# Waikato Regional Council

## Rural Cycling Survey

## Summary Report

May 2014

TDG Ref: 12545 WRC Rural Cycling Survey Summary Report Final.docx

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## Rural Cycling Survey

### Summary Report

### Quality Assurance Statement

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Status: Final report

Date: 8 May 2014

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# 1. Report Purpose

This report summarises research conducted by TDG for Waikato Regional Council (WRC) into peoples' cycling activity on rural roads in the Waikato region. The purpose of the research was to better understand the extent and nature of rural road cycling, and to provide evidence to inform policy and investment decisions related to cycling infrastructure.

The research involved interviews with key stakeholders and a web survey. This report summarises the interview and web survey processes and presents analysis of their findings. The report concludes with recommendations regarding how the unique and comprehensive research findings can be used to inform policy and practice for WRC, and as an example of an investigation into road user behaviour that can be used as a model for other investigations.

# 2. Interviews

## 2.1 Interview Process

Semi-structured interviews with key cycling industry stakeholders took place during March and April 2014. The purposes of the interviews were to gain further insight into the nature of rural cycling activity in the Waikato region, to provide contacts for distribution of the web survey link and to refine questions for the web survey. The interviews were particularly useful to provide the perspective of people experienced in cycling with, and organising cycling for a wide range of cyclists in terms of age, experience and motivation for cycling on rural Waikato roads. Interviewees were selected from a group of interested stakeholders, and were contacted by WRC. Table 1 lists the names and roles of those interviewed.

| Interviewee | Affiliation |
|---|---|
| Bob Puru | Cyclist and owner of Bob's Bikes, Flagstaff, Hamilton |
| Chris Foggin | Cyclist and employee of BikeNZ, Government-funded National Sports Organisation |
| Sean Cosford | Cyclist and school cycling coach, Hillcrest High School |
| Kevin Endres | Event manager, organiser of large cycle race 'The Rev', ULeisure, University of Waikato |
| Liz Goer | Cyclist and school cycling coach, Waikato Diocesan School for Girls |
| Claire Sherrington and Ashley Hooper | Cyclists and advocates of 'utility cycling'; members of Cycle Action Waikato (CAW) |
| Sarah Ulmer | World champion cyclist / Representative on NZ Expert Panel on Cycling Safety |

***Table 1: Interviewees***

The interviews were based on the following questions:

(i) What is your background in rural road cycling personally?

(ii) What experience do you have in working with others who cycle on rural roads (group rides, school, elite, races/events, clubs etc)?

(iii) For cycling involving other people, please describe:

a. The range of experience, age and ability of cyclists involved

b. Any policies that groups/organisations have: formal and informal; any procedures to do with safety, on-road behaviour, visibility and clothing, traffic, procedures for cycle breakdowns/punctures or crashes;

c. Timing of regular rides or organised events/races in the Waikato

d. Number of people involved

e. Route choice: whether this is formal or informal, planned in advance or ad-hoc, what factors are considered and their relative importance; whether the same routes are used frequently or whether there is significant variation; whether or not record is kept of routes used; any differences in summer/winter, daytime/evening; weekday/weekend

f. Use of technology: whether there are websites for the group/organisation; if cyclists within the group use mapping technology such as MapMyRide or similar

g. Particular issues/ proposed solutions

h. Any future plans or proposed events

## 2.2 Interview Findings

Without exception, those interviewed were considered and balanced in their assessment of the risks and rewards presented by the opportunity to cycle on rural roads in the Waikato. While the policies and practices in use varied from relatively informal to rigorous, all interviewees were well aware of the reality of risks faced and all showed genuine concern for the safety of all cyclists who they work for and ride with.

The range of cyclist ages and levels of experience reported were similar to the diversity found through the web survey associated with this research. The route choices used for group rides and events reflected a balance between utility (in terms of length for particular needs such as training rides or recreational routes) and safety, with particular mention of road links or times of day that are avoided due to the risk associated with high traffic volume and minimal usable road shoulder.

### 2.2.1 Road Use

Several interviewees referred to the attitudes of drivers and of some cyclists. Education efforts such as the 'See the person, share the road' campaign were praised. It was generally felt that cycling in New Zealand is not yet considered a mainstream activity. Though cycling is increasing in popularity it remains far from normalised when compared to other countries such as the Netherlands and Denmark.

