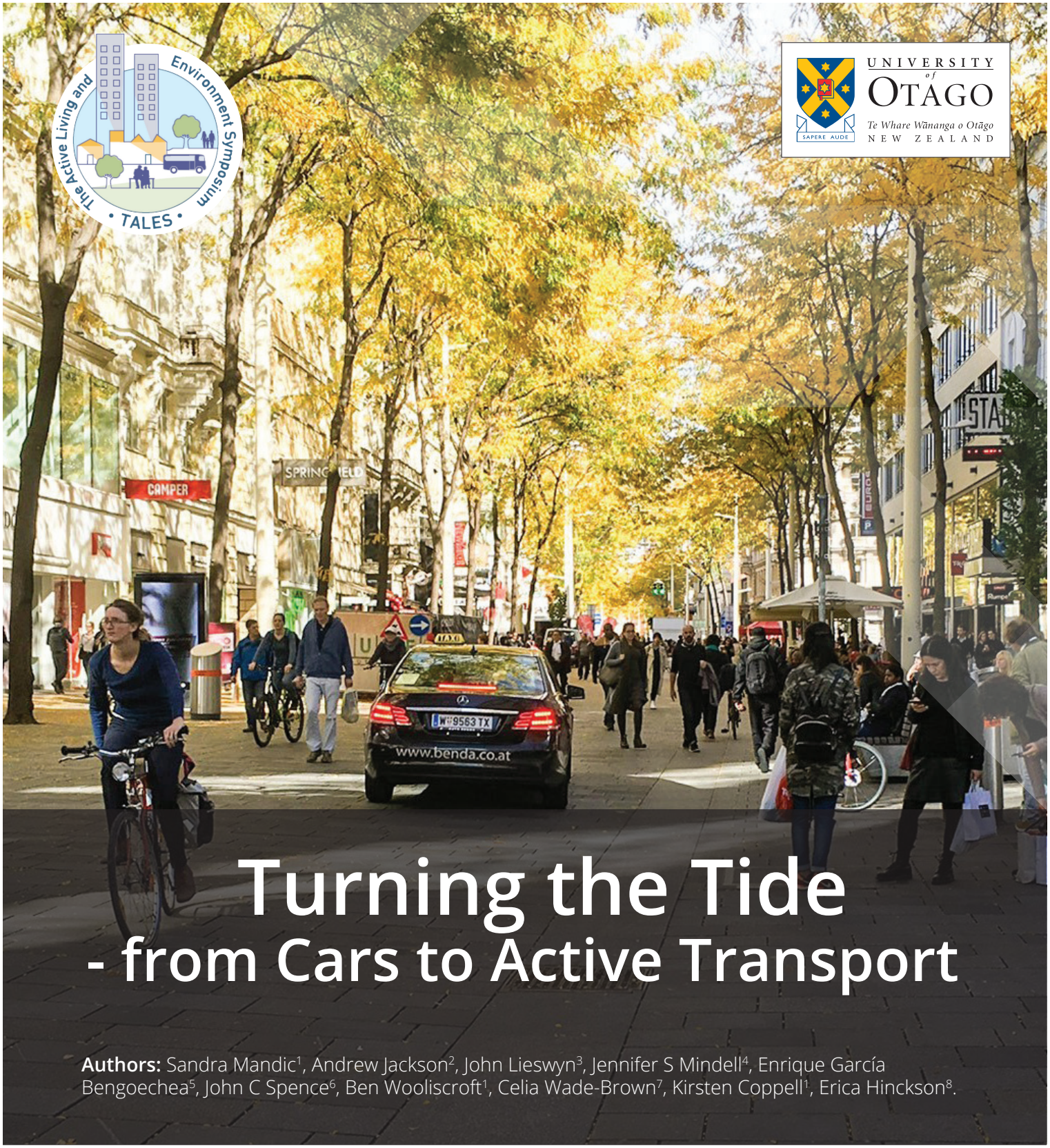

Turning the Tide
- from Cars to Active Transport

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EXECUTIVE SUMMARY

Humans create and use tools that allow us to achieve new things and make our lives easier. This is evident in the world of transport. Since the first sail and the first wheel, new forms of transport have created opportunities and made it easier for us to get from A to B.

On land, the advent of the motor car was the pinnacle of this development, allowing us our own comfortable and easy way to get around. The motorcar age has shaped the development of the places we live in and how we live. Furthermore, the alignment of business interests with a product that provides such personal convenience has been and remains a powerful force of change.

