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Appendix 1 : Notes from Workshop One

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# 1. Abstract

This technical report provides details of the proposed measures to reduce crashes in the Karori area by one third by the year 2010. Wellington City Council along with its key partners is providing a method of reducing crashes through the use of traffic engineering devices, education and enforcement programmes that are aimed at all road users.

The report finds that the majority of crashes occur on Karori Road. Karori Road along with Chaytor Street, South Karori Road and Parkvale Road accounts for 74% of the reported injury crashes in Karori. Accordingly, proposed changes for reducing injury crashes have mainly focused on these roads because the greatest benefits can be gained on these routes. Priority has also been given to providing appropriate measures for residential streets to reduce the speeds and make these areas safer for the people who live there.

Records show that the main types of crashes are turning across opposing traffic, loss of control, rear-end crashes and hitting parked vehicles. The crash data shows that 40% of injury accidents involve either pedestrians or cyclists. It should also be noted that injury crashes accounted for 33% of all crashes in the Karori area, which is noticeably higher than 23% for the whole city.

During the consultation phase useful information about the issues and concerns in the area was provided by participants at workshops. The key issues related to speed, intersections, pedestrians, parking, cycling and schools. Participants provided their ideas about potential solutions which have been included in the design of the road safety measures proposed here.

At the completion of the consultation phase schemes were developed and concept plans prepared for each of the sites identified as needing attention. The implementation schedule and the concept plans provide the framework for meeting the SaferRoads project objective of reducing injury crashes by one third by 2010.

The measures designed to meet these objectives include traffic signals along Karori Road, kerb extensions, median islands, roundabouts, speed humps, controlling intersections, identifying arterial routes and improving the road markings for all roads in the Karori area. Education and enforcement programmes are also an important part of improving safety and reducing injury crashes in Karori. These works and programmes have been estimated to cost approximately \$1.5 million.

## 2. Introduction

This technical report provides details about the SaferRoads project for Karori including a general description of the suburb, crash history details and other information obtained as part of the data gathering exercise.

The consultation process is outlined with details of significant issues raised by residents. A full copy of submissions and responses is available in the appendices to this report. The proposed roading changes to address concerns are outlined in the implementation plan in section 13.

The purpose of this report is to provide:

- a background to the proposed road safety measures
- information on the potential impact of recommended traffic improvements (such as the introduction of traffic signals along Karori Road)
- prioritising of the road safety improvements.

Wellington City Council in conjunction with its safety partners is providing resources to achieve the objective of reducing the number of injuries across Wellington by one third by the year 2010.

One million dollars has been allocated to provide engineering, education and enforcement measures for Karori. The bulk of this will be spent on physical engineering measures which will provide safer street environments for all road users. These measures will include traffic signals, roundabouts, speed humps and kerb extensions.

Construction in Karori will commence in early 2006 with the majority of works due for completion by mid 2006. The allocated budget may not be sufficient to complete all the physical works identified in this report, and the Council may need to continue its investment in future years to complete the project.

A computer traffic model was built to test the potential impacts of the proposed traffic signals and in particular to assess the delays that may arise from the introduction of eight sets of traffic signals along Karori Road. The results showed an overall reduction in travel times during the morning peak hours.

Education and enforcement programs are planned in conjunction with the physical works to assist road users in understanding the roading changes and to modify their driving behaviour. These programmes will include Safer Routes to School and the introduction of driver feedback signs similar to the devices recently installed in Tawa.

### 3. Background

In 2003 Wellington City Council introduced a road safety project called SaferRoads that aims to reduce accident numbers in Wellington city by a third by 2010. The SaferRoads project has been designed so Council can make a contribution to the Government's *Road Safety to 2010* strategy.

SaferRoads is modelled on successful projects carried out in the United Kingdom, Scandinavia and Australia where an area-based approach has been used to reduce road accidents. The project has been developed in conjunction with the Land Transport New Zealand (LTNZ), and it is supported by Council's key road safety partners including Transit New Zealand, Transfund New Zealand, Greater Wellington and the New Zealand Police.

The Council's previous road accident reduction strategies concentrated on making changes to identified black spots and defined routes. This work is now largely complete. However, analysis from the LTNZ confirms that there are still a significant number of 'scattered' accident sites that are more difficult to eliminate. A specialist traffic safety consultant was commissioned in 2001 to make recommendations on a new accident reduction strategy for the Council. The *Proposed Road Safety Action Plan for Wellington City Discussion Paper* which outlines current international research and recommendations was developed as a result.

According to overseas research, the most effective way to reduce both concentrated and scattered accidents is by:

- managing traffic on to the right roads so that a safer distribution of traffic is achieved
- managing the speed of traffic so that it circulates more safely
- co-ordinating all work that influences road safety.

To be successful, the SaferRoads project will require the following critical elements:

- co-operative working arrangements between relevant agencies
- ongoing political support
- ongoing funding
- acceptance from local communities
- the ability to introduce measures currently outside the legislative framework.

The bullet points above outline some of the key elements required to achieve the crash reductions by 2010.

## 4. Suburb Description

Figure 1 below shows the layout of the suburb with Karori Road running in an east-west direction.

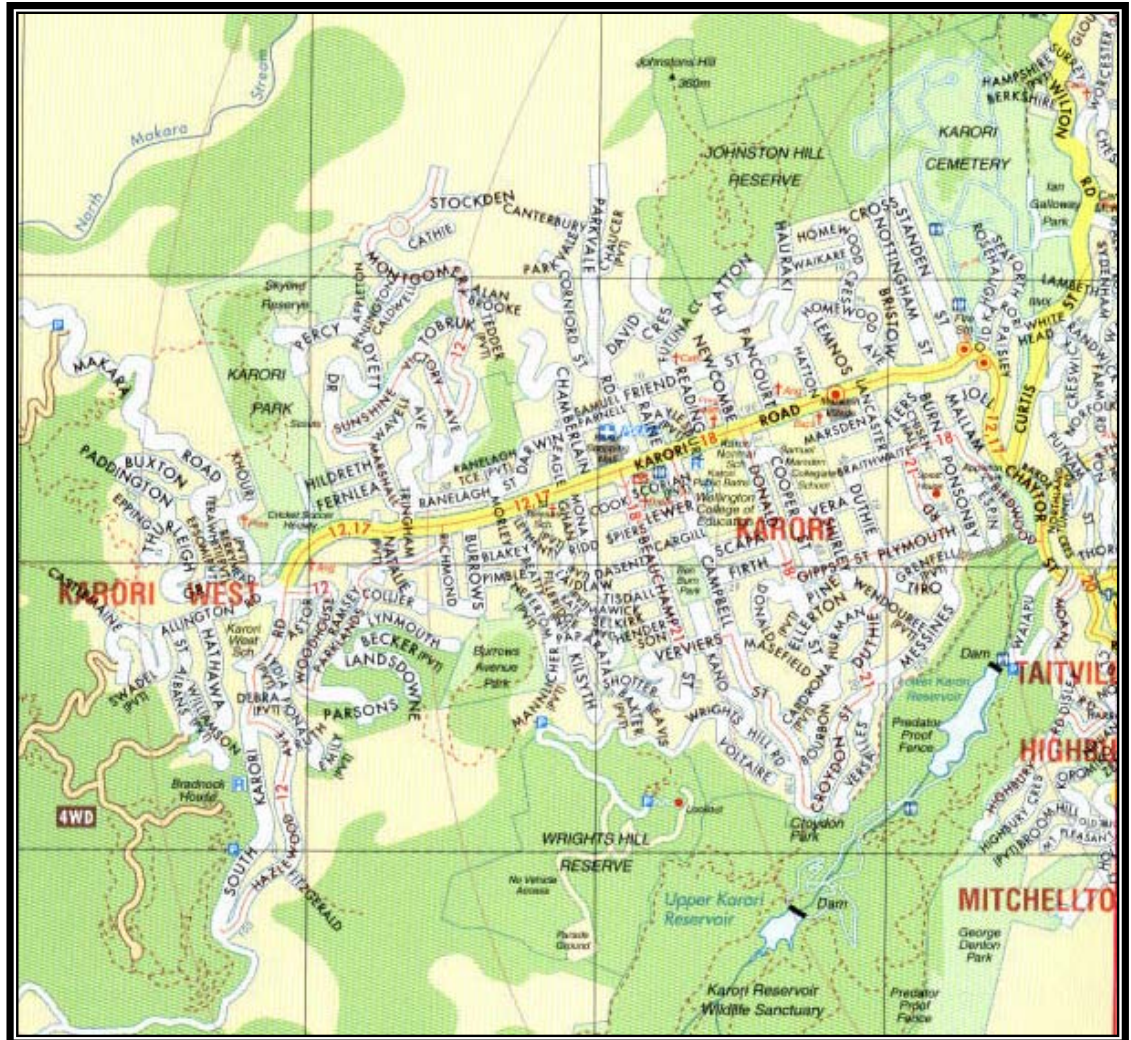


Figure 1

Karori is a large, predominately residential suburb with the principal means of access along Bowen Street, Glenmore Street, Chaytor Street and Karori Road. Karori Road bisects Karori's residential areas and provides the main transport spine for the suburb. Secondary routes are available out of Karori, but generally have poor road geometry to be effective in moving large numbers of vehicles. Such routes include Birdwood Avenue, Raroa Road and Old Karori Road.

Karori Road is the main route for traffic and a number of intersections along its length provide access to the transport spine and service homes in the area. Typically the roads on Karori flat are relatively wide while other roads in the more hilly areas are quite narrow. Due to the congestion on Karori Road at peak times, some motorists choose to use other more tortuous routes such as Croydon Street and Birdwood Avenue. These alternative routes are narrow and winding and traverse more intensive residential areas.

There are four schools in Karori (Karori Normal in Donald Street, St Teresa's on Karori Road, Karori West Normal on Allington Road and Samuel Marsden School on Karori Road). The nearest public colleges are Wellington Girls' College in Thorndon and Wellington College in Mt Victoria. Karori's large population of young families results in a big volume of traffic movements associated with getting children to and from colleges, leading to congestion and safety issues at peak times.

Traffic volumes on Karori Road average approximately 16,000 vehicles per day. Other roads in the Karori area carry less than 3000 vehicles per day with the exception of Braithwaite and Birdwood Streets. Karori Road, Braithwaite Street and Birdwood Street are the main designated arterial routes for providing access between Karori and the city. Further details about traffic volumes on key routes in the Karori area are provided in the technical data section of this report.

Vehicle speeds along streets within the Karori suburb vary significantly throughout the area because of different road widths and road geometry. The higher vehicle speeds tend to be on the flat straight roads of the Karori basin, with lower speeds recorded in the hilly areas. Some speed humps have been introduced on streets in the Karori basin to address residents' concerns regarding vehicle speeds arising from the opening of Samuel Parnell Road. These humps have been successful in reducing vehicle speeds along Friend Street and Ranelagh Street. No other traffic calming devices have been introduced in the suburb.

## 5. Technical Data

### General

This section provides details about data collection which will be used to develop solutions and monitor progress in determining the effectiveness of the proposed measures. The key data elements have been identified as speed surveys, traffic volumes, crash statistics and school travel surveys.

### Speed Surveys

A number of key routes have been identified and ‘before’ and ‘after’ surveys will be carried out on these roads to provide data for testing the effectiveness of the SaferRoads project in reducing speeds in the Karori area.

The speed survey data collected before the road works begin are provided in the table below.

**Table 1: Speed Data**

Street	Location	Date Surveyed	Before 85% Recorded Speed
Thurleigh Grove	West of Espin	May 2005	43 km/h
South Karori Road	Outside school	June 2005	57 km/h
Duthie Street	Between Vera and Gipps Street	July 2005	60 km/h
Parkvale Road	Between Friend and Cornford Streets	June 2005	54 km/h
Nottingham Street	North of Karori Road	June 2005	45 km/h
Standen Street	North of Karori Road	June 2005	52 km/h
Donald Street	North of Scapa Terrace	June 2005	50 km/h
Braithwaite Street	Between Duthie and Lancaster Streets	June 2005	56 km/h
Karori Road	Between Nottingham and Standen Streets	July 2005	47 km/h
Karori Road	At Karori Park	May 2005	53 km/h

The speeds along most roads are approximately 50 km/h with the exceptions of South Karori Road, Duthie Street and Braithwaite Street. The higher speeds indicated on residential streets such as Braithwaite Street and Duthie Street highlight the concerns raised by residents of these streets.

