

## 7 Road Safety

The crash record for SH1 between MacKays Crossing and Pukehou Bridge was analysed to identify trends in their attributes or likely cause. Only crashes that occurred between 2003 and 2007 (inclusive) are included in the analysis. In this period there were 544 crashes including 10 fatal, as shown in Table 7.1. The location of injury crashes within the study area is shown in Figure 7.1.

**Table 7.1 – SH1 MacKays Crossing to Pukehou Bridge: Crash Record 2003 - 2007**

Data	'2003	'2004	'2005	'2006	'2007	Total
Fatal	1	3	2	3	1	10
Severe	6	12	11	8	6	43
Minor	24	20	25	27	20	116
Non-Injury	95	71	71	61	77	375
<b>Total</b>	<b>126</b>	<b>106</b>	<b>109</b>	<b>99</b>	<b>104</b>	<b>544</b>

A similar number of crashes were recorded in each year with no perceptible increase or decrease trends during the period. The lowest number of crashes (including non-injury) was 99 in 2006. The highest was 126 in 2003.

The largest number of crashes occurred on Fridays (81) or Sundays (95), even though traffic flows on these days are not significantly higher than the annual daily average. The times when crashes occurred on Fridays and Sundays correspond with the times when motorists use the road to travel to and from weekend holiday destinations. Fewer than seventy-eight crashes were recorded for every other day of the week.

On weekdays more crashes occurred during peak hours when traffic volumes are higher than at other times of the day. Crashes in weekday peak periods were also more severe even though average road speeds in the District are lower at these times.

