

# BARRIERS TO ACTIVE TRANSPORT IN PALMERSTON NORTH:

## EXPERIENCES AND PERSPECTIVES OF SECONDARY SCHOOL STUDENTS

CHRISTINE CHEYNE  
MUHAMMAD IMRAN  
WAHEED AHMED  
CHANTELLE POTROZ  
2017

living\_lab



**CITATION**

Cheyne, C., Imran, M., Ahmed, W. and Potroz, C. (2017). Barriers to active transport in Palmerston North: Experiences and perspectives of secondary school students. Massey University Living Labs, Palmerston North.

ISBN xxxxxx

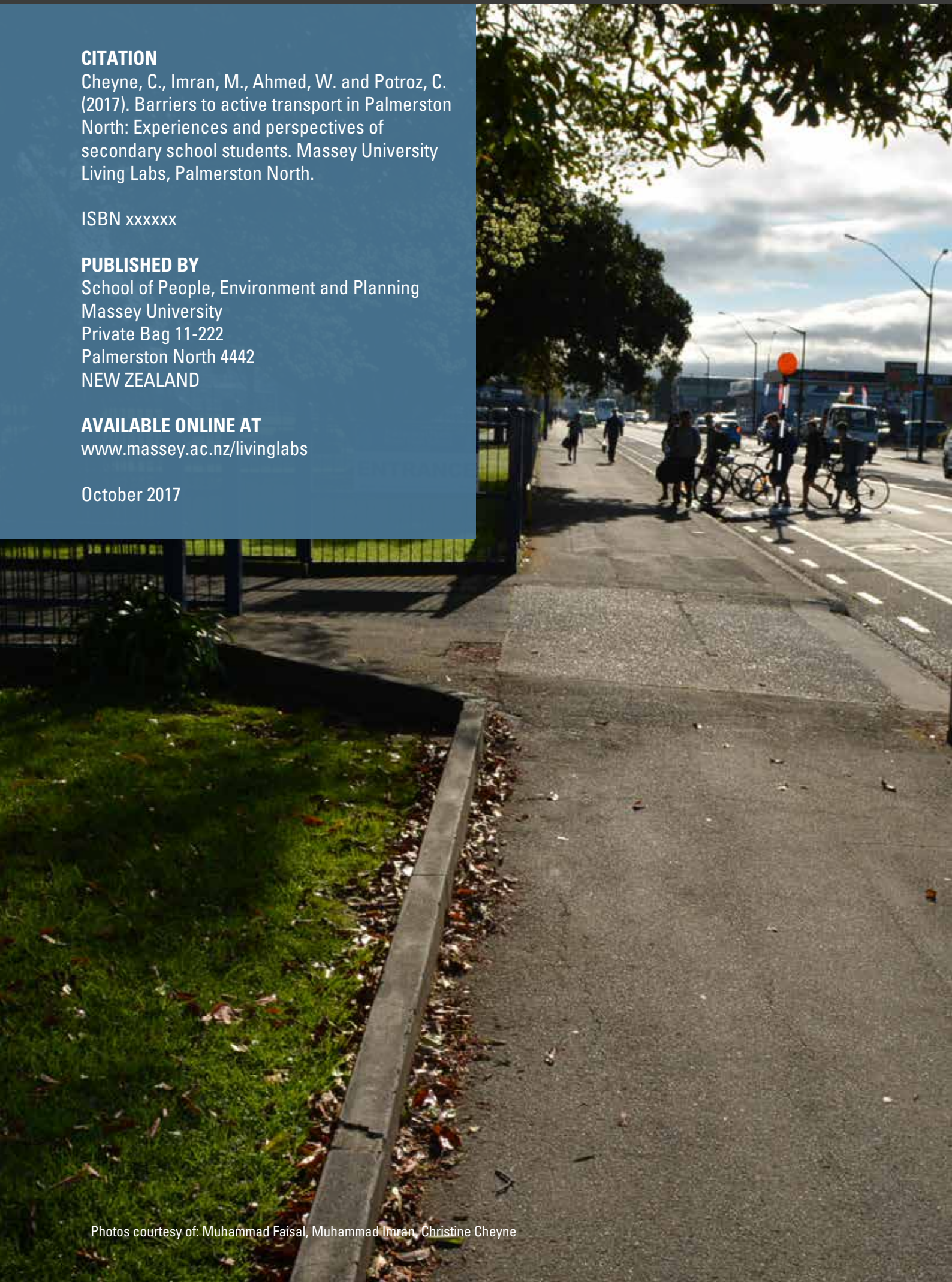
**PUBLISHED BY**

School of People, Environment and Planning  
Massey University  
Private Bag 11-222  
Palmerston North 4442  
NEW ZEALAND

**AVAILABLE ONLINE AT**

[www.massey.ac.nz/livinglabs](http://www.massey.ac.nz/livinglabs)

October 2017



# TABLE OF CONTENTS

Acknowledgments .....	iv
Abbreviations.....	iv
List of Figures and Tables.....	iv
Executive Summary .....	v
<b>1. BACKGROUND AND CONTEXT .....</b>	<b>1</b>
<b>2. CASE STUDIES OF BEST PRACTICE.....</b>	<b>3</b>
2.1 Case study schools.....	3
2.2 Success factors .....	6
2.2.1 Collaboration with district/city councils .....	6
2.2.2 Cycle skills development in schools .....	6
2.2.3 Restrictions on car parking around schools .....	6
2.2.4 Reduced speed limit around schools .....	6
2.2.5 Network of off-road & shared-path cycle ways.....	6
2.2.6 School Travel Plans.....	6
2.2.7 Cycling facilities within the school .....	6
<b>3. RESEARCH DESIGN AND METHODS.....</b>	<b>7</b>
3.1 Focus group method.....	7
3.2 Recruiting Participants.....	8
3.3 Ethical Considerations .....	8
3.4 Focus Group Setting.....	8
<b>4. PALMERSTON NORTH GIRLS' HIGH SCHOOL CASE STUDY .....</b>	<b>10</b>
4.1 Introduction .....	10
4.2 Research Findings.....	10
4.2.1 Safety Concerns.....	10
4.2.2 Convenience .....	11
4.2.3 Practicality .....	11
4.2.4 School Transport Norms.....	11
4.2.5 Cars as priority road users .....	12
4.3 Concluding comment .....	12
<b>5.0 FREYBERG HIGH SCHOOL CASE STUDY .....</b>	<b>13</b>
5.1 Introduction .....	13
5.2 Research Findings.....	13
5.2.2 Safety .....	14
5.2.3 Convenience and Car Use .....	14
5.2.4 Age and Gender .....	14
5.2.5 Access to Bikes.....	14

6.0	PALMERSTON NORTH BOYS' HIGH SCHOOL CASE STUDY.....	15
6.1	Introduction .....	15
6.2	Research Findings .....	16
6.2.2	Distance.....	16
6.2.3	Cycling safety .....	16
6.2.4	Cycling attitudes of students.....	17
6.2.5	Driving and Cycling Conflicts .....	17
6.2.6	Need for Supportive Cycling Infrastructure .....	18
7.0	DISCUSSION .....	19
7.1	Safety.....	19
7.1.1	Car culture.....	20
7.1.2	Driver and Cyclist Conflict.....	20
7.2.	Infrastructure .....	21
7.2.1	Cycle Lanes and Roundabouts .....	21
7.2.2	Road conditions.....	21
7.3	Convenience.....	21
7.3.1	Distance.....	22
7.3.2	Practicality .....	22
7.3.3	Bike accessibility .....	22
7.4	Transport norms.....	22
7.4.1	Student Transport Norms .....	22
7.4.2	School transport norms .....	22
7.4.3	Gender .....	23
7.4.4	Social influence.....	23
8.0	CONCLUSION.....	25
8.1	Recommendations.....	25
	REFERENCES.....	27
	APPENDIX.....	29
	Appendix A: Guiding Questions .....	29
	Appendix B: Information Sheet .....	30
	Appendix C: Consent Form .....	31
	Appendix D: PNGHS Transport Policy.....	32
	Appendix E: 2016 Research on Active Transport .....	32

## ACKNOWLEDGEMENTS

We wish to acknowledge the focus group participants, who were instrumental to this research, as well as their teachers, Hugh Drake of Palmerston North Boys' High School, Inge Kampman of Palmerston North Girls' High School, and Kieran Collier of Freyberg High School, for their essential support. We would also like to thank the students of 132.314 Transport and Urban Planning (Brandon Baillie, Eamon Guthrie, Julia Familton, Kendyll Harper, Kirk Lightbody, Long Feng, Mathew Kilpatrick, Michael Crilley, Nomesia Santos, Ryan Patterson, Samantha Dowse), for their significant contribution.

## ABBREVIATIONS

ATS	Active transport to school
PNCC	Palmerston North City Council
NZTA	New Zealand Transport Agency
PNGHS	Palmerston North Girls' High School
PNBHS	Palmerston North Boys' High School

## LIST OF FIGURES AND TABLES

Figure 1	Map showing Palmerston North Girls High School and enrolment zone.....	11
Figure 2	Zoned area map for Freyberg High School .....	23
Figure 3	Freyberg High School students cycling .....	???
Figure 4	Map showing the PNBHS residential zones .....	15
Figure 5	Palmerston North Boys High School Bike Shed with lockable gate.....	16
Figure 6	Example of where cycle lanes stop and force cyclists to merge with traffic on Pioneer Highway ....	16
Figure 7	Example of the glass found on roads around the city centre.....	16
Figure 8	Map showing in red what participants considered to be the most dangerous and congested areas before and after school .....	17
Figure 9	The 2013 traffic bylaws that slow traffic speeds around Palmerston North Schools and how they impact on PNBHS.....	18
Figure 10	The threat of cars and trucks to cyclists .....	19
Figure 11	The close proximity of cycle lanes, car lanes, and parked vehicles .....	20
Figure 12	Illustration of a segregated cycle lane .....	21

## EXECUTIVE SUMMARY

1. Active transport (walking and cycling) rates among school-age children are of particular concern in New Zealand. According to NZTA statistics, the number of students cycling to school in New Zealand has decreased by approximately 75% since 1990. Palmerston North is particularly conducive to cycling with flat topography. However, 5.9% of Palmerston North residents aged 15 and over walked or cycled to work/study in 2013. This report is part of the larger Barriers to Active Transport in Palmerston North research project which particularly focuses on barriers to cycling by senior high school students in Palmerston North. The research presents the findings of focus groups with senior high school students from Palmerston North Girls' High School (PNGHS), Palmerston North Boys' High School (PNBHS), and Freyberg High School.
2. This report identifies the Rototuna Junior High School, Hamilton; Vogeltown School, New Plymouth; Broadgreen Intermediate School, Nelson; and Cambridge High School, Waipa as the best practice examples of cycling to schools in New Zealand. The best practice schools show that strategic collaboration, especially with city/district councils to develop cycle skills and address safety (reduce speed, restrictions on car parking), comprehensive promotion of active transport (including cycle skills development, cycling facilities within school, school travel plan), and implementation of key infrastructure (off-road and shared-path cycle ways) are key success factors to promote cycling among high school students.
3. First case study, Palmerston North Girls' High School (PNGHS) Handbook for Parents and Students 2016 encourages students to use the bus, walk, or cycling over driving. The school recognises that the school winter uniform (a kilt) is not practical for cycling and permitted to wear track pants in place of their uniform winter kilt in Terms 2 and 3 while cycling to school. However, the focus group discussion highlighted safety, convenience, practicality, the school transport norms and priority on the roads as barriers to cycling to school. The students have a strong perception that cars have priority on the roads, which make cyclists vulnerable. Biking to school was considered to be an inconvenience and impractical due to wearing a school uniform, needing to carry textbooks and heavy school-related items. There is a strong walking culture in the PNGHS and student considered as a norm due to socialising factor involved in walking in a group.
4. The second case study, Freyberg High School (FHS) provides ample car and bike parking facilities for students. The school does not have a transport policy document, but the school's website states that students are expected to wear a helmet if they ride a bike. The focus group discussion identifies safety, convenience, age and gender and accessibility of bikes as main barriers to cycling to school. The students considered Palmerston North "pretty dangerous" for cycling due to road layout, narrow cycle lanes, and incomplete cycle network. It was noted that a greater number of boys tended to bike than girls due to the impact of cycling on personal image. Finally, access to good quality bikes and green lights for cyclists were considered incentives to bike to school.
5. Final case study, Palmerston North Boys' High School (PNBHS) website stipulates rules around cycling to school and provides up-to-date cycling facilities, including 300 secure bike racks, security cameras, and showers. The PNBHS focus group contained the highest number of regular or daily cyclists across all three focus groups. The focus group discussion highlighted, distance to travel, safety, peer attitudes to cycling, cycle-vehicle conflict and the need for improved cycling infrastructure, as main factors influencing willingness to bike to school. Students expressed frustration with broken glass and loose gravel on roads which made cycling unsafe, expensive and time-consuming. In PNBH, there was no stigma associated with cycling to school, and there is a high level of peer and school support for biking to school. The students also acknowledge travel time saving, flexibility and cheaper option of travel for biking to school. There are some concerns over travel distance, the perception of safety and driver attitudes towards cyclists but some practical steps could improve the situation including promoting group cycling and "watch out for cyclists" signs.
6. The research finds that all three schools students perceive safety as the main concern for cycling. Cycle lanes, roundabouts and intersections and general street design were not considered to be sufficiently safe for cycling. Convenience, comfort, distance to travel, and time-saving use were key considerations about transport modes among senior high school students. The research shows that the social and school transport norms associated with cycling and cars are different in all three schools. Cycling to school considered neutral by the co-educational FHS, uncommon at PNGH, and a cultural norm at PNBH. PNBHS had the highest number of students regularly cycling to school where the standard uniform shorts pose no impediment to cycling. The other two schools required female students to wear a uniform skirt, pinafore or kilt, which other research has found to be less conducive to cycling. The research recommended: PNCC should engage with secondary schools when planning infrastructural developments such as cycle lanes traffic lights, road marking, AND speed signs. PNCC should assist schools in developing school transport policy, School Travel Plan, promotional activities and design of cycling facilities in their premises.

