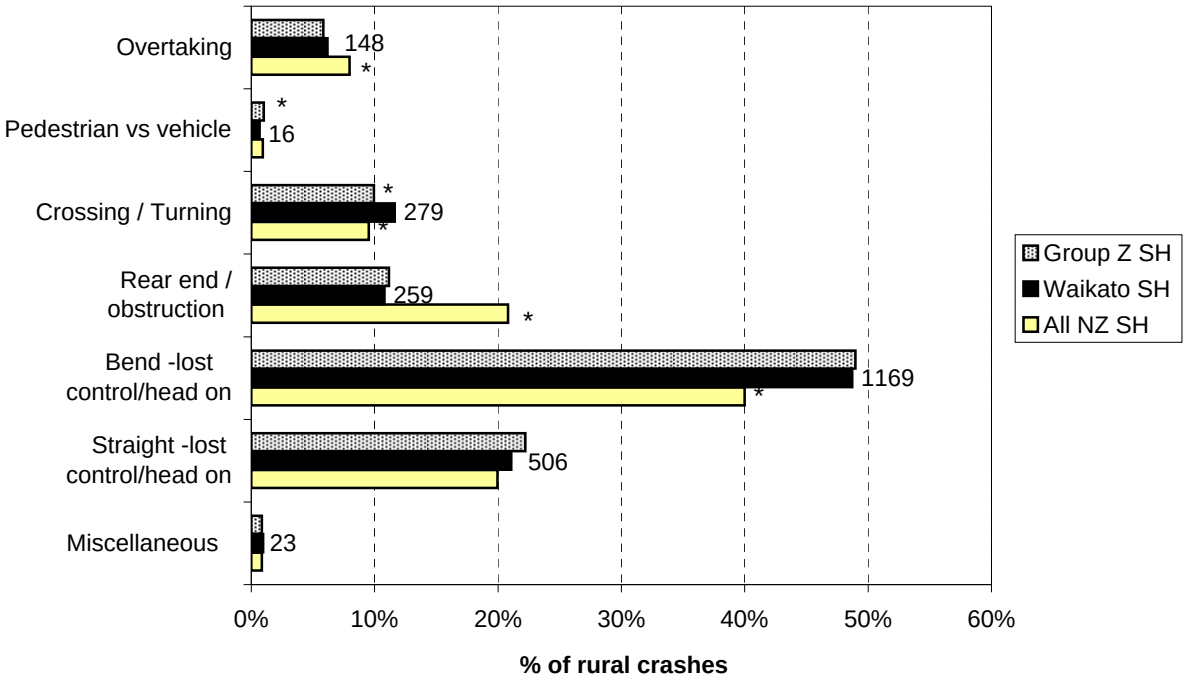
Crash Type Statistics

Figure 4.1 Crash movement type - urban Waikato Region state highways (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 Waikato Region state highways (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
Waikato Region - urban state highways

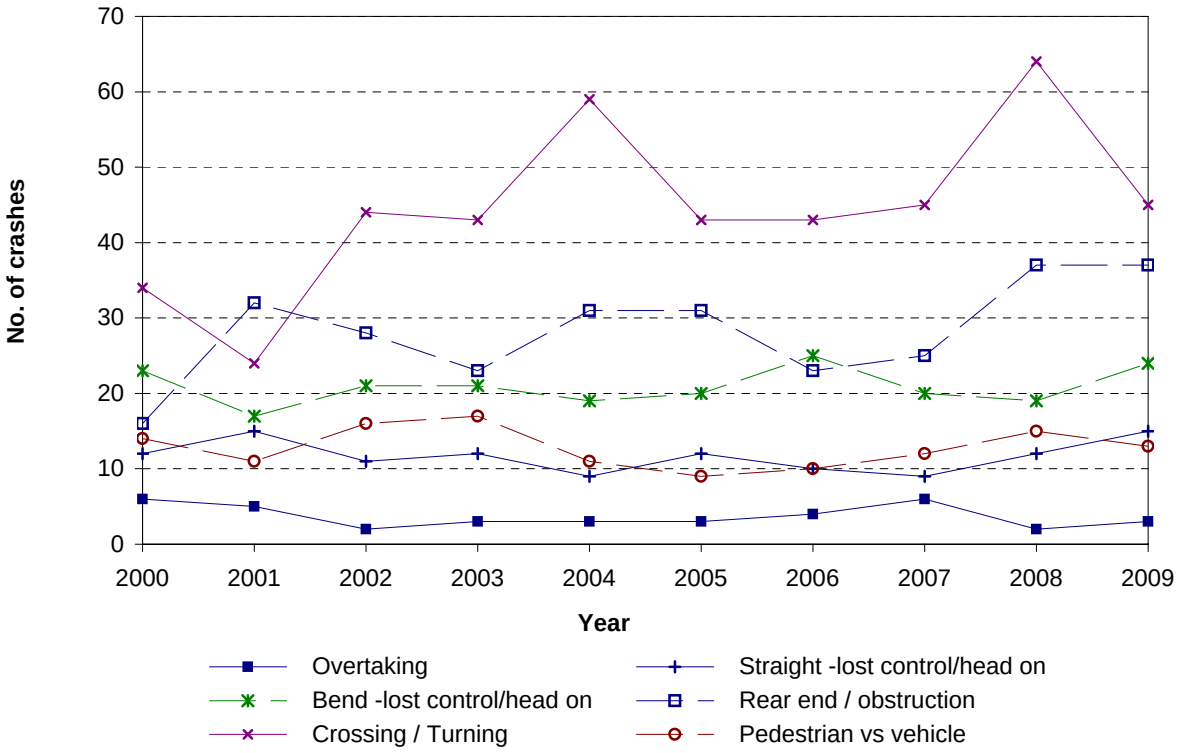


Figure 4.4 Crash movement type - trends
Waikato Region - rural state highways

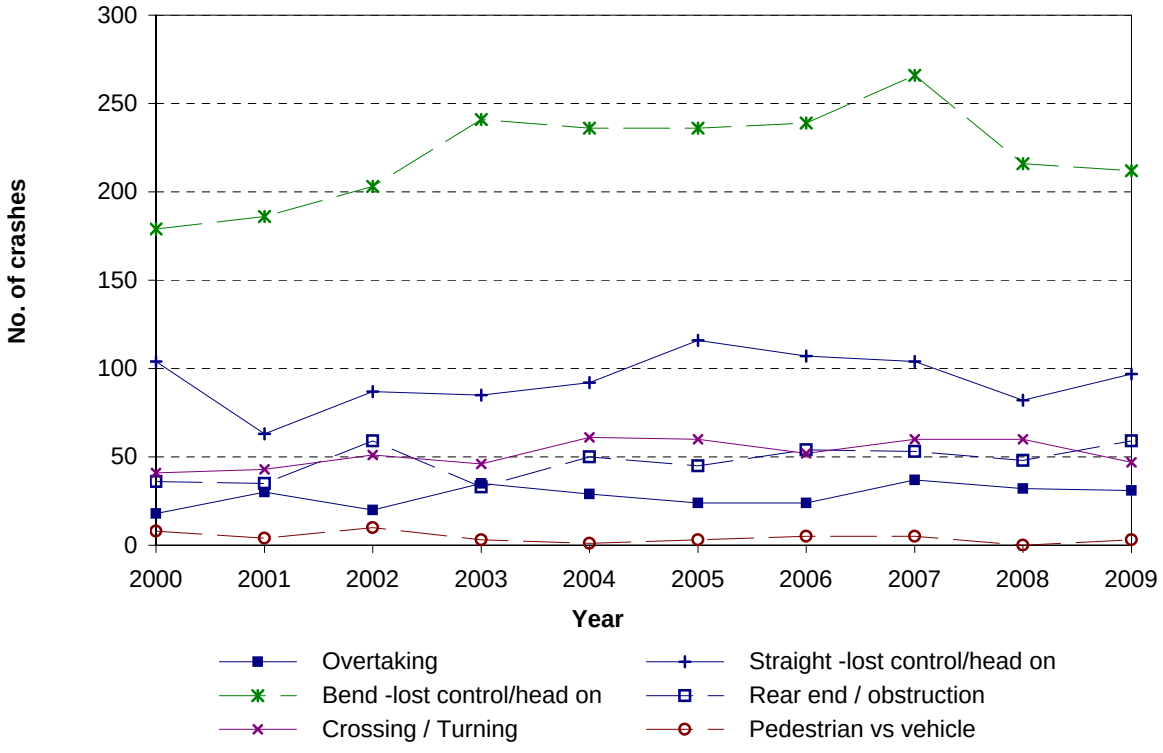
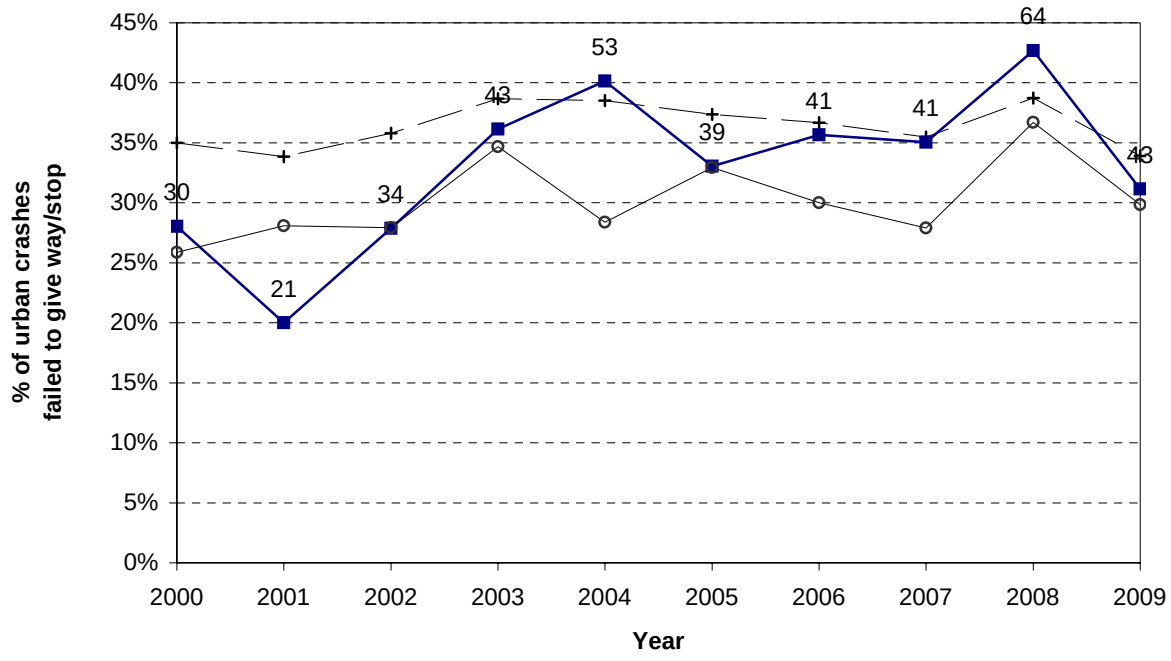
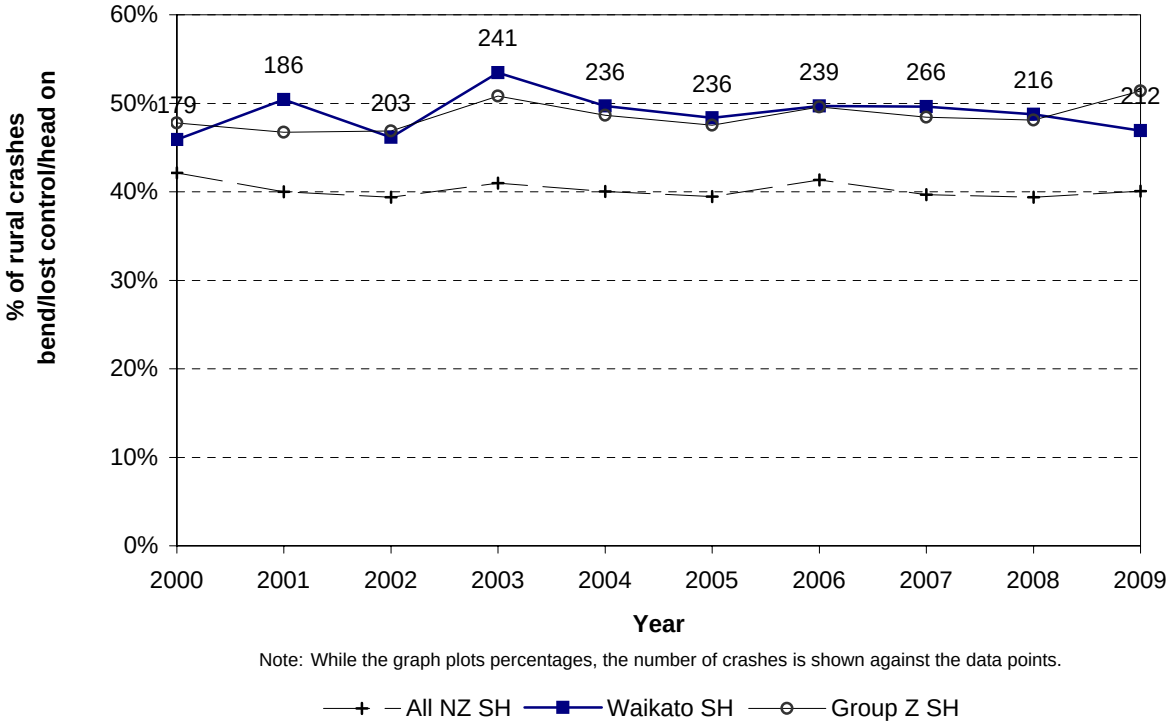


Figure 4.5 Failed to give way / stop
Waikato Region - urban state highways



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

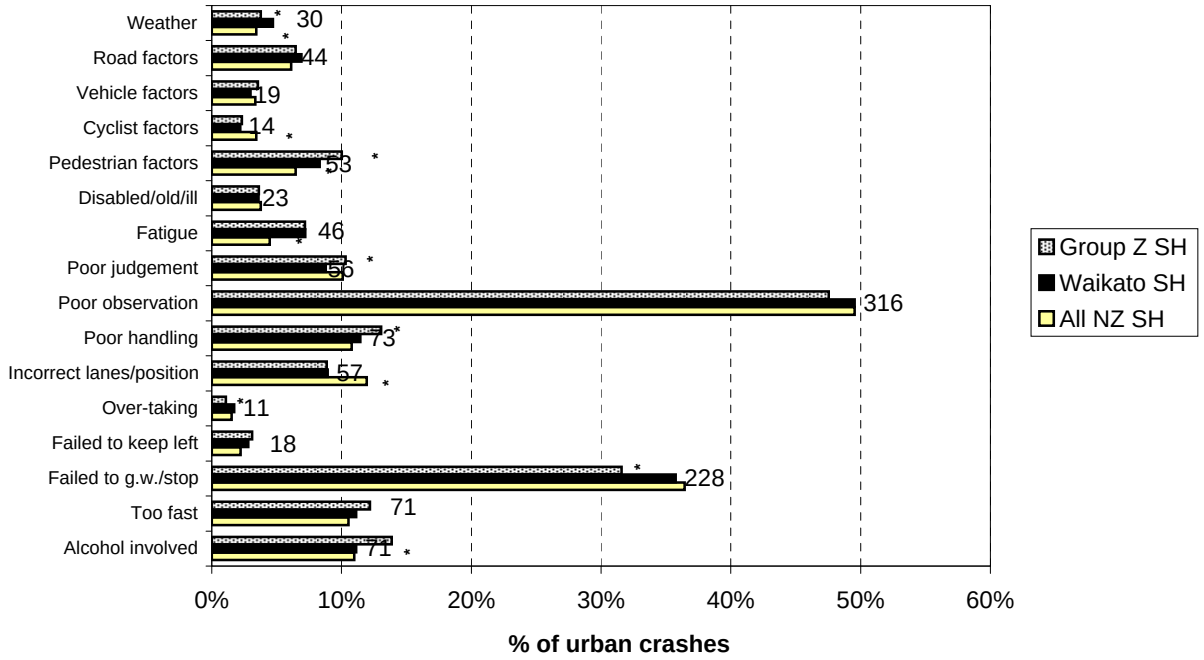
Figure 4.6 Bend - lost control / head - on
Waikato Region - rural state highways



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

Crash Factor Statistics

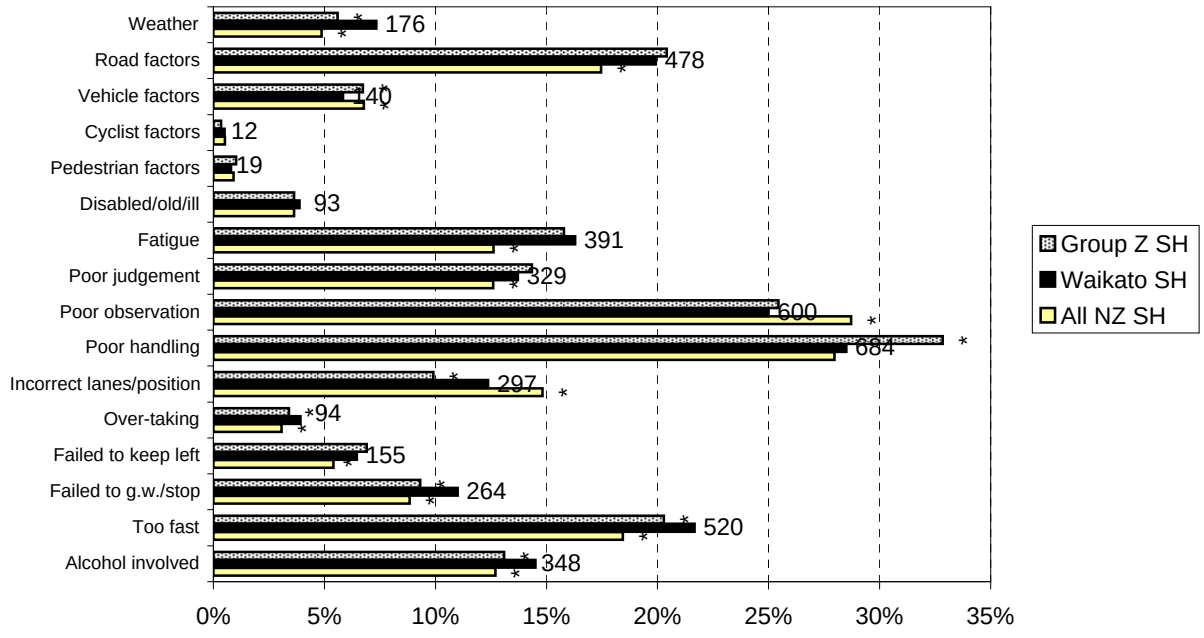
Figure 5.1 Contributing factors - urban Waikato Region state highways (2005-2009)



% of urban crashes

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 Waikato Region state highways (2005-2009)



% of rural crashes

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
Waikato Region - urban state highways

