

road safety issues

The Land Transport Safety Authority (LTSA) has prepared this road safety issues report. It is based on reported crash data and trends for the 1999–2003 period. The intent of the report is to highlight key road safety issues in Transit New Zealand (TNZ) Region Two.

Apart from this front page which has data for all of TNZ Region Two, the body of the report contains only those parts of TNZ Region Two not covered by the Auckland Motorways road safety issues report.

The LTSA has split TNZ Region Two in this way as it is impossible to meaningfully compare the central motorway junction, for example, with State Highway 16 at Kaukapakapa.

This is the fifth road safety issues report for TNZ Region Two. In each new report one year's data is added and the oldest dropped. It is, therefore, unlikely that the main issues for any road controlling authority have changed radically from report to report. Issues chosen for this report are drawn from either the most common crash types or contributory factors or those that appear over-represented when TNZ Region Two is compared with similar Transit regions.

Major road safety issues

TNZ Region Two

Bends
Intersections
Alcohol
Speed

Nationally

Speed
Alcohol
Failure to give way
Restraints

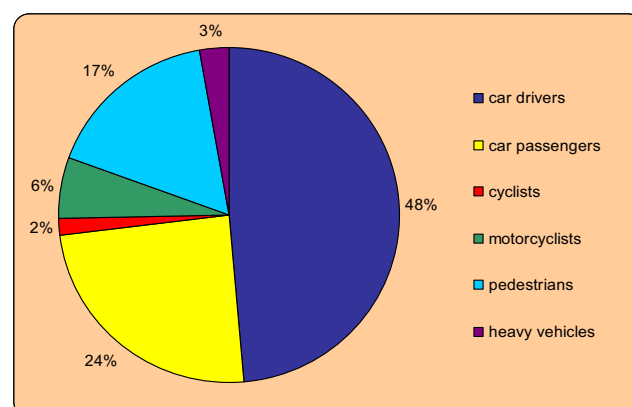
2003 road trauma for TNZ Region Two

Deaths	19
Serious casualties	82
Minor casualties	757

Fatal crashes	18
Serious injury crashes	57
Minor injury crashes	551
Non-injury crashes	2,273

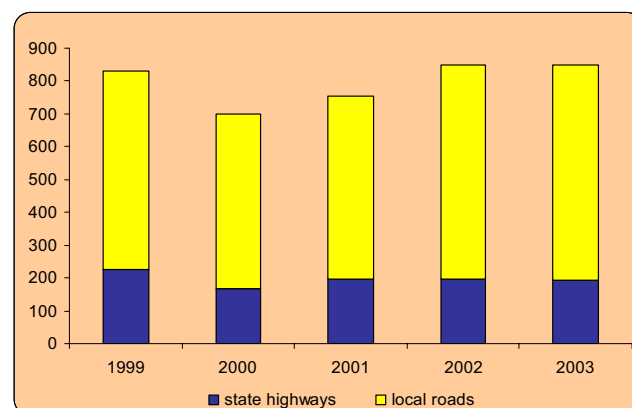
Road deaths 1999–2003

User type 1999–2003



Estimated social cost of crashes*

Social cost (\$ million)



*The estimated social cost includes loss of life or life quality (estimated by the amount New Zealanders are prepared to pay to reduce their risk of fatal or non-fatal injury), loss of output due to injuries, medical and rehabilitation costs, legal and court costs, and property damage. These costs are expressed at June 2002 prices.

Overview of crashes

This section contains an overview of crashes on the parts of the state highway (SH) network not included in the Auckland Motorways issues report.

For clarity, this report includes data for all of SH 1N and 1A in the Rodney District, all of SH 17 in North Shore City and the Rodney District, all of SH 18 in North Shore City and Waitakere City, all of SH 16 in Waitakere City and the Rodney District north and west of SH 18, and all of SH 22 in the Papakura and Franklin Districts.

The table below lists casualties by state highway for the period 1999 to 2003.

SH number	No. of fatalities	No. of serious injuries	No. of minor injuries
1A	0	0	5
1N	28	121	311
16	14	61	214
17	4	23	74
18	7	31	166
22	1	15	59

The table below lists the number of injury and non-injury crashes by state highway.