# PNP

## 1.0 BACKGROUND AND CONTEXT

Many New Zealand cities are currently seeking to improve rates of walking and cycling and other forms of active transport. According to the New Zealand Transport Agency (NZTA), in 2016 cycling was the fastest growing mode of transport in several cities and towns across New Zealand. Making urban cycling a safer and more attractive transport choice is one of the Transport Agency's six strategic priorities. To that end, it is working with local government to promote the development of safer networks in New Zealand's main urban centres, improving attitudes towards cycling, and building mutual respect between cyclists and other road users (New Zealand Transport Agency, 2016).

Palmerston North is particularly conducive to active transport with flat topography that is conducive to walking and cycling. However, *despite a rise in recreational cycling in Palmerston North, few use and perceive cycling as a viable mode of transport within the city*, as revealed in the previous *Barriers to Active Transport* report (Cheyne, Imran, Scott & Tien, 2015). *In 2013, 5.9% of Palmerston North residents aged 15 and over the walked or cycled to work/study. Although higher than the national average of 2.9%, the national figure is skewed by large population centres that are not considered to be cycle friendly, such as Auckland, which has an active transport rate of 1.2%* (Statistics New Zealand, 2013). A more appropriate comparator would be Christchurch which had a cycling rate of 7% in 2013. In the past, rates of cycling in Palmerston North have been much higher and therefore increasing the rate of cycling as a mode of transport in Palmerston North is an achievable goal.

Active transport rates among school-age children are of particular concern, following trends of global decline, particularly over the past decade (Mandic et al., 2016). The number of students cycling to school in New Zealand has decreased by approximately 75% since 1990 (New Zealand Transport Agency, 2014). Central and local government are now responding with a variety of educational and funding initiatives to promote cycling as a form of transport (New Zealand Transport Agency, 2014), recognising schools as an important part of city transport networks. This report aims to identify barriers to cycling by senior high school students in Palmerston North in order to produce a set of recommendations to inform policy direction around the promotion of cycling, including infrastructural development and educational initiatives.

This research is part of a wider project on active transport in Palmerston North undertaken as part of the Massey University-Palmerston North City Council Living Lab. Quantitative data collection from a preliminary study, in which Massey University staff and students were surveyed about a range of active transport methods, revealed general patterns and trends from which the focus of the present study was derived. The current research project used focus groups with senior high school students in Palmerston North to gather qualitative data surrounding attitudes and experiences of cycling as a mode of transport.

The first phase of this project reviewed best practice examples of schools which experience higher rates of students cycling for transport. The second phase of research used a focus group method for a deeper exploration the incentives and barriers to cycling as a mode of transport, as experienced by senior high school students from three Palmerston North high schools. The focus groups were held during the second week of April 2016 and conducted by the Bachelor of Resource and Environmental Planning (BRP) students enrolled in 132.314 Transport and Urban Planning course, supported by their lecturer and a research assistant. Students worked in three groups to facilitate focus group discussions at Palmerston North Girls' High School (PNGHS), Palmerston North Boys' High School (PNBHS), and Freyberg High School, focusing on key topics such as safety, infrastructure, practicality and convenience, driver and cyclist attitudes, school transport norms and other social factors. Students analysed the data and presenting the findings in group reports, which were then compared, allowing common themes and divergent attitudinal or contextual factors to be identified and discussed. Following this introduction, Chapter 2 reviews some examples of best practice, namely, schools with a high proportion of students who cycle as a means of transport to and from school. Although best practice cases include primary, intermediate, and junior high schools, their lessons may translate across to secondary schools as well. Chapter 3 details the focus group method used in this research. Chapters 4, 5, and 6 present findings of case studies for each school that participated in the focus groups. Chapter 7 discusses the focus group data in its entirety, and the final chapter contains conclusions and recommendations.





# TAO

## 2. CASE STUDIES OF BEST PRACTICE

Travel to school by private vehicle is associated with significantly increased road congestion in New Zealand. As well, lack of physical activity has been identified as a key factor in a number of health conditions (see, for example, Bauman et al., 2009; Brown, Diomed, Moodie, Veerman, & Carter, 2016; Ewing, Meakins, Hamidi, & Nelson, 2014; Sjöström, Oja, Hagströmer, Smith, & Bauman, 2006). At the same time, cycle skills development for New Zealand school children means that active transport to school (ATS) is a viable option for many children especially those of secondary school age. New Zealand schools where children cycled to/from school at rates in excess of the national average or which otherwise modelled best practice cycling scenarios were selected for inclusion as models of best practice. As there is a shortage of research about the transport choices of high school students, with the focus on primary school students (Frater, 2015), information relating to primary and intermediate schools has been included where it may translate to high schools. Furthermore, it is notable that the primary school used here as an example of best practice is part of a wider initiative promoted by local and regional council in partnership with all schools in the region.

### 2.1 CASE STUDY SCHOOLS

#### ROTOTUNA JUNIOR HIGH SCHOOL

Rototuna Junior High School is a Year 7 - 10 school which opened in 2016 with a founding roll of nearly 600 students. It is situated on the north-eastern edge of Hamilton. The area has been growing rapidly. Hamilton City Council and the land developers have constructed wide walking and cycling paths, along two routes - North City Rd/Bournebrook Road and the new pathway from Chesham St/Chadwick PI across the council owned fields. Sixty per cent of students bikes to school on a daily basis<sup>12</sup>, while another 20 per cent walks to school<sup>3</sup>. Being a greenfields development, new active transport infrastructure was able to be incorporated from the beginning.

The Rototuna Junior High School won the 2016 'Get On Year Bike Award' as a part of the Bike for the Future Awards organised by NZTA. This award covers education and encouragement that has a significant

1 [http://www.nzherald.co.nz/hamilton-news/news/article.cfm?c\\_id=1503366&objectid=11614495](http://www.nzherald.co.nz/hamilton-news/news/article.cfm?c_id=1503366&objectid=11614495)

2 <http://www.stuff.co.nz/national/education/82006849/hamiltons-latest-education-announcement-makes-four-new-schools-in-four-years>

3 <https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/2016-Bike-to-the-Future-Awards-booklet.pdf>



impact on students to bike. Th Rototuna Junior High School is a brand new school, located on a cul-de sac of new greenfield development. This is a fantastic example where the School, Hamilton City Council and the developer work together to develop safe cycle paths, offer cycling safety programmes and acknowledge cycling ambassadors of the school.

#### VOGELTOWN SCHOOL, NEW PLYMOUTH

New Plymouth was selected by NZTA as one of two model communities, receiving targeted funding to initiate and demonstrate effective walking and cycling programmes. The “Let’s Go” programme was developed by the New Plymouth District Council to promote active transport. From the beginning, there was a focus on schools as part of developing the next generation of people riding bikes. The “Let’s Go” travel planner works with interested schools to develop a travel plan. Schools receive a starter pack, and they also are assisted by council staff, such as engineers in cases where there are known safety issues and new or improved infrastructure is needed. As well there is geospatial mapping, a free programme of cycle skills training, financial support for educational and encouragement initiatives, an improved public infrastructure for safer/easier walking and cycling throughout the district. As at July 2013, 24 schools, four kindergartens and 19 businesses and community groups (approximately 15,000 people in total) had undertaken travel planning as part of the Let’s Go programme (New Zealand Transport Agency, 2013, p. 30). In early 2011, Vogeltown School, a primary school, was the first school to join the programme. Located close on a busy thoroughfare which connects to a minor arterial, the school has over 6000 vehicles passing each day. Students at Vogeltown School spent a fortnight studying travel planning, as part of their curriculum, and this ensured they understood its purpose and benefits. The Let’s Go travel plan programme was supported by the school who provided teacher release time, so it was possible to appoint a dedicated teacher to lead the travel plan for the school. Vogeltown School introduced the following measures to promote active transport to school:

- Extension of existing network of shared-use, off-road, cycle and walking pathways to link key destination points, including schools
- Safe and fun walking routes maps introduced
- 40km speed limit and sign outside schools, reduced speed limit of 30km in some central city areas
- Implementation of “Park and Ride” zones 500m – 1km from schools and increased enforcement around parking by police and parking wardens
- Strategic promotion of driver awareness of cyclists
- School travel plan developed by the school, with a teacher released and allocated to coordinate
- Cycle skills training implemented
- Adjustments to the school entrance way to encourage use of quieter streets (New Zealand Transport Agency, 2013, pp. 30-31)

Between August 2011 and September 2012 survey, there was a 62.5% increase in active travel to school.

#### BROADGREEN INTERMEDIATE SCHOOL, NELSON

Broadgreen Intermediate School on Nayland Road, Stoke, is situated next to a cycle way that has been formed from an old rail corridor. It is school policy that students must use the off-road cycle path (old railway reserve) to the rear of the school to avoid the busy road frontage at 3 pm. On days when the weather is good, approximately 60–70% of students regularly cycle to school, some cycling up to 5km on each journey to and from school, with the number dropping to around 50% when the weather is not so good (Mackie, 2009, p. 11; 2010). According to Mackie (2009, p. 17)

The school is an example of what can be achieved when every opportunity is given to students who might cycle to school. The school actively promotes cycling – all classes receive a module on cycling in the first term. All bikes must pass a warrant of fitness and lunch-time activities include cycle skills courses. The school has been very involved in Bikewise promotions run by Nelson City Council. Bikes are securely stored with a lock-up bike cage.

#### CAMBRIDGE HIGH SCHOOL, WAIPA COUNCIL

Cambridge High School is a co-educational state secondary school in the Waikato. Just north of the town is the Avantidrome, the national centre of cycling excellence. The \$28.5 million Avantidrome features a world class 250m velodrome track and links up with nearby BMX, road, trail and mountain biking facilities. It also houses the offices of national sporting organisations Bike NZ and Triathlon NZ.

Table 1 below provides a summary of the key features of these schools which have been successful in building participation in active transport to school.

TABLE 1 SUMMARY OF ACTIVE TRANSPORT TO SCHOOL EXEMPLARS

SCHOOL	POLICIES / DEVELOPMENTS / OTHER FACTORS	RESULTS / ACHIEVEMENTS
Rototuna Junior High School, Hamilton	<p>School opened in February 2016 – no pre-existing school transport norm, allowing cycling to flourish</p> <p>Limited parking available on the dead-end road due to the construction of a new senior high school next door, making it inconvenient to drive and drop off students</p> <p>Temporary cycle track put in by Hamilton City Council, leading to the crossing lights in front of school</p> <p>Benefits of active transport informed and promoted within the school</p> <p>School Principal cycles to school regularly &amp; Deputy Principal has experience implementing school cycling initiatives - positive and demonstrable leadership</p>	60% of Year 7-10s cycle to school on a daily basis
Vogeltown School, New Plymouth*	<p>New Plymouth was selected by the NZTA as one of two model communities, receiving targeted funding to initiate and demonstrate effective walking and cycling programmes. The “Let’s Go” programme, developed by the New Plymouth District Council and coordinated by three full-time staff aims to “enable, educate, &amp; encourage” (NZTA, 2013, p. 21), as per the following:</p> <p>Extension of existing network of shared-use, off-road, cycle and walking pathways to link key destination points, including schools</p> <p>Safe and fun walking routes maps introduced</p> <p>40km speed limit and sign outside schools, reduced speed limit of 30km in some central city areas</p> <p>Implementation of “Park and Ride” zones 500m – 1km from schools and increased enforcement around parking by police and parking wardens</p> <p>Strategic promotion of driver awareness of cyclists</p> <p>School travel plan developed by the school, with a teacher released and allocated to coordinate</p> <p>Cycle skills training implemented</p> <p>Adjustments to Vogeltown School’s entrance way to encourage use of quieter streets</p>	<p>An increase of 62.5% in active travel to and from school in one year</p> <p>Reported improvements in parent and caregiver parking behaviour</p> <p>Reported increase in pupils’ self-confidence and independence</p>
Broadgreen Intermediate School, Nelson	<p>In the first term, all classes receive a module on cycling</p> <p>School policy directs students to use an off-road cycle path to the rear of school, avoiding the busy road at the front of the school</p> <p>Cycle-skills courses during lunch-times</p> <p>Bikes brought to school must pass a warrant of fitness</p> <p>Active participation in Bikewise programme, run by Nelson City Council</p> <p>Secure, lockable bike cage on school grounds</p>	<p>Up to 60-70% of students cycling to school</p> <p>Students living up to 5km regularly cycle to school using the off-road cycle way</p>
Cambridge High School, Waipa	<p>Collaboration with Waipa District Council to address traffic congestion and unsafe conditions for students exiting the school on bicycles, including widening high traffic street near the school</p> <p>Proactive approach from school by directing cars and cyclists exiting the school to alternative routes as a temporary measure during peak times</p> <p>Communications with parents via newsletter advising around parking behaviour when dropping off/picking up students from school</p> <p>Cycling New Zealand conducted presentations around safe bike riding and road rules - and to advise students on the safest route from Leamington to Cambridge High School</p> <p>Ongoing efforts from Waipa District Council to review and improve infrastructure, removing passing lanes and adding cycle lanes to both sides of the road in key areas and planning for additional roundabouts and traffic lights to be installed</p>	Improved safety for cyclists

\*This section summarises data from Vogeltown School, and 23 other New Plymouth primary and secondary schools that were included in the “Let’s Go” programme.