Education efforts such as awareness projects with bus and truck drivers, including the Fonterra program for drivers about awareness of cyclists on rural roads, are considered particularly valuable. They improve safety by raising awareness among car and truck drivers of cycling risk on rural roads.

Several interviewees suggested that more experienced cyclists, including elite athletes, are in some cases less aware of the real risks associated with cycling on rural roads, perhaps because of their experience of survival over thousands of kilometres of training. However, these cyclists are also more likely to intuitively react to 'near miss' situations more safely, for example by manoeuvring away from the lane and even off the road, in preference to remaining in live traffic in a situation of potential conflict.

Cyclists interviewed acknowledged differences in risk associated with interaction with high speed traffic, and interaction with other cyclists (that is, in large bunch rides or events). All of those with responsibility for large groups expressed a commitment towards training novice rural road cyclists because of the inherent risks faced by bunch riding. There was some concern that large organised events may be attracting cyclists ignorant of these risks. Organisers of large events are aware of these risks and use explicit interventions to mitigate against negative outcomes, such as guidance on the event websites, verbal instructions prior to events starting, and grouping of cyclists by speed and ability where possible.

All interviewees agreed that increasing promotion of all forms of cycling to make it a mainstream activity is the best way to improve cyclist safety over time. For this reason, infrastructure such as the off-road cycle paths, and urban cycling improvements, are helpful because they contribute to healthy driver expectation of encountering cyclists in the Waikato region, generally.

### 2.2.2 Roads and Roadsides

It was suggested that application of infrastructure for cycling is inconsistent; there will be a good cycle lane, and then no provision at an intersection, where the risk is potentially highest. Maintenance of shoulders is important, and cycle lanes and cyclist signage (particular cyclist-activated warning signs) ought to be promoted.

### 2.2.3 Legislation

While some interviewees considered law changes are necessary to affect change (for example, laws to do with separation when overtaking cyclists), others suggested that regulations are not the answer, and that the police do not have resources to enforce driver behaviour. There was difference therefore in the views of what a theoretical legislative paradigm might look like, and whether or not this would actually change safety for everyday cyclists on rural roads.

# 3. Web Survey

A web survey was developed to provide detailed information about individual cyclists' activity on rural Waikato roads. In particular, the survey explored what cyclists value, what trade-offs they make in balancing rural cycling risks and rewards, what choices they make with regard to routes, who they ride with, and the times of the day, week and year that they choose to cycle on rural Waikato roads.

The survey was drafted and refined in an iterative process with a sample of 20 participants who were themselves cyclists on rural Waikato roads. The published survey was live for three weeks, from Thursday 21st March until Friday 11th April 2014. A minimum of 100 responses was targeted so that findings might provide general insight into the types of people who cycle on rural roads, where they cycle and why.

At its close, 675 people had completed the survey in whole or in part. This large sample size means that far more in-depth analyses can be conducted. Examples of the potential for this data are that road preferences can be analysed according to the type of bike cyclists use, their age, gender, or years of experience; whether or not they use rural roads for commuting; or according to their home location within the Waikato region. The large sample size allows for statistically meaningful analysis within these categories, meaning that findings can reasonably be assumed to be representative of the preferences and behaviour of all Waikato cyclists who use rural roads. Specific findings are summarised below.

## 3.1 Demographics and Behaviour

### 3.1.1 Demographics of Waikato Rural Road Cyclists

Though there was a wide variety of age and experience demonstrated in the survey results, the modal (most common) survey respondent was male, aged approximately 40, and has been cycling on rural roads for 6-10 years. One third of respondents live in a rural area, with 23% living in a town (up to 20,000 residents) and 43% living in a city (mostly Hamilton).

Over half of respondents (58%) are not a member of any organised cycling group. 31% are members of a cycling club, and 20% regularly attend an organised group ride. A small proportion of respondents (2%) belong to a school cycling club.

Most respondents (75%) usually use a road bike for their rural cycling. 16% use a mountain bike and 9% either use a hybrid bike or are not sure what type of bike they use.

### 3.1.2 Length and Duration of Cycling Activity per Week

The average distance cycled per week is 123km, across an average time of over three hours per week. 19% of respondents cycle for up to one hour per week, and 35% cycle for more than four hours per week. Those who use a road bike cycle longer and farther, with 44% of road bike users cycling for over 4 hours per week, compared to 8% of mountain bike users.