SH number	1999	2000	2001	2002	2003
1A	0	1	3	4	6
1N	165	166	207	233	220
16	111	93	81	114	105
17	74	42	27	26	35
18	74	74	80	88	87
22	25	24	28	22	41

All state highways showed an increase in crash numbers, with both SH 17 and SH 22 showing sharp rises in 2003. Further analysis of these two highways indicates a rise in the number of minor injury crashes on SH 17 in 2003 and a rise in the number of minor injury and non-injury crashes on SH 22 in 2003.

The LTSA uses 395 different categories to classify the factors which contribute to crashes in the reports provided by the Police. These are grouped under 46 headings.

The next table lists the most commonly found factors on the six highways and the approximate percentage of injury crashes on each highway that have the contributory factor listed.

Factor	SH 16 %	SH 17 %	SH 18 %	SH 1A %	SH 1N %	SH 22 %
Alcohol or drugs	20	23	21	50	20	18
Too fast	13	12	17	0	19	20
Failure to keep left	7	5	5	0	8	2
Loss of control	15	12	13	50	21	25
Overtaking	1	3	2	0	4	4
Fault in line of traffic	4	5	5	0	5	2
Failure to give way	20	25	20	0	12	18
Inattention	10	11	18	0	7	7
Attention diverted	11	11	10	0	6	5
Did not see other party	15	12	18	0	13	11
Inexperience	5	2	2	0	6	11
Fatigue	8	2	10	0	12	11
Illness	3	6	7	0	4	2
Tyres	2	8	2	0	3	4
Pedestrian crossing	2	6	5	0	4	2
Road slippery	2	3	3	0	13	15

Total number of injury crashes

SH 16	SH 17	SH 18	SH 1A	SH 1N	SH 22
184	65	125	2**	286	55

Using this list it is possible to look at the differences on each highway and tailor interventions accordingly.

** With so few crashes on SH 1A there is little that can be drawn statistically from the data.

Of note is:

- alcohol on all highways
- speed on SH 18, SH 1N and SH 22
- loss of control on SH 1N and SH 22
- failure to give way on SH 16, SH 17, SH 18 and SH 22
- inattention on SH 18
- failure to see other party on SH 18
- fatigue on SH 1N and SH 22
- slippery road on SH 1N and SH 22.

The LTSA also uses 86 different descriptions to describe the type of crash that occurred and these can be grouped under six main headings. The table below lists these groupings and the approximate percentages of crashes on individual highways.

Crash type	SH 16	SH 17	SH 18	SH 1A	SH 1N	SH 22
Bend-loss of control	32	16	27	50**	44	46
Crossing/turning	26	34	26	0	16	22
Overtaking	6	6	6	0	7	4
Pedestrian vs vehicle	2	8	4	0	5	4
Rear-end/obstruction	21	19	26	0	15	7
Straight-loss of control	13	17	11	50**	12	17

Using this list it is possible to look at the differences on each highway and target interventions accordingly.

** With so few crashes on SH 1A there is little that can be drawn statistically from the data.

Of note is:

- bend crashes on SH 1N and SH 22 and to a lesser extent on SH 16
- crossing and turning crashes (usually an intersection problem) on SH 17
- a pedestrian issue on SH 17
- a rear-end problem on SH 16, SH 18 and to a lesser on extent on SH 17
- loss of control on straight roads on SH 17 and SH 22.

By combining the ‘what caused the crash’ and the ‘what type of crash’ analyses, it is possible to create a summary of target topics for interventions for each highway.

