

# road safety issues

July 2003

The Land Transport Safety Authority (LTSA) has prepared this road safety issues report. It is based on reported injury crash data and trends for the 1998–2002 period. The intent of the report is to highlight the key road safety issues and to identify possible ways to reduce the number of road deaths and injuries in North Shore City.

Issues identified in the body of this report are based on analysis of the city's local road crashes only, and do not include state highways, which are covered in a separate report. State highway crashes, however, do feature in the casualty and social cost charts on this page.

The social cost of crashes in the city increased significantly last year with higher numbers of crashes recorded on both local roads and state highways. In 2002 there were eight fatalities and over 440 other injuries caused by crashes on North Shore roads. The severity of some of these crashes could have been reduced if more drivers and passengers were wearing safety belts. Wearing a safety belt reduces the chance of death or serious injury in a crash by 40 percent. Surveys of front seat occupants last year showed a marked reduction in wearing rates.

This year's report includes a general overview of local road crash trends, followed by a closer look at the main issues identified. More detailed information about crash numbers and trends can be found in the road safety report for North Shore City published each year by the LTSA.

## Major road safety issues

North Shore City

Crashes on bends or with roadside hazards

Poor observation

Crossing or turning crashes

Pedestrians

Nationally

Speed

Alcohol

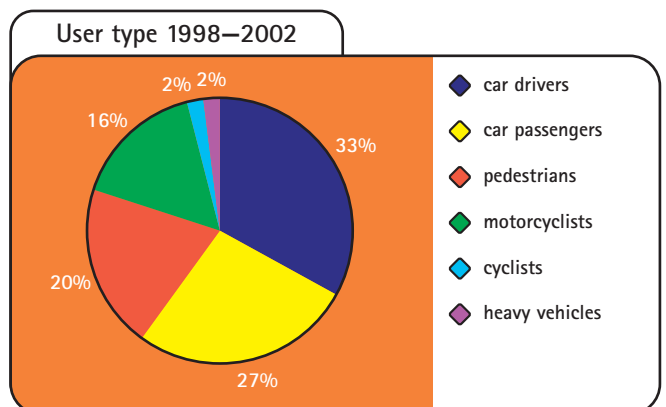
Failure to give way

Restraints

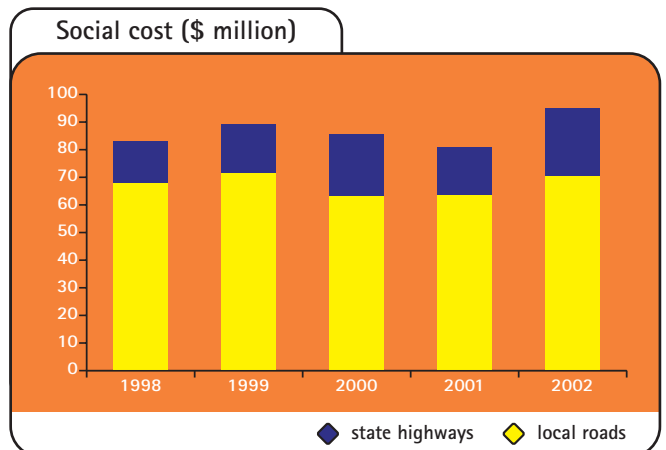
## 2002 road trauma for North Shore City

♀	Deaths	8
♀	Serious casualties	73
♀	Minor casualties	369
🚗	Fatal crashes	7
🚗	Serious injury crashes	64
🚗	Minor-injury crashes	283
🚗	Non-injury crashes	1,453

