Pedestrians - An Endangered Subspecies

Dr. C. Teo-Sherrell[1], M. Christie[2], A. Smith[3]
Members of the Living Streets Aotearoa executive committee

1 Chris.Teo-Sherrell@livingstreets.org.nz, presenter
2 Meg.Christie@livingstreets.org.nz
3 Andy.Smith@livingstreets.org.nz

Abstract

In New Zealand, the law states that footpaths may only be used by people walking, using small-wheeled recreational devices, people using mobility devices such as wheelchairs and mobility scooters and by people delivering mail on bicycle or, under certain authorisation from the road controlling authority, on moped or motorbike (MoT 2004) or motorised 4-wheeled buggy (NZTA 2016).

The latter two categories are relatively recent additions to the legal users (MoT 2004; NZTA 2016) and there is an increasing call for other forms of vehicle to be allowed to use footpaths (e.g. Maxwell 2015; Fulton 2016).

This paper will present Living Streets Aotearoa's view on why legal use of footpaths should not be expanded and why footpaths should receive more attention as integral components of our transport system essential for providing equity of employment and social opportunity for all members of society. The paper will conclude with suggestions for central and local government to make pedestrians' lives as pedestrians a great deal better.

Why footpaths should receive more attention as integral components of our transport system

Walking is the original form of human transport. For thousands of years we have walked on tracks and paths which were expanded for pack animals, carts, carriages and, in the last 100 years or so, automobiles. Walking has been a critical feature of urban living (ITF 2012).

Footpaths are the vital link between the various parts of our transport system. They link the home to the bus or train, the bus or train to the office or shops or school or park or cinema. Often they connect the workplace to the car. Virtually every journey begins and ends with a walk and in urban areas this usually involves using a footpath. In some cases, entire journeys can be on footpaths.

Walking is a fundamental human activity for people of all ages. Despite this, walking is frequently taken for granted and is often overlooked in the public policy arena (ITF 2012). For example, in the 2015-2025 Government Policy Statement on Land Transport (MoT 2014) walking is lumped in with cycling, a mode that has few similarities with walking.

However, there is now increasing recognition that walking is a valuable form of health-enhancing physical activity, an important means of enabling social participation and a convenient, cheap and sustainable form of transport (Garrard 2013).

Data from Victoria, Australia shows that although all socioeconomic groups walk for utility transport purpose to about the same extent, lower socioeconomic groups do so considerably less for exercise (Garrard 2013). This is similar to the case in NZ despite walking being the most popular recreational activity of all groups (Sport NZ 2015).

Improving pedestrian facilities in lower socioeconomic neighbourhoods may help address health inequalities if it makes walking a more attractive activity and people increase the amount of walking they do for transport, recreation or exercise as a result. This is part of the thinking behind Mangere's Te Ara Mua or Future Streets project (Future Streets, n.d.) .

Walking is the most common form of exercise for older people and is important for both their physical and mental well-being (Garrard 2013). New Zealand has a rapidly aging population

(Statistics NZ 2016) and so more older people will be using footpaths to a greater extent. We need to ensure that footpaths are of high quality design and well-maintained so that the benefits of walking are not outweighed by the costs of injuries from trips, slips and falls, and so that older people feel that they can use the footpaths safely, without conflict with other users, and so be more inclined to use them.

The NZ Household Travel Survey (MoT 2015a) shows that older people most commonly walk for recreation/exercise but also do so for shopping and attending to personal business, visiting or meeting other people, or for accessing other modes of transport (presumably this is mostly public transport). Walking is clearly an important enabler for older people to maintain independence and participate in society.

The same survey revealed that walking makes up 13% of travel time and 17% of the number of trip legs across the population. Despite these percentages, the actual time spent walking averages only about 50 minutes per week for adults, 60 minutes for 5 to 14 year olds and about 75 minutes for 15 to 24 year olds. This is substantially less than the recommended 150 minutes of moderate-intensity aerobic activity (Ministry of Health, n.d.) yet is quite likely the only exercise many people get. A quarter of adults reported that they do not take part in any sport or recreational physical activity (Sport NZ 2015).