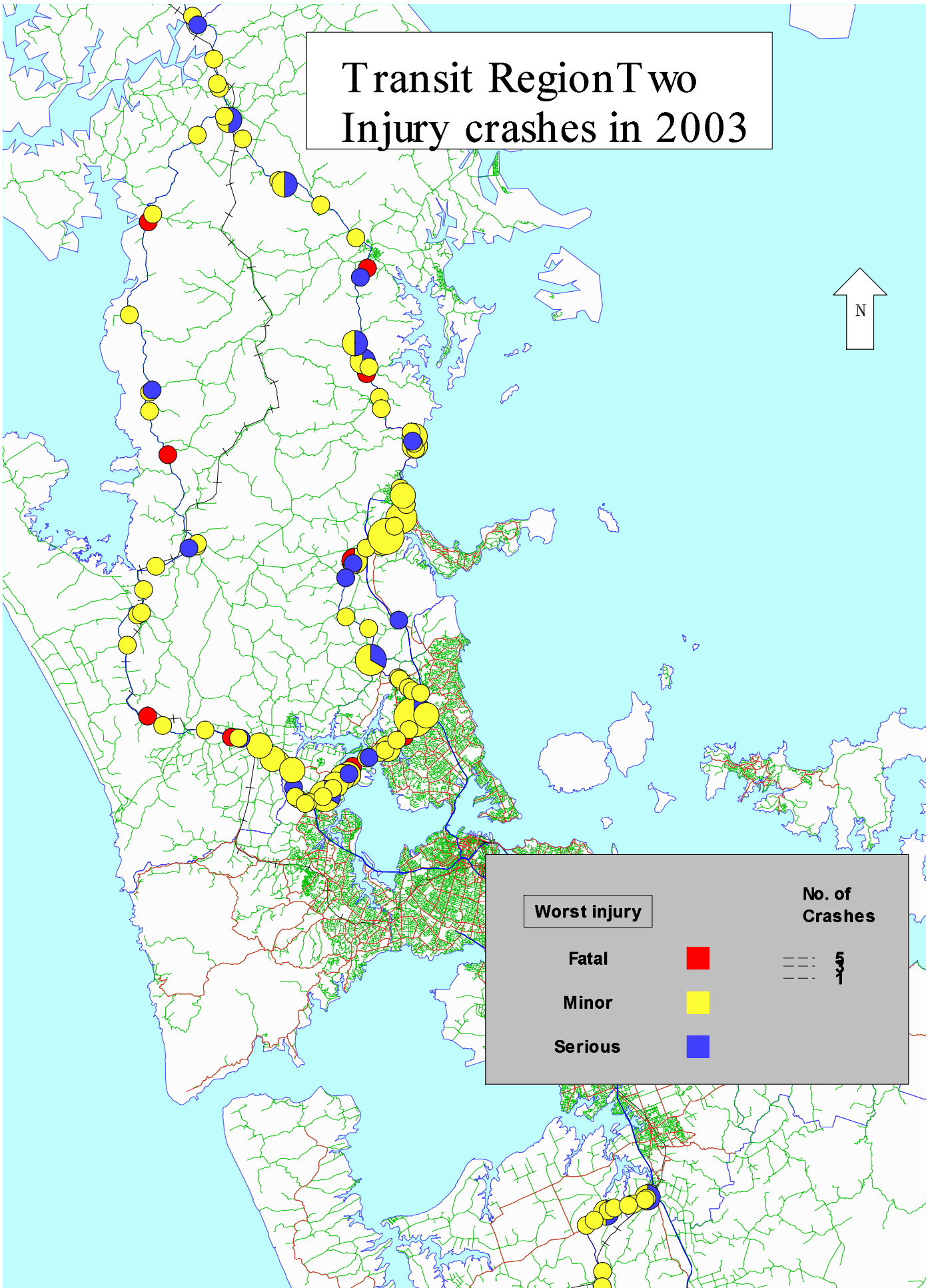
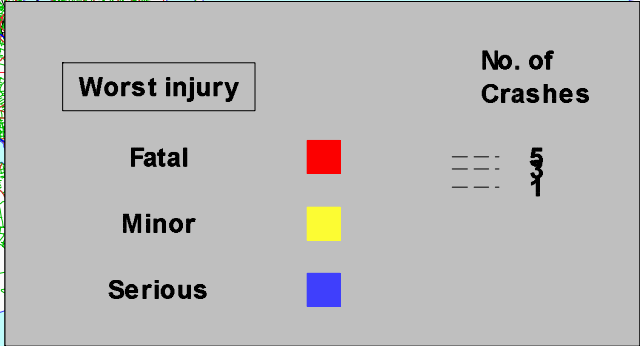
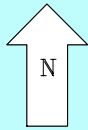
Issue name	SH 16	SH 17	SH 18	SH 1A	SH 1N	SH 22
Alcohol	x	x	x	x	x	x
Speed			x		x	x
Loss of control					x	x
Giving way	x	x	x			x
Inattention			x			
Observational failure			x			
Fatigue					x	x
Slippery road					x	x
Bend-loss of control	x				x	x
Intersections		x				
Pedestrians		x				
Rear-end	x	x	x			
Straight-loss of control		x				x

Over the past 20 years Transit New Zealand has maintained an extremely active crash reduction study programme in this region which has produced substantial benefits across the network. It is essential that this programme continues especially as traffic volumes rise across the network.