## Road deaths 1998–2002



## Estimated social cost of crashes\*

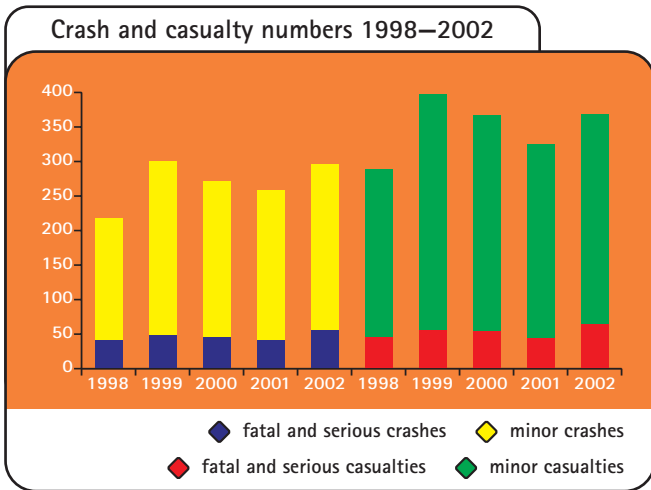


\* The estimated social cost includes loss of life or life quality (estimated by the amount New Zealanders are prepared to pay to reduce their risk of fatal or non-fatal injury), loss of output due to injuries, medical and rehabilitation costs, legal and court costs, and property damage. These costs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

# Overview of local road crashes

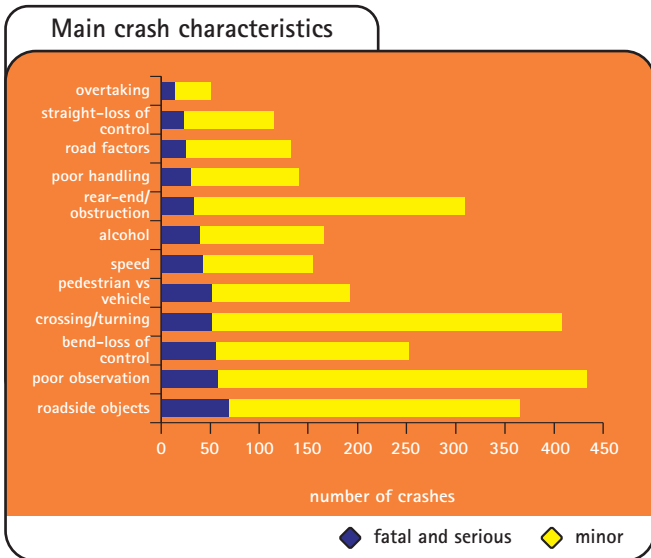
## Crash and casualty trends

The overall number of crashes on North Shore City local roads increased in 2002 following two years of reductions. Although there were fewer fatal crashes last year, crashes resulting in serious or minor injuries rose substantially. The trends can be seen in the chart below.



## Main crash characteristics

The following chart illustrates the main characteristics of crashes within the city. The four issues discussed in this report were chosen because they had the highest incidences of fatal and serious injuries (and in most cases minor injuries as well).

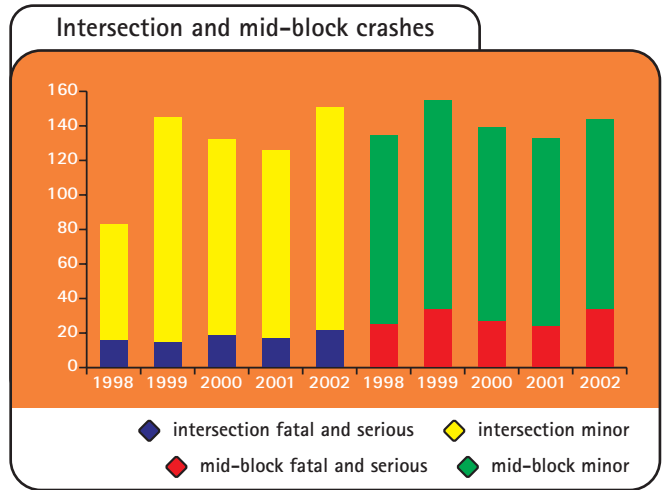


The chart shows that other crash categories also featured prominently. Careful consideration of all major crash types followed by appropriate treatment of problems is required for a significant improvement in safety to be made.

Because crashes are generally the result of many inter-related circumstances, examination of the four main issues will overlap into other issues not specifically looked at in this report. For instance alcohol and speed featured strongly in crashes at bends, and poor observation was a major factor in rear-end crashes.

