

*Footpath Cycling  
Rule Options Research  
NZ Transport Agency*

# *Footpath Cycling Rule Options Research NZ Transport Agency*

## *Quality Assurance Information*

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## Executive Summary

### Scope

As part of a wider review of cycling-related road user rules, research to support potential options for possible footpath cycling law changes was carried out. The goal was not to prescribe new footpath rules but rather to outline the considerations and evidence for footpath cycling rule options and then, if appropriate, indicate rule changes that are likely to balance the needs of road users.

### Background

Many younger cyclists do not know it is illegal to ride on the footpath and almost all cyclists will use the footpath, to a greater or lesser extent, often as the only feasible option in response to road environments that seem unsafe. However, there are risks associated with footpath cycling for both pedestrians and cyclists. With the current laws in place, cycle skills trainers and others cannot openly reinforce safe footpath cycling. In addition, there is no technical basis for the current footpath cycling rule, which is based on wheel diameter. For many people, it is unclear how the rule should be applied.

### Stakeholder engagement

A range of engagement activities were carried out with stakeholders including conversations with everyday footpath users and workshops with government agencies and advocacy groups, some of which already had a clear position on footpath cycling. There were a wide range of perspectives and it was clear that a consensus on footpath cycling was unlikely. Key issues that were raised included the safety of pedestrians, cyclist conflicts at driveways and side roads, and the benefits of more safety-conscious footpath cycling. Some felt that allowing footpath cycling would reduce pedestrian participation, particularly for older people and those with mobility impairments. Others felt that facilitating safe footpath cycling is essential given New Zealand's typical road design and traffic conditions. Others felt that with typical road design and traffic conditions, they did not want to see footpath cycling as an alternative to cycleway investment.

### Literature scan

Literature related to footpath cycling was reviewed. It was found that many overseas jurisdictions allow footpath cycling, in some cases for everyone and some cases for those of a certain age. Although few formal evaluations of more permissive footpath rule changes have been carried out, it seems that in Victoria and South Australia, rule changes have had little impact following introduction, apart from legitimising footpath cycling. Although some literature suggests a greater likelihood of a cycling crash on the footpath compared with the road, New Zealand crash data, with its limitations, does not support this and it seems clear that almost all cycling fatalities happen on the road. Children's brains are not fully developed to judge the complex traffic situations demanded by on-road cycling and so the footpath provides the opportunity to learn how to ride without being in close proximity to the most dangerous traffic. However, one difficulty in using overseas studies or even comparisons between different parts of Australia and New Zealand, is that there is a large range of footpath contexts and some are likely to be more safe and appropriate to cycle on than others.

### Safety data

NZ Transport Agency Crash Analysis System (CAS) and NZ Injury Query System (NIQS) data were used to understand footpath cycling crashes in NZ. A major limitation of the available data is the lack of cycling volume data for footpath and road cycling, which would allow the respective crash rates to be estimated. Another limitation is that the categorisation of on-road and footpath cycling crashes can sometimes be difficult and there is no clear definition for crash location.

Nevertheless, CAS data showed footpath cycling crashes accounted for approximately 10% of the reported cycle crashes in New Zealand in the last 10-years. Almost all cycling fatalities have resulted from cycling on the road.

The CAS data showed that the number of footpath cycling crashes involving a pedestrian was less than 2% of the total footpath cycling crashes. There were no fatal injuries involved in these crashes. The majority of the crashes involved visibility issues between cyclists and pedestrians. However, the NIQS data showed there is likely to be high under-reporting of both pedestrian and cycling crashes (i.e. the Police do not attend all of these crashes occurring in the road reserve). The CAS and NIQS data did show consistency in that pedestrians typically sustain more injuries than cyclists in a pedestrian/cycle crash.

Young people (under 16 years old) feature most prominently in the cycling crash statistics for both on-road and footpath crashes, which may partially reflect the higher levels of cycling by younger people, but perhaps also a lack of experience and risk perception. For younger cyclists, a false sense of security may be associated with some footpath cycling, perhaps with some risks being less obvious than those on the road.

### **Rule options comparison**

If it is assumed that a law change allowing some degree of footpath cycling would lead to a modest increase in footpath cycling by those whose actions are influenced by the rules, then there would be improved accessibility for some cyclists. For some, it may mean that cycling trips become feasible when they previously seemed too dangerous. For pedestrians, the disadvantage in this case would be more cyclists on the footpath, which may result in safety and comfort disbenefits. However, the extent of these disbenefits may be offset by improved cycling courtesy through improved and targeted training and potentially also improved social interaction and passive surveillance which may benefit personal safety.

Obviously, a rule change limiting footpath cycling to children would yield fewer benefits and generate fewer disbenefits than a rule allowing footpath cycling for all. But for any net increase in physical activity (if cycling increases and there is no change in walking), there are positive health, congestion and environmental benefits to consider. However, it seems impossible to quantitatively estimate and balance all the advantages and disadvantages given the large assumptions at hand, which makes an objective assessment of rule options difficult.

An unintended consequence of allowing all cyclists to use the footpath could be less priority given to on-road cycling infrastructure provision. It is difficult to measure the extent of this risk, but logically some reduced cycleway priority could follow a rule change allowing footpath cycling for everyone.

For mobility trikes, the current rules are inequitable and favour those using mobility scooters. People using mobility trikes should be allowed to use the footpath, to maintain independence and mobility, in the same way as others using mobility aids.

### **Conclusion**

On balance, a rule permitting footpath cycling for those aged 12 and under (and accompanying adults) has merit. It would reflect that many aspects of children's cognitive processing do not mature until around 11-12 years of age. It would also allow safe footpath cycling to be proactively taught to younger cyclists, with clear expectations of pedestrian priority reinforced, and from a safety perspective it would likely benefit both child cyclists and pedestrians. It would also potentially encourage the design of safer footpath/driveway interfaces, which would also benefit joggers, mobility scooters, mobility trikes, and children on push scooters.

By not allowing adults to legally ride on the footpath, a continued focus on fit-for-purpose on-road cycling infrastructure is more likely. Although many adults will likely continue to use the footpath as needed from time to time, this small lack of alignment between the rule and actual practise may be inconsequential and adequately managed by pragmatic training, education, and enforcement.

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### *Appendix A - Rules in New Zealand Law*

## 1. Introduction

Abley Transportation Consultants Ltd and Mackie Research & Consulting Ltd have been commissioned by the NZ Transport Agency (the Transport Agency) to investigate potential options for law changes in relation to the use of wheeled devices on footpaths. This is part of a wider review of cycling-related road user rules that the NZ Transport Agency are progressing. The review does not involve the law related to 'shared paths'.

### 1.1 Background

In addition to newspaper and postal deliverers, cycling on the footpath happens routinely in New Zealand by people of all ages, usually because many road environments are not specifically designed to accommodate cycling and there are perceived and actual risks in riding on the road. The current footpath cycling law is out of step with the existing norm of footpath cycling. This is problematic for several reasons:

- Children and many adults do not want to break rules and yet in many situations footpath cycling is considered the only feasible option due to the traffic conditions and available road space. Most children do not realise that riding on the footpath is illegal and yet in other areas of life, teaching children to understand and follow rules and laws is an important part of child development.
- Due to its illegality, cycle skills trainers cannot currently teach safe footpath cycling techniques, even to young children for whom cycling on the road is often not an acceptable option, because they do not have the psychological maturity to safely negotiate complex traffic situations.
- The wheel diameter stated in the rule for wheeled recreation devices (355mm) is dated as there has been an evolution in bicycle design towards larger wheel sizes.
- People who use mobility tricycles (trikes) or quads cannot legally use the footpath without going through an extended process to get a dispensation to ride on the footpath.

As part of any change to the road user rule it is important to consider all footpath users, particularly the likely impacts on pedestrians, including the very young and elderly, and people with disabilities. Ultimately, the benefits of legally allowing more footpath cycling need to be balanced against the disbenefits that may result. It is important to note that any potential change to the rules would still recognise that pedestrians have priority over other footpath users.

### 1.2 Context setting

#### *The current debate*

A petition was presented to the Transport and Industrial Relations Committee in May 2016 recommending a change to the New Zealand Road Rules regarding footpath cycling. The petition sought a change to the New Zealand Road Rules to: Allow cycling on the footpath by children under 14 years of age (and accompanying adults), seniors over the age of 65, and vulnerable users (such as those with mental or physical disabilities); make bells mandatory for any bicycle used on footpaths or shared use paths; and allow local authorities to exclude, on a reasonable basis, certain areas of footpath from being used for cycling.

There has always been some debate over footpath cycling and the petition reignited healthy discussion. Some organisations responded by making a submission to the committee and/or developing policy on the matter. Three of the submissions are outlined below.

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- **Living Streets Aotearoa** do not support this proposal on the following grounds (but support safer roads for all with slower speeds and separated cycle lanes):
  - *“This would be against a basic principle to not compromise the safety of one group (pedestrians, and disabled people) to maybe improve the safety of another group (people riding bikes).”*
  - *Evidence suggests footpaths are not a safe place for children or adults to ride”.*
- **Cycle Action Network** have a policy on their website that states that cycling on footpaths should be legal for riders younger than 12 years and their accompanying guardians and also that:
  - *“A speed limit would need to be set for footpath cycling*
  - *Motorists would need to be educated as to their existing obligations with regards to having to give way to footpath users*
  - *Protected cycleways should continue to be built and are not affected by this policy.”*
- The **Office of the Commissioner for Children** support further consideration of the Petition to allow children and other vulnerable road users to ride bicycles on the footpath, with particular consideration given to the safety implications of making such a change. They made the following recommendations:
  - *“That cycle skills training (such as those currently funded through councils and NZTA) continues to be supported at a national level, with an increased focus on safe riding on footpaths. If this cannot currently happen due to the illegal nature of footpath riding, then that in itself is grounds to consider a change to the legislation to allow children to cycle on footpaths. .*
  - *That, should the petition be successful, Territorial Local Authorities (TLA) be supported to develop footpaths on key commuting routes into wider, shared pathways to accommodate a broader range of footpath users, and also that TLA’s be able to limit where footpath riding is able to occur, for instance on footpaths with exceptional levels of foot traffic, or areas where other footpath users are likely to be particularly vulnerable (e.g. near retirement homes or kindergartens).”*

**Footpaths and shared paths**

Often the footpath cycling debate is clouded by a lack of clarity over the difference between footpaths versus the shared path environment. **Figure 1.1** shows examples of a typical footpath (left) and a shared path (right) and the design differences are usually quite clear. Nevertheless, it is acknowledged that some of the safety issues affecting both footpaths and shared paths are similar.

**Figure 1.1**  
Footpath and shared path examples



Cyclist on a footpath



Cyclist and a pedestrian on shared path



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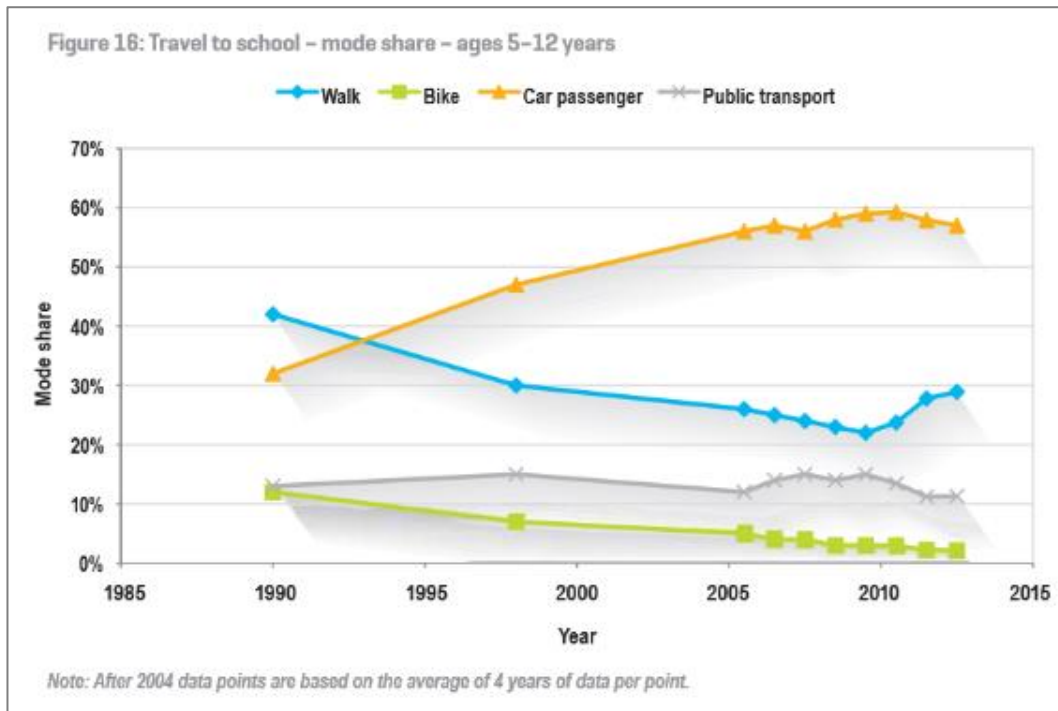
Footpaths are designed for foot traffic and mobility devices such as wheelchairs. They are generally at least 1.5m wide. Footpaths are wider in busy areas such as town centres.

Shared paths are designed for both foot traffic and other users, such as cyclists. They are generally wider than footpaths and sometimes include a painted line which separates the direction of travel or side of path for walking and cycling. Shared paths are designated for this use by the Road Controlling Authority through the use of signs and markings. Footpaths are sometimes widened and converted to shared paths.

Whilst walking as a means of travel to school has increased significantly since 2009, after a long period of decline, cycling rates have continued to decline (see **Figure 1.2**). Anecdotally, at least some of this walking increase may be attributed to a recent resurgence in the use of wheeled devices such as scooters and skateboards, which are categorised as pedestrians in the Ministry of Transport survey.

**Figure 1.2**

Travel to school  
1985 to 2015  
Household Travel  
Survey (Ministry of  
Transport, 2015c)





## 1.3 *Scope of the research*

Three broad areas are of interest to the Transport Agency, these are:

- Children riding on footpaths
- Adults riding on footpaths
- Pedal-powered mobility devices (such as adult sized tricycles)

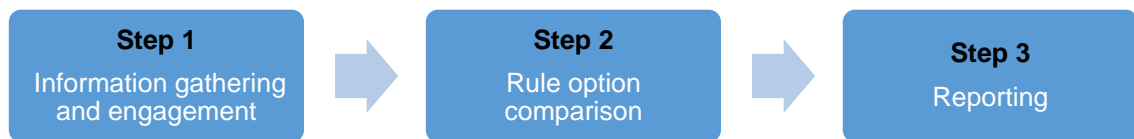
In order to provide a considered assessment of the rule options, an investigation of the underlying issues related to footpath cycling was carried out. The assessment considered a range of information including recorded data, related scientific and 'grey' literature, road user perspectives, and approaches taken in other countries. This information gathering and synthesis provides a strong basis from which a fair and balanced comparison of rule options has been made. More specifically, the research involved the following:

- Reviewing the current NZ law and preparing a stocktake of international footpath cycling laws;
- Establishing an overview of current footpath cycling norms including enforcement and education;
- Collecting a range of stakeholder views at two workshops;
- Reviewing available literature with regard to footpath cycling;
- Analysis of relevant NZ safety data; and
- Comparing potential options for Road User Rule and/or Traffic Control Devices Rule changes with respect to footpath cycling.

## 2. Method

The method used to compare footpath cycling rule options predominantly took a participatory approach. Prior to the comparison process, a range of activities were carried out to collect background information and to engage stakeholders. We took the position that if users of the system are thoroughly engaged at an early stage of the assessment process, it is more likely that an outcome will have considered their views. **Figure 2.1**, below outlines the broad process followed for this exercise.

**Figure 2.1**  
Broad research process



A number of research questions were developed to help structure the challenge of weighing up rule options. Each individual question will not necessarily be answered in the order presented below, but a sufficient response to the questions throughout the report is needed to provide a balanced assessment.

### Safety Impacts

- What are the likely actual and perceived safety impacts on children resulting from a rule change to allow them to cycle on the footpath?
- What are the likely actual and perceived safety impacts on people of all ages resulting from a rule change to allow them to cycle on the footpath?
- What is the likely level of actual and perceived injury risk (low/med/high?) to pedestrians if children are allowed to cycle on the footpath?
- What is the likely level of actual and perceived injury risk (low/med/high?) to pedestrians if cycling (all ages) is allowed on the footpath?

### Cycling and walking participation

- Is allowing children (below a certain age) to cycle on the footpath likely to increase the uptake of cycling for these children (and hence contribute to health benefits)?
- Is allowing cycling (all ages) on the footpath likely to increase the uptake of cycling in general?
- Would allowing children (below a certain age) to cycle on the footpath deter some people from walking on the footpath, and to what extent?
- Would allowing cycling (all ages) on the footpath deter some people from walking on the footpath, and to what extent?
- Would retaining the current rule and enforcing it, decrease the number of people cycling in general? (or would it increase the number of people cycling on the road and lead to a change in the severity of cycling-related injuries?)
- What are the other unintended (either positive or negative) consequences of allowing footpath riding?