### 7.1 Crash Locations

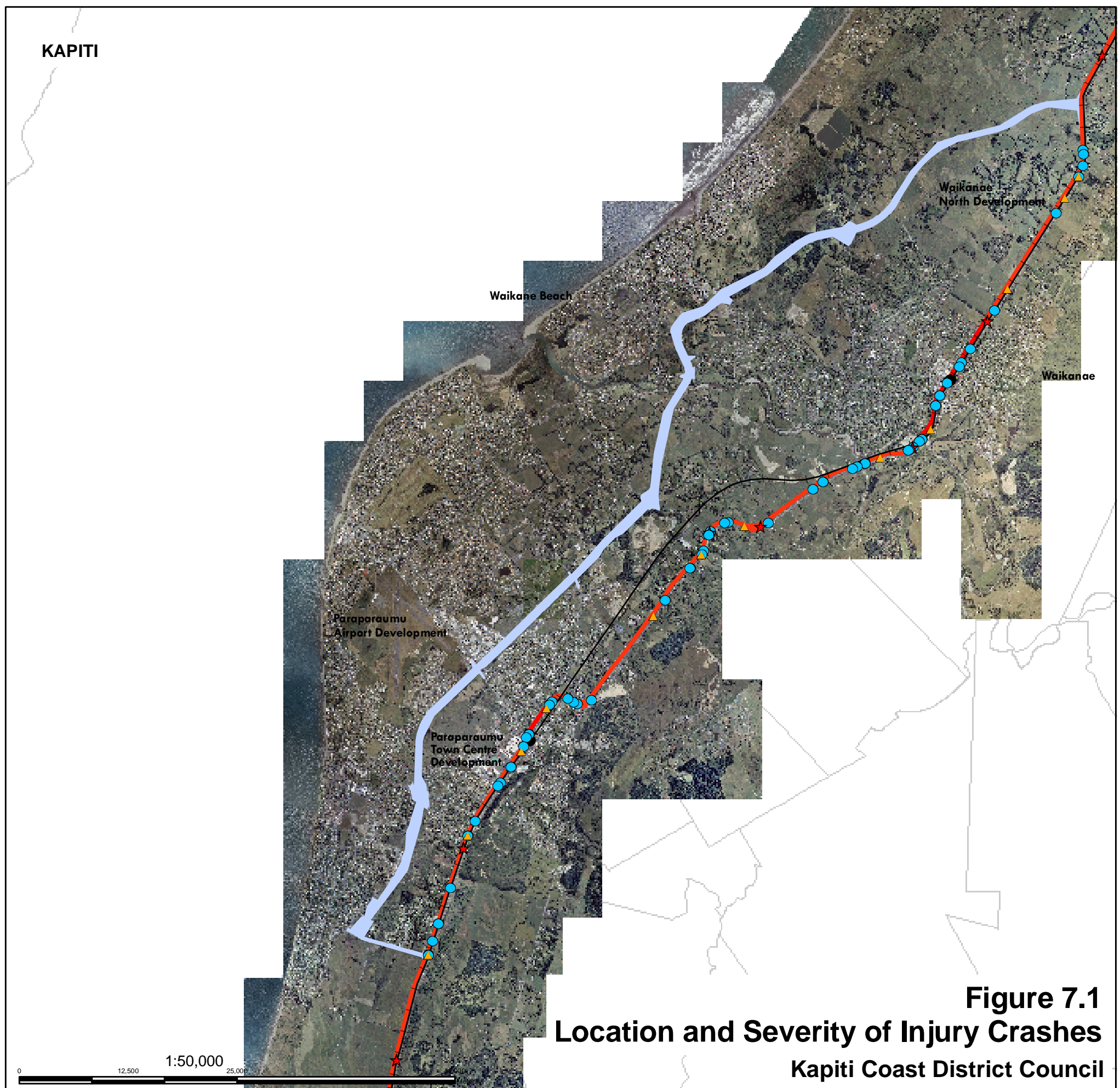
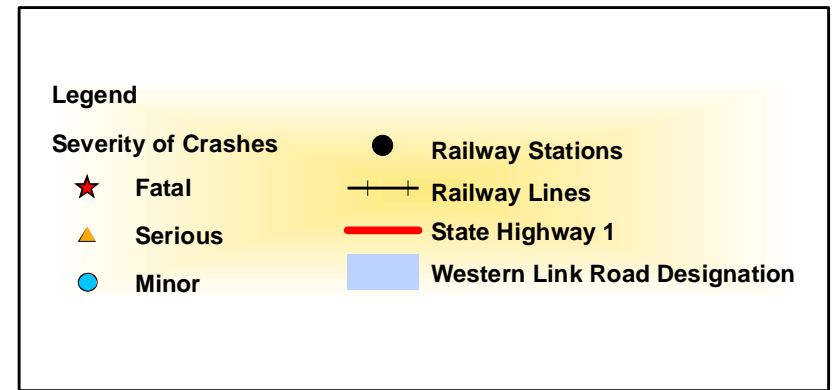
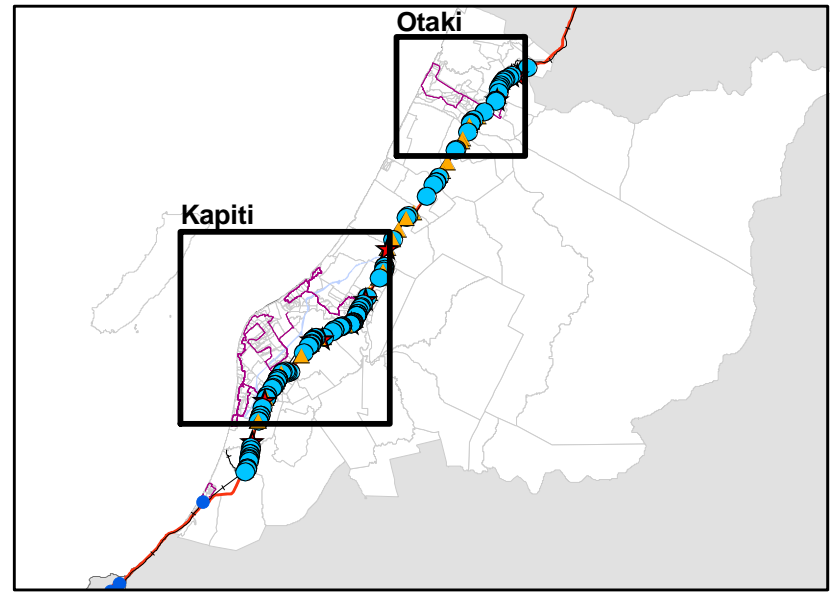
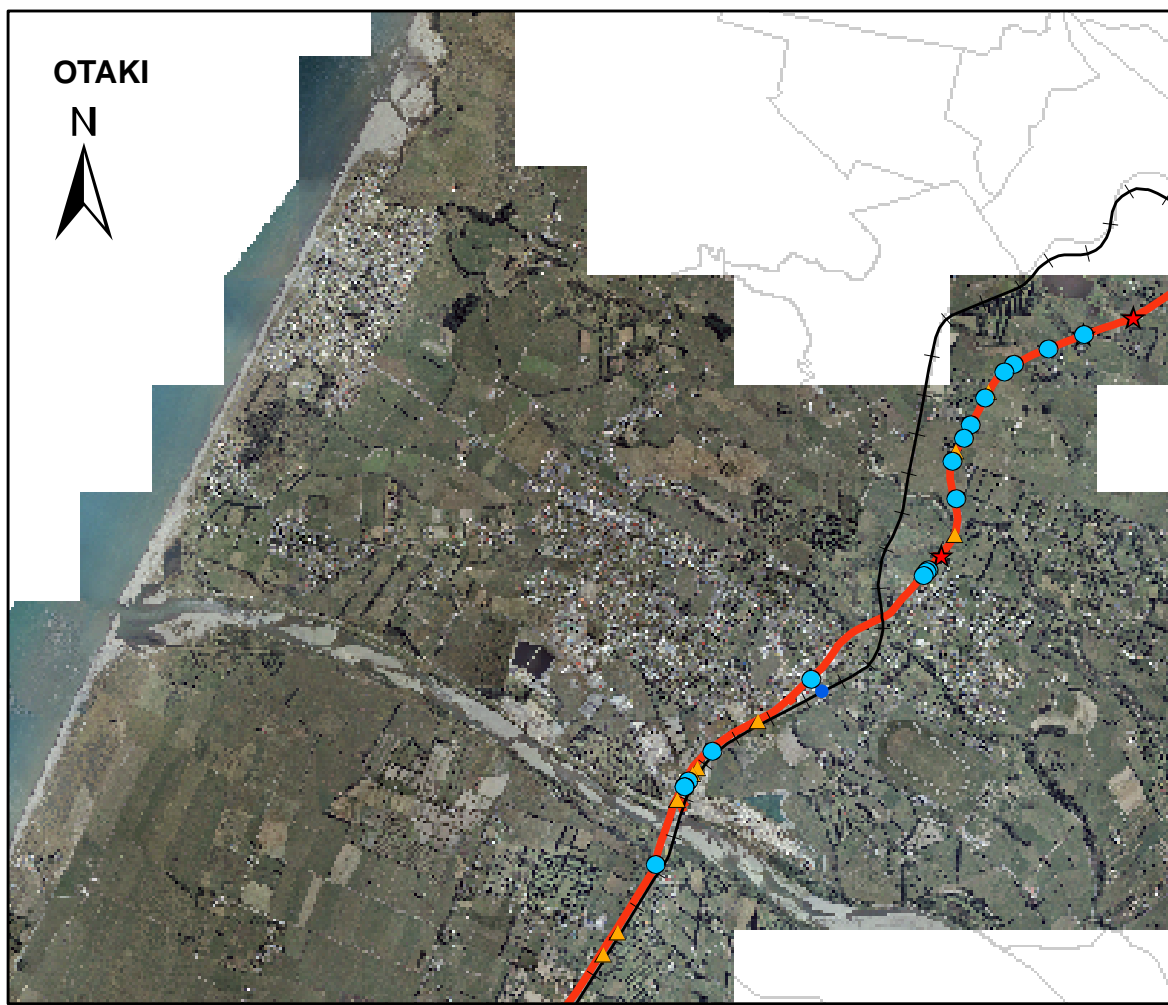
For reporting purposes, data was organised according to the speed restrictions and environmental characteristics along SH1. Sections were classified as either rural high speed (70, 80 and 100km/h) or urban low speed (50km/h or 70km/h). The eight sections are listed in Table 7.2, below. As well as the speed limit, the table also indicates whether the route section is rural or urban because this could influence the types of crashes that occur.