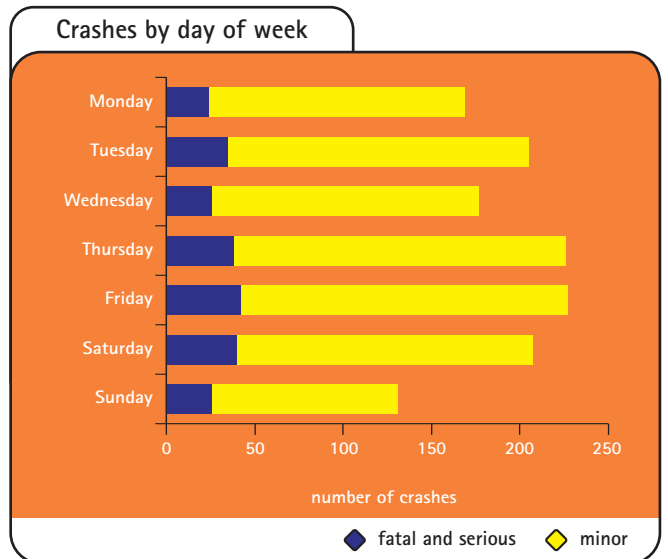
## Intersection and mid-block crashes

Crashes in recent years have been roughly equally split between intersection and non-intersection locations. Non-intersection crashes have tended to produce more severe injuries. This can probably be attributed to higher speeds associated with mid-block crashes (such as loss of control) and higher numbers of crashes involving vulnerable road users such as pedestrians.



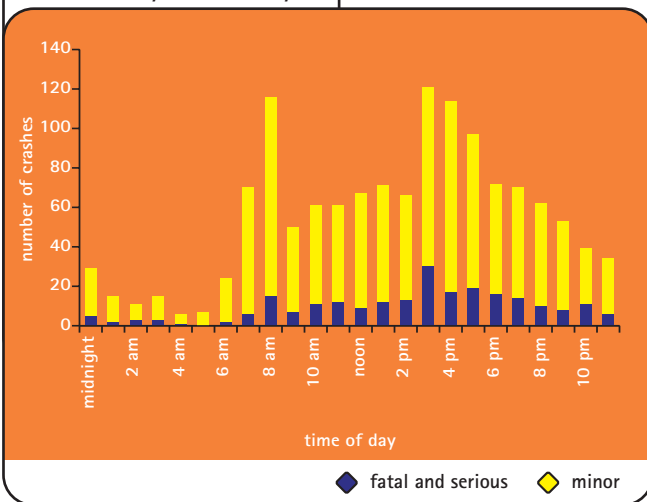
## Crash times

Crashes had a reasonably predictable spread throughout the week although numbers on Sundays were quite low, and on Tuesdays higher than normal.



The peak times for crashes were from 3 pm to 6 pm, and also 8 am to 9 am. Around these times crash numbers were reasonably consistent from mid-morning through to mid-evening.

Crashes by time of day

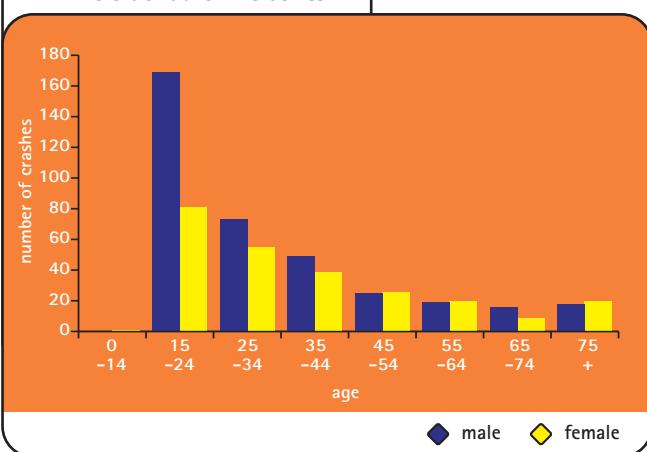


Just under a third of crashes in the city occurred during the hours of darkness. However some categories of crashes were highly over-represented at night, namely alcohol-related (85 percent), speed-related (50 percent) and fatigue-related (50 percent).

### Drivers at fault

The following chart shows the gender and age distribution of drivers deemed to have been at fault in crashes. Fifty-nine percent of crashes were caused by male drivers, and just over two thirds of all drivers were aged between 15 and 39 years. Male drivers were over-represented in crashes involving speed, alcohol, loss of control and overtaking. Women drivers were over-represented in crossing or turning crashes where failure to give way was often a factor, and also in poor observation crashes.