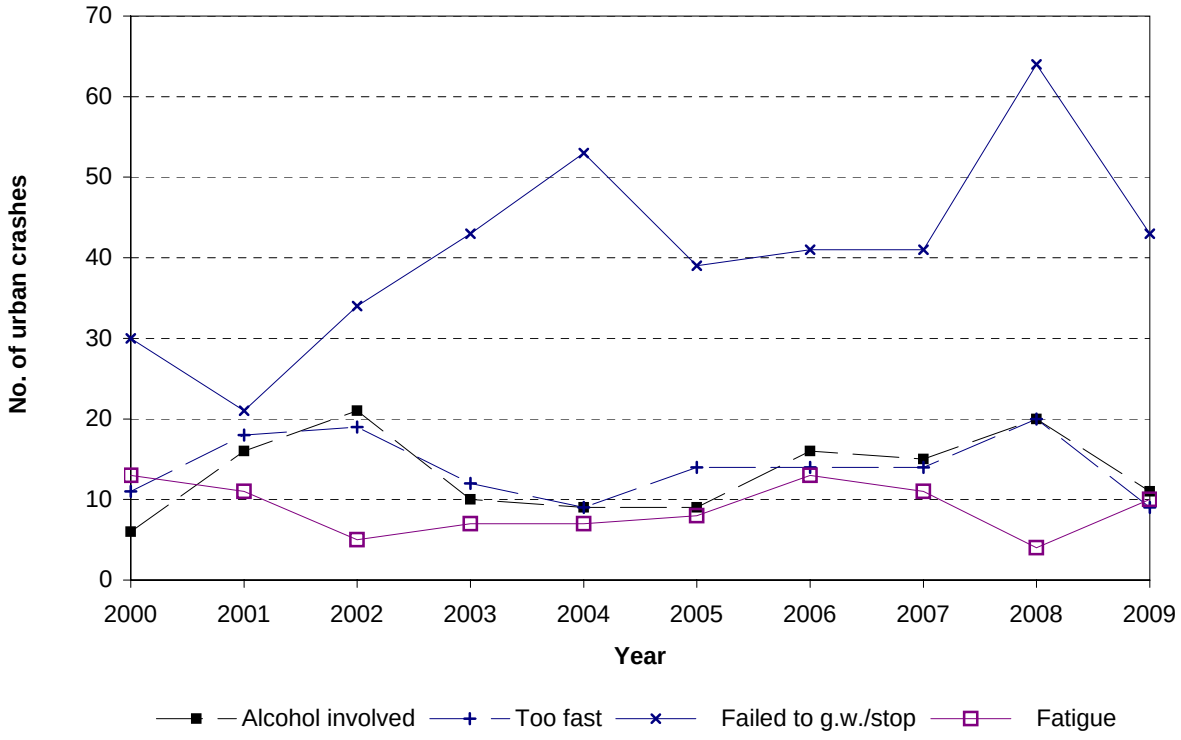


Figure 5.4 Contributing factor trends
Waikato Region - urban state highways

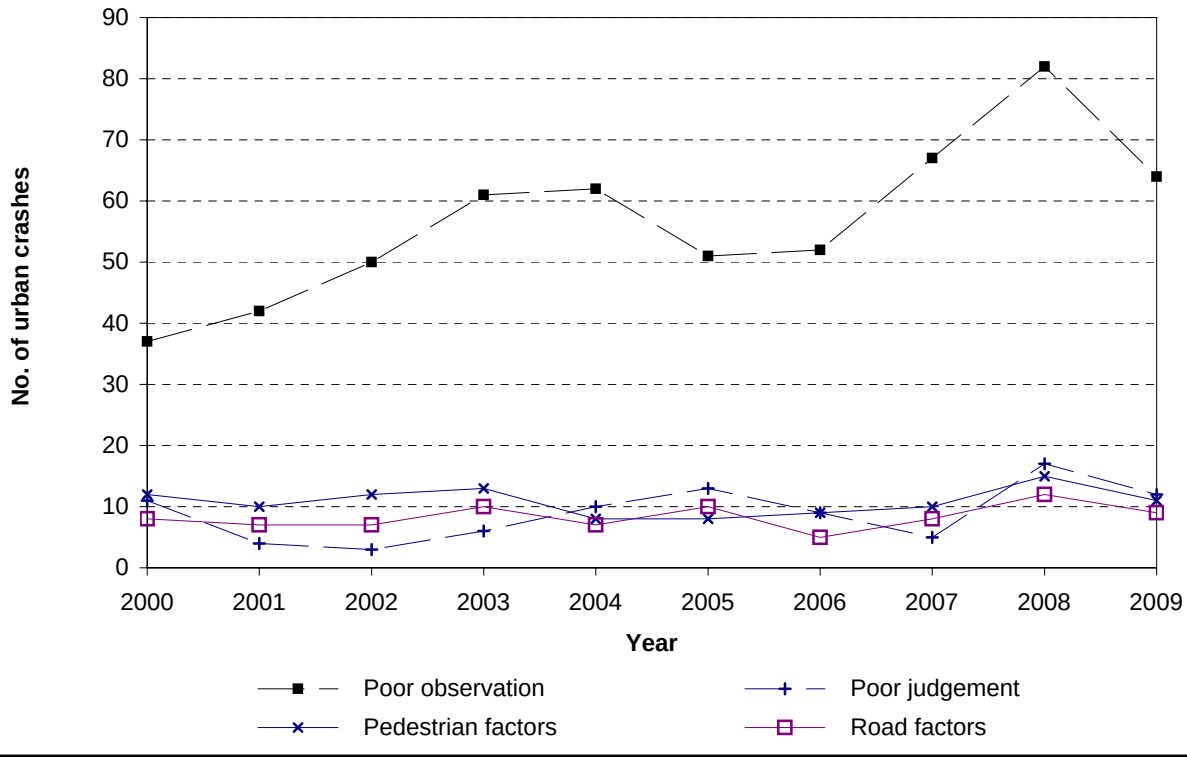


Figure 5.5 Contributing factor trends
Waikato Region - urban state highways

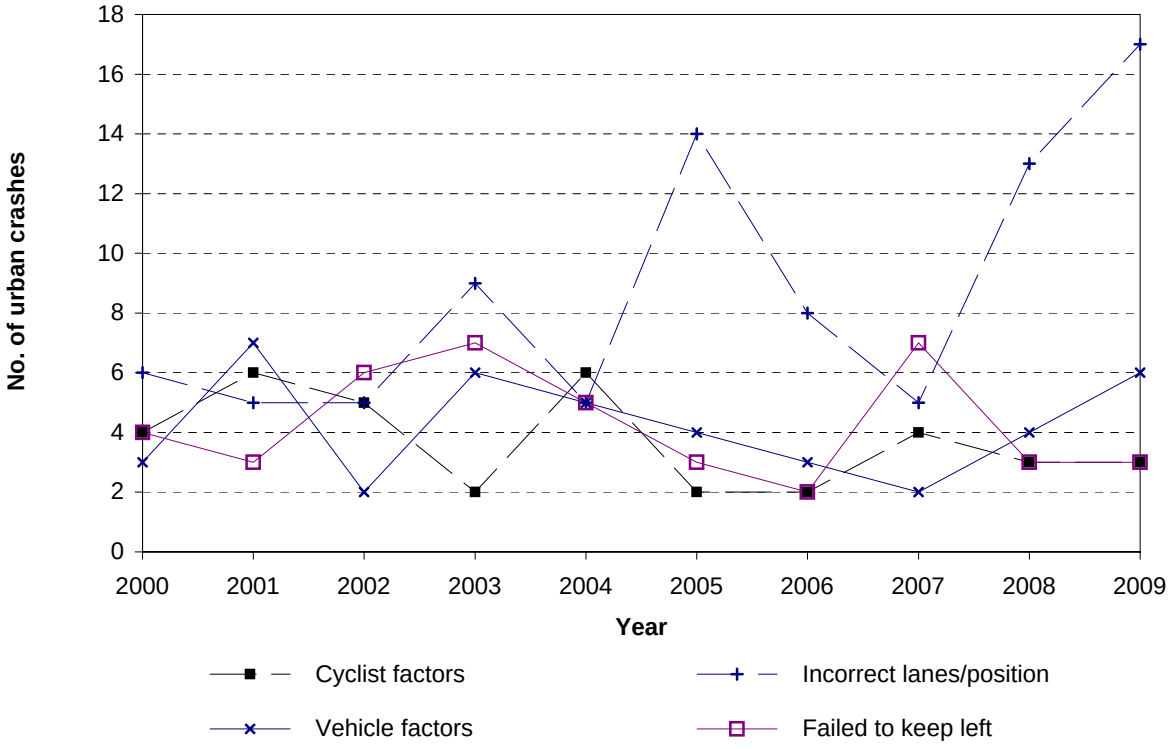


Figure 5.6 Contributing factor trends
Waikato Region - urban state highways

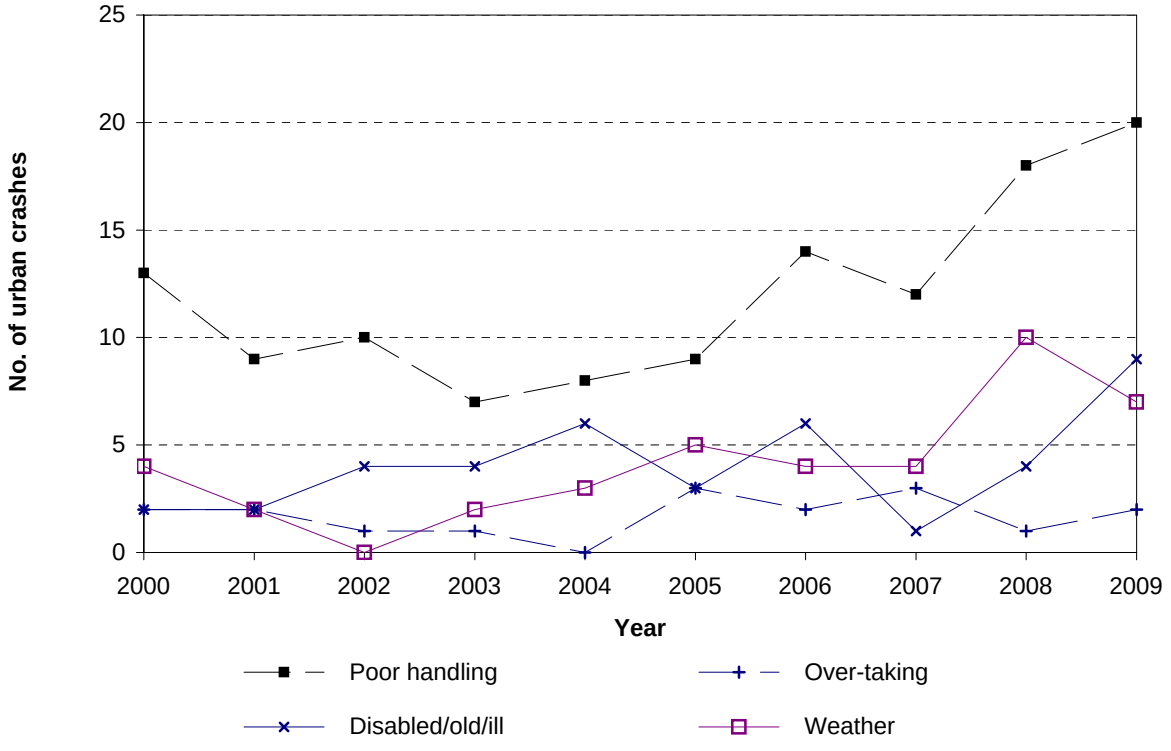
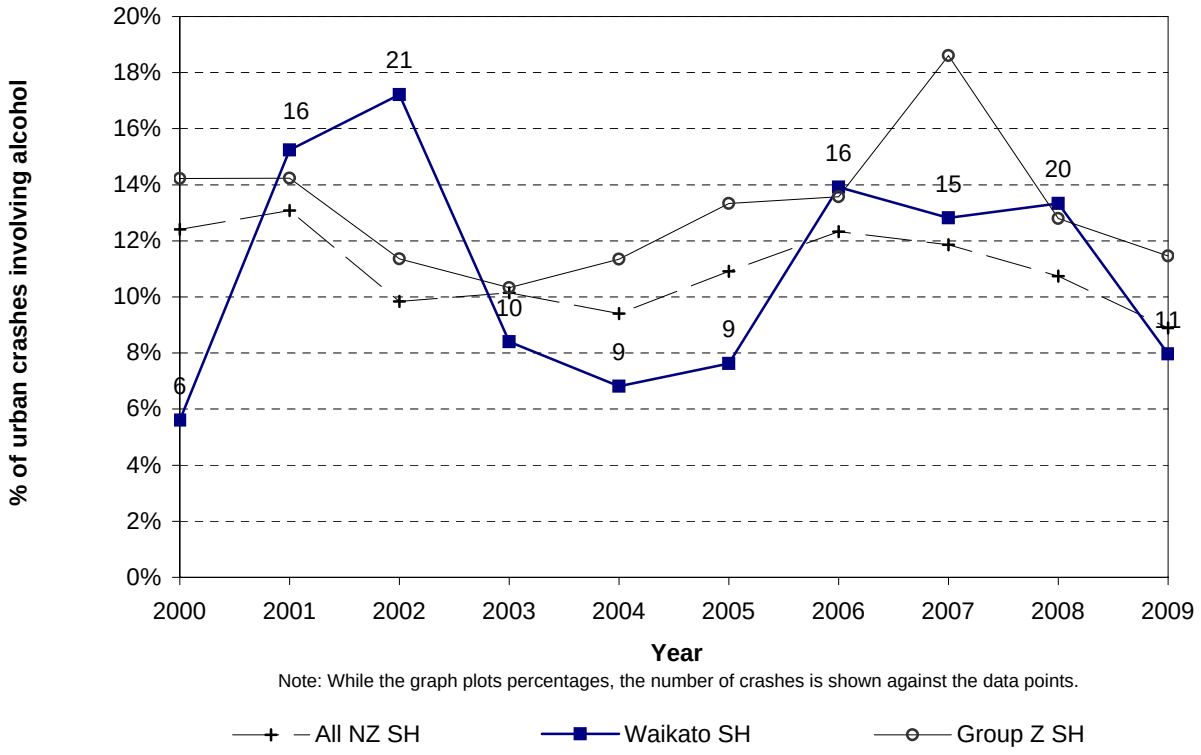
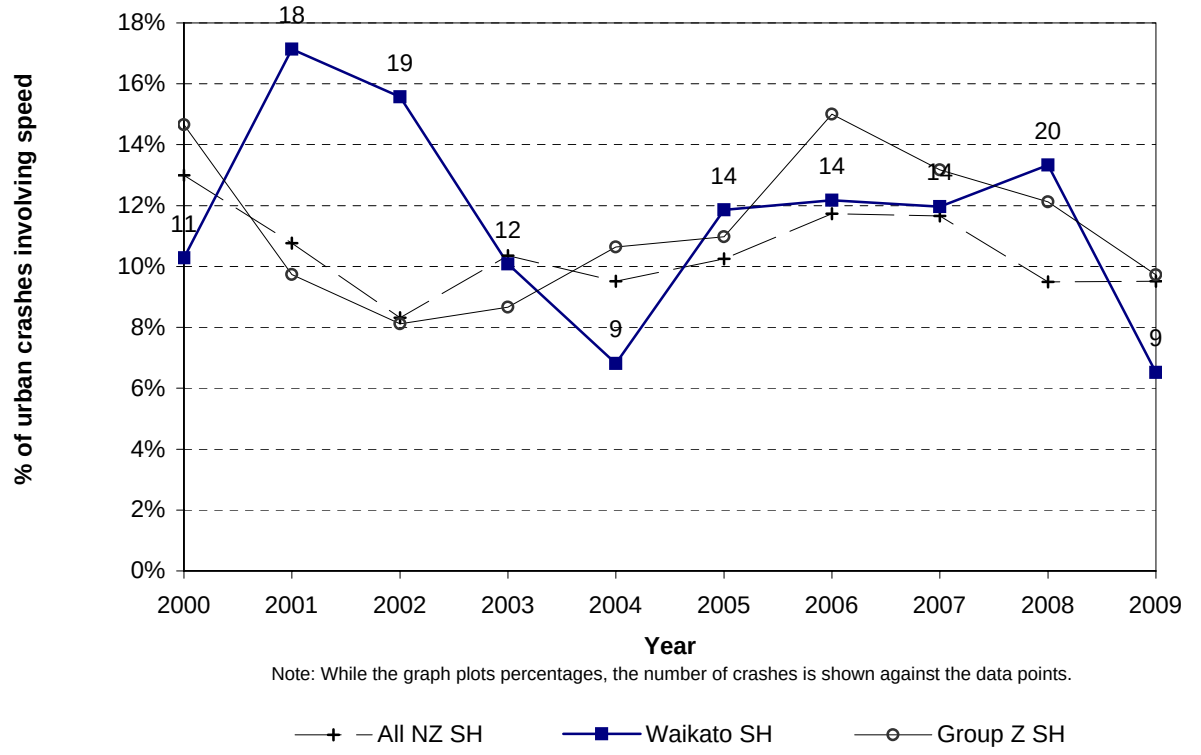