## Traffic Volumes

As with the speed surveys, data will be collected on the volumes of traffic using the identified key routes to allow analysis of the changes in driver patterns to preferred routes in the Karori area. One of the objectives of the SaferRoads project is to reduce traffic flow on residential streets and encourage motorists to use identified arterial routes. The results of some of the traffic volume data collected around the Karori area are provided in the table below.

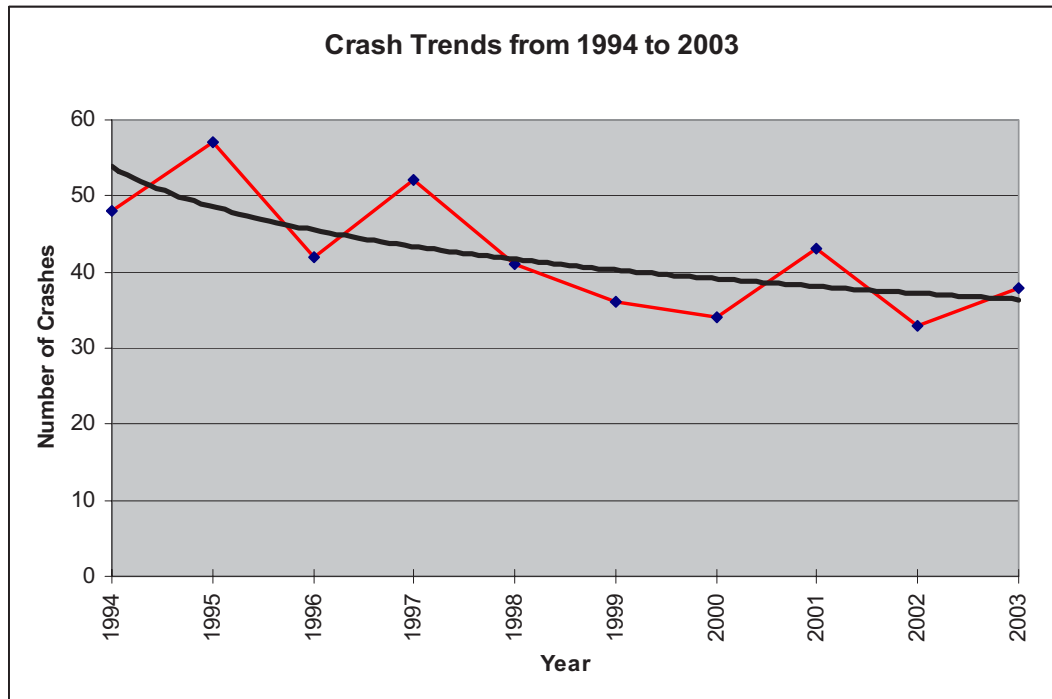
Street	Location	Date Surveyed	Average Daily Traffic
Thurleigh Grove	West of Espin	May 2005	953
Makara Road	Outside school	April 2005	698
South Karori Road	Outside school	June 2005	1766
Duthie Street	Between Vera and Gipps Street	July 2005	2636
Parkvale Road	Between Friend and Cornford Street	June 2005	1525
Nottingham Street	North of Karori Road	June 2005	468
Standen Street	North of Karori Road	June 2005	583
Donald Street	North of Scapa Terrace	June 2005	1474
Braithwaite Street	Between Duthie and Lancaster Street	June 2005	3516
Karori Road	Between Nottingham and Standen Street	July 2005	16014
Birdwood Street	Estimated		5400
Messines Road	Between Plymouth and Braithwaite Street	July 2005	1120
Campbell Street	Estimated		3400
Karori Road	At Karori Park	May 2005	6146
Ranelagh Street	Outside No. 18	June 2005	755

Traffic volumes away from the main arterial routes of Karori Road, Campbell Street, Braithwaite Street and Birdwood Street are low, with traffic volumes along Messines Road, which is the designated arterial route, less than on Braithwaite Street and Duthie Street. This is likely to be the result of the road geometry, with the relatively flat straight roads of Braithwaite and Duthie Streets preferred over the winding narrow route of Messines Road.

## Crash Statistics

A detailed search of the Land Transport New Zealand crash database was carried out in the initial phases of the SaferRoads project, with much of the analysis done by Bullen Consultancy in June 2004.

This work has been extended to gain an understanding of the crash trends for Karori from 1994 to 2003. The graph below shows the reported injury and non-injury crashes for the 10 year period.



As shown, reported crashes for Karori are trending downwards from the base year of 1994 with the trend line flattening out as the years pass. This is typical of the nationwide trend, with safety programmes carried out in the late 1980s and 1990s clearly showing a reduction in crashes. More importantly the trend line appears to be becoming more horizontal as time passes and new initiatives are required to make this line continue on a downward trend.

Non-injury crashes provide a further insight into the patterns of road safety issues for the Karori area which include speed, intersection controls, pedestrians and cyclists. The table below provides a breakdown of the movement factors of reported injury and non-injury crashes for the five year period 1999 to 2003.

Movement Type	Percentage of Crashes
Turning	22
Loss of control	18
Manoeuvring	14
Rear-end	12
Pedestrians	9
Hit parked car	8

As shown, turning crashes made up most of the reported incidents with the majority occurring when vehicles turn into and out of Karori Road. The 'loss of control' crashes were the next highest with these reported incidents occurring mainly on Karori Road and South Karori Road. A number of the movement factors can be related to speed and include loss of control, rear-end crashes, hitting parked cars and manoeuvring which accounted for 52% of the reported crashes.

The main objective of the SaferRoads project is to reduce the number of injury crashes and accordingly there is a need to specifically consider this data set. The consideration of both injury and non-injury crashes provides more data to draw conclusions from and develop an understanding of the potential risk areas.

There have been 60 reported injury crashes for the five year period from 1999 to 2003. Karori Road has had the majority of injury crashes with around 50% of the reported incidents occurring along its length. Chaytor Street recorded the next highest number of injury crashes with 12%. South Karori Road and Parkvale Road are the next highest with 7% and 5% of the reported crashes respectively. The remaining injury crashes were reported on various roads that would typically be described as having an arterial function.

The injury crash data shows that pedestrians accounted for 22% and cyclists 18% of the reported incidents. At 33%, the percentage of all crashes involving injury is noticeably higher than 23% for the city in general.

In summary, the issues arising from the crash history include turning collisions, loss of control crashes, rear-end collisions and pedestrian and cycle accidents. The majority (74%) of the injury crashes occurred along Karori Road, Chaytor Street, South Karori Road and Parkvale Road. To meet the objectives of the SaferRoads project it will be necessary to allocate most of the funds to improving the safety of these roads. However it is also important to balance this against the need to enhance the safety of the residential streets in the area.

## **School Surveys**

As part of the SaferRoads project, work has been carried out with schools in the area to develop procedures and programmes to encourage school children to walk or cycle to school and provide safer routes for them. Schools were invited to be part of the programme with Karori Normal School, Karori West School and St Teresa's School taking an active role from the start of the project and Samuel Marsden School recently signing up to participate.

Travel pattern surveys were carried out at each of the participating schools and a summary of these results is shown below.

### **Karori Normal School Summary of Travel Patterns**

Surveys of the travel patterns for Karori Normal School showed that walking was the highest reported mode of transport, estimated at 54% of journeys to and from school. Next was car travel at 34% of school journeys and travelling by car part of the way and walking part of the way accounted for 8%. Riding a scooter or bike accounted for 4% of school journeys and travelling by bus was 1%. Around 20% of the respondents listed safety reasons as the main reason their children did not walk to school.

Most of the students arrived via the main entrance on Donald Street, followed by Karori Road.

Students told us that for the week beginning Monday 9 September 2004 they used the following modes of transport:

<b>Transport:</b>	<b>Junior School Year 1-4</b>	<b>Senior School Year 5-8</b>	<b>Total School</b>
<b>Car</b>	63%	42%	47%
<b>Walk</b>	30%	43%	40%
<b>Bus</b>	0%	1%	1%
<b>Scooter</b>	1%	1%	1%
<b>Biked</b>	0%	1%	1%

*(The absentee rate makes up the balance to 100%)*

Other concerns were noted and site observations carried out which showed the following:

- parking longer than is stipulated
- double parking
- not using the crossing with an adult
- stopping and parking on broken yellow lines
- reversing from and into driveways
- parking over driveways
- children getting out of the car on the roadside
- u-turns
- going through the crossing when the patrol sign is out (one side)
- parking on the footpath.

### **St Teresa's School – Summary of Travel Patterns**

Surveys of the travel patterns for St Teresa's School showed that car travel was the highest reported mode of transport at 51% of journeys to and from school. Next came walking at 23% and travelling by car part of the way and walking part of the way accounted for 8% of school journeys. Riding a scooter or bike accounted for 9% of school journeys. About 30% of the respondents to the survey listed safety concerns as the main reason their children did not walk to school. There are two entrances to the school: 46% used Karori Road and 54% used Ridd Crescent.

Students told us that for the week beginning 23 August they used the following modes of transport:

<b>Transport:</b>	<b>Junior School Year 1-4</b>	<b>Senior School Year 5-8</b>	<b>Total School</b>
<b>Car</b>	68%	46%	56%
<b>Walk</b>	21%	34%	28%
<b>Bus</b>	3%	4%	4%
<b>Scooter</b>	2%	7%	5%
<b>Biked</b>	0%	2%	1%

Other concerns were noted and site observations carried out which showed the following:

- not using the crossing with an adult
- u-turns
- parking against the traffic (facing the wrong way)
- parking on bus stop
- stopping on driveway to pick a child up
- reversing from and into driveways
- parking over driveways
- double parking
- parking on footpath
- parking on the corner of Ridd Crescent and Monaghan Avenue – causing poor visibility
- stopping over intersections.

## Karori West Normal School – Summary of Travel Patterns

Surveys of the travel patterns for Karori West Normal School showed that car travel was the highest reported mode of transport at 42% of journeys to and from school. Next came walking at 34% and travelling by car part of the way and walking part of the way accounted for 12% of school journeys. Riding a scooter or bike accounted for 6% of school journeys. Around 15% of the respondents to the survey gave safety concerns as the main reason their children did not walk to school.

Students told us that for the week beginning Monday 1 November 2004 they used the following modes of transport:

<b>Transport:</b>	<b>Junior School Year 1-4</b>	<b>Senior School Year 5-8</b>	<b>Total School</b>
<b>Car</b>	59%	35%	43%
<b>Walk</b>	24%	35%	32%
<b>Bus</b>	2%	7%	5%
<b>Scooter</b>	5%	4%	4%
<b>Biked</b>	2%	4%	4%

Other concerns were noted and site observations carried which showed the following:

- parking/stopping on broken yellow lines
- double parking outside bridge exit/entry and around ‘keyhole’ area
- bus parking on Allington Road, sometimes double parked/badly parked – causing congestion
- drivers approach the crossing too fast especially from Makara Road and not stopping or slowing at crossing.

## 6. Consultation

### General

Community participation and ownership of the SaferRoads project is critical to its implementation and success. To begin the community consultation phase, the SaferRoads team went out into the community and met with local groups to inform them about the project.

Meetings were held with stakeholders including:

- Cycle Aware Wellington
- Living Streets Aotearoa (Wellington)
- Stagecoach
- Mana/Newlands Coach Services
- Utilities companies (Telecom, gas and power companies)
- The Road Safety Reference Group

In Karori meetings were held with:

- Karori Normal School
- Karori West School
- St Teresa's School

Publicity for two community workshops included information flyers delivered to all residents in Karori. SaferRoads posters were displayed around the Karori area at schools and shops. A media release about the SaferRoads project was circulated to local papers and public notices were placed in community newspapers. The Wellington City Council website also listed workshop dates and venues and provided background information.