Cursory examination of the crash record (see Figure 7.2) indicates that the number of crashes per kilometre is greatest in the urban areas of Paraparaumu and Waikanae. Crashes in the urban areas are however less severe, perhaps reflecting the lower traffic speed on these sections.

**Table 7.2 – Definition of SH1 Sections for Crash Analysis**

Section	Length (km)	Speed Limit (km/h)	Type
1 MacKays Crossing to Poplar Avenue	3.6	100	Rural
2 Poplar Avenue to Ihakara Street	2.3	70 -100	Rural
3 Ihakara Street to Nikau Palm Road (Paraparaumu)	2.2	50 - 70	Urban
4 South of Nikau Palm Road to Te Moana Road	5.5	70 -100	Rural
5 Te Moana Road to Martin Street (Waikanae)	0.7	50	Urban
6 Martin Street to Peka Peka Road	4.1	70 -100	Rural
7 Peka Peka Road to Pukehou Bridge (excl. Otaki)	14.6	100	Rural
8 Peka Peka Road to Pukehou Bridge (Otaki)	1.4	50	Urban

Annual Average Daily Traffic volumes on SH1 are lower further away from Wellington as shown in Figure 6.1, in the previous section. Crash rates reflecting both the length of each route section and the numbers of vehicles travelling along each section of road were calculated as injuries per 100 million vehicle kilometres. Other than “Nikau Palm Road to Te Moana Road” route section, the crash rates were lower than the average for rural (11.95) state highway in Kapiti Coast District. These are presented in Figure 7.3. The figure shows that in general, higher injury rates are recorded for rural, high speed sections, but that SH1 through Paraparaumu also has a high injury rate.