## 2.2 SUCCESS FACTORS

The following factors are derived from the successes of the schools profiled above. They encompass strategic collaboration, especially with city/district councils to develop cycle skills and address safety, comprehensive promotion of active transport (including cycle skills development), and implementation of key infrastructure.

### 2.2.1 COLLABORATION WITH DISTRICT/CITY COUNCILS

Schools that are part of comprehensive policy-based initiatives to promote cycling can benefit from a collaborative approach between district and city councils, including targeted funding programmes and access to a wider knowledge base and expertise. Schools can benefit from the council's policy and infrastructural developments, such as improved networks of shared-path cycleways connecting suburbs, and increased enforcement of reduced speed limits and restricted parking near schools by police and parking wardens.

### 2.2.2 CYCLE SKILLS DEVELOPMENT IN SCHOOLS

Vigorous promotion of cycling to students in schools and communicating these initiatives effectively to parents/caregivers increases support for cycling initiatives, and ensures success. Implementing cycling skills development to facilitate safe cycling can increase confidence among students and provide a level of reassurance to concerned parents. Perceptions of cycling as unsafe discourage cycling and foster car dominance. Awarding certificates in cycling safety to students who complete cycle skills development acknowledges students' achievements whilst promoting confidence that school are taking a proactive approach to road safety. Different courses may be required for those students with cycle skills and those with limited cycling experience. For those with cycling skills, courses should build on existing skills and refresh students' knowledge and use of hand-signals, etc.

### 2.2.3 RESTRICTIONS ON CAR PARKING AROUND SCHOOLS

Whether accidental or by design, limited parking around schools contributes significantly to the number of students cycling to and from school. Traffic congestion and lack of parking remove some of the convenience incentives for driving and makes cycling a more appealing and time-efficient option. "Park and ride" zones allow students to be dropped off within designated distances from the school and take public transport (or walk) the rest of the way. Reducing the

number of vehicles on the roads increases safety and convenience for those on bikes.

### 2.2.4 REDUCED SPEED LIMIT AROUND SCHOOLS

Introducing speed limit reductions of 40km around schools and during peak times increases cycling safety, and a further reduction to 30km is the best practice for further reducing risk of traffic accidents and dramatically increasing rates of survival for traffic collisions (Cycling Safety Panel, 2014). Extending speed limit reductions to incorporate the main areas of school travel routes is optimal.

### 2.2.5 NETWORK OF OFF-ROAD & SHARED-PATH CYCLE WAYS

City-wide travel networks incorporating safe, quick, and direct off-road cycle ways benefit schools directly, contributing to higher rates of cycling. Shared walking and cycling paths allow multiple active transport methods and importantly get cyclists off busy roads. Travel networks can be implemented in schools, with maps on school grounds informing cyclists of safest and quickest routes to key destinations/areas.

### 2.2.6 SCHOOL TRAVEL PLANS

School travel plans managed directly by schools can provide information to students about the best and safest routes to school, directing cyclists and student drivers to the best and safest routes to and from school. Travel plans can involve communications from schools to homes, informing parents about the strategy and advising alternative routes to reduce traffic in key areas. A school travel plan directed by teachers in collaboration with students who use these routes daily can best inform decisions about the placement of lowered speed limit zones providing further incentive for councils to consult directly with schools around infrastructure planning.

### 2.2.7 CYCLING FACILITIES WITHIN THE SCHOOL

Facilities to park and keep bicycles secure are essential within schools. Although warrants of fitness for bicycles can inform students about the standards of bicycle maintenance, such programmes would ideally allow for instruction and provision of equipment to address bicycle maintenance, e.g. tyre pumps and puncture repair kits, to educate and enable students to keep their bicycles road-worthy and useable. Provision of bicycle maintenance equipment may be especially useful at lower decile schools where resources may be more limited in the household.

# Barriers

## 3. RESEARCH DESIGN AND METHODS

The purpose of this research project was to gather qualitative data for a more in-depth look at experiences and perspectives of senior high school students on the barriers to active transport in Palmerston North, with a particular focus on cycling. Focus group discussions (FGDs) were chosen as the data collection method for this study as they are well suited to capturing a range of perspectives within a particular age group, allowing for a more nuanced understanding of the issues. This chapter discusses the methods used.

### 3.1 FOCUS GROUP METHOD

Focus group discussions (FGDs) involving peer groups were seen as likely to allow a more natural flow of ideas and greater ease of communication for a younger age group in a research setting than with one-on-one interviews. Small groups of approximately 4-6 secondary school students were preferred to ensure everyone could contribute and be heard. Third year students (aged around 20 years) from Massey University's 132.314 Transport and Urban Planning paper led the focus group discussions with guidance from their lecturer and a research assistant. The class was divided into three groups each of which was allocated to a secondary school. A set of guiding questions for the focus groups (see Appendix A) was developed based on the questions used in the previous 2015 study, *Barriers to Active Transport in Palmerston* (Cheyne et al. 2015) with modification as necessary for the secondary school focus group participants. The student researcher teams decided how and in what order to ask the questions, following up with improvised questions in a discussion-style format, but ensuring that each of the guiding questions was addressed. The focus group discussions were voice recorded and later transcribed.

To complement the 2015 survey of staff of Massey University and Palmerston North City Council, it was seen as important to gather information about the perspectives of younger people, the research team determined that secondary schools would be the most accessible participant pool for the study. Consideration was given to including a community youth organisation; however, it was decided that restricting the participant pool to high schools would provide similar focus group settings and allow for more comparable data. To capture a range of experiences, it was decided that FGDs should be conducted with each of Palmerston North's single-sex secondary schools, Palmerston North Boys High School and Palmerston North Girls High School, along with one co-educational school, Freyberg High School.

To fit around the secondary and tertiary teaching timetables, the focus groups were scheduled and undertaken in mid-April 2016.

### 3.2 RECRUITING PARTICIPANTS

The first point of contact in recruiting focus group participants were Geography teachers at each high school with whom the research team had previously established working relationships. The Geography teachers invited students to participate in the focus groups. As required by the university's code of ethical research conduct, participation was voluntary, and information was provided to students about the project and their rights (see Appendix B Information Sheet), (see Appendix C Consent Forms), along with the content of the guiding questions for the focus group discussions.

### 3.3 ETHICAL CONSIDERATIONS

Qualifying criteria for participation in this study were as follows:

- a) participants must be a senior secondary school student of at least 16 years of age; and
- b) participants must read and understand the Information Sheet, and provide written consent to participate in a recorded focus group discussion

This ensured the research met the requirements of Massey University's code of ethical conduct for research deemed to be 'low risk'. In a private room allocated for the FGD, participants were briefed on the project, including its history, purpose, and parties

involved. Each participant was provided with a copy of the Information Sheet, given time to read it and ask any questions, and sign the Consent Forms. Students were advised that they could withdraw from participation at any point without any negative consequences, and were entitled to ask questions at any time, and to decline to answer any questions posed to them throughout the duration of the FGD.

### 3.4 FOCUS GROUP SETTING

Each focus group took place at school and lasted between 45-60 minutes. The teacher who was the point of contact in each school was encouraged to share copies of the Consent Form, Information Sheet, and Guiding Questions with potential participants. Upon arrival at each school, the research teams met at school office and were greeted by the teacher or School reception staff who directed the research team to the venue for the focus group. Each focus group was briefed by the research assistant and given time to ask questions directly before the discussion commenced. There was some variation between the introductions and briefing for each school group, although a checklist was used to minimise this and ensure that all essential points had been covered. Each focus group was led by the BRP student researchers enrolled in 132.314 paper at Massey University, with the lecturer and a research assistant asking occasional follow-up questions. Within each group there were students who were more talkative or responsive and engaged fully in the discussion, and others who were much less responsive, engaging less fully in the discussion.



There were no controls imposed on how teachers initially engaged students for participation in the focus group discussions or what time of day within school hours the discussion should be held. The PNGHS and Freyberg High School students were students of Geography and were met by the research team in their Geography classes. Following brief introductions to the research team, the research liaison and teacher requested volunteers, and students then volunteered for the focus group by way of raising their hands while the research team was present. The research liaison then directed the volunteers and the research team to a private room, and then left the research team to provide the potential participants with a more thorough briefing. The PNBHS group differed in that the focus group discussion took place in the afternoon during the school lunch break, and the teacher seated the research team in the focus group venue before returning with a group of volunteer participants.

Each student researcher group was responsible for determining the format of the discussion, such as the order in which the guiding questions were asked, how follow-up questions were managed, and the designation of lead questioners and note-takers within each group. The number of Massey student researchers and high school student participants also varied between groups. The first focus group had five PNGHS students and four Massey students; the second group had seven Freyberg High School students (consisting of four girls and three boys) and three Massey students; the third group had six PNBHS students and four Massey students.

There was considerable variation in the cycling experience of each of the three Focus Groups as well as the general responsiveness or level of engagement between groups. The PNBHS group was the only group which had students who cycled to school regularly or on a daily basis; the Freyberg High School group included students who cycled to school occasionally; and no one from the PNGHS group cycled to school at all. The PNBHS group was the most talkative and responsive group of all three focus groups, engaging in the discussion in a more conversational style as well as providing more detail in their responses. Brief comments and single-word responses were more common among PNGHS and Freyberg participant groups.

Differences in the general flow of discussion may also have been affected by the ratio of students to researchers, the single or mixed gender groupings of students, the familiarity of students with one another, any briefings or information provided to them by research liaisons prior to the focus group discussion, and a number of other potential factors. The length of time for each focus group was limited to fit within the school timetable. The Freyberg High School and PNGHS groups presented as somewhat shy or otherwise reluctant to contribute to the discussions in comparison with the talkative and seemingly confident PNBHS group. More time may have allowed more reserved students or groups to settle into the discussion, eventually eliciting greater levels of engagement and an increase in their contributions.



# FOR

## 4.0 PALMERSTON NORTH GIRLS' HIGH SCHOOL CASE STUDY

### 4.1 INTRODUCTION

Palmerston North Girls' High School (PNGHS) is located on Fitzherbert Avenue, a major arterial road which is used by traffic passing through Palmerston North and those commuting into the city centre, or to Massey University and the Fitzherbert Science Centre. It is single-sex 8 decile rating school with over 1,000 students (PNGHS, 2016b) ranging from Year 9 to Year 13. According to the PNGHS (2016a) prospectus, students who live within the enrolment zone are automatically accepted into the school (see Figure 1 for the enrolment zone). Those who live out of the zones are considered with priority given to those who are closely related to current and former students. The PNGHS Handbook for Parents and Students 2016 encourages students to use the bus, walk, or cycling over driving (PNGHS, 2016b). It also recognises that the school winter uniform (a kilt) is not practical for cycling and states that students are permitted to wear track pants in place of their uniform winter kilt in Terms 2 and 3 while cycling to school. The school's policy on transport states that only year 12 and 13 students are permitted to drive to school and must have consent from a parent and senior leader (see Appendix D).

### 4.2 RESEARCH FINDINGS

The PNGHS focus group discussion highlighted the following factors influencing willingness to bike to school:

- safety
- convenience
- practicality
- the school's transport norms, and
- a belief that cars take priority on the roads.

#### 4.2.1 SAFETY CONCERNS

Safety concerns about cycling were a recurring theme in the focus group, including parental concern for participants' safety. For example, when students were asked if they ever biked to school, one participant said, "I'd like to, but my mum's kind of paranoid", and explained that as her father had been involved in a number of accidents when cycling to work, her mother was fearful of the same happening to her children. Furthermore, this family lived on a road which is a route for heavy vehicles, which was also a safety concern. Some students expressed that they would not feel safe cycling on the road. One participant said she was aware of high accident areas as her father works for the Palmerston North City Council, and that most of these areas would be on her route to school, which





Figure 1. Map showing Palmerston North Girls' High School and enrolment zone. Image retrieved from: <http://www.manawatunz.co.nz/study/great-schools/palmerston-north-city-high-schools-map/palmerston-north-girls-high-school-zone/>

discouraged her from cycling. Another participant talked about how she had seen another student who was cycling get “trapped” by cars sweeping into the car parks outside the school, causing her to fall off her bike.

Although the bike lanes in Palmerston North were seen as providing a measure of safety, an off-road path, such as that on Pioneer Highway, was seen as ideal. One student commented:

*I quite like on Pioneer Highway how they have the footpath that is a bike lane as well. So, there's quite a distance away from the cars.*

Another student compared cycling behaviour in Wellington to Palmerston North:

*When I lived in Wellington everyone just biked on the pathways even if there was a bike lane and it was safer to do that. I mean, yes, it's good that there are bike lanes, but still, you're very, very close to a car.*

Referring to the cycle lanes, a student observed:

*if they were wider, then, for one, the cars would probably be more careful of each other and you have more space, and you're not more likely to feel so close to a car that might put you off or something.*

#### 4.2.2 CONVENIENCE

Reasons for not biking to school included that it takes too long, is not comfortable, and requires effort and a certain degree of planning, especially in relation to weather conditions. PNGHS students mentioned having to organise a change of clothes, changing into them on arrival, and carrying their cycling clothes for the remainder of the day as examples of the extra planning

and effort involved in cycling to school. Students expressed that driving was their preferred mode of transport because it is generally more convenient with comments such as:

*It's more comfortable.*

*You don't have to worry about headphones and all that other stuff ... and the weather, you don't have to worry about that at all, because you can drive anyway.*

#### 4.2.3 PRACTICALITY

Although students acknowledged that Palmerston North is a good city for cycling in general, biking to school was considered to be impractical due to the time and travel distance to the destination, wearing a school uniform which is unsuited to cycling, and needing to carry textbooks, folders, and other bulky or heavy school-related items. As one student said:

*Textbooks and stuff are really heavy, and there's a lot of them. So it's quite annoying with all that weight in your bag. It's quite hard to bike with that. We carry laptops and stuff as well.*

Some students were unsure about the school's policy about wearing uniforms whilst cycling to school, although others recalled that track pants were permitted to be worn underneath uniform skirts. Overall, students expressed that having to wear uniforms to and from school was a deterrent to biking to school.