Drivers at fault in crashes



## Crashes on bends or with roadside hazards

In the period 1998-2002, 39 percent of crashes resulting in fatal or serious injury, and just over a third of all injury crashes in North Shore City, occurred at bends or involved a collision with a roadside hazard. Crash numbers have generally been increasing during this time.

Crash severity	1998	1999	2000	2001	2002
Fatal and serious	17	11	24	15	25
Minor	68	83	76	64	77
<b>Total</b>	<b>85</b>	<b>94</b>	<b>100</b>	<b>79</b>	<b>102</b>

Crashes on bends and crashes involving roadside hazards being struck had similar characteristics. A high proportion involved loss of control, generally a single vehicle was involved, and excessive speed and alcohol featured strongly. Other factors of prominence were poor handling, poor observation and road factors (primarily a slippery road surface). Crashes at night were over-represented (45 percent), as were crashes on wet roads (36 percent).

Two thirds of drivers at fault in these crashes were male, and half were aged between 15 and 24 years, with a further quarter aged between 25 and 39 years.

The roadside hazards most frequently struck are shown below. Between 1998 and 2002 there were 12 fatalities and over 450 other injuries sustained in these crashes.

Roadside hazard	Number of strikes
Parked vehicle	110
Post or pole	89
Tree	61
Fence	58
Kerb	37
Cliff or bank	32

Approximately half of the parked vehicles struck were in rear-end type collisions where a vehicle in the traffic stream wandered off track, while most remaining parked vehicles were collided with by out-of-control vehicles.

Solid objects or unprotected hazards near the side of a road make it much less safe than a road with good clear zones outside the road edges that allow errant vehicles room to recover safely.

## Recommended actions

### Engineering

North Shore City has begun developing a safety management system (SMS) for its roading network with assistance from the LTSA. The SMS will help to identify road safety strategies, standards, expertise, management systems and audit regimes appropriate to the roading network.

Either within or outside of an SMS framework, specific actions to address crashes on bends or with roadside hazards could include:

- prioritising routes for treatment according to their crash rates
- systematically investigating and treating surface friction, drainage, delineation, lighting, signposting and road geometry issues
- removing, relocating or protecting hazards depending on specific circumstances
- working with utility companies to remove poles from within the road reserve and to move services underground where possible
- adopting clear zones on new or upgraded roads
- ensuring that adequate separation exists between parked vehicles and through traffic on major or problem routes.

### Enforcement

- Support the continued development of road safety action plans (RSAPs) to direct resources to the areas of greatest road safety risk, including:
  - targeted enforcement of speed and alcohol
  - targeted enforcement of younger male drivers.

### Education

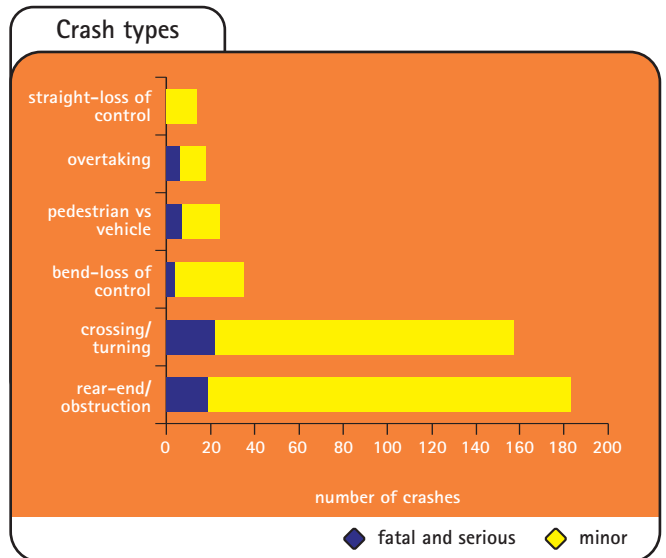
- Conduct programmes aimed at improving cornering behaviour, including driving at appropriate speeds.
- Conduct programmes targeting younger male drivers.
- Conduct programmes to increase driver awareness of the dangers of roadside hazards.