### Consultation Workshops

Two workshops were held at Karori Normal School in Donald Street on 4 and 11 August 2004 and were attended by a wide cross-section of the community. The wall map used in Workshop One was put up in Karori Mall on Friday 6 August for shoppers and visitors to add their comments. The feedback from mall patrons was a positive addition to the information collected.

### Workshop One

Workshop One, held on 4 August 2004 from 7-9pm at Karori Normal School, was attended by 28 people along with the SaferRoads project team, ward Councillors and other council staff.

Its aim was to inform the local community of the project objectives and gather information about road safety issues based on people's local knowledge of the area.

A number of visual displays containing large maps of the area and local crash statistics were displayed. Participants were given a SaferRoads folder pack which contained background information on the project and materials for the workshop exercise.

Workshop exercises were divided into four main themes:

1. Engineering
2. Enforcement
3. Education
4. Streetscape

Community participants wrote down their road safety issues on post-it notes under these themes and “stuck” these onto wall maps. A separate board was provided for participants to post “non-local” issues.

Documenting road safety issues in this way was an effective method for identifying road safety trends and issues in the area. Information gathered from the workshop was then analysed to identify common issues and themes to be discussed in Workshop Two.

Following the workshop the issues raised were sorted into themes. The issues which came through for Karori were:

- intersections
- parking
- pedestrians
- cycling
- speed
- schools.

In general the feedback from participants could be categorised into three main themes: engineering, education and enforcement, with engineering containing the bulk of the submissions. No submissions were received on streetscape issues.

## Workshop Two

Workshop Two, held on 11 August 2004 from 7-9pm at Karori Normal School, was attended by 25 people, along with the SaferRoads project team, ward Councillors and other council staff.

The objective of this workshop was to examine the trends and types of crashes in the area and to develop a high level framework for crash reduction based on community input. Issues identified in Workshop One were also presented.

The SaferRoads team worked alongside community participants on a group exercise which aimed to provide possible road safety solutions based on the themes of engineering, education and enforcement initiatives for local roads. A number of diverse and comprehensive solutions were noted down as part of this process and will form a useful framework for implementing measures in the Karori area to make the roads safer. The framework for reducing crashes in Karori is outlined on the following pages.

## 7. Framework for Reducing Crashes

The following table provides a summary of solutions proposed by participants of the consultation workshops, under the headings of education, enforcement and engineering. These results were used to develop some of the measures needed to achieve the objectives of the SaferRoads project and meet local residents' concerns about road safety in Karori.

Engineering	Education	Enforcement
<b>Speed</b>		
40 km/h around mall – Lancaster Street – post office and Raine Street (dissenting view - shouldn't limit speeds).	Signage relating to parking needs to be improved.	Parking for disabled drivers at the mall.
Don't like speed humps - don't use Friend Street - effective chicanes are awful.	Schools need to be encouraged to provide off-street parking – for example on Donald Street.	More enforcement of illegal parking.
Signs needed to reinforce speed limits.	Awareness of public transport options needed to avoid parking issues.	
Campbell Street - say no to judder bars/no to crossings/no to chicanes - road narrowing with no loss to parking? Use trees?		
No roundabouts.		
<b>Intersections</b>		
Roundabouts - yes to principal, maybe to collector, no to local.	Western News traffic feature on local site problems citing incidents.	More parking wardens needed (WCC).
Traffic lights - yes to principal, maybe to collector, no to local.	Rest home education (Safe With Age courses).	Cameras, red lights, speed, CCTV - yes to principal, no to collector.
Relocate bus stops eg Tringham Street/Karori Road - yes to principal, n/a to collector, n/a to local.	Parents reinforce child's education by example.	Community traffic/parking warden - yes to principal.
Restrict parking near intersection - yes to principal kerb extension Chaytor/Karori/Old Karori Road, yes to collector.	Student teachers (Donald Street).	
Signage eg to indicate.		

Engineering	Education	Enforcement
<b>Pedestrians</b>		
More pedestrian crossings.	Wear bright clothing.	Fine jaywalkers.
Temporary crossing with temporary library.	Drivers to indicate (signage).	Cars parking on footpaths.
Slower corner eg Tringham or Marshall Streets.	Education about pedestrian diamonds.	Cars parking on bus stops so that bus has to park out in road (green paint bus stops).
Design of light beacons (so people don't hide behind poles).	Cars parking on footpath.	
Islands (pedestrian) - divided view.		
Traffic lights at pedestrian crossings (at Karori School)?		
Crossing for children from Karori Normal at Campbell Street.		
<b>Schools</b>		
Alternative pick-up points for school children so parents have somewhere to park.	Can schools provide more parking?	More enforcement of double parkers or illegal parkers around schools.
Is there sufficient space for school buses to park near schools?	Walking buses?	Lowering the speed limit to 40 km/h near schools.
Parking congestion before/after school in: Donald St/Campbell St/Karori Rd areas.	Encourage parents to walk with children to school if they have the option.	Ticket illegal parking on/near all crossings especially "school" crossings.
Can we make this one way/restricted/5 min/no parking during 2.30-3.30 pm and 8.15-9 am. How can we enforce this - use wardens?	Educate children on how to cross the road and be safe cyclists or pedestrians.	Parent education - all areas - parking enforcements and kids walking to school.
Karori Rd lights/St Ninians Corner - "yellow hatch intersections" on Karori Rd.		
No trolley buses during peak school hours (drop off/pick up) because they hold up traffic.		
Marsden Ave - parking on one side only - great.		
More yellow lines on Donald St - either side of Marsden entrance - danger re visibility.		

Engineering	Education	Enforcement
<b>Parking</b>		
More parking required for Karori parking development.	Signage relating to parking needs to be improved.	Parking for disabled drivers at the mall.
Will there be enough parking for the numbers of people attracted?	Schools need to be encouraged to provide off street parking - for example in Donald Street.	More enforcement of illegal parking.
Provision of more carpark spaces for park 'n' ride ie No 12 bus.	Awareness of public transport options to avoid parking issues.	
Improve street lighting - so parked vehicles can be seen, for example in Chaytor St area.		
<b>Cycling</b>		
Cycle lanes.	Make cyclists aware that they can ride in the bus lane. Put a cycle symbol in the bus lane.	Lights front and rear and bright clothing.
Clearway on Karori Rd. North side 7 - 9 am, south side 4 - 6 pm.	Teach cyclists to ride in the main lane, don't swerve in and out of parked cars.	Helmets must be worn.
Redesign curb extensions so cyclists can ride through or over them.	Educate motorists to look for cyclists when cars stop to let traffic in. They do not check for oncoming cyclists or turning.	Enforcement of cyclists running red lights.
Redesign sump grates as cyclist's wheels get stuck.	Pedestrians often cross the road without looking for cyclists, as they are only listening for cars.	Not having lights.
Replace missing sump grates.	Cars pass too close and too fast. Drivers need to stay at least 1m away from bikes and slow down to 40 km/h when passing.	Legal enforcement of cyclist equipment, flag, clothing - neon, lighting.
Maintain edge of road. Remove glass and other sharp objects which cause punctures/accidents.	Education for cyclists/motorists to indicate.	
Roads are getting more narrow (ie adding bus lanes) and cars are getting bigger. Where do cyclists fit into this picture?	Don't burst our bubble.	

Engineering	Education	Enforcement
<b>Cycling (Continued)</b>		
Sign to indicate turning left at Old Karori Rd.	Subsidised safety vests - ACC?	
Add an uphill cycle lane on Chaytor St, Birdwood Cres and Karori Rd.	Make cyclists more visible with reflective short leggings.	
Permit bikes on buses - free? Certain bus times only.	Hire a bike.	
Increase use of Makara Peak Mountain Bike Park.		
Dual use of bus lanes.		
Cycle lane over kerb extensions.		
Cycle lane in Appleton Park? Chaytor St or Karori Rd?		
<b>Other roading issues</b>		
Visibility (Chaytor St) of road markings at night, especially when wet.	Outside schools - parents opening doors without checking for oncoming traffic (Karori Road).	Enforce existing speed limits rather than introduce lower speed limits.
Park and ride – organised.		Reduction of speed in school zones for short times (school hours - entry/exit).
Coordinated yellow lines (double) on Chaytor Street.		Higher police presence on Karori Road.
More pedestrian refuges where visibility limited		Roving police camera - mufti vehicle.

The consultation workshops provided an excellent mechanism for understanding local issues and the greatest areas of concern.

## 8. Issues Response

A number of issues were raised in the consultation workshops in June 2004 and a list of individual submissions is provided in the appendix to this report. A total of about 400 submissions were received from the participants of the workshops covering concerns relating to road safety and other matters such as parking difficulties and congestion. The table below provides a summary of the road safety themes raised in the workshops and the means of addressing these issues.

- intersections
- schools
- cycling
- speed
- pedestrians.

Theme	Issue	Solution
<b>Intersections</b>	Poor visibility as a result of vehicles parking too close to the intersection.	Install kerb extensions at key locations to provide better visibility. Typically these improvements will be on arterial routes where most of the traffic would travel.
	Difficulty in turning out of side roads along Karori Road.	It is proposed to install traffic signals at arterial connections such as Campbell Street and Hatton Street. This will allow side road traffic to enter the traffic stream safely.
	Poor driver behaviour with regard to the right of way at intersections and particularly at T junctions. Almost all the intersections in Karori are T intersections.	It is proposed to install give way or stop signs at every intersection with the priority reflecting the road hierarchy and then the major traffic flow.
	Drivers do not use indicators at intersections.	Develop education programmes to target poor driver behaviour.
	Drivers fail to give way.	Develop education programmes to target poor driver behaviour.
<b>Schools</b>	School children have difficulty in crossing Karori Road and major side roads such as Campbell Street.	It is proposed to install traffic signals at key intersections to provide better facilities for all road users. Traffic signals at intersections such as Donald Street will significantly improve safety for school children.
	Safe Routes to School programme	Provide schools with the necessary tools and resources to develop procedures for installing safer routes to school programmes. <i>Safer Routes to Schools</i> will include a combination of physical works, education and enforcement programmes.
	Illegal parking around schools.	Better enforcement and education programmes.
<b>Cycling</b>	Poor driver behaviour towards cyclists.	Provide enforcement and education programmes aimed at improving driver awareness of cyclists.

Theme	Issue	Solution
	General cycle safety.	<p>It proposed to introduce 40 km/h speed limits on non-arterial routes to provide a safer environment for these road users.</p> <p>Install speed cameras to reduce speeds on Karori Road.</p>
<b>Speed</b>	Motorists travel too fast on a number of streets and in particular on Karori Road, Campbell Street, Braithwaite Street and Allington Road.	<p>Install speed camera on Karori Road.</p> <p>Install traffic signals so that motorists are forced to travel at 40 km/h through signal phasing.</p> <p>Install 40 km/h speed limits on residential streets.</p> <p>Install physical devices such as kerb extensions, roundabouts and median islands to reduce vehicle speeds.</p> <p>Install speed humps on identified streets such as South Karori Road.</p> <p>Promote appropriate driver behaviour through better enforcement and education.</p>
<b>Pedestrians</b>	It is difficult to cross Karori Road and major side roads.	Install traffic signals at key intersections.
	It is difficult to cross some arterial roads such as Friend Street, Campbell Street and Karori Road adjacent to the park.	<p>Install mid-block treatments such as median islands to reduce crossing distance and improve safety for pedestrians.</p> <p>Improve the speed management of roads in Karori through the introduction of traffic calming devices, better enforcement and education programmes.</p>

## 9. Design Elements

### General

It is estimated that about 30% of casualty accidents occur on residential streets. While the likelihood of an accident at any one location on a residential street is low because of the total length of such streets, accident risk can be considerably reduced by modifying traffic behaviour through educational and enforcement programs or by modifying the street layout itself.