The PNGHS Student Handbook (2016) states that during terms where the winter uniform is worn students are permitted to wear track pants and use the gym facilities on arriving to change into their kilts, but it does not mention the option of wearing another shirt while cycling and changing into the school blouse and jersey. This indicates that students are expected to wear the upper uniform garments whilst cycling, which, for some, has implications for personal hygiene – potentially another deterrent to cycling. One participant summed up the issue as follows:

*Either you have to change into your uniform when you get here, or bike in your uniform - it's just kind of a hassle.*

#### 4.2.4 SCHOOL TRANSPORT NORMS

Walking in groups and driving was acknowledged by the PNGHS students as the most common way for them to travel to and from the school. Although students preferred driving over other methods, some students acknowledged that their choice of transport method had a social aspect to it, as one student noted, “I think it's like a social thing”. Students also commented that if their friends cycled to school, that they would be likely to cycle too. Walking was considered another transport norm guided by social behaviour at PNGHS, as one participant noted, “People walk to school in

their groups". These prevalent transport norms may account for the reportedly small number of students cycling to and from the school.

#### 4.2.5 CARS AS PRIORITY ROAD USERS

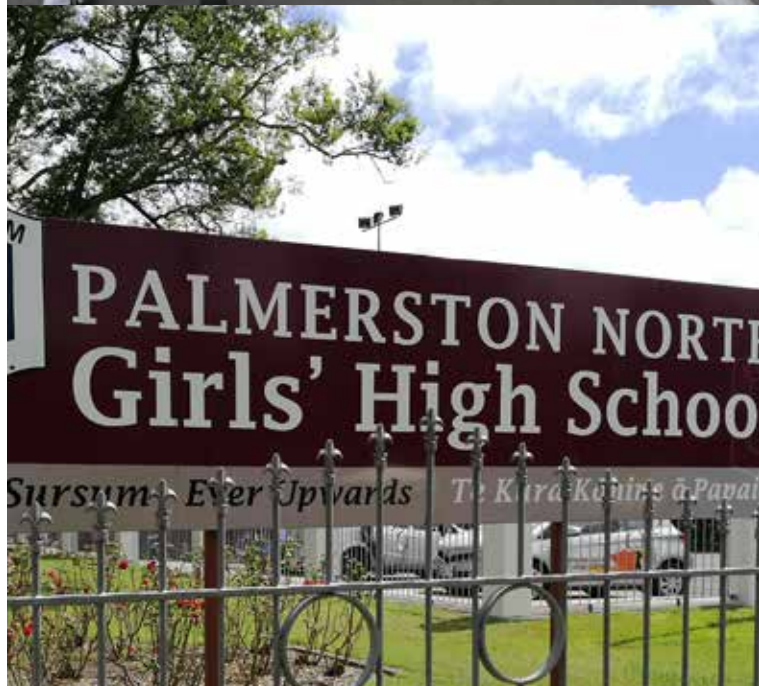
Students seemed to think that vehicles had priority on streets and this reinforced a view of cyclists as vulnerable and/or as being an inconvenience to motorists. For example, one student commented that cyclists "... expect you to kind of go out of your way", claiming that cyclists expected an unreasonable amount of space on the road, "even though the car is bigger than you". Another felt that some cyclists seem to hold an "entitled", "I'm better than you" attitude. Students suggested that cyclists needed to appreciate their more vulnerable position on the roads. Furthermore, students expressed frustration at cyclists holding up traffic, as indicated by one who said:

*you try to turn and they're just coming out super slow and you can't really go in front of them in case you hit them and there's a line, as well, behind you.*

This belief that cars have priority on the roads and that cyclists are less important appeared to be a significant contributor to students' attitudes about cycling at PNGHS.

#### 4.3 CONCLUDING COMMENT

As a result of these factors deterring cycling, students in this focus group lacked experience cycling to and from school. As well, several of the focus group participants lived out of town, which meant cycling to school or for other trips was not a suitable option for them. Reportedly very few students cycled to PNGHS, and none of the focus group participants cycled to school, limiting the scope of perspectives about cycling as a mode of transport. Also, as students were all from one Year 12 Geography class, a larger group from a wider range of subjects may have broadened the scope of experiences and perspectives within the group. Students in this focus group presented with a level of social discomfort, which seemed to limit their responsiveness or engagement in the discussion. A more comfortable environment for students, whether achieved through more relaxed introductions, procedures, or other aspects of the focus group discussion in its entirety, may have encouraged them to share their thoughts and experiences more freely, allowing for a more inclusive and enlightening discussion.



# five

## 5.0 FREYBERG HIGH SCHOOL CASE STUDY

### 5.1 INTRODUCTION

Freyberg High School is a coeducational 5 rating decile school located on Freyberg Street, Roslyn, Palmerston North. The school is located within a residential area and has approximately 1500 students enrolled, ranging from Year 9 to Year 13. The enrolment zone is pictured below (see Figure 2). There is a compulsory uniform for the junior school whereas general attire is permitted for the senior school. There is ample car-parking for students who choose to drive to school, and bike-parking facilities are also available. The school does not have a policy document relating to transport specifically, however, the school's website states that students are expected to wear a helmet if they ride a bike, and to obtain a vehicle pass if they wish to drive a car or motorcycle to school (Freyberg High School, 2016).

### 5.2 RESEARCH FINDINGS

Key themes from this focus group regarding what influences and deters students from cycling relate to safety, convenience, age and gender, and accessibility of bikes.

Although students had experienced cycling to primary and intermediate schools, only a couple of students had cycled to high school occasionally, limiting the range of experiences in this group. Students from this group were all from the same Geography class.



Figure 2. Map showing Freyberg High School and enrolment zone. Retrieved from: <http://www.manawatu.nz/study/great-schools/palmerston-north-city-high-schools-map/freyberg-high-school-zone-map/>

### 5.2.2 SAFETY

The students commented that safety on the roads affected their decision to cycle. The group considered Palmerston North to be a relatively good city for cycling aside from some areas which seemed “pretty dangerous”, particularly where the cycle lanes are situated between car-parks and on-road traffic, positioning cyclists to contend with hazards on both sides. The possibility was raised of car doors opening when cycling past a parked car. Although students felt that drivers were usually mindful of cyclists, the proximity of cyclists to cars and the width of cycling lanes were considered to be unsatisfactory. One student mentioned that as there is no space between the cycle lanes and car lanes motorised traffic is very close to cyclists, with cars sometimes cutting over into bike lanes. A participant who cycled occasionally, stated

*It's a hazard when a truck's going past ... straight away you just freak out.*

Another safety consideration was fear of being attacked if not travelling by car, although in this respect Palmerston North was considered to be a safer city than the likes of Auckland or Wellington. Also, cycling was thought to be a safer option than walking due to being able to move more quickly to escape a potential assailant. Another student mentioned that the painted road markings become slippery in wet weather. Students acknowledged the traffic lights that have a green light for cyclists were important for improving safety and convenience for cyclists conditions in Palmerston North but they also felt guilty for using them. They said that they sometimes used the footpath instead or avoiding traffic lights altogether.

### 5.2.3 CONVENIENCE AND CAR USE

A number of the students commented that it was more convenient to travel to school by, either driving themselves or being drive by parents or caregivers, and it was their preferred method of transportation. For students living at a distance, driving was a quicker way to get to school on time than taking a bus and enabled them to sleep in later.

At the same time, students who used a bike to travel to destinations other than school commented that a motivator for this was that cycling was “faster than walking”, which was their only alternative when parents were not prepared or able to provide transport. One student stated that driving was “fun”, because it allows one to “have control and you go fast”. Students who chose to walk to school did so because they lived within close proximity to the school and so it was a viable and convenient option for them.

### 5.2.4 AGE AND GENDER

Age and gender was also a notable barrier to biking to school. A greater number of boys tended to bike than girls. The students thought that this could be due to the type of uniform that the students wear, as the girls wear skirts, and one student commented:

*I think some girls will think they're too cool to bike - and the guys don't really care.*

This indicates that the impact of cycling on personal image is different for male and female students. When asked about Freyberg High School facilities and if students had access to showers and changing rooms, focus group students stated that they were run-down and “no one uses them”. Students also expressed that they would be more likely to bike to school if their friends did, and noted that more junior school students biked than senior school students. This indicates that age and friendship, or peer group behaviour, can influence the decision to cycle.

### 5.2.5 ACCESS TO BIKES

Of the 7 students in the focus group, only 2 had cycled to school this year. Although most of the students biked to school when they were younger, especially in primary school, the majority of the students in the focus group stated that they did not currently own a bike. Students agreed that cycling to school was generally considered to be fun when they were younger, but that their attitudes to cycling have changed. One student commented, “now we're just getting to somewhere”, indicating that transport was viewed differently as they got older and perhaps busier. Having access to good quality bikes was considered an incentive to bike. Lack of access to good quality bikes may also be a barrier to cycling by Freyberg High School students.





## 6.0 PALMERSTON NORTH BOYS' HIGH SCHOOL CASE STUDY

### 6.1 INTRODUCTION

Palmerston North Boys' High School (PNBHS) has a central location at 263 Featherston Street in Palmerston North and has approximately 1800 students. PNBHS accepts enrolments from residential areas around the city, giving priority to those within its extensive school zone (see Figure 4). The decile rating for this school was reduced from 9 to 8 in 2015, following a nation-wide decile recalculation of all state and state-integrated schools. Modes of transport to and from school varied among the PNBHS students, with students cycling, walking, driving, and taking the bus. The PNBHS focus group contained the highest number of regular or daily cyclists across all three focus groups so could provide information from the perspective of those who cycled in contrast with the feedback from students in other focus groups who were mainly non-cyclists. The students' range of experience with different transport modes allowed for an informed discussion. The PNBHS website stipulates rules around driving and cycling to school, including that cyclists must use the bicycle stands, special permission must be granted to drive to school, and no passengers are permitted (PNBHS, n.d). PNBHS has up-to-date cycling facilities, including 300 secure bike racks (see Figure 5), security cameras, and showers.



Figure 4. Map showing the PNBHS residential zones. Retrieved from: <http://www.manawatunz.co.nz/study/great-schools/palmerston-north-city-high-schools-map/palmerston-north-boys-high-school-zone-map/>



Figure 5. Palmerston North Boys High School Bike Shed with lockable gate.

## 6.2 RESEARCH FINDINGS

The PNBHS focus group discussion highlighted the following factors influencing willingness to bike to school:

- distance to travel
- safety
- peer attitudes to cycling
- cycl-e-vehicle conflict
- the need for improved cycling infrastructure.

PNBHS seems to have the greatest number of students cycling to school on a regular or daily basis, with the majority of those cycling to school are enrolled in Year 9-10. However, it is notable that the confidence and willingness of the students to share their perspectives on the motivations and barriers to cycling allowed for a responsive and participatory focus group discussion, generating rich and constructive material.

### 6.2.2 DISTANCE

Students in the focus group lived between 2 and 17 kilometres from the school. Travel distance to school had an effect on their mode of transport, and with busy daily routines and needing to carry school and sports gear, cycling was sometimes not an option. However, two students in the focus group cycled to school daily, as it was the most viable option for them.

### 6.2.3 CYCLING SAFETY

Safety was the most prominent issue raised, with students commenting that although they are not scared to cycle, they feel more comfortable in a group. Students mentioned that there have been many car accidents causing injuries amongst cyclists in the school area and recounted some examples, with one accident having occurred the day before the focus group discussion. Another issue raised about cycling

safety was that on numerous arterial roads such as Rangitikei Street, Featherston Street, and Pioneer Highway, the cycle lanes end abruptly in some areas, leaving cyclists to merge with ongoing traffic and parking cars (Figure 6). Students also expressed frustration with the condition of the roads, including having to frequently contend with broken glass and loose gravel in several different locations (see Figure 7). This was a considerable issue as it made cycling expensive and time-consuming for students. One participant stated, "I've had four punctures in the space of about six weeks - and that was about a hundred dollars for repairs", also noting that it is "way harder to get a punctured tyre" when driving a car.



Figure 6. Example of where cycle lanes stop and force cyclists to merge with traffic on Pioneer Highway. Photo taken by student researcher.



Figure 7. Example of the glass found on roads around the city centre.

## 6.2.4 CYCLING ATTITUDES OF STUDENTS

The school appears to have normalised cycling as a mode of transport to school. Unlike other schools in Palmerston North, the PNBH students reported that there was no stigma associated with cycling to school and they indicated that this had a lot to do with the context. One participant elaborated:

*if you go to, say, a party, you're not going to bike there and bike back, because it seems, like, uncool and stuff. But at school, you're with all your mates who bike with you - it's all good.*

Students' positive attitudes to cycling as a means of transport to school could be attributed in part to the high levels of peer support for this activity at PNBH as well as family support and encouragement. Several students mentioned that their fathers cycle for transport due to the health benefits, despite having a car available. It may also be of note that PNBH has a reputation for both academic and athletic excellence, which could perhaps attract students interested in sport and physical achievement, as well as encouraging a fitness-related mind-set in students who attend PNBH. One participant who used to bike to work said that he "did it mainly for the fitness side of things, just to keep healthy". Students also positively recalled cycling experiences at their primary and intermediate schools, which actively encouraged cycling to school and offered education programmes on the road rules and practical

cycling safety skills to equip students with the tools and experience to cycle safely on the roads.