### Pedal-powered mobility devices

- Should people who need a pedal powered tricycle or quadcycle for mobility be able to ride on the footpath without the need for an exemption (an onerous process)?

### Rule stipulations

- If older people were permitted to cycle on the footpath what could be an appropriate minimum age/condition?
- If children were permitted to cycle on the footpath what could be an appropriate age limit?

- What stipulations within a footpath cycling rule, if any, are needed to support safer use of the footpath?
  - Bells?
  - Rider speed?
  - Direction of travel?
  - Footpath width?
  - Adult accompanying child?
  - Restrictions where pedestrian numbers are high
  - Restrictions for specific road environment/speed etc.

### ***Step One - Information gathering***

**Review of laws, Education and Training.** Initially, a review of the existing cycling laws in New Zealand and internationally was conducted along with a brief review of the current education and training provision for cyclists in New Zealand. The outcomes of this step are discussed in **Sections 3 and 4**.

**Interviews with everyday footpath users.** As part of the participatory process, a series of seven interviews with everyday footpath users, including pedestrians, cyclists, and people with disabilities were held to bring a realistic viewpoint to the assessment. For this context setting exercise, everyday footpath users were recruited through acquaintances, making sure that none were transport professionals or advocates of any kind. This exercise was not used in any quantitative way to balance either side of the issue. Rather, its purpose, in line with the participatory approach, was to highlight examples of everyday footpath user perspectives. These conversations are important as, without them, a rule risks being divorced from the everyday realities of footpath users. The outcomes of the interviews are discussed in **Section 5.1**

**Stakeholder workshops.** Following the interviews, three forums (two being workshops) were held. They were designed to engage a variety of stakeholders including pedestrian advocates, cycling advocacy groups, automobile advocacy, vision impairment groups, government departments, and the road controlling authorities. The goal of the forums was to achieve informed stakeholder position(s) on footpath cycling and potential rule changes. Stakeholder engagement was a critical step, as it acknowledged the range of views or positions that people and groups held on footpath cycling. Crucially, the discussion was set within the context of previously gathered facts, as well as the range of real-life situations where footpath cycling may be encountered, or is problematic. The outcomes of the workshops are discussed in **Section 5.2**.

The three forums for targeted stakeholder engagement were:

1. Stakeholder workshop (a range of relevant stakeholders) -17<sup>th</sup> August 2016 in Wellington
2. RCA Forum's Shared Footpath Working Group -18<sup>th</sup> August 2016 in Wellington
3. RCA Forum Active Modes Infrastructure Group – 19<sup>th</sup> August 2016 in Wellington

**Literature Review.** A literature review, presented in **Section 5.3** was conducted to better understand the key safety and usability evidence associated with footpath cycling, especially in relation to both pedestrians and cyclists.

**Safety data.** The NZ Transport Agency's Crash Analysis System (CAS) data was analysed over a 10-year period from 2006-2015 to assess the characteristics of previous cyclist crashes both on the road and on the footpath. How the latter impacted pedestrians was a key focus of the analysis. A comparison was also made with the earlier 10-year period 1996-2005, to see how cycling crash patterns have changed over time. Hospital injury data was also examined. This is discussed in **Section 5.4**.

**Section 6** summarises the issues in the context of a Safe Systems approach.

## *Step Two – Rule option comparison*

The information gathered in Step One informed the comparison of rule options which are presented in **Section 7**.

The process for comparing the base rule options (including the status quo) involved identifying the base rule options (acknowledging that there may be iterations depending on the associated stipulations), and examining the indicative benefits and disbenefits (costs) of each option.

## 3. Current Footpath Cycling Law

### 3.1 New Zealand Law

The Land Transport (Road User) Rule 2004 outlines the allowable use of a footpath. A footpath being defined in the Road User Rule as “a path or way principally designed for, and used by, pedestrians; and includes a footbridge by those other than pedestrians”.

The footpath rules by travel mode are outlined below with the full Road User Rule wording in **Appendix A** (including the law relating to shared paths).

#### ***Pedestrians***

A pedestrian, defined as “a person on foot on a road; and includes a person in or on any contrivance equipped with wheels or revolving runners that is not a vehicle”.

The law states that a pedestrian must, at all times when practicable, remain on the footpath if one is provided.

In addition, a pedestrian must not unduly impede the passage of a mobility device or wheeled recreational device permitted to use the footpath, or a moped or motorcycle permitted to use the footpath.

If a pedestrian uses the roadway they must remain as near as practicable to the edge of the roadway.

#### ***Mobility device users***

A mobility device (see **Figure 3.1**) is defined as “a vehicle that is designed and constructed (not merely adapted) for use by persons who require mobility assistance due to a physical or neurological impairment, and is powered solely by a motor that has a maximum power output not exceeding 1500 W; or has been declared by the Director, by notice in the Gazette, to have a maximum power output not exceeding 1500 W.”. This definition excludes pedal powered mobility devices such as tricycles (trikes), these users must apply for a dispensation to ride on the footpath.

A driver must not drive a mobility device on any portion of a roadway if it is practicable to drive on a footpath.

A driver of a mobility device on a footpath must operate the device in a careful and considerate manner; and must not operate the device at a speed that constitutes a hazard to other footpath users.

A driver of a mobility device or a wheeled recreational device using the roadway must remain as near as practicable to the edge of the roadway.

**Figure 3.1**  
Powered mobility device on a shared path





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***Bicycles (referred to as a ‘cycle’ in law)***

A cycle is defined as “a vehicle having at least two wheels and that is designed primarily to be propelled by the muscular energy of the rider and includes a power-assisted cycle”.

A person must not ride a cycle on a footpath or on a lawn, garden, or other cultivation forming part of a road. This does not apply to a person who rides a cycle on a footpath in the course of delivering newspapers, mail, or printed material to letterboxes.

***Wheeled recreation devices***

A wheeled recreational device is defined as “a vehicle that is a wheeled conveyance (other than a cycle that has a wheel diameter exceeding 355 mm) and that is propelled by human power or gravity; and includes a conveyance to which are attached one or more auxiliary propulsion motors that have a combined maximum power output not exceeding 300 W”.

It is assumed that the wheel diameter is measured from the outside edges of the rim, although the rule is not clear on this. **Figure 3.2** shows the two smallest bicycles available, the cycle on the left has a wheel diameter less than 355mm so can legally be ridden on a footpath. The cycle on the right (16-inch wheel bike) has a wheel diameter greater than 355mm so cannot be ridden on the footpath. It is unlikely children older than 5 or 6 will be riding the bike on the left as they will have moved to a 16 or 20-inch wheeled cycle.

**Figure 3.2**  
Small cycle sizes



2-wheel cycle, 310mm (outside diameter)



2-wheel cycle, 400mm (outside diameter)

As with a driver of a mobility device the law covers the use of a wheeled recreational device on a footpath

A rider of a wheeled recreation device such as a scooter, skateboard or roller blades (example in **Figure 3.3**) must operate the device in a careful and considerate manner; and must not operate the device at a speed that constitutes a hazard to other footpath users. In addition, a person using a wheeled recreational device on a footpath must give way to pedestrians and drivers of mobility devices.

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**Figure 3.3**  
Scooter (a wheeled recreational device) use on footpath



**Motor vehicles**

The Road User Rule does not allow motor vehicles to be driven along a footpath. However, a person can ride a moped or motorcycle on a footpath in the course of delivering newspapers, mail, or printed material to letter boxes if the road controlling authority has authorised the use of the footpath for that purpose.

New Zealand Post wants to use electric motorised vehicles called Paxters (shown in **Figure 3.4**) on footpaths to undertake mail delivery on many routes. This will need exemptions from Road Controlling Authorities (Local Authorities or NZTA) for this as it not covered by the current law.

**Figure 3.4**  
Paxter mail delivery vehicle on the footpath





## 3.2 Enforcement in New Zealand

As most footpath cycling is currently illegal, NZ Police have a role in giving fines for footpath cycling. Between February and July 2014<sup>[1]</sup>, 521 cyclists were handed \$55 fines for riding on a footpath or garden bed. However, it would also be fair to suggest that Police take a pragmatic view of footpath cycling, realising that most people are riding on the footpath, not to intentionally break the law, but rather to cope with a section of road that is deemed unsafe by the cyclist.

However, there are clearly some situations where footpath cycling is likely to remain unacceptable to most people including NZ Police, as shown in the quote below. This may have important implications for any conditions as part of any rule change.

*"If somebody's riding down Lambton Quay and weaving in and out of pedestrians they can expect to be stopped and dealt with. It's not a high priority offence for us in most situations."*

Whilst adults are sometimes fined for footpath cycling, it is not practical to fine children who are cycling on the footpath. Enforcement of the current rule for children usually takes the form of a verbal warning, but as mentioned a pragmatic approach is taken even for this.

In terms of children's awareness of the law, as part of developing their submission to the Transport and Industrial Relations Committee on the footpath cycling petition, the Office of the Commissioner for Children surveyed school children. The survey included five primary and intermediate schools with decile ratings between 2 and 7, from Auckland, Taranaki, Porirua and Wellington. They received responses from 176 students across the five schools, ranging in age from 7 to 15 years.

84% of students who responded to the survey had ridden a bicycle. Of the students who had ridden bicycles, 86% said they had ridden a bike on a footpath and 71% said they did not know that it was illegal to ride on a footpath. Of all students surveyed 70% supported a law change to make it legal for them to ride on the footpath, but they acknowledged that it might impact other users.

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<sup>[1]</sup> Media article - <http://www.stuff.co.nz/national/10520184/Cyclists-cop-400k-in-fines>

### 3.3 International Law Stocktake

Table 3.1 outlines a range of rules from around the world related to footpath cycling.

**Table 3.1**  
International Rules  
related to Footpath  
Cycling

| Countries/States  | Rule  |
|---|---|
| Netherlands, UK, Ireland, Scotland, Alabama   | <b>Footpath cycling banned.</b><br>UK/Ireland – Rule not enforced for young children<br>Scotland – Signs can indicate otherwise.  |
| New Zealand   | <b>Footpath cycling banned with exceptions</b><br>New Zealand – Exception for delivering mail or where wheel diameter is no greater than 355mm (wheeled recreational device).   |
| France/Belgium  | <b>Children up to age 8 may ride on footpaths</b>   |
| Germany   | <b>Children up to age 8 must ride on the footpath and children age 9 and 10 may ride on the footpath.</b><br>Adults may accompany children when the path is not labelled 'pedestrians only'.  |
| New South Wales, Victoria, Finland  | <b>Children under 12 years of age can ride on a footpath.</b><br>New South Wales, Victoria - An adult rider who is supervising a cyclist under 12 may also ride with the young cyclist on the footpath. Bells are mandatory.<br>Victoria - Also allows disabled riders (requires a medical certificate).  |
| Japan   | <b>Cycling on the footpath is illegal except for:</b> children under 13 years of age; adults over 70 years of age; disabled users; or if there is a sign indicating it is a shared path.  |
| Queensland, ACT, South Australia, Western Australia, Tasmania, Northern Territory, Alaska, Colorado, Florida, Idaho, Illinois, Kentucky, Massachusetts, Oregon, Washington, Montana, Hawaii | <b>All ages cycling allowed.</b><br>Queensland, ACT, South Australia, Western Australia, Tasmania, Northern Territory - You must keep left and give way to pedestrians on footpaths and shared use paths. Bells mandatory.<br>South Australia - Speed limit of 10km/h may be enforced in October 2016.<br>Hawaii – Bicycles must be ridden at 10mph (16 km/h) or less.<br>South Australia, Western Australia, Tasmania and Northern Territory, Alaska - Footpath cycling can be banned with a 'no bicycle sign'.<br>Alaska/Massachusetts/Hawaii – Banned in business districts<br>Kentucky – Cyclists must slow to walking speed near pedestrians<br>Washington – If a cyclist fails to give way to a pedestrian, 50% of the fine can be deposited into a school safety account |
| Arizona, California, Kansas, New York, Wisconsin and Canada   | <b>No official rule (but local rules/by-laws may exist).</b><br><br>Many Canadian cities have bylaws based on 500mm wheel size.   |

### 3.4 Discussion

Apart from stated delivery functions such as delivering mail, New Zealand permits footpath cycling if the cycle wheel is less than 355mm diameter. Many Canadian cities have bylaws permitting cycling on the footpath for wheels under 500mm diameter (20 inches). This was the only other example of wheel size being used. Both sizes restrict the use of footpaths for cycling to all cyclists except very small children, under 5 or 6 years old in NZ and maybe 7 or 8 years old in Canadian cities. The Canadian approach means that adults riding BMXs and folding bikes would be legally permitted to ride on the footpath.

In some countries/states, footpath cycling is banned altogether, which is essentially the closest match to the NZ rule. In other countries/states, children of various ages are allowed to use the footpath, presumably reflecting their developing cycling ability and hazard management skills. For many Australian and US states, everyone is allowed to cycle on the footpath, which is the position most distant from NZ's rules. This difference between our law and that of some Australian and US states could be confusing for tourists cycling on holiday in New Zealand, as there is no promotion of the current NZ rule.

Regarding Australian rules, it should be noted that Queensland, Tasmania, Northern Territory, and the ACT have long had an all-encompassing footpath cycling law. It is only in very recent times (i.e. the last year) that South Australia and Western Australia have allowed footpath cycling by people not accompanying children aged over 12 years.

For many of the examples from overseas where footpath cycling is allowed, there are often a range of conditions such as courtesy, speed, and warning other users that come with the rule. This approach is consistent with the NZ rules for use of shared paths. Most of the countries or states that allow children under a certain age to ride on the footpath also allow the accompanying adult to ride on the footpath.

## 4. Current education and training

This section outlines the current education and advice that is offered by various agencies in NZ with respect to cycling and how or if this relates to footpath cycling. Cycle training programmes in NZ are also discussed.

### 4.1 Education and advice

There are a number of resources which describe key safety messages for cyclists. At a Government level these messages are from the Police and the Transport Agency.

The Police have a School Portal<sup>[2]</sup> that contains information for schools on partnership with police, programmes, best practice guidelines on several topics, and information for students and parents. The portal includes Travelling Safely resources that can be used to assist students to safely use transport networks, whether as passengers (both road and rail), pedestrians, cyclists, or drivers. There are road safety resources for Years 1-8 and Years 11-13 (they defer to NZTA for Years 9 and 10). The resources cover safe cycling but are silent on footpath cycling.

The Transport Agency's website has links to basic safety tips (e.g. Be Seen, Be Aware, Be Predictable, Be Confident, Be Safe, Be Patient, Be Prepared) as well 'Safer cycling for children' fact sheets. Key recommendations for parents and whanau<sup>[3]</sup> are:

- Teaching your children good habits by biking with them, starting on environments away from traffic initially and then progressing to quieter streets;
- It is strongly recommended that children under 10 years are supervised when riding on the road;
- The importance of wearing an approved helmet and how to fit it correctly;
- The importance of children understanding and following the road rules;
- Making sure children's bikes are in a safe condition and have reflectors;
- Ensuring children wear bright clothes and shoes.

The Transport Agency's Education Portal<sup>[4]</sup> also has extensive road safety education resources for schools across Years 1-13. These resources use transport and road safety as a context for learning, aiming to support teachers to plan learning that is aligned to the NZ curriculum. As opposed to resources that are about a particular mode or which are prescriptive in their content, they are based on broader concepts of citizenship, and the rights, roles and responsibilities of road users. These resources also aim to engage students in identifying and finding solutions for road safety issues relevant to them (NZ Transport Agency, 2013). It is possible that schools may be exploring learning around cycling, or concepts related to footpath cycling; however, this is up to the school, teacher, and students to decide depending on their priorities.

The New Zealand Road Code for Cyclists<sup>[5]</sup> (NZ Transport Agency 2015) describes the legal requirements, expected behaviour and key safety recommendations for riding in a range of environments. The code instructs people to walk their bike on footpaths (unless delivering mail or with a 355 mm wheel diameter), and whilst it describes expected behaviour on shared paths, no safety guidance is provided for footpath riding.

<sup>[2]</sup> Website: <http://www.police.govt.nz/advice/personal-and-community-advice/school-portal>

<sup>[3]</sup> Source: Safe riding tips for parents/caregivers/whanau [www.bikewise.co.nz](http://www.bikewise.co.nz)

<sup>[4]</sup> Website: <https://education.nzta.govt.nz/>

<sup>[5]</sup> Website: <https://www.nzta.govt.nz/resources/roadcode/cyclist-code/>

## 4.2 Cycle training

The New Zealand Transport Agency's Cyclist Skills Training Guide (March 2012) outlines how to prepare cyclists to ride confidently on the road. The guidelines include a set of core skills, divided into four grades:

- Complete Beginner – Learning to ride a bike;
- Grade 1 Beginner - Basic bike handling skills in off-road environments;
- Grade 2 Intermediate – Introductory on-road training in lightly trafficked environments (recommended those aged 10 and over); and
- Grade 3 Advanced – On-road cycle training in complex road environments.