## Poor observation

Poor observation contributed to a quarter of crashes resulting in fatal and serious injuries, and almost a third of injury crashes in the city between 1998 and 2002. Crash numbers have been increasing significantly in recent years.

Crash severity	1998	1999	2000	2001	2002
Fatal and serious	6	12	9	13	18
Minor	44	60	65	98	107
<b>Total</b>	<b>50</b>	<b>72</b>	<b>74</b>	<b>111</b>	<b>125</b>

Most crashes were either rear-end collisions or intersection type turning or crossing movements. Rear-end crashes typically involved drivers not responding properly to situations around them in the traffic stream, for instance not checking behind thoroughly when changing lanes, or not noticing vehicles slowing ahead. Crossing or turning crashes generally involved drivers failing to give way by not checking properly for other traffic at intersections or driveways.



Women drivers were at fault in over half (52 percent) of these crashes, which occurred mostly during daylight hours, with peak times from 8 am to 9 am, and 2 pm to 6 pm.

## Recommended actions

### Engineering

- Ensure that major roads or problem routes are marked to appropriate standards. For instance allow adequate separation between through vehicles and turning or parked vehicles by utilising flush medians, right turn bays and marked parking lanes.
- Ensure that signs, signals and markings at intersections are in good condition and easily visible, and that sight triangles are adequate.