More experienced cyclists also cycle farther. 48% of cyclists with greater than three years of experience cycle for over 100km per week, compared with only 19% of cyclists with fewer than three years of experience.

### 3.1.3 Size of Cycling Groups

There was a wide range of group sizes reported, with most respondents reporting a variety of behaviour in terms of the number of people they cycle with. While the data shows that there are often groups of varying sizes on Waikato rural roads, most cyclists (97%) also ride on their own at least some of the time (that is, only 3% of respondents said that they 'never' ride on their own). Group sizes are summarised in **Figure 1**.

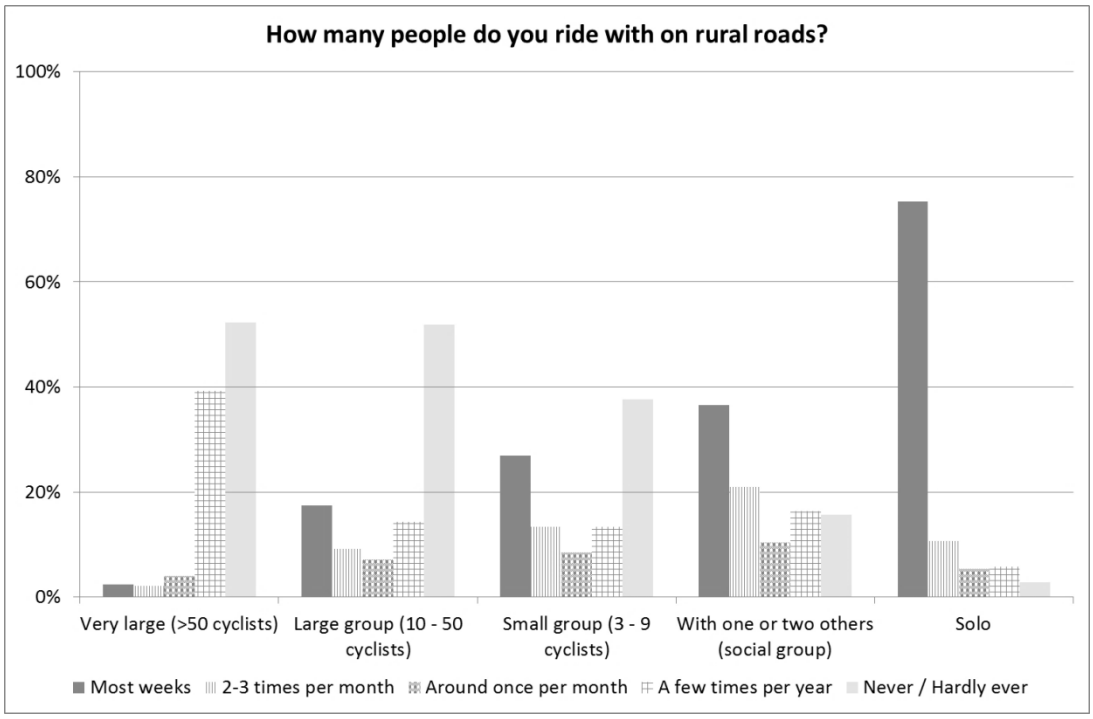


***Figure 1: Size of Cycling Groups on Rural Roads***

### 3.1.4 Cycling During Different Times of the Week and Year

In both Winter and Summer months, the most common times of the week for cycling were weekday evenings (58% of respondents selected 'most weeks') and weekend mornings (55% of respondents selected 'most weeks'). Weekdays and weekend afternoons were also popular, and 13% of respondents stated that they cycle on rural roads at night (between 9pm and 6am) at least some of the time during both Summer and Winter.

### 3.1.5 Reasons for Cycling

The most common reasons for cycling on rural roads were 'General fitness/exercise' (91% of respondents selected 'major factor') and 'Recreation/enjoyment (75% 'major factor'). Cycling on rural roads as an alternative mode to car use was identified by 'Commuting to work' and 'Traveling to shops or other attractions', which were a 'major factor' for 22% and 8% of respondents respectively. Reasons for cycling are summarised in **Figure 2**.