People without drivers' licences spend considerably more time walking than other people (MoT 2015a). Thus, with an increasing number of older people no longer being able to drive and a higher proportion of younger people not seeking to get a driver's licence (Radio NZ 2016; MoT 2015b) we can expect a greater demand for improved pedestrian facilities.

Even if people don't care about the health and general well-being benefits of increased walking, they may care about the economic benefits. When we walk we are more likely to stop and spend money in retail stores and food and beverage outlets than we are if we drive (Clifton et al., 2013). Although the amount spent on any one occasion may be lower for walkers their higher frequency of stopping results in the same or higher expenditure than by drivers.

Many cities are recognising the positive economic effects (Auckland Council 2012) of providing high quality footpaths and social space in their central city areas with some even completely pedestrianising them (Hickey 2015). However, it isn't sufficient to make just the downtown pedestrian-friendly. People have to make their way there from elsewhere. So good cycling and walking networks and public transport infrastucture and services are needed to connect them to the areas from which users come.

Because a sixth of household car trip chains are shorter than 2km and 4 in 10 are less than 5km (NZTA, n.d.), many of the trips currently undertaken by car could be done by walking or by walking in combination with public transport. Such a change would reduce greenhouse gas and particulate emissions and decrease traffic congestion.

Clearly, there is huge potential for increased walking for transport in NZ but this is more likely to be achieved by getting more people walking than by increasing the time spent walking by those who already spend some time doing so. This is because 77% of participants in the NZ Household Travel Survey said they hadn't used a public footpath on the day of the survey (MoT 2015a).

There are substantial health benefits to be gained from having more people walking more often as well as social inclusiveness, economic and environmental ones (Victoria Walks, n.d.). All these factors warrant greater investment in pedestrian infrastructure to enable it to fulfil a greater role in our transport system. However, to do so, we will require better footpaths and crossing facilities and

a traffic environment that is less threatening to pedestrians as well as identifying and addressing other disincentives to walking.

Why legal use of footpaths should not be expanded

In an ideal world, the footpath should be a haven, a protected space where users should not have to be concerned about conflict and crashes. In reality, footpaths can be very busy spaces with potential for conflict caused by the quality of the infrastructure and differences in the types, abilities, movements and behaviours of footpath users (Austroads 2006). Distraction, caused by caregiving or conversation, or looking at surroundings or electronic devices, adds to the potential for conflict and crashes.

Currently, footpaths are legally shared by walkers and runners of all speeds and abilities, people using mobility devices such as wheelchairs and mobility scooters, dog walkers, caregivers with prams, small children on bikes, mail deliverers on bikes, in-line skaters, skate-boarders, and people riding kick scooters or low-powered, small-wheeled recreational devices, all of whom have a right to be there (MoT 2004).

This eclectic mix of footpath users also includes the so-called “vulnerable users” - those people identified as having visual, hearing, cognitive or mobility impairments - as well as the elderly, younger children and people who are frail. These users often have fewer transport options than able bodied-people, and their use of footpaths is a key component of many of their journeys. Some rely on travelling on footpaths as their main means of participating in society.

Users’ reasons for utilising the footpath - getting to work, escorting children to school, going to the shops, the park, the bus stop or train station, getting exercise - are exactly the same as people using the rest of the road network and are in no way less important. They should be provided with safe, comfortable infrastructure governed by sensible, enforceable rules.

Footpaths are commonly not fit for purpose, even now, for existing users. They are often narrow, with rough surfaces and may have unsuitable gradients, including having steps in hilly areas. Street furniture, overhanging vegetation, power poles and commercial and construction signs often have to be negotiated. Driveways often cross footpaths at frequent intervals, creating potential conflict zones as well as uneven surfaces. Such impediments and hazards are unlikely to be tolerated on the rest of the road network. They are not consistent with the Government's safe systems approach to road safety (NRSC 2016) nor NZTA's Pedestrian Planning and Design Guide (NZTA 2009).

Footpath users also have to contend with those who have no right to use footpaths but who do so anyway. Most commonly, these are vehicles parked, and cyclists riding, illegally on footpaths and people legally allowed to use footpaths but doing so without due care and consideration for others. Drivers, when entering or exiting driveways, are supposed to give way to pedestrians on footpaths (MoT 2004) and, with the exception of those categories listed above, cyclists are not supposed to ride on footpaths (MoT 2004).