The guidelines are designed to cater for a range of abilities and age groups in both school and community settings, and also include health and safety procedures and evaluation activities. There is also a qualification framework, which enables cycle instructors to become qualified to teach the different grades.

Many different stakeholders are involved in the delivery of cycle skills training through a variety of channels (e.g. sport organisations, councils, police, and community organisations). In the 2012/2013 financial year, 27,935 children aged between 9 and 14 years participated in some form of cycle training (approximately 4.9% of this age group). The reach and type of training offered varies across the country, although the majority of training delivered nationally is Grade 1 (for example 68% of children trained in the 2012/2013 year received Grade 1 only). Adult cycle training opportunities are significantly less widespread, but tend to have a higher proportion of Grade 2 (Cycling NZ, 2014).

The correct behaviour on 'shared paths' is described in the current guidelines, including keeping left and being aware of pedestrians and driveways. However, shared paths are not present in all communities, and this is described as 'optional skills' in the current guidelines. In on-road training, if trainees feel uncomfortable with a traffic situation, they are instructed to walk their bike on the footpath, however there is no explicit content about how to ride safely on the footpath. Some instructors have acknowledged that having no cycle training content about footpath riding is out of step with the reality of where trainees are riding, and this creates difficulties for instructors. There appears to be no consistent messaging or approach around this issue, with some adhering purely to the guidelines, while others include safe footpath riding informally in their training content (Mackie et al 2016).

Due to the popularity of scootering, and demand from schools, some councils and organisations also offer scootering training. Key content typically includes helmet fitting, driveway safety, side-roads, and awareness of other hazards.

## 5. Understanding the issues

To achieve a better understanding of the key issues around footpath cycling, a range of enquiry activities were carried out:

- Current footpath user perspectives;
- Wider stakeholder views;
- Review of literature; and
- Key safety statistics related to footpath cycling.

The following sub-sections outline the key findings for each of these areas. Section 6 provides a summary of the issues. It is intended that by bringing this information together, well-informed consideration of footpath cycling rule options can be made.

### 5.1 Footpath user perspectives

#### Interviews

This section summarises actual conversations with a limited range of footpath users to help better understand the issues from a real-life perspective, as outlined earlier. We asked people about their typical footpath use and their perspectives on footpath cycling. Their names have been changed to protect privacy, but all other aspects of the examples are factual.




**70-year-old female cyclist**

Helen belongs to an all-female cycling group who are mostly over 50 years of age, and retired. They mostly cycle on the shared paths alongside the Waikato River.

*“Often the on-road cycle lanes end at intersections, so at intersections we prefer to divert up onto the footpath.”*

*“They always seem to put road works signs where we would be cycling.”*

*“If a policeman stopped me for cycling on the footpath I would say I have had a big fright once and was almost hit, and now I am not prepared to stay riding on the road.”*



**16-year-old male who cycles to school and after-school job**

Tom’s bike routes in the local area include a mixture of local streets, arterial roads, parks, and shared paths. On his ride to school, he rides on the road on local streets, but uses the footpath on Botany Road, Auckland. This is a dual lane urban arterial (15,000 vehicles per day) with a 60km/h speed limit and no road shoulder.

*“I am not going to ride on Botany Road, not a busy road like that, it’s too busy and dangerous. It’s safer on the footpath.”*

*“I think you should be allowed to cycle on the footpath but they should know it’s for pedestrians first and to be respectful of them.”*

ConnectBetter

**70-year-old female pedestrian**



Vicky walks every day and likes using off-road paths. She thinks the shared paths are not wide enough. She gets frustrated with both pedestrians walking in middle of path and cyclists and thinks that people need to be considerate and tolerant. Vicky moves to the left when walking if she sees a cyclist approaching or hears one coming from behind. Vicky has not had any near-misses with cyclists on the footpath. Vicky thinks they feel safer on the footpath and that the footpaths are empty most of the time.

*“I don’t think I have had any near misses with cyclists”*

*“I feel they should be on the road but understand why they ride on the footpath”*

*“I wish cyclists would ring a bell when they approach from behind.”*

**23yr old Male commuter Christchurch**



Peter commutes 3.5 km daily to and from central Christchurch. He is a confident cyclist and uses the footpath to cycle contraflow on a one-way section of his daily commute.

*“On Tuam street I want to cycle contra-flow so I use the footpath, I go slower when on the footpath, especially when crossing the intersection, I go at pedestrian pace as I am crossing contra-flow.”*

*“I feel more comfortable using road. I travel at 30 km/h which is better suited to road cycling. It is too fast to pass pedestrians at that speed. I prefer cycling on road to avoid cars coming out of driveways.”*

*“Personally, I think its ok for people to cycle on the footpath as long as the footpath is wide enough and you travel the same speed as pedestrians.”*

**50-year old female, with a visually impairment, has guide dog**



For Beth, footpaths are really important and her main means of transport. Beth finds walking past school gates when children are leaving difficult, as children (pedestrians and cyclists) often do not give her, and her guide dog enough room.

*“Places with really wide footpaths might be ok – but there has to be space.”*

*“If you put children (cyclists) on the footpaths you put adults (cyclists) on the footpaths.”*

*“Cyclists come up behind you very quietly, and I don’t know they are there, they really put you at risk. Bikes on the footpath are extremely dangerous.”*



ConnectBetter

**Person who uses a pedal powered mobility device**



Mary, a 75-year-old female, is unable to use a standard bicycle due to vertigo. She has been riding a tricycle for 6 years. Initially she rode on footpaths, but after about 3 months she gained enough confidence to ride on the road. Mary does not ride on busy roads with no shoulder. She will still use the footpath in situations where she feels unsafe. She rings her bell when she approaches a pedestrian.

*“When I first got on the trike I was petrified of going off the footpath”*

*“If people feel safer on the footpath I think its ok for them to use it.”*

*“Small children are dangerous on the road, they wobble and don’t have good road sense.”*

**Family who cycle together**



Janet is a 44-year-old who bikes with her daughter, 9 and son, 8. The kids learnt to cycle on balance bikes on their driveway, then on the footpath of quiet streets. They will cycle on the road together on quiet residential streets. However, at the school gate, car doors opening and cars merging across the cycle lane to the P5 drop off zone mean that Janet believes this situation is too complex for her young children to manage. Here, she bikes with her children on the wide footpath and in other situations that she perceives as risky.

*“On St Luke’s Road we go on the footpath because of all the left turning cars in the cycle lane.”*

*“At the school gate cars cut across the cycle lane to get to the drop off area so we use the footpath.”*

**Summary**

For the cyclists we spoke with, decisions to cycle on footpaths appear to be rational choices based on the perceived safety of the road environment. Particular problem areas included urban arterials, intersections, dual lanes, faster speed limits (in some cases), and high volumes of traffic. None of the interviewees reported cycling on the footpath as their overall preferred location, but rather they reverted to the footpath at certain times as needed. It is acknowledged that the youngest interviewee was 16 years, although the family cycling included an 8 and a 9-year-old and clearly the road environment was deemed not to be suitable by their mother.

For pedestrians we spoke to, cyclists on the footpath can clearly be intimidating, and this could potentially limit some pedestrian’s mobility, particularly those with disabilities. However, other footpath users were equally seen as being problematic. One of the pedestrians preferred cyclists not to use the footpath, but understood why they did.

## 5.2 Wider stakeholder views

Gaining an understanding of stakeholder views in New Zealand was an important aspect of the research. In addition to the interviews discussed in Section 5.1, three forums were held as a way of gaining views, these were:

- Stakeholder workshop (17<sup>th</sup> August, Wellington);
- Road Controlling Authority (RCA) Forum Shared Footpath Working Group (18<sup>th</sup> August, Wellington); and
- RCA Forum Active Modes Infrastructure Group (19<sup>th</sup> August in Wellington).

### Stakeholder workshop

A four-hour workshop was attended by representatives from the organisations outlined in **Table 5.1**. The role of the organisation and whether they have a position or policy on footpath cycling are also outlined in Table 5.1. Safe Kids NZ, Greypower, and Cycling NZ were not able to attend the workshop. A Safe Kids NZ representative was able to attend the RCA forum workshop held the following day.

**Table 5.1**  
Stakeholder  
workshop  
representation

| Organisations represented   | Does the organisation have a published position/policy?   |
|---|---|
| <b>Advocacy groups</b>  |   |
| Living Streets Aotearoa (LSA)<br>(An advocacy focused on walking)                               | Yes<br>Response to petition on LSA website is that cycling on the footpath will present a hazard to pedestrians, particularly vulnerable citizens (young, older people, mobility and sensory impaired). |
| Cycling Action Network (CAN)<br>(An advocacy focused on cycling)                                | Yes<br>Policy on CAN website and petition submission states that cycling on footpaths should be legal for riders younger than 12 years and their accompanying guardians.                                |
| Blind Foundation<br>(a guide dog trainer attended)  | No  |
| VICTA (Visual Impairment Charitable Trust Aotearoa NZ)<br>(a visually impaired member attended) | No  |
| Jo Clendon (petition submitter)   | Yes   |
| Automobile Association  | No  |
| <b>Government departments</b>   |   |
| NZ Police   | No  |
| Ministry of Transport   | No  |
| Ministry of Education   | No  |
| Ministry of Health  | No  |
| Office of the Commissioner for Children   | Yes<br>Response to petition in support of children cycling on the footpath.   |

Whilst some of the stakeholders had a clear position on footpath cycling, the workshop enabled group discussion around the various perspectives. The initial literature review and safety analysis findings were shared with the group and then each attendee had the opportunity to outline their views. A group discussion followed and it was clear that this topic has many facets, making consensus on the matter unlikely.

Key points raised in the discussions were:

- Ideally roads would be safe for all cyclists and footpaths would remain the domain of pedestrians.
- Cyclists go faster than walkers but scooters, skateboards, and some runners can also travel at the same speed as bicycles.
- Mobility scooters can also travel fast on the footpath.
- There is an issue with courtesy on the footpath. If everyone behaved well there may not be any issues.
- There are already children cycling on the footpath with bikes that have wheels greater than 355mm diameter, sometimes with their parents on the path as well.
- Footpaths are often empty so allowing cycling in some instances could be a good use of space.
- Footpath widths and conditions are often not suitable for cycling.
- Guide dogs have trouble with the speed and proximity of passing cyclists.

The group was asked to assess a range of footpath cycling rule scenarios as follows:

- The Status quo rule;
- Alternative 1 - All ages permitted to cycle on footpath;
- Alternative 2 - Children under 12 years (and accompanying adults); and
- Alternative 3 - Children under 14 years of age (and accompanying adults), seniors over the age of 65, and vulnerable users (such as those with mental or physical disabilities).

Each attendee filled in a table outlining the advantages and disadvantages of each option, these are collated in **Table 5.2**.

A number of possible rule stipulations (in addition to age) were also discussed with the stakeholders at the workshop. These are outlined further in Section 8.2.

Table 5.2 Option comparison from the stakeholders

| Option   | Advantages  | Disadvantages  |
|--|---|--|
| <b>Status Quo</b>  | <ul style="list-style-type: none"> <li>• Simple and unambiguous</li> <li>• Pedestrians legally have their own space</li> <li>• Cyclists' place on the road is made clear</li> <li>• Requires that RCAs continue to build cycle facilities (rather than rely on the footpath)</li> </ul>   | <ul style="list-style-type: none"> <li>• Law not always being enforced, understood or respected</li> <li>• People put off cycling by road safety fears</li> <li>• Children advised not to bike on the -road until they are 10 but cycling on footpath not legal once their bike wheel greater than 355mm</li> </ul>  |
| <b>Alternative 1</b><br><br><b>All ages permitted to cycle on footpath</b> | <ul style="list-style-type: none"> <li>• Simple and clear rule</li> <li>• Effectively legalises what is happening anyway</li> <li>• Enables safe footpath cycling to be taught to all</li> <li>• Cyclists can go anywhere there is a footpath– more options</li> <li>• Safe option for learning cyclists</li> <li>• Less interaction with motor vehicles on the road- safety benefits</li> <li>• Encourages the uptake of cycling</li> <li>• Potentially increased public health</li> <li>• Potential to see increased spending on footpath maintenance</li> <li>• Potential to see improved road crossings for footpath users</li> </ul> | <ul style="list-style-type: none"> <li>• Increased safety risk at driveways and intersections</li> <li>• Decreased safety for pedestrians (particularly less-able users)</li> <li>• Footpath congestion in busy areas</li> <li>• Could discourage walking</li> <li>• Less pressure for RCAs to build cycle facilities</li> <li>• Decreases legitimacy of cyclists as road users</li> <li>• Footpath safety education required</li> <li>• Rule not targeted at highest risk groups (such as children)</li> <li>• Wider footpaths needed in some areas (and other infrastructure changes)</li> </ul> |

| Option   | Advantages   | Disadvantages  |
|--|--|--|
| <p><b>Alternative 2</b></p> <p><b>Children under 12 years (and accompanying adults)</b></p>  | <ul style="list-style-type: none"> <li>Effectively legalises what is happening anyway</li> <li>Enables safe footpath cycling to be taught</li> <li>Children under 12 can go where they are more comfortable to ride</li> <li>Good use of low volume footpaths</li> <li>Safe option for learning cyclists</li> <li>Less interaction with motor vehicles</li> <li>Encourages the uptake of cycling</li> <li>Potentially increased public health</li> <li>Potentially creates better drivers in the future</li> <li>Potential to see increased spending on footpath maintenance</li> <li>Potential to see improved road crossings for footpath users</li> </ul>   | <ul style="list-style-type: none"> <li>Less simple to enforce as children do not carry identification</li> <li>Setting a children's age limit doesn't necessarily represent the capability of the child</li> <li>Many 12 to 14 years olds still developmentally vulnerable</li> <li>Increased safety risk at driveways and intersections</li> <li>Decreased safety for pedestrians (particularly less-able users)</li> <li>Some footpath congestion in busy areas</li> <li>Could discourage walking</li> <li>Less pressure for RCAs to build cycle facilities</li> <li>Decreases legitimacy of cyclists as road users</li> <li>Footpath safety education required</li> <li>Rule not targeted at highest risk groups</li> <li>Wider footpaths needed in some areas (and other infrastructure changes)</li> </ul>  |
| <p><b>Alternative 3</b></p> <p><b>Children under 14 years of age (and accompanying adults), seniors over the age of 65, and vulnerable users (such as those with mental or physical disabilities).</b></p> | <ul style="list-style-type: none"> <li>Includes most of the users at high-risk</li> <li>Enables safe footpath cycling to be taught</li> <li>Children under 14 can go where they are more comfortable to ride</li> <li>Seniors with slower reactions can ride on the footpath</li> <li>Good use of low volume footpaths</li> <li>Safe option for learning cyclists</li> <li>Less interaction with motor vehicles</li> <li>Encourages the uptake of cycling</li> <li>Increased public health</li> <li>Potentially creates better drivers in the future</li> <li>Potential to see increased spending on footpath maintenance</li> <li>Potential to see improved road crossings for footpath users</li> <li>Bells can warn people of approaching cyclists</li> </ul> | <ul style="list-style-type: none"> <li>Less simple to enforce as children do not carry identification.</li> <li>Definition of 'vulnerable users' would need to be well defined</li> <li>Setting an age limit does not represent the size of the children</li> <li>12 to 14 years olds may be, faster and less careful and present a higher crash risk</li> <li>Demand for elderly cycling may not justify the rule</li> <li>Increased safety risk at driveways and intersections</li> <li>Decreased safety for pedestrians (particularly less-able users)</li> <li>Footpath congestion in busy areas</li> <li>Could discourage walking</li> <li>Less pressure for RCAs to build cycle facilities</li> <li>Decreases legitimacy of cyclists as road users</li> <li>Footpath safety education required</li> <li>Rule not targeted at highest risk groups</li> <li>Wider footpaths needed in some areas (and other infrastructure changes)</li> <li>Bells can be frightening for other users</li> </ul> |

### ***RCA Forum- Shared Footpath Working Group***

This working group is made up of representatives from the Transport Agency, Local Authorities, the Blind Foundation, CCS Disability Action Waikato and Living Streets Aotearoa, Ministry of Transport, Office for Seniors, Ministry of Social Development, Alzheimers New Zealand, Traffic Research Group/Waikato University, Police, and Cycling Action Network.

The working group was established to examine the issues around shared footpaths and to ensure that the international research literature is being reflected in local practice. The group will also support and steer research on the effect of shared footpaths on participation rates by different segments of society, examine the guidance provided to practitioners on the design of footpaths and shared paths, and consider the changing users of footpaths, and the needs of users of mobility scooters and other devices.

The workshop was attended by representatives from all the member groups except for Cycling Action Network and followed the same structure as that held the day before. Similar points were raised as the previous workshop, but there was a particular concern over the impact of footpath cycling on older people and pedestrians with mobility impairments. In particular, there was concern over the impact that increased footpath cycling would have on deterring people from walking on footpaths and that this potentially could result in social exclusion.

The group was asked to assess the range of rule scenarios and again each attendee filled in a table outlining the advantages and disadvantages of each. These were collated and combined with the findings of the previous workshop, see **Table 5.2**.