**Figure 7.1**  
**Location and Severity of Injury Crashes**  
 Kapiti Coast District Council



Figure 7.2 – Crashes per km by SH1 Route Section

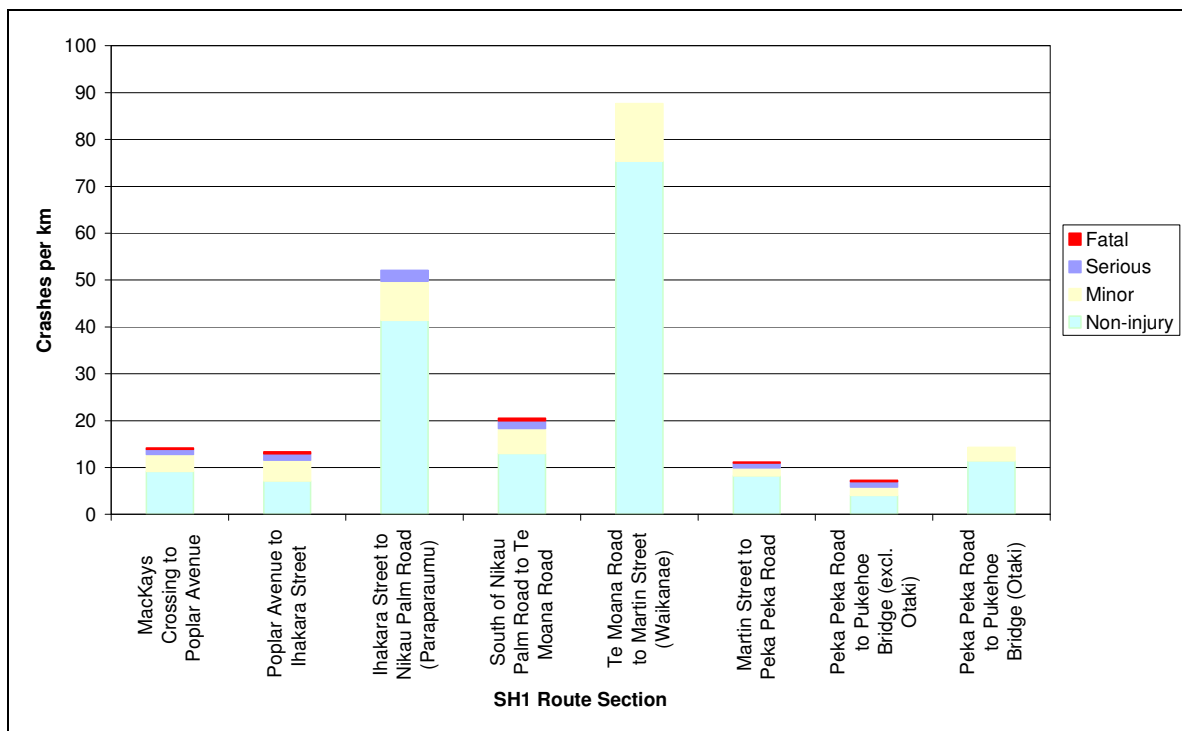
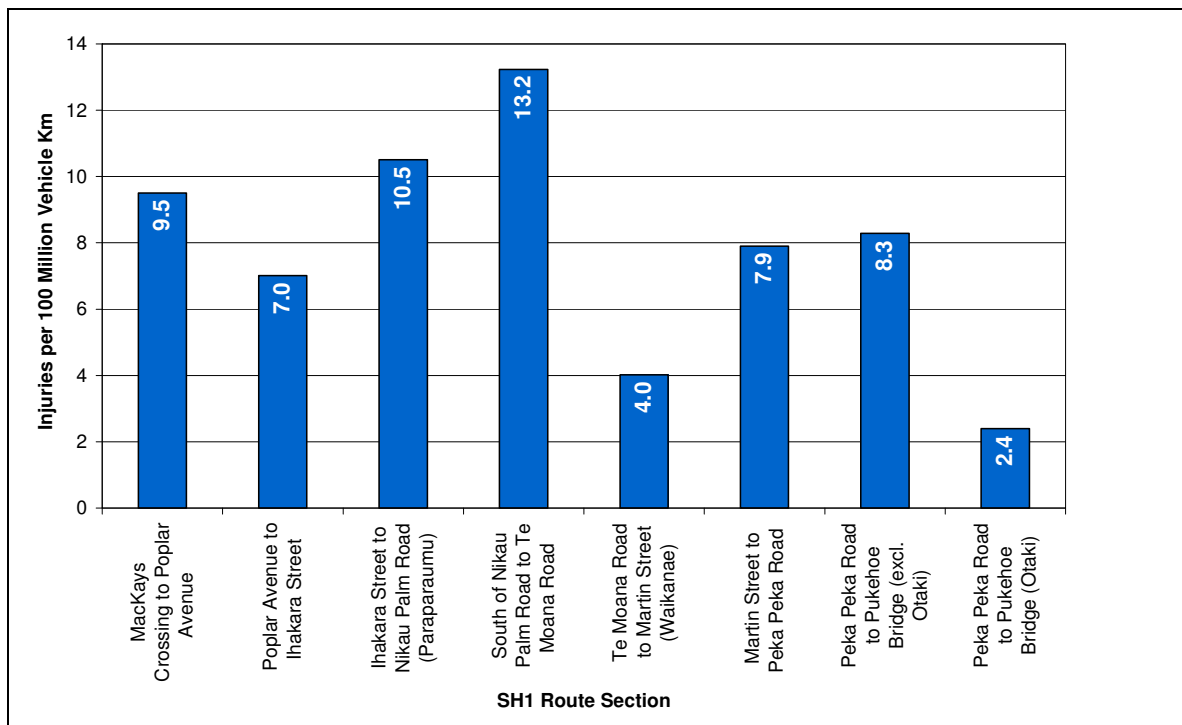