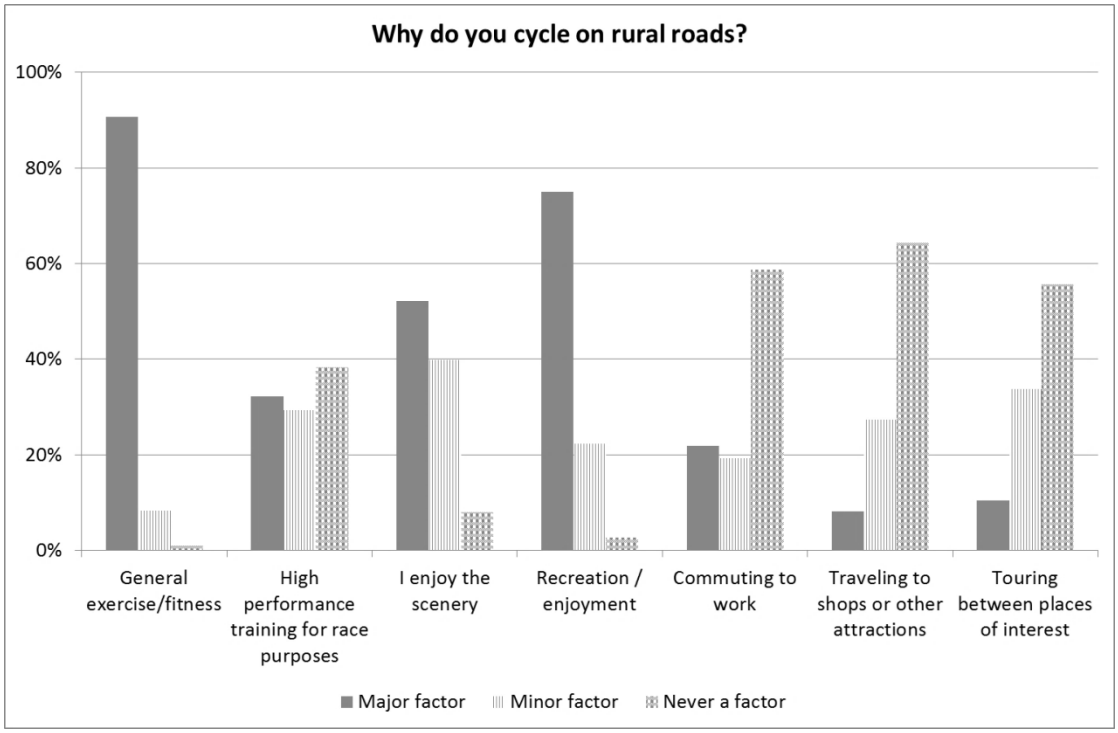


***Figure 2: Reasons for Cycling on Rural Roads***

## 3.2 Favourite and Least Favourite Roads

Cyclists were asked to name a road they enjoy riding on (their 'favourite road') and a road that they ride on but do not enjoy (their 'least favourite road'). The purpose of these questions was to build a list of rural roads that cyclists use, and to determine which road and traffic features might correspond with these preferences. Responses to questions about these roads were analysed to determine what features characterise favourite and least favourite roads.

### 3.2.1 Reasons for Riding on Least Favourite Roads

The main reasons given for riding on a road that they do not enjoy were 'Linkage: I need to use this road to access the rest of my chosen rural route' (70% of respondents) and 'Convenience: this is the most direct route' (24%). 13% of respondents stated that they do not ride on any roads that they do not enjoy. Specific reasons given for cycling on least favourite roads included:

- *"This is the only road available for me to get from home to Thames"*
- *"It is a nice link in a circuit with other roads"*
- *"I just use it to get from one quiet side road to another."*
- *"Because I don't want to use the car to get to my ride."*
- *"I use this road to get to work or to gain access to more pleasant roads"*

### 3.2.2 Distinguishing Characteristics

The clearest differences between favourite and least favourite roads were in the combined effect of traffic volume and shoulder width. As shown below, favourite roads were more likely to carry less traffic (72% 'light' or 'empty') **(Figure 3)** and to have no marked shoulder **(Figure 4)** during cyclists' preferred riding time. This finding suggests that cyclists enjoy quiet country roads, which typically have less delineation (for example, a marked edgeline) due to their low traffic volume.