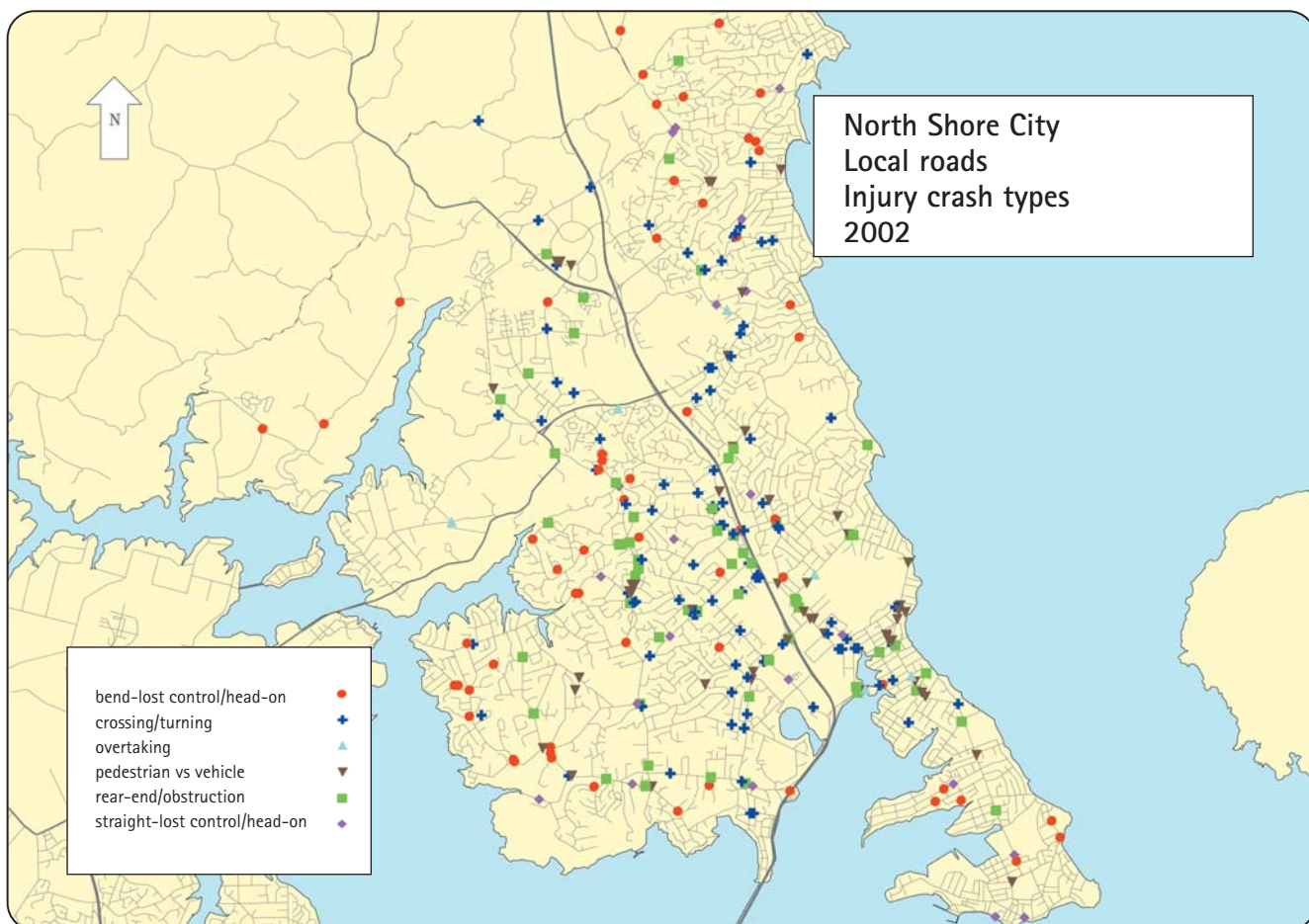
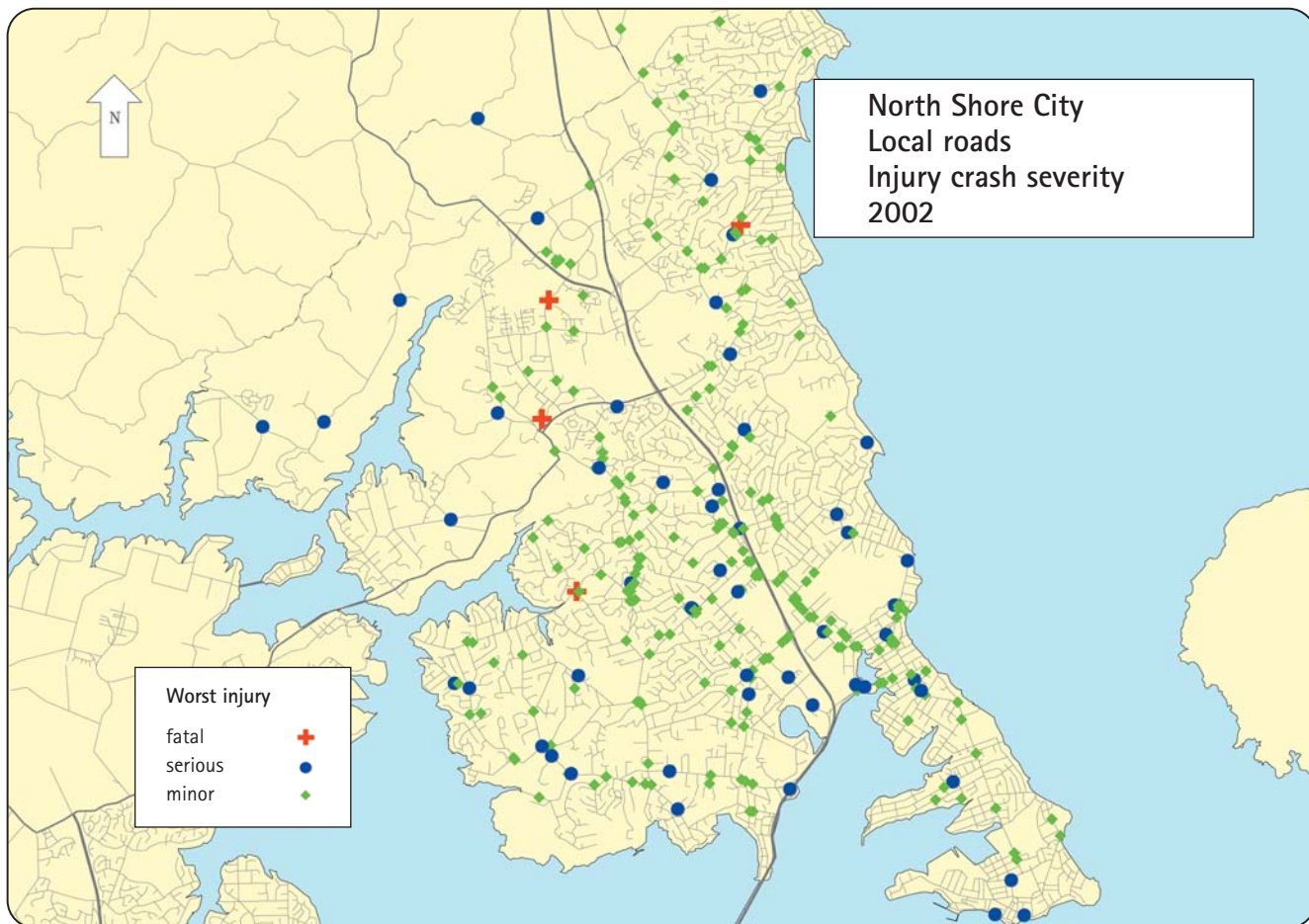
### Enforcement