The overriding principle in local street design is ensuring that motorists understand that they are using a space which has not been solely designed for motor traffic. The objectives of any traffic calming scheme must include improvements to pedestrian and cycle safety and amenities, improvement of vehicular safety, improvements to the safety of the street network and a reduction of dangers perceived by parents who allow their children to walk or cycle to schools in the area.

Small reductions in the impact speed of cars involved in pedestrian crashes make a big difference to the severity of the injury. Impact speed depends on the original travelling speed of the vehicle. Lower speed limits would be likely to lower the frequency and severity of pedestrian and cycle crashes.

Accordingly the design elements used for the Karori SaferRoads project have focused on reducing speeds in areas where vehicle speeds are an issue and addressing other concerns raised by residents in the consultation meetings. The general themes that came from the consultation workshops are as follows:

- intersections
- schools
- cycling
- speed
- pedestrians
- parking.

The three key areas of engineering, education and enforcement are being targeted to achieve the reduction in injury crashes as set out in the objectives of SaferRoads.

## 10. Education

The education component for SaferRoads addresses providing support and guidance for schools in the area through the development of *Safer Routes to School* programmes and regular meetings with interested schools to discuss their concerns. The walking buses initiative is one of the special programmes to encourage safe ways for children to get to and from school.

Another facet of the education component is the use of the media to provide targeted themes such as “Don’t burst my bubble” and “Be Safe, Be Seen”.

## 11. Enforcement

The enforcement component for Karori has two separate approaches, one for static offences such as illegal parking and the other for moving violations such as speed and failing to give way. Resources for enforcement will be drawn from the Council Parking

Business Unit and the Police. It should be noted that electronic enforcement may also be carried out and may include red light cameras and speed cameras.

The SaferRoads project will have a dedicated person to carry out parking enforcement particularly in the vicinity of schools and shopping areas. The key focus of the parking warden will be ‘safety’ rather than enforcing time-restricted parking.

The moving violations component will rely on the Police to deliver targeted enforcement on speed reduction as well as random checks to encourage better driver behaviour.

## 12. Engineering

Engineering measures will require the most resources and funds to construct devices designed to improve safety and reduce speeds. A number of design elements have been used to achieve the objective of reducing injury crashes on Wellington roads including kerb extensions, road markings, signage, traffic signals and the introduction of 40 km/h speed limits on residential streets. Other measures will include the introduction of driver feedback signs to help educate drivers to reduce speed. These devices are new to New Zealand with Wellington being the first city to install the signs.

The implementation plan set out in the next section shows the different measures planned for roads in Karori with most of the available funds spent on Karori Road, as this route has the highest number of crashes. Other measures are planned for different roads and parts of Karori to address specific concerns such as speed, non-residential traffic using residential streets, pedestrian refuges, intersection safety and identifying arterial routes.

The introduction of 40 km/h zones in residential streets is important for developing safe streets for residents. Overseas research shows that reducing the speed in these environments reduces crashes and the severity of crashes that do occur. Physical works will reinforce the introduction of 40 km/h speed zones.

The table below provides typical accident reduction rates and speed reductions as a result of specific measures.

Treatment Type	Estimated Crash Reduction	Estimated Speed Reduction
Painted right turn bays	-20%	
Pedestrian refuge islands	-50%	
No stopping restrictions	-20%	
Edgelines	-30%	-4 km/h
Speed humps		-20 km/h
Roundabouts	30%-50%	-20 km/h
Traffic signals	30%-50%	
Kerb extensions		-4 km/h
Priority controls		

These crash records show a high number of turning and loss of control accidents along Karori Road. There is a need to provide better turning facilities as well as reduce the

speed along Karori Road. The proposed improvements will include traffic signals for controlling opposing traffic movements and provide an opportunity to control speed along Karori Road through the use of a ‘green wave’. Other measures such as edgelines and kerb extensions will encourage motorists to drive with more care.

Measures are also required to help motorists understand that certain roads have been designed for residents and not through-traffic. These will include speed humps, raised ramps, kerb extensions and roundabouts. Preferred routes of travel will have fewer traffic calming devices to encourage their use by through-traffic. Such routes include Karori Road, Friend Street, Gipps Street and Braithwaite Street.

A brief description of the main traffic calming devices is provided below.

## Traffic Signals

One of the key engineering measures for Karori SaferRoads is the introduction of traffic signals at key locations along Karori Road and Chaytor Street. The use of traffic signals has been carefully considered along with other intersection layouts such as roundabouts. Due to the road widths and traffic patterns along this route traffic signals are recommended as the most appropriate measure to provide motorists with safe right turning facilities and meet the pedestrian needs along this route.

Any change in the current intersection layout is likely to result in delays for some road users and to be beneficial for others. Vehicles turning from side roads onto Karori Road will find right turns much safer and will experience fewer delays at these locations, while motorists travelling along Karori Road may experience slight delays at the signals.

Wellington City Council has commissioned a computer traffic model to test the proposed traffic signal arrangements along Karori Road and Chaytor Street. The existing traffic flows were surveyed and used to build the model, which was then modified with the placement of traffic signals at identified intersections to determine the change in traffic patterns during the morning peak period.

The model showed that on average travel times along the length of Karori Road will be reduced with the introduction of traffic signals, with some sections showing slight increases in travel times and other sections showing reductions. The table below provides details.

	Into the City	Into Karori
<b>Average observed travel times</b>	11 mins 6 secs	3 mins 51 secs
<b>Modelled travel time(existing)</b>	10 mins 33 secs	4 mins 22 secs
<b>Modelled travel time (traffic signals)</b>	7 mins 55 secs	5 mins 50 secs

As shown, a reduction in the travel time along Karori Road and Chaytor Street into the city is expected. However, it should be noted that delays may be experienced at some intersections under the new traffic signal arrangement.

The benefits of installing traffic signals along Karori Road will be significant. They will provide drivers with safer accessibility to Karori Road from side streets and improve facilities for pedestrians, in particular at Donald and Campbell Streets.

The proposed traffic signals can be coordinated which will improve travel times and control vehicle speeds along Karori Road.

## Driver Feedback Signs

A new initiative undertaken by Wellington City Council is the introduction of driver feedback speeds to address speed concerns on local and arterial roads. These devices register and display the speed of approaching motorists. When motorists are travelling too fast, the feedback signs display “Slow Now” to encourage drivers to reduce speed. Driver feedback signs are an effective method for educating drivers and changing their behaviour.



## Kerb Extensions

One of the most common methods for calming residential streets is to narrow the street width with kerb extensions. These extensions reduce the available road width, which in turn slows down motorists, and also provide safe crossing points for pedestrians.

## Roundabouts

It is proposed to install roundabouts at key locations where the available road width allows. Roundabouts provide an excellent facility for turning traffic as well as significantly reducing vehicle speeds. Crashes at roundabouts are typically damage-only because of the low speeds and reduced angles of collision.

## Roadmarkings

Roadmarkings provide better guidance to motorists during the day and night and also help reduce vehicle speeds. The proposed roadmarkings for Karori will consist of edgelines and centre lines along designated arterial routes.

## Priority Controls

As part of the SaferRoads project, all intersections will be controlled by give way or stop signs. The signs will provide clear guidance for motorists and will remove any ambiguity about which motorist has right of way.

## Speed Humps

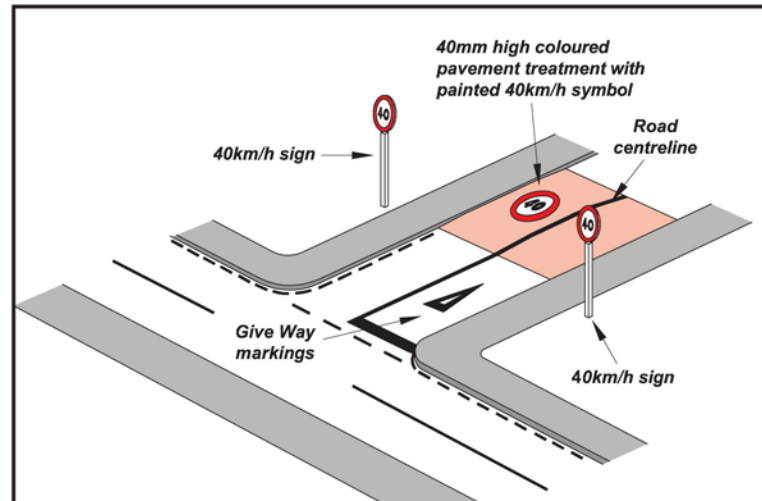
Speed humps are already in place along Friend Street and Ranelagh Street. These devices have been extremely effective in reducing speeds on these roads. It is proposed to install speed humps on some of the straighter roads in Karori.

Speed humps will not be used on arterial routes unless they are seen as necessary to address a specific traffic problem.

## 40 km/h Zones

Most roads within the Karori suburb will have a speed limit of 40 km/h except for designated arterial routes. These arterial routes will retain a speed limit of 50 km/h as shown in the concept plan in Appendix 4. The arterial roads include Karori Road, Friend Street, Hatton Street, Campbell Street, Ranelagh Street, and Parkvale Road.

The typical layout for entering the 40 km/h speed zones is shown below.



### 13. Implementation Plan

The implementation plan provides details of the engineering, education and enforcement measures proposed for Karori along with the recommended priority, estimated cost and map reference for each. The reference numbers correspond to the concepts plans shown in Appendix 4.

Final design will be completed after the public consultation phase and approval from the steering committee.

Education			
Location	Treatment	Priority	Estimate
Karori schools	Safer Routes to School programme	High	\$30,000
City wide	Pedestrian awareness campaign	High	\$1000
City wide	Cycle awareness campaign	Medium	\$1000
Karori	Speed limit awareness campaign	High	\$15,000

Enforcement				
Location	Treatment		Priority	Estimate
Karori Rd	Driver feedback signs	Three signs	High	\$45,000
All roads in Karori	Targeted road policing		High	N/A
City wide	Contribution to additional parking staff		High	\$10,000

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Various sites	Threshold pavements (coloured road surfaces)				80,000
Most residential streets	50 km/hr to 40 km/hr speed reduction				20,000
Karori Rd/Old Karori Rd	Traffic signals and median islands	KSR01			115,000
Karori Rd/Flers St	Kerb extension and traffic calming ramp	KSR02	14,000		
Karori Rd/Flers St	Kerb extension and median island	KSR03	9200		
Karori Rd/Flers St	Kerb extension, median island and ramp	KSR04			15,200
Karori Rd/Lancaster St	Traffic signals	KSR05		91,000	
Karori Rd/Hatton St	Traffic signals	KSR06		96,000	
Karori Rd/Donald St	Traffic signals	KSR07			96,000
Chaytor St/Birdwood St	Traffic signals	KSR08			120,000
Karori Rd/Reading St	Median island	KSR09		3500	
Karori Rd/Campbell/Raine St	Traffic signals	KSR10			135,000
Karori Rd/Campbell/Raine St	Traffic signals	KSR11	96,000		
Karori Rd/Chamberlain Rd	Kerb extension and median island	KSR12			8100
Karori Rd/Chamberlain Rd	Kerb extensions and median islands	KSR13	17,800		
Karori Rd/Monaghan Ave	Give way and flush median	KSR14			400
Karori Rd/Morley St	Median island	KSR15			2500

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Karori Rd/Burrows Ave	Give way and flush median	KSR16	600		
Karori Rd/Burrows Ave	Give way, flush median and traffic calming ramp	KSR17			5300
Karori Rd/Richmond Ave	Give way and flush Median	KSR18	600		
Karori Rd/Richmond Ave	Give way, flush median and traffic calming ramp	KSR19			5300
Karori Rd/Tringham St	Kerb extension and median island	KSR20			13,000
Karori Rd	Kerb extension and median island	KSR21			5500
Karori Rd	Kerb extension and median island	KSR22			5500
Karori Rd/South Karori Rd	Kerb extensions	KSR23	16,000		
Karori Rd/South Karori Rd	Kerb extensions	KSR24		21,300	
Allington Rd/Makara Rd	Kerb extension and median island	KSR25			16,000
Allington Rd/Thurleigh Gr	Roundabout and kerb extension	KSR26			26,000
Allington Rd/Thurleigh Gr	Kerb extension	KSR27		6500	
Birdwood St/Mallam St	Kerb extension and median island	KSR28		5700	
Lancaster St/Marsden Ave	Kerb extensions	KSR29	6100		
Lancaster St/Marsden Ave	Kerb extensions and traffic calming ramp	KSR30		11,100	
Braithwaite St/Lancaster St	Kerb extensions and median islands	KSR31	12,500		
Braithwaite St/Lancaster St	Roundabout and kerb extension	KSR32			34,000
Braithwaite St/Messines Rd	Kerb extension	KSR33	3500		