All drivers of vehicles are supposed know and abide by the road rules and are tested and licensed. In contrast, cyclists and riders of the other previously-mentioned small-wheeled transport and recreational devices are neither tested nor licensed. This means a much wider range of competencies and attitudes may be demonstrated by the latter. Also, there is no sanction such as loss of licence for breaching norms of behaviour that can be applied to them. Furthermore, enforcement of footpath use rules, like those on shared paths, is extremely rare which increases the likelihood of non-compliance with expected behaviour.

Shared cyclist-pedestrian pathways are being designed and provided for in many parts of the country to reduce cycle-car conflicts e.g. Auckland's Waterview shared path, Palmerston North's He Ara Kotahi. Such shared paths are supposed to be built to certain width specifications (Austroads 2009) and used courteously and considerately by all users (MoT 2004). Yet there is considerable debate about the safety and perception of safety of pedestrians and cyclists on such shared paths (e.g. Fitchett 2015; LennyBoy 2016). It is likely that this will be even more the case for footpaths if additional types of users are permitted to use them.

Current legal footpath users generally mingle readily at low speeds but where higher density and higher speeds occur, the risk of collisions rises and the perception of safety and comfort for many pedestrians decreases.

In summary, the existing quality of the footpaths, the current mix of users, the lack of enforcement of regulations and the poor performance of shared paths are all compelling reasons why the legal use of the footpath should not be expanded to include people on bicycles or motorised transportation devices and vehicles. Streets are not inclusive until they are suitable for people, ranging in age from eight to eighty, to walk comfortably, safely and independently (Penalosa 2016). Expanding the use of footpaths to devices capable of moving faster than walking speed for long periods will work directly against such a goal.

What central and local government could do to improve things for pedestrians

Little is known about the use of pedestrian facilities in New Zealand. Whereas data is routinely collected on the number, speed, and type of vehicles using roadways, counting of pedestrian traffic is not usually carried out by councils except for project planning and design purposes (NZTA 2008). It is difficult to see how Road Controlling Authorities (RCAs) can make good decisions about pedestrian facilities without knowing how many users there are, not to mention the particular needs of different types of user? Not only should this sort of data be gathered routinely but also information should be gathered on how important different pedestrian facilities are to the users and about the perceptions of users and non-users. For example, is it their only means of getting places or of staying healthy or connected to society?

Not all RCAs monitor the condition of their footpaths (DIA, n.d.). Among those that do, there is no consistency in the way they are monitored or classified (DIA, n.d.). Some use a 5-point condition scale (CERAP, n.d.; NZTA 2008) but this scale does not relate adequately to user experience and the risk of suffering a trip, slip or fall, especially for less stable or visually-impaired users. Monitoring, more relevant to the user experience and non-user expectation, could usefully be implemented. There may be merit to the cost of monitoring and improvements being shared between RCAs, NZTA and others such as Accident Compensation Corporation NZ (ACC), which has an inherent interest in injury prevention.

The level of maintenance of footpaths could be greatly improved. We note how quickly potholes and other defects are fixed on urban roadways (personal observations). Yet footpaths often have cracks, bumps, or dips for years before they are repaired. One RCA stated that it takes up to 15 years to restore unsatisfactory footpaths to good condition despite using a formal RAMM-based condition rating system (NZTA 2008). Such seemingly minor defects can cause trips and falls with high associated cost. ACC paid out $95M in 2015-2016 for falls in streets (ACC, n.d.). Falls may account for 75% of injuries sustained by pedestrians (ITF 2012), especially older or frail ones. There needs to be equality between the way people using different modes of transport are treated

in the quality of the infrastructure they are provided. Clearly, something central government could do that might help this is to apply to footpaths the Financial Assistance Rate that applies to roadway maintenance. As an integral part of the transport network there is no justifiable reason for it not doing so.