Figure 5.7 Alcohol involved trend
Waikato Region - urban state highways



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

Figure 5.8 Speed involved trend
Waikato Region - urban state highways



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

Figure 5.9 Contributing factor trends
Waikato Region - rural state highways

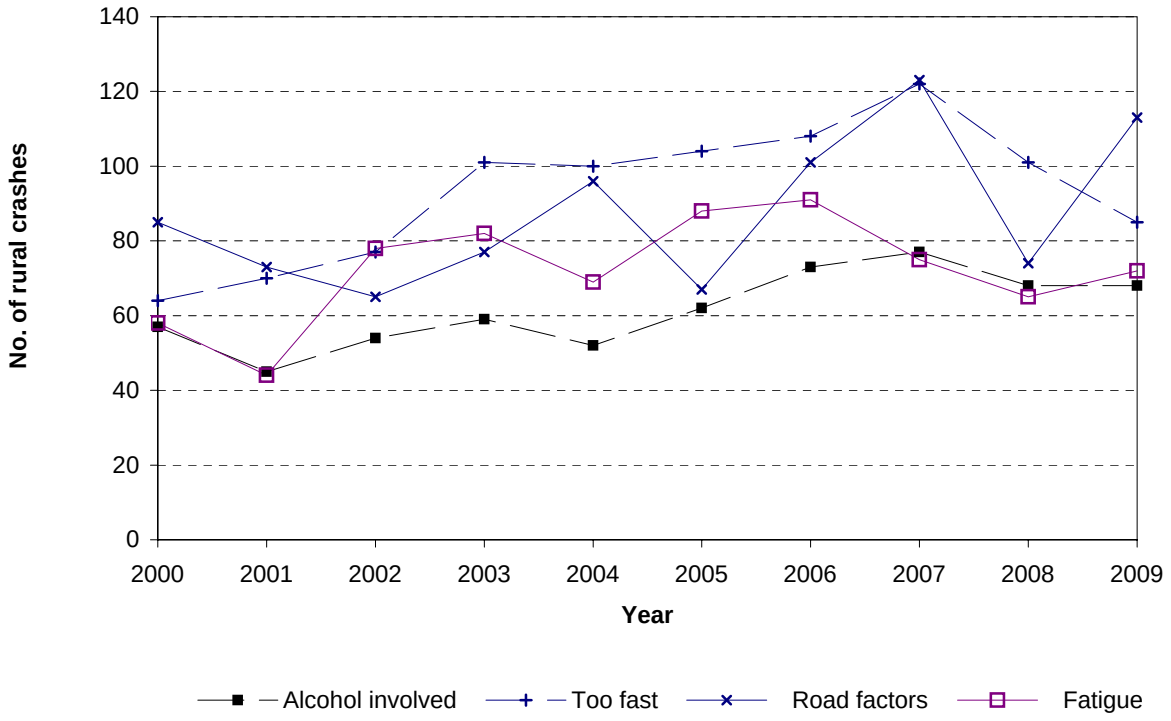


Figure 5.10 Contributing factor trends
Waikato Region - rural state highways

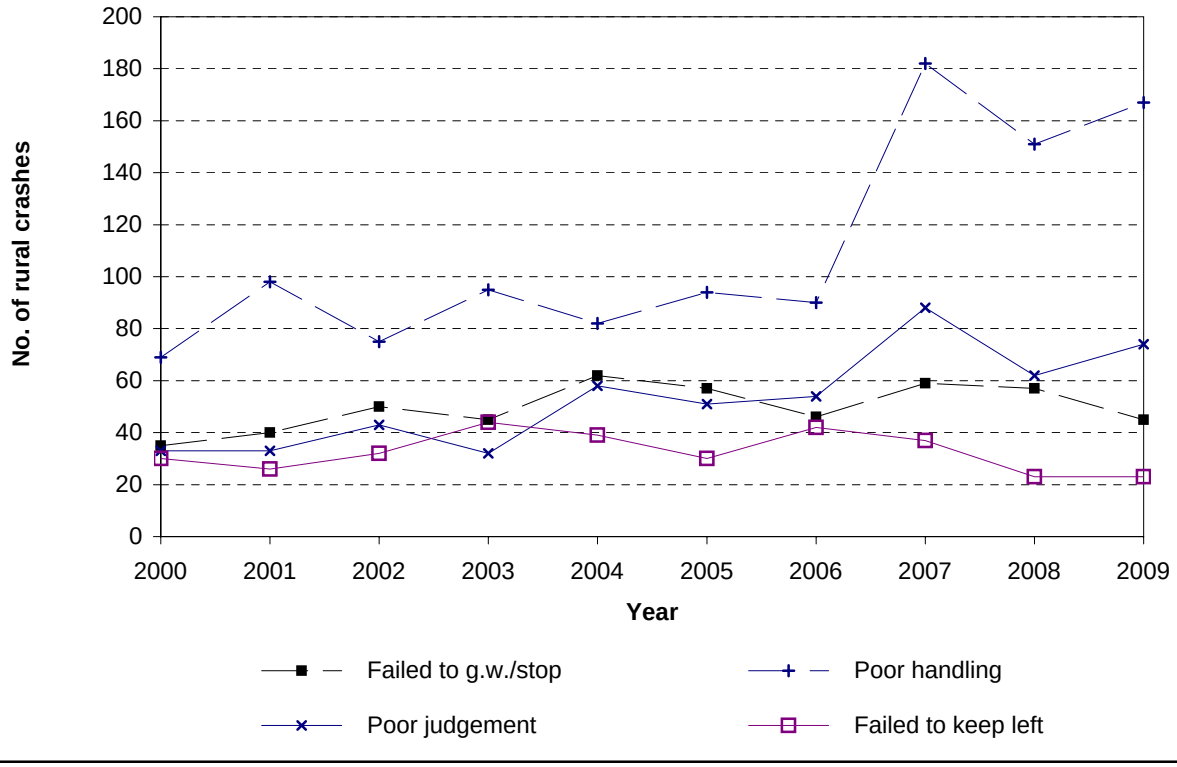


Figure 5.11 Contributing factor trends
Waikato Region - rural state highways

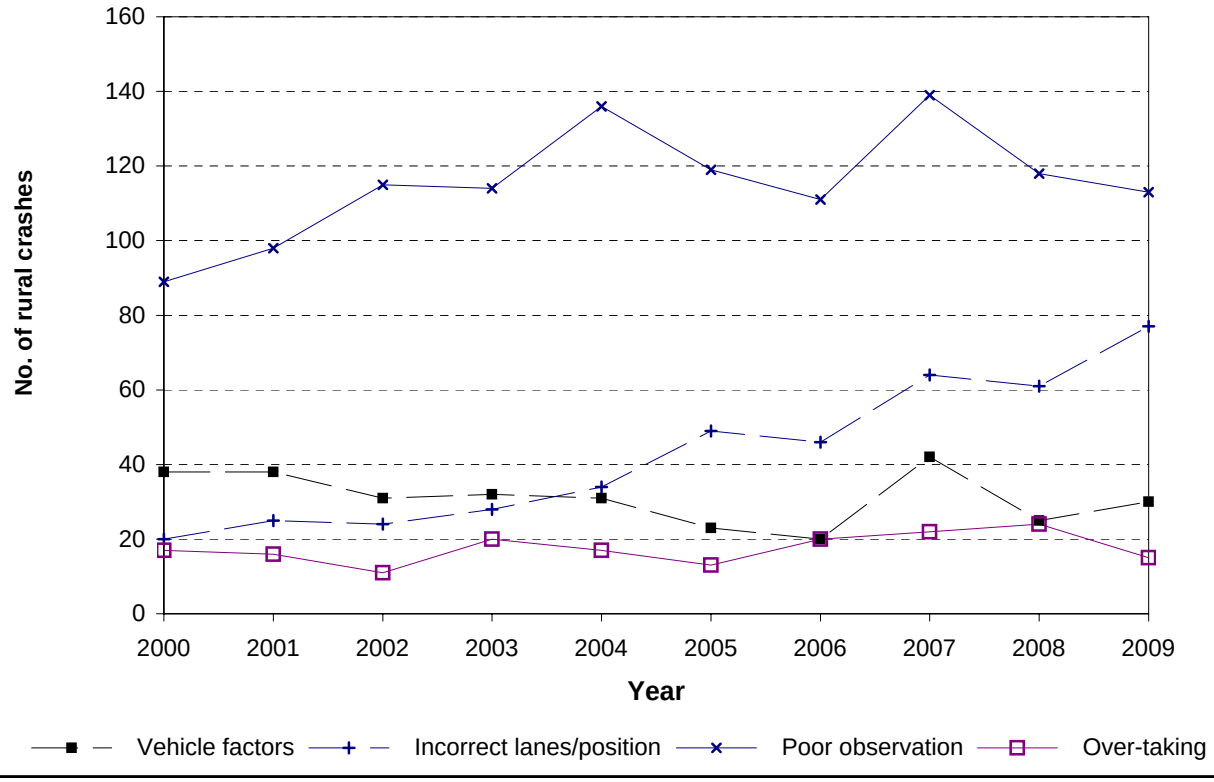


Figure 5.12 Contributing factor trends
Waikato Region - rural state highways

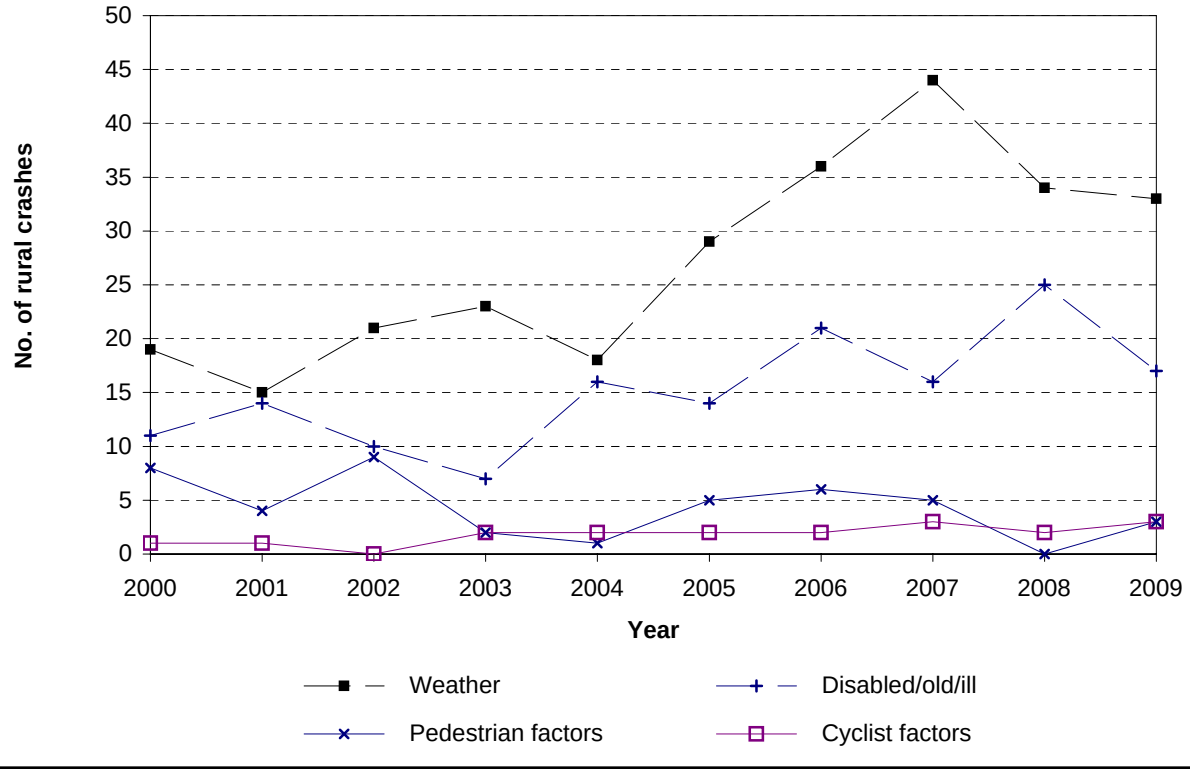
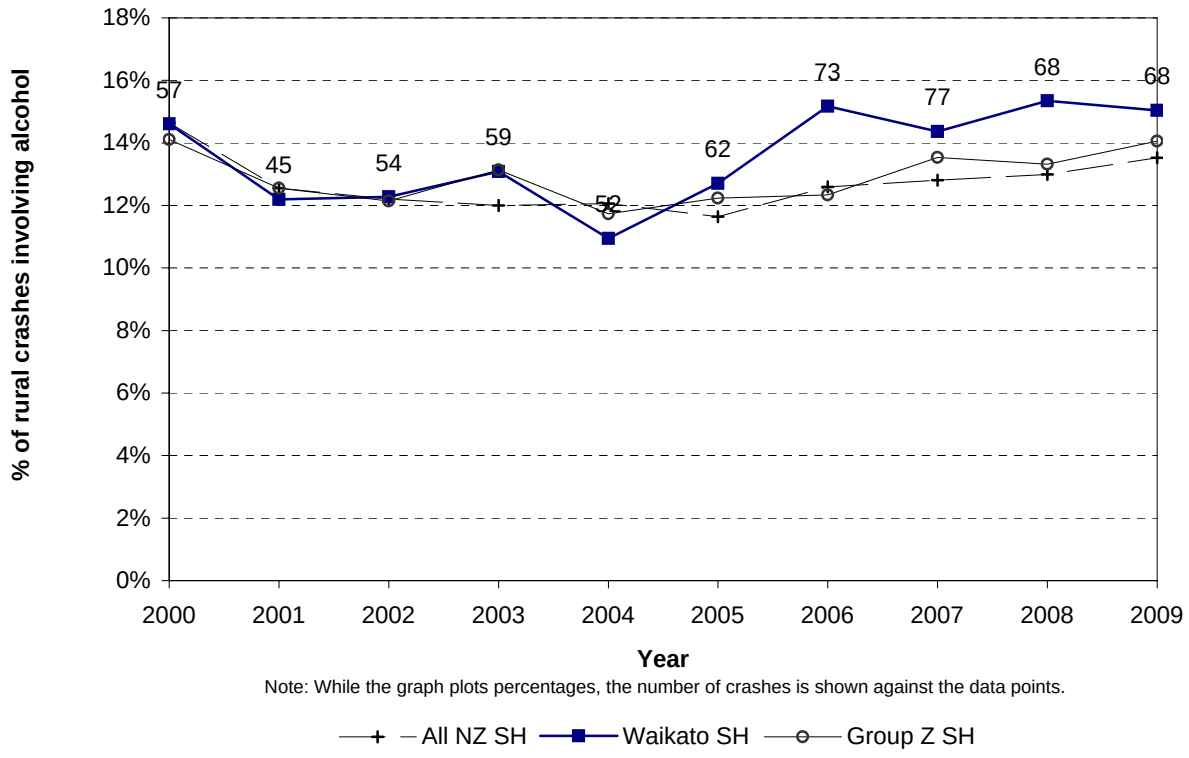
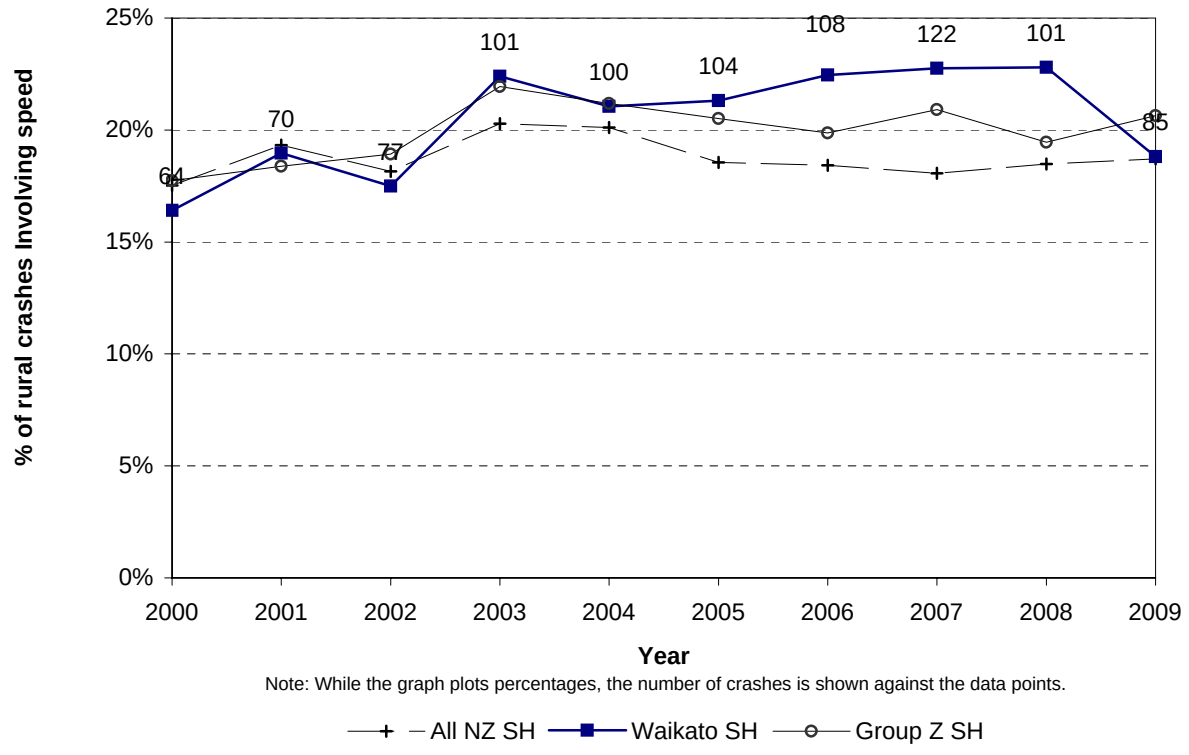


Figure 5.13 Alcohol involved trend
Waikato Region - rural state highways



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

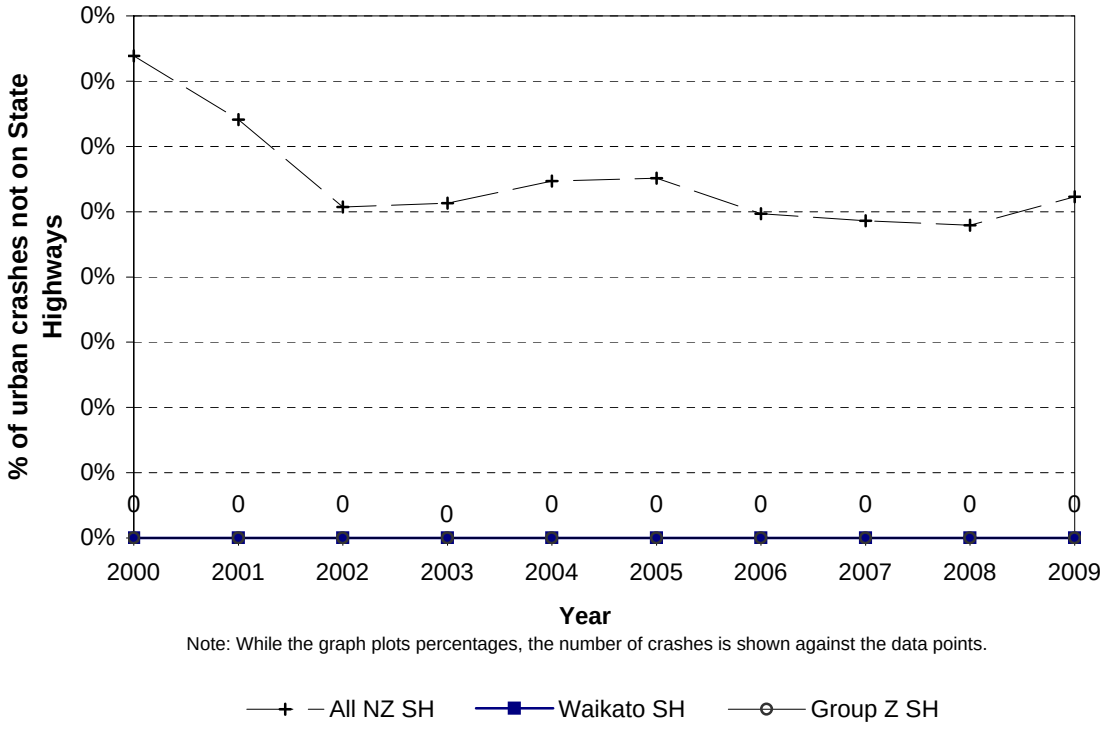
Figure 5.14 Speed involved trend
Waikato Region - rural state highways



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

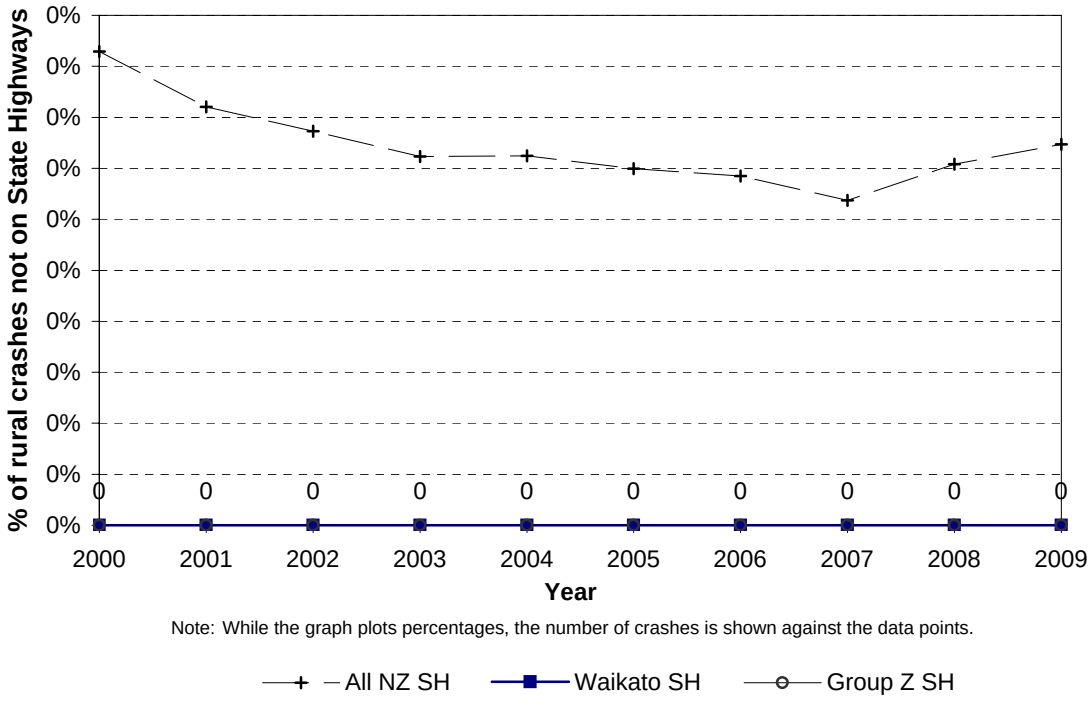
Environmental Statistics

Figure 6.1 Crashes not on state highways
Waikato Region - urban state highways



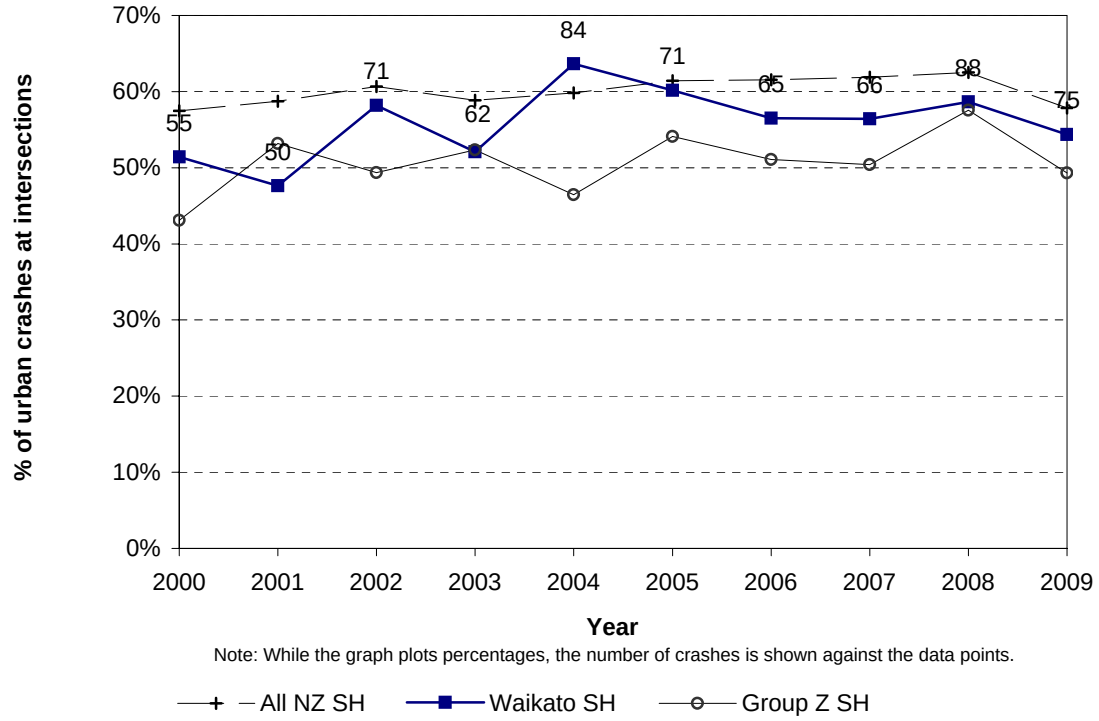
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.2 Crashes not on state highways
Waikato Region - rural state highways