The LTSA would encourage Transit New Zealand to incorporate safety implementation programmes to ensure that intersection safety and bend safety in particular are actively promoted in its regional road safety plans.

We would also encourage Transit New Zealand to develop road safety strategies to address the safety issues identified in the table above.

Transit Region Two Injury crashes in 2003



Bends

Crashes at bends were identified as a significant issue in TNZ Region Two.

A number of crashes at bends are also associated with intersections if the junction itself is located on a curve. There are plenty of examples of this situation on our highway network.

The table below lists the number of crashes by injury type and curve severity.

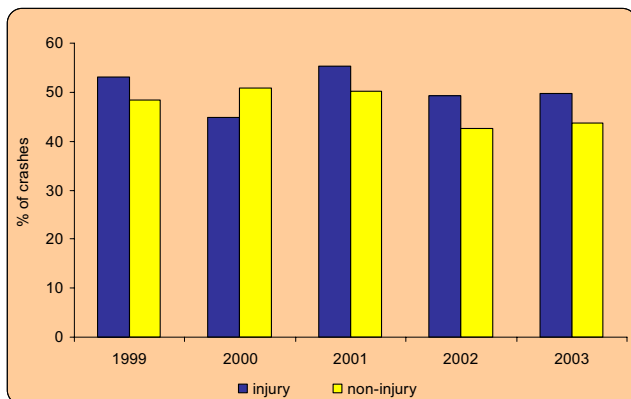
Road curvature	Number of injury crashes	Number of non-injury crashes
Easy curve	210	383
Moderate curve	131	273
Severe curve	22	67
Total	363	723

The table below lists the number of crashes by injury type and highway number between 1999 and 2003.

	SH 16	SH 17	SH 18	SH 1A	SH 1N	SH 22
Injury crash	89	22	53	1	165	33
Non-injury crash	143	59	107	4	365	45
Total	232	81	160	5	530	78

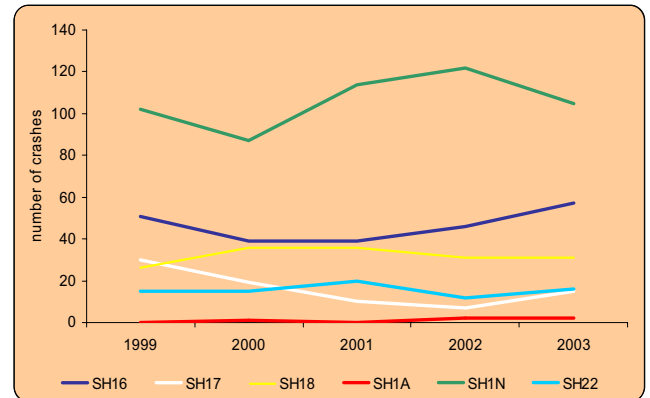
Over the last five years there has been very little change in the overall percentage of crashes occurring at bends.

Percentage of total highway crashes that are bend related



There is also very little that can be discerned on a year by year and highway by highway basis. State Highway 16 is the only highway to show an increase in numbers two years running.

Injury and non-injury crashes on bends



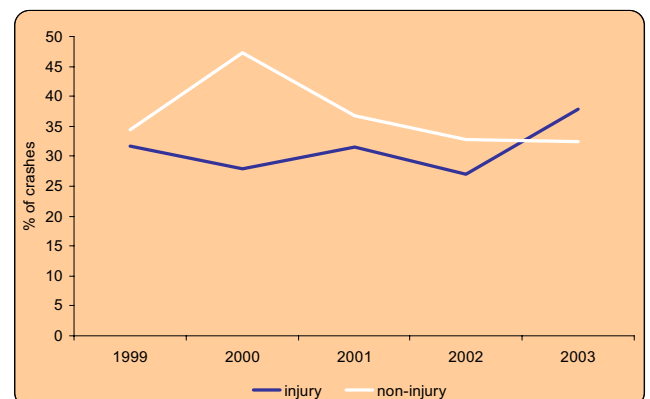
Further information about crashes on bends in 2003.