A number of possible rule stipulations (in addition to age) were also discussed with the stakeholders at the workshop. These are outlined further in Section 7.2.

### ***RCA Forum - Active Modes Infrastructure Group***

The Active Modes Infrastructure Group is made up of representatives from the Transport Agency, and Local Authorities. The role of this group is to identify best practice and make this available to practitioners, develop and promote sector agreement, develop or steer development of guideline documents, and promote consistent implementation of best practice in the context of active modes.

The forum with this group was an open discussion on the issues. The same key issues as per the workshops were raised.

### ***Summary of stakeholder engagement***

A range of engagement activities were carried out with stakeholders including conversations with everyday footpath users and workshops with government agencies and advocacy groups, some of which already had a clear position on footpath cycling. There were a wide range of perspectives and it was clear that a consensus on footpath cycling was unlikely. Key issues that were raised included the safety of pedestrians, the safety of cyclists (particularly children) at driveways and side roads, and the benefits of more safety-conscious footpath cycling. Some felt that allowing footpath cycling would reduce pedestrian participation, particularly for older people and those with mobility impairments. Others felt that facilitating safe footpath cycling is essential given New Zealand's typical road design and traffic conditions. Others felt that with typical road design and traffic conditions they did not want to see footpath cycling as an alternative to continuing to provide cycleways.

## 5.3 Literature review

### *Preamble*

Academic literature, Government, and local Council reports which studied or evaluated the behaviours, perceptions, attitudes, and safety implications towards footpath cycling from the years 1988-2016 were reviewed. The available literature is limited and it predominantly focusses on cyclist safety. Few studies examined pedestrian perceptions or their safety outcomes when sharing footpaths with cyclists.

The majority of studies which examined the relationship between pedestrians and cyclists did not distinguish between shared paths, footpaths, and bicycle-only infrastructure (Harris, Reynolds et al. 2013). Therefore, the literature was not sufficiently comprehensive to claim a link between cyclists using the footpath only, and any resulting risk to pedestrians.

In relation to cyclist safety on roads and footpaths, we were able to draw conclusions regarding the severity and likelihood of crashes, safety for child cyclists, and cyclists' perceptions of safety.

This review will summarise the available literature in the following areas:

- Pedestrian perceptions of safety
- Pedestrian's actual safety
- Elderly pedestrians
- Cyclist speed
- Road safety for cyclists
- Why do cyclists use the footpath?
- Footpath safety for cyclists
- Children as cyclists
- Footpath cycling elsewhere

### *Pedestrian's perceptions of safety*

There was little available peer-reviewed literature that examined perceptions of safety from a pedestrian perspective regarding proximity to cyclists. The relationship between pedestrians and cyclists can, at times be tense (Shaw, Poulos et al. 2012), particularly in relation to space and various users' perceptions of ownership. For example, Kingham, Taylor et al. (2011) found that pedestrians in New Zealand can have a negative view about sharing footpaths with cyclists, especially if no extra footpath width is provided. This issue of the loss of amenity is reflected by Katz (1994) who suggested that pedestrians' safety perceptions and sense of footpath ownership may be influenced by the legality of footpath riding.

A point fleetingly mentioned in the literature relates to the silence of bicycles (Katz 1994). For some pedestrians, the swift movement and silence of approaching bicycles can be threatening, particularly when there is not much space on the footpath to be safely overtaken. Although there is little evidence in the literature to support this, it doesn't mean that it doesn't exist. Rather, it is more likely to be a little-researched topic and is therefore under-represented in the literature.

### *Pedestrian's actual safety*

Due to limited reporting of pedestrian and cyclist incidents and crashes to authorities (De Rome, Boufous et al. 2011), it is difficult to comprehensively conclude about the likelihood of crashes between the two travel modes. This has been an ongoing issue, as these same concerns were expressed twenty years apart, by Katz (1994), and by Haworth, Schramm et al. (2014). In addition, there is the confounding problem of unclear reporting which does not delineate between crashes on footpaths or shared paths.

In general, the literature reports a low risk and low consequence for the event of a cyclist and pedestrian collision on a shared path or footpath (Drummond 1989, Graw and König 2002, De Rome, Boufous et al.



2011, Grzebieta, McIntosh et al. 2011, Haworth and Schramm 2011), which may be a factor in the low-levels of reporting of these crashes to the authorities. However, the literature was clear that teenage male cyclists were most at risk of having a crash with a pedestrian (Oulton and Hynes 1995), and that in cyclist-pedestrian crashes the cyclist was most likely to be young and the pedestrian older (Graw and König 2002), although the break-down of specific age-group details were not given.

### ***Elderly pedestrians***

The literature is inconclusive about how the presence of cyclists on footpaths may affect pedestrian perceptions of safety. In most cases, the evidence is anecdotal (Drummond 1989), or mentioned within the context of a broader study. In a study about cycling on roads, footpaths, and shared paths in the Australian Capital Territory, De Rome, Boufous et al. (2011) found that cyclist speed affected pedestrian's perceptions of their safety.

In general, elderly pedestrians were the most likely group to be apprehensive or concerned about the possibility of a crash between themselves and a cyclist (Oulton and Hynes 1995, Kiyota, Vandebona et al. 2000, Bernhoft and Carstensen 2008, Wennberg, Ståhl et al. 2009). The speed and the ability of cyclists to appear relatively silently and unexpectedly were noted as issues that influenced elderly pedestrians' perceptions of safety on footpaths in Victoria (Garrard 2015). As hinted by the real-life case studies earlier, it may be that a generalised improvement in footpath courtesy by all users, is of greater importance to elderly pedestrians.

Due to the physical frailty of elderly people, some studies demonstrated that the injury severity as a consequence of a pedestrian and cyclist crash for the elderly pedestrian would be higher than for others (Katz 1994, Wennberg, Ståhl et al. 2009, Chong, Poulos et al. 2010).

### ***Cyclist speed***

The conditions and individual complexities of the road and footpath environment impact cyclist speed. For example, De Rome, Boufous et al. (2011) found that the average speed of cyclists, just prior to a crash, depended on the surface they were travelling on, with road speeds averaging 28.7 km/h, shared path speeds at 20.9 km/h, and footpath speeds at an average of 10.9 km/h.

These lower cyclist speeds on footpaths are reflected elsewhere. For example, in a Japanese study, Kiyota, Vandebona et al. (2000) found that as the pedestrian density on a shared path increased, there was a corresponding decrease in bicycle speed. This was not through any enforcement measures, but rather it happened naturally. In addition, Haworth, Schramm et al. (2014) found that the average speed of cyclists on footpaths halved from 12 km/h to 6 km/h when pedestrians were within 20 meters of a bicycle.

Injury severity for both pedestrians and cyclists would logically increase with cyclist speed. A more detailed analysis of the relative severity of footpath cycle crashes compared with other locations is presented later in this review.

### ***Road safety for cyclists***

To make an informed decision about where cyclists should ride, consideration of the general safety of cyclists is needed.

Cyclists are defined as a "vehicle" in the Vienna Convention (1968), and in many parts of the world, they are legally treated the same, and expected to interact with other vehicles. However, being a cyclist is nevertheless a more risky activity than operating a motor vehicle "due to the fragility of the unprotected human body" (De Rome, Boufous et al. 2011 p.1). Cyclists are vulnerable road users (Shaw, Poulos et al. 2015), they are less-protected, less-visible, and have less stability than other road users (Ministry of Transport 2015). In crashes between motor vehicles and cyclists, the severity of injury for cyclists is always more severe than for the motor vehicle driver (Pucher and Dijkstra 2003, Kim, Kim et al. 2007, Chong, Poulos et al. 2010).

In New Zealand from 2010-2014 crashes that resulted in an injury or fatality (per million hours spent travelling) were nearly three times more frequent for a cyclist than for a driver or passenger in a motor vehicle (Ministry of Transport 2015). Similar rates are reported elsewhere (Pasanen 1997). High-risk locations for cyclists on the road include intersections (Pasanen 1997, Crompton, Shen et al. 2015), and parked cars (Turner, Binder et al. 2009). Due to the nature and behaviour of different cyclists, high-intensity (fast) transport cyclists are more likely to have a collision with a motor vehicle than recreational cyclists and low-intensity (slower) cyclists (Poulos, Hatfield et al. 2015).

The surface and condition of the road has been described as a major contributing factor to bicycle crashes. Indeed, Munster, Koorey et al. (2001) claim that most on-road bicycle crashes are not collisions with motor vehicles, rather, they may be due to the quality of the road, or from swerving to avoid a motor vehicle. Issues with the condition of the road include: loose gravel, uneven surfaces, pot holes, tram/ train tracks, construction (Munster, Koorey et al. 2001, De Rome, Boufous et al. 2011, Crompton, Shen et al. 2015).

The cycling safety literature helps to explain the basis from which people view road cycling as a relatively risky activity and why they might choose to cycle on the footpath instead of the road.

### ***Why do cyclists use the footpath?***

Numerous studies commented in passing that adult cyclists were likely to use the footpath only when there was no safe alternative available on the road. This attitude was reflected by more comprehensive research by Katz (1994), Haworth and Schramm (2014), Aultman-Hall and Adams Jr (1998), and by casual observations of cyclists in the South Australian council zone of Norwood, Payneham & St Peters (City of Norwood Payneham & St Peters 4 July 2016). In addition, it has been found that cyclists do not like to negotiate around pedestrians (Hummer, Roupail et al. 2005). Thus, the footpath provided a temporary haven from 'pinch points', busy or dense traffic, or impediments such as construction. This is an important point as it indicates that adult footpath cycling is only likely to happen where road cycling amenity is particularly poor.

Cycling participation by women is lower than for men (Ministry of Transport 2015). In 2013, a survey of women found that a barrier to cycling was based around concerns of driver aggression and distracted drivers (Heart Foundation and Cycling Promotion Fund 2013). The perceived risk of cycling in close proximity to cars has been noted in a number of studies, all of which found that cycling participation would increase if there was the option to be separated from traffic (Katz 1994, Aultman-Hall and Adams Jr 1998, Haworth and Schramm 2011, Heart Foundation and Cycling Promotion Fund 2013, Armstrong and Bacon 2014).

### ***Footpath safety for cyclists***

Whilst cyclists may perceive an improved level of safety by riding on the footpath, this is not necessarily the reality (Aultman-Hall and Adams Jr 1998). As with complaints about the road surface, it was found that the quality, condition, and maintenance (or lack thereof) of the footpath was a contributing factor to cyclist crashes or near-misses (City of Norwood Payneham & St Peters 4 July 2016, Carlin, Taylor et al. 1995, Aultman-Hall and Adams Jr 1998). In addition, the presence of cyclists on the footpath naturally puts them in closer proximity to pedestrians, thereby increasing the likelihood of a crash between a cyclist and pedestrian (De Rome, Boufous et al. 2011, Lawson, Pakrashi et al. 2013, Haworth and Schramm 2014). The rates of pedestrian/ cyclist conflicts on footpaths and shared paths however, are relatively low (Shaw, Poulos et al. 2012). Indeed, in a Queensland-based study, less than 10% of footpath and shared path cyclist crashes involved pedestrians (Haworth and Schramm 2011).

More common causes of crashes were from other cyclists, and motor vehicles at intersections and driveways (Wachtel and Lewiston 1994, Aultman-Hall and Adams Jr 1998, De Rome, Boufous et al. 2011, Haworth and Schramm 2011, Haworth, Schramm et al. 2014). A German study found that in cases where cyclist/ pedestrian crashes did occur, it was likely to be the fault of the cyclist 2/3 of the time (Graw and

König 2002). However, Hatfield and Prabhakaran (2013) note that a contributing factor to incidents between cyclists and pedestrians may be the pedestrian's use of mobile telephones and audio devices.

Excepting Drummond (1988), the literature supports the case that cyclist crashes on footpaths and shared paths are more likely than on roads. As Poulos, Hatfield et al. (2015 p.29) claim: "the separation of cyclists from motorised traffic is by itself not sufficient to ensure safe cycling". The footpath and shared path environment can involve unexpected hazards (presence of pedestrians and animals, branches, uneven surfaces and obstacles, other cyclists and obscured vehicles exiting or entering driveways) than roads. In addition, it is likely that there is a high degree of under-reporting for cyclist crashes on the footpath (Drummond 1988, Joshi, Senior et al. 2001, De Rome, Boufous et al. 2011). It must be noted that cyclists who use footpaths are more likely to be children or inexperienced adult cyclists, and that this demographic may contribute to the reported high crash risk on footpaths. Interestingly, the relative risk for footpath cycling differed by age, with footpath cycling crashes significantly higher for adults than children (Tinsworth, Cassidy et al. 1994).

However, the literature is conflicted and inconclusive regarding the severity of crashes on footpaths and shared paths (some studies did not distinguish between the two locations) versus on the road. Five studies found that despite higher crash rates on footpaths and shared paths, they were associated with low injury severity to both pedestrians and cyclists (Moritz 1997, Aultman-Hall and Hall 1998, Grzebieta, McIntosh et al. 2011, Haworth and Schramm 2011, Haworth, Schramm et al. 2014). Three studies disagree, stating that cyclists crashing on footpaths and shared paths had more severe injuries than those on major roads (De Rome, Boufous et al. 2011, Harris, Reynolds et al. 2013, Crompton, Shen et al. 2015). However, Harris noted that this was not statistically significant, and all three studies excluded fatalities and people who were so severely-injured that follow-up could not occur. Finally, in a US-based study, Hoffman, Lambert et al. (2010) found that the severity of injury based on crash location depended on the city studied. This is worthy of note as it suggests that the infrastructure design and provision in each city worldwide may ultimately lead to important implications for crash location and severity. In other words, a policy that improves the safety outcome for cyclists and pedestrians in one city, or a portion of one city, may not have the same beneficial effect elsewhere, primarily due to differences in the design of infrastructure.

### *Children as cyclists*

Clear links have been demonstrated between active school travel and children's improved wellbeing and positive emotions (Ramanathan, O'Brien et al. 2014). Although one obvious mode of active school travel is cycling, in New Zealand under the current cycle laws, it is illegal for any child with a bicycle that has a wheel diameter greater than 355mm to cycle on the footpath. However, under the same law the New Zealand police and the Transport Agency recommend that children under the age of 10 only ride on the road when they are accompanied by a competent adult rider (New Zealand Transport Agency 2011). This contradiction is presumably one of the reasons for the rule review.

Two studies examining cases of children cycling to school in New Zealand (Horspool 2006, Mackie 2009) demonstrated that despite the illegality of the behaviour, the frequency of school-aged footpath cyclists is nonetheless high. Indeed, it was reported that 80% of year 8 students cycled on the footpath (Horspool 2006). Footpath cycling is also commonly reported by primary and intermediate aged children in Taranaki, Porirua, and Wellington (Office of the Children's Commissioner 2016).

For children, a law allowing footpath cycling could reflect children's cycling capability and increase active travel to school (Heart Foundation and Cycling Promotion Fund 2012, Carver, Timperio et al. 2015), and introduce an environment, away from fast moving motor vehicles to hone their cycling skills (Ramanathan, O'Brien et al. 2014). Numerous studies have identified that parts of the human brain take longer to develop than others. The developing nature of children's brains means that they are more vulnerable road cyclists than adults (Plumert, Kearney et al. 2004). For example: between the age of six and ten, the ability to safely negotiate barriers, such as cars is developed; at eight years of age visual search skills mature; and adult judgement of speed and motion is not fully developed until the age of 12 (Chakravarthy, Vaca et al. 2007, Schwebel and Gaines 2007, Conlon 2013). In a study in Otago using a practical assessment to measure children's cycling skills, Bromell found that the ability to maintain control of a bicycle improved

with both age and experience. For example one in four 10-year-olds were unable to maintain control of their bicycle whilst completing the assessment, 11-year-olds were more competent with only one in ten unable to complete the task (Bromell 2016). The ability to coordinate and control movements is a skill that develops with both age and practice (Savelsbergh and Van der Kamp 2000, Plumert, Kearney et al. 2004) and the ability to identify and respond to hazards improves with the child's age (Ellis 2014, Meyer, Sagberg et al. 2014, Zeuwts, Vansteenkiste et al. 2016). In on-road crashes between cyclists and motor vehicles in New Zealand, "children and young adult cyclists are more likely than older cyclists to have the primary responsibility for a crash" (Ministry of Transport 2015 p.9).

Government survey research from both Australia and New Zealand show until the age of 60+, cyclist hospitalisation increases by age group (Department of Infrastructure and Regional Development 2015, Ministry of Transport 2015). Unfortunately, these data are not aggregated by exposure or location cycled. Conversely, a study in Queensland, Australia found that of all injured cyclists who presented at emergency departments, 75% were under the age of 15 (Scott, Hockey et al. 2005). Interestingly, Carlin, Taylor et al. (1995) found that the majority of bike injuries received by children in Melbourne were not traffic-related, rather they were from crashes associated with play. This raises the important and relatively undiscussed point that in analyses of cyclist injuries, the difference between children and adults, and the cause of the crash need to be distinguished. The high rates of child injuries as reported here may be skewed by the relatively high levels of play-related injury, rather than as a consequence of conflict with traffic. Nevertheless, although footpath cycling has its own risks (as discussed earlier), it may nonetheless provide an environment for children that is away from fast-moving motor vehicles until their cognitive development and road safety skills are sufficient for safe road cycling.