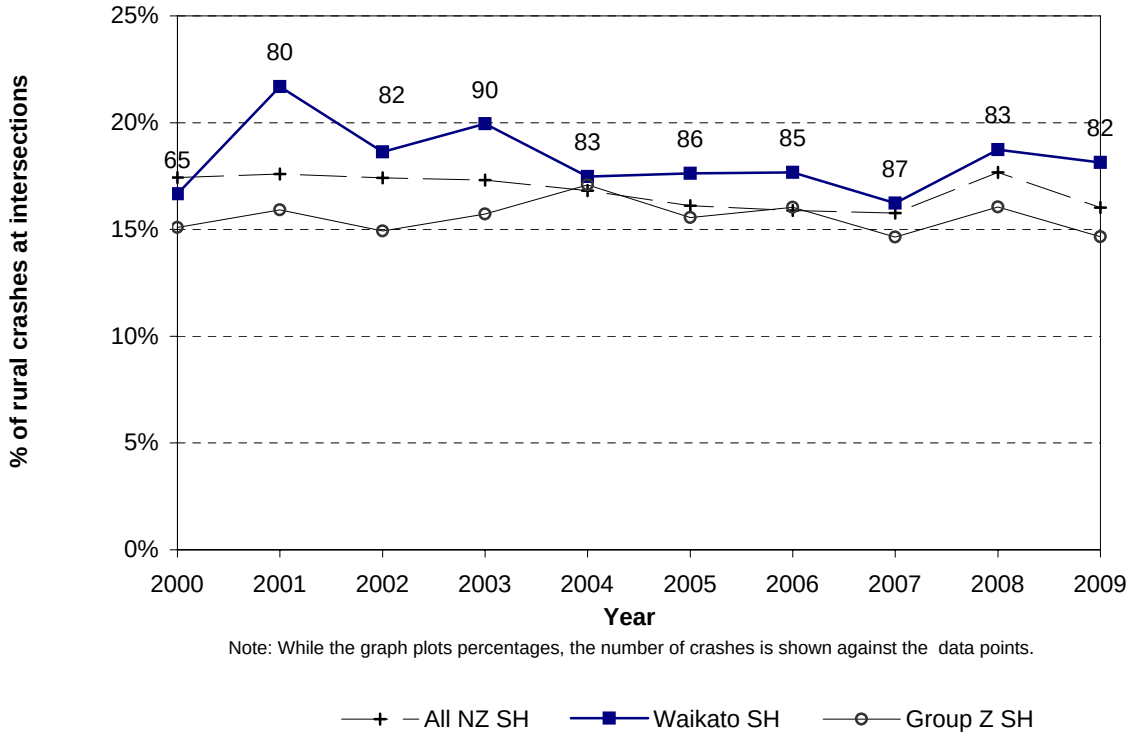
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.3 Intersection crashes
Waikato Region - urban state highways



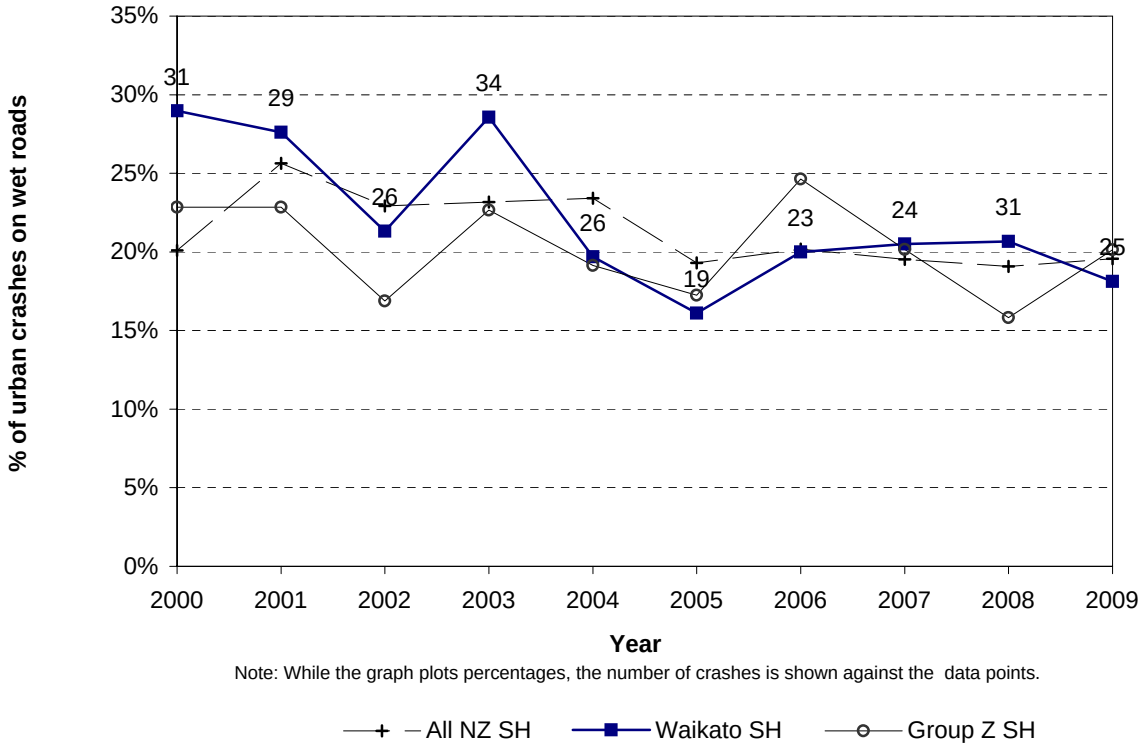
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.4 Intersection crashes
Waikato Region - rural state highways



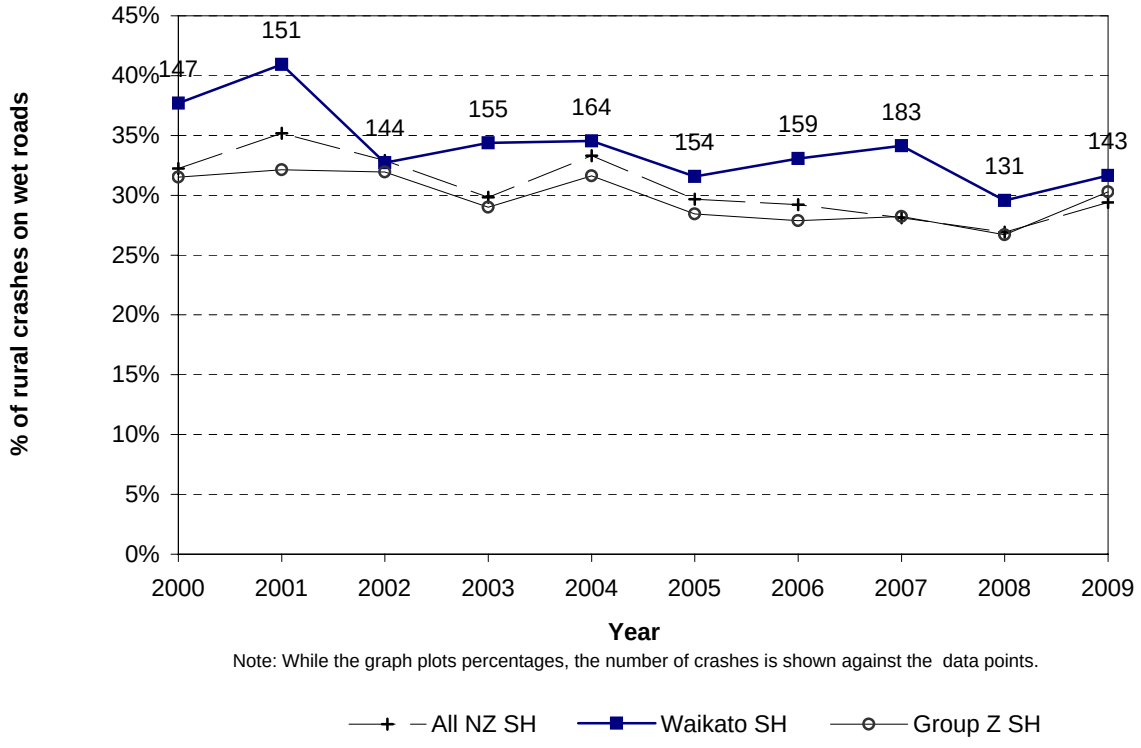
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.5 Wet road crashes
Waikato Region - urban state highways



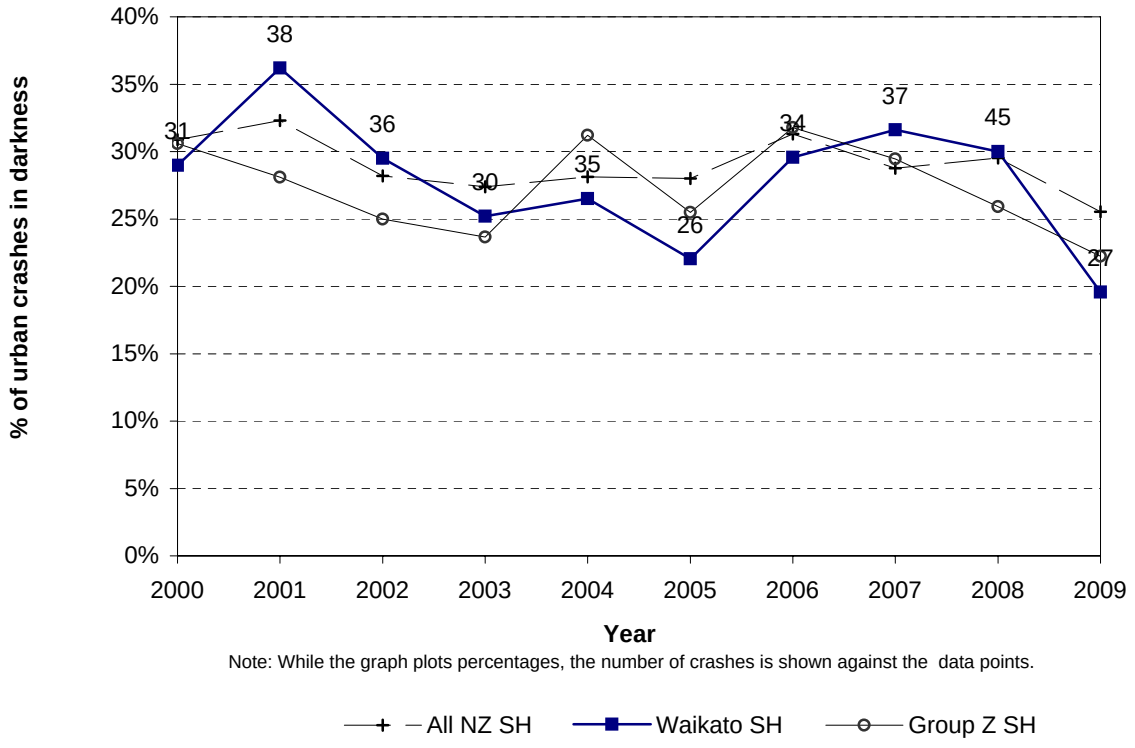
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.6 Wet road crashes
Waikato Region - rural state highways



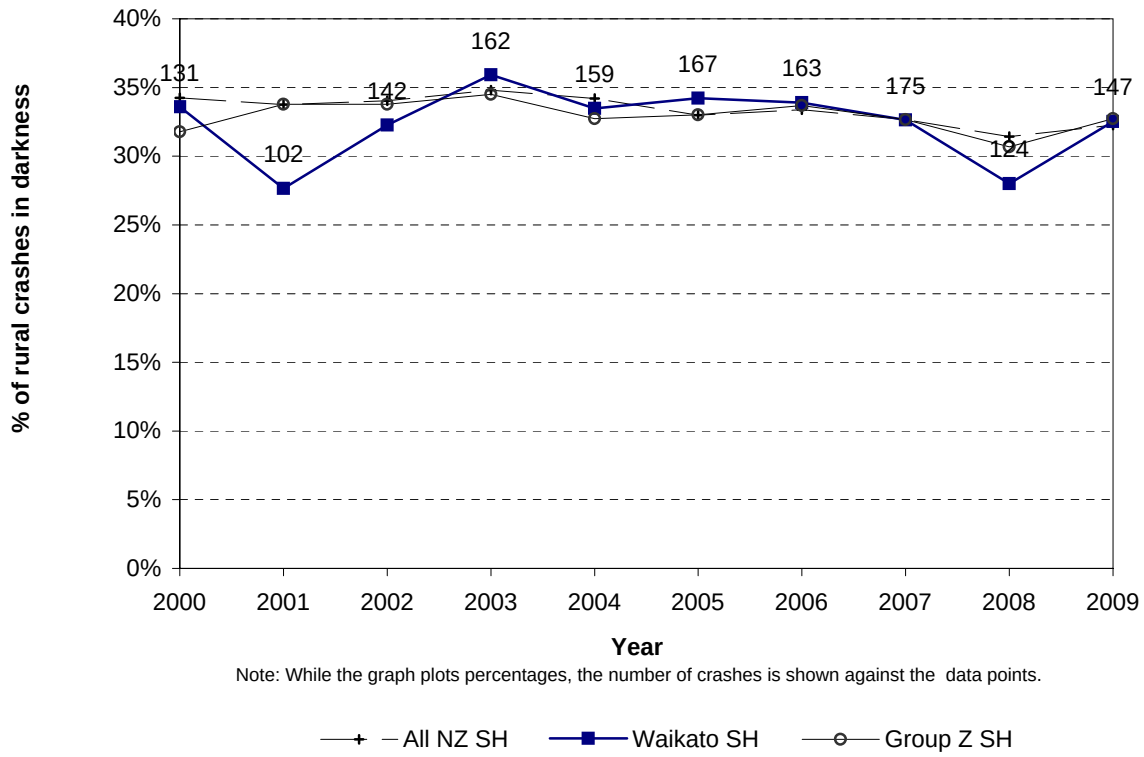
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.7 Crashes in darkness
Waikato Region - urban state highways



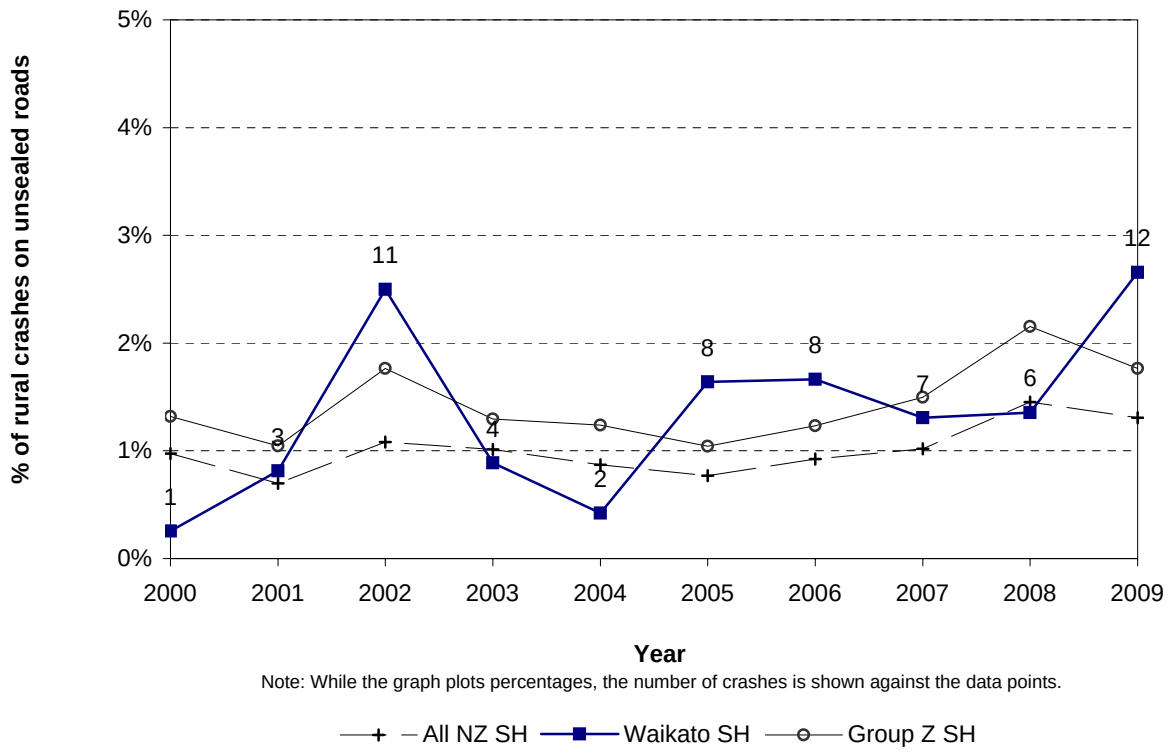
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.8 Crashes in darkness
Waikato Region - rural state highways



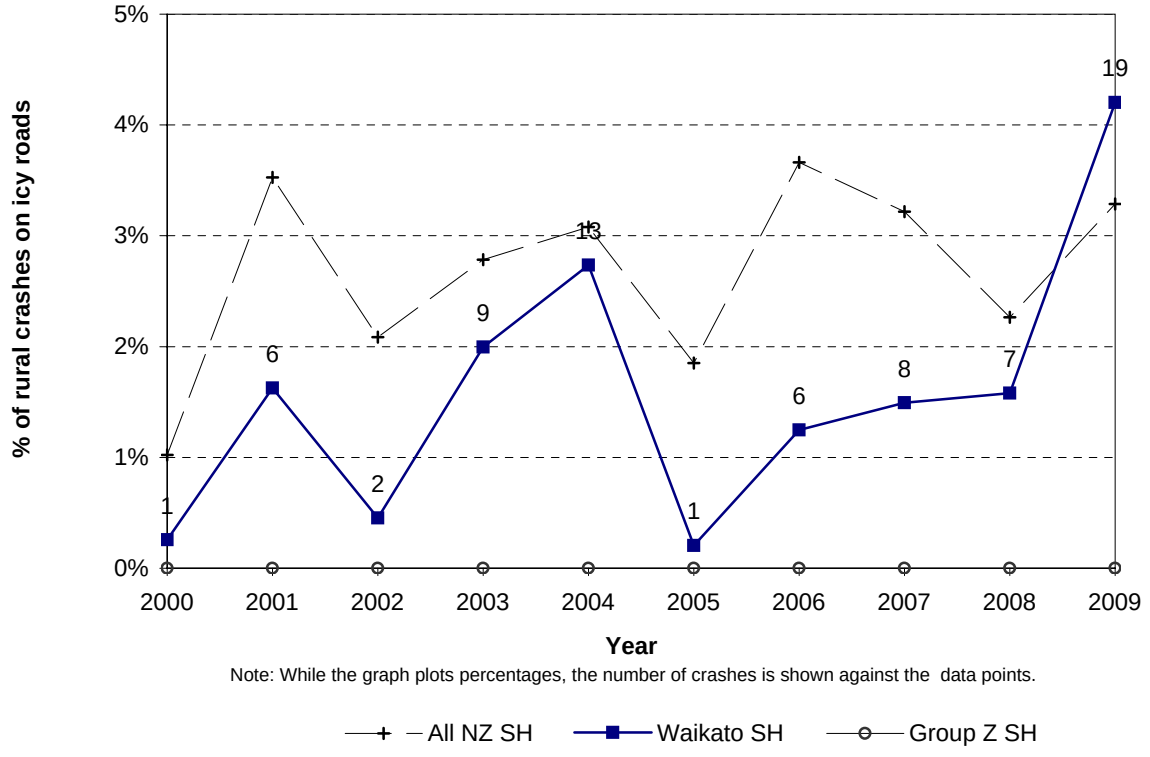
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.9 Unsealed road crashes
Waikato Region - rural state highways