- There were 226 crashes, 76 injury crashes and 150 non-injury crashes.
- Eight people died, 22 received serious injuries and 85 sustained minor injuries.
- 31 percent occurred at night.
- 42 percent occurred in the wet.
- 273 cars, 47 vans/utes/SUVs, 37 trucks, one bus and six motorcycles were involved.
- Approximately 30 percent of injury crashes involved alcohol (includes all the categories in the alcohol section later in this report).
- 28 percent of drivers in injury crashes were travelling too fast for the conditions.
- 17 percent of injury crashes were fatigue-related.
- A total of 150 roadside hazards were struck, most commonly a cliff or bank (12 percent), a ditch (11 percent), a fence (nine percent) and a tree (six percent).
- The Police identified road-related issues in 14 percent of crashes, most commonly slippery road (rain).

Intersections

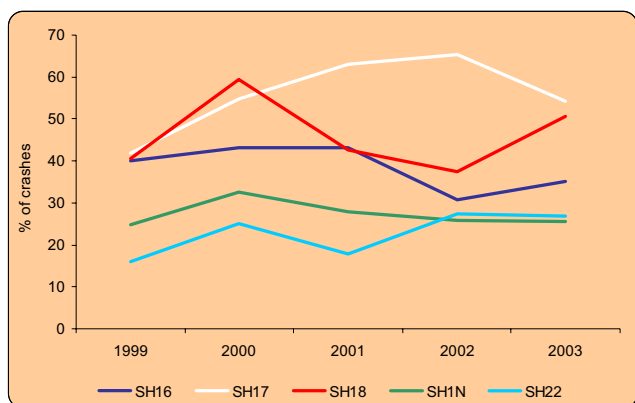
In the area covered by this report, approximately 35 percent of the 2,258 crashes occurred at or near intersections.

Percentage of total highway injury and non-injury crashes at intersections



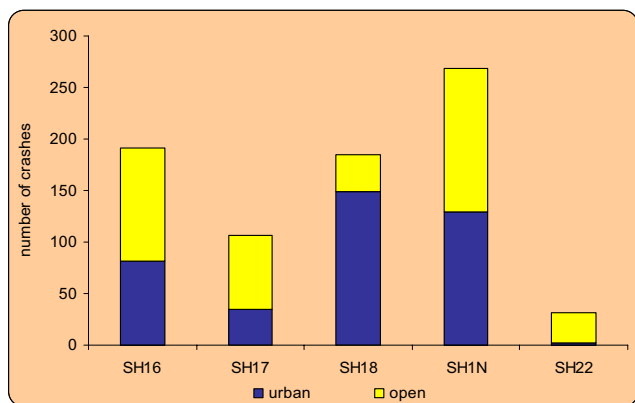
In 2003, there was a sharp rise in the percentage of injury crashes at intersections while non-injury crashes continued their downward track.

Intersection crashes by highway number



On State Highways 16, 18 and 1N, more than 40 percent of intersection crashes occurred in urban areas, while on State Highway 17 around 68 percent were in rural areas, and on State Highway 22 around 94 percent were rural. (Urban areas are those with speed limits of 70km/h or less.)

Intersection crashes by road speed limit 1999–2003

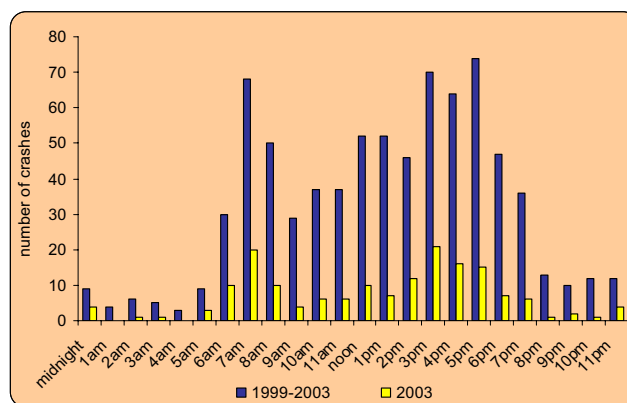


A little over 70 percent of all intersection crashes occurred at T junctions, with X junctions a distant second at 13 percent.

As a result, the two most common crash types (which commonly occur at T junctions) were either a vehicle being struck on the driver’s side while turning right from a side road or a right-turning vehicle being hit in the passenger side by opposing traffic. These two movements accounted for 40 percent of all crashes at intersections.

It is apparent from the 2003 data that the ‘peaky’ nature of intersection crash patterns is becoming more pronounced and that the afternoon peak crash time is occurring earlier.