The majority of students stated that if they had the choice between all transport modes they would choose to drive. One participant who drives to school said that it was an

*ego thing in a boys only school ... you have your license, you have your car, and you feel important. It's sort of the right of the Year 12 and 13 senior students to drive.*

Travel time saving was mentioned as both a reason for choosing cycling over walking, and for choosing driving over cycling. Others expressed a financial motivation for cycling, choosing "the option of doing something which is a one-off investment in a bike" over the ongoing cost of refuelling a car. When asked about their plans for transport once they leave school, there were arguments for driving "for the sheer sake of efficiency of what you can take and the time it takes", as well as for returning to cycling for the financial incentive, "just to be a bit more budget and save money on fuel".

## 6.2.5 DRIVING AND CYCLING CONFLICTS

Another aspect of safety that concerned students' was driver attitudes towards cyclists and vice versa. Concerns about drivers were about cutting across



Figure 8 Map showing areas in red that PNBH students considered to be the most dangerous and congested areas before and after school.

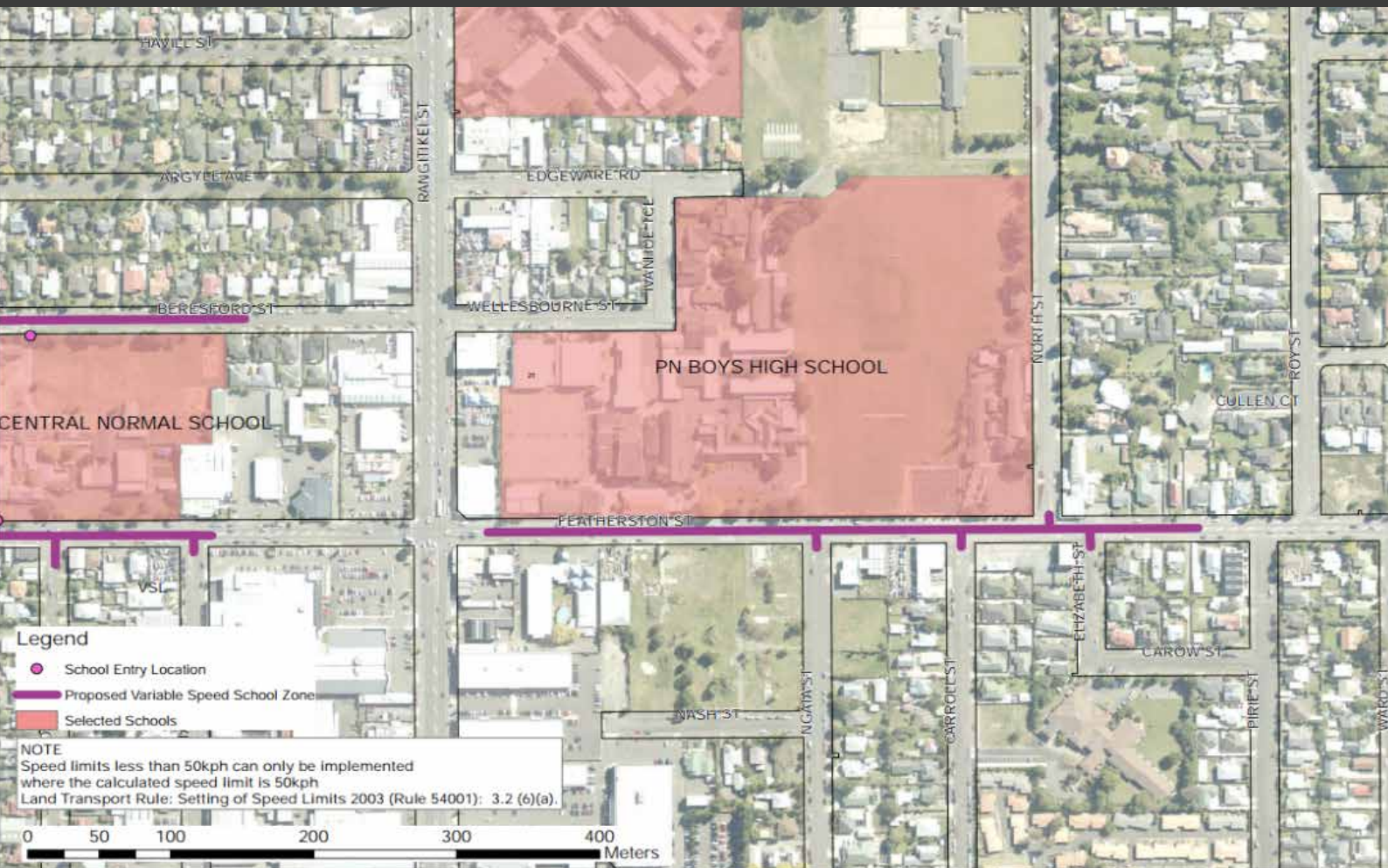


Figure 9. The 2013 traffic bylaws that slow traffic speeds down around Palmerston North

Schools and how they impact on PNBHS. Retrieved from: <http://www.pncc.govt.nz/media/2176129/SpeedLimits%20Schedule%201%20Map%202%20Implement%201%20Dec%202014.pdf>.

lanes without indicating, placing cyclists in danger, and their tendency to accelerate quickly when in a rush to get to work and their impatience with cyclists, who “can’t just like casually speed up to 40 kilometres an hour”. In turn, a participant who drives to school expressed frustration with PNBH cyclists who create a hazard by cycling more than two abreast, especially in the traffic congested areas surrounding PNBH (see Figure 8), stating, “there’s just not enough room for the cars to go through, and there’s accidents and stuff”. A participant from Auckland commented that cycling in Palmerston North was safer and more time-efficient than in Auckland due to better traffic conditions in Palmerston North.

### 6.2.6 NEED FOR SUPPORTIVE CYCLING INFRASTRUCTURE

When it comes to cars and bikes sharing the road, students recognised that it would take understanding on both sides to resolve the conflict, but that some practical steps could be taken in the short-term to improve the situation. All students agreed that cycle lanes should be extended further to address the

issues with the lanes coming to an end in dangerous places. Students expressed that cycle lanes should be included in more central areas, especially The Square, to reduce tensions between drivers and cyclists and make cycling safer through the city. Although signs about sharing the road had been noted along country roads, students suggested that similar signage would be useful in central areas, with one participant stating, “there’s lots of pedestrian signs, but there’s nothing like, “watch out for cyclists”. The students also suggested that the lights for cyclists that are used on Ruahine Street should be used on the busy streets in closer proximity to the school. Figure 9 shows the slower traffic speed zone around PNBHS. The Featherston Street intersection was reported as a site of frequent cyclist accidents and conflicts, which suggests that the area could benefit from an extension of the slowed traffic speeds around school start and finish times. Students also discussed cyclists should receive official cycle training similar to that of car licensing, but there was no agreement on this discussion



# Palmerston North

## 7.0 DISCUSSION

### 7.1 SAFETY

Almost 40% of cycle collision deaths are caused by collisions with trucks and cars, (see Figure 12) and young cyclists aged 13 to 17 at a higher risk of vehicle collisions (Palmerston North City Council, 2011). NZTA collects data of cyclistis as a percent of road user casualties. However, it is difficult to draw site specific conclusion, other than Palmerston North do not have the worst or the best safety record in the country. Students who took part in the focus group for this study reported road safety as the main concern for students who cycle, which is also supported by the findings of the literature. Students from each focus group had witnessed, been party to, or known someone who has been in a road crash while cycling, with one crash having occurred directly outside PNBHS the day before the focus group was held. Lack of quality infrastructure emerged as a common theme within considerations about road safety for senior high school students in Palmerston North, as expressed across all focus groups conducted for this study. Common concerns relating to infrastructure were the lack of space between bike lanes and motor lanes), cycle lanes that end abruptly, especially those on arterial roads, and to a lesser extent, slipperiness and reduced visibility of road markings caused by wet weather. Tension or anxiety caused by trucks driving close to cyclists, and the potential for doors of parked cars opening on passing cyclists (see figure 13) also featured among serious safety concerns relevant to infrastructure in terms of space on the road allocated to cyclists. A safety concern was the potential for danger posed by assailants while cycling, especially at night. The following themes capture the range of safety concerns uncovered during this study.

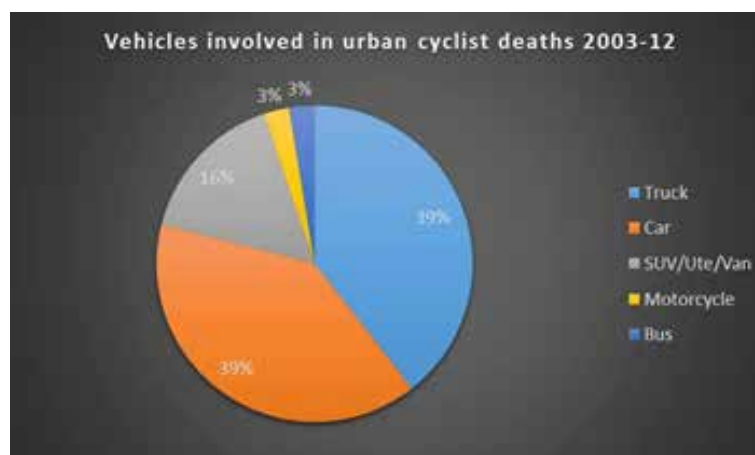


Figure 10. Percentage of different types of vehicles involved in cycle crashes Retrieved from: <http://www.nzta.govt.nz/assets/consultation/cycling-safety-panel/docs/cycling-safety-panel-consultation-draft-sept-2014.pdf>



Figure 11. The close proximity of cycle lanes to car lanes and parked vehicles - Rangitikei Street. Retrieved from: <https://www.google.co.nz/maps/@40.3481438,175.6049745,3a,75y,323.54h,76.66t/data=!3m6!1e1!3m4!1slqqI0WnPB0SeWj7-BT-3TQ!2e0!7!13312!8i6656?hl=en>

### 7.1.1 CAR CULTURE

New Zealand has one of the highest rates of car ownership per capita in the world and this is reflected in Palmerston North, where car use is prevalent. Although Palmerston North City Council's website notes that the city's flat topography is ideal for cycling, making it easy and attractive for all cyclist levels, this topographical feature has arguably been used to the greater advantage of motorised vehicles, with cycle routes a subsidiary feature. Palmerston North's prevalent car culture may be a reflection of its low population density, lack of severe congestion, lack of public transport, inexpensive car parking, road network design, and the public perception of cycling safety in the city. Firstly, the low density housing and lack of public transport but also lack of severe congestion, and relatively cheap car parking encourages residents to drive. Secondly, the road network in Palmerston North is designed primarily for motorised traffic, with cyclist routes often absent or incomplete, causing cyclists to feel unsafe on roads. Concerns around cycling safety in Palmerston North can be attributed in large part to the city's numerous arterial roads (Miller, 2001). Lastly, public impressions of cycling as dangerous can discourage people from cycling, which promote car usage. Students reported that drivers presume a priority of position on the road and can place cyclists at risk by over-taking them at close proximity or accelerating swiftly and suddenly, perhaps to secure a parking space. This was commonly reported hazard within the school vicinity as parents/caregivers drop off and pick up their children. However, interestingly,

rather than focusing on driver behaviour, many students felt that cyclists should appreciate that they are the more vulnerable road users, and that cars must be granted priority over the roads as they have a greater potential for causing harm to other road users. This view that vehicles have a greater entitlement to roads and cyclists' needs for safety are secondary, suggests that considerable effort will be needed to modify views about the perceived danger involved in cycling in Palmerston North.

### 7.1.2 DRIVER AND CYCLIST CONFLICT

Conflict between drivers and cyclists may be seen as a reflection of 'car culture' in Palmerston North.), which is reflected in this study wherein cars and trucks were considered by students to be the biggest threats on the road (refer to Figure 13). Students reported that conflicts between drivers and cyclists occur regularly in the PNBHS area and around other high schools. Some students felt that cyclists cause problems by cycling abreast with more than two people, cycling slowly, or generally holding up traffic and getting in the way. Some students considered that road cyclists who wear professional cycling apparel intentionally sought conflict with drivers. Others felt that car drivers could be reckless, or needed to be more patient and mindful of cyclists and their limited acceleration.

e.g. The focus group comments about safety indicated that secondary school students are heavily influenced by wider societal beliefs about the superiority of the car for transport. Because many people consider that

vehicles should have priority on Palmerston North streets, and the roading network lacks safe routes for cycling which have good quality infrastructure, cyclists feel they are competing with vehicles for space. A large number of heavy vehicles are found on Palmerston North streets because of the city's strategic location in the lower North Island and its large freight and logistics sector. Motorists (many of whom are students) see cyclists as a nuisance on the roads. Cyclists and particularly non-cyclists feel vulnerable which discourages cycling to school.

## 7.2. INFRASTRUCTURE

Among the most prevalent concerns in this study were the perceived lack of quality cycling infrastructure, and safety concerns relating to existing infrastructure. Cycle lanes, roundabouts and intersections and general street design were not considered to be sufficiently cyclist-friendly.

### 7.2.1 CYCLE LANES AND ROUNDABOUTS

In cities where cycling safety has been notably improved, such as San Francisco and more recently Auckland, cycling initiatives have strongly supported the introduction of segregated cycle lanes in main roads and off-road shared paths (Urban Field Studio, 2015). Figure 14 illustrates this concept with an incline between the road and cycle lane and another incline to the footpath, physically separating the transport modes (NZTA, 2015). This has significantly reduced the number of accidents on arterial roads, where cyclists typically find it most dangerous (Cycling Safety Panel Report, 2014). The focus group students also preferred segregated cycle lanes, and considered existing cycle lanes on the road to be too narrow. Segregated cycle

lanes would be beneficial to cycling in Palmerston North and would also address the instances where cycle lanes end abruptly, leaving cyclists to merge with traffic (PNCC Report and Recommendations of the Cycle Investigation Working Party, 2011), which is problematic in congested or otherwise hazardous areas such as roundabouts and intersections.