Our observations and conversations tell us that many drivers are ignorant of, or choose to ignore, the rules concerning footpaths - especially the need to give way to pedestrians on them. Some seem simply not to think that anyone could come along a footpath while they are parked across it. This appears to be a common problems in other countries also, giving rise to publicity campaigns aimed at modifying driver behaviour (e.g.The Guide Dogs for the Blind Association 2017). RCAs, through their ordinary communications with their ratepayers as well as through Road Safety Activities, could have on-going programmes to remind or educate drivers and riders of their obligations. Central government could require more attention be paid to the interaction with pedestrians (and cyclists) in driver licence testing. Any education effort must be supported by adequate enforcement. Currently, such enforcement seems to be a very low priority for Police and for Councils.

Central government could also raise the status of NZTA's very good Pedestrian Planning and Design Guide (NZTA 2009) so that RCAs are required to abide by it in all new footpath construction and renewal work. As a simple example, they could require that all footpaths are made to appear continuous across driveway crossings. This will give a visual reminder to drivers that it is a footpath, that they are obliged to give way to pedestrians and that they will endanger, or at least inconvenience, footpath users by parking cross it. Some local agencies specify that vehicle crossings shall not compromise footpaths (e.g. Auckland Transport 2013), but this applies only to new and replacement vehicle crossings and does not affect the vast number that already exist nor does it ensure that contractors actually follow the requirements.

A more complete and detailed record of injury to and incidents experienced by pedestrians needs to be established. Many, possibly most, of these never make it into the Crash Analysis System (NZTA 2010). ACC claims data lacks the precise location of the incident because it collects information about the location only to the local council level (e.g. Hamiilton City) and the scene only to broad categories such as street, home, school, industrial place (ACC 2015). Many matters are not reported to Councils because of a history of inaction or slow response. Not only would more complete data help to identify sites needing remedial work but it would also enable objective assessment of the appropriateness of Councils' footpath condition assessment criteria.

At an urban design level, Councils could adopt measures in their district plans requiring that front fences near driveways be no higher or no less visually permeable than would enable a clear view of the footpath from the driveway. This would help avoid the common near misses and frights experienced by so many pedestrians due to vehicles coming out of driveways, unseen and often unheard, at speeds too fast to be able to give way to people walking along the footpath. Young children are especially difficult to see and older people are often less able to take evasive action. Auckland's District Plan Rule for Residential Zone 1, for example, sets a height limit for front fences of 1.2m (Auckland Council 2014) as does Whanganui's District Plan (Whanganui District Council 2016).

Every Council experiences damage to its footpaths caused by street trees. There are various approaches to dealing with it but few seem to be completely successful. There is some scope through species selection to lessen the issue but species selection is often aimed at achieving multiple objectives (Behrens 2011; Masterton District Council 2010). Surrounding planting pits with root barriers needs to become standard practice. But perhaps most importantly, trees need to be given enough space to grow both above and below ground if they are to fulfil our desires for them

including being stable and not damaging other infrastructure. Given that the space between kerb and property boundary often leaves only a metre or so of width for the tree zone, the most obvious answer seems to be using some of the parking space on the other side of the kerb. Besides providing trees with enough space to grow without damaging footpaths this could have traffic calming benefits and decrease conflicts between Councils and neighbouring property owners over the effects of the trees on those properties.

Councils could require greater consistency in the provision of safe alternative routes when footpaths are unavoidably obstructed by construction or utility maintenance activity. There are very clear statements of what is required when footpaths and crossings are obstructed (NZTA 2015a). It isn't aceptable to simply put up a sign saying 'Footpath Closed, Tough Luck'. Some operators are very good at meeting the requirements. However, there are many occasions when these requirements are not met suggesting that some Councils are not paying enough heed to the needs of pedestrians by requiring adherence to adequate temporary traffic management plans.

Councils could also put the interests of their walking citizens, especially visually-impaired ones, first without seriously affecting retailers by insisting that street furniture and signs are located solely within the furniture zone. NZTA (2009, 2015b) provides ample guidance on how to do this. Also, Councils could provide adequate parking for bikes and mobility devices in repurposed on-street vehicle parking spaces and require these to be used rather than allowing such vehicles to be left on footpaths in retail areas.