Least favourite roads typically combined a high traffic volume (85% 'heavy' or 'moderate' traffic volume) with limited shoulder width (75% 'narrow', 'zero' or 'variable' shoulder width). This finding, combined with analysis of why cyclists ride on roads that they do not enjoy, suggests that cyclists tend to choose quiet country roads with varying terrain, and they cycle to these roads from where they live (that is, they do not drive to their cycling route). In order to access their preferred roads, cyclists use roads that have higher traffic volume, and they do not enjoy being exposed to risk on these roads due to limited sealed shoulder width.

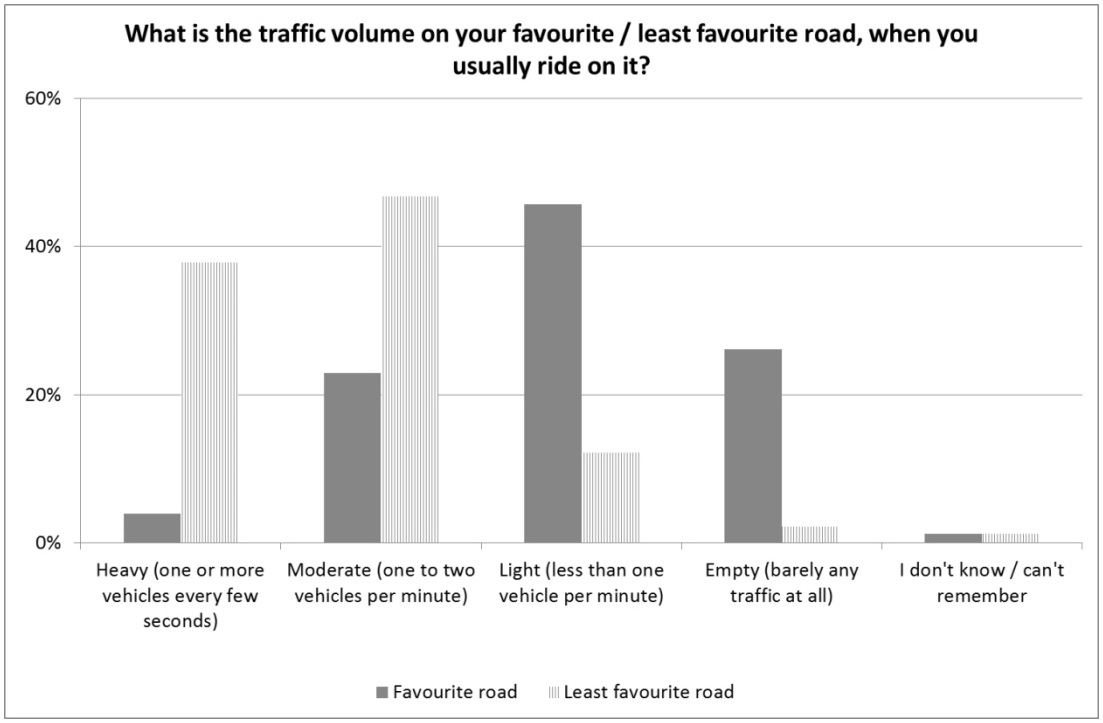


***Figure 3: Traffic Volume Comparison for Favourite and Least Favourite Roads***

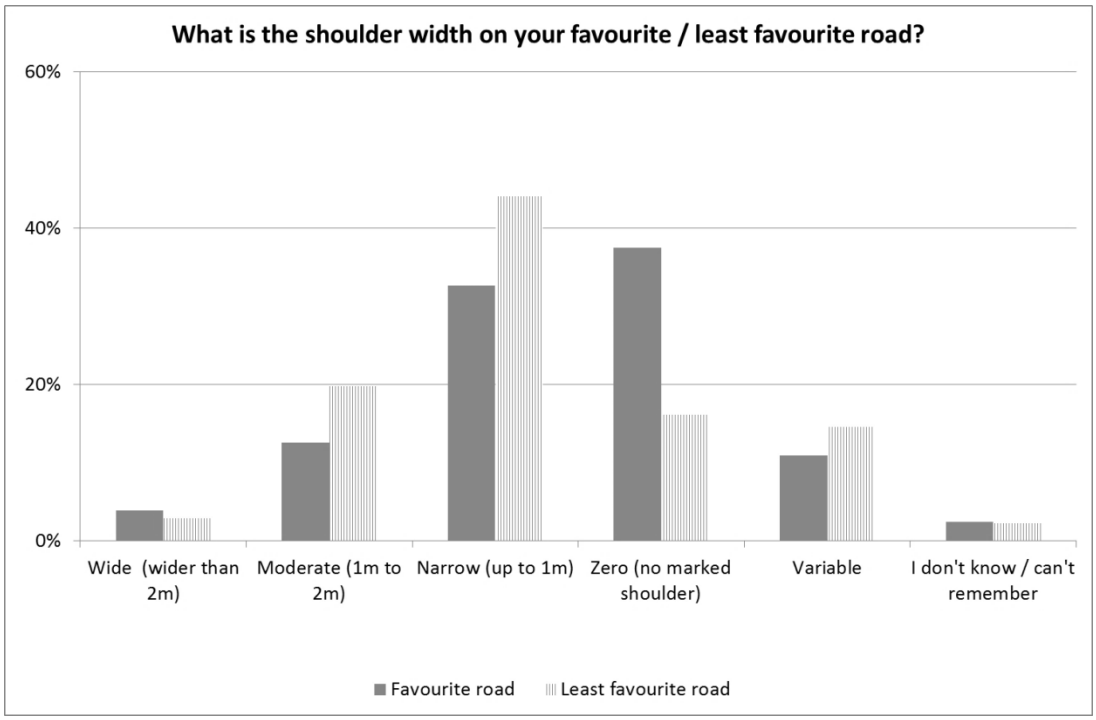


***Figure 4: Shoulder Width Comparison for Favourite and Least Favourite Roads***

### 3.2.3 Geographic and Surface Characteristics

Favourite roads were more likely to be hilly than flat, and were more likely to have frequent corners. This may be linked to the general tendency for more favoured roads to be quiet and narrow, and to cyclists' consideration of scenery and exercise/recreation as major factors in why they ride on rural roads. Generally when cycling on rural Waikato roads for recreation and fitness, cyclists prefer rolling, quiet, country roads to more direct, busy rural arterials.

Across the board, cyclists reported rough or variable road surface texture. The most commonly reported road surfaces were 'Generally rough' or 'Varies between rough and smooth', which were selected for 77% of favourite roads and 73% of least favourite roads. For both favourite and least favourite roads, 18% of respondents stated that the texture was 'Generally smooth'.

### 3.2.4 Use of Technology

Half of respondents (49%) stated that they use some form of mapping technology to track their rides. Respondents could select several options from a list of potential uses of this technology. The main reasons were 'To have a record of the distance cycled' (94%), 'To have a record of average speed' (72%), 'To have a record of the hilliness of my ride' (51%) and 'To keep track of where I am going while I am cycling' (44%). Those aged over 55 and under 25 were less likely to use technology (34% and 39% respectively used technology) whereas those aged 35-44 were most likely to use it (61%).