- Support the continued development of road safety action plans (RSAPs) to direct resources to the areas of greatest road safety risk, including:
  - targeting driver behaviour in the traffic stream, eg following too closely, or changing lanes abruptly or without signalling.

### Education

- Organise programmes aimed at increasing driver awareness of the problem.
- Conduct programmes designed to improve driver behaviour at intersections and in the traffic stream.







## Crossing or turning crashes

Twenty-two percent of crashes involving fatal or serious injury and 30 percent of all injury crashes resulted from conflicts between vehicles crossing or turning in the traffic stream. In 2002 there was a sharp increase in crash numbers after two years of reductions.

Crash severity	1998	1999	2000	2001	2002
Fatal and serious	9	8	12	10	12
Minor	45	98	66	65	82
<b>Total</b>	<b>54</b>	<b>106</b>	<b>78</b>	<b>75</b>	<b>94</b>

While most crashes took place at intersections, almost a quarter occurred at driveways in mid-block locations. Failure to give way was the predominant problem, in particular where a turning vehicle failed to give way to a non-turning vehicle. Where vehicles were required to come to a stop, most offences occurred at traffic signals rather than at Stop signs. Other factors commonly associated with these crashes were failure to look properly, misjudging the speed of an oncoming vehicle and restricted visibility.

A disproportionate number of cyclists were involved in these crashes and, to a lesser extent, motorcyclists were also over-represented. Due to their size, cycles and motorcycles may be harder for other road users to see, particularly in busy or complex situations.

Drivers at fault in crossing or turning crashes were predominantly women (58 percent) and relatively young, with 69 percent aged between 15 and 44 years. Crashes were spread reasonably evenly throughout the day, peaking between 4 pm and 6 pm.



## Recommended actions

### Engineering

- Continue crash reduction studies at black spot sites.
- Carry out systematic checking and upgrading (where necessary) of appropriate controls and visibility at intersections.

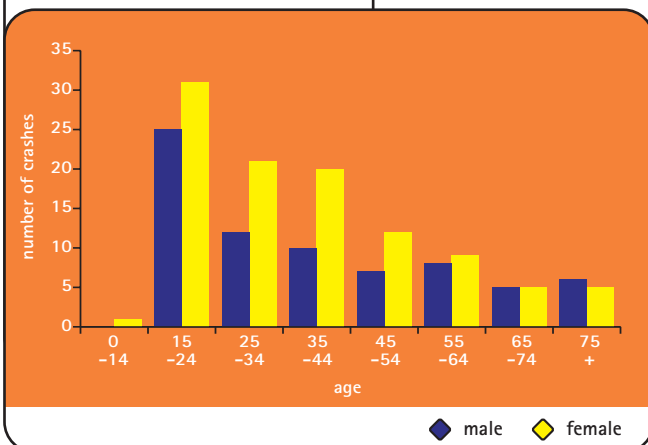
### Enforcement

- Support the continued development of road safety action plans (RSAPs) to direct resources to the areas of greatest road safety risk, including targeting drivers who fail to give way or stop when required.

### Education

- Conduct programmes to promote appropriate driver behaviour at intersections and driveways, including adequate checking for other traffic and selecting a safe gap.
- Conduct programmes to educate cyclists and motorcyclists about the need to take special care at intersections, and to be highly visible (eg using bright clothing and headlights).
- Conduct programmes aimed at improving driver knowledge of right of way rules.

Drivers at fault in crashes





## Pedestrians

Pedestrians were involved in 22 percent of crashes resulting in fatal or serious injury, and 14 percent of all injury crashes between 1998 and 2002. Crash numbers have been steadily increasing for the past two years.