It's not just about footpaths. Road crossings are an essential component of the system for pedestrians. There are many good examples of enhanced facilities such as midblock buildout kerb extensions and smaller kerb radii at corners. Nevertheless, in some places there appears to be a bias against pedestrian crossings despite formal crossings being highly-valued by pedestrians, especially vulnerable ones. This bias seems to stem from the decades-old emphasis of road engineering on motor vehicle traffic efficiency. There is a tendency to minimise the number of crossings instead of improving them so they are the safest choice. Not only can physical design be used to enhance the safety of crossings but also technology, such as user-responsive timing systems (King 2015) can be used to give different users adequate time to cross while minimising delay to motor traffic.

The power to make things much better for pedestrians is in Council hands. Many of them are comparatively low-cost measures, yet they can have numerous benefits as a result of getting more people walking and fewer driving. They can make the difference between a person being isolated at home or participating in society. They can determine the work opportunities a disabled person has. They can affect the level of community cohesion and vitality and they can influence the viability of retail enterprises.

But perhaps there are two things within the power of local and central government that would have the greatest effect of all on pedestrians. Firstly, they could improve the on-roadway provision for people riding bicycles and low-powered transport and recreation devices so that riders are safe and feel safe using them there rather than feeling they need to use footpaths. And secondly, Councils could lower speeds in areas where pedestrians are common to make everyone's transport safer and feel safer and reduce the annual toll of pedestrian from the current 30 a year to much closer to zero.

Conclusions

Walking could play a much bigger role in our transport system than it does now. Walking, primarily on footpaths, provides the links between origins and destinations or between other modes of transport and destination.

The health, social, economic and environmental benefits that would result from increasing investment in walking would be worthwhile. Older and disabled people as well as the increasing number who do not drive would particularly benefit from improvements to pedestrian infrastructure and the law concerning use of it. It would enable them to participate in, and contribute more fully to, society and to be more proactive in enhancing their own health.

It is a matter of equity that the infrastructure provided for pedestrians should be just as fit for their purpose as that provided other road users. Currently, this is not the case with the standard of footpaths often being substantially worse than the adjacent roadway. One cause may be the inequitable funding of roadway and footpath maintenance.

Various measures could be implemented by local and central government to improve provision for pedestrians. Knowledge of, adherence to and enforcement of the existing rules concerning footpath use is often lacking. These need to be addressed in addition to the quality of the infrastructure.

The roadway needs to be made safer for users of human-powered and low-powered wheeled devices through lowering motor traffic speeds and reallocating roadway space to these users. That will likely have as much benefit for footpath users who are increasingly threatened by the plethora of other user types wanting or being expected to use the footpath.

References

ACC, Accident Compensation Corporation (2015) Houston - eACC45 Quick Start Guide v1.0-2. Viewed 13 February 2017. http://www.acc.co.nz/publications/index.htm?ssUserText=Houston+eACC45

ACC, Accident Compensation Corporation (no date). Online Injury Statistics Tool. Used 21/2/2017. http://www.acc.co.nz/about-acc/statistics/injury-statistics-tool/index.htm?claimtype=all&account_type=all&age_group=all&gender=all&injury_site=all&cause68896011=68896011&diagnosis=all&sport=all&scene448032003=448032003&region=all

Auckland Council (2012) An evaluation of shared space in the Fort Street Area, Auckland, New Zealand. Viewed 13/2/2017 http://www.aucklandcouncil.govt.nz/EN/planspoliciesprojects/plansstrategies/ccmp/Documents/fortstareaevaluationfullreport.pdf

Auckland Council (2014) City of Auckland District Plan, Isthmus Section, Rule 7.8.1.15 Viewed 13 February 2017. http://www.aucklandcity.govt.nz/council/documents/district/part07c.pdf

Auckland Transport (2013) ATCOP, Auckland Transport Code of Practice s7.8. Viewed 13/2/2017. https://at.govt.nz/media/341980/ATCOP-Section-7-Road-Layout-And-Geometric-Design.pdf

Austroads (2006) Pedestrian-Cyclist Conflict Minimisation on Shared Paths and Footpaths. Viewed 13/2/2017. https://www.onlinepublications.austroads.com.au/items/AP-R287-06

Austroads (2009) Guide to Road Design – Part 6A: Pedestrian and Cyclist Paths, s7.5.3. Viewed 13/2/2017. https://www.onlinepublications.austroads.com.au/items/AGRD06A-09