According to the Ministry of Transport travel survey, between 1988 and 2014, the only mode of transport that increased its share in New Zealand was car use. This natural pressure to use our cars over other means of transport continues with rapid growth in the number of kilometres driven by New Zealanders since 2013.

While cars bring convenience and can provide superb access, they also come with costs. For instance, there are the obvious costs of investing in and maintaining increasing amounts of road infrastructure. The tragic loss of life on our roads is moving ever closer to 400 fatalities a year. In addition, there are the less obvious costs, literally the "slowburn" costs - as we destroy our environment with 14 billion tonnes of carbon a year (e.g., close to 300 premature deaths each year due to poor air quality, and mountains of waste including tyres). The negative effects of motorised transport on our physical health is the least discussed but perhaps the most pervasive. Specifically, our automobility-focused land use pattern and transport network means that New Zealanders on average walk for transport less than 10 minutes per day.

Active transport provides an opportunity to maintain equitable access and, at the same time, reduce carbon emissions, and improve health outcomes. By active transport, we are primarily talking about walking, cycling, and wheeling which involves physical effort.

This report considers what it would take to move from an incoming tide of cars to an outgoing tide of cars in New Zealand: the current car tide replaced with the healthier and more sustainable active and shared forms of transport. The document is not intended to be a comprehensive review of all of the measures that would support a shift to active transport. However, it does, set out four priority areas and key actions a group of experts have identified as necessary to stem the tide.

First, we need to make a **commitment to change**. National targets, clear accountability to deliver against those targets, and strong governance should be established. This cannot be a half-hearted commitment. Instead, it must be reflected in senior level governance, with the importance of active transport written in to the Government's priority setting documents.

We recommend that **our national targets** should be:

- double the proportion of **walking trips to 25%** of all trips by 2050
- double the proportion of **cycling trips** each decade so that **15%** of trips are by bicycle by 2050
- double the proportion of trips by **public transport** each decade so that **15%** of all trips are by public transport by 2050

We recognise that these targets are ambitious as this would mean **reducing the percentage of car trips from 84% in 2018 to 45% by 2050**. While this would be a challenge to achieve, we are convinced that aiming for these targets should be a key component of our strategy to improve our national health and environmental wellbeing.

Second, a **nationally coordinated and funded programme of education and promotion of active transport.** The advent of social media together with growing social concern about the health and environmental effects of climate change provide the platforms for activity that can effectively compete with the multi-million dollar promotions of the car industry. The initial focus should be to work with schools and workplaces to build active transport into the nation's daily commutes.

Third, there must be a **commitment to design cities for people and not for cars**. As a minimum, this means creating more areas in our towns and cities where there is a 30 km/h speed limit. Ideally, we should be creating more areas in our cities and towns where there are no cars during the day. This must be backed with a long-term funding to make this happen.

Fourth, we need to have a **regulatory system that encourages the use of active transport.** This ranges from changes to the planning regulations to regulations that will increase the safety of active transport.

Without this clear commitment, the inexorable tide of cars will continue to rise in New Zealand! Transport policy is about enabling people to be able to access what they need and it should not be about facilitating the movement of cars.