Intersection crashes by time of day

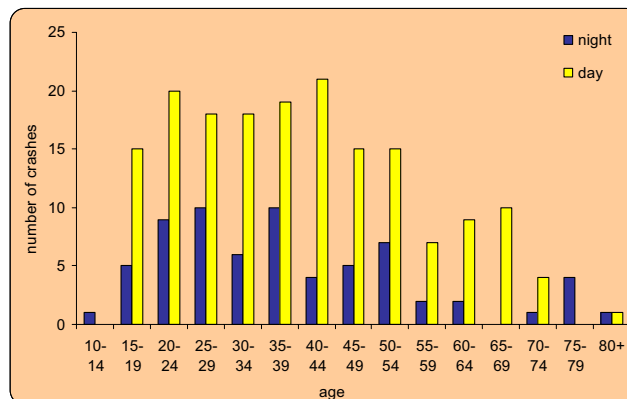


This may be a result of the rural community using these highways to avoid city-centric congestion by starting and finishing their working days earlier.

It is also possible that with increasingly heavy traffic volumes on the regional rural network, motorists are using smaller gaps in the traffic to complete their manoeuvres. For this reason it is extremely important to maintain sight lines, especially at intersections and major traffic generators.

There is also a notable difference in the age of drivers involved in these crashes when compared with the age of drivers across the region and this may influence the type of remedial measures being considered.

Age of drivers involved in intersection crashes



Further information about intersection crashes in 2003.

- There were 169 crashes, 58 injury crashes and 111 non-injury crashes.
- 10 people received serious injuries and 89 had minor injuries.
- In 62 percent of crashes, the driver failed to see and/or give way to the other party.
- Wednesday was the worst day and Sunday the best.
- 30 percent of crashes occurred in the wet.
- 21 percent occurred at night.
- 62 percent of drivers in injury crashes were male.
- Of the 68 drivers in the 58 injury crashes, three listed their address outside the Auckland Region and one was from overseas.



Alcohol

Alcohol has been identified as an issue across all highways covered by this report with as much as 23 percent of injury crashes being alcohol-related on some highways.

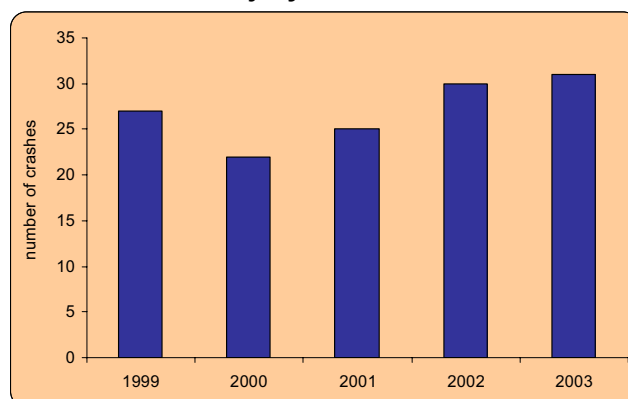
The LTSA has five categories for alcohol recording as well as two for drug-related crashes in its crash system. The number of times these factors are recorded for injury crashes on highways in this report is shown in the following table.

Note that if two drunk drivers collide this will be recorded as one alcohol-related crash but each driver will have a factor recorded against them which is shown in the following table.

LTSA alcohol cause category	Number recorded 1999 to 2003	Number recorded in 2003
Alcohol suspected	55	6
Alcohol test below limit	32	13
Alcohol test above limit	39	10
Alcohol test result unknown	8	2
Visibly intoxicated non-driver	5	2
Drugs suspected or proven	7	3

There is a strong link between alcohol-related crashes and speed-related crashes with approximately 30 percent of alcohol-related crashes having a 'too fast for the conditions' component. This linkage appears to have been stronger in 2003 than in the average across the five-year period.

Alcohol-related injury crashes



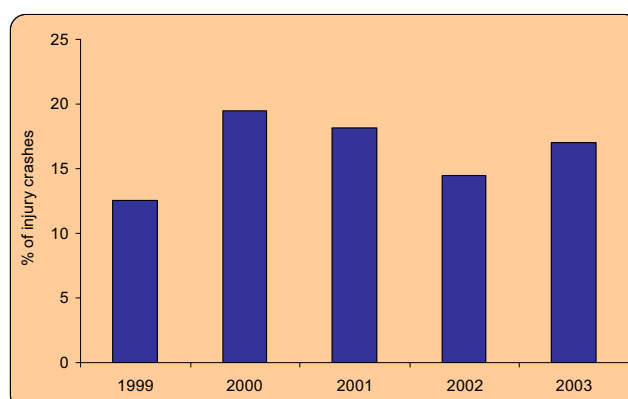
Further information about alcohol-related crashes in 2003.