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Messines Rd/Plymouth St	Median island	KSR34		2500	
Duthie/Gipps/Plymouth Sts	Median islands and kerb realignment	KSR35		14,400	
Duthie St/Vera St	Traffic calming ramp	KSR36			4500
Gipps St/Shirley St	Roundabout	KSR37		18,800	
Gipps St/Cooper St	Traffic calming ramp	KSR38			6100
Cooper St/Vera St	Traffic calming ramp	KSR39			4500
Donald St/Gipps St	Median Island	KSR40			5900
Croydon St/Wrights Hill Rd	Roundabout and kerb extension	KSR41		20,000	
Croydon St/Versailles St	Give way and flush median	KSR42			500
Scapa Tce	Planted island (close street)	KSR43			7500
Scapa Tce	Chicane	KSR44		5000	
Lewer St/Campbell St	Kerb extensions and median island	KSR45		17,800	
Campbell St/Scapa St	Traffic calming ramp	KSR46			5100
Campbell St/Scapa St	Kerb extensions and traffic calming ramp	KSR47			16,500
Donald St/Scapa St	Traffic calming ramp	KSR48			5300
Campbell St/Lewer St	Kerb extensions	KSR49		10,300	
Beauchamp St/Lewer St	Kerb extensions	KSR50		10,900	
Verviers St/Beauchamp St	Give way and flush median	KSR51			400
Verviers St/Kano St	Roundabout	KSR52		36,700	

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Verviers St/Campbell St	Give way and flush median	KSR53			400
Monaghan Ave/Paparata St	Give way and flush median	KSR54			500
Monaghan Ave/Hawick St	Median island	KSR55			2900
Collier Ave/Parklands Dr	Kerb extension	KSR56			4400
Parklands Dr/Landsdowne Tce	Give way and flush median	KSR57			400
Woodhouse Ave/Parklands Dr	Kerb extension	KSR58			6400
Old Karori Rd/Rosehaugh Ave	One way	KSR59		900	
Whitehead St/Seaforth Tce	Kerb extension	KSR60		9200	
Standen St	Speed hump	KSR61	3500		
Standen St	Speed hump	KSR62	3500		
Standen St	Speed hump	KSR63	3000		
Standen St	Speed hump	KSR64	3500		
Standen St/Cross St	Give way	KSR65			300
Nottingham St	Speed hump	KSR66	3500		
Nottingham St	Speed hump	KSR67	3500		
Nottingham St	Speed hump	KSR68	3500		
Nottingham St	Speed hump	KSR69	3500		
Karori Rd/Homewood Ave	Kerb extension and traffic calming ramp	KSR70			9200
Homewood Ave/Homewood Cres	Roundabout and speed hump	KSR71		17,500	
Hauraki St/Hatton St	Kerb extensions	KSR72	12,200		
Hauraki St/Hatton St	Roundabout and kerb extension	KSR73		29,700	

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Reading St/Newcombe Cres	Traffic calming ramp	KSR74			4500
Parkvale/Friend/ Samuel Parnell Rd	Median island	KSR75			5100
Samuel Parnell Rd /Chamberlain Rd	Flush medians	KSR76		2000	
Darwin St/Eagle St	Median island	KSR77		1700	
Ranelagh St/Morley St	Median island	KSR78		2100	
Ranelagh St/Sunshine Ave	Median island	KSR79		2400	
Tringham St/Ranelagh St	Kerb extension and median island	KSR80			8900
Marshall St/Fernlea Ave	Traffic calming ramp	KSR81		6000	
Marshall St/Hildreth St	Traffic calming ramp	KSR82		6300	
Sunshine Ave/Percy Dyett Dr	Pedestrian ramps	KSR83		2100	
Sunshine Ave	Kerb extensions and splitter island	KSR84		11,700	
Victory Ave/Tobruk St	Roundabout	KSR85	12,000		
Victory Ave/Montgomery Ave	Kerb extensions and median island	KSR86			9900
Parkvale Rd/Canterbury St	Give way and flush median	KSR87			600
Parkvale Rd/David Cres	Speed hump	KSR88	3000		
Parkvale Rd/Cornford St	Kerb extension	KSR89		5500	
South Karori Rd	Traffic calming ramp	KSR90		4500	
South Karori Rd/Hazelwood Ave	Give way	KSR91			400
South Karori Rd	Traffic calming ramp	KSR92		4500	

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
South Karori Rd/Hazelwood Ave	Traffic calming ramp and give way	KSR93			4900
Thurleigh Gr/Paddington Gr	Give way	KSR94			450
Makara Rd/Khoury Ave	Give way and flush median	KSR95			600
Friend St	Right hand turn bays	KSR96			1800
Monaghan Ave	Traffic calming ramp	KSR97			4500
Monaghan Ave	Traffic calming ramp and give way	KSR98			4900
Monaghan Ave	Traffic calming ramp	KSR99			4500
Karori Rd/Eagle St	Traffic calming ramp and give way	KSR100			4900
Karori Rd/Eagle St	Planted island (close street)	KSR101	7600		
Karori Rd	Edgelines	KSR102			400
Donald St/Cooper St	Traffic calming ramp, kerb extension and give way	KSR103			7500
Donald St	Kerb extension and school crossing	KSR104			8000
Donald St/Firth Tce	Give way, painted median and traffic calming ramp	KSR105		2000	
Campbell St/Firth Tce	Kerb extensions and median island	KSR106		6000	
Karori Rd/Standen St	Median island	KSR107			2800
Karori Rd/Nottingham St	Trimming existing median island	KSR108	3100		

## Engineering

Location	Treatment	Ref No.	Priority Estimates (\$)		
			Low	Medium	High
Friend St/Raine St	Median island	KSR109		3500	
Chaytor St/Curtis St	Traffic signals	KSR110	140,000		
Friend St/Homewood Ave	Traffic calming ramp	KSR111	4500		
Cargill St/Campbell St	Traffic calming ramps and kerb extensions	KSR112	11,400		
Duthie St/Braithwaite St	Flush median	KSR113		700	
Duthie St/Braithwaite St	Flush median and speed hump	KSR114	4200		
Duthie St/Braithwaite St	Flush median and median island	KSR115		2700	
Duthie St/Braithwaite St	Flush median and speed humps	KSR116			7700
Duthie St/Braithwaite to Gipps St	Speed humps	KSR117		7000	
<b>Total</b>			<b>401,800</b>	<b>499,500</b>	<b>865,950</b>

## 14. Conclusion

The proposed road safety changes for Karori concentrate on reducing traffic problems along the main roads and in particular on Karori Road and Chaytor Street. These improvements are aimed at improving access to the main roads and reducing through movements along inappropriate residential streets. Typically these measures will use engineering, education and enforcement initiatives including:

- lowering the speed limit to 40 km/h on most residential streets
- using traffic calming devices to slow vehicles' speed
- the introduction of traffic signals at key locations along Karori Road
- increased speed enforcement including the installation of driver feedback signs and targeted road policing
- increasing parking enforcement
- running school and community education campaigns about road safety and the dangers of excessive speed.

A key part of the development of the Karori SaferRoads project is better definition of arterial routes and discouraging motorists from using residential streets as through routes. This will be achieved by installing physical constraints on popular through routes such as traffic calming ramps, speed humps, priority controls and kerb extensions. All intersections in Karori will be controlled with give way, stop signs or traffic signals as part of SaferRoads.

This technical report has been reviewed by the SaferRoads technical review group and representatives from LTNZ, New Zealand Police, Transit New Zealand, Greater Wellington, Transfund New Zealand, and Council officers. The proposal has also been approved by the SaferRoads steering committee and both groups endorse the project proceeding to consultation.

The consultation period runs from 8 August 2005 until 5 September 2005. During this time the Council is asking for submissions from the public.

Following consultation, submissions will be analysed and the implementation plan will be reviewed and refined to reflect feedback from the public and key road safety partners. The *SaferRoads for Karori Report and Implementation Plan* will provide a summary of the outcomes.

Funding for the implementation of this work has been approved in the Annual Plan for the 2005-2006 financial years. Detailed design will start following the outcome of the SaferRoads consultation process. Construction of the approved measures will begin in early 2006.

## Appendix 1: Notes from Workshop One

Theme	Issue	Location
<b>Intersections</b>		
	Right turn from Chaytor Street is difficult.	Birdwood Street
	Very difficult intersection with Chaytor Street.	Birdwood Street
	Difficult to get out of Burrows Avenue going north at busy times or any time.	Burrows Avenue
	Can't see cars coming along Karori Road.	Campbell Street
	Can't get out of Campbell Street turning right onto Karori, take risks.	Campbell Street
	There is no give way at Firth Terrace, no one slows down or obeys the right hand rule.	Campbell Street
	When exiting Birchwood traffic is held up by the pedestrian crossing which often confuses traffic movements.	Chaytor/ Birdwood Streets
	On down hill side drain is built up, forcing traffic wide, should level off road.	Chaytor Street/ Raroa Crescent
	Merging traffic from Old Karori Road.	Chaytor Street/ Old Karori Road
	Accidents, especially cyclists, need indicator signs.	Chaytor Street/ Old Karori Road
	Signals or roundabout.	Chaytor Street/ Old Karori Road
	Cars block visibility, refer to photos and drawings provided.	Donald Crescent/ Donald Street
	Reduce parking around intersections.	General
	Large cars park too close to intersections.	General
	How to use roundabouts.	General
	Parking too close to intersections and corners.	General
	Check traffic does not cut cyclists off when turning.	General
	Right hand rule.	General
	Change give way signs to be consistent with other countries.	General
	Give way rule - lots of uncontrolled intersections in Karori.	General
	Drivers do not stop at stop signs.	General
	Difficult to turn out of Campbell Street due to volumes.	Karori Road/ Campbell Street
	Difficult due to high volumes, service stations, pedestrian crossing, parking.	Karori/ Parkvale Roads
	Poor visibility at Monaghan Avenue.	Karori Road
	Lots of minor accidents coming left from Monaghan Avenue to Karori Road.	Karori Road
	It's hard to get across at any time during the day or peak hours at Donald Street.	Karori Road
	Poor visibility at Lancaster Street intersection.	Karori Road
	Vehicles are travelling too fast so that you can't see them and as a result I had a crash.	Karori Road
	It's difficult getting out of Beauchamp Street.	Karori Road
	Outside BNZ bolder broken yellow lines are needed to ensure visibility for turning traffic.	Karori Road
	Sun glare makes intersections dangerous for approx three weeks during autumn and spring.	Karori Road
	Cars parked close to intersection especially 4WDs block visibility.	Karori Road
	Roundabout.	Karori Road/ Campbell Street
	Bus stop blocks visibility.	Karori Road/ Beauchamp Street
	4WDs block visibility.	Karori Road/ Beauchamp Street
	Parked cars restrict visibility when exiting Chamberlain Road.	Karori/ Chamberlain Roads
	Difficult for traffic from Old Karori Road. What about a roundabout?	Karori Road/ Chaytor Street
	Large vehicles struggle to make turn. Yellow lines need to be extended on the north side before parking places.	Karori Road/ Lancaster Street