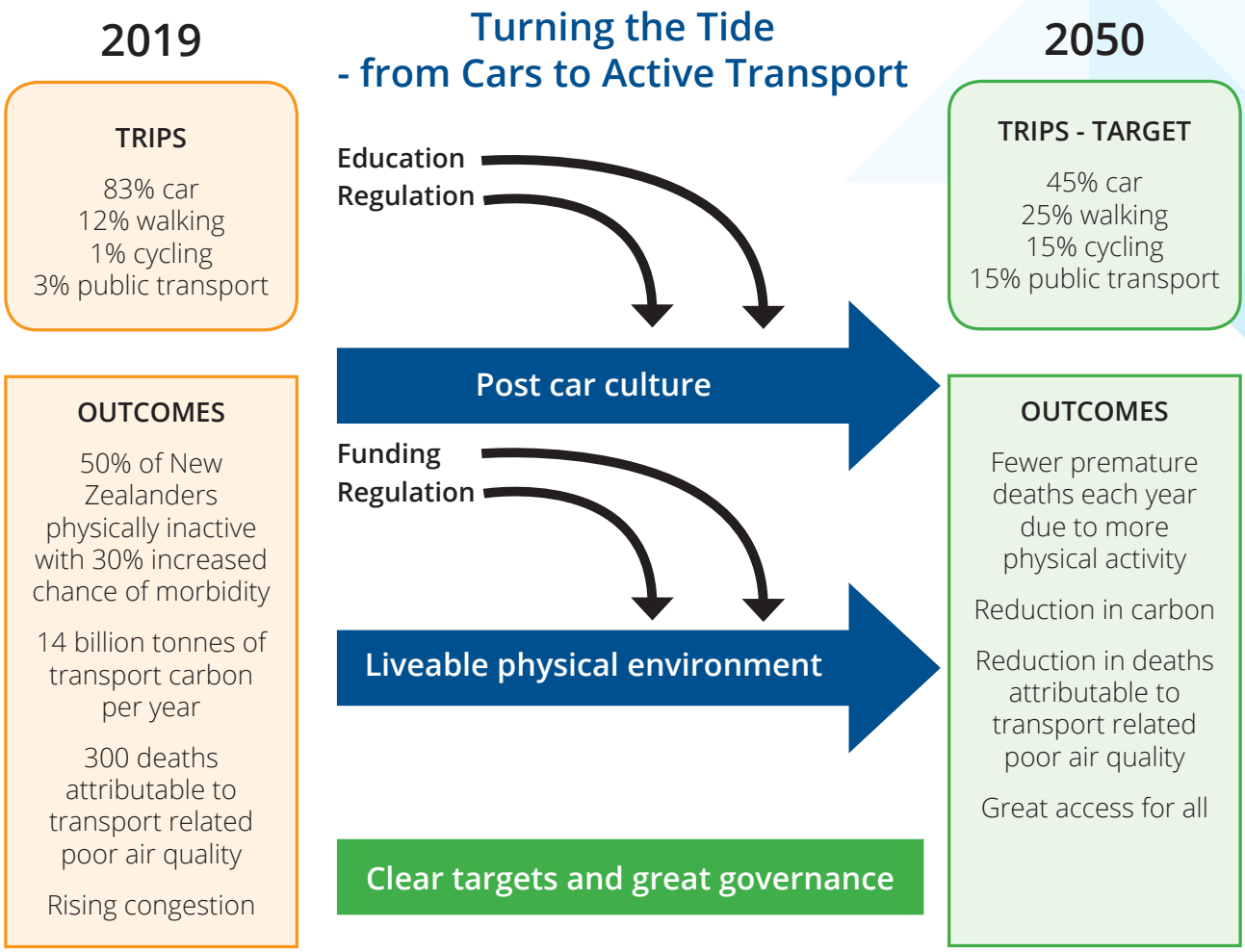

Figure 1. Turning the tide from cars to active transport in New Zealand: 2019 to 2050

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INTRODUCTION

Increasing physical activity through active transport and less reliance on motorised transport has the potential to improve equitably the health and wellbeing of individuals, families, communities and the nation as a whole. In this report we are primarily talking about walking and cycling when we talk about active transport. Active transport in its broadest sense is any means of getting around which involved physical effort. Increasing active transport will also significantly contribute to improving environmental outcomes, and as part of good urban planning strengthen and grow communities.

In February 2019, 55 New Zealand and international experts met to discuss the results of their most recent research on active transport and its benefits for human health and sustainability at The Active Living and Environment Symposium (TALES) (www.otago.ac.nz/active-living-2019).[2] The evidence of such benefits is clear and provocative. Despite this we continue to see a decrease in rates of active transport in New Zealand. This degradation of healthy patterns of movement does not have to continue. Many international examples illustrate where action has resulted in a renaissance in active transport. Cities and towns are again being designed as great places to be, rather than great places to move through in a car.

Making this shift requires strong leadership and action. The recommended actions are not complex, but they are sensitive given our current car dependent lives. The experts at the TALES symposium have sought to capture in this plan the key actions we need to commit to if we are to create a healthy and sustainable transport system for New Zealand's future wellbeing.

This plan provides:

- an overview of the benefits of active transport in the context of the Treasury's Living Standards Framework;
- a summary of the current levels of active transport in New Zealand; and,
- recommendations of actions we should take to put New Zealand on a long term pathway to improve the wellbeing of the nation as a whole.

ACTIVE TRANSPORT AND THE LIVING STANDARDS FRAMEWORK

The Treasury's Living Standards Framework[3] is a guidance tool to help establish the New Zealand government's investment priorities. The framework describes four types of capital we should invest in for our future.