- In the 31 crashes, seven people died, 11 received serious injuries and 31 received minor injuries.
- 61 percent occurred at night (less than the five-year average of 71 percent).
- 29 percent occurred in the wet (the same as the five-year average).
- 65 percent of crashes happened at or near a bend (higher than the five-year average of 53 percent).
- 34 cars, nine vans/utes/SUVs, three trucks, one bus and one motorcycle were involved.
- Around 60 percent of the crashes occurred on roads with a speed limit of 80 km/h or more (about the same as the five-yearly average of 64 percent).
- 86 percent of drivers were male, (well over the regional state highway average of 62 percent).
- The worst month was July.
- The worst day was Sunday, followed by Saturday and Thursday

80 Speed

Speed too fast for the conditions is a significant factor on all highways and in particular on State Highways 18, 1N and 22. The chart below shows the percentages of speed-related injury crashes and suggests a gradual rise in speed-related crashes.

Speed-related crashes



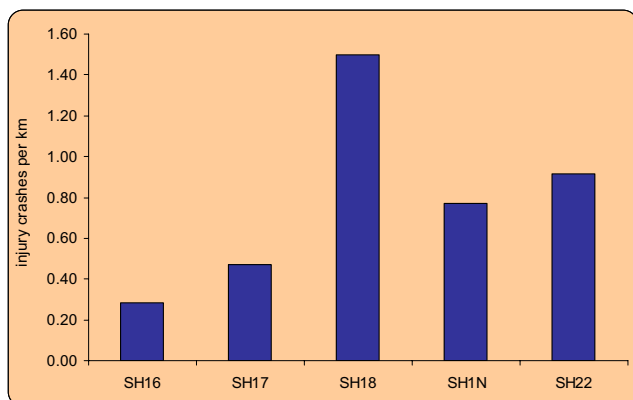
The LTSA uses a number of classifications for speed-related crashes and includes a further four racing type factors in the speeding group. These are shown below along with the number of times this factor was noted in injury crashes between 1999 and 2003, and in 2003. The LTSA does not apply any judgement of its own to the data and this and other tables show what the Police reported.

LTSA speed category	1999 to 2003	2003
Too fast for conditions (general category)	8	3
Too fast entering corner	79	19
Too fast on straight road	25	4
Too fast to give way at intersection	1	0
Too fast at temporary speed limit	2	0
Driver showing off (general category)	1	1

Clearly, entering corners too fast for the conditions is the biggest issue, especially in 2003.

Some highways will intrinsically be more risky than others because of the terrain they traverse and the traffic volumes they carry. The chart below shows approximately the number of speed-related crashes per km of road. Although this is only one measure, it does suggest that State Highway 18 in particular has a serious problem with speed-related crashes. It also has a high number of bend-related crashes so continued upgrading of this route currently underway is extremely important.

Speed-related injury crashes



Further information about speed-related crashes in 2003.

- There were 26 injury crashes resulting in four deaths, seven serious injuries and 31 minor injuries.
- 35 percent occurred at night (the five-year average is 38 percent).
- 31 percent included alcohol as a factor (the five-year average was 28 percent).
- 50 percent occurred in the wet (the five-year average was 44 percent)
- The most commonly struck roadside hazard was a tree (15 percent of crashes, the five-year average was 13 percent).

Road environment

The LTSA's crash reduction monitoring database shows that works implemented as a result of crash reduction studies have reduced crashes at the study sites on state highways by 45 percent in the Auckland Region.

Recommendations from recent studies should be implemented as soon as possible. Analysis of the crashes at all completed sites should be undertaken regularly to ensure that safety has been improved and sites re-examined if no improvement has occurred. Further crash reduction studies should be undertaken to continue the reduction of crashes and severity.

Where to get more information

For more specific information relating to road crashes in TNZ Region Two, please refer to the 1999 to 2003 Road Safety Data Report, the LTSA's Crash Analysis System or contact the LTSA as listed below:

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