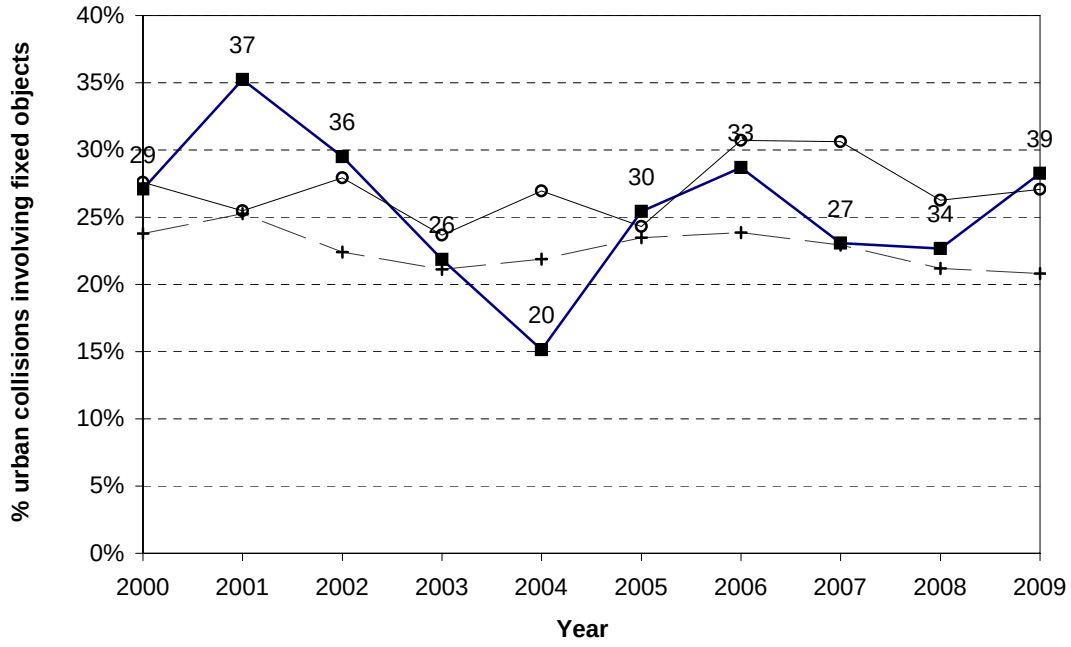
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.10 Icy road crashes
Waikato Region - rural state highways



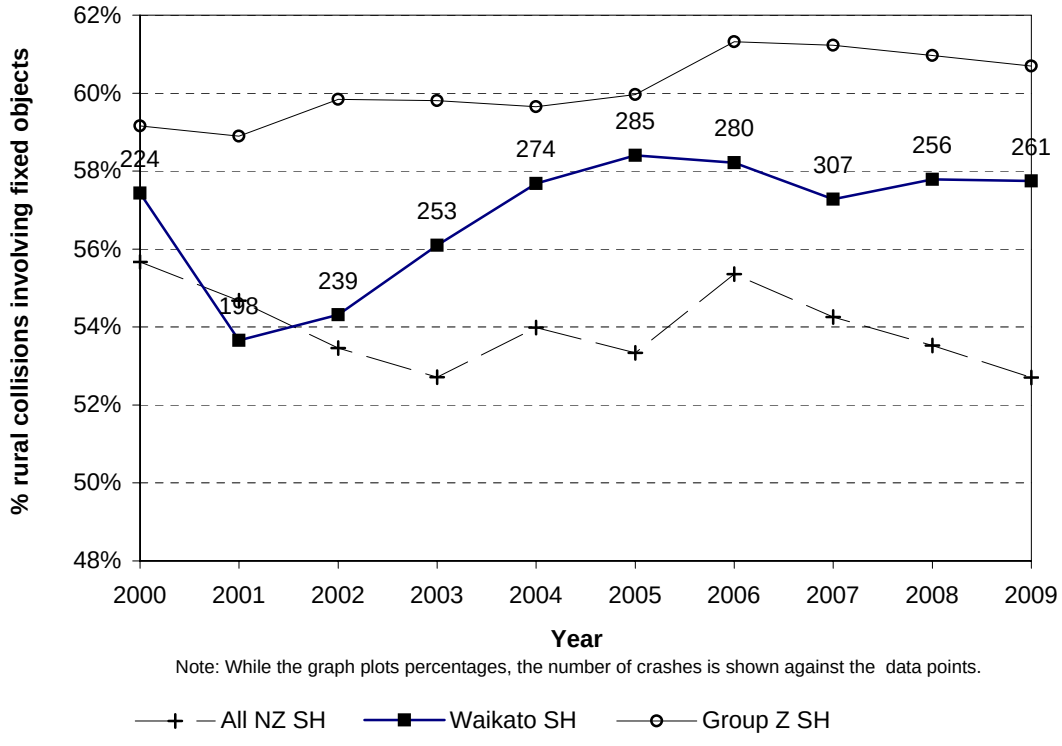
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.11 Collisions with objects
Waikato Region - urban state highways



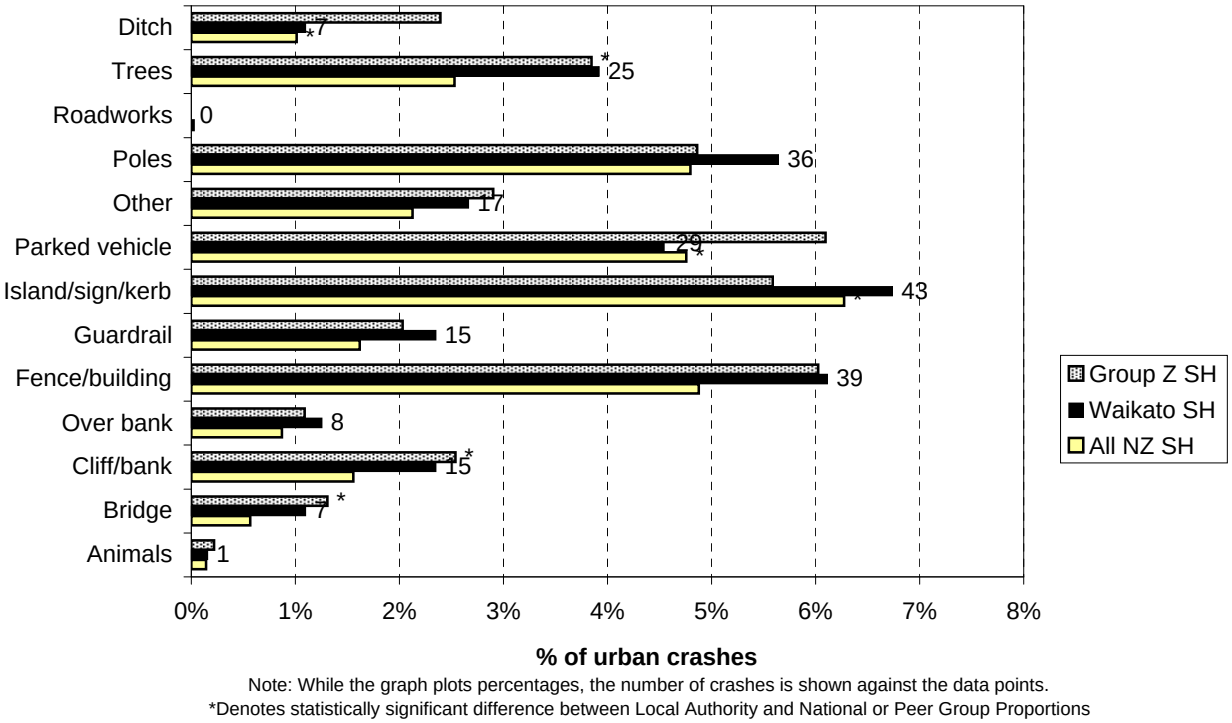
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.12 Collisions with objects
Waikato Region - rural state highways



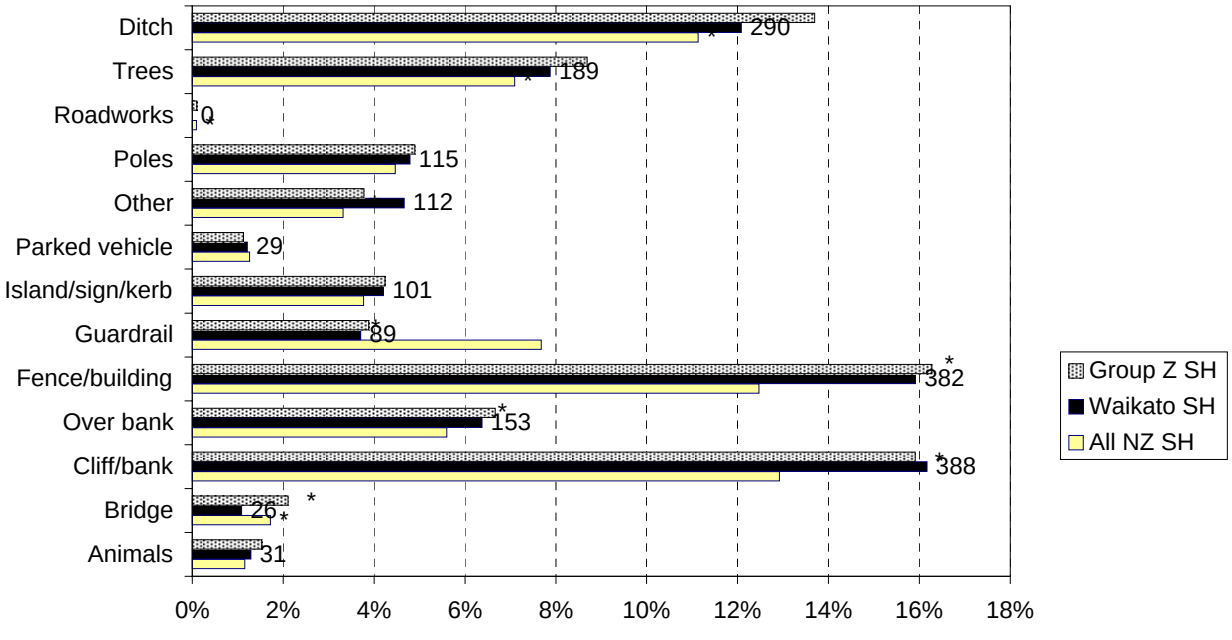
Note: While the graph plots percentages, the number of crashes is shown against the data points.

Figure 6.13 Objects struck - urban Waikato Region state highways (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 Waikato Region state highways (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

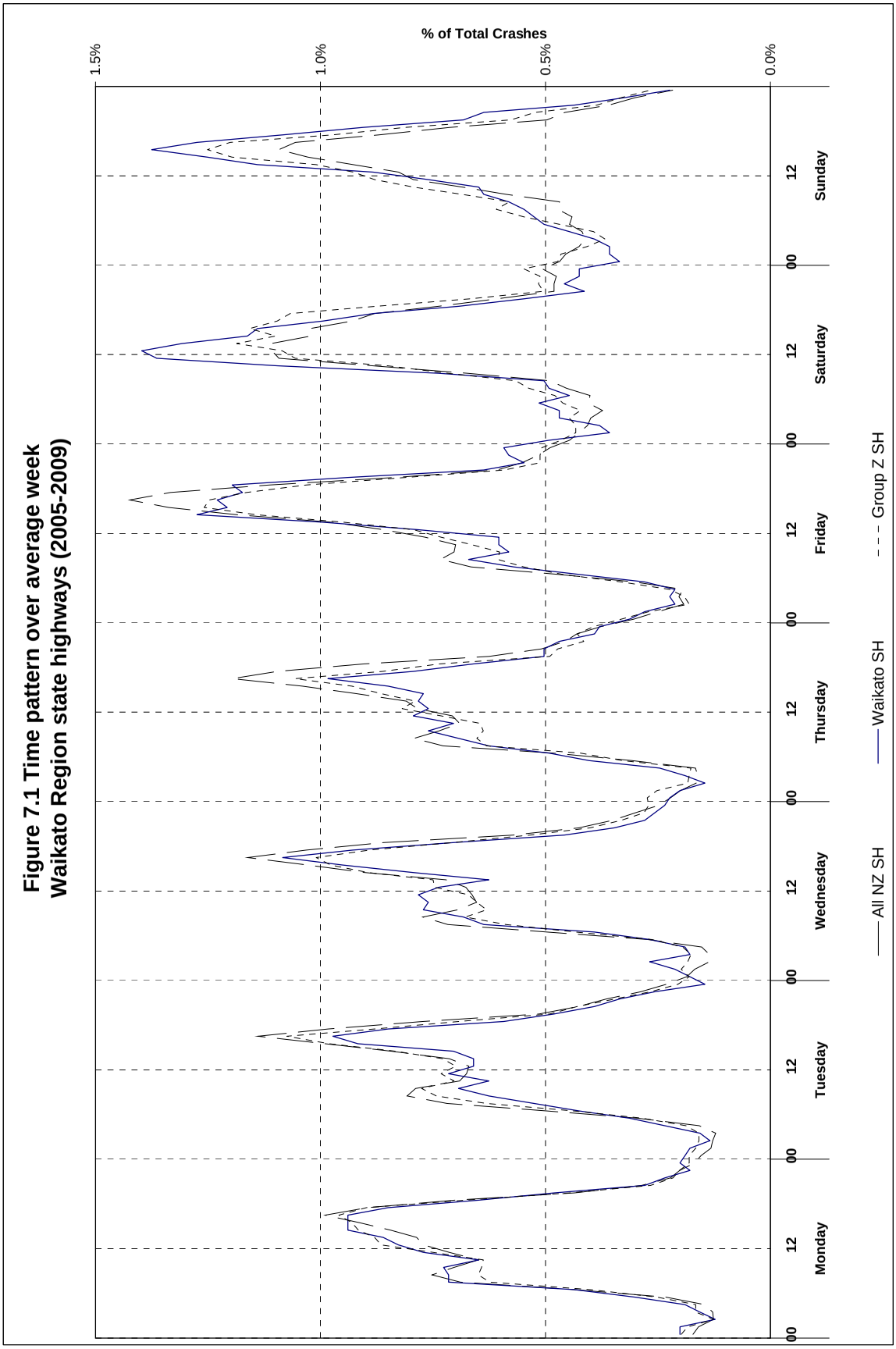
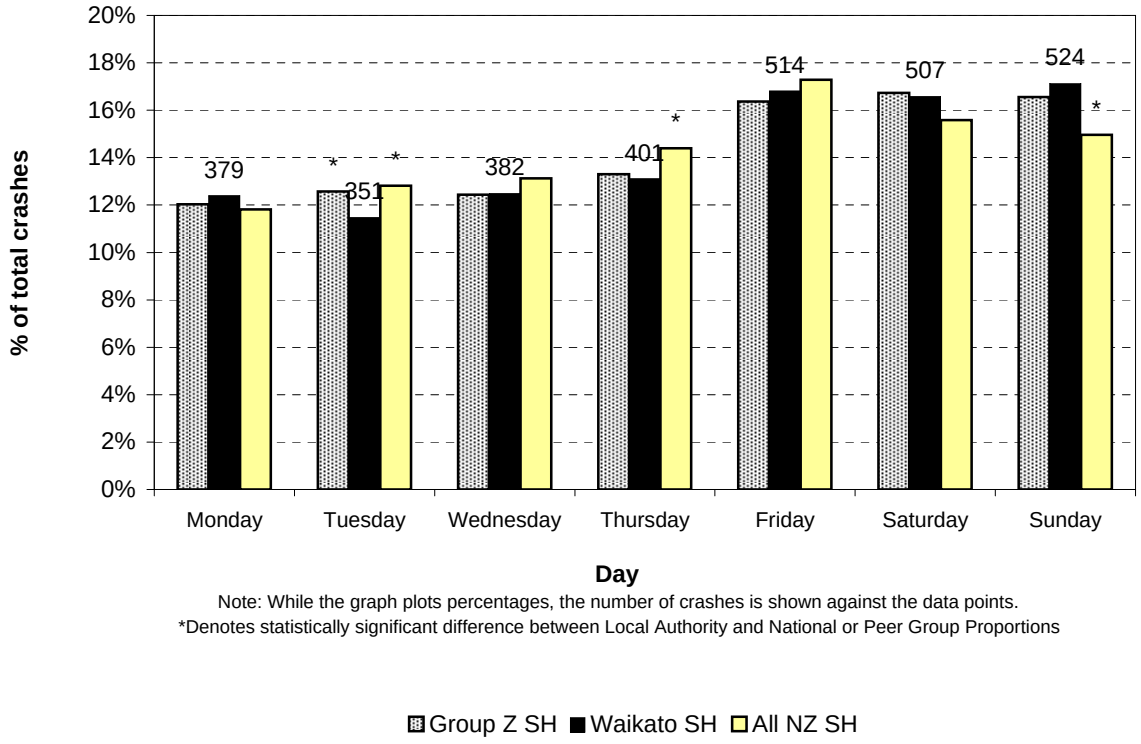


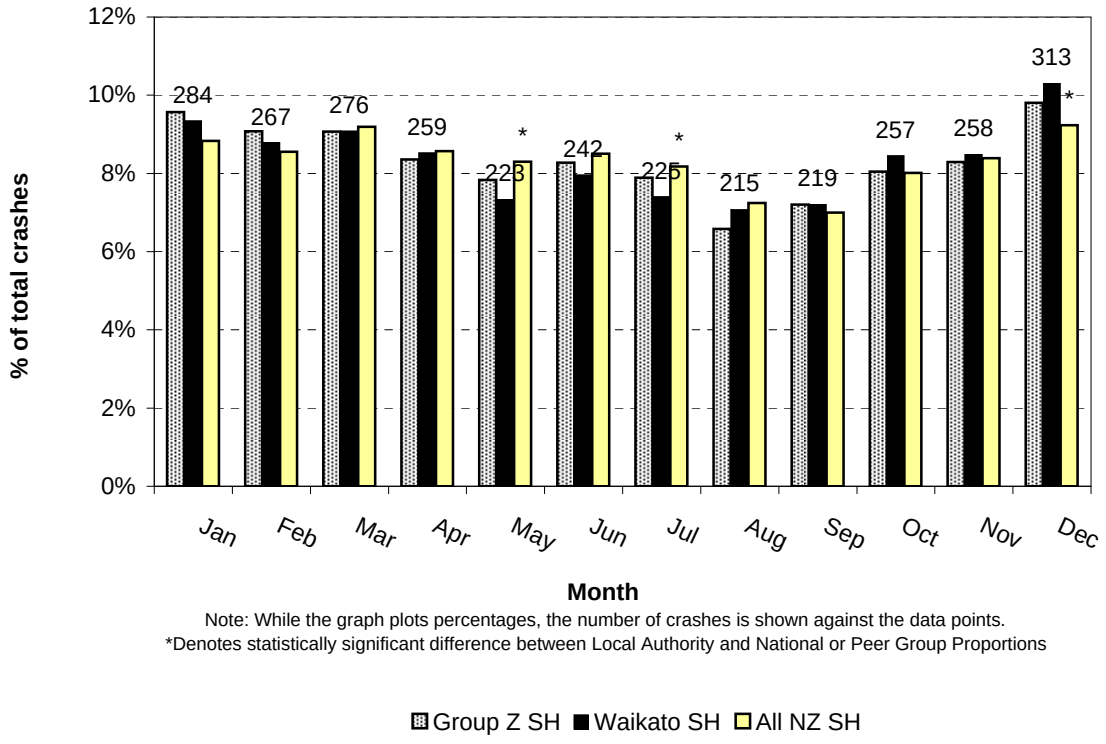
Figure 7.1 Time pattern over average week
Waikato Region state highways (2005-2009)