Figure 7.3 – Injuries per 100 Million Vehicle km by SH1 Route Section



## 7.2 Crash Blackspots

An analysis of crash blackspots was undertaken to identify locations with high crash rates. For this analysis a blackspot is defined as a location where, in the last five years, four or more crashes or three or more injury crashes have occurred within 20m of each other.

Thirty-three black spots were identified and are shown in Figure 7.4. The 20 locations where six or more crashes have occurred in the last five years are listed in Table 7.3. Many coincide with intersections, the worst being at Kapiti Road in Paraparaumu (46 crashes – almost double the amount of crashes at Te Moana Road, the 2nd worst location). Table 7.3 also shows the number of crashes involving cyclists at each black spot.

**Table 7.3 – Crash Black Spots**

Intersection	State Highway Intersection with:	Distance From nearest State Highway Intersection:	Fatal	Serious	Minor	Non Injury	Total	CYCLIST
Yes	Kapiti Road		0	2	6	38	46	3
Yes	Te Moana Road		0	0	4	21	25	0
Yes	Otaihanga Road		1	3	7	11	22	1
No		470m South of Te Moana Rd	0	0	4	14	18	0
No		340m South of Martin Street	0	1	1	11	13	0
Yes	Elizabeth Street		0	0	2	11	13	0
Yes	Raumati Road		0	2	4	7	13	0
Yes	Poplar Avenue		0	2	2	7	11	0
Yes	Coastlands Parade		0	0	1	8	9	1
Yes	Amohia Street		0	0	1	7	8	0
Yes	Ihakara Street		0	0	1	6	7	0
No		60m South of Kebbelle Drive	0	0	2	4	6	0
Yes	Leinster Avenue		0	0	2	4	6	0
No		800m North of Greenhill Rd	0	1	1	4	6	1
No		200m South of Otaihanga Rd	0	1	2	3	6	0
Yes	Taylor's Road		0	0	2	4	6	0
Yes	Coastlands		0	1	0	5	6	0
No		500m South of Otaihanga Rd	0	0	2	4	6	0
No		2000m South of Peka Peka Rd	0	1	1	4	6	0
Yes	SH 1N		0	0	1	5	6	0

### 7.3 Crash Types

206 crashes occurred at intersections, access ways and other locations of conflicting vehicles paths. Causation factors at such locations were predominantly:

- Failure to give way;
- Failure to abide by traffic signals; and
- Incorrect lane usage.

A significant concentration of crashes occurred on SH1 at the entrance to Firth Concrete, approximately 470m south of Te Moana Road on the southern side of the Waikanae Bridge. Most crashes that occurred at this location were associated with failure to give way. There was also a large proportion of nose to tail crashes where following vehicles failed to slow behind turning vehicles. Forward visibility to this intersection, when travelling north on SH1 is poor. Other high traffic volume rural intersections on SH1 with significant concentrations of crashes are:

- Otaihanga Road, (22 crashes);
- Raumati Road (13 crashes); and
- Poplar Avenue (11 crashes).