Theme	Issue	Location
<b>Intersections continued</b>		
	Merging traffic slows traffic to city, what about installing lights?	Karori Road/ Homewood Avenue
	Bad visibility onto Terawhiti Terrace off Makara Road, need a street light and mirrors.	Terawhiti Terrace
	Right turning traffic needs priority over traffic turning right into Monaghan Avenue.	Karori Road/ Monaghan Avenue
	South-east corner blocks visibility so cars stick out into road.	Karori Road/ Lancaster Street
	Merging traffic slows traffic to city and it's dangerous.	Karori/ Old Karori Roads
	Upgrade existing lights to a full set as it is almost impossible to enter the main traffic flow.	Karori/ Old Karori Roads
	4WDs block visibility.	Karori/ Parkvale Roads
	Difficult to cross.	Karori/ Parkvale Roads
	Cars turning left into Karori Road can not see traffic coming from left.	Karori/ Parkvale Roads
	Poor visibility looking right, due to bend.	Karori Road/ Richmond Avenue
	Bus stop restricts visibility. There's conflict between the bus stop, pedestrian crossing and parking for takeaways.	Karori Road/ Tringham Street
	Need traffic lights.	Karori Road/ Campbell Street
	Merging traffic slows traffic to city; install lights?	Karori Road/ Flers Street
	It is difficult to turn into Karori Road due to poor visibility and heavy traffic.	Karori Road/Hatton Street
	Need traffic lights.	Karori Road/Raine Street
	Drivers using mini-roundabouts to u-turn are hit by cars expecting them to exit.	Kilburn Parade
	No one gives way at Karori Road; it needs to be a stop sign.	Makara Road
	People seem not to know how to use stop lights when coming from car park and drive straight through.	Marsden Avenue
	Red lights are often ignored.	Marsden Village
	You can't see approaching traffic on Braithwaite Street.	Messines Road
	Sun gets in your eyes at Braithwaite Street.	Messines Road
	Getting out of Nottingham Street is difficult.	Nottingham Street
	Right turning median needs to be bigger at Karori Road.	Old Karori Road
	Karori Road intersection is difficult.	Old Karori Road
	Need a roundabout at Karori Road; ban right turn from Standen Street.	Old Karori Road
	It's hard to get out of Old Karori Road onto Karori Road.	Old Karori Road
	Merging into Karori Road is dangerous during rush hour.	Old Karori Road
	Cars do not use indicators.	Old Karori Road
	Needs a white stop line for good visibility when coming out of David Crescent.	Parkvale Road
	Poor visibility turning right out of Parkvale Road into Karori Road needs traffic light or circle.	Parkvale Road
	Cars coming up Birdwood Crescent indicate left into Braithwaite Street but confuse Ponsonby Road drivers.	Ponsonby Road
	Cars don't stop at stop sign.	Ponsonby Road
	Turning right out of Ponsonby Road is difficult.	Ponsonby Road
	Poor visibility for right turn into Marshall Street.	Ranelagh/ Marshall Streets
	Banks restrict visibility turning from Raroa Crescent to Northland tunnel.	Raroa Crescent
	Cars need to indicate when changing direction.	Raroa Crescent/ Chaytor Street
	Collier Avenue traffic comes too fast onto Richmond Avenue, and fail to give way.	Richmond Avenue
	It's difficult to get out of Richmond Avenue onto Karori Road.	Richmond Avenue
	Cars don't respect give way.	Tringham Street



Theme	Issue	Location
<b>Intersections continued</b>		
	Buses block the intersection.	Tringham Street
	Difficult intersection with Old Karori Road, visibility needs improving.	Rosehaugh Avenue
	Cars turning left don't give way to pedestrians on Karori Road.	Tringham Street
	Verviers Street drivers don't give way to Beauchamp Street.	Verviers Street
	No visibility at Voltaire Street.	Wrights Hill Road
	Cars do not indicate.	South Karori Road
	Bus stop and parked cars cause risk taking.	Victory Crescent
<b>Schools</b>		
	Judder bars or pedestrian crossings needed to help parents with kids cross the road.	Campbell Street
	Lots of roadside parking and pedestrians, make speed a problem.	Campbell Street
	Need a new crossing at the Wellington Teachers College.	Donald Street
	Parking is a problem between Karori Road and Gipps Street because of the bus route and student parking.	Donald Street
	There's congestion before and after school.	Donald Street
	P5 parking outside the school is not enforced.	Donald Street
	Parents park on yellow lines.	Donald Street
	School buses slow traffic.	General
	Parents get children out on the driver's side on busy roads.	General
	Donald Street needs an advance warning of the school patrol at the crossing.	Karori Road
	Pedestrian crossing at Marsden School needs a school patrol.	Karori Road
	Drivers open their doors into the traffic flow after school, which is also dangerous for cyclists.	Karori Road
	The Karori West School bus drives from Hazelwood and stops at Woodhouse, and so children have to cross the road twice.	Karori Road
	Make parking on one side of the road only during school drop off and pickup times.	
	The road between Samuel Marsden School crossing and Karori Normal School is dangerous.	Karori Road
<b>Cycling</b>		
	It is narrow and dangerous for cyclists.	Birdwood Street
	Birdwood Crescent intersection is difficult for cyclists.	Braithwaite Street
	Uphill lane at Joll Street is too narrow; cyclists are cut out. Either remove parking or shorten bus stop.	Chaytor Street
	Not enough space for cars to pass bikes, bikes should have to go in the bus lane.	Chaytor Street
	Remove parking at narrowest bend to fit in uphill cycle lane and shift three lanes over. Cars have to follow cyclists at this point. Two buses and a bike are deadly!	Chaytor Street
	Lanes too narrow, problem for cyclists.	Chaytor Street
	Accidents, especially cyclists, need indicator signs.	Chaytor Street/Old Karori Road
	Cycle route.	Friend/ Raine Streets
	Cycle lane through Appleton Park, along Karori Road to Makara Peak Mountain Bike Park	General
	Cycle lane where practicable, but especially to Makara Peak Mountain Bike Park.	General
	Kerb extensions force cyclists into traffic flows.	General
	Traffic islands in middle of road mean cars can not safely pass cyclists.	General
	Sump grates are not good for cyclists.	General
	The edge of road is rough for cyclists.	General
	Teach cyclists that they can go in bus lanes.	General
	Cyclists on footpaths are dangerous to elderly pedestrians.	General
	Teach cyclists how to pass vehicles, on the left or the right.	General
	Don't cut bikes off when turning.	General
	How to overtake cyclists.	Karori tunnel
	Signs to warn of cyclists.	Makara Hill
	Cyclists are at risk as they hold up pedestrians.	Northland Tunnel
	Loose gravel means that cyclists fall off.	Old Karori Road

Theme	Issue	Location
<b>Night</b>		
	It is too dark by dairy and school.	Allington Road
	Need more lighting by the depot, especially the crossing.	Allington Road
	Some lights are not currently working.	Chaytor Street
	Sodium-based, multi spectral lighting is good.	General
	It is too dark; needs lighting.	Hatton Street
	Some lights are out at present.	Joll Street
	Street lighting is not consistent.	Karori Road
	There are no lights on crucial bends.	Putnam Street
<b>Speed</b>		
	Parking on both sides of the road narrows road; could be a head-on collision, as cars go fast uphill.	Allington Road
	Speed between Epsom and Hathaway Streets.	Allington Road
	Speeds, particularly for cars coming from Chaytor Street.	Braithwaite Street
	Speed bump to help parents crossing road, as there is lots of speeding.	Campbell Street
	40km/h speed zone.	Campbell Street
	Cars go too fast past kindergarten.	Campbell Street
	Speeds.	Campbell Street
	Speed is a concern.	Campbell Street
	Need judder bars like Paekakariki.	Chaytor Street
	Speeds.	Collier Avenue
	Young people drive too fast often in excess of 100km/h.	Donald Street
	Speeds.	Duthie Street
	Speed in street too fast.	Firth Terrace
	45km/h speed limit to reduce crashes.	General
	Karori Road 40km/h; back roads 50km/h.	General
	40km/h for non arterial routes.	General
	Speed humps needed.	Gipps Street
	Buses speeding.	Gipps Street
	Too fast down hill towards mall.	Karori Road
	40km/h speed limit.	Karori Road
	Speed too high which is especially a concern on Saturdays when parking is heavy.	Karori Road
	Cars don't slow down when going past the mall.	Karori Road
	Speeding between Marshall and South Karori Road.	Karori Road
	Speeding along Karori Road.	Karori Road
	This road should not be an open road speed limit as can not safely drive faster than 70km/h.	Makara Hill
	Judder bars to reduce speeds.	Monaghan Avenue
	No judder bars.	Monaghan Avenue
	Vehicle speeds need to come down.	Monaghan Avenue
	Cars speed along flat section (suggest speed reduction).	Montgomery Street
	Vehicles travelling too fast.	Nottingham Street
	Cars speed down Parklands Drive.	Parklands Drive
	Need speed humps - maniac drivers, driving at excessive speeds. Children walk to school along this road.	South Karori Road
	Cars go too fast.	South Karori Road
	Vehicles travelling too fast.	Standen Street
	Speeds.	South Karori Road
	Speeds too fast.	Thurleigh Grove
	Limit should be 40km/h.	Upland Road
	Speeds.	Versailles Street
	Cars racing at the corner of Campbell Street.	Wrights Hill Road

Theme	Issue	Location
<b>Pedestrians</b>		
	Speeds and traffic volumes make this street difficult to cross for parents with kids.	Campbell Street
	It is difficult to cross by Karori Road.	Campbell Street
	Upgrade the footpath as it is used by lots of elderly people.	Campbell Street
	Pedestrian crossing needed for kids at Karori Road.	Campbell Street
	Pedestrian crossing needed near Benburn Park.	Campbell Street
	Pedestrian crossing at Birdwood Crescent is not safe.	Chaytor Street
	Remove at least one park on each side of the crossings so that pedestrians can be seen.	General
	Pedestrian crossing islands are too small eg outside library at mall; can not see pedestrian past 4WDs.	General
	Pedestrians step onto crossing without waiting.	General
	Cars parking on footpaths obstruct pedestrian traffic, especially at Colliers Avenue.	General
	Cars parking on footpath force pedestrians to walk on road especially streets which only have a footpath on one side.	General
	Pedestrians step onto crossing without waiting.	General
	Need a pedestrian walkway through reserve to Nottingham Street.	Homewood Crescent
	Pedestrian crossing near Donald Street, cars park too close.	Karori Road
	Temporary crossing for temporary library.	Karori Road
	Parking too close to intersections; drivers and pedestrians can not see one another, especially 4WDs.	Karori Road
	Narrow footpath on the north side between Homewood Avenue and Marsden Village is unsafe for children.	Karori Road
	The pedestrian crossing near Parkvale Road is badly located for mall customers.	Karori Road
	A pedestrian crossing is needed for Karori Park.	Karori Road
	A pedestrian crossing is needed from the bus stop to the dairy.	Karori Road
	Pedestrians don't use the crossings at South Karori Road.	Karori Road
	Children walking along Karori Road have difficulty crossing side roads.	Karori Road
	The pedestrian crossing near Tringham Street is bad.	Karori Road
	The pedestrian crossing at Parkvale Road has no visibility outside Brumby's.	Karori Road
	Children cross without parents after the patrols go in.	Karori Road
	The pedestrian crossing near Newcombe does not work as drivers go straight through school patrols.	Karori Road
	Signals needed for all school crossings.	Karori Road
	Crossing at Karori School is for children.	Karori Road
	Pedestrians cross against the lights.	Marsden Village
	Close road near Karori Road to make area more pedestrian friendly and safer.	Parkvale Road
	Pedestrian issues.	Parkvale Road
	It is dangerous to cross by Karori Road.	Raine Street
	Difficult pedestrian crossing at intersection of Moana Road.	Raroa Road
	It is very awkward with pedestrian crossing and cars turning left.	The Rigi