Figure 7.2 Day of week (6 a.m. to 6 a.m.)
Waikato Region state highways (2005-2009)



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

Figure 7.3 Month of year
Waikato Region state highways (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 9.3: State Highway Urban and Rural Black Spot List (Injury and Non-Injury Crashes)

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

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

CRASH ROAD			SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 5	I		SH 1N	8	7	7	12	5	39	21	15	15	$20,231,859
SH 1N		3460 N	KAURI DRIVE	1	1	2	2	0	6	1	33	0	$18,036,336
SH 1N		200 S	HOROTIU BRIDGE ROAD	3	2	1	1	1	8	3	50	63	$9,850,226
SH 27	I		KUTIA ROAD	1	2	2	1	1	7	2	14	14	$9,402,052
SH 2	I		KOPUKU ROAD	3	1	1	1	1	7	3	43	29	$9,319,066
SH 1B		2000 S	TE PUTU ST	0	3	3	0	0	6	3	33	50	$9,149,709
SH 1N		1000 N	SH 29	2	1	1	3	1	8	4	63	25	$9,026,441
SH 5		1460 S	WHAREPAPA ROAD	1	2	1	0	0	4	1	50	50	$8,997,796
SH 1N		500 N	FOX ROAD	1	2	0	1	2	6	3	33	50	$8,900,687
SH 30		3000 E	OHAKURI ROAD	0	0	4	1	2	7	3	57	43	$8,732,311
SH 1N		2660 N	SH 1B	2	0	0	1	1	4	1	25	50	$8,578,254
SH 26	I		SH 25	7	1	9	6	2	25	10	16	20	$7,155,549
SH 1B		1500 S	TE PUTU ST	2	6	2	0	0	10	4	80	0	$6,927,220
SH 3	I		RAYNES ROAD	5	3	3	3	7	21	9	57	29	$6,886,483
SH 2	I		MCPHERSON ROAD	2	2	5	6	2	17	8	41	41	$6,414,972
SH 1N	I		FOX ROAD	3	3	2	0	1	9	5	22	56	$6,385,756
SH 23	I		OKETE ROAD	0	5	0	1	0	6	1	33	33	$6,284,176
SH 5	I		ARROWSMITH AVENUE	7	4	6	4	5	26	14	8	12	$6,279,560
SH 3	I		TE KUMI STATION ROAD	1	1	2	0	2	6	2	17	0	$6,269,870
SH 2	I		SH 25	3	4	0	3	6	16	8	13	38	$6,167,666
SH 1B	I		MARSHMEADOW ROAD	6	7	6	6	5	30	17	20	27	$6,164,681
SH 1N	I		ISLAND BLOCK ROAD	0	3	0	2	3	8	3	50	50	$6,103,869
SH 25		600 N	TIKI QUARRY ROAD	0	2	0	2	0	4	1	25	50	$6,101,977
SH 3		400 S	JOHNSTON ROAD	2	3	1	0	1	7	2	29	29	$5,668,069
SH 1N		100 S	SPIERS ROAD	1	1	2	2	1	7	0	29	43	$5,658,520
SH 37		550 W	HAURUA ROAD	2	2	1	2	0	7	3	57	43	$5,582,591
SH 1B	I		TAYLOR ROAD	6	2	3	2	2	15	12	13	40	$5,570,199
SH 1N		450 S	MAROA ROAD	1	1	0	2	1	5	1	40	0	$5,544,357
SH 27		620 N	MAUNGAKAWA ROAD	2	0	4	0	0	6	3	67	33	$5,530,467
SH 30		170 S	WAIPAPA ROAD	1	3	0	1	0	5	1	20	20	$5,511,936
SH 3		100 S	YE OLD MILL ROAD	1	5	1	0	0	7	3	71	71	$5,471,688
SH 3	I		KAIPAKI ROAD	2	1	2	1	1	7	3	29	43	$5,468,911
SH 31		350 N	OWAIKURA ROAD	0	2	1	0	1	4	1	25	25	$5,416,957
SH 28	I		SH 5	2	0	0	0	2	4	2	25	0	$5,405,510
SH 30		800 E	WAIMIHA ROAD	1	0	2	2	4	9	5	33	22	$5,401,121
SH 3	I		SH 21	2	7	2	1	4	16	9	44	25	$5,335,035
SH 1N	I		WARATAH PLACE	1	1	0	1	0	3	1	33	33	$5,329,554
SH 25		1760 N	OPOUTERE ROAD	0	1	0	2	0	3	1	33	0	$5,326,797
SH 2		1000 E	RAHU ROAD E	0	2	1	1	2	6	2	50	17	$5,291,932
SH 32		5000 S	SH 30	0	0	2	3	0	5	1	40	60	$5,251,337
SH 1N		200 N	KELM ROAD	0	2	3	0	1	6	3	33	50	$5,240,408
SH 23	I		WALLACE ROAD	3	2	2	4	0	11	2	18	45	$5,227,921
SH 25A		5620 E	SH 26	0	2	2	0	1	5	2	40	20	$5,203,651
SH 2	I		SEDDON ST	0	1	3	1	0	5	2	40	20	$5,201,772
SH 2		200 S	WOODLANDS ROAD	1	2	1	0	1	5	1	20	40	$5,142,557
SH 1N		400 N	HUTCHINSON ROAD	0	0	1	2	1	4	2	0	25	$5,111,694
SH 25		1000 N	ADAMS ROAD	1	2	0	1	0	4	0	25	25	$5,105,800
SH 2		1000 E	AWAITI ROAD	1	0	0	2	1	4	0	50	25	$5,101,880
SH 1N	I		POIHIPI ROAD	4	5	11	9	6	35	17	29	17	$5,101,774
SH 3		2210 N	TAUMATAMAIRE ROAD	1	1	1	0	0	3	0	0	0	$5,091,100

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

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

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

CRASH ROAD				SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N	I			FISHER ROAD	1	0	1	0	1	3	1	33	33	$5,077,694
SH 1N		1320	S	TAWHAA ROAD	0	0	0	0	3	3	1	33	0	$5,074,937
SH 27	I			GIVEN ROAD	0	1	0	1	2	4	2	25	75	$5,071,514
SH 2		400	S	FORD ROAD	2	0	1	1	0	4	1	25	50	$5,053,194
SH 30		110	E	POKURU ROAD NORTH	1	1	0	1	1	4	2	100	0	$5,000,872
SH 25A		1100	W	KIRIKIRI STM BR NO2	2	1	2	4	0	9	5	78	0	$4,969,043
SH 30		2480	W	WAIPAPA ROAD	1	0	0	1	1	3	1	0	33	$4,962,237
SH 25A		400	N	SH 26	0	4	3	0	1	8	3	75	0	$4,943,468
SH 26	I			ROACHE ROAD	1	4	0	3	2	10	8	40	50	$4,886,709
SH 1N		1000	N	ISLAND BLOCK ROAD	5	1	1	0	0	7	4	43	57	$4,852,356
SH 5		3030	S	WAIKITE VALLEY ROAD	3	0	1	0	2	6	4	100	67	$4,843,618
SH 39		400	N	BELL ROAD	1	1	1	3	1	7	4	29	29	$4,839,186
SH 1N	I			GRACE ROAD	3	1	1	0	0	5	3	40	40	$4,809,903
SH 1N	I			DUKE ST	0	1	0	2	4	7	3	0	14	$4,808,810
SH 5		5470	W	GALAXY ROAD	1	1	0	3	0	5	1	80	20	$4,778,794
SH 2		160	W	HAURAKI ROAD	2	1	1	0	2	6	3	33	17	$4,769,007
SH 3		9200	S	PAEKAKA ROAD	2	2	0	0	0	4	1	50	25	$4,733,714
SH 1N		550	S	TE ONETEA ROAD	1	2	0	0	1	4	1	0	50	$4,730,876
SH 1N	I			GORTON ROAD	2	1	1	0	1	5	3	40	60	$4,716,986
SH 1N		100	N	PLANTATION ROAD	1	0	0	2	2	5	3	20	0	$4,712,351
SH 5		5000	W	GALAXY ROAD	2	1	1	0	0	4	2	25	0	$4,680,229
SH 1B		500	N	PEACH ROAD	1	1	0	0	2	4	2	0	50	$4,677,554
SH 3		400	S	PAEKAKA ROAD	1	1	3	1	0	6	5	50	17	$4,661,221
SH 1N		11300	S	RICHMOND AVENUE	2	1	0	0	0	3	1	33	33	$4,645,616
SH 2		100	S	JACKSON ROAD	1	1	0	0	1	3	1	33	33	$4,640,797
SH 26		960	S	CADMAN ROAD	1	1	1	0	0	3	1	0	67	$4,640,797
SH 31	I			KAWHIA ROAD	1	1	1	0	0	3	1	67	33	$4,640,797
SH 1N		4800	N	HAMPTON OFF SBD	1	1	0	0	1	3	1	33	100	$4,640,716
SH 39	I			WALSH ROAD	0	1	2	0	1	4	2	25	50	$4,636,394
SH 27		400	N	MANGAWHERO ROAD	2	1	0	1	0	4	3	25	25	$4,628,786
SH 5		1300	E	CAROLINE DRIVE	1	0	1	2	0	4	3	0	25	$4,624,151
SH 3		800	N	PUKENUI ROAD	1	1	1	0	0	3	1	67	33	$4,602,394
SH 1N		300	N	PUKETIRAU ROAD	1	1	1	0	0	3	2	33	0	$4,589,272
SH 23		1000	S	COGSWELL ROAD	1	0	1	0	1	3	2	0	67	$4,587,394
SH 25		2600	N	WHANGAPOUA ROAD	1	0	1	0	1	3	2	33	0	$4,587,394
SH 1N		100	S	PUKETIRAU ROAD	0	2	0	2	0	4	3	50	25	$4,586,829
SH 2		700	E	CENTRAL ROAD	0	2	1	0	1	4	3	50	25	$4,586,829
SH 3		500	N	ALLEN ROAD	0	1	2	2	1	6	3	17	67	$4,511,369
SH 1N		300	N	PURIRI ROAD	1	2	1	3	0	7	5	43	57	$4,501,318
SH 1B	I			MARYCHURCH ROAD S	2	0	1	2	2	7	5	86	71	$4,500,318
SH 25A		600	E	KIRIKIRI STM BR NO1	0	0	5	1	1	7	5	57	43	$4,494,804
SH 26	I			HUBBARD ROAD	1	1	2	0	0	4	0	25	25	$4,494,280
SH 2		100	W	IRISH ROAD	1	1	1	1	1	5	3	40	20	$4,488,646
SH 1N		1400	S	PAPARAMU ROAD N	1	1	1	0	2	5	2	40	20	$4,479,594
SH 1N		750	S	HORAHORA ROAD	1	2	0	1	0	4	1	25	25	$4,444,716
SH 1N	I			KINLOCH ROAD	1	1	1	1	0	4	1	25	0	$4,440,694
SH 1N		1700	N	PALMER MILL ROAD	1	0	0	1	1	3	0	33	33	$4,404,120
SH 1N		1000	N	WEST ROAD	1	1	0	2	0	4	2	25	50	$4,391,312
SH 2		350	N	STEEN ROAD	0	3	0	1	0	4	2	100	25	$4,390,251
SH 1N		2600	S	FERGUSSON GULLY ROAD	1	0	0	2	1	4	2	50	0	$4,387,290

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

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

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

CRASH ROAD				SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N	I			PARKDALE ST EAST	1	0	1	1	1	4	2	75	0	$4,387,290
SH 31		380	S	TIHIROA ROAD	1	0	0	1	2	4	2	100	50	$4,387,290
SH 1N		1000	S	TE RERE ROAD	0	0	2	1	1	4	2	50	50	$4,384,534
SH 24		610	E	DAVIDSON ROAD	0	0	3	0	1	4	2	50	75	$4,384,534
SH 1N		500	S	EAST MINE ROAD	1	2	1	0	1	5	4	0	80	$4,376,362
SH 5		270	E	KIDDLE DRIVE	1	1	2	0	1	5	4	0	60	$4,374,483
SH 2		570	E	PINNACLE HILL ROAD	1	0	2	0	0	3	2	0	0	$4,364,750
SH 3		1600	N	MANGAORONGO ROAD	1	0	2	0	0	3	1	0	33	$4,352,677
SH 29		2200	S	TOTMAN ROAD	1	0	0	1	1	3	1	67	0	$4,350,534
SH 39		200	E	WINDLEBORN ROAD	1	0	1	0	1	3	1	67	100	$4,350,534
SH 27		2700	N	SH 1N	0	1	1	0	1	3	1	33	33	$4,349,737
SH 5		1150	E	PALMER MILL ROAD	0	1	1	0	1	3	1	33	33	$4,349,656
SH 1N		1220	S	TUTUKAU ROAD	0	0	1	1	1	3	1	0	0	$4,347,777
SH 2		630	N	STEEN ROAD	0	0	1	2	0	3	1	0	67	$4,347,777
SH 2		2000	E	MONUMENT ROAD	0	0	2	0	1	3	1	0	33	$4,347,777
SH 39		1190	S	FINLAYSON ROAD	0	0	1	1	1	3	1	67	33	$4,347,777
SH 5		460	S	PIRIPIRI ROAD	0	0	1	2	0	3	1	67	67	$4,347,777
SH 25		1500	S	TE KOUMA ROAD	2	0	0	0	2	4	3	50	0	$4,338,604
SH 39		770	S	WALSH ROAD	0	0	2	1	1	4	3	25	50	$4,333,091
SH 2		1700	E	PINNACLE HILL ROAD	2	0	0	0	1	3	1	33	33	$4,319,357
SH 31		10	N	MANGAMAHOE ROAD	1	1	1	0	0	3	2	67	33	$4,300,969
SH 27		250	S	OHINEWAI ROAD	0	2	1	0	0	3	2	67	0	$4,300,091
ORCHARD EAST ROAD	I			SH 2	1	0	1	0	1	3	2	33	0	$4,299,090
SH 1N	I			JONES ROAD	1	0	1	0	1	3	2	100	33	$4,299,090
SH 1N		3000	E	WAITAPU ROAD	0	1	0	1	1	3	2	33	0	$4,298,212
SH 2		2180	W	FERNDALE ROAD	0	1	2	0	0	3	2	67	100	$4,298,212
SH 1N		550	W	GREY ST	3	1	2	2	1	9	7	56	22	$4,190,072
SH 1N	I			KARETOTO ROAD N	10	5	2	9	8	34	21	21	15	$4,028,070
SH 26	I			SH 27	0	1	3	0	4	8	6	25	25	$4,016,839
SH 1N		50	N	FLETCHER ST	1	1	1	0	0	3	1	33	33	$3,984,967
SH 25		100	N	KURANUI EUREKA ROAD	2	0	1	0	0	3	1	33	33	$3,981,957
SH 1N		25	N	WAITAHANUI BR	0	0	2	2	0	4	3	25	50	$3,840,290
SH 1N	I			TITIRAUPENGA ST	2	0	1	1	1	5	3	20	20	$3,525,704
SH 1N	I			KAIMANAWA ST	0	1	1	3	1	6	4	17	33	$3,459,680
SH 1N		80	E	HALL ST	0	2	0	0	1	3	1	33	33	$3,379,130
SH 1N	I			HUKA FALLS ROAD	5	3	4	6	3	21	13	19	0	$3,346,567
SH 1N		500	S	FRETHEY DRIVE	0	2	5	7	2	16	10	81	44	$3,039,947
SH 5	I			SETTLERS ROAD	1	2	3	5	1	12	2	58	33	$2,996,854
SH 1N	I			HICKEY ROAD	1	3	2	6	1	13	8	0	54	$2,883,032
SH 1N	I			BOLLARD ROAD	2	3	2	2	2	11	5	36	36	$2,863,555
SH 1N ALBERT	I			SH 1N QUEEN	2	4	3	5	6	20	15	45	25	$2,861,715
SH 29	A			SH 1N	7	3	6	6	4	26	16	35	19	$2,840,417
SH 1N	I			KAHIKATEA DRIVE	7	5	5	6	0	23	15	22	35	$2,793,951
SH 1N	I			SH 30 N	2	1	2	2	1	8	3	38	50	$2,742,367
SH 1N		750	E	OTURERE BR	8	7	11	0	1	27	21	63	33	$2,679,530
SH 1N	I			SHAKESPEARE ST	3	5	7	4	8	27	19	33	19	$2,671,170
SH 1N		100	S	HUTCHINSON ROAD	3	0	1	4	1	9	4	56	33	$2,664,464
SH 39	I			LIMMER ROAD	6	3	4	5	2	20	11	100	15	$2,561,471
SH 3	I			BLACKETT ROAD	0	4	2	0	0	6	1	50	83	$2,540,657
SH 1N		1000	N	TUKINO ACCESS	2	1	0	0	3	6	2	0	50	$2,499,729