Crash severity	1998	1999	2000	2001	2002
Fatal and serious	9	11	5	10	16
Minor	27	21	26	31	36
<b>Total</b>	<b>36</b>	<b>32</b>	<b>31</b>	<b>41</b>	<b>52</b>

Most pedestrian crashes (71 percent) occurred in mid-block locations generally where no formal crossing facilities existed, with the remainder at intersections. Most crashes involved pedestrians walking across a road, although roughly 10 percent of pedestrians were struck by vehicles on footpaths or at driveways. Between 1998 and 2002 two crashes occurred where school patrols operated. However, at unsupervised pedestrian crossings the number of crashes increased last year to nine from two the previous year.

A high proportion of pedestrians injured were either very young (aged 14 or under) or elderly. This may reflect the difficulties they have determining the speed of approaching vehicles, and in selecting safe gaps in which to cross the road.

Just over half (53 percent) of pedestrians in these crashes were female. However drivers of vehicles involved in the crashes were mostly male (64 percent) and almost three quarters were aged between 15 and 44 years.

Most crashes occurred during the day, with peak times being 3 pm to 4 pm and 8 am to 9 am. Crash numbers peaked on Tuesdays, with a fairly even spread through the remainder of the week, apart from lower numbers on Sundays.

## Recommended actions

### Engineering

The government's recent initiative to promote cycling and walking as alternative transport modes means that road controlling authorities will need to look carefully at the roading infrastructure requirements of these activities. Pedestrian requirements could include:

- provision of adequate safe crossing facilities on main roads or other roads with major pedestrian activity, eg pedestrian crossings, signalised crossings, school crossing points, solid refuge islands, kerb extensions and school speed zones as appropriate.

### Enforcement

- Support the continued development of road safety action plans (RSAPs) to direct resources to the areas of greatest road safety risk, including targeting pedestrians who do not use crossing facilities where they are provided, for instance at traffic signals, marked pedestrian crossings and refuge islands.

### Education

- Continue support for programmes to educate at-risk pedestrians about safe crossing practice, particularly the need to look both ways before crossing, and the use of crossing facilities provided.

# New Zealand Road Safety Programme

Reducing road trauma involves a multi-pronged approach, which includes education, engineering and enforcement. The New Zealand Road Safety Programme (NZRSP) provides funding to educate road users to change their behaviour through projects delivered by road safety co-ordinators and community groups. The programme also funds the New Zealand Police for their targeted enforcement activities and support of community road safety projects. Transfund New Zealand provides funding to local authorities for roading projects through its National Land Transport Programme.

## Community projects

Through the Community Road Safety Programme (CRSP) the NZRSP provides funding for community development and community programmes to support road safety and to bring about positive and sustainable changes in community attitudes and behaviours. CRSP funding of community initiatives aims to encourage local involvement and ownership of road safety issues, and to target local resources and effort to local risks. This year's review of the programme initiates a re-focus of effort and funding into community development. This involves working with and within different communities of people to assist them in becoming aware of their own local road safety issues and developing solutions to achieve better road safety outcomes.

## Road policing

Police enforcement hours to support community projects are now allocated to police community services hours rather than to individual projects. The delivery of these hours to support community initiatives will need to be negotiated by the road safety co-ordinator.

In the 2003/2004 year 49,610 hours will be delivered by the Police in North Shore City as follows:

Project	Police hours
Strategic – alcohol/drugs, restraints, speed and visible road safety enforcement	32,900
Traffic management – crash attendance events, incidents, emergencies and disasters, traffic flow supervision	12,450
School road safety education	1,870
Police community services	2,390

## 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 by 41 percent in North Shore City (48 percent at state highway sites and 37 percent at local road sites).

Recommendations from recent studies should be implemented and further studies undertaken to consider mass action or local area traffic management to reduce crash problems.

## References

North Shore City Road Safety Report 1998–2002  
LTSA Crash Analysis System

## Where to get more information

For more specific information relating to road crashes in North Shore City, please refer to the 1998 to 2002 Road Safety Data Report or the Land Transport Safety Authority Crash Analysis System, or contact the people or organisations listed below:

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