The four capitals are:

- Human capital
- Natural capital
- Social capital
- Financial and physical capital

Wise investment to increase levels of physical activity through active transport will improve our human, natural and social capitals.

WHAT ARE THE BENEFITS TO HUMAN CAPITAL

Regular physical activity is important for maintaining and improving health and wellbeing across the lifecourse (from birth to old age). Active transport can help maintain physical activity levels or increase overall physical activity in all segments of the population. As such, active transport is regarded by the International Society for Physical Activity and Health as one of the best interventions for increasing physical activity.[4]

BENEFITS OF PHYSICAL ACTIVITY

Children under five years: Regular play and physical activity in childhood develops life-long physical, social and emotional abilities, resilience and creativity.[5] From birth to five years of age, children experience significant physical, cognitive and socio-emotional development. Movement, through play, is an important way for a child to grow physically, socially, emotionally and spiritually, all of which are vital for their future health and wellbeing. Physical activity is important for healthy weight gain, mental health, behaviour, improved movement, decision making skills and brain development.

Children aged 5 - 18 years: For school-aged children (aged 5 to 17 years), high levels of physical activity (an accumulation of at least 1 hour of moderate to vigorous activity every day), low levels of sedentary behaviour, and sufficient sleep each day provide numerous health benefits, such as maintaining a healthy body weight.[6]

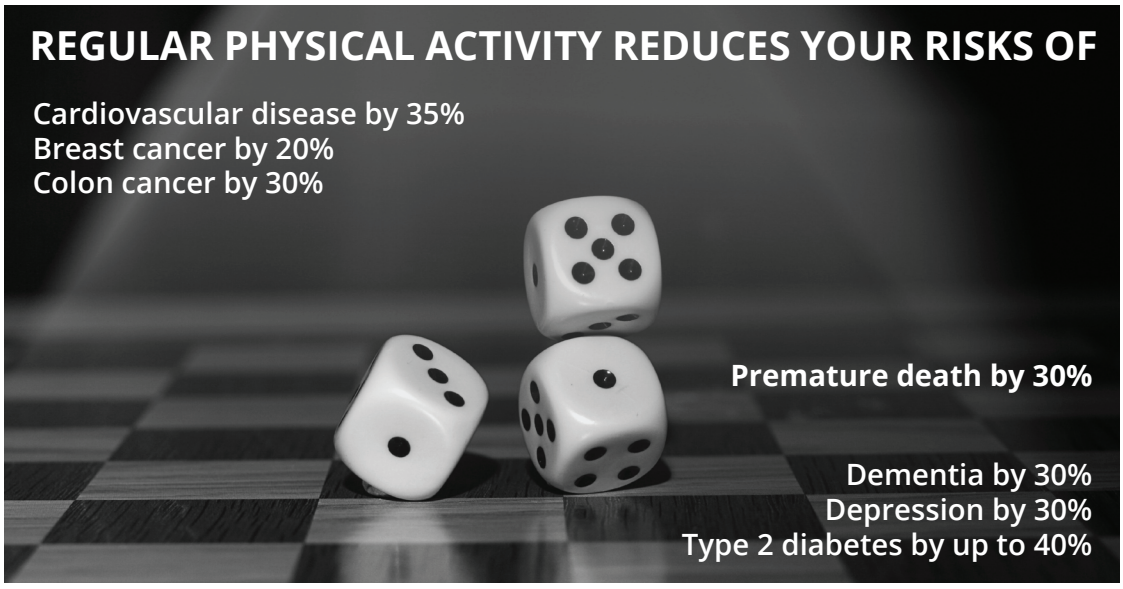

Figure 2. Benefits of regular physical activity (image source: Pexels, www.pexels.com)

Adults and older adults: For adults, engaging in at least 150 minutes of moderate to vigorous physical activity per week brings significant benefits to physical and mental health.[7] Adults also need muscle and bone strengthening activities at least two times per week. Older adults also need balance and flexibility activities twice per week.