Behrens, F. M. L. (2011) Selecting public street and park trees for urban environments: the role of ecological and biogeographical criteria. Ph.D. Thesis, Lincoln University. Viewed 13 February 2017. http://dspace.lincoln.ac.nz/handle/10182/4183

CERAP, Centre for Excellence in Road Asset Planning in the Waikato Region (no date) Road Asset Technical Accord - Waikato guideline for measurement processes. Viewed 13 February 2017. https://www.nzta.govt.nz/assets/Road-Efficiency-Group/docs/dia-measures-waikato-guideline-guideline-document.pdf

Clifton, K.J., Currans, K.M., Muhs, C.D., Ritter, C., Morrissey, S. and Roughton, C. (2013) Consumer Behavior and Travel Choices: A Focus on Cyclists and Pedestrians. Paper submitted to 92nd Annual Meeting of the Transportation Research Board, January 2013, Washington, D.C. Viewed 13/2/2017. http://nacto.org/docs/usdg/consumer_behavior_and_travel_choices_clifton.pdf

DIA, Department of Internal Affairs (no date) Submission analysis - Provision of roads and footpaths. Viewed 13 February 2017. https://www.dia.govt.nz/diawebsite.nsf/Files/RoadsandFootpathsSubmissionReport/$file/RoadsandFootpathsSubmissionReport.pdf

Fitchett, A. (2015) Shared pathways put walkers and cyclists on collision course. Viewed 13/2/2017. http://i.stuff.co.nz/nelson-mail/opinion/73377192/shared-pathways-put-walkers-and-cyclists-on-collision-course

Fulton, T. (2016) 7/7/2016 Domino's disruptive technology pizza delivery robot hitting man-made obstacles. Viewed 13/2/2017. http://i.stuff.co.nz/business/81812717/dominos-disruptive-technology-pizza-delivery-robot-hitting-manmade-obstacles

Future Streets – Te Ara Mua (no date). Project aims and funding. Viewed 13/2/2017. http://www.futurestreets.org.nz/project-aims-and-funding/

Garrard, J. (2013). Senior Victorians and walking: obstacles and opportunities: Summary Report. Melbourne, Victoria Walks. Viewed 13/2/2017. http://www.victoriawalks.org.au/Assets/Files/FINALSeniorsSummary.pdf

Hickey, E. (2015) Everyone loves pedestrianisation – but what if it made all retail districts look the same? Viewed 13/2/2017. http://www.citymetric.com/skylines/everyone-loves-pedestrianisation-what-if-it-made-all-retail-districts-look-same-1549

ITF, The International Transport Forum (2012) Pedestrian Safety, Urban Space and Health. OECD Publishing. Viewed 13/2/2017. http://dx:doi.org/10.1787/9789282103654-en

King, W. (2015) PUFFIN traffic signal benefits. Paper presented at IPENZ Transportation Group conference, Christchurch, 2015. Viewed 13/2/2017. http://conf.hardingconsultants.co.nz/workspace/uploads/paper-king-wayne-puffin-t-54f3936c94e03.pdf

LennyBoy (2016) Another look at Auckland: Shared Paths. Cycling in Christchurch 23/4/2016. Viewed 13/2/2017. http://cyclingchristchurch.co.nz/2016/04/23/another-look-at-auckland-shared-paths/

Masterton District Council (2010) Street Tree Policy. Viewed 13 February 2017 https://www.mstn.govt.nz/planning/policies/StreetTreePolicy2010.pdf

Maxwell, J. (2015) 25/9/2015 New 30kmh mobility scooters set to hit footpaths, roads as new business launches Viewed 13/2/2017. http://i.stuff.co.nz/business/72379455/new-30kmh-mobility-scooters-set-to-hit-footpaths-roads-as-new-business-launches

Ministry of Health (no date) How much activity is recommended? Viewed 13/2/2017. Page updated 10/11/2015 http://www.health.govt.nz/your-health/healthy-living/food-and-physical-activity/physical-activity/how-much-activity-recommended

MoT, Ministry of Transport (2004) Land Transport (Road User) Rule 2004, SR2004/427, Rule 61001, sections 2.13, 4.4, 11.1, 11.1A and 11.11. Viewed 13 February 2017. http://www.legislation.govt.nz/regulation/public/2004/0427/latest/whole.html#DLM303057