### ***Evaluation of footpath cycling legislation elsewhere***

The legalisation of footpath cycling is not a new issue in the literature. It has been examined numerous times over the last 30 years as different countries or states have introduced footpath cycling legislation. As a result, similar studies with similar findings can be found over a long time period.

In 1988, in response to the proposed legalisation of footpath cycling in Victoria, Australia, Drummond (1988) found that 17% of non-cyclist survey respondents said they would start riding a bicycle if footpath cycling were legal. In relation to the same law, in a study using telephone surveys and the analysis of a footpath-cycling trial, it was found that the legalisation of footpath cycling would benefit young and elderly cyclists as it provided an opportunity to ride off the road, but with a perceived expense to elderly and mobility impaired pedestrians (Oulton and Hynes 1995). Following the implementation of footpath cycling laws in Victoria, Ritchie (1993) found that there was no dramatic increase in the number of people cycling on the footpath. Rather, the act that many had already been engaged in was decriminalised. In addition, there is no evidence that rates of cycling more generally increased in Victoria as a direct result of the changed law.

In response to proposed footpath cycling legislation change in 1992 in New South Wales, Katz (1994) found that survey respondents said they were more likely to take up riding, or ride more often if footpath cycling were legalised. The perceived danger of busy roads was seen as a barrier to cycling for many of the respondents. However, following the changed legislation, there was no detectable change in commuting cycling rates in NSW between 1991 and 1996 (Pucher, Garrard et al. 2011).

In 2015, footpath cycling in South Australia was legalised for persons of all ages (previously it had been for people under 12). In a report tabled to The Norwood, Payneham & St Peters Council in July 2016, it was claimed that the new cycling laws were likely to encourage cycling uptake for women and younger riders (City of Norwood Payneham & St Peters 4 July 2016). These findings are reflected in a survey conducted by South Australia's bicycle advocacy group, BikeSA (Haag 2016).

## *Conclusion*

The literature suggested that in locations where footpath cycling has been legalised, most adult cyclists have not significantly altered their cycling behaviour, rather, their existing behaviour was legitimised. Interestingly, for many cyclists, footpath riding was chosen discretionally, as a place to move to when the road environment was perceived unsafe. Footpaths were inefficient to ride on due to impediments such as uneven surfaces, pedestrians and animals, driveways, and overhanging foliage.

At different ages, a child will acquire different developmental abilities, so that their ability to safely judge the speed of traffic and the movement of other vehicles is not fully developed until the age of 12. This inhibits their ability to cycle safely on the road. For child cyclists, the footpath provides the opportunity to learn how to ride without being in close proximity to traffic, although there are also clearly risks associated with footpath cycling, which may often be under-estimated by footpath users seeking refuge from traffic. The current high rates of footpath cycling crashes reported in the literature may be a consequence of the larger proportion of children cyclists – learning cyclists – using this space in comparison to experienced adult cyclists who prefer the efficiency of the road.

Some pedestrians, especially frail or elderly people perceive footpath cycling as being unsafe, and a threat to their safety. Although the likelihood of a pedestrian/ cyclist crash is very low, for these pedestrians, the injury outcome may be more severe than for younger adult pedestrians.

Ultimately, separating modes of travel that require different speeds (walking, cycling, motor vehicles) is ideal in the prevention of crashes and injuries between these modes. However, this is currently economically and spatially unrealistic on most all streets. Therefore, measures that assist cyclists in navigating their route safely, by choosing the best place to ride in various circumstances, would improve the overall safety outcomes for cyclists and potentially encourage more active travel.

## 5.4 New Zealand safety statistics

### Introduction

Safety is a key consideration in the debate on footpath cycling. Supporters of footpath cycling argue that there is likely to be a more severe outcome from a cyclist/motor vehicle interaction on the road than an interaction between cyclists/pedestrians or cyclists/motor vehicles on the footpath. Those who do not support cycling on the footpaths argue that a cyclist/pedestrian interaction on the footpath is likely to be severe, especially for older people, and that driveways pose a high risk for cyclists, given the higher speed in which they travel compared to pedestrians.

It was found that the literature is conflicted and inconclusive regarding the severity of crashes on footpaths (and shared paths) for pedestrians and cyclists, whilst strong evidence supports high severity injury for cyclists on roads.

This part of the research focused on obtaining New Zealand crash information to ascertain the number of crashes and associated injury outcomes related to the various conflict scenarios. It is not possible to establish an exposure risk rating for the conflicts as this would require an understanding of the volume of cyclists riding on the road and the footpath. These two separate volumes are not measured at a national level.

The following information sources were investigated for their potential to inform the research.

- Accident Compensation Commission (ACC) injury claim data
- NZ Transport Agency's Crash Analysis System (CAS)
- Hospital data - The NZ Injury Query System (NIQS)

### Accident Compensation Commission (ACC) injury claim data

Accident Compensation Commission (ACC) injury data was found to be limited in its collection method:

- If there is not a moving vehicle involved, the claim is captured under road/street and there is no way of distinguishing between road and footpath claims;
- Scooters and skateboards are not captured separately from pedestrians. They could be searched for within the accident descriptions for these terms, but this methodology has limited accuracy;
- When a claimant has been struck by a bicycle, it is not possible to determine if they were struck by a cyclist, tripped over a stationary bicycle, or if the accident was on the footpath or street; and
- There is a large degree of variability in the nature and quality of the descriptions that claimants provide. Such inconsistencies can make it difficult to search for a particular item or issue with any degree of accuracy.

A study investigating pedestrian accidents on the footpath (Firth and Thomas, 2010) used ACC data but the process to gain the data was time-intensive. It involved ACC contacting pedestrian victims in the study area (Wellington) based on the text on the ACC claim form and asking them to write back if they objected to being contacted by the researchers. From this the researchers contacted and obtained useable information from about 500 out of the original around 1500 sample size.

Given the limitations of ACC data, and the time-intensive nature of enquiry methods, it was therefore not considered appropriate to inform this research.



## ***Crash Analysis System (CAS)***

The NZ Transport Agency's Crash Analysis System (CAS) includes reported crashes attended by the Police. This is considered a useful data set but is limited by the following:

- There is likely to be under-reporting of footpath cycling crashes as not all crashes will involve another party or be attended by the police, also if the footpath cycling is not permitted then we suspect there may be a reluctance to report the accident for fear of being fined. The level of under-reporting is difficult to quantify, but a comparison of CAS data with hospital injury records suggested high rates of under-reporting;
- There is likely to be under-reporting of crashes at intersections involving footpath cycling as Police may only record the on-road interaction without considering where the cyclist was coming from;
- The CAS coding system does not allow differentiation between footpaths and shared paths that are within the road reserve; and
- CAS records a pedestrian, skateboard, in-line skater, or wheeled pedestrian as a secondary user. Therefore, a bicycle or motor vehicle must be involved for the event to be recorded in CAS. This means that CAS will not pick up any accidents between a pedestrian and a skateboard, in-line skater, or wheeled pedestrian.

It was concluded that the CAS data would be a useful data set as it allowed an understanding of where footpath cycling (albeit footpath and shared paths) crashes involving several parties occurred, and their severity.

To understand how trends may have changed over time, the CAS data was analysed for the 10-year period from 2006 to 2015, and, as a basis for comparison from 1996 to 2005.

Fatalities and serious injuries were broken down into separate categories rather than agglomerated using the DSI (death and serious injury) approach that is often used for road safety analysis. This breakdown was used because of the small sample size (or non-existence) of fatal crashes in some analysis categories, and also the likely high under reporting compared with motor vehicle crashes where the DSI approach is generally used.

Rural crashes were excluded from the analysis as generally there are no footpaths in rural areas. Rural crashes are defined as those that occur on roads with an 80km/hour speed limit or greater. Rural crashes accounted for 8% of the crashes involving cyclists between 2006 and 2015.

### **Overview of the 2006 to 2015 period**

There were 19,358 recorded crashes that involved a cyclist, pedestrian, skateboarder, in-line skater, or wheeled pedestrian. Of these, a cyclist was involved in 9,795 crashes and a pedestrian in 9,445 crashes

Of the 9,795 crashes involving cyclists, 8,740 (90%) crashes were on the road and resulted in 44 fatalities and 1,652 serious injuries. The remaining 1,055 (10%) crashes were coded as cycling on the footpath crashes.

The key statistics related to footpath cycling were:

- 1,055 crashes involved riding on a footpath;
- There were 2 cyclist fatalities, both were caused by an out-of-control motor vehicle mounting the footpath;
- There were 111 serious injuries involving a cyclist riding on the footpath;
- 13 of the 1,055 crashes involved a pedestrian (no fatal crashes and 7 serious injuries); and
- Of the 1,055 crashes involving cyclists, where riding on the footpath was identified as a factor, only one involved a skateboard/in-line skater and none involved a wheeled pedestrian.



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The crashes are examined in more detail below in terms of:

- Where are cycling crashes occurring;
- The age of the cycling crash victims; and
- The details of the footpath cycling crashes involving pedestrians.

**Where are cycling crashes occurring?**

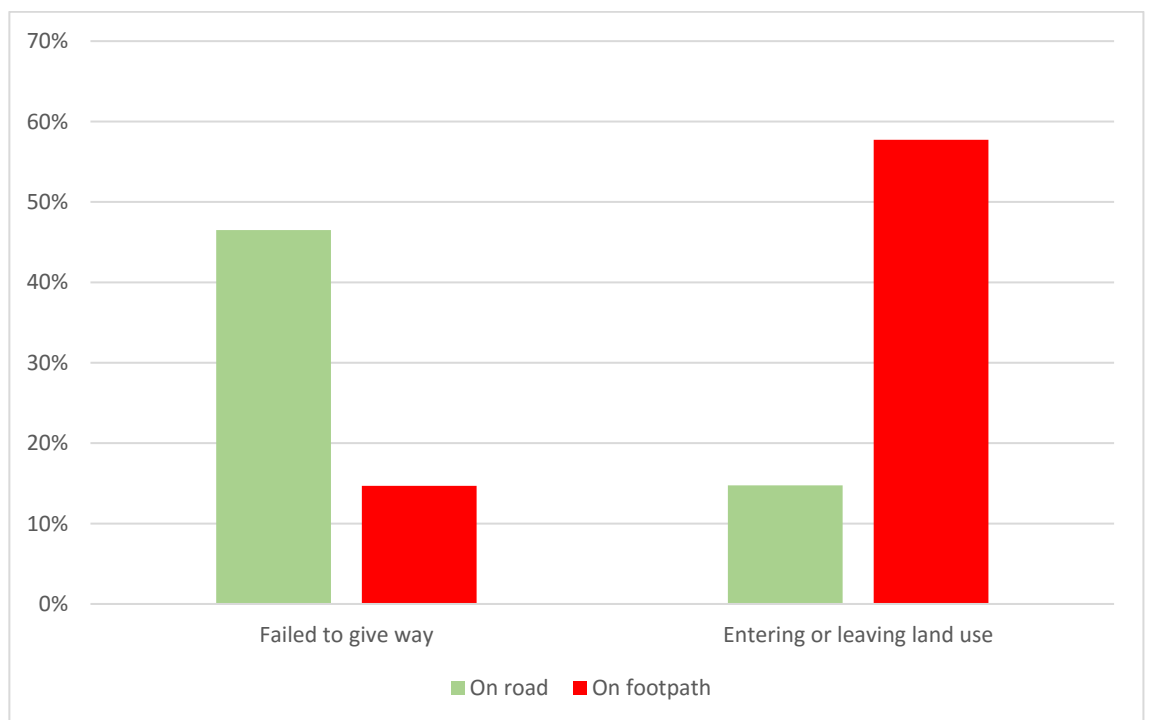
In the context of footpath cycling, the following locations show where interactions between road and footpath users can occur, and need to be considered.

- On the footpath – at driveways
- On the footpath – at intersections
- On the road – at driveways
- On the road – at intersections
- On the footpath – between driveways/intersections with other footpath users
- Moving between the road and footpath, usually to cross the road.

The CAS data includes a range of crash factors that allow the location of the crash to be determined. As shown in **Figure 5.2** the most common location of the 8,740 on-road cycle crashes were intersections and the most common of the 1,055 on-footpath cycle crashes were at driveways.

It should be noted that there is likely to be an under-reporting of crashes at intersections involving footpath cycling as Police may only record the on-road interaction without considering where the cyclist was coming from.

**Figure 5.2**  
*Driveway and intersection cycle crashes*



The high proportion of intersection crashes (coded as failing to give way- in the majority of cases the driver failed to give way) for on-road cyclists is already well known as an issue. Indeed, the Cycle Safety Panel highlighted this as a high priority problem. There is currently a review of rules relating to pedestrian priority at side roads, if the current rule that requires pedestrians crossing at side roads to give way to

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drivers is changed this would also need to include other footpath users that are legally entitled to be on the footpath.

Driveways (coded as entering a land use) clearly pose the greatest risk to cyclists on the footpath. Pedestrians are generally travelling at speeds that allow them time to react when a vehicle is entering or leaving a property and the driver has not seen the pedestrian. Runners and people on scooters, skateboards, mobility scooters, and bikes generally travel faster and have less time to react if they are not seen by the driver.

The direction of cycling being ‘wrong way’, i.e. when travelling in the opposite direction as cyclists would be on the road, may also contribute to drivers not expecting cyclists from that direction, this equally applies to pedestrians as drivers are generally looking for vehicles in the nearside lane.

The berm, footpath configuration, and fence height influence the safety of footpath users at driveways. In cases where the footpath is separated from the property by a berm, the driver may have some buffer in terms of visibility of footpath users. However, if the footpath is against the property, there is no buffer. The information within the crash records does not go into this level of detail, each location would have to be investigated to determine whether fence height or berm locations were contributing factors.

**Figure 5.3**  
*Berm and footpath configurations against property boundaries*



Footpath against the property boundary



Berm against the property boundary

**Figure 5.4**  
*Fences heights against the footpath*



Low fences offer better visibility of footpath users



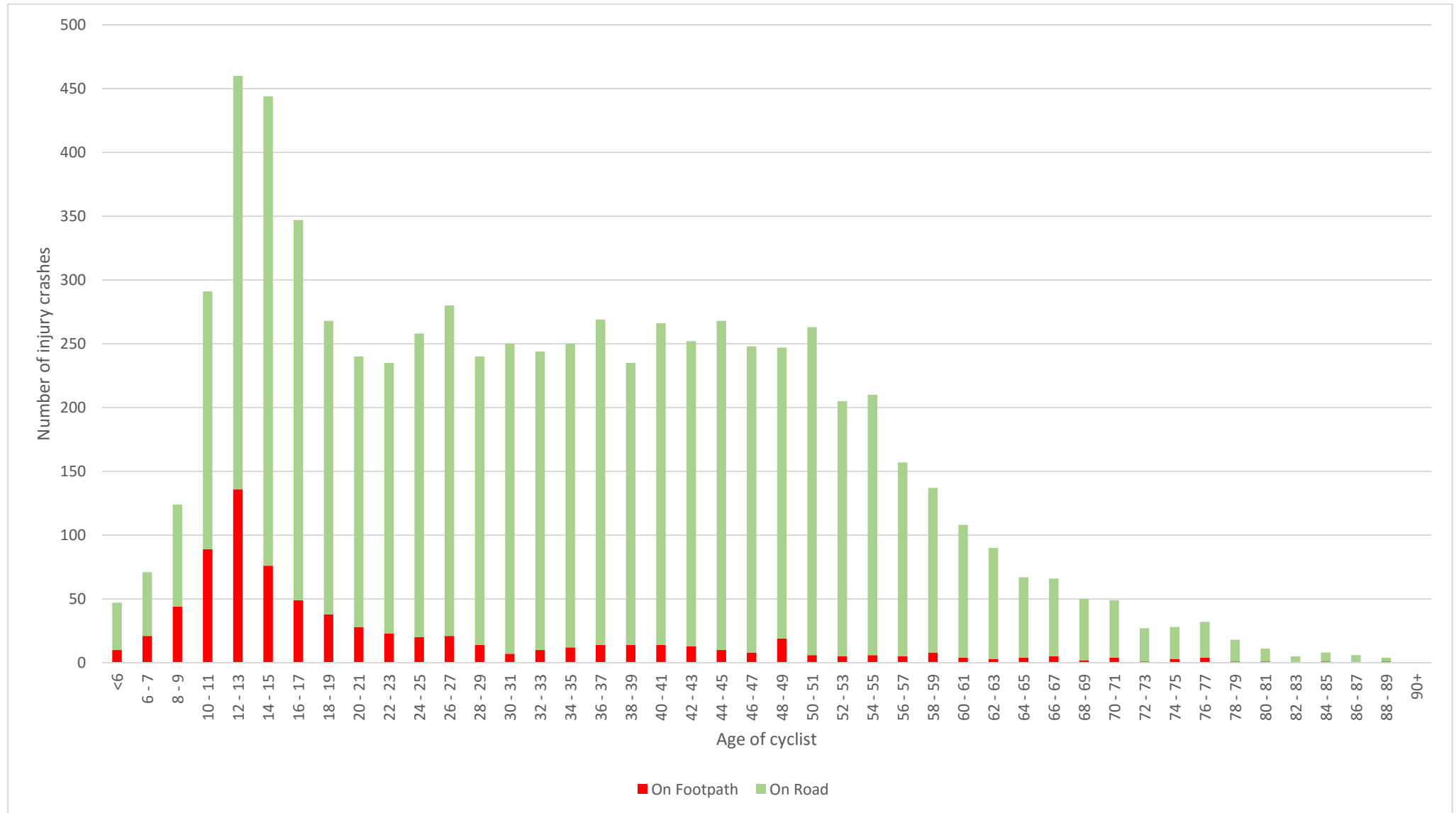
High fences offer no visibility of footpath users

Low fences provide reasonable visibility between path and driveways users whereas high fences do not.