In adulthood, physical activity is important for reducing the risk of excess body weight and non-communicable diseases such as cardiovascular disease, stroke, type 2 diabetes and certain cancers. Being physically active is also an important part of healthy lifestyle changes recommended for those who have developed many of these conditions like type 2 diabetes. Regular physical activity can also reduce the risk of depression, anxiety and dementia regardless of age, gender, ethnicity, social status or ability. Engaging in physical activity improves intellectual, financial, social, individual and emotional capital.[8]

BENEFITS OF ACTIVE TRANSPORT

Transport choices can influence physical activity levels, air pollution, noise, access to health care and other services, mental health, injury risk, disability, transport equity and by affecting access to employment, education, food and social cohesion.[9, 10] Active transport is associated with improved fitness and maintenance of healthy body weight[11-13] and contributes overall to better health outcomes.[14-16] In neighbourhoods with a higher walkability, active transport is associated with a lower prevalence of diabetes and obesity.[17-20]

In addition to improving health and wellbeing across the lifecourse, increasing rates of active transport will contribute to increasing the liveability of our towns and cities and addressing health inequalities[21-27]

In children and youth, active transport also presents opportunities to encourage independent mobility, increase self-esteem, develop spatial processing skills and develop skills for navigating safely environments with traffic.[28-32]

WHAT ARE THE BENEFITS TO OUR NATURAL CAPITAL

CARBON

Transport contributes to 17% of New Zealand's greenhouse gas emissions.[33] Electric vehicles will play an important role in reducing the carbon created by our transport system. However, this is a medium term fix which is unlikely to have a significant impact on our carbon emissions over the next 3 to 5 years. While it will become increasingly important, electric vehicles will not be a sufficient solution. Even if we managed to change 30% of New Zealand's vehicle fleet to electric motors by 2030 (and that would be an ambitious target), that could be cancelled out by the forecast 30% increase to our population over that period.

We therefore need to put in place additional changes to reduce carbon from transport. The World Bank recommends three actions: Avoid, Shift and Improve. *Avoid* the need to use motorised transport where possible, *shift* to lower carbon modes (for example, walking, cycling and/or public transport) and *improve* efficiency where motorised transport has to be used (low carbon or no carbon powertrains). Increasing levels of active transport is a key part of the *avoid* and *improve* actions.

Changing urban environments is a critical change required to avoid the need to use motorised transport so distances are easier to walk or cycle. Increasing urban density also allows the provision of affordable public transport.

Although more needs to be done to change our urban environments, significant opportunities exist to shift to active transport. If we assume that 2 km is a walkable distance and 5 km is a cyclable distance, in urban areas in New Zealand nearly one-third of all car trips are within reasonable walking distance and nearly two-thirds of car trips are within reasonable cycling distance.[1]

Distance of trip leg	Car/van driven	Car/van passenger	Pedestrian	Cyclist	Public transport (bus/train/ferry)
<2 km	31%	35%	92%	42%	17%
2 to <5 km	31%	32%	8%	31%	26%
5 to <10 km	19%	16%	1%	20%	25%
10 to 20 km	12%	10%	0%	6%	26%
>20 km	7%	8%	0%	2%	6%
Total	100%	100%	100%	100%	100%
Sample of trip legs	67,201	21,721	14,906	1,502	2,835

Table 1. Percentage of average annual trip legs by mode in main urban areas in New Zealand (Source: New Zealand Household Travel Survey data 2015-2017[1])

AIR QUALITY

Transport is a major contributor to air pollution. A 2012 study on air quality found that in New Zealand there were close to 1200 annual premature deaths due to poor air quality which resulted from anthropomorphic causes.[34] It was estimated that transport contributed 22% towards this air pollution, equivalent to around 260 fatalities a year in New Zealand.

The European Court of Auditors published a report on air quality in Europe towards the end of 2018.[35] The report concluded that air pollution is the biggest environmental risk to health in the EU leading to more than 400,000 premature deaths a year in Europe. This is ten times the number killed in road accidents. The effects of air pollution from cars is more marked in urban environments where the concentration of motorised transport is higher. Internationally, there is growing recognition of the need to regulate for better air quality outcomes in urban environments.[36]

WHAT ARE THE BENEFITS TO SOCIAL CAPITAL

Social capital is defined by the Organisation for Economic Co-operation and Development as "networks together with shared, norms, values and understandings that facilitate co-operation within or among groups". In its simplest terms, high levels of social capital means that we trust the other people in our communities and have greater confidence that they will behave in the way we expect, so we feel safe and supported.

Social capital can only be developed and maintained, if we create environments where we enjoy spending time with others. Motorised transport can allow us to get to such places, but we do not want motorised transport in those places. We need to create liveable places, designed for people to enjoy, where social capital can be built. Active transport is key to creating such environments.