MoT, Ministry of Transport (2014) Government Policy Statement on Land Transport (2015-2025). Viewed 13/2/2017. http://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/GPS-2015.pdf

MoT, Ministry of Transport (2015a) NZ Household Travel Survey 2011-2014. Viewed 13/2/2017. http://www.transport.govt.nz/assets/Uploads/Research/Documents/Walking-2015-y1012.pdf

MoT, Ministry of Transport (2015b) 25 years of New Zealand travel: NZ household travel 1989-2014. Viewed 13/2/2017. http://www.transport.govt.nz/assets/Uploads/Research/Documents/25yrs-of-how-NZers-Travel.pdf

NRSC, National Road Safety Committee (2016) Safer Journeys Action Plan 2016-2020. Viewed 13/2/2017. http://www.saferjourneys.govt.nz/assets/Safer-journeys-files/Safer-Journey-Action-Plan-2016-2020.pdf

NZTA, NZ Transport Agency (2008) Survey of footpaths, cycleways and related costs. Viewed 13/2/2017. http://www.nzta.govt.nz/assets/resources/general-circulars/docs/08-11b.pdf

NZTA, NZ Transport Agency (2009) Pedestrian Planning and Design Guide. Viewed 13 February 2017. https://www.nzta.govt.nz/resources/pedestrian-planning-guide/

NZTA, NZ Transport Agency (2010) The Mechanisms and types of non-motor vehicle injuries to pedestrians in the transport system and indicated infrastructure implications. Viewed 13 February 2017. https://www.nzta.govt.nz/resources/research/reports/431/

NZTA, NZ Transport Agency (2015a) Code of practice for temporary traffic management (COPTTM) (4th edition) (Section C13): Part 8 of the Traffic Control Devices manual (TCD Manual). Viewed 13/2/2017. https://www.nzta.govt.nz/assets/resources/code-temp-traffic-management/docs/Section-C-static-operations-copttm-4th-ed-july2015.pdf

NZTA, NZ Transport Agency (2015b) RTS 14 – Guidelines for facilities for blind and vision impaired pedestrians(3rd edition). Viewed 13/2/2017. http://www.nzta.govt.nz/assets/resources/road-traffic-standards/docs/rts-14.pdf

NZTA, NZ Transport Agency (2016) Letter (18 May 2016) from Richard O'Reilly, Manager Operational Policy, to Road Controlling Authorities re exemption to NZ Post for use of Paxster vehicles on footpaths for delivery of mail.

NZTA, NZ Transport Agency (no date) Resource 1 – facts and figures (NZTA Travel Planning Toolkit). Viewed 13/2/2017. https://www.nzta.govt.nz/assets/resources/travel-planning-toolkit/docs/resource-1-facts-and-figures.pdf

Penalosa, G. (2016) Keynote speech presented at the 2WalkandCycle conference, Auckland, 6 July 2016.

Radio NZ (2016) Fewer young people learning to drive. Viewed13/2/2017. http://www.radionz.co.nz/news/national/316897/fewer-young-people-learning-to-drive

Sport NZ (2015). Sport and Active Recreation in the Lives of New Zealand Adults. 2013/14 Active New Zealand Survey Results. Viewed 13/2/2017. http://www.sportnz.org.nz/assets/Uploads/attachments/managing-sport/research/Sport-and-Active-Recreation-in-the-lives-of-New-Zealand-Adults.pdf

Statistics NZ (2016) National Population Projections. Viewed 13/2/2017. Page updated 19/2/2016 http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/projections-overview/nat-pop-proj.aspx

The Guide Dogs for the Blind Association (2017). Viewed 13 February 2017. https://www.guidedogs.org.uk/supportus/campaigns/streets-ahead/pavement-parking/#.WKDRU7Mgfil

Victoria Walks (no date) Benefits of walking. Viewed 13/2/2017. http://www.victoriawalks.org.au/Walking_benefits/

Whanganui District Council (2016) Whanganui District Plan, Residential Zone. Viewed 13/2/2017. http://www.whanganui.govt.nz/our-district/district-plan-text/district-plan/Documents/Chapters/Chapter%2004%20Residential%20Nov%202016.pdf