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

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

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

CRASH ROAD			SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N	I		HYDRO ROAD	1	6	2	6	1	16	9	44	19	$2,376,808
SH 1N	I		CHERRY LANE	3	2	6	3	5	19	15	16	16	$2,328,442
SH 1N	I		HAVELOCK ROAD	1	1	2	2	2	8	5	38	13	$2,294,450
SH 1N	I		KILLARNEY ROAD	8	5	10	4	3	30	25	17	33	$2,229,759
OHAUPO ROAD	I		SH 1N	14	10	15	10	10	59	49	19	39	$2,161,693
SH 1N	I		HELENSLEE ON NBD	2	3	3	4	4	16	8	56	38	$2,133,332
SH 3	I		TUHORO ST	1	1	2	1	1	6	1	0	33	$2,035,804
SH 1N		200 N	PENCARROW ROAD	5	4	3	0	1	13	10	8	46	$2,025,813
SH 1N	I		GLEN MURRAY ROAD	3	4	1	2	4	14	11	14	36	$2,023,655
SH 1N	I		TE KAUWHATA ROAD	5	8	5	7	4	29	23	31	38	$2,015,205
SH 39	I		LAXON ROAD	0	3	1	0	5	9	4	33	33	$2,005,925
SH 26		1100 W	AVENUE ROAD SOUTH	0	0	4	2	3	9	6	33	78	$1,939,461
SH 1N		200 N	CHURCH ROAD	2	1	2	3	1	9	5	44	22	$1,939,298
SH 27	I		SH 29	4	3	3	10	6	26	21	38	23	$1,914,658
SH 1N		1000 W	SH 27	0	0	1	5	1	7	4	71	29	$1,865,947
SH 3	I		SOWERBY ROAD	1	2	1	2	3	9	6	44	22	$1,830,518
SH 1N		100 S	WEST ROAD	0	0	0	0	6	6	3	17	50	$1,829,191
SH 41	I		SH 47	2	0	2	0	1	5	2	0	60	$1,800,090
SH 3	I		RYBURN ROAD	2	2	1	0	2	7	4	14	57	$1,787,847
SH 1N	I		SH 23	5	8	9	11	6	39	29	21	31	$1,787,841
SH 1N	I		KAPUNI ST	1	3	0	0	1	5	2	20	40	$1,758,849
SH 2		20 S	SAMSON ROAD	1	2	0	2	0	5	2	40	40	$1,756,889
SH 23	I		TE PAHU ROAD	0	1	2	2	0	5	3	20	40	$1,742,869
SH 1N	I		SH 26	2	3	10	10	9	34	29	29	32	$1,736,466
SH 32		980 N	WAIHAHA BR	1	0	1	0	1	3	0	0	33	$1,723,820
SH 1B	I		PEACH ROAD	1	1	1	1	1	5	3	40	100	$1,703,567
SH 1N	I		HEUHEU PARADE	1	3	1	2	2	9	4	67	22	$1,687,446
SH 1N		5 E	GALLOWAY ST	3	7	10	2	4	26	20	38	42	$1,685,671
SH 1N		200 S	ANZAC ST EAST	3	1	2	0	0	6	4	50	50	$1,672,440
SH 1N	I		2 OFF SBD	1	8	2	10	2	23	18	13	39	$1,670,434
SH 2		300 W	HUBBARD ROAD	0	0	1	0	2	3	1	67	100	$1,667,477
SH 25		6000 S	SH 25A	0	0	2	1	0	3	1	67	0	$1,667,477
SH 5		1200 E	WAIOHOTU ROAD	0	0	1	1	1	3	1	67	33	$1,667,477
SH 25		1000 N	SAILORS GRAVE ROAD	1	1	1	1	0	4	2	50	25	$1,666,810
SH 25		40 S	GOLF ROAD	0	3	1	1	0	5	3	40	100	$1,662,509
SH 25		830 E	TE KAUANGA ROAD	0	2	0	1	0	3	1	0	0	$1,629,176
SH 1N	I		SAULBREY ROAD	5	2	5	0	1	13	3	23	38	$1,628,107
SERPELL ROAD	I		SH 2	1	2	2	1	3	9	6	33	33	$1,620,697
SH 27	I		MAUNGAKAWA ROAD	1	0	2	0	0	3	0	67	33	$1,606,220
SH 3	I		ROBERTSON PLACE	1	1	0	2	0	4	2	50	25	$1,593,412
SH 5	I		WAIKITE VALLEY ROAD	3	1	2	2	1	9	5	33	56	$1,559,256
SH 3		300 S	AWAKINO HEADS ROAD	1	3	0	0	0	4	2	100	100	$1,555,111
SH 2	A		QUEENS HEAD RLY OBR	2	0	0	2	2	6	4	67	17	$1,552,347
SH 27	I		SH 2	2	4	6	4	5	21	18	14	43	$1,550,955
SH 1N	A		KOHEROA OBR	1	2	3	1	0	7	4	0	57	$1,546,305
SH 3		500 S	MARAETAUA ROAD	2	2	5	1	1	11	3	45	45	$1,514,529
SH 1N	I		HANLIN ROAD	1	3	7	3	2	16	12	31	31	$1,512,576
SH 1N	I		HALL ROAD	2	6	2	2	6	18	16	6	33	$1,508,537
SH 1N		3000 S	TREGOWETH LANE	2	3	3	2	2	12	6	8	25	$1,490,275
SH 1N VICTORIA	I		HAMILTON ROAD	5	11	9	18	10	53	43	19	19	$1,463,022

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

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

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

CRASH ROAD			SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N	I		PIHANGA ROAD	3	5	3	1	0	12	7	8	8	$1,430,630
SH 5		500 N	WAIKITE VALLEY ROAD	2	1	3	0	1	7	4	43	14	$1,426,643
SH3 ON RAMP	I		BADER ST	5	6	3	5	3	22	13	18	41	$1,409,537
SH 29		4000 E	SH 28	2	1	2	6	3	14	11	64	21	$1,403,478
SH 1N		300 S	MANGAMATE CUL	4	2	5	6	8	25	16	76	16	$1,396,775
SH 1B	I		TAUWHARE ROAD	4	2	1	2	1	10	4	20	30	$1,382,624
SH 3		500 E	PAEKAKA ROAD	3	4	2	1	0	10	5	80	30	$1,372,178
SH 1N	I		KARAPIRO ROAD	3	3	2	1	2	11	7	27	36	$1,355,451
SH 21 AIRPORT	I		RAYNES ROAD	4	0	2	3	1	10	3	50	40	$1,354,687
SH 3	I		SH 37	4	1	1	4	2	12	9	33	25	$1,335,477
SH 1N		100 N	TREGOWETH LANE	3	0	2	2	5	12	7	25	33	$1,327,016
SH 25		1000 N	OCEAN BEACH ROAD	8	2	2	1	1	14	11	50	7	$1,308,583
SH 5	I		SH 28	0	2	2	1	5	10	6	0	20	$1,304,258
SH 1N	A		OTURERE BR	4	1	5	1	0	11	8	18	82	$1,303,007
TE RAPA ROAD	I		THE BASE PARADE	1	1	3	3	3	11	7	18	18	$1,284,669
SH 27	I		KEREONE ROAD	2	6	0	2	2	12	8	25	25	$1,275,344
SH 39		1000 S	SAULBREY ROAD	0	5	3	1	0	9	5	33	56	$1,256,441
SH 1N	A		KARAPIRO STM BR	3	2	5	2	2	14	11	36	29	$1,256,093
MASON ROAD	I		SH 23	2	1	2	2	1	8	3	25	50	$1,248,051
SH 3		2100 N	MANGAORONGO ROAD	4	3	2	0	2	11	7	18	45	$1,238,546
SH 1B	I		BANKIER ROAD	2	2	1	3	1	9	5	56	44	$1,233,100
SH 1N	I		RIFLE RANGE ROAD	10	11	10	2	15	48	41	21	25	$1,213,273
TAHUNA OFF SBD	I		TAHUNA ROAD	4	1	2	0	2	9	4	11	44	$1,207,021
SH 1N	I		TE RAPA ROAD	2	7	5	5	5	24	20	13	21	$1,204,783
SH 1N		500 S	KARAPIRO ROAD	0	1	0	3	3	7	3	29	43	$1,192,191
HOROTIU BRIDGE ROAD	I		SH 1N	2	0	2	1	2	7	3	57	0	$1,191,027
SH 1N	A		HOROTIU FREEZING WKS	0	0	3	0	4	7	3	43	57	$1,190,231
SH 21		100 W	WAIKATO RIV BR	3	2	3	2	1	11	8	64	55	$1,182,467
SH 2	I		OKAERIA ROAD	3	1	2	2	0	8	4	38	13	$1,149,120
SH 27		1000 S	TOREHAPE ROAD EAST	2	3	3	0	0	8	5	75	38	$1,144,716
SH 3		800 S	GOLF ROAD	1	1	0	3	2	7	4	43	71	$1,143,423
SH 1N		200 N	WAIRERE DRIVE	0	5	3	2	4	14	11	57	14	$1,123,380
SH 27	I		WARDVILLE ROAD	0	3	1	2	0	6	2	17	50	$1,117,132
SH 1B		1100 S	BELLEVUE ROAD	1	1	1	2	1	6	2	50	0	$1,116,050
SH 1N		400 N	WHANGAMARINO ROAD	3	1	2	3	0	9	6	33	33	$1,109,137
SH 1N	I		EAST MINE ROAD	1	1	2	0	2	6	3	17	50	$1,108,809
SH 1N	I		MCKEE ST	1	2	1	1	1	6	3	0	17	$1,108,626
HUKA FALLS ROAD S	I		SH 1N	1	2	2	0	1	6	3	33	33	$1,108,545
SH 3		750 E	TUI ST E	1	1	2	1	1	6	3	50	50	$1,106,747
SH 25		50 E	ABBOT ROAD	0	2	2	1	1	6	3	0	50	$1,105,951
SH 3		1000 S	KAWA ROAD	0	1	3	1	1	6	3	50	33	$1,103,991
SH 1N	A		TOKOROA GOLF CLUB	0	3	1	1	2	7	4	14	43	$1,102,365
SH 1N		200 S	SPRINGHILL ROAD	5	0	1	1	0	7	3	57	43	$1,094,987
SH 23	I		GREENSLADE ROAD	0	0	2	0	2	4	0	50	25	$1,079,960
SH 29		1200 S	TOTMAN ROAD	0	1	3	0	1	5	2	60	60	$1,067,234
SH 23	I		TE MATA ROAD	1	2	0	0	3	6	3	0	33	$1,066,567
SH 2		600 E	PENDERGRAST ROAD	3	1	1	1	2	8	4	38	63	$1,058,858
SH 39	I		FINLAYSON ROAD	3	1	1	1	0	6	2	0	67	$1,050,390
SH 2		500 N	OLD WAITEKAURI ROAD	3	1	1	0	1	6	2	50	17	$1,050,309
SH 1N COBHAM NORMAND	I		SH 1N NORMANDY COBHAI	6	7	5	4	5	27	23	26	26	$1,037,404

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

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

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

CRASH ROAD				SIDE ROAD	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %	Crash Costs
SH 1N		400	N	SH 1B	0	3	1	1	1	6	2	33	50	$1,036,492
SH 1B		1000	S	WOODLANDS ROAD	2	0	0	2	0	4	1	25	75	$1,036,174
SH 25		120	N	WAIKAWAU VALLEY ROAD	2	0	1	0	1	4	1	50	0	$1,036,174
SH 2		100	N	FISHER ROAD	1	1	1	1	0	4	1	25	25	$1,035,377
SH 1N		100	N	HAMPTON OFF SBD	1	4	0	2	0	7	4	14	29	$1,033,683
SH 29		30	W	POND ROAD	1	2	2	0	0	5	2	20	20	$1,031,872
SH 1N		1480	S	TREGOWETH LANE	1	0	2	1	0	4	1	50	25	$1,031,274
SH 3		340	N	RAYNES ROAD	1	0	2	1	0	4	1	50	50	$1,031,274
SH 1N		660	E	HICKEY ROAD	0	1	1	1	1	4	1	25	25	$1,030,477
SH 24	I			DAVIDSON ROAD	0	1	2	1	0	4	1	75	50	$1,030,477
SH 1N		1000	S	TREE TRUNK GORGE ROAI	0	1	2	1	0	4	1	75	50	$1,030,396
SH 3	I			SH 3 ON RAMP	4	5	4	1	2	16	12	0	19	$1,030,148
SH 1N	I			FERGUSSON GULLY ROAD	1	1	0	2	1	5	2	0	40	$1,029,994
SH 5		2000	E	PALMER MILL ROAD	0	0	2	0	2	4	1	0	25	$1,028,517
SH 1N HAMILTON	I			HALL ST	3	4	1	3	2	13	8	23	54	$1,027,668
SH 29	A			SUMMIT LOOKOUT	3	4	3	4	5	19	13	74	32	$1,025,130
SH 2	I			WAITAWHETA ROAD	0	1	3	1	0	5	2	20	40	$1,025,094
SH 1N	I			CHURCH ROAD	3	8	4	7	4	26	21	31	46	$1,010,642
SH 3	I			LEE BLOCK ROAD	1	3	1	0	0	5	1	20	80	$1,009,816
SH 1N		2500	N	SH 30	1	1	0	1	0	3	0	33	33	$998,620

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

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

CRASH ROAD				SIDE ROAD	2004	2005	2006	2007	2008	2009	TOTAL	Non-Injury	Wet Crash %	Dark Crash %
SH 1N	I			NORTON ROAD	7	10	11	10	2	15	55	45	24	24
SH 1N		300	S	MANGAMATE CUL	1	4	2	5	6	8	26	17	77	15
SH 1N	I			HALL ROAD	0	2	6	2	2	6	18	16	6	33
SH 29		3100	E	SH 28	2	0	2	2	2	5	13	11	77	15
SH 1N		100	N	TREGOWETH LANE	1	3	0	2	2	5	13	7	23	38
SH 29		2500	E	SH 28	1	0	3	1	2	5	12	11	67	8
SH 5	I			SH 28	1	0	2	2	1	5	11	7	9	18
SH 39	I			LAXON ROAD	1	0	3	1	0	5	10	4	30	40
SH 26	I			SH 27	2	0	1	3	0	4	10	8	20	20
SH 1N	I			WAYSIDE ACCESS ROAD	0	1	1	2	1	5	10	8	10	40
SH 29		940	S	SUMMIT LOOKOUT	0	1	2	0	1	5	9	9	67	0
SH 30		800	E	WAIMIHA ROAD	0	1	0	2	2	4	9	5	33	22
SH 1N CAMBRIDGE		100	E	SH 1N COBHAM	4	0	1	0	0	4	9	9	44	22
SH 1N	A			HOROTIU FREEZING WKS	1	0	0	3	0	4	8	3	50	63
SH 1N	I			DUKE ST	1	0	1	0	2	4	8	4	13	25
SH 1N	A			THE AVENUE	0	0	0	1	2	5	8	4	38	50
SH 5		600	W	FITZGERALD GLADE	0	1	1	1	1	4	8	7	50	38
SH 1N		1000	S	TREGOWETH LANE	1	1	0	1	1	3	7	5	14	57
SH 1N	I			MARTIN ST	0	1	2	1	0	3	7	6	29	43
SH 1N	I			FOREMAN ROAD	0	3	0	1	0	3	7	6	29	14
SH 29		1500	E	SH 28	0	0	2	1	0	4	7	6	71	0
SH 2		50	N	WYATT ROAD	1	0	0	3	0	3	7	5	0	43
SH 1N		40	E	OHAUPO ROAD	1	0	0	2	1	3	7	4	29	0
SH 1N		100	S	WEST ROAD	1	0	0	0	0	6	7	3	14	57
SH 25	I			MARY ST	1	1	1	0	0	4	7	7	0	14
SH 1N		800	N	PUKETE ROAD	1	1	1	0	0	3	6	4	50	50
SH 23	I			TE MATA ROAD	0	1	2	0	0	3	6	3	0	33
SH 1N	I			MARKET ST	1	1	1	0	0	3	6	4	17	17
SH 4		800	N	TAKIRI ROAD	0	0	0	2	1	3	6	4	33	33
SH 1N	I			REDOUBT ST	1	2	0	0	0	3	6	5	0	17
SH 25		1850	S	LIDDELL ROAD	0	0	0	1	1	3	5	4	20	60
SH 1N		30	S	HOROMATANGI ST	2	0	0	0	0	3	5	4	20	0
SH 26		680	E	RUAKURA ROAD	0	0	0	0	2	3	5	4	20	20
SH 32	I			SH 30	0	1	0	0	0	4	5	4	60	0
SH 25		2000	S	MILL CREEK ROAD	0	0	0	0	1	4	5	3	60	20
SH 25	A			WAIWAWA RIV BR	0	0	1	1	0	3	5	4	0	20
SH 3		100	E	NARROWS ROAD	0	0	1	1	0	3	5	2	60	60
SH 26	I			WILLOUGHBY ST	0	0	1	0	0	3	4	4	0	25
SH 5		2740	E	WAIOHOTU ROAD	0	1	0	0	0	3	4	3	0	50
SH 1N		1800	S	MATARAWA ROAD	0	0	1	0	0	3	4	3	25	25
SH 27		1000	S	HORRELL ROAD	0	0	0	1	0	3	4	2	25	25
SH 5	I			WAIMANGU ROAD	0	0	0	1	0	3	4	3	25	0
SH 32		6500	S	ACCESS ROAD	0	0	1	0	0	2	3	2	33	33
SH 1N		50	S	NEWELL ROAD	0	0	0	1	0	2	3	2	0	0
SH 25		5000	N	GOLDEN VALLEY ROAD	0	0	0	0	1	2	3	3	67	33
SH 3		1900	S	AWAKAU ROAD	1	0	0	0	0	2	3	1	67	33
SH 5		1000	E	SH 1N	0	0	0	0	0	3	3	2	100	33
SH 1N		590	N	HEUHEU PARADE	1	0	0	0	0	2	3	3	0	0
SH 25		500	N	WAIHARAKEKE RIV BR	0	0	0	0	1	2	3	2	33	0
SH 1B		820	N	VAILE ROAD	0	0	1	0	0	2	3	1	33	67
SH 1N		50	N	WAIRERE DRIVE	0	0	0	0	1	2	3	2	33	33
SH 1N		350	S	ORUANUI ROAD	0	0	0	0	1	2	3	1	33	67

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		800	N	FISHER ROAD	0	0	0	0	1	2	3	3	0	0
SH 2	I			POUARUA ROAD NORTH	1	0	0	0	0	2	3	3	0	33
SH 1N		1000	S	HUKA FALLS ROAD N	0	0	1	0	0	2	3	3	0	0
SH 1N		700	N	KIKO ROAD	0	1	0	0	0	2	3	1	33	33
SH 27		550	S	WARDVILLE ROAD	0	1	0	0	0	2	3	2	0	33
SH 25		2000	N	TROTTER AVENUE	0	0	0	1	0	2	3	3	33	0
SH 25		250	S	MILL ENT	0	0	0	0	1	2	3	3	0	33
SH 3		5	W	JOHNSTON ROAD	0	0	0	1	0	2	3	2	33	33
SH 25	I			RICHMOND ST	0	0	1	0	0	2	3	1	33	0
SH 2		1150	N	TRIG ROAD SOUTH	0	0	0	0	0	3	3	2	0	33
SH 39		300	N	SAULBREY ROAD	0	0	0	0	0	3	3	2	100	67
SH 47		4020	W	SH 41	0	0	1	0	0	2	3	1	0	0
SH 3		2350	E	AWAKINO TUNNEL	0	1	0	0	0	2	3	2	100	0
SH 25	I			MACKAY ST	0	0	0	0	1	2	3	3	33	33
SH 27	A			SH 27	0	1	0	0	0	2	3	1	33	33
SH 5	I			WEBSTER ROAD	0	0	0	1	0	2	3	3	33	33
SH 1N		300	N	ORUANUI ROAD	1	0	0	0	0	2	3	2	0	67
SH 30		540	N	SANDEL ROAD	0	0	1	0	0	2	3	3	33	67
SH 23		15	W	HAWK ST	0	0	0	0	1	2	3	1	33	0
SH 1N	I			CRAWFORD ST	0	0	0	0	1	2	3	3	0	0
SH 26	I			FIRST AVENUE	0	0	0	0	1	2	3	2	0	67
SH 1N		1320	S	TAWHAA ROAD	0	0	0	0	0	3	3	1	33	0
SH 1N	I			NGATIRA ROAD	0	0	1	0	0	2	3	3	33	33
SH 3		500	N	MCFALL ROAD	0	0	0	0	1	2	3	2	100	33
SH 26		400	E	ALLEN ROAD	0	0	0	1	0	2	3	2	0	0

appendix

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

Explanatory notes for the appendix

1. Each traffic crash report has a diagram and a description of what happened. These are used to classify the movements the vehicles were making when they crashed eg ‘collided with parked vehicle’, or ‘lost control while overtaking’. In this report, crash types are grouped into seven categories. The following page shows the types of crashes which are included in each group.

2. Traffic crash reports also include information on why the crash occurred, or on factors contributing to the crash. In this report the hundreds of contributing factor codes used by New Zealand Transport Agency have been condensed into 16 groups for practical reasons. Lists of the factor groups used in this report, and of all the contributing factors used by New Zealand Transport Agency, are shown on the following pages.

3. Note that in the year 2000 there were some minor changes to the contributing factor groups. The most significant change was that ‘inattention’ was grouped with ‘inadequate check’ to form ‘poor observation’. This allowed a more accurate assessment of ‘fatigue’ as a contributing factor, as it now has its own grouping.

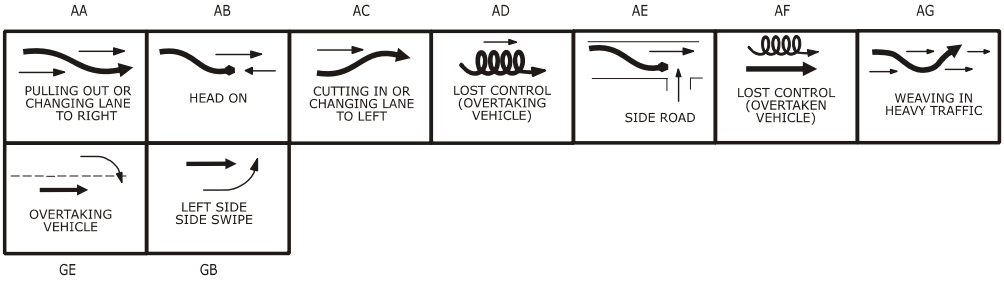
4. The factor group ‘poor handling’ includes factor codes that were only introduced in 1998. This could explain why there may have been a sudden change at this time.