Table 7.4 shows the number and proportion of different types of crashes to occur along each route section. The table shows that between 30% and 40% of crashes were rear end or obstruction crashes for every section except Otaki where the proportion is 50% (10 crashes). The proportion of rear end/obstruction crashes is typical for urban areas where, there are often many intersections, access ways and conflict points as well as high traffic volumes during peak hours. Compared to the average for rural state highways the numbers of rear end or obstruction is very high.

North of Waikanae, between Martin Street and Peka Peka Road, there was a particularly high proportion (43%) of loss of control, straight and head on crashes. Given the rural nature of the section, the proportion of rear-end obstruction type crashes are also high at 28%. This has been caused by vehicles following too closely possibly in heavy traffic.

Crossing / turning crashes were predominantly identified in the urban areas of Paraparaumu, Waikanae and Otaki although 10 were identified immediately south of Paraparaumu between Poplar Avenue to Ihakara Street.

### 7.4 Pedestrian and Cyclist Safety

Only 16 crashes involving pedestrians or cyclists have occurred on SH1 within the study area over the last five years. The low numbers of crashes mean that it is difficult to identify robust trends associated with crash locations or types.

It is however notable that approximately 70% of crashes involving pedestrians or cyclists have occurred in an urban environment (50km/h speed zones). This is expected for an environment where the proximity of residential properties to services and employment

makes walking and cycling a more viable transport option and hence increases the numbers of non-motorised trips that are made.