### 7.2.2 ROAD CONDITIONS

Focus group students reported that the cycle lanes in Palmerston North are often in poor condition, with broken glass regularly causing costly and inconvenient punctures, sometimes several times a month. Although the mobile phone application, *FIXiT*, provides a system for informing Palmerston North City Council about these issues, most students were not aware of it. Those who did know about it did not consider themselves, as non-rate-paying students, to be the target users, and expected that their reports of broken glass were not likely to be addressed. This suggests that targeted publicity about *FIXiT* could be focused on Palmerston North secondary school students.

## 7.3 CONVENIENCE

Convenience, comfort, distance to travel, and time-saving use were key considerations about transport modes among senior high school students, which deterred them from cycling. Students considered using cars to guarantee a fast and reasonably safe journey without having to contend with rainy or windy weather conditions. Furthermore, cycling was considered to require extra planning, such as preparing and carrying a change of clothes. Students also mentioned that they felt they needed or wanted to wear headphones for music while cycling which is behaviour that may

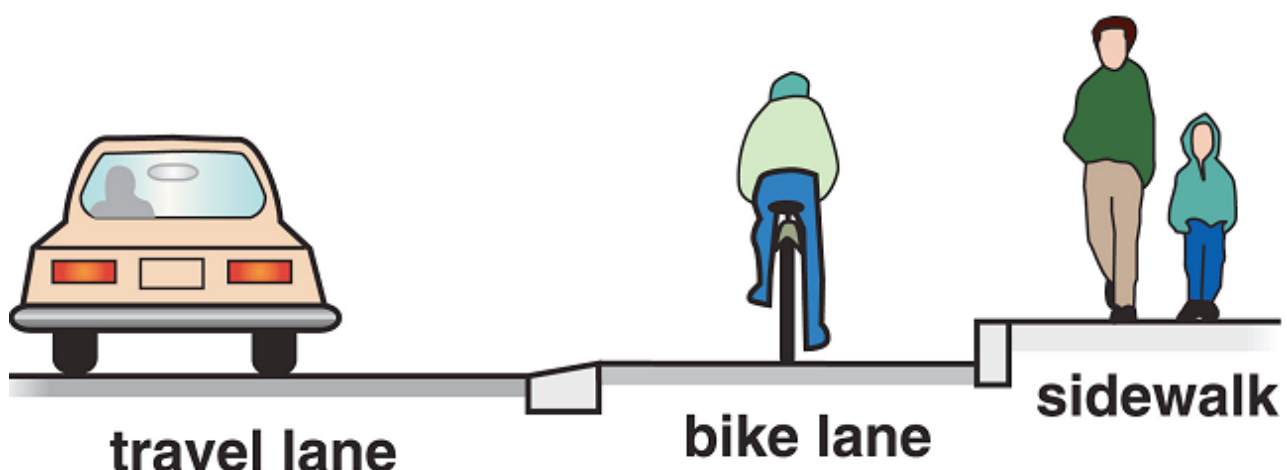


Figure 12. Illustration of a segregated cycle lane. Retrieved from: <http://www.urbanfieldstudio.com/2015/03/car-parking-or-bike-lanes-polk.html>.

need to be addressed with appropriate education about the risks of wearing headphones when walking and cycling.

### 7.3.1 DISTANCE

Length of journey is often mentioned as a barrier to active transport across New Zealand cities. Several of the students in this study lived a considerable distance from school and other destinations, which greatly affected their choice of transport mode. However, there is considerable scope for students to bike to school. Many spend a long time walking and could have a much faster journey to and from school. Many are driven relatively short distances that are easily able to be cycled. The extra time and energy required to cycle associated with the length of journey was reported by many students deterrent to cycling to and from school on a regular or daily basis. Consequently, students who lived more than a few kilometres from their school preferred to travel by bus or car. However, many students living within school zone were reluctant to cycle even though this is an easy cycling distance and indeed some students cycle much greater distances.

### 7.3.2 PRACTICALITY

Students in the focus groups were regularly required to carry heavy and bulky loads to and from school, including text books, folders, and laptops, which made cycling not only unappealing to them, but was considered impractical. Cycling was also not a practical option for those who needed to transport equipment for sports practice. Furthermore, it was not considered sensible by many to cycle at night time, a deterrent to students who were involved in other extra-curricular activities, which typically finish around 5pm or later. Consequently, driving a car or being driven was considered the more practical and preferable mode of transport. Better lighting on cycle routes might address concerns about night-time cycling.

### 7.3.3 BIKE ACCESSIBILITY

Only two out seven students own a bike, and owning a bike was not considered necessary by students because they had alternative modes of transport (in particular, motor vehicle).. However, some students commented that they would consider cycling to school if they had access to a bike and if other transport modes were either inconvenient or unavailable at the time. An extension of the "Bikes in Schools" programme that is now in place in several primary schools in Palmerston North into secondary schools would ensure that older students could have access to bikes.

## 7.4 TRANSPORT NORMS

The culture of the school as well as the culture and attitudes of student peer groups were found to be key influences on which mode of transport students chose to use.

### 7.4.1 STUDENT TRANSPORT NORMS

Driver licensing is a common pursuit for those of the age range of the focus group students (16 years and over). Enjoyment of the new experience of driving and the societal encouragement to obtain a license as soon as eligible provided a powerful incentive to choose this mode of transport.

Where cycling to school, visiting a friend, or carrying out an errand was generally considered socially neutral, cycling to a party or social gathering on the weekend was considered to be potentially socially problematic. Driving was considered in some cases to grant or give the impression of social distinction, marking one apart from the junior school.

If not selfdriving, being driven, and walking were the prevalent transport norms for senior high school students, although it was acknowledged that cycling is a more common choice for younger age groups. Shaping positive student views about cycling by promoting its inclusivity, social viability and ongoing relevance for all student age groups may be important.

### 7.4.2 SCHOOL TRANSPORT NORMS

As rates of active transport varied considerably between schools in this study which indicates that students' preferences and school specific factors need to be taken into account in order to better understand a school's transport norms and to promote cycling.

Transport norms differed between high schools, with cycling to school considered neutral by the co-educational Freyberg student group, uncommon at Palmerston North Girls High, and a cultural norm at Palmerston North Boys High. A significant proportion of PNBHS students cycled to school regularly, with students who cycled noting that the bike shed can be crowded. Some PNBHS students attributed their normalised culture of cycling to having been actively encouraged to cycle at primary and intermediate schools, where they experienced cycle skills training (NZTA, 2009). Many of the students at the three schools in our research would also have been at intermediate schools where there was cycle skills training and promotion such as high vis vests and other rewards for biking to school. It is notable that the PNBHS students were the most detailed in their recollection of cycling programmes at primary and intermediate schools and seemed to recall them with a sense of valuing those experiences. Furthermore, PNBHS has a reputation

for a high level of athleticism, which may attract students who have positive attitudes about physical activity, including cycling, or may otherwise facilitate the promotion of such attitudes throughout the school. Much more research is needed on the ways in which cycling by younger age groups can be maintained following the transition from intermediate to junior and senior secondary school classes. A Dunedin study found that adolescents who enjoyed cycling for recreation, and who cycled with friends or family, were also the most receptive to cycling skills training, seeing value in the potential benefit to their safety, but preferred to attend such a programme outside of school (Flaherty, Mountfort & Mandic, 2014).

### 7.4.3 GENDER

It may be significant that the school which had the highest number of students regularly cycling to school was a boys-only school where the standard uniform shorts pose no impediment to cycling. The other two schools, a co-educational school and a girls' school, both required female students to wear a uniform skirt, pinafore or kilt, which other research has found to be less conducive to cycling. (see, for example, Ward, Freeman, & McGee, 2015,). Focus group students noted that it is a considerable deterrent to cycling to ride to school in clothes suitable for cycling, change clothes on arrival, and carry their spare clothes throughout the day. The effect of cycling on personal hygiene or image was also considered by focus group students to be a greater deterrent for female students than male students. Both a lack of and poor condition of end-of-trip facilities such as showers, lockers, and changing rooms were considered to further discourage cycling. Cycling may be encouraged, especially among female students, through the provision of pleasant and accessible facilities that allow for satisfactory end-of-trip personal hygiene care and reduce the inconvenience for students whose regulation uniforms are unsuitable for cycling.

### 7.4.4 SOCIAL INFLUENCE

Social influence played a large part in the students' choice of transport mode, with most students revealing that they would likely cycle to school if their friends did so. These findings indicate that this age group may best be encouraged to cycle by promoting cycling among peer groups, rather than individuals. Targeted promotion of cycling among students is key, due to the perceived conformity to transport norms and preference to travel with their friends.



# Findings

## 8.0 CONCLUSION

In recent years local and central government have intensified efforts to promote cycling in New Zealand, recognising the benefits of urban cycling in particular and its importance to wider transport networks (NZTA, 2014). The National Land Transport Fund (NLTF) and Urban Cycleways Programme (UCp) have enabled targeted funding opportunities, and the Cycle Safety Panel Report (2014) has provided a useful framework to guide local and regional governing bodies in the development of safe and reliable cycling transport systems. However, there are geographical and community-specific barriers to participation in active transport to secondary school (ATSS) in general and among senior high school students in particular. This research from a series of focus groups with three Palmerston North secondary schools and a review of best-practice cycling literature shows that Palmerston North Boys' High School enjoys a relatively high rate of cycling to and from school, which may be attributed to a number of features, including the school's ample cycling facilities, however significant barriers posed by traffic congestion in the school vicinity remain unresolved. Palmerston North Girls' High School and Freyberg High School experience lower cycling rates and face a greater variety of barriers to cycling. Themes supported among all schools were the need to provide further education around cycling, address traffic congestion, and improve cycling facilities and infrastructure for both safety and convenience of cycling as a means of transport.

### 8.1 RECOMMENDATIONS

Recommendations specific to Palmerston North City Council and Palmerston North secondary schools are as follows:

#### PALMERSTON NORTH CITY COUNCIL

PNCC should engage with secondary schools and their students when planning infrastructural developments to promote cycling. It is important to ensure that the different types of student are catered for - confident and experienced cyclists and new and inexperienced cyclists.

PNCC should give priority to the following infrastructure improvements to encourage cycling to secondary schools in the city:

- Safe cycling routes (including through the CBD) on city streets with easy access to off-road paths
- More and wider cycle lanes with segregation between cycle lane and vehicle lanes in places of particular concern to students

- Extend existing cycle lanes which currently end abruptly.
- Provide cycle-specific traffic lights at intersections near high schools (i.e. Featherston Street intersection near PNBHS).
- Improve road markings at roundabouts for cyclists including use of sharrow.
- Ensure regular maintenance of cycling infrastructure (bike lanes, intersections, and road markings in particular) to maintain cycling safety and reduce tyre damage.
- Slow traffic speeds around schools. Introduce speed humps around schools, extend existing reduced speed limit to include crucial areas around schools as identified by students (e.g. to Featherston Street intersection for PNBHS), and lower speed limit below 40k around schools.
- Produce cycling route/distance information for convenience of users (clear, safe, direct routes by cycle, bike parking areas) and make available via Palmerston North City Council website, social media, and wayfinding signage and maps in public places.
- Assist schools to provide appropriate cycling facilities, including end-of-trip facilities such as showers, changing rooms, storage/lockers and mirrors. Bike servicing stations including tyre pumps should also be made available on school grounds.
- Promote cycling education through public seminars, promotional events, and via schools. Introduce/ promote FIXit app to students in schools.
- Incorporate additional extensive cyclist awareness components for drivers undertaking license testing and other training.

#### FOR PALMERSTON NORTH SECONDARY SCHOOLS

- Develop a clear school transport policy which promotes active transport and strongly supports cycling to school.
- Implement no parking zones around school gates.
- Seek support from NZTA and PNCC to develop a School Travel Plan which provides incentives for cycling to school.
- Promote the FIXit app to be promoted through schools so cyclists ensure PNCC is aware of maintenance issues that affect cycling.
- Disseminate cycle route maps provided by PNCC website and develop region specific cycle maps to include best routes to school's zoned areas. Accessible through school website, on-site signage at school, school handbook.
- Provide cycle skills training and cycling education and promotional workshops to highlight the health, environmental, and social benefits of cycling, as well as safe cycling
- Ensure students who bike to school have necessary end-of-trip facilities, including showers, changing rooms, storage/lockers and mirrors. Bike servicing equipment should also be made available around school grounds, such as pumps.
- Review school uniform policy to ensure that there is no discouragement to cycling as a result of the policy.
- Ensure placement of lockers is accessible, convenient, and central to classrooms to encourage their use among students for cycling.