Active transport can equitably:

- facilitate social interactions with peers (including casual contacts, such as greeting neighbours in the street)
- help establish connections with the natural and neighbourhood environment
- improve access to employment, education and healthcare
- improve neighbourhood safety and security.

Increasing active transport increases footfall in local businesses and can increase overall spend.[37, 38] Although pedestrians, cyclists and public transport passengers spend less per visit, they visit more often and spend more per month than car users.

WHAT IS THE SITUATION NOW?

New Zealand adults are recommended to do at least 150 minutes of moderate to vigorous physical activity each week (Ministry of Health 2015).[7] Results of the 2016/2017 New Zealand Health Survey showed that 52% of New Zealand adults did not meet minimum physical activity guidelines.[39]

Recent findings showed that New Zealand children and youth have low levels of physical activity.[40] Data from the Ministry of Health's New Zealand Health Survey[41] indicates that 83% of New Zealand children aged 2-14 years spend 2 or more hours in front of screens per day, further contributing to increasingly sedentary lifestyles among young people.

Using active transport as a routine part of our daily lives is a key way to incorporate physical activity into our daily lives. Our car-centric urbanism makes this difficult.

The New Zealand Household Travel Survey 2015-2017 found that on the average day, 81% of New Zealand adults reported no walking for transport and 98% reported no cycling for transport.[1]

The situation has been getting worse. Cycling to secondary school has plummeted from 19% in the 1980s to 3% in 2014.[42] During the same period, the average time New Zealand adults spent walking for transport has decreased from 10 minutes to 8 minutes per day.[42]

The Centre for Public Health Research (CPRH) at Massey University was established to monitor and report on Environmental Health Indicators (EHI). The Centre provides a wide range of information on transport outcomes, for example, the CPRH estimated that approximately 40 deaths were avoided in 2012 due to just 9.7% of people actively commuting. The number of deaths avoided would be higher if more people used active transport to commute to work or school, especially in lower decile areas with higher burdens of ill health.

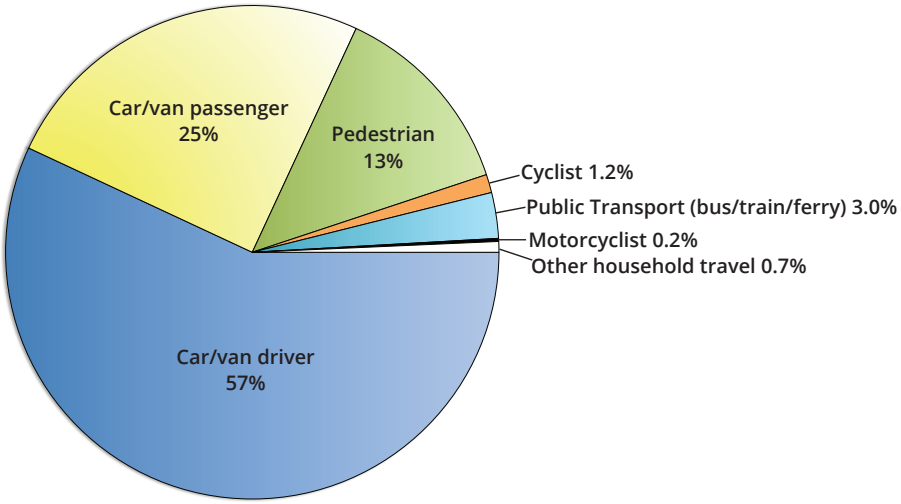

Figure 3. Share of trip legs by mode of transport
(Source: New Zealand Household Travel Survey 2015-2017[1])

POLICY RECOMMENDATIONS

We welcome the Government's increasing focus on wellbeing, walking, cycling, public transport and a Vision Zero approach, but we urge more rapid implementation of current initiatives and that a greater priority should be given to active transport. Though we recognise that some of our recommendations may be in progress, we also urge the implementation of the other recommendations.

The last time that New Zealand had a walking and cycling strategy was 2005's *Getting there - on foot, by cycle: A strategy to advance walking and cycling in New Zealand transport*[a] with four focus areas and ten priorities (see Appendix A). In 2014, a Cycling Safety Panel[43] was convened and produced another action plan, upon which excellent progress has been made.[44] Despite these efforts, the rates of active transport have continued to decline since 2005,[42] to the detriment of the health of New Zealanders and the wider environment.