## 3.3 Comments about Cycling on Rural Roads

The last question invited respondents to enter any other comments about cycling on Waikato rural roads. The following themes emerged from the 283 open-field comments:

- Generally, respondents provided balanced assessment of the risks and rewards of cycling on Waikato rural roads, e.g.:
  - "*Live in Matamata, love cycling, sometimes endure horrible road to get to where I want to enjoy roads that are scenic and variation of hills and flats.*"
  - *"Generally looking wherever possible for low trafficked roads with smooth surface and varying elevation."*
  - *"Generally I am very happy and feel safe riding on the rural back roads. The traffic is light and courteous to cyclists."*
  - *"It's a tough call between riding quieter rural roads that are narrower vs wider rural roads that are much busier. Generally the quieter roads feel safer."*
  - *"I use main roads at times to get to country quiet roads, and being a lone cyclist on a main 100km road is no fun, and very dangerous. Perhaps some cycle lanes on some main roads on high volume cycle use areas could be looked into."*
- Road surface was the most commonly identified negative issue, with over 100 comments related to 'surface', 'chip', 'tarseal', 'rough', or 'debris', e.g.:
  - "*A lot of roads in recent years have been paved with rougher chip making riding less pleasant due to vibrations*"
  - "*It is a pity that the surfaces are generally so rough. The terrain and scenery is fantastic.*"
  - "*A lot of Waikato roads are roughly surfaced with potholes. If the inside shoulders were smoothly surfaced I would not hesitate to ride there.*"
- Appreciation for the opportunity to contribute to the survey, including 20 specific comments, e.g.:
  - "*I thank you for providing this opportunity to cyclists, it is greatly appreciated*"
  - "*Thank you for developing this questionnaire, I know cyclists will be pleased to contribute to this issue.*"
  - "*Glad to have the opportunity to express my experience as a cyclist, and pleased that cyclists are becoming more and more important in road safety allocations* "