Theme	Issue	Location
<b>Parking</b>		
	Make it 'no' parking or allow parking on the footpath on the narrow midway near St Albans.	Allington Road
	Extend yellow lines on the left side of the road, just past St Albans Avenue.	Allington Road
	Remove bottom car park so that buses can fit within their lane.	Chaytor Street
	Penalise illegal parking; especially couriers and loading vehicles.	General
	Need to check more often for illegally parked cars especially on Donald Street.	General
	There is lots of parking on broken yellow lines - Sunshine Avenue dairy.	General
	Parking machines should take money before 8am.	General
	Minimum charge of \$1 is ridiculous.	General
	Angle parking causes problems for buses.	Gipps Street
	The road is too narrow to park on both sides and the no-stopping line has been painted over.	Hathaway Avenue
	Parking is too close to intersections' corners.	Hathaway Avenue
	Parking needs to be restricted on bend.	Hatton Street
	Location of disabled parks needs to be rationalised.	Karori Mall
	Prevent cars parking on bus stop.	Karori Mall
	Shoppers can not get parks close to the mall because of retailers parking there.	Karori Road
	Cars park too close on the right when turning out of Hatton Street.	Karori Road
	Exit to the cricket clubrooms is dangerous; the space between driveways should be no stopping.	Karori Road
	People park on yellow lines for ATM machine.	Karori Road
	Yellow lines are needed between David Crescent and Chaucer Way.	Parkvale Road
	Parked buses create congestion and poor visibility.	South Karori Road
	Could provide more on-site parking.	Teachers College
	Residents parking on corner.	Upland Road
	Angle parking is dangerous - particularly with 4WDs that block visibility.	Parkvale Road
	Difficult parking on the street.	Raroa Road
	Lack of parking at Karori West Normal; it will get worse with the new apartment complex taking out most available parking.	South Karori Road
<b>General roading issues</b>		
	Poor visibility from Braithwaite Street approaching Messines Road.	Braithwaite Street
	Do bus lanes operate all day long? If not then when?	Chaytor Street
	Lane lines are not adhered to by drivers.	Chaytor Street
	Lane lines are terrible.	Chaytor Street
	Green paint on bus lane.	Chaytor Street
	Start bus lane halfway down hill; widen top half so that traffic can more easily pass stopped bus.	Chaytor Street
	There is not enough space uphill if all three lanes are occupied.	Chaytor Street
	Put in another tunnel; with each being one way.	Chaytor Street
	Reduce glare on road markings, as it is difficult to tell which ones are relevant.	Chaytor Street
	Lighting and narrowness of road are dangerous.	Chaytor Street
	Edges of the safety island at the bottom stick out too far - dangerous when a bus has stopped.	Chaytor Street
	Road camber is wrong.	Chaytor Street
	Lanes too narrow up hill - drivers don't stay in lane.	Chaytor Street
	Camber is not good.	Chaytor Street
	Buses don't use bus lanes.	Chaytor Street
	Buses cross centre line.	Chaytor Street
	Bend in lower part.	Collier Avenue
	Lots of traffic.	Duthie/ Braithwaite Streets
	Road works should be clearly signed to ensure no accidents caused by uneven surface.	General
	Traffic islands opposite bus stops halt traffic unless bus is right against kerb.	General

Theme	Issue	Location
<b>General roading issues continued</b>		
	Over 80s drivers need education in Karori.	General
	Roads too narrow for articulated trucks; use smaller vehicles for deliveries.	General
	Buses need to practice safe driving.	General
	Website needs to show planned road works, reasons and timeframes.	General
	Drivers do not know how to use medians.	General
	Drivers do not indicate.	General
	Karori has only one community constable.	General
	It is too easy to get a licence.	General
	Encourage reporting of incidents with an 0800 number and follow up.	General
	Drivers do not indicate.	General
	Remove obstacles in centre of the road, at least from rear of bus stops, too much congestion.	Karori Road
	Road markings disappear under lights.	Karori Road
	Bus stop outside number 93 causes problems for vehicles using garages.	Karori Road
	Can't see traffic signals at Marsden Village.	Karori Road
	Brick areas are very slippery in Marsden Village.	Karori Road
	Too many buses at once, three buses at one bus stop; too close to corner Tringham Street.	Karori Road
	Cars get hit when turning from parking area outside dairy near South Karori Road.	Karori Road
	Blind corner.	Khoury Avenue
	Ice on the corner north of Tedder Way.	Montgomery Avenue
	Pine trees darken area and make it icy.	Old Karori Road
	Poor visibility on the hill.	Parklands Drive
	Need to straighten curb near Chaucer Way.	Parkvale Road
	Street too narrow, no more subdivisions.	St Albans Avenue
	Cut back bank near St Teresa's Church to widen road.	Karori Road
	Find other ways to move traffic out of Karori.	Karori Road
	Bus lane needed from the mall to Chaytor Street.	Karori Road
	Traffic lights needed at the mall.	Karori Road
	Very narrow road, especially at night when cars park on both sides. A new subdivision will make traffic density horrendous.	St Albans Avenue
	The corner is slippery when wet - up from Epsom Way.	Thurleigh Grove
	Ice on corner with sunshine.	Victory Avenue

## Appendix 2 : Notes from Workshop Two

# Framework for Reducing Crashes in Karori

from Workshop Two – 11 August 2004

Theme		Engineering	Education	Enforcement
<b>Intersections</b>				
	Roundabouts - yes to principal, maybe to collector, no to local.	Western News traffic feature on local site problems. Citing incidents.	More parking wardens (WCC)	
	Traffic lights - yes to principal, maybe to collector, no to local.	Rest homes education, (safe with age).	Cameras, red lights, speed, CCTV - yes to principal, no to collector	
	Relocate bus stops eg Tringham Street/Karori etc - yes to principal, no to collector, no to local.	Parents reinforce child's education by example.	Community traffic/parking warden - yes to principal.	
	Restrict parking near intersection - yes to principal kerb extension Chaytor Street/Karori/Old Karori Road, yes to collector.	Student teachers (Donald Street).		
	Signage eg remember to indicate.			
<b>Schools</b>				
	Alternative pick-up points for school children so parents have somewhere to park.	Can schools provide more parking?	More enforcement of double parkers or illegal parkers around schools.	
	Is there space for school buses to park near schools?	Walking buses?	Lowering the speed limit to 40 km/h near schools.	
	Parking congestion before/after school in: Donald Street/Campbell Street/Karori Road surrounds -	Encourage parents to walk with children to school if they had the option.	Ticketing of illegal parking on/hear all crossings especially "school" crossings.	
	Can we make this one way/restricted/5 min/no parking during 2.30-3.30 pm and 8.15-9.00 am. How can we enforce this?	Educating child in how to cross the road and be safe cyclists or pedestrians.	Parent education - all areas - parking enforcements and kids walking to school.	
	Karori Road lights/St Ninians Corner - "yellow hatch intersections" on Karori Road at Donald Street.			
	No buses during peak school hours - they hold up traffic.			
	Marsden Avenue - parking on one side only - great.			
	More yellow lines - either side of Marsden entrance - danger re visibility - need to enter road to see.			

Theme	Engineering	Education	Enforcement
<b>Cycling</b>	Bikes permitted on buses - free? At certain bus times only.	Make cyclists aware they can ride in the bus lane.	Lights front and rear and bright clothing.
	Clearway on Karori Road. North side 7- 9am, south side 4- 6pm.	Put a cycle symbol in the bus lane.	Must wear helmets.
	Re-design kerb extensions so cyclists can ride through them or over them.	Teach cyclists to ride in the main lane, don't swerve in and out of parked cars.	Enforcement of cyclists of running red lights.
	Roads are getting narrower (ie by adding bus lanes), and cars are getting bigger. Where do cyclists fit into this picture?	Educate motorists to look for cyclists when cars stop to let traffic in they do not check for oncoming cyclists or turning.	Not having lights.
	Cycle lane in Appleton Park, Chaytor Street, Karori Road?	Pedestrians crossing the road without looking for cyclists they are only listening for cars.	Legal enforcement of cyclist equipment, flag, clothing - neon, lighting.
	Maintain edge of road. Remove glass and other sharp objects, cause punctures/accidents.	Cars pass too close, too fast. Drivers need to leave at least one metre from the bike and slowing down to 40km/h would be nice.	
	Sump grates - re-design them as cyclists' wheels get stuck.	Education cyclists/motorists to indicate.	
	Sign needed to indicate turning left at Old Karori Road.	Don't burst our bubble.	
	Add an uphill cycle lane on Chaytor Street and Birdwood and Karori Road on up hill parts.	Subsidised safety vests - from ACC?	
	Cycle lanes.	Make cyclists more visible with reflective short leggings.	
	Increase Makara Peak Mountain Bike Park.	Hire a bike.	
	Dual use of bus lanes.		
	Cycle lane over kerb extensions.		
	Replace missing sump grates.		
<b>Night</b>			
	More lights needed over crossings.	Drive at appropriate speeds.	Increased enforcement presence.
	Specialist road surfacing needed to reduce glare.		
	Variable message signs needed at critical locations.		
	Active markings RRPm.		
	White roads?		
	Have consistent lighting.		

Theme	Engineering	Education	Enforcement
<b>Speed</b>			
	40km/h around mall - Lancaster Street – Post Office and Raine Street (dissenting view - shouldn't limit speeds).	Signage relating to parking needs to be improved.	Parking for disabled drivers at mall.
	Don't like speed humps - don't use Friend Street - effective chicanes are awful.	Schools need to be encouraged to provide off street parking - example, Donald Street.	More enforcement of illegal parking.
	Signs to reinforce speed limits.	Awareness of public transport options to avoid parking issues.	
	Campbell Street – 'no' to judder bars. 'No' to crossings/chicanes - road narrowing with no loss of parking? Trees?		
	No roundabouts.		
	Visibility (Chaytor Street) of road markings at night, especially when wet.	Outside schools - parents opening doors without checking for oncoming traffic (Karori Road).	Enforce existing speed limits rather than introduce lower speed limits.
	Park and ride – organised.		Reduction of speed in school zones during school hours - entry/exit.
	Coordinated yellow lines (double) in Chaytor Street.		Higher police presence in Karori Road.
	More pedestrian refuges where visibility limited.		Roving police camera - multi vehicle.
<b>Pedestrians</b>			
	More pedestrian crossings.	Wear bright clothing.	Fine for jaywalkers.
	Temporary crossing with temporary library.	Drivers to indicate (signage).	Cars parking on footpaths.
	Design light beacons (so people don't hide behind poles).	Education about pedestrian diamonds.	Cars parking on bus stops so bus has to park out in road (green paint bus stops).
	Slower corner eg Tringham or Marshall Streets.	Cars parking on footpath.	
	Islands (pedestrian) - divided view.		
	Traffic lights at pedestrian crossings (Karori School).		
	Crossing for Karori Normal at Campbell Street.		
	Footpath maintenance and debris clearance.		

Theme	Engineering	Education	Enforcement
<b>Parking</b>			
	More parking required for Karori parking development.	Signage relating to parking needs to be improved.	Parking for disabled drivers at the mall.
	Will there be enough parking for the numbers of people attracted?	Schools need to be encouraged to provide off street parking - eg Donald Street.	More enforcement of illegal parking.
	Provision of more carpark spaces for Park 'n' Ride ie No 12 bus.	Awareness of public transport options to avoid parking issues.	
	Improve street lighting - so parked vehicles can be seen, eg Chaytor Street area.		
	<b>General roading issues</b>		
	Visibility (Chaytor Street) of road markings at night, especially when wet.	Outside schools - parents opening doors without checking for oncoming traffic (Karori Road).	Enforce existing speed limits rather than introduce lower speed limits.
	Park and ride – organised.		Reduction of speed in school zones during school hours - entry/exit.
	Coordinated yellow lines (double) in Chaytor Street.		Higher police presence in Karori Road.
	More pedestrian refuges where visibility limited.		Roving police camera - multi vehicle.