# REFERENCES

## REFERENCES

- Cambridge High School. (2015, June). *Cambridge High School Newsletter*. Retrieved from <http://www.camhigh.school.nz/files/2015/Newsletter%20-%20Term%202%20July%202015.pdf>
- Cambridge High School Traffic Problems. (2015, August 18). *Waikato Times*. Retrieved from <http://www.stuff.co.nz/waikato-times/70617338/Cambridge-High-School-traffic-problems>
- Cheyne, C., Imran, M., Scott, M., & Tien, C. (2015). *Barriers to active transport in Palmerston North*. Palmerston North, New Zealand: Massey University Living Labs.
- Cycling Safety Panel. (2014). Safer journeys for people who cycle: Cycling Safety Panel final report and recommendations. (14-227). Retrieved from <http://www.saferjourneys.govt.nz/assets/Safer-journeys-files/Cycling-safety-panel-final-report.pdf>
- Flaherty, C., Mountfort, A., & Mandic, S. (2014, November). *Improving adolescents' safety in traffic through cycle skills training*. Paper presented at the Built Environment and Active Transport to School Study Symposium, University of Otago, Dunedin, New Zealand.
- Frazer, J.M. (2015). *Influences on cycling to school among teenagers: An investigation using the theory of planned behaviour and the prototype willingness model in Christchurch, New Zealand* (Unpublished doctoral dissertation). University of Canterbury, Christchurch, New Zealand.
- Freyberg High School. (2016). *Student expectations*. Retrieved from <http://freyberg.ac.nz/about/school-behaviour/>
- Mackie, H. (2009). 'I want to ride my bike': Overcoming barriers to cycling to intermediate schools (NZTA Research Report No. 380). Wellington, New Zealand: NZ Transport Agency.
- Mandic, S., Williams, J., Moore, A., Hopkins, D., Flaherty, C., Wilson, G., Spence, J. C. (2016). Built Environment and Active Transport to School (BEATS) Study: Protocol for a cross-sectional study. *BMJ Open*, 6(5), e011196.
- Miller, D. (2001). *Car cultures*. Oxford: Berg.
- New Zealand Government. (2005). Getting there – on Foot, by cycle: A strategy to advance walking and cycling in New Zealand transport. Retrieved from <http://www.beehive.govt.nz/Documents/Files/Getting%20there.pdf>
- New Zealand Police. (1998). Out and about: A school road safety programme for years 7-8. Wellington, New Zealand: New Zealand Police Youth Education Service.
- NZ Transport Agency. (2013). *The walking and cycling model community story with New Plymouth & Hastings*. Retrieved from <http://www.nzta.govt.nz/assets/planning/process/doc/model-community-story-single.pdf>

- NZ Transport Authority. (2014). Investing in cycling: Working together to deliver more for New Zealand cycling. (Report No. 14-257). Retrieved from <https://www.nzta.govt.nz/assets/planning/nltp-2015-2018/docs/201412-NLTP-investing-in-cycling.pdf>
- Palmerston North Boys' High School. (n.d.). *Basic school rules*. Retrieved from <http://www.pnbhs.school.nz/at-palmy-boys/school-rules/>
- Palmerston North City Council. (2011). *Report and Recommendations of the Cycle Investigation Working Party: 'Manawatu – the best place in New Zealand to ride a bike'*. Retrieved from [http://www.pncc.govt.nz/media/2439186/cycle\\_action\\_plan.pdf](http://www.pncc.govt.nz/media/2439186/cycle_action_plan.pdf)
- Palmerston North City Council. (2015). *Integrated transport strategy for Palmerston North*. Retrieved from <http://www.pncc.govt.nz/media/3129004/integrated-transport-strategy-2015.pdf>
- Palmerston North Girls' High School. (2016a). Palmerston North Girls' High School Handbook for Parents and Students 2016. Retrieved from [http://www.pnghs.school.nz/16/index.php?option=com\\_phocadownload&view=category&id=1&Itemid=840](http://www.pnghs.school.nz/16/index.php?option=com_phocadownload&view=category&id=1&Itemid=840)
- Palmerston North Girls' High School. (2016b). Palmerston North Girls' High School Prospectus 2016. Retrieved from [http://www.pnghs.school.nz/16/index.php?option=com\\_phocadownload&view=category&id=3:enrolment-documents&Itemid=840](http://www.pnghs.school.nz/16/index.php?option=com_phocadownload&view=category&id=3:enrolment-documents&Itemid=840)
- Sattlegger, L., & Rau, H. (2016). Carlessness in a car-centric world: A reconstructive approach to qualitative mobility biographies research. *Journal of Transport Geography*, 53, 22-31.
- The school that cycles and the school that bans bikes. (2016, February 28). *Sunday Star Times*. Retrieved from <http://www.stuff.co.nz/national/education/77228882/The-school-that-cycles-and-the-school-that-bans-bikes>
- Urban Field Studio. (2015). *Car Parking or Bike Lanes? The Polk Streetscape Controversy*. Retrieved from <http://www.urbanfieldstudio.com/2015/03/car-parking-or-bikelanes-polk.html>
- Waipa District Council. (2016). Cambridge North: Current projects. Retrieved from <http://www.waipadc.govt.nz/our-district/MajorProjects/Pages/Cambridge-North.aspx>
- Ward, A. L., Freeman, C., & McGee, R. (2015). The influence of transport on well-being among teenagers: A photovoice project in New Zealand. *Journal of Transport & Health*, 2, 414-422.
- Bauman, A., Bull, F., Chey, T., Craig, C. L., Ainsworth, B. E., Sallis, J. F., Pratt, M. (2009). The International Prevalence Study on Physical Activity: results from 20 countries. *International Journal of Behavioral Nutrition and Physical Activity*, 6(1), 1-11. doi:10.1186/1479-5868-6-21
- Brown, V., Diomedes, B. Z., Moodie, M., Veerman, J. L., & Carter, R. (2016). A systematic review of economic analyses of active transport interventions that include physical activity benefits. *Transport Policy*, 45, 190-208. doi:<http://dx.doi.org/10.1016/j.tranpol.2015.10.003>
- Ewing, R., Meakins, G., Hamidi, S., & Nelson, A. C. (2014). Relationship between urban sprawl and physical activity, obesity, and morbidity – Update and refinement. *Health & Place*, 26, 118-126. doi:<http://dx.doi.org/10.1016/j.healthplace.2013.12.008>
- Mackie, H. (2009). 'I want to ride my bike': overcoming barriers to cycling to intermediate schools. NZ Transport Agency Research Report 380. Retrieved from <http://www.nzta.govt.nz/assets/resources/research/reports/380/docs/380.pdf>
- Mackie, H. (2010). Improving school travel systems. NZ Transport Agency Research Report 420. Retrieved from <https://www.nzta.govt.nz/assets/resources/research/reports/420/docs/420.pdf>
- Mandic, S., Williams, J., Moore, A., Hopkins, D., Flaherty, C., Wilson, G., . . . Spence, J. C. (2016). Built Environment and Active Transport to School (BEATS) Study: protocol for a cross-sectional study. *BMJ Open*, 6(5), e011196-e011196. doi:10.1136/bmjopen-2016-011196
- New Zealand Transport Agency. (2013). The walking and cycling model community story with New Plymouth & Hastings. Retrieved from <http://www.nzta.govt.nz/assets/planning/process/doc/model-community-story-single.pdf>
- New Zealand Transport Agency. (2014). Investing in cycling: Working together to deliver more for New Zealand cycling. (Report No. 14-257). Retrieved from <https://www.nzta.govt.nz/assets/planning/nltp-2015-2018/docs/201412-NLTP-investing-in-cycling.pdf>
- New Zealand Transport Agency. (2016). Walking, cycling and public transport. Retrieved from <https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/>
- Sjöström, M., Oja, P., Hagströmer, M., Smith, B. J., & Bauman, A. E. (2006). Health-enhancing physical activity across European Union countries: the Eurobarometer study. *J Public Health*, 14. doi:10.1007/s10389-006-0031-y

# APPENDIX

## APPENDIX A: GUIDING QUESTIONS

### **BARRIERS TO ACTIVE TRANSPORT IN PALMERSTON NORTH**

#### GUIDING QUESTIONS FOR SENIOR HIGH SCHOOL STUDENT FOCUS GROUP DISCUSSIONS

1. What are your preferred ways of getting to and from school, and why?
2. How often do you bike to/from school?
3. What other kinds of trips do you (or would you) make on a bike? (shopping, meeting friends, recreational biking etc)? And how often would you make these trips?
4. From your perspective, what are the main factors which encourage or discourage Senior High School Students from biking to school?
5. From your perspective, what are the main factors which encourage or discourage students around your age from making other trips on a bike?
6. What are some of the important factors affecting the decision to bike for short trips (weather, time, safety, convenience, infrastructure i.e. road markings, bike lanes, bike stands etc)?
7. Do you think Palmerston North is a good city for biking? Why/Why not?
8. Do you have any other comments you want to make about transport to school and other places in Palmerston North?

## APPENDIX B: INFORMATION SHEET

### BARRIERS TO ACTIVE TRANSPORT IN PALMERSTON NORTH

#### PARTICIPANT INFORMATION SHEET

*I am Imran Muhammad, the principle researcher on a research project supported by the Palmerston North City Council (PNCC) and Massey University Living Lab. The aim of this project is to identify the experiences and perspectives of senior high school students about Active Transport in Palmerston North, with a particular focus on biking as a means of transport. If you are a senior high school student aged 16 years or over, I would like to invite you to participate in this research by taking part in a focus group discussion of approximately 40 minutes in length, in which you will be able to express your views on biking as a means of transport in Palmerston North.*

What is the purpose of this research and why have I been asked to participate?

*The overall goal of this research is to build a better understanding of the possible avenues for increasing active transport in Palmerston North, in line with PNCC initiatives. The findings from this research will be published and available to inform future policy development for the city. An important phase of the project is to learn about the attitudes, influences and challenges faced by senior high school students in relation to biking as means of transport. You may be someone who uses a bike for transport regularly, sometimes, or not at all. I am interested to know your experience and perspectives relating to biking as means of transport in Palmerston North.*

How will the data for this research be gathered?

*Groups of 4-6 high school students who have volunteered to participate will take part in a Focus Group Discussion, approximately 40 minutes in length, led by 3rd year Resource & Environmental Planning (BRP) students from Massey University and my Research Assistant, Chantelle Potroz. The discussion will be voice recorded and later transcribed. The transcripts from your Focus Group Discussion will then be analysed, under my supervision, by the 3rd year BRP Students assigned to your Focus Group.*

How will the data for this research be used and stored?

*Participants' names will not be used in any research publications, although direct quotes from the Focus Group Discussion may be used in the research*

*findings and publications. The information from Focus Group Discussions will be used for students group reports, Massey Living Lab report, academic articles, conference presentations, and teaching purposes. Data from the Focus Group, including the voice recording and transcripts, will be used only by myself and my research team. Voice recordings and transcripts will be stored securely for a period of up to two years, at which point they will be destroyed.*

#### PARTICIPANT'S RIGHTS

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study at any time;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used;
- be given access to a summary of the project findings when it is concluded.

We hope that you will accept this invitation to participate in this research as we would really value the input you could bring to the project. If you have any questions about this research project, please contact me or my Research Assistant directly. Thank you very much for your assistance.

Imran Muhammad, PhD  
Principal Researcher  
i.muhammad@massey.ac.nz

Chantelle Potroz  
Research Assistant  
potroz@massey.ac.nz

Ph: (06) 356 9099 Ext 83848  
Ph: (06) 356 9099 Ext 85911 (Wednesdays)

*This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email humanethics@massey.ac.nz.*

## APPENDIX C: CONSENT FORM

### BARRIERS TO ACTIVE TRANSPORT IN PALMERSTON NORTH

#### CONSENT FORM

Researcher: Dr Imran Muhammad

Research Assistant: Chantelle Potroz

I have read the Participant Information Sheet made available to me, and I understand the purpose of the research and why I have been asked to participate. I have had the opportunity to ask questions and have them answered to my satisfaction. I understand that I may ask further questions at any time.

- I understand that I am free to withdraw participation at any time.
- I agree / do not agree to be audio taped.
- I wish / do not wish to receive the summary of findings, when it becomes available.
- I understand that data and information from the interview and the Consent Form will be kept for a period no longer than two years, and then destroyed.
- I agree to participate in this research under the conditions set out in the Information Sheet.

Name .....

Signature ..... Date .....

*This project has been evaluated by peer review and judged to be low risk. Consequently it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research. If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director (Research Ethics), email [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz).*

## APPENDIX D: PNGHS TRANSPORT POLICY

### TRANSPORT

WE ENCOURAGE STUDENTS TO BUS, BIKE OR WALK TO SCHOOL.

#### BUSES

Students need to obtain and use the school identification card as proof of their enrolment to receive discounted or free travel. Students eligible for Ministry of Education free bus transport must live at least 4.8 kilometers from their nearest school. The school's Code of Conduct applies when travelling to and from school. Students are expected to stand up for full fare paying passengers.

To make enquiries about school buses, contact reception to ask to speak to the Bus Co-ordinator.

#### VEHICLES

May be used for personal transport to and from school by Year 12 and 13 students only with prior permission of the parent and Senior Leader. Drivers are required to comply with:

- a) licensing restrictions and road code rules
- b) no passengers
- c) no use on school trips
- e) school parking restrictions
- f) speed restrictions
- g) pedestrians have right-of-way from Huia St entrance

#### PEDESTRIANS

Pedestrians must use controlled pedestrian crossings and give way to vehicles in driveways and car park areas.

#### CYCLING

We encourage girls to cycle to school. There is a bike rack at the rear of the administration block – please ensure bikes are locked and helmets are worn.

Since school kilts are not practical for biking, girls are permitted to wear trackpants to school during Terms 2 and 3 when winter uniform is worn, and are able to change in the gym changing rooms.

#### PARENT TAXI

If you deliver and collect your daughter to/from school, please arrange to wait for her on Park Road or Manawaroa Street. Yellow lines do mean no stopping/waiting/parking. Huia driveway provides access to the school's parking precinct as well as access to tennis courts, the scout hall and the Park Road Playcentre. Carparks are dangerous and we do not wish for any students to be injured.

## APPENDIX E

### MASSEY UNIVERSITY - PNCC LIVING LAB

#### 2016 RESEARCH ON ACTIVE TRANSPORT IN PALMERSTON NORTH

In 2016 two Planning Honours Projects addressed a concern raised by Palmerston North City Council. The Council had received reports of conflict on shared use paths (especially between cyclists and pedestrians) and wanted to understand better the extent to which it exists and how to implement effective solutions.