5. The coding of the factors contributing to a crash is subjective. Therefore analysis using contributing factor groups needs to be interpreted with caution. Also, to effectively target safety or enforcement campaigns more analysis of the specific contributing factors involved may be needed.

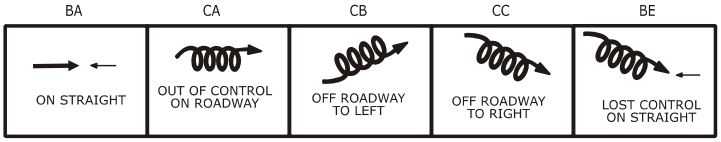
6. It should be noted that a traffic crash generally has more than one contributing factor. Therefore, adding the number of crashes on graphs showing the number of crashes with a given factor or factor group will be greater than the total number of crashes in the city or district.

Groupings of crash types

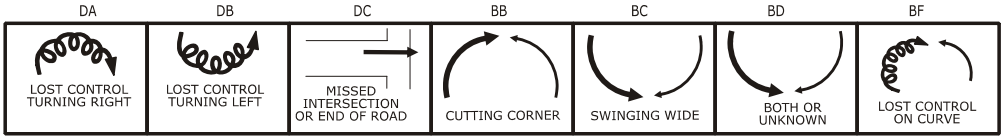
Overtaking



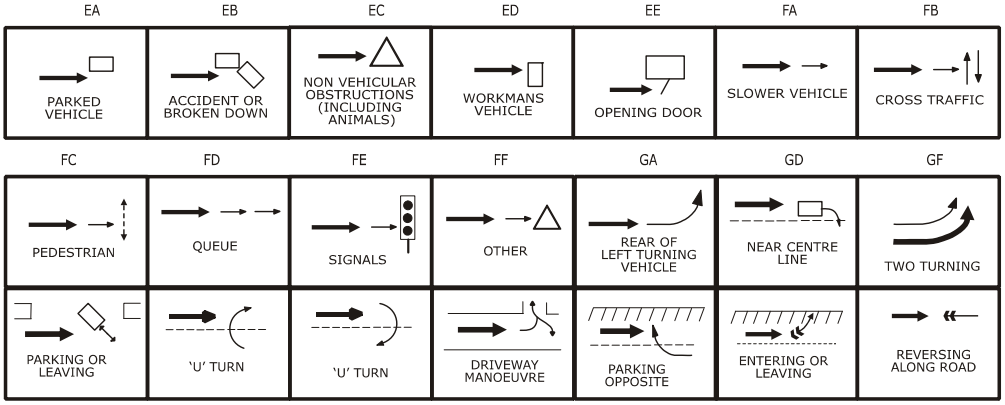
Straight - Lost control / Head on



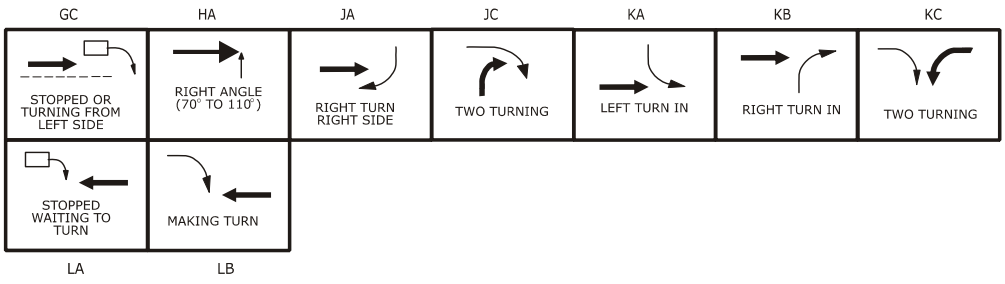
Bend - Lost control / Head on



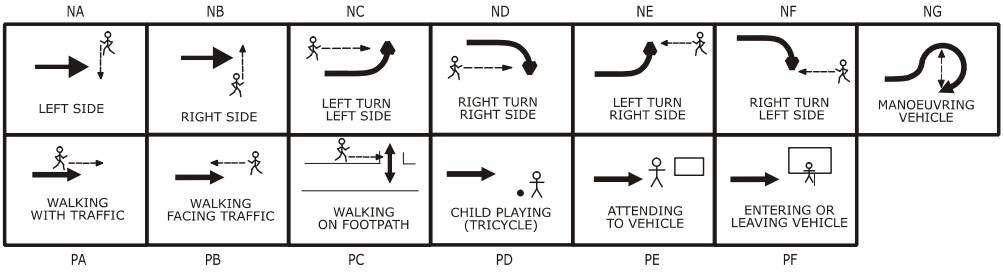
Rear end / Obstruction



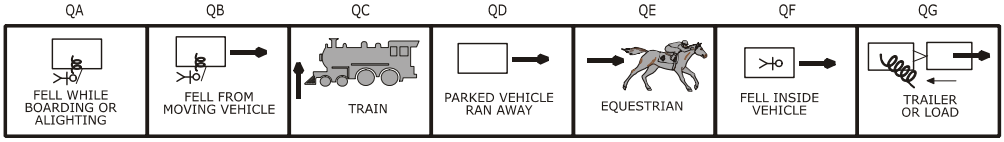
Crossing / Turning



Pedestrian vs Vehicle



Miscellaneous



Groupings of contributing factors

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

Note:

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

NZ TRANSPORT AGENCY
WAKA KOTAHI

VEHICLE MOVEMENT CODING SHEET

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

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

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

New Zealand Government

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

DRIVER CONTROL

100 Alcohol or drugs
- 101 Alcohol suspected
- 102 Alcohol test below limit
- 103 Alcohol test above limit or test refused
- 104 Alcohol test result unknown
- 105 Intoxicated non-driver (pedestrian / cyclist / passenger)
- 106 (MOT only) dead driver not suspect, tested neg
- 107
- 108 Drugs suspected
- 109 Drugs proven

110 Too fast for conditions
- 111 Cornering
- 112 On straight
- 113 To give way at intersection
- 114 Approaching railway crossing
- 115 When passing stationary school bus
- 116 At temporary speed limit
- 117 At crash or emergency

120 Failed to keep left
- 121 Swung wide on bend
- 122 Swung wide at intersection
- 123 Cutting corner on bend
- 124 Cutting corner at intersection
- 125 On straight section
- 126 Vehicle crossed raised median
- 127 Driving or riding abreast (cyclists more than 2 abreast)
- 128 Wandering or wobbling
- 129 Too far left / right

130 Lost control
- 131 When turning
- 132 Under heavy braking
- 133 Under heavy acceleration
- 134 While returning to seal from unsealed shoulder
- 135 Due to road conditions (requires road series code)
- 136 Due to vehicle fault (requires vehicle series code)
- 137 Avoiding another vehicle, pedestrian, party or obstacle on roadway
- 138 On unsealed road
- 139 End of seal

140 Failed to signal in time
- 141 When moving to left, pulling over to left
- 142 When turning left
- 143 When pulling out or moving to the right
- 144 When turning right
- 145 Incorrect Signal

150 Overtaking
- 151 Overtaking line of traffic or queue
- 152 Deliberately in the face of oncoming traffic
- 153 Failed to notice oncoming traffic
- 154 Misjudged speed or distance of oncoming traffic
- 155 At no passing line
- 156 With insufficient visibility
- 157 At an intersection without due care
- 158 On left without due care
- 159 Cut in after overtaking
- 160 Vehicle signalling right turn
- 161 Without care at a pedestrian crossing

170 Wrong lane or turned from wrong position
- 171 Turned right from incorrect lane
- 172 Turned left from incorrect lane
- 173 Travelled straight ahead from turning lane or flush median
- 174 Turned right from left side of road
- 175 Turned left from near centre line
- 176 Turned into incorrect lane
- 177 Weaving or cut in on multi-lane roads
- 178 Moved left to avoid slow vehicle
- 179 Long vehicle tracked outside lane

180 In line of traffic
- 181 Following too closely
- 182 Travelling unreasonably slowly
- 183 Motorist crowded cyclist
- 184 Incorrect merging /diverging manoeuvre

190 Sudden action
- 191 Braked
- 192 Turned left
- 193 Turned right
- 194 Swerved to avoid pedestrian
- 195 Swerved to avoid animal
- 196 Swerved to avoid crash or broken down vehicle
- 197 Swerved to avoid vehicle
- 198 Swerved to avoid object or for unknown reason
- 199 Avoiding approaching emergency vehicle

200 Forbidden movements
- 201 Wrong way in one way street, motorway or roundabout
- 202 When turning or U turning contrary to a sign
- 203 Contrary to "in" or "out" only driveway sign
- 204 Driving or riding on footpath
- 205 On incorrect side of island or median
- 206 Contrary to "no entry" sign
- 207 In Car Park
- 208 Motor vehicle in cycle lane
- 209 Bus / Transit lane
- 210 Cyclist riding on ped-xing / ped signals

VEHICLE CONFLICTS

300 Failed to give way
- 301 At Stop sign
- 302 At Give Way sign
- 303 When turning to non-turning traffic
- 304 When deemed turning by markings, not geometry
- 305 When turning left, to opposing right turning traffic
- 306 To pedestrian on a crossing
- 307 When turning at signals to pedestrians
- 308 When entering roadway from driveway
- 309 To traffic approaching or crossing from the right
- 310 Failed to give way at one lane bridge / road
- 311 Failed to give way to pedestrian on footpath or verge
- 312 Entering roadway not from driveway or intersection
- 313 To emergency vehicle
- 314 Driver waved through

320 Did not stop
- 321 At stop sign
- 322 At steady red light
- 323 At steady red arrow
- 324 At steady amber light
- 325 At steady amber arrow
- 326 At flashing red lights (Rail Xing, Fire Stn etc)
- 327 For police or flag-person
- 328 For school patrol / kea crossing

330 Inattentive: failed to notice
- 331 Vehicle slowing, stopping or stationary in front
- 332 Bend in road
- 333 Indication of vehicle in front
- 334 Traffic lights
- 335 Intersection or its Stop / Give Way control
- 336 Other regulatory sign / markings
- 337 Warning sign
- 338 Direction, information signs / markings
- 339 Road-works signs
- 340 Lane use arrows / markings?
- 341 Obstructions on Roadway

350 Attention diverted by:
- 351 Passengers
- 352 Scenery or persons outside vehicle
- 353 Other traffic
- 354 Animal or insect in vehicle
- 355 Trying to find intersection, house number, destination
- 356 Advertising or signs
- 357 Emotionally upset /road rage
- 358 Cigarette, radio, heater, AC, glove box, obj under drivers feet/pedals etc
- 359 Cell phone
- 360
- 361 Navigation device
- 362 CB radio/ non cell comms device
- 363 Driver dazzled

370 Did not see or look for another party until too late
- 371 Behind when reversing / manoeuvring
- 372 Behind when changing lanes position or direction (includes U-turns)
- 373 Behind when pulling out from parked position
- 374 Behind when opening door or leaving vehicle
- 375 When required to give way to traffic from another direction
- 376 When required to give way to pedestrians.
- 377 When visibility obstructed by other vehicles
- 378 When visibility limited by roadside features
- 379 When first in queue on receiving green light

380 Misjudged speed, distance, size or position of:
- 381 Other vehicle coming from behind or alongside
- 382 Other vehicle coming from another direction with right of way
- 383 Pedestrian movement or intention
- 384 Towed vehicle, or while towing a vehicle
- 385 Size or position of fixed object or obstacle
- 386 Of own vehicle
- 387 Misjudged intentions of another party

GENERAL DRIVER

400 Inexperience
- 401 In driving in fast, complex or heavy traffic
- 402 New driver showed inexperience
- 403 Driving unfamiliar vehicle
- 404 Overseas / migrant driver fails to adjust to NZ road rules and road conditions
- 405 Driver under instruction
- 406 At towing trailer / other vehicle
- 407 Driver over-reacted
- 408 Unsupervised cyclist

410 Fatigue (drowsy, tired, fell asleep)
- 411 Long trip
- 412 Lack of sleep
- 413 Exhaust fumes
- 414 Worked long hours before driving
- 415 Exceeded driving hours

420 Incorrect use of vehicle controls
- 421 Started in gear
- 422 Stalled engine
- 423 Wrong pedal
- 424 Footrest, stand
- 425 Ignition turned off (steering locked)
- 426 Lights not switched on
- 427 Foot slipped or caught under pedal
- 428 Parking brake not fully applied
- 429 Trailer coupling or safety chain not secured

430 Showing off
- 431 Racing
- 432 Playing chicken
- 433 Wheel spins / wheelies / doughnuts / drifting
- 434 Intimidating driving

440 Parked or stopped
- 441 Inadequately lit at night: (not lit by street lights or park lights off)
- 442 At point of limited visibility
- 443 Not as close as practicable to side of road
- 444 On incorrect side of road
- 445 Double parked
- 446 In 'No Stopping' area
- 447 Not clear of rail crossing
- 448 In cycle or Transit lane

GENERAL PERSON

500 Illness and disability
- 501 Illness with no warning e.g. heart attack, unexpected epilepsy)
- 502 Physically disabled
- 503 Defective vision
- 504 Medical illness (not sudden) flu, diabetes
- 505 Mental illness (depression, psychosis)
- 506 Suicidal (but not successful)
- 507 Impaired ability due to old age

510 Intentional or criminal
- 511 Deliberate homicide (only if succeeded)
- 512 Intentional collision
- 513 Committed suicide (only if succeeded)
- 514 Evading enforcement
- 515 Object deliberately thrown at or dropped on vehicle / shot at
- 516 Object thrown from vehicle
- 517 Stolen vehicle

520 Driver or passenger, boarding, leaving , in vehicle
- 521 Boarding moving vehicle
- 522 Intentionally leaving moving vehicle
- 523 Riding in insecure position
- 524 Interfered with driver
- 525 Opened door inadvertently
- 526 Overloaded vehicle (with passengers)
- 527 Child playing in parked vehicle

530 Miscellaneous person
- 531 Casualty drowned
- 532 Casualty thrown from vehicle
- 533 Equestrian not keeping to verge
- 534 Cyclist or M/cyclist wearing dark clothing

VEHICLES

600 **Lights and reflectors at fault or dirty**
- 601 Dazzling headlights
- 602 Headlights inadequate or no headlights
- 603 Headlights failed suddenly
- 604 Brake-lights or indicators faulty or not fitted
- 605 Tail-lights inadequate or no tail-lights
- 606 Reflectors inadequate or no reflectors
- 607 Lights or reflectors obscured

610 **Brakes**
- 611 Parking brake failed
- 612 Parking brake defective
- 613 Service brake failed
- 614 Service brake defective
- 615 Jack-knifed

620 **Steering**
- 621 Defective
- 622 Failed suddenly

630 **Tyres**
- 631 Puncture or blow-out
- 632 Worn tread on tyre
- 633 Incorrect tyre type
- 634 Mixed treads / space savers

640 **Windscreen or mirror**
- 641 Shattered windscreen
- 642 Windscreen or rear window dirty
- 643 Rear vision mirror not adjusted correctly
- 644 No rear vision mirror
- 645 Windscreen or rear window misted/frosted
- 646 Inadequate or no sun-visors
- 647 Inadequate or no windscreen wipers
- 648 Cycle / Motorcycle visor, glasses, goggles or screen

650 **Mechanical**
- 651 Engine failure
- 652 Transmission failure (including chains and gears)
- 653 Accelerator or throttle jammed

660 **Body or chassis**
- 661 Body, chassis or frame (cycle, m/c) failure
- 662 Suspension failure
- 663 Failure of door catch or door not shut
- 664 Inadequate mudguards
- 665 Inadequate tow coupling
- 666 Inadequate or no safety chain
- 667 Bonnet catch failed
- 668 Wheel off
- 669 Broken axle
- 670 Inconspicuous colour
- 671 Blind spot
- 672 Seat belt / restraint failed
- 673 Air-bag failed to inflate (fully)

680 **Load**
- 681 Load interferes with driver
- 682 Not well secured or load moved
- 683 Over-hanging
- 684 Load obscured vision
- 685 Excess dimensions not adequately indicated
- 686 Over dimension vehicle or load
- 687 Load too heavy
- 688 Towed vehicle or trailer too heavy or incompatible

690 **Miscellaneous vehicle**
- 691 Emergency Vehicle attending emergency
- 692 Vehicle caught fire
- 693 Being towed
- 694 Air-bag contributed to crash or injury
- 695 Seatbelt / restraint absent or unusable
- 696 Dangerous goods

PEDESTRIANS

700 **Walking along road**
- 701 Not keeping to footpath
- 702 Not keeping to side of road
- 703 Not facing oncoming traffic
- 704 Not on outside of blind curve
- 705 Wheeled ped inconsiderate or dangerous on footpath

710 **Crossing road**
- 711 Walking heedless of traffic
- 712 Stepping out from behind vehicles
- 713 Running heedless of traffic
- 714 Failed to use pedestrian crossing when one within 20 metres
- 715 Waiting on roadway for moving traffic
- 716 Confused by traffic or stepped back
- 717 Suddenly stepped onto pedestrian crossing
- 718 Not complying with traffic signals or school patrols
- 719 Misjudged speed and / or distance of vehicle

720 **Miscellaneous**
- 721 Pushing, working on or unloading vehicle
- 722 Playing on road or unnecessarily on road
- 723 Working on road
- 724 Wearing dark clothing
- 725 Vision obscured by umbrella or clothing
- 726 Child escaped from supervision
- 727 Unsupervised child
- 728 Sitting / lying on road
- 729 Pedestrian to /from school bus
- 730 Pedestrian behind reversing / manoeuvring vehicle
- 731 Overseas pedestrian
- 732 Pedestrian attention diverted eg cigarette, cell phone, music player

ROAD

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

810 **Surface**
- 811 Potholed
- 812 Uneven
- 813 Deep loose metal
- 814 High crown
- 815 Curve not well banked
- 816 Edge badly defined or gave way
- 817 Under construction or maintenance
- 818 Unusually narrow
- 819 Broken glass

820 **Obstructed**
- 821 Fallen tree or branch
- 822 Slip or subsidence
- 823 Flood waters, large puddles, ford
- 824 Road works not adequately lighted
- 825 Road works not adequately signposted
- 826 Roadside object fell on vehicle
- 827 Object flicked up by vehicle

830 **Visibility limited**
- 831 Curve
- 832 Crest
- 833 Building
- 834 Trees
- 835 Hedge or fence
- 836 Scrub or long grass
- 837 Bank
- 838 Temporary obstruction, dust or smoke
- 839 Parked vehicle

840 **Signs and signals**
- 841 Damaged, removed or malfunction
- 842 Badly located
- 843 Ineffective or inadequate
- 844 Necessary
- 845 Signals turned off

850 **Markings**
- 851 Faded
- 852 Difficult to see under weather conditions
- 853 Markings necessary
- 854 Not visible due to geometry or vehicles
- 855 Old markings not adequately removed

860 **Street lighting**
- 861 Failed
- 862 Inadequate
- 863 Glare on wet road
- 864 Pedestrian crossing not adequately lighted

870 **Raised islands and roundabouts**
- 871 Traffic island(s) difficult to see
- 872 Traffic island(s) Ineffective, badly located or designed
- 873 Cyclist squeeze point

MISCELLANEOUS

900 **Weather**
- 901 Heavy rain
- 902 Dazzling sun
- 903 Strong wind
- 904 Fog or mist
- 905 Snow, sleet or hail

910 **Animals**
- 911 Household pet rushed out or playing
- 912 Farm animal straying
- 913 Farm animal attended, but inadequate warning or unexpected
- 914 Farm animal attended, but out of control
- 915 Wild animal

920 **Entering or leaving land use**
- 921 Roadside stall
- 922 Service station
- 923 Specialised liquor outlet
- 924 Take away foods
- 925 Shopping complex
- 926 Car parking building / area
- 927 Other commercial
- 928 Industrial site
- 929 Private house / farm
- 930 Other non-commercial
- 931 Mobile shop or vendor

999 **Unknown**