**Age of cycle crash victims**

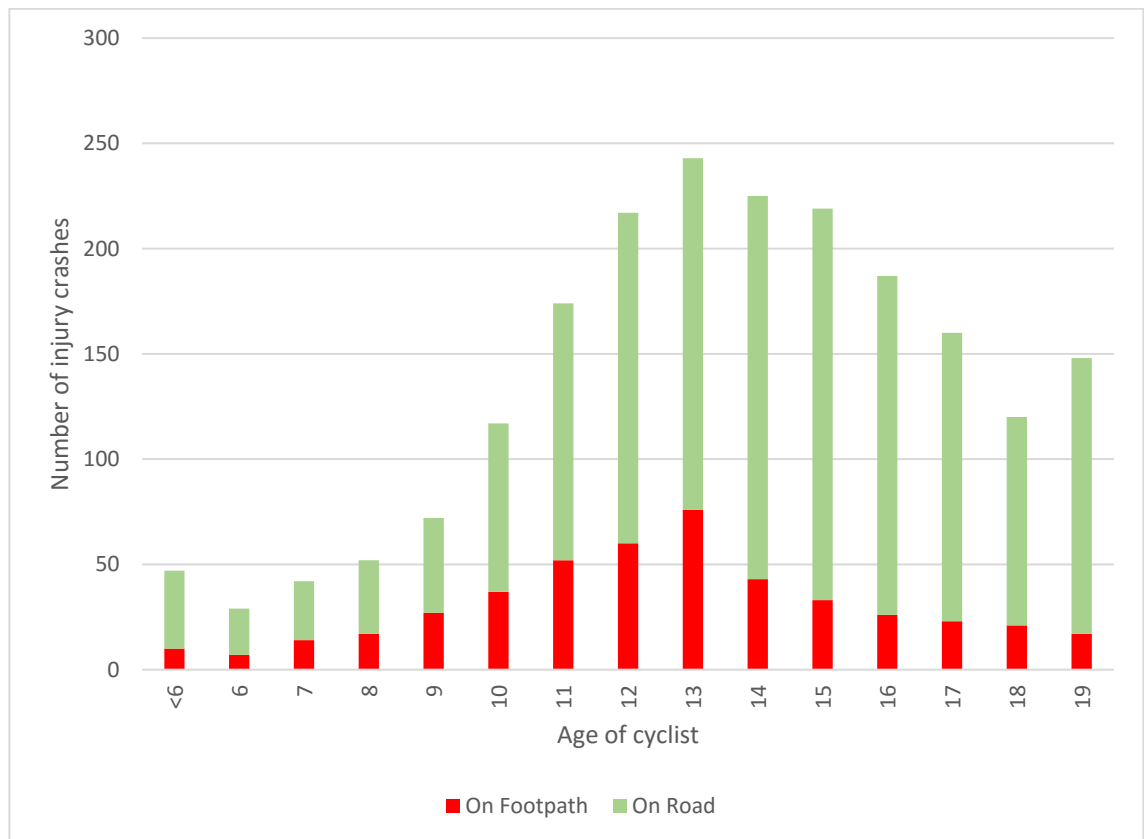
The CAS data includes the age of crash victims. **Figure 5.5** shows the on-footpath and not-on-footpath cycle crashes by all ages (in two year bands) and **Figure 5.6** shows the breakdown for children and teenagers (under 20 years of age).

Figure 5.5 Cyclist injury crashes by age (2006-2015)



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**Figure 5.6**  
Cyclist injury crashes for people under 20 years of age



Key observations from the 10-year analysis are:

- There are more on-road cycle crashes for each age than footpath cycling crashes. However, it is acknowledged that some intersection crashes may not have been coded to reflect that the cyclist was on the footpath prior to crossing a side road;
- On-footpath crashes peak at age 13 and drop off for 14-year-olds. However, the number of on-road crashes for 14 and 15-year-olds increase somewhat. This may reflect a transition to the road environment, however this is purely speculative and would require further research to confirm; and
- On-footpath crashes plateau for 16 to 19-year-olds, whereas on-road crashes decrease from 16 to 18, then rise sharply for 19-year-olds.

This information is limited by not being able to define the number of people cycling in these age groups on the footpath and on the road, and therefore it is not possible to determine the proportion of crashes relative to the level of participation. While estimates of overall cycling exposure may be possible from sources such as the NZ Household Travel Survey (HHTS), no breakdown of where the cycling is occurring is available, i.e. the footpath cycling vs road cycling data does not exist, and therefore makes comparisons of risk very difficult.

### Footpath crashes involving a pedestrian

Of the 1,065 crashes involving cyclists where riding on the footpath was identified as a factor, 13 involved a pedestrian. **Table 5.3** gives a brief summary of each crash.

**Table 5.3**

*Footpath crashes involving a pedestrian*

| Year | Interaction details – urban only   |
|------|--|
| 2007 | A 36-year-old cyclist was riding on the footpath to avoid heavy traffic and a hedge obscured his visibility around the corner. A 77-year-old pedestrian walked around the corner and the cyclist hit them causing <b>minor injuries</b> to the pedestrian.                 |
| 2008 | A 9-year-old BMX cyclist was riding on the footpath and a 6-year-old child ran out from their driveway, colliding with cyclist. The pedestrian suffered <b>minor injuries</b> .  |
| 2008 | A cyclist of unknown age was riding on the footpath and knocked over a 52-year-old pedestrian walking in front of them while attempting to pass. The cyclist did not stop and was suspected to be intoxicated. The crash caused <b>severe injuries to the pedestrian</b> . |
| 2010 | A 31-year-old cyclist was riding down a hill on the footpath with their view around a corner obstructed by a high hedge. A 21-year-old jogger came around the corner and the cyclist hit them causing <b>minor injuries</b> to both parties.                               |
| 2010 | A 4-year-old child playing on the footpath was hit by a cyclist of unknown age riding on the footpath causing <b>minor injuries to the child pedestrian</b> . The cyclist did not stop.  |
| 2011 | An 18-year-old cyclist was riding on the footpath near some shops. A 71-year-old pedestrian walked out of a shop and the cyclist hit them causing <b>minor injuries</b> to both parties.   |
| 2011 | A cyclist of unknown age riding on the footpath was towing a carriage and knocked over a 21-year-old pedestrian from behind who was walking in the same direction as the cyclist. The crash caused <b>severe injuries</b> to the pedestrian.                               |
| 2012 | A drunk and drug affected cyclist aged 30 was riding on the footpath and hit a pedestrian coming towards him. <b>The cyclist came off his bike and was seriously injured. The pedestrian suffered minor injuries.</b>  |
| 2013 | An 11-year-old cyclist riding on the footpath hit a 4-year-old pedestrian who stepped into the cyclist's path. <b>The cyclist suffered minor injuries and pedestrian suffered serious injuries.</b>  |
| 2013 | A cyclist aged 16 riding on footpath saw a 6-year-old pedestrian but not the dog they were walking on a lead. The cyclist hit the lead and pulled over the pedestrian causing <b>minor injuries</b> to the pedestrian.   |
| 2014 | A cyclist aged 21 was intoxicated and rode at speed on the footpath near some shops which obscured his visibility around the corner. A 55-year-old pedestrian came around the corner and the cyclist hit them causing <b>serious injuries to the pedestrian</b> .          |
| 2015 | An overseas cyclist aged 23 was riding on the footpath and hit a 53-year-old pedestrian who stepped out from a doorway. The crash caused <b>serious injuries to the pedestrian</b> .   |
| 2015 | A BMX cyclist aged 22 was riding on the footpath and hit a 66-year-old pedestrian who stepped out from shop. The crash caused <b>serious injuries to the pedestrian</b> .  |

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The key findings from footpath cycling crashes involving a pedestrian are:

- The majority of the crashes involved visibility issues;
- There were no fatal injuries;
- There were 6 serious pedestrian injuries and 1 serious cyclist injury;
- Three of the crashes involved intoxicated/drugged cyclists; and
- Two of the crashes involved children on bikes

**Comparison with the 1996 to 2005 period**

A comparison of the key statistics from the 10-year period above with the previous 10-year period are outlined in **Table 5.4**, to explore how trends may have changed over time.

**Table 5.4**  
Comparison of the two ten year periods

| Crash type – urban only  | 1996 to 2005  | 2006 to 2015  |
|--|---------------|---------------|
| <b>All crashes which involved a cyclist, pedestrian, skateboarder, in-line skater or wheeled pedestrian</b>                            | <b>19,359</b> | <b>19,358</b> |
| <b>Crashes involved a pedestrian</b>   | <b>10,339</b> | <b>9,445</b>  |
| Fatalities involving a pedestrian  | 343           | 221           |
| Serious injuries involving a pedestrian  | 2,515         | 2,234         |
| <b>Crash involved a cyclist</b>  | <b>8,911</b>  | <b>9,795</b>  |
| <b>Crash involved a cyclist riding on-road</b>   | <b>8,194</b>  | <b>8,740</b>  |
| Fatalities involving a cyclist riding on-road  | 55            | 44            |
| Serious injuries involving a cyclist riding on-road  | 1,111         | 1,410         |
| <b>Crash involved a cyclist riding on a footpath</b>   | <b>717</b>    | <b>1,055</b>  |
| Fatalities involving a cyclist riding on the footpath  | 6             | 2             |
| Serious injuries involving a cyclist riding on the footpath  | 96            | 111           |
| Crash involved cyclist riding on a footpath and involved a pedestrian  | 12            | 13            |
| Crash involved cyclist riding on a footpath and involved a pedestrian and resulted in a fatality                                       | 0             | 0             |
| Crash involved cyclist riding on a footpath and involved a pedestrian and resulted in a severe injury to the pedestrian or the cyclist | 4             | 7             |
| <b>Crash involved cyclists riding on the road and involved a pedestrian</b>  | <b>60</b>     | <b>73</b>     |



The footpath cycling fatal casualties in the 1996 to 2005 period were aged 12 and under as follows:

- Two involved a child riding out from a driveway crossing on to the road and being hit by a truck;
- One was a child riding out from the footpath and being hit by a truck.
- One involved a driver turning into a driveway across a child riding on the footpath and hitting the accelerator instead of the clutch;
- One was a child cycling across a pedestrian crossing with the vehicle failing to stop in time; and
- One was a child cyclist riding across road from footpath to footpath, losing control when mounting a driveway and falling under the wheels of a rubbish truck.

With respect to the footpath cycling crashes involving a pedestrian between 1996 and 2005, a review of the crash records showed that obstructions to a cyclist's view was again the most common crash factor.

### ***Hospital data - The NZ Injury Query System (NIQS)***

The Injury Prevention Research Unit at University of Otago regularly uses New Zealand publicly funded hospital discharge (National Minimum Data Set – NMDS) and Mortality Collection data from the Ministry of Health to inform the NIQS. The online data is based on cause, for 'pedal cyclists' and 'pedestrian' injuries by Motor Vehicle Traffic Causes and Non-Motor Vehicle Traffic Causes. However, by specific request, cycling injury records were obtained for the latest available 5-year period (2010 and 2014) where the scene of the injury was 'street or highway - sidewalk'.

The key limitations of the data are:

- Broad injury types do not provide the reason for the crash (e.g. in a collision with a motor vehicle the location is not provided, such as driveways);
- Age is provided in 5 year brackets; and
- Difficult to compare directly with the CAS data.

### **Overview of the 2010 and 2014 period**

431 cyclists who were riding on the footpath within the road environment were injured (this includes day patients). 217 of the 431 were hospitalised (had to stay overnight in hospital).

The breakdown of the cycle injuries in terms of type were:

- 1% - Pedal cyclist injured in collision with pedestrian or animal;
- 3% - Pedal cyclist injured in collision with other pedal cycle;
- 10% - Pedal cyclist injured in collision with car, pick-up truck, or van;
- 13% - Pedal cyclist injured in collision with fixed or stationary object;
- 68% - Pedal cyclist injured in non-collision transport accident (assumed this is a fall off the bike - such as people learning to ride); and
- 5% - Pedal cyclist injured in other and unspecified transport accidents.

32% of the injured cyclists were aged between 5 and 14-years-old. 61% of cyclists who were injured were male (this includes day patients).

33 pedestrians who were hit by a cyclist riding on the footpath were injured (this includes day patients). 19 were hospitalised (not including day patients). The main injury was fracture (57% of the injury types). The key demographic statistics were:

- 45% of non-fatal injuries to pedestrians who were hit by a cyclist riding on the footpath were aged 65 years or over;
- 21% of non-fatal injuries to pedestrians who were hit by a cyclist riding on the footpath were under 10 years of age; and

- 70% of pedestrians who were hit by a cyclist riding on the footpath who were hospitalised were female (this includes day patients).

Overall the injury data showed that there is an under-reporting in CAS of pedestrian injuries caused by crashes with cyclists on the footpath (CAS showed 13 crashes in 10 years and NIQS showed 33 crashes in 5 years). It is also clear that in pedestrian/cyclist crashes pedestrians receive the greatest number of injuries (33 pedestrians compared to 13 cyclists). This is consistent with the CAS findings, albeit at a different ratio.

The overall number of cycle crashes reported in CAS and the NIQS are difficult to compare as the NIQS includes falls that are very unlikely to have been attended by the Police.

### ***Overall safety analysis findings***

CAS and NIQS data were used to understand footpath cycling crashes in NZ. Both data sets have limitations in the information recorded. The greatest limitation of the analysis, regardless of data set, is that volumes of cyclists on the road and footpath are not available to allow crash rates to be determined. For example, some of the literature reviewed claimed that cyclist crashes on footpaths and shared paths are more likely than on roads, this is difficult to dismiss outright without consideration of the number of people cycling on footpaths/shared paths and on-road compared with the number of crashes.

CAS data showed that footpath cycling crashes accounted for approximately 10% of the reported cycle crashes in New Zealand in the last 10-years. This proportion was reasonably consistent with the previous 10-year period (8%). There have been many more cyclist deaths on the road than on the footpath.

Unsurprisingly it was found that the majority of footpath cycling crashes occur at driveways. The way that property boundaries are generally fenced in NZ and the fact that people on bicycles on footpaths are travelling faster than people walking on footpaths are likely to contribute to this outcome.

The CAS data from the past 10 years showed that the number of footpath cycling crashes involving a pedestrian was less than 2% of the total footpath cycling crashes. This was consistent with the previous 10-year period. No fatal injuries were involved in these crashes. The CAS and NIQS data show consistency in that pedestrians sustain more injuries than cyclists in a pedestrian/cycle crash.

The majority of the crashes between a cyclist and a pedestrian on the footpath involved visibility issues between cyclists and pedestrians. However, the NIQS data showed there is likely to be high under-reporting of pedestrian/cycle crashes (i.e. the Police do not attend all the pedestrian/cycle crashes occurring in the road reserve). The under-reporting is likely to be less now than in previous years where if the crash in the road reserve did not involve a motor vehicle it may not have been recorded in CAS.

It was found that there are more on-road cycle crashes for each age than footpath cycling crashes, however it is acknowledged that some intersection crashes may not have been coded to reflect that the cyclist was on the footpath prior to crossing a side road. Approximately 30% of all cycling crashes involving children aged 5 to 12 years old were on the footpath, compared with 5% for adults (20-65 years).

Again, without footpath and road cycling participation data for different age groups, the footpath/road comparison is difficult. If proportionately more adult cyclists use the road with the footpath being a more common place to cycle for children, then the characteristics of these different riding populations will complicate any comparison of footpath vs road cycling safety.

## 6. *Summary of footpath cycling issues*

Sections 3 and 4 outlines the related law, education and training issues in NZ and Section 5 outlines the wide range of issues that emerged from the stakeholder engagement, literature, and a NZ based safety analysis.

Because footpath cycling has a range of complex implications, there is merit in considering these wider issues together. Road safety, health and wellbeing, accessibility, infrastructure design, and education, training and enforcement are all inter-related.