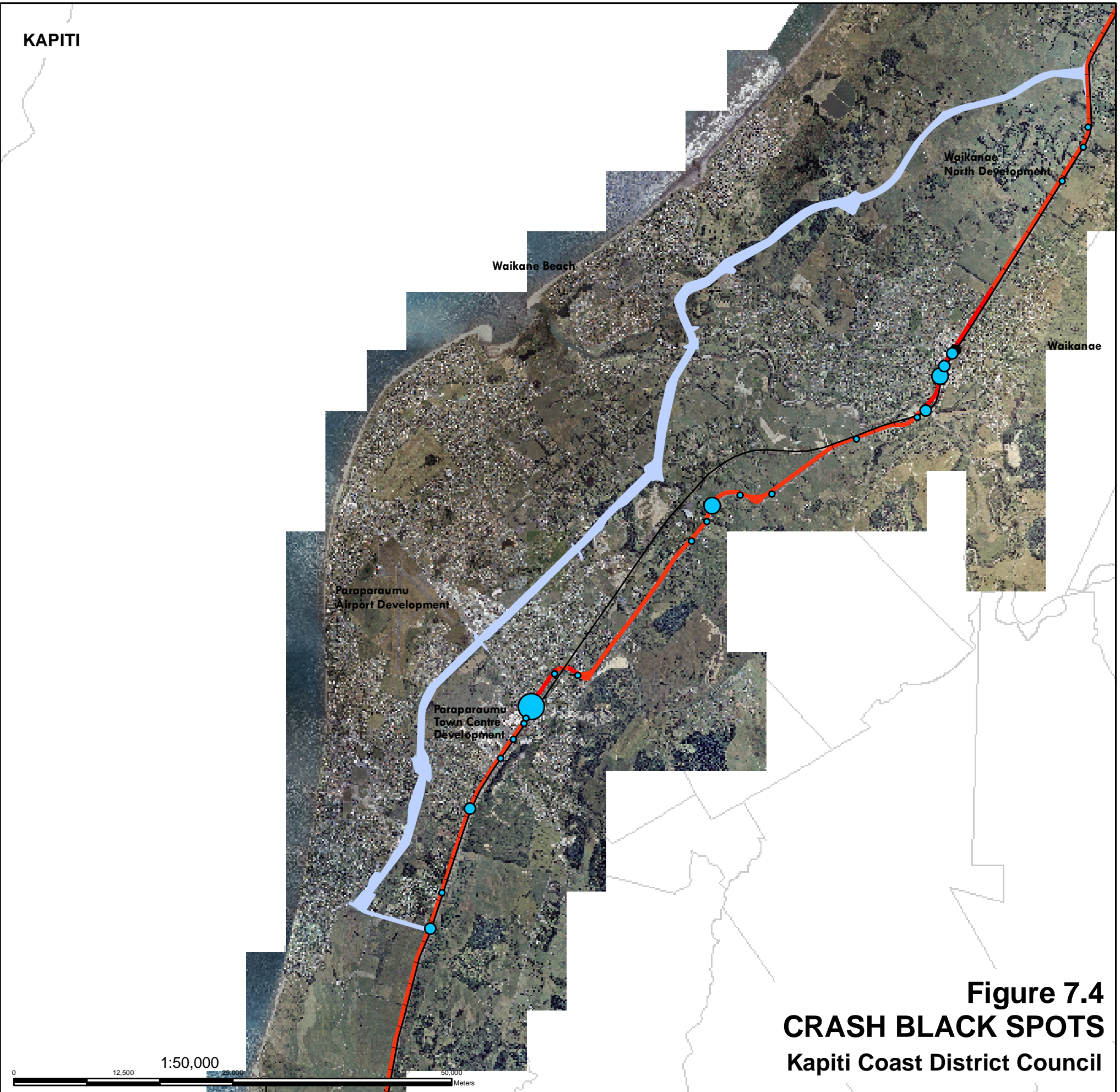
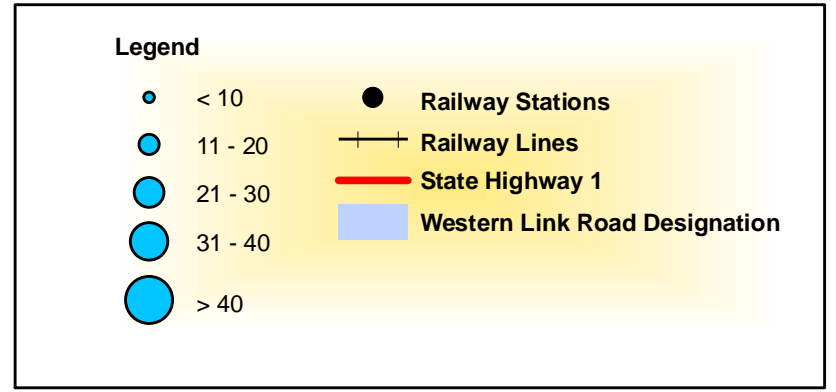
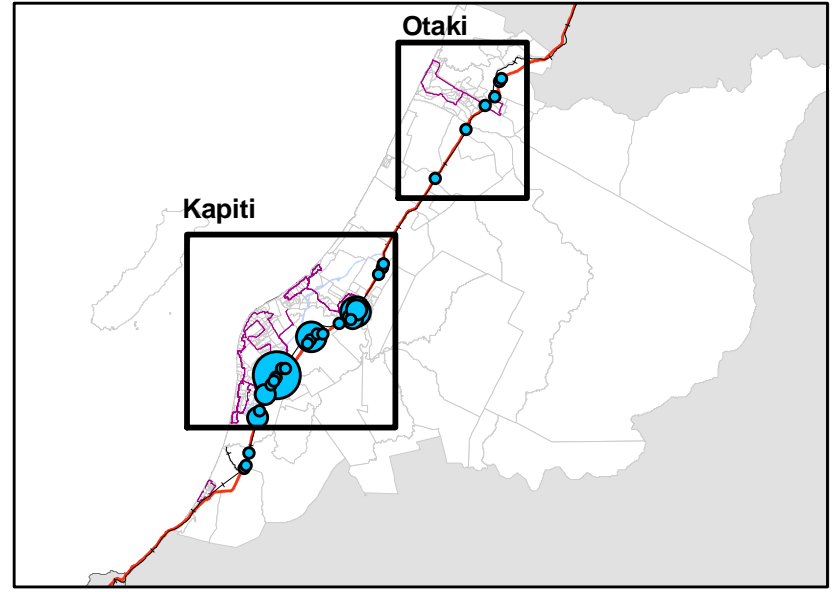
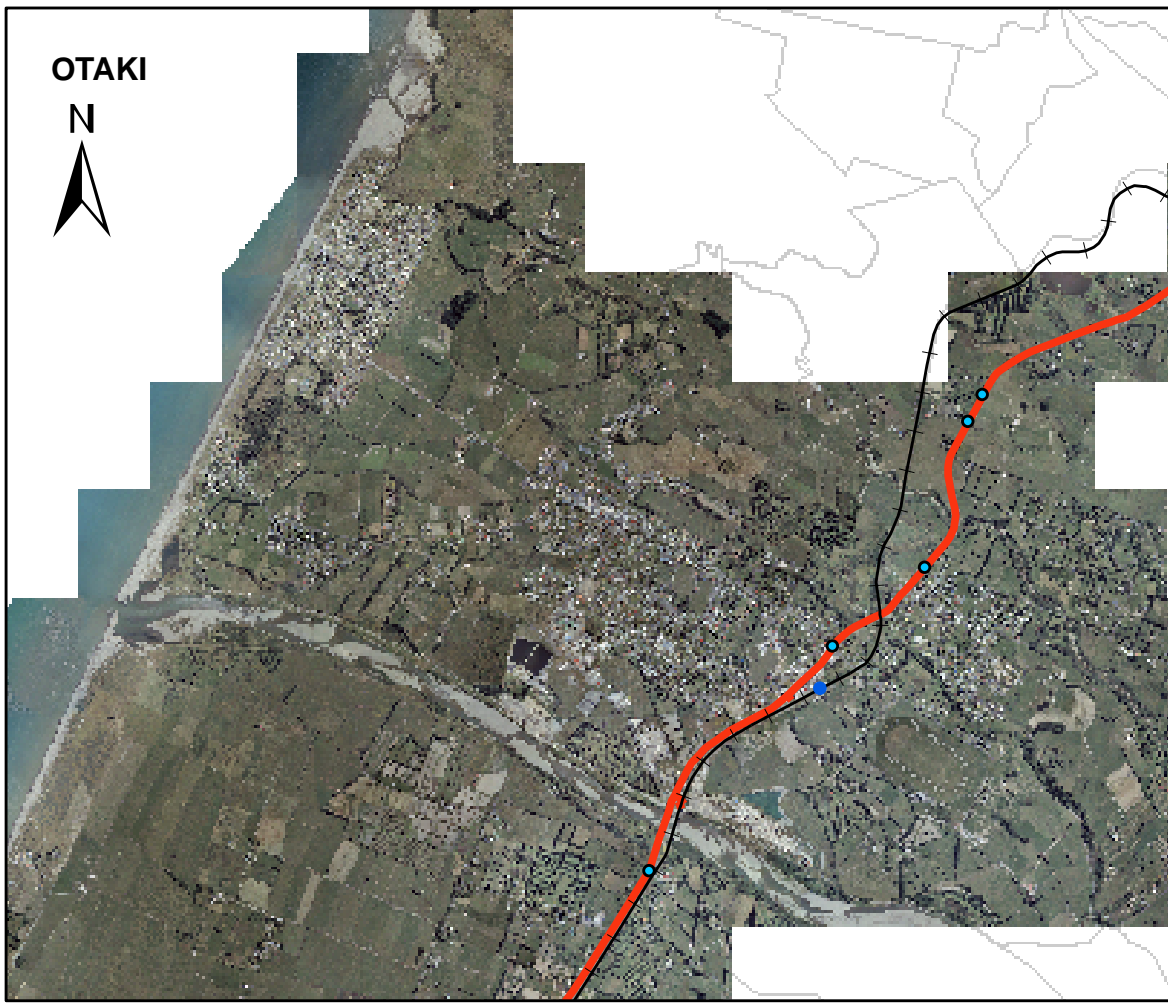
Five of the crashes occurred at the Kapiti Road intersection. The attending police officers determined that the crashes were caused by cyclists or pedestrians not keeping left, failing to give way or being under the influence of drugs / alcohol.