In 2008, the Ministry of Transport published *Raising the profile of walking and cycling - a guide for decision-makers.*[45] It included a number of (then-current) case studies and resources. The recommendations in this report mirrors many of those made in the 2008 Ministry of Transport document. One recommendation in this report (A3) suggests that the Ministry of Transport guide be refreshed and published online.

Ambitious goals and monitoring progress are necessary to ensure that the changes we make are timely, joined up and effective. This document is a summary of discussions held at the 2019 TALES symposium; it is not intended to be a comprehensive and systematic review. The authors are willing to contribute to further development of the recommendations, the development of a new active transport strategy for New Zealand and the monitoring of progress and outcomes.

A Evaluation, Governance and Funding

- A1. Set and monitor shared targets for the proportion of trips by active modes and public transport
- A2. Ensure that the value of active transport is recognised in policies and investment decisions to allocate the necessary funding for this task
- A3. Continually update the information available on health and economic impacts of specific active transport interventions

B Education and Encouragement/Promotion

- B1. Promote active transport to and from schools
- B2. Promote active transport to and from workplaces
- B3. Make public transport more affordable and accessible
- B4. Improve motorist education

C Engineering (Infrastructure, Built Environment)

- C1. Require and fund a universal, interconnected active transport network
- C2. Design and transform towns and cities for people to ensure positive health and environmental outcomes

D Enforcement and Regulation

- D1. Change the decision making framework/planning rules (that affect transport options) to enable good health and wellbeing at a population level
- D2. Change regulations to improve road safety for active transport
- D3. Regulate for healthy transport options to and from schools
- D4. Improve and enforce regulations for better air quality

Figure 4. Summary of key policy recommendations

[a] Ministry of Transport. The strategy was published in 2005 and the action plan in 2006 (no longer available on government website).

A EVALUATION, GOVERNANCE AND FUNDING

Objectives, policies and related targets should be reflected in the Government's Policy Statement on Land Transport,[46] Ministry of Health's Statement of Intent[47] and national physical activity strategies[7] and relevant policies by the Ministries of Social Development, Housing and Urban Development and the Environment. Achieving modal shift requires collaborations and partnerships across multiple sectors. Therefore, forming a high level cross-sector oversight group is essential for monitoring the implementation and outcomes.

A1 Set and monitor shared targets for the proportion of trips by active modes & public transport

- Set national targets for proportions of trips made on foot, by bicycle and by public transport.
  - Double the proportion of trips walked to 25% by 2050.
  - Double the proportion of cycling trips in each of the next decades, with the ultimate goal of 15% of all trips being on bicycles by 2050.
  - Increase the proportion of all trips by public transport to 15% by 2050.
- All levels of government should set separate mode shift targets for walking, cycling and public transport use, taking into account urban/rural and quality of service factors, and regularly monitor progress.
- Establish a high level cross-sector group to oversee progress against the targets annually and report progress at a national event chaired by Ministers and Mayors and/or as part of other existing events such as 2WALKandCYCLE Conference or ongoing TALES Symposia.
- Track mode shift, health, active transport infrastructure development, emissions and related investment as part of the next update to the Living Standards Framework influencing Treasury's Wellbeing budgets.[b]
- Adopt the International Standard[48] for measuring walking in the National Household Travel Survey and local/regional monitoring.

A2 Ensure that the value of active transport is recognised in policies and investment decisions to allocate the necessary funding for this task

The guidance provided on transport investment decisions in the Economic Evaluation Manual needs to be reviewed and updated to ensure that it fully reflects the social, human and environmental benefits of active transport (and the costs of other modes).

- Recognise both positive and negative externalities of transport modes in the New Zealand Transport Agency's Economic Evaluation Manual and the Business Case process.
- Require Health Impact Assessment (HIA)[49] during transport planning processes.