## Appendix 3 : Crash Data



KARORI ROAD	200 W	DONALD ST	2111094	20/01/2001 Sat	1515 BA	CW1T	125A 412A	R	D	O	F	0	0	0	2
KARORI ROAD	20 E	PARKVALE ROAD	9955571	29/08/1999 Sun	1145 BC	CW1C	122A 423A	R	D	B	F	0	0	0	0
KARORI ROAD	20 E	MORLEY ST	2152671	26/05/2001 Sat	1000 BE	CE1C	197A 331A	R	W	BF	F	0	0	0	0
KARORI ROAD	30 E	FANCOURT ST	2251428	1/03/2002 Fri	1415 BE	CW1VC	350A 504A	R	D	O	L	0	0	0	0
KARORI ROAD	40 W	DONALD ST	2251723	22/04/2002 Mon	1100 BE	CW1C	410A	R	D	B	F	0	0	0	0
KARORI ROAD	300 W	TRINGHAM ST	9952596	24/04/1999 Sat	200 DA	CW1CC	103A	R	E	D	DO	F	0	0	0
KARORI ROAD		RICHMOND AVENUE	2151878	29/04/2001 Sun	1515 DA	CN2C	133A	R	D	O	F	0	0	0	0
KARORI ROAD	15 W	NATALIE WAY	2351029	1/02/2003 Sat	1748 DA	CW1CV	109A	R	E	D	B	F	0	0	0
KARORI ROAD		TRINGHAM ST	2355114	16/09/2003 Tue	300 DA	CW1	111A 131A	R	E	D	DO	F	0	0	0
KARORI ROAD	200 W	TRINGHAM ST	2152371	10/05/2001 Thu	330 DB	CW1	111A	E	W	DO	L	0	0	0	0
KARORI ROAD	10 E	LANCASTER ST	9955993	10/12/1999 Fri	2200 EA	CE1C	103A	R	D	DO	F	0	0	0	0
KARORI ROAD	40 W	NOTTINGHAM ST	2011294	19/02/2000 Sat	1540 EA	CW1C	331A 352A	M	D	O	F	0	0	1	
KARORI ROAD	10 W	BEAUCHAMP ST	2054081	26/08/2000 Sat	1920 EA	CE1C	102A 129A	R	W	DO	L	0	0	0	0
KARORI ROAD	40 E	RICHMOND AVENUE	2055611	16/11/2000 Thu	855 EA	TW1C	501A	R	D	B	F	0	0	0	0
KARORI ROAD	10 W	MONAGHAN AVENUE	2055895	29/12/2000 Fri	800 EA	CW1C	414A	M	R	W	O	L	0	0	0
KARORI ROAD	180 W	NATALIE WAY	2150833	31/01/2001 Wed	820 EA	CE1C	501A	M	E	D	TF	F	0	0	0
KARORI ROAD	30 E	BEAUCHAMP ST	2154099	14/09/2001 Fri	2355 EA	CE1C	103A	R	D	DO	F	0	0	0	0
KARORI ROAD	60 W	RICHMOND AVENUE	2155821	4/12/2001 Tue	840 EA	CW1V	354A	M	R	W	O	L	0	0	0
KARORI ROAD	50 W	LANCASTER ST	2311947	4/04/2003 Fri	2040 EA	CE1CC	108A 330A 366A	HM	R	D	DO	F	0	0	1
KARORI ROAD	20 W	LANCASTER ST	2111518	23/03/2001 Fri	1205 EE	SE1V	374B	Q	R	D	B	F	0	1	0
KARORI ROAD		FANCOURT ST	2111882	9/06/2001 Sat	1950 FA	CE1S	129A 605B	R	W	DO	L	0	0	0	14
KARORI ROAD	30 W	NATALIE WAY	2253714	13/07/2002 Sat	1321 FB	CW1CC	181A 308C	R	W	O	L	0	0	0	0
KARORI ROAD	20 E	FANCOURT ST	9952591	3/05/1999 Mon	1720 FC	CE1C	331A 358A	R	D	TO	F	0	0	0	0
KARORI ROAD	20 E	FANCOURT ST	2051221	14/03/2000 Tue	830 FC	MW1CV	331A 331B	R	W	O	H	0	0	0	0
KARORI ROAD	10 W	PARKVALE ROAD	2154205	15/09/2001 Sat	1720 FC	VE1C	331A	R	D	O	F	0	0	0	0
KARORI ROAD	40 W	PARKVALE ROAD	2156255	11/12/2001 Tue	1230 FC	TE1CC	358A 420A	R	D	O	F	0	0	0	0
KARORI ROAD	10 E	BEAUCHAMP ST	2012365	12/08/2000 Sat	1400 FD	CE1CCC	331A	R	D	O	F	0	0	1	
KARORI ROAD	30 E	DONALD ST	2112498	20/09/2001 Thu	810 FD	CE1C	181A 331A	R	D	B	F	0	0	2	
KARORI ROAD		NOTTINGHAM ST	2353929	21/08/2003 Thu	900 FD	CE1CC	181A	R	W	O	H	0	0	0	0
KARORI ROAD	80 W	LANCASTER ST	2312864	12/09/2003 Fri	1200 FD	VW1CCC	331A 350A	R	D	B	F	0	0	2	
KARORI ROAD	10 W	FLERS ST	2355851	1/11/2003 Sat	950 FD	CW1C	181A	R	D	B	F	0	0	0	0
KARORI ROAD	40 E	HATTON ST	2153631	18/07/2001 Wed	1435 FE	CW1C	181A 191B	R	D	B	F	0	0	0	0
KARORI ROAD		RICHMOND AVENUE	2054064	23/07/2000 Sun	2215 GA	CW1C	181A	R	D	DO	F	0	0	0	0
KARORI ROAD	30 W	CAMPBELL ST	2122045	2/05/2002 Thu	1830 GB	SS1C	158A 602A 142B 372B	R	W	DO	L	0	0	1	29
KARORI ROAD		BURROWS AVENUE	2313215	29/10/2003 Wed	1930 GD	CE1C	331A 358A	R	D	O	F	0	0	1	
KARORI ROAD	15 E	PARKVALE ROAD	9911118	18/01/1999 Mon	930 JA	CW1C	112A 308B 352B	R	W	O	L	0	0	1	
KARORI ROAD		OLD KARORI ROAD	9952486	20/05/1999 Thu	810 JA	TE1C	302B	M	W	B	F	0	0	0	0
KARORI ROAD		CAMPBELL ST	9952986	10/06/1999 Thu	1615 JA	CW1C	302B 353B	R	D	B	F	0	0	0	0
KARORI ROAD		CHAYTOR ST	2052233	1/04/2000 Sat	1915 JA	ME1C	302B	M	D	DO	F	0	0	0	0
KARORI ROAD		MORLEY ST	2152293	1/05/2001 Tue	1135 JA	CE1CC	303B 352B 507B	R	D	O	F	0	0	0	0
KARORI ROAD		LANCASTER ST	2156448	21/12/2001 Fri	1440 JA	CW1V	302A	R	D	B	F	0	0	0	0
KARORI ROAD	30 E	MORLEY ST	2251361	1/03/2002 Fri	1750 JA	CE1CC	302B 375B	R	W	O	F	0	0	1	
KARORI ROAD		CAMPBELL ST	2254827	6/09/2002 Fri	800 JC	VN2C	302A	R	D	DO	F	0	0	0	0
KARORI ROAD		STANDEN ST	2354339	19/05/2003 Mon	845 JC	CE1C	300B	R	D	B	F	0	0	0	0
KARORI ROAD		BURROWS AVENUE	2353978	1/08/2003 Fri	810 KB	CE1C	303B	R	D	B	F	0	0	0	0
KARORI ROAD		CAMPBELL ST	9912363	30/07/1999 Fri	1815 LB	SW1C	534A 602A 303B 375B	R	W	DO	L	0	1	0	21
KARORI ROAD		CAMPBELL ST	9912520	3/08/1999 Tue	1740 LB	SW1C	602A 303B 375B	R	W	TO	L	0	0	1	37
KARORI ROAD		LANCASTER ST	2050757	24/02/2000 Thu	2050 LB	CW1C	303B	R	D	DO	F	0	0	0	0
KARORI ROAD		CAMPBELL ST	2111070	9/01/2001 Tue	2300 LB	SW1C	303B	R	D	DO	F	0	0	1	49
KARORI ROAD	40 W	LANCASTER ST	2112863	28/11/2001 Wed	1620 LB	CW1C	303A 375A	R	D	B	F	0	0	1	
KARORI ROAD		OLD KARORI ROAD	2111102	15/02/2002 Fri	2230 LB	CW2S	302A 375A	E	D	DO	F	0	0	1	28
KARORI ROAD		CHAYTOR ST	2254295	26/08/2002 Mon	1210 LB	CE1C	145A 302A 387A	M	D	O	F	0	0	0	0
KARORI ROAD		CHAYTOR ST	2213262	1/10/2002 Tue	1340 LB	CW1C	302A	M	D	B	F	0	0	1	
KARORI ROAD		RAINE ST	2256212	16/12/2002 Mon	1600 LB	CE1C	303B	R	D	B	F	0	0	0	0
KARORI ROAD		CHAYTOR ST	2311847	23/03/2003 Sun	1704 LB	CW1S	302A	M	D	O	F	0	0	1	26



SOUTH KARORI ROAD	480 S	HAZELWOOD AVENUE	2012009	15/07/2000 Sat	153 DA	CS1	103A 135A	802 FZ	E	I	DN	FF	0	0	2
SOUTH KARORI ROAD	100 N	HAZELWOOD AVENUE	2250896	23/03/2002 Sat	1045 DA	CN1	358A	P	E	D	B	F	0	0	0
SOUTH KARORI ROAD	500 S	HAZELWOOD AVENUE	2212037	3/05/2002 Fri	200 DA	CS1	135A 402A	802 G	S	I	DN	F	0	0	2
SOUTH KARORI ROAD	50 S	HAZELWOOD AVENUE	2213478	22/12/2002 Sun	118 DA	VS1	132A 517A	EF	M	D	DN	F	0	1	1
SOUTH KARORI ROAD	500 S	HAZELWOOD AVENUE	2112501	29/09/2001 Sat	300 DB	CS1	103A 111A	J	E	D	DO	F	0	0	1
SOUTH KARORI ROAD	1900 S	HAZELWOOD AVENUE	2250823	8/02/2002 Fri	230 DB	CN1	132A	V	M	D	DN	F	0	0	0
SOUTH KARORI ROAD	100 S	HAZELWOOD AVENUE	2353290	14/06/2003 Sat	1400 DB	CN1	111A 132A 402A	C	M	D	O	F	0	0	0
SOUTH KARORI ROAD	200 S	HAZELWOOD AVENUE	2150408	5/02/2001 Mon	1440 MO	CN1C	371A	M	E	D	B	F	0	0	0
ST ALBANS AVENUE	200 S	ALLINGTON ROAD	9955921	8/12/1999 Wed	1900 QD	CN1	611A	C	E	D	TF	F	0	0	0
STANDEN ST	20 N	KARORI ROAD	2153578	1/07/2001 Sun	1001 MO	CS1C	303A	801	R	W	O	F	0	0	0
SUNSHINE AVENUE	20 S	VICTORY AVENUE	2053218	6/06/2000 Tue	900 BB	BN1C	123A 645B		M	D	B	F	0	0	0
THURLEIGH GROVE	130 W	EPSOM WAY	2353656	25/08/2003 Mon	1215 MO	VE1V	371A 386A	M	R	D	B	F	0	0	0
TISDALL ST	70 W	BEAUCHAMP ST	2354165	22/06/2003 Sun	1830 QD	CE1	428A	FP	R	W	DO	L	0	0	0
VICTORY AVENUE	50 S	TOBRUK ST	2155485	11/11/2001 Sun	1920 BC	CN1C	358A		M	D	B	F	0	0	0
VICTORY AVENUE	40 E	HOMEWOOD/HATTON	2054128	1/08/2000 Tue	1530 DB	XW1	111A	P	M	D	O	F	0	0	0
Z DWAY 4 HOMEWOOD	50 E	BERRYMEAD/MAKARA	2254196	30/08/2002 Fri	2205 PO	CN1E	105B 728B	929	R	D	DO	F	0	0	0
Z DWAY BERRYMEAD	50 E	BERRYMEAD/MAKARA	2112008	22/06/2001 Fri	1740 DO	CS1	135A	800 929	E	M	W	FF	0	0	1