Other pedestrian and cyclist crashes were widely distributed along the route. Causation factors included attempted suicides, swerving to avoid objects on the road, motorists' inattention and misjudging speed.

**Table 7.4 – Predominant Crash Types**

Route Section	Section Length (km)	Total Crashes	No. (%) Rear End / Obstruction	No. (%) Crossing / Turning	No. (%) Loss control straight / head on	No. (%) Loss control bend / head on	No. (%) Other
Mackays Crossing to Poplar Avenue	3.6	51	15 (29%)		17 (33%)		
Poplar Avenue to Ihakara Street	2.25	30	8 (27%)	10 (33%)	6 (20%)		
Ihakara Street to Nikau Palm Road (Paraparaumu)	2.15	112	29 (26%)	58 (52%)			
South of Nikau Palm Road to Te Moana Road	5.46	112	45 (40%)			24 (21%)	24 (21%)
Te Moana Road to Martin Street (Waikanae)	0.65	57	22 (39%)	25 (44%)			
Martin Street to Peka Peka Road	4.12	46	13 (28%)		20 (43%)		
Peka Peka Road to Pukehou Bridge (excl. Otaki)	16	106	34 (32%)			23 (22%)	23 (22%)
Peka Peka Road to Pukehou Bridge (Otaki)	1.4	20	10 (50%)	4 (20%)			





**Figure 7.4**  
**CRASH BLACK SPOTS**  
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