- Specific comments about enjoyment of cycling on Waikato roads, e.g.:
  - "*I love cycling around the hill country of the Cambridge region, Maungakawa, Te Miro, Maungatautari and Rotorangi.*"
  - "*I enjoy the cycle way on the new express highway from Horotui to Avalon Road and wish there were more like this.*"
  - "*We have great cycling terrain around Hamilton city*"
  - *"We are lucky to have the most beautiful scenery in the Waikato, flat riding or hills whatever we want."*
  - *"Te Uku through Waingaro to Ngaruawahia is a great road but you have to ride the Whatawhata rd towards Raglan to get there and some places are a bit narrow, not too bad if you ride on your own but not a good road for a group."*
- Fonterra drivers considered very polite and courteous, with eight specific mentions of Fonterra, e.g.:
  - "*If only everyone was as courteous as the Fonterra tanker drivers, cyclists would be a lot safer.*"
  - *"The Fonterra Tanker Drivers are the most polite and careful drivers"*
  - *"Worth noting that Fonterra truck drivers are extremely considerate"*

# 4. Conclusion and recommendations

The purpose of the research was to better understand the extent and nature of rural road cycling, and to provide evidence to inform policy and investment decisions related to cycling infrastructure. The findings from the interviews and web survey have provided a very clear and detailed picture about the diverse nature of rural cycling activity. In particular, the research has provided evidence about which rural Waikato roads cyclists choose to ride on and why, what features they value, what they avoid or tolerate and what they seek out. This information is valuable for those who develop policy, make investment decisions and prioritise maintenance activities on Waikato roads.

The combined approach of interviews with key stakeholders, and a web survey developed with an iterative pilot stage, has proved to be a successful way to investigate road user behaviour. This is particularly relevant for a complex and diverse activity such as cycling, where there is limited data about road user preferences.

To make the most of the information that has been collected it is important that the findings be considered at regional level, so that policy direction and any infrastructure decisions can be consistent across the region. In particular, decisions regarding interventions on particular cycling links and routes ought to be inter-district because cycling routes on rural roads have been shown to cross territorial boundaries. Within a regional policy framework and as informed by agreement among authorities within the Waikato Region, it is recommended that:

- information about cyclist preferences and route choices be analysed in conjunction with cycle crash data to determine any correlation between stated preferences and revealed cycling crash risk;
- survey data about the nature of cyclists' favourite and least favourite roads be explored with regard to differences based on factors such as cyclist age, years of experience and reason for cycling on rural roads, to determine the specific characteristics that define these roads in the Waikato region for different types of rural road cyclist;
- in parallel with analysis of preferred route characteristics, it is recommended that analysis of the actual features of these links be determined, by measuring usable shoulder width and analysing traffic volume during the times that cyclists typically ride on rural roads, so that particular segments of rural roads that warrant investment can be prioritised based on a balance of cyclist demand and objective risk;
- particular links and routes highlighted as 'favourite' and 'least favourite' roads be plotted so the Waikato rural cycling network can be better understood, and provision of safe and attractive cycling routes can be prioritised from a regional perspective, particularly where 'least favourite' roads represent high speed, narrow road links that cyclists use to access quieter, more preferred roads;
- information about safe road use, for example the finding that Fonterra tanker drivers are generally considerate and model safe road use, be extended into education initiatives with Waikato industries;
- potential applications for cyclists' existing use of technology be explored, so that for example route data might automatically contribute to understanding of cyclist route choices;

- findings be incorporated into policy and strategies for cycling at regional and local levels that align with cyclists' revealed behaviours, preferences and expectations; and that
- this report and its recommendations be shared among the Waikato region so that local issues and opportunities can be explored in more depth in a holistic, region-wide approach to improving the attractiveness and safety of cycling on rural roads.

In order to progress these recommendations it is important that funding for specific initiatives be sought. Opportunities to promote the findings of this research to a wider, national audience ought to be considered so that findings can benefit nationwide efforts to promote safe cycling on rural roads.

TDG