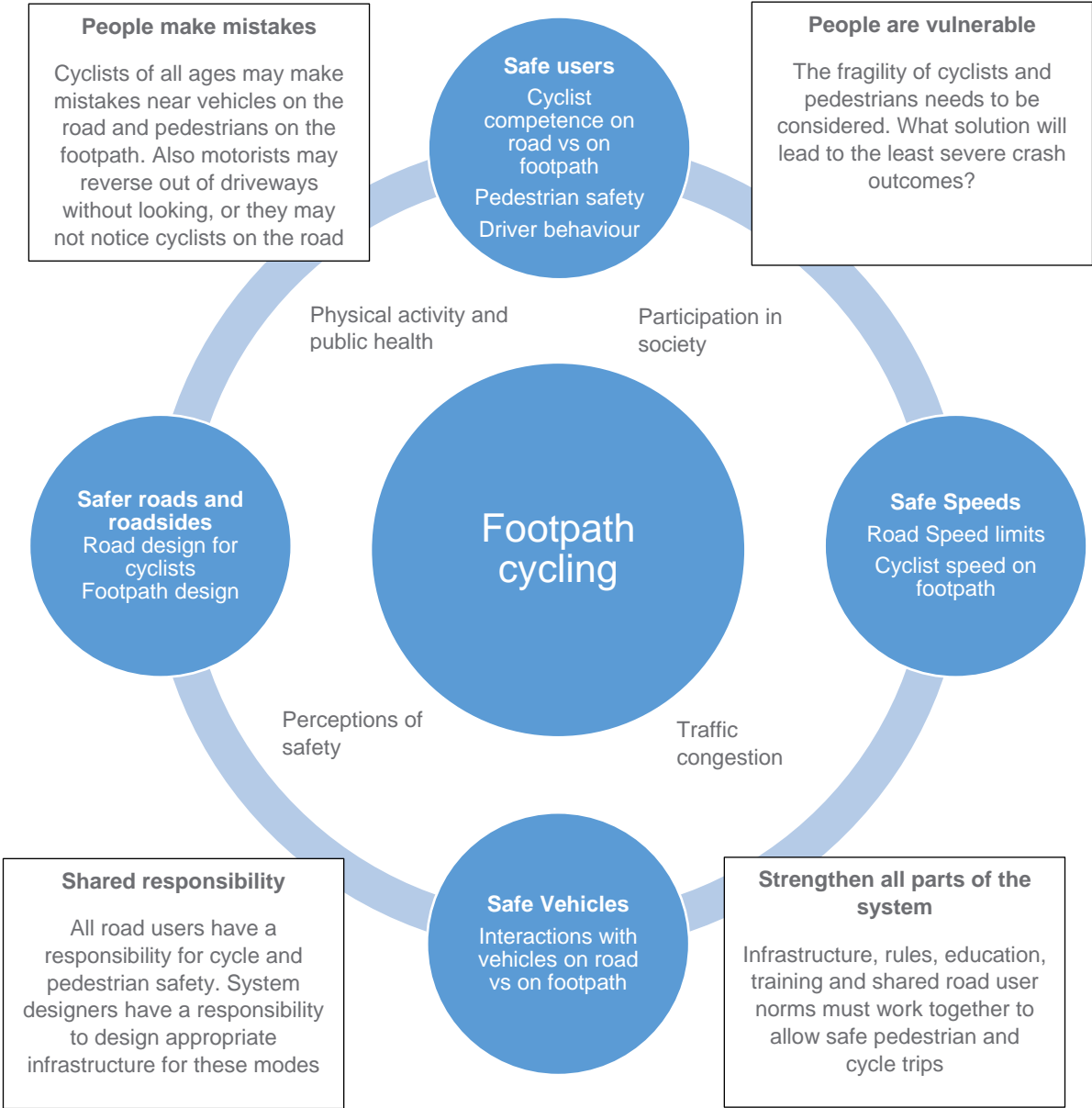
There is primary interest in the likely safety of cyclists and pedestrians who might use the footpath and the literature and supporting information suggests that the safety implications are not clear. However, the CAS data indicates that fatalities related to footpath cycling in NZ are rare and there are fewer serious injuries than when cycling on the road.

Perceived safety may impact on the participation of cyclists and pedestrians. If either group feels their route is too dangerous, they are unlikely to use it. Some pedestrians may be influenced by some increase in footpath cycling, but the extent to which this would happen is unknown. Likewise, if cyclists have no feasible place to cycle, then they are likely to avoid cycling.

Framing footpath cycling issues within the Safe System is appropriate as it underpins New Zealand's approach to road safety. In **Figure 6.1** below, the four pillars and four principles of the Safe System are used to summarise the key considerations for footpath cycling. Other issues that are not typically a focus of the Safe System are also included, such as public health, social inclusion, and participation in society.

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**Figure 6.1**  
Footpath cycling issues utilising a Safe System framework.



## 7. Rule options

### 7.1 Base rule comparison

A comparison of the 'base options' (acknowledging that there will need to be stipulations) focused on the benefits and disbenefits (costs) of three rule options. After investigation of the feasibility of conducting a quantitative benefit cost analysis, it was concluded that attempting to quantify these benefits and disbenefits was not possible due to the lack of data available.

Instead, it was found that the most appropriate way to compare the benefits and disbenefits were to allocate them to the parties that the benefits and disbenefits (costs) impact, the parties being:

- Footpath users – pedestrians;
- Footpath users –mobility impaired users on trikes;
- Footpath users – cyclists;
- Authorities- RCAs, Police, Transport Agency and others; and
- Society – everyone.

By balancing the benefits and costs to the various parties for each rule option, consideration of which might be most appropriate rule option could be made.

The options compared were:

- Status quo (no rule changes)
- All ages permitted to cycle on footpath
- Children under 12 years (and accompanying adults), and mobility trike users. The age and accompaniment is consistent with the Australian States that restrict footpath cycling to children.

**Table 7.1** displays the benefits and costs of the three rule options. The table was informed by the advantages and disadvantages of the rule options that the stakeholders identified in the workshops (**Table 5.2**), the literature review, and safety data analysis.

The third alternative that was evaluated at the stakeholder workshops - children under 14 years of age (and accompanying adults), seniors over the age of 65, and vulnerable users (such as those with mental or physical disabilities) - is a hybrid of the all ages and children-only rule options, so has not been included in **Table 7.1**. In general, this option is considered to have a high level of complexity.

Table 7.1 Rule comparison – Benefits and Disbenefits (costs)

| Party impacted |   | Status Quo  | Legally allow footpath cycling for all   | Legally allow footpath cycling for children only – under 12 years – and mobility trike users  |
|----------------|---|---|--|---|
| Benefits       | <b>Benefits to Users – pedestrians</b>                    | <ul style="list-style-type: none"> <li>Footpaths remain the domain of pedestrians in law.</li> <li>Separated facility for pedestrians retained</li> </ul> | <ul style="list-style-type: none"> <li>Training and education can proactively reinforce correct footpath user behaviours to improve pedestrian comfort and safety</li> <li>Potentially increased personal security on paths (more people on paths)</li> <li>Potentially improved quality of footpaths as authorities may increase spending on footpath maintenance</li> </ul>  | <ul style="list-style-type: none"> <li>Training and education can proactively reinforce correct footpath user behaviours to improve pedestrian comfort and safety</li> <li>Potentially increased personal security on paths (more people on paths)</li> <li>Potentially improved quality of footpaths as authorities may increase spending on footpath maintenance</li> </ul> |
|                | <b>Benefits to Users – mobility impaired trike riders</b> | <ul style="list-style-type: none"> <li>Footpaths remain the domain of pedestrians in law.</li> </ul>  | <ul style="list-style-type: none"> <li>Increased participation for mobility impaired trike users</li> </ul>  | <ul style="list-style-type: none"> <li>Increased participation for mobility impaired trike users</li> </ul>   |
|                | <b>Benefits to Users - cyclists</b>                       | <ul style="list-style-type: none"> <li>Reinforces legitimacy of cyclists sharing the road with others</li> </ul>  | <ul style="list-style-type: none"> <li>Potentially modest uptake of cycling.</li> <li>In the longer term, potentially improved safety at driveways and sides roads through more focussed and proactive footpath cycling safety in cycle training and education campaigns.</li> <li>Small reduction in on-road crashes, if some transfer to the footpath in dangerous road situations</li> <li>Fewer fines for footpath cyclists</li> </ul> | <ul style="list-style-type: none"> <li>Potentially modest uptake of children cycling</li> <li>In the medium term, potentially improved safety at driveways and sides roads through more focussed and proactive footpath cycling safety in cycle training and education campaigns.</li> <li>Small reduction in on-road crashes</li> </ul>                                      |
|                | <b>Benefits to Society</b>                                |   | <ul style="list-style-type: none"> <li>Reduced injury costs from potentially fewer on-road cycle crashes</li> <li>Environmental improvements from potentially reducing traffic</li> <li>Health cost savings due to potentially more people exercising</li> </ul>   | <ul style="list-style-type: none"> <li>Reduced injury costs from potentially fewer on-road cycle crashes</li> <li>Environmental improvements from potentially reducing traffic</li> <li>Health cost savings due to potentially more children exercising</li> </ul>  |
|                | <b>Benefits to Authorities</b>                            | <ul style="list-style-type: none"> <li>No costs required to process law change and educate and promote.</li> </ul>  | <ul style="list-style-type: none"> <li>Depending on the associated stipulations, less enforcement costs</li> <li>Decreased spending on cycleways (if they take an approach of replacing cycleways development with footpath cycling)</li> </ul>  | <ul style="list-style-type: none"> <li>Potentially less enforcement costs (although it is likely that most costs are currently related to the behaviour of adults on the footpath)</li> </ul>   |



| Party impacted      |   | Status Quo  | Legally allow footpath cycling for all  | Legally allow footpath cycling for children only – under 12 years – and mobility trike users  |
|---------------------|---|---|---|---|
| Disbenefits (Costs) | To Users – pedestrians                    | <ul style="list-style-type: none"> <li>Education of cyclists who ride on the footpath illegally (potentially endangering pedestrians) is not possible</li> </ul>  | <ul style="list-style-type: none"> <li>Potential for reduced participation in walking</li> <li>Potential for reduced safety if there is a tangible uptake of footpath cycling</li> </ul>                                      | <ul style="list-style-type: none"> <li>Potential for reduced participation in walking (although likely to be to a lesser extent if just children cyclists).</li> <li>Potential for reduced safety if more children cycle on the footpath</li> </ul> |
|                     | To Users – mobility impaired trike riders | <ul style="list-style-type: none"> <li>Reduced participation for mobility impaired trike users</li> </ul>   |   |   |
|                     | To Users - cyclists                       | <ul style="list-style-type: none"> <li>Limits travel choice</li> <li>Children who cycle on the footpath regardless of the law are not trained to do so safely so are at risk at locations such as driveways and side roads</li> </ul> | <ul style="list-style-type: none"> <li>Increased crashes at driveways and side roads through modest increase in footpath cycling (however some level of mitigation through increased awareness and cycle training)</li> </ul> | <ul style="list-style-type: none"> <li>Increased crashes at driveways and side roads through modest increase in footpath cycling (however some level of mitigation through increased awareness and cycle training)</li> </ul>                       |
|                     | To Society                                | <ul style="list-style-type: none"> <li>Health costs due to low cycle mode share</li> <li>Environmental costs due to low cycle mode sharing</li> </ul>   | <ul style="list-style-type: none"> <li>Possible increased injury related costs from footpath crashes if increased exposure risk outweighs benefit from better training and awareness</li> </ul>                               | <ul style="list-style-type: none"> <li>Possible increased injury related costs from footpath crashes if increased exposure risk outweighs benefit from better training and awareness</li> </ul>   |
|                     | To Authorities                            |   | <ul style="list-style-type: none"> <li>Costs to change the law and promote, educate and train cyclists</li> </ul>   | <ul style="list-style-type: none"> <li>Costs to change the law and promote, educate and train cyclists</li> <li>Costs to upgrade footpaths particularly around schools</li> </ul>   |

## 7.2 Stipulations within a rule

Any footpath cycling rule change could include stipulations to support a safer outcome. Indeed, stipulations are already included within the shared path use and mobility device and wheeled recreation device use rules.

With regard to a rule change, stipulations could focus on establishing shared expectations and behaviours by all road users, reinforcing that the core principal of pedestrian priority.

A number of possible stipulations were identified in the international rules and literature review. These were discussed with the stakeholders at the workshops and their advantages and disadvantages are outlined in **Table 7.2**.

**Table 7.2**  
*Potential rule stipulations*

| Stipulation   | Advantages/benefits   | Disadvantages/costs  |
|---|---|--|
| A person using a cycle on the footpath must give way to pedestrians                   | <ul style="list-style-type: none"> <li>Retains the footpath as a pedestrian priority area</li> <li>Consistent with rules for users of wheeled recreational devices and use of shared paths by cyclists</li> </ul> | <ul style="list-style-type: none"> <li>None</li> </ul>   |
| A cyclist must have a working bell and use it to notify pedestrians of their presence | <ul style="list-style-type: none"> <li>The presence of a bell is easy to determine</li> <li>May prevent conflicts between pedestrians and cyclists</li> </ul>   | <ul style="list-style-type: none"> <li>May frighten and/or intimidate pedestrians</li> <li>Difficult to enforce in terms of the bell being used appropriately</li> </ul>   |
| Cycle speed limit (say 10 km/hour)  | <ul style="list-style-type: none"> <li>Increases comfort for pedestrians</li> <li>Could reduce the likelihood and severity of crashes at driveways</li> </ul>   | <ul style="list-style-type: none"> <li>Difficult for people, particularly children to estimate</li> <li>Unlikely to be adhered to</li> <li>Difficult to enforce</li> </ul>   |
| Cycle speed is limited to walking/jogging speed                                       | <ul style="list-style-type: none"> <li>Increases comfort for pedestrians</li> <li>Could reduce severity of crashes at driveways</li> </ul>  | <ul style="list-style-type: none"> <li>Could be difficult for people, particularly children to judge what a walking speed is.</li> <li>Potentially difficult to enforce</li> </ul>   |
| Cycle at a speed that does not constitute a hazard to others                          | <ul style="list-style-type: none"> <li>Consistent with shared path use rule.</li> <li>May make cyclists think more about others on the path by use of the words 'hazard to others'</li> </ul>                     | <ul style="list-style-type: none"> <li>Does not address that speed of travel past driveways increases that safety risk as rule could be interpreted as 'others' that can be seen on the path</li> <li>Relies on judgement</li> </ul> |
| Overtaking distance (say 1.5m)  | <ul style="list-style-type: none"> <li>Increases comfort for pedestrian</li> <li>Rule using overtaking distance is approach consistent with potential vehicle - cycle overtaking distance rule.</li> </ul>        | <ul style="list-style-type: none"> <li>Could be difficult for people, particularly children to measure</li> <li>Likely to be impractical on many footpaths where the footpath is already 1.5 m or narrower</li> </ul>                |

| Stipulation   | Advantages/benefits   | Disadvantages/costs  |
|---|---|--|
| Direction of travel same as traffic direction         | <ul style="list-style-type: none"> <li>• Could reduce the number of crashes at driveways</li> </ul>   | <ul style="list-style-type: none"> <li>• Relies on strong promotion and potentially reminder signage</li> <li>• Would require bicycle riders to cross the road at least once on a return journey, exposing them to collision risks on roads</li> <li>• Inconsistent with the pedestrians walking in both directions</li> </ul> |
| Cycling must be in single file                        | <ul style="list-style-type: none"> <li>• Increases comfort for pedestrian</li> <li>• Rule approach is consistent with two abreast for road cycling</li> </ul> | <ul style="list-style-type: none"> <li>• Some adults might want to cycle beside the children they are teaching to ride</li> </ul>  |
| Footpath width  | <ul style="list-style-type: none"> <li>• Ensure narrow paths are not used by cyclists</li> </ul>  | <ul style="list-style-type: none"> <li>• Difficult for people, particularly children to measure the width</li> </ul>   |
| Restrictions where pedestrian numbers are high        | <ul style="list-style-type: none"> <li>• Reduce likelihood of collisions with pedestrians, where risk is higher</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Relies on judgement of what a 'high number' of pedestrians means</li> </ul>   |
| Restrictions for specific road environment/speed etc. | <ul style="list-style-type: none"> <li>• Allows cyclists to use footpaths where on-road risk is high.</li> </ul>  | <ul style="list-style-type: none"> <li>• Relies on understanding what the road environment is</li> </ul>   |

### 7.3 Supporting measures outside of a rule

If footpath cycling is permitted regardless of age then education, training, and promotion would be required to ensure cyclists understand the contexts where footpath cycling is inappropriate, and to recognise the circumstances that require extra care. Suggested areas of focus include overall courtesy, appropriate cyclist speed, young males, driveways, and side roads.

If footpath cycling is allowed for a certain age group (e.g. under 12 years), then careful consideration of the transition across this age group will be needed, especially if this threshold is enforced. For example, how can we ensure that 14-year old cyclists will be safe on busy roads through appropriate road design, education and training? What will be the expected norms for cyclists of all ages who encounter traffic environments that simply seem too dangerous? Providing more support for Grade 2 cycle skills before age 12 and improving cycling infrastructure around key cycling routes, could be areas for further consideration.