Two students undertook projects related to shared paths. One looked at the issue of conflict on shared use paths and gathered data on how other councils had sought to address actual or potential conflict. The other looked at how age and gender shaped views about use of shared paths for walking and biking. In order to obtain data, the student developed an online survey which was promoted through social media (Facebook, Neighbourly, [etc.](#))

Executive summaries of each of the two Honours reports [are appended.](#)

# HOW HAS CONFLICT BEEN MANAGED ON SHARED PATHWAYS IN CITIES LIKE PALMERSTON NORTH?

**CATHERINE WEST**

HONOUR PLANNING PROJECT | 2016

## EXECUTIVE SUMMARY

1. Palmerston North City Council (PNCC) seeks to achieve a “vibrant, caring, innovative, sustainable and prosperous city” (Palmerston North City Council, 2016a). Shared pathways have been designed to increase physical activity for both recreational activity and active transport, and to promote better social cohesion and vibrancy Palmerston North City Council, 2016b).
2. Councils are more frequently developing shared pathways in order to improve the infrastructure that is provided for walking and cycling. A shared pathway is one that both cyclists and pedestrians can use simultaneously (NZ Transport Agency, 2013a). A pedestrian is considered a person on foot or who is using a mobility scooter, wheelchair, skateboard or roller blades (Austroads, 2006), and as such, conflict can arise between different pedestrians and also between pedestrians and cyclists. In New Zealand, while it is illegal to cycle on a footpath, shared pathways are treated differently and are governed by the Traffic Control Device 2004 Land Transport Rule 54002 (NZ Transport Agency, 2013a).
3. Central government’s Urban Cycleways Programme is a combined effort of funding urban cycling infrastructure between 2014/15 to 2017/18 made up of Government funding, the National Land Transport fund, and local government funding (NZ Transport Agency, 2016b). The Urban Cycleways Programme for Palmerston North is aimed at connecting pedestrians and cyclists via the Manawatū River shared path from the main urban and CBD area with the Linton Military Camp (NZ Transport Agency, 2016a). Future investment is envisioned for the creation of an off-road shared pathway between Palmerston North and Fielding (NZ Transport Agency, 2016a).
4. With the growth of shared pathways, there is potential for conflict and PNCC has received complaints from some users. PNCC is currently focusing on creating an active transport culture within the city, and therefore, it is important to manage existing conflict appropriately.
5. These spaces are becoming well used for recreational cyclists, commuter cyclists, learner cyclists, mobility scooters, roller bladers, the elderly, those with disabilities, and walkers and joggers (Austroads, 2006). This creates a competition between the fast and the slow, with varying abilities, volumes and direction users are travelling in all playing a part in the conflict that exists (Kim, 2012). Individual conflict and conflict caused by the physical environment exist on shared pathways and are explained below. Conflict, whether real or perceived, affects overall willingness to use the pathway and commute (Zander et al. 2014).
6. To identify options for managing conflict, data was obtained using document analysis and key informant interviews about how conflict was managed on other shared pathways in New Zealand. Several cases were selected based on the population size of the urban area, topography, and design similarities to the Manawatū River shared path. Cases selected were from New Plymouth, Hastings, Taupo, Whanganui and Wellington.
7. Consistent with the overseas literature reviewed, in New Zealand, flexible campaigns and interventions have proven to be successful as was evident in Wellington and New Plymouth. Kim (2012) suggests the use of the property rights theory when considering public spaces, and although not successful in every case study, changes to who is given priority on the pathways, and promoting more respect of other users such as in campaigns implemented in New Plymouth, Hastings and Wellington has resulted in a reduction in conflict on these pathways.
8. New Plymouth’s coastal pathway experienced a 35 percent increase in cycling between 2006 and 2013 following the safety and maintenance upgrades of its biking networks. Attention to pathway design and layout is also important in managing conflict. An all-weather surface has also proven to be successful in reducing conflict.
9. In order to fulfil the goals as set out in the Manawatū River Framework and Integrated Transport Strategy, it is recommended firstly that there is the integration of an active transport campaign similar to that implemented by New Plymouth District Council and Wellington City Council. By encouraging users to share the pathway and have more respect for others, better relationships between different types of people will be formed. Educational programmes, colourful decals, and the sharing of bicycle bells, for example, have proven to be successful elsewhere. Campaigns

that encourage community activities such as food events, organised bike rides walks, where people are attracted to the river will also prove to be of a benefit. This will encourage a greater sense of place, and in turn alter perceptions regarding safety or crime.

10. Promotional activities and the use of media may also play a role in ensuring that the Manawatū River shared path user numbers increase without increasing conflict. Promoting business along the shared pathway, whereby bike hire or portable cafes attract new users to the pathway. This will also create a greater community feel, and affect how safe users feel on the path. Any business that attracts new users such as a bike hire should be encouraging suggested passing speeds and etiquette whilst on the path.
11. Campaigns are also best paired with facility improvements. An increase in directional signage and give way markers will help to influence user's movements. This will encourage users to keep to one side to allow others to pass safely, and will avoid having to move out of another users' way. This would be especially beneficial on hills, where slowing down on a bike suddenly, for example, can be difficult. Further to this, future lighting plans on the Manawatū River shared pathway need to be situated around the main areas, such as near the Esplanade, Park Road, Fitzherbert Avenue, and the urban area. This will ensure that the pathway is able to be seen at any time, and reduce the chance of collisions or injury from being unable to see. Ensuring adequate lighting and facilities such as seating, shelter, bike stands and bins around these areas, as well as near where the Guy Fawkes display is situated will ensure that conflict that arises from their absence will have the potential to be remedied or reduced. Seating, shelter and bike stands especially will allow those who use the pathway to rest when needed, and reduce the risk of getting in the way of faster users or commuters. The Urban Cycleways fund may be able to assist in these safety and infrastructural improvements, and there is potential for PNCC to work in partnership with the Manawatū Forum for Better Biking.
12. Specific recommendations also include for future shared pathway development:
  - Design for visibility as per CPTED principles— This will allow users to be seen by others, as well as users being able to see the environment around them.
  - Avoid 'intersections' where possible in future developments, especially around corners to avoid potential collisions. Where unavoidable, path marking as seen in figure 3 should be utilised.
  - Utilisation of additional signage and information should be made available on the pathway. This includes information relating to surface type, known safety issues, direction, and pathway etiquette. Visual reminders consistently placed along the pathway will also encourage more respect between users.
  - Ensure regular monitoring of pathway hazards and conditions.



Source: Christine Cheyne

## REFERENCES

- Austrroads. (2006). *Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths*. Sydney: Austrroads.
- Kim, A. M. (2012). The Mixed-Use Sidewalk. *Journal of the American Planning Association*, 78(3), 225-238. doi: 10.1080/01944363.2012.715504
- Palmerston North City Council. (2016a). Our Vision. Retrieved from <http://www.pncc.govt.nz/yourcouncil/our-vision/>
- Palmerston North City Council. (2016b). He Ara Kotahi project. Retrieved from <http://www.pncc.govt.nz/linton-pathway?lang=en-NZ>
- Zander, A., Rissel, C., Rogers, K., & Bauman, A. (2014). Active travel to work in NSW: trends over time and the effect of social advantage. *Health Promotion Journal of Australia*, 25(3), 167-173. doi: <http://dx.doi.org/10.1071/HE14004>



# HOW DOES AGE AND GENDER AFFECT USE OF SHARED PATHS IN PALMERSTON NORTH?

**MORGAN LAIRD**

HONOUR PLANNING PROJECT | 2016

## EXECUTIVE SUMMARY

1. Active transport can be defined as a way of getting from one point to another using physical movement. Active transport is known to have many benefits. It contributes to positive physical and mental health and it reduces the amount of vehicles on the road (and consequently congestion). There are also no greenhouse gas emissions and it provides positive social opportunities. Despite the benefits, active transport is not without its issues. It is often seen as unsafe because the space is shared with high-speed vehicles. It is difficult to provide for all ranges of people and activities. A common way of accommodating and encouraging active transport for this wide range is through shared paths. Shared paths are popular as they make it more attractive and pleasant to walk and cycle for transport and recreation. Shared paths are a way of meeting the needs of the users, as well as being cost-effective and space efficient (Grzebieta, McIntosh & Chong, 2011).
2. The Palmerston North City Council seeks to improve infrastructure for walking and cycling by developing shared paths within the Palmerston North City.
3. Despite the promotion of shared paths, little is known about the users other than the quantity which is data obtained from counts of bikes and foot traffic. However, this does not provide details about the user, such as age, gender or ethnicity. This research seeks to provide insights into users of the Manawatū River Shared Path with a particular focus on age and gender.
4. This research is also a part of a larger goal, for Palmerston North City Council (PNCC) to promote active transport within the city. PNCC has four key strategies that contribute to this. These are: The Integrated Transport Strategy 2015, the Manawatū Active Transport Strategy 2007, the Active Recreation Strategy 2013 and the Sustainable City Strategy 2010. In addition to these strategies, the Barriers to Active Transport in Palmerston North report was written as part of the Massey University – Palmerston North City Council Living Lab (Cheyne, Muhammad, Scott & Tien, 2015).
5. Data was obtained via an online survey distributed via social media (Facebook and Neighbourly). Following completion of the survey, respondents had the choice of further elaborating on their experiences by sending an email to the researcher. Nearly 200 surveys were analysed of which 72% were from women and 28% were from men. Two-thirds of responses were from 25-59 year olds, 21% from 60-69 year olds, 7% from 20-24 and 70-84 year olds, and 1% from 16-19 year olds.
6. A substantial body of literature indicates age and gender differences in participation in walking and cycling. Children and seniors have different levels of ability from late teenage and adult cyclists due to their physical attributes such as strength, motor skills, spatial awareness. Children, like seniors, are often considered the most vulnerable active transport users (Kiyota et al., 2000; Heesch et al., 2012; Hammond & Musselwhite, 2013; Department for Transport, 2012; Taylor, 2009). Carver et al. (2015, p. 543) note that a safe route for cycling is “particularly important not only for children but also women and elderly”. It is clear that women are much less likely to cycle as a form of active transport, and have greater concerns about safety. For this reason, women are seen as ‘indicator species’ (Akar et al., 2013; Zombori, 2014).
7. The survey data showed that gender appeared to be a significant factor shaping people’s experience of the Manawatū River Shared Path. Female respondents expressed concern about their safety especially during hours of darkness and quieter times of day. Age appeared to be a less significant influence on people’s experience of the shared path. Generally, responses were similar across all age groups. The literature suggests that older users would be more vulnerable and would perceive a shared path as hazardous. However, the survey data did not strongly support this although further research is needed with seniors as it is possible that not so many have Facebook or Neighbourly accounts.
8. Based on the findings of this study the following recommendations are made to PNCC:

- 1) Research needs to be undertaken with under-16 year olds. This study was unable to gain data from this age group because of ethical reasons. It is important to gather information from all age groups to create a balanced picture of the overall problem.
- 2) More research needs to be done that targets older people. This study briefly touched older users, but not to an adequate level. An online questionnaire needs to be supplemented with other methods of data collection focused on older users.
- 3) Additional safety measures are needed to ensure that the Manawatū River Shared Path is used to its full potential. Lighting needs to be installed along the path to promote use all year round and to provide guidance to entrances/exits. It is also suggested that surveillance cameras be installed in the more secluded areas of the path, or at least a sign that advises users that CCTV is in use.
- 4) Taking into account Crime Prevention Through Environmental Design principles, the shared path needs to have clear sightlines. Vegetation should be cleared where it prohibits clear sightlines.
- 5) There needs to be improved connectivity with the road and cycle network to promote an integrative transport network.
- 6) Wind breaks need to be installed in exposed areas and appropriate shelter needs to be erected to escape rainfall.
- 7) The path is to be widened to reduce the risk of collisions
- 8) It is recommended that signage be installed that contains right of way rules and reminds users to be courteous and aware of all users.
- 9) Conduct an educational program that promotes courtesy, responsibility and consideration of all users.
- 10) Interactive displays should be installed that educate people on the native wildlife, plants, landmarks and the history of the area.
- 11) On-going maintenance of the path surface and surrounding vegetation to ensure safe footing, and preserve a high level of aesthetic and natural value. The path must also be kept even to reduce the risk of people – primarily older users – from falling.

## REFERENCES

- Akar, G., Fisher, N. & Namgung, M. (2013). Bicycling choice and gender case study: The Ohio State University. *International Journal of Sustainable Transportation*, 7, 347-365.
- Carver, A., Timperio, A. F. & Crawford, D. A. (2015). Bicycles gathering dust rather than raising dust – Prevalence and predictors of cycling among Australian school children. *Journal of Science and Medicine in Sport*, 18, 540-544.
- Cheyne, C., Imran, M., Scott, M. & Tien, C. (2015). Barriers to active transport in Palmerston North. Massey University Living Labs, Palmerston North.
- Department for Transport. (2012). *Shared use routes for pedestrians and cyclists*. (Report no. 1/12). London, United Kingdom: The Stationery Office
- Grzebieta, R. H., McIntosh, A. M. & Chong, S. (2011). Pedestrian-Cyclist collisions: issues and risk. *Australasian College of Road Safety Conference*.
- Hammond, V. & Musselwhite, C. (2013). The attitudes, perceptions and concerns of pedestrians and vulnerable road users to shared space: A case study from the UK. *Journal of Urban Design*, 18(1), 78-97.
- Heesch, K., Sahlqvist, S. & Garrard, J. (2012). Gender differences in recreational and transport cycling: a cross-sectional mixed-methods comparison of cycling patterns, motivators, and constraints. *International Journal of Behavioural Nutrition and Physical Activity*, 9, 1-12.
- Zombori, E. (2014). Cycling for women in Auckland. *Planning Quarterly*, 193, 6 - 10



**ANY ENQUIRIES ABOUT OR COMMENTS  
ON THIS PUBLICATION SHOULD BE DIRECTED TO:**

School of People, Environment and Planning  
Massey University  
Private Bag 11222  
Palmerston North 4442

Email: ?

Telephone: ?