### 7.4 Rule options discussion

Retaining the status quo appears to limit the opportunity to reinforce safe footpath cycling. This has negative safety implications for children already cycling on the footpath and for pedestrians. Allowing everyone to cycle on the footpath may have a tangible impact on people walking on the footpath and could undermine the promotion and expectation of safe road cycling. Allowing children to legally cycle on the footpath appears to present an opportunity to improve safety through training and education, and to legitimise a behaviour already undertaken by many. An option with children and older adult age limits and vulnerable users (mobility and mentally impaired cyclists) is considered to be complex and could create confusion.

If it is assumed that a law change allowing some degree of footpath cycling would lead to a modest increase in footpath cycling by those whose actions are influenced by the rules, then improved

accessibility for some cyclists would result. For some, it may mean that cycling trips become feasible when they previously seemed too dangerous. For pedestrians, the disadvantage would be the presence of a few more cyclists on the footpath, which may have safety and comfort disbenefits. However, the extent of these disbenefits may be offset by improved cycling courtesy through targeted training and potentially also improved social interaction and passive surveillance, which may benefit personal safety.

Obviously a rule change limiting footpath cycling to children would yield lower levels of these benefits and disbenefits than for a rule allowing footpath cycling for all. But for any net increase in physical activity (if cycling increases and there is no change in walking), there are health, traffic congestion, and environmental benefits to consider. However, it seems impossible to quantitatively estimate and balance these advantages and disadvantages given the large assumptions at hand, which makes an objective assessment of rule options difficult.

An unintended consequence of allowing all cyclists to use the footpath could be less priority given to the provision of on-road cycling infrastructure. Already some RCAs default to shared paths when best practise on road facilities are deemed too costly. It is difficult to measure the extent of this risk, but logically some reduced cycleway priority could follow a rule change allowing footpath cycling for everyone. There is also the risk that allowing all people to cycle on the footpath may fuel an “us and them” debate between motorists and cyclists. Specifically, cyclists using the road may be criticised if they can legally ride on the footpath.

For mobility trikes, the current rules are inequitable and favour those using mobility scooters (and other mobility devices that are solely powered by a motor). People using mobility trikes should be allowed to use the footpath in the same way as others using mobility aids, to maintain their independence and mobility.

Naturally, mobility trike users should also understand that pedestrians have priority. Mobility trikes can be permitted to use the footpath through a change to the definition of a Mobility Device to include devices that use human power.

## 8. Discussion

### 8.1 Summary of findings

The implications for the safety and participation of both pedestrians and cyclists regarding footpath cycling are complex. Despite the relatively poor evidence base from which to make decisions about a rule change for footpath cycling, several specific points have emerged from the findings:

- Footpath cycling is, to a varying extent, normal for almost all cyclists. Children appear to predominantly use the footpath to cycle to and from school and other destinations. Because NZ roads often seem too dangerous to cyclists, footpath cycling is likely to feature at some point on many adult cycling trips even for those who are very experienced.
- The literature suggests that there may be a greater likelihood of a cyclist crash when riding on the footpath, but that the severity of cycle crashes on the road may be more severe. Some caution is needed here as the evidence from the literature is relatively weak; the relative exposure to road vs footpath cycling is not well understood, and some road crashes may have involved footpath riding (and conversely some footpath crashes involved road riding). Furthermore, comparing the locational safety of cycling (road vs footpath) is difficult because the demographics using each location is likely to be different, with relatively more children using the footpath and relatively more adults using the road. The crash data in New Zealand shows that on-road cycle crashes are much more common than footpath cycling but, again, without exposure data it is impossible to estimate the crash rate at each location and the associated likelihood of risk to a particular demographic group.
- There are more cycling fatalities and serious injuries on the road than on the footpath, which is consistent with there being more on road cycling occurring and the greater energy or force associated with on-road crashes. On the road, falling under a truck or colliding with a vehicle travelling 50 km/h or more is a possibility, whereas on the footpath the more common vehicle collisions (driveways and side roads) are likely to be at low speed. In analysing 94 recent cycling fatalities in New Zealand (Koorey 2014), almost all cases resulted from road cycling and footpath cycling was not mentioned as a significant factor in the analysis. The CAS analysis undertaken for this research also found that of the reported cycle crashes in the last 10 years, 10% occurred on the footpath.
- Some pedestrians may be disadvantaged by more footpath cycling, particularly the very young, elderly, and those with disabilities. The greatest risk is that the presence of cyclists on the footpath is sufficient to deter some from walking, or injure those who persist. However, there is currently no estimate for how great this risk is – on one hand although it is an area of concern a rule change may have very little tangible impact on pedestrian perceptions and safety. On the other, some pedestrians may be adversely affected in some instances.

## 8.2 Discussion of findings

In this section, the findings are discussed within New Zealand’s transport cycling context to help identify the footpath cycling rule change option(s) that are likely have the greatest overall benefit.

### No other option for many

Because traffic volumes have increased over the last half century with relatively modest road improvements for cycling amenity, cycling as a legitimate transport mode has been marginalised to a point where, without footpath cycling, there is often no feasible place to cycle. It could be argued that cyclists can always choose to use the road but many simply prefer the footpath. However, this viewpoint is unrealistic in the context of New Zealand’s road design. Expecting an 8 to 10-year old cyclist, whose traffic judgement skills may still be developing, to choose to ride on a typical road such as the one shown below in **Figure 8.1** contravenes Safe System principles and is likely to be unacceptable to the vast majority of New Zealanders within the context of our current road transport system. The extent of this issue is demonstrated by the currently apparent high levels of footpath cycling, particularly for children.

**Figure 8.1**  
Typical arterial road environment in NZ



It is also often suggested that less confident adult cyclists use parallel routes to busy roads. However, for many cycle trips no feasible parallel route exists without adding a prohibitive time and effort overhead to the trip. In any case, if the destination is on a busy arterial road, then it must be used. Therefore, strategically allowing footpath cycling, could be viewed as an important interim step, until New Zealand’s cycling infrastructure is generally suitable for all ages on all routes.

### Footpath cycling must not undermine cycling infrastructure investment

Because there are several trade-offs in the case for footpath cycling, a rule change should NOT be treated as a long-term strategic initiative to increase cycling or a replacement for focussing on fit-for-purpose cycling infrastructure. Rather, footpath cycling must be treated as a practical interim response to currently inadequate cycling infrastructure and safe speed environments around New Zealand.



### **Facilitating more constructive action for footpath courtesy**

Because many cyclists already use the footpath when they need to, and a rule change may have only modest effects on actual behaviour, it could be argued that a rule change is not necessary and it will only disadvantage pedestrians. Conversely, having a rule that is widely ignored and/or misunderstood does not seem a sensible way to proceed and a more realistic rule might attract greater respect and adherence. However, the key issue for pedestrians appears to be the lack of courtesy and correct behaviour by other footpath users, whether they be other pedestrians, mobility scooters, or cyclists. A rule change could therefore, help to facilitate much clearer expectations about footpath use. Cycle skills trainers could more openly reinforce footpath etiquette, placing pedestrian priority as an unconditional principle. This could in turn have benefits for pedestrians.

### **The magnitude of the pedestrian/cyclist conflict problem**

Given the likely intermittent nature of cyclist/pedestrian interactions at most locations and the modest increase in footpath cycling that is likely to accompany any footpath cycling rule change there is insufficient evidence of any potential impact from a rule change on pedestrians that could conceivably deter a rule change. However, given that cyclist/pedestrian crashes do happen, albeit rarely, and the likely detrimental effects of more frequent perceived near misses, developing better ways to instil correct behaviours by everyone and also monitoring crashes and near misses more effectively, should be explored.

### **Acknowledging variation in footpath and road environments**

The literature review identified that there is a significant variation in footpath and road contexts between countries, and even within cities. This makes a generalised view of footpath cycling problematic. Building on this, most people would agree that cycling on the footpath in a busy CBD environment is inappropriate. On the other hand, where a footpath adjoins a busy high-speed arterial road of 60-100 km/h with no shoulder space, and there are scarce pedestrians and side entrances, then few would argue that footpath cycling is inappropriate. Further, there may be temporal variations in pedestrian volumes that make footpath cycling less appropriate at certain times (e.g. peak hours). Sight distances at property entrances can also be highly variable depending on the nature of fencing and the location and width of the footpath. It would therefore be very useful if all road users could identify contexts that seem appropriate for footpath cycling and therefore rule stipulations and related education and training are likely to have a very important role to play in this exercise.

### **Mobility Trikes**

There was no literature that specifically addressed mobility trikes and yet there is clearly a current need for those using mobility trikes to use the footpath to improve their accessibility. It seems inequitable to ban footpath riding by mobility trike users when mobility scooters are currently allowed (with motors up to 1500W power). A point noted by a mobility trike user was the lower profile and associated reduced visibility of mobility trikes, which in some circumstances may make road use hazardous.

### **Part of the future contest for footpath and road space**

Looking to the future, the footpath cycling debate raises a more fundamental question about how road space is allocated. Especially for towns and cities, more strategic consideration of the road users that we might expect in coming decades could help to identify corresponding road design practices and rules about which road users we expect to share space. The rise of autonomous vehicles and personal mobility devices, including bicycles and e-bikes, will almost certainly impact on the 'real-estate' needed for the various modes. It may therefore be useful if this footpath cycling discussion, which has shorter-term implications, is linked to a wider discussion about designing for road users in the future.

### 8.3 Considerations for a footpath cycling rule

Based on the findings and discussion in this study there are a number of considerations for rules that affect footpath cycling. While defining any new rules is outside the scope of this study, the points below should help with rule decision making, and based on these points, the general conditions that would appear to provide an optimal outcome are outlined.

- If the rule is not changed and people continue to cycle on the footpath in their current manner, then there are limited legitimate ways to improve footpath user courtesy through education and training. As competition for footpath space increases in response to the variety of mobility aids becoming increasingly common, very clear expectations by all will be needed, with pedestrian priority at the heart of these expectations – particularly for those who are very young, elderly or have disabilities. Therefore, a rule change may be needed so a much clearer understanding of footpath use and etiquette can be achieved by proactive education, training and appropriate enforcement.
- If a distinction is to be made between different cyclists, then age is likely to be a more useful criterion than wheel size. This has proved to be the most acceptable criterion overseas.
- Along with any more permissive footpath rule change, education, training and promotion is recommended to ensure cyclists understand the contexts where footpath cycling is inappropriate and to recognise the circumstances that require extra care. A focus on cyclist speed, young males, courtesy around pedestrians, driveways and side roads are suggested areas of focus.
- If footpath cycling is allowed for a certain age group then careful consideration of the transition across this age group will be needed, especially if this threshold is enforced. For example, how can we ensure that 14-year old cyclists will be safe on busy roads through appropriate road design, education and training. Also, what will be the expected norms for cyclists of all ages who encounter traffic environments that simply seem too dangerous?
- Stipulations that may be part of a footpath cycling rule should focus on establishing shared expectations and behaviours by all road users. At the core, pedestrian priority must continue, but cyclist speed, avoiding riding on the footpath when pedestrian numbers are high (such as in busy shopping areas) and adults accompanying children are also important considerations that could be integrated into a revised rule.
- The impacts of any footpath cycling rule change should ideally be closely monitored. An evaluation framework should be established, with the goal of comparing any perceptual, behavioural and outcome changes with the status quo.
- There are disadvantages for one or more groups for each rule option. The right footpath cycling rule choice comes down to a balance between the potential benefits and costs. On balance, it appears that a rule permitting footpath cycling for those aged 12 and under (and accompanying adults) has merit. This would reflect that many aspects of children’s cognitive processing do not mature until around 11-12 years of age. It would also allow safe footpath cycling to be proactively taught to children, benefiting both cyclists and pedestrians and would also potentially encourage safer footpath/driveway interfaces, which would also benefit joggers, mobility scooters, children on push scooters, and pedestrians generally.
- On the other hand, by not legally allowing adults to use the footpath, a continued focus on providing fit for purpose on-road infrastructure will be more likely and motorists will continue to expect cyclists on the road. Although many adults will likely continue to use the footpath as is needed from time to time, this small lack of alignment between the rule and actual practise may be a relatively small disadvantage and may be adequately managed by pragmatic training, education and enforcement.

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- For mobility trikes, the current rules are inequitable and favour those using mobility scooters (and other mobility devices that are solely powered by a motor). People using mobility trikes should be allowed to use the footpath in the same way as others using mobility aids, to maintain their independence and mobility. Changing the definition of a Mobility Device to include devices that use human power Mobility trikes is supported.

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*Appendix A*  
*Rules in New Zealand Law*

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## *Land Transport (Road User) Rule (2004) - Definitions*

### **Cycle**

- (a) means a vehicle having at least two wheels and that is designed primarily to be propelled by the muscular energy of the rider; and
- (b) includes a power-assisted cycle.

**Footpath** means a path or way principally designed for, and used by, pedestrians; and includes a footbridge.

### **Pedestrian**

- (a) means a person on foot on a road; and
- (b) includes a person in or on any contrivance equipped with wheels or revolving runners that is not a vehicle.

### **Wheeled recreational device**

- (a) means a vehicle that is a wheeled conveyance (other than a cycle that has a wheel diameter exceeding 355 mm) and that is propelled by human power or gravity; and
- (b) includes a conveyance to which are attached one or more auxiliary propulsion motors that have a combined maximum power output not exceeding 300 W.]

### **A mobility device is defined as:**

“a vehicle that is designed and constructed (not merely adapted) for use by persons who require mobility assistance due to a physical or neurological impairment, and

- (a) is powered solely by a motor that has a maximum power output not exceeding 1 500 W; or
- (b) has been declared by the Director, by notice in the Gazette, to have a maximum power output not exceeding 1500 W.

### **A vehicle is defined as:**

- (a) means a contrivance equipped with wheels, tracks, or revolving runners on which it moves or is moved; and
- (b) includes a hovercraft, a skateboard, in-line skates, and roller skates; but
- (c) does not include—
  - (i) a perambulator or pushchair:
  - (ii) a shopping or sporting trundler not propelled by mechanical power:
  - (iii) a wheelbarrow or hand-trolley:
  - (iv)[Repealed]
  - (v) a pedestrian-controlled lawnmower:
  - (vi) a pedestrian-controlled agricultural machine not propelled by mechanical power:
  - (vii) an article of furniture:
  - (viii) a wheelchair not propelled by mechanical power:
  - (ix) any other contrivance specified by the rules not to be a vehicle for the purposes of this definition:
  - (x) any rail vehicle

## *Land Transport (Road User) Rule 2004*

### 2.13 Driving along footpath

- (1) A driver must not drive a motor vehicle along a footpath.
- (2) Subclause (1) does not apply to a person who rides a moped or motorcycle on a footpath in the course of delivering newspapers, mail, or printed material to letter boxes if the road controlling authority has authorised the use of the footpath for that purpose.

### 11.1 Use of footpath and roadway

- (1) A pedestrian must, at all times when practicable, remain on the footpath if one is provided.
- (2) A driver must not drive a mobility device on any portion of a roadway if it is practicable to drive on a footpath.
- (3) A pedestrian or driver of a mobility device or a wheeled recreational device using the roadway must remain as near as practicable to the edge of the roadway.
- (4) A driver of a mobility device or wheeled recreational device on a footpath—
  - (a) must operate the device in a careful and considerate manner; and
  - (b) must not operate the device at a speed that constitutes a hazard to other footpath users.
- (5) A person using a wheeled recreational device on a footpath must give way to pedestrians and drivers of mobility devices.
- (6) A pedestrian must not unduly impede the passage of—
  - (a) a mobility device or wheeled recreational device permitted to use the footpath by this clause; or
  - (b) a moped or motorcycle permitted to use the footpath by clause 2.13(2).

### 11.11 Riding cycles on footpaths, etc...

- (1) A person must not ride a cycle on a footpath or on a lawn, garden, or other cultivation forming part of a road.
- (2) Subclause (1) does not apply to a person who rides a cycle on a footpath in the course of delivering newspapers, mail, or printed material to letterboxes.

The laws below cover use of a shared path.

### 11.1A Use of shared path

- (1) This clause applies to a path that—
  - (a) may be a cycle path, a footpath, or some other kind of path; and
  - (b) may be used by some or all of the following persons at the same time:
    - (i) pedestrians:
    - (ii) cyclists:
    - (iii) riders of mobility devices:
    - (iv) riders of wheeled recreational devices.
- (2) A person using the path—
  - (a) must use it in a careful and considerate manner; and
  - (b) must not use it in a manner that constitutes a hazard to other persons using it.
- (3) A rider of a cycle, mobility device, or wheeled recreational device on the path must not operate the cycle or device at a speed that constitutes a hazard to other persons using the path.
- (4) If a sign or marking on the path gives priority to pedestrians or cyclists, the following rules apply on the path:
  - (a) pedestrians, riders of mobility devices, and riders of wheeled recreational devices must give priority to cyclists if the sign or marking gives priority to cyclists:

(b) cyclists must give priority to pedestrians, riders of mobility devices, and riders of wheeled recreational devices if the sign or marking gives priority to pedestrians



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