A3 Continually update the information available on health and economic impacts of specific active transport interventions

At present there is no online and continually updated repository of information to inform decisions or model the impacts of interventions. It is difficult in practice for transport practitioners to bring together bodies of evidence from the transport, health and sustainability sectors. While the focus on 'acute health injuries' is wise (deaths and serious injuries), there needs to be commensurate attention on the benefits of active transport on the prevention and management of many non-communicable diseases and mental illness. The Ministry of Health contracts Massey University to monitor Environmental Health Indicators.[50] However, this is not a modelling tool and does not (yet) provide a concise summary of the effects of mode shift

[b] There are 38 indicators in the Living Standards Framework that is the basis of the Treasury's budget. Treasury acknowledges that they "could include active modes like walking or cycling, which would have a positive impact on health. This link has not been included in this version of the model." https://treasury.govt.nz/sites/default/files/2018-12/twp18-05.pdf

- Develop a New Zealand-calibrated Integrated Transport and Health Impact Modelling Tool (ITHIM)[51] that uses propensity to walk and cycle sub-models from best-practice transport modelling and the World Health Organization's Health Economic Assessment Tool. [53]

In 2008, the Ministry of Transport published *Raising the profile of walking and cycling - a guide for decision-makers.*[45] It included a number of (then-current) case studies and resources. A March 2016 document, published by the NZ Transport Agency, summarises a range of benefits from investing in providing for cycling[53] and indicates that "more information about the benefits of investing in cycling will be added over time to build this as a shared information base". The benefits of walking (in all forms, i.e. mobility device use as well) should also be quantified.[c] A healthy travel town might include wayfinding, electronic step markers (e.g. FitBit) to help people progress as they build towards using active modes for transport, and (health) prescriptions for cycling or walking for transport as well as recreation.[d]

- Building on existing repositories, create an online and continually updated repository of examples of successful national and international interventions that have led to increases in rates of walking and/or cycling[54] for transport.
- Create a toolkit (or adapt existing tools) that enables us to design and measure interventions that will lead to a healthy[e] land use and transport system.
- Encourage and support evaluation of innovative initiatives, pilot projects or active transport infrastructure improvements across New Zealand in a way that allows greater rollout of successful interventions.

B EDUCATION AND ENCOURAGEMENT/PROMOTION

B1 Promote active transport to and from schools

Active transport to and from schools is a convenient way to integrate physical activity into everyday life. There are many examples of successful school interventions including New Plymouth's Let's Go, Auckland's Travelwise, Hastings' MoveIt, and South Australia's Way2Go.[55] A New Zealand Travel Planners group has been set up by practitioners to disseminate best practices.

- Promote age-appropriate walking to school initiatives such as walking school buses for children, walk to school days for both children and adolescents and mapping of safe routes to/from school.[55, 56]
- Promote cycling to and from school by accelerating the rollout of cycle skills training at schools (Bike Ready programme[57]), organising cycle to school days, cycling group rides in the school neighbourhoods, and providing safe storage of bicycles and helmets at school.

B2 Promote active transport to and from workplaces

There is an increasing emphasis in the workplace on health and safety. To date much of the focus has been to reduce risks associated with easily identifiable proximate causes (i.e., the safety aspect of health and safety). This needs to be reframed to look at the positive health benefits of walking and cycling to work, including the potential short term and long term health consequences. In addition, the perceived risk of getting injured or a fatal event as a result of cycling on the road is much higher than the actual risk.[58] Many countries (for example, Ireland, UK, France, Belgium) have schemes to incentivise active transport to and from workplaces.

[c] A good example is Travel in London: http://content.tfl.gov.uk/travel-in-london-report-11.pdf
[d] New Zealand already has the Green Prescription programme, which could be further promoted: https://www.health.govt.nz/our-work/preventative-health-wellness/physical-activity/green-prescriptions
[e] According to the World Health Organization, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity

- Incentivise/encourage workplace travel plans, including incentives to staff and a guaranteed ride home policy.
- Incentivise businesses to promote active transport choices for their staff by exempting active transport benefits from the Fringe Benefit Tax. For example, aim to adjust policies which result in a negative financial impact to employers who incentivise active or sustainable transport.
- Make bicycles more affordable through interventions such as bicycle subsidies.
- Support community-level interventions (such as low cost bike library or volunteer bicycle repair shops) to incentivise active or sustainable transport among individuals who are unable to access incentives offered through employment schemes.
- Set a higher budget for travel demand management, including initiatives such as Feel More[59] and fund a campaign of regular positive stories associated with non-motorised travel with coverage on TV shows and respected figures seen using non-motorised modes.

B3 Make public transport more affordable and accessible

People who use public transport walk on average twice as much as those who rely on motorised transport since they walk to and from the bus or train stop. Therefore, investment in public transport brings the additional benefit of improving health outcomes as well as reducing congestion and providing wider access for those who cannot afford a car. Public transport is more expensive in New Zealand than in many other countries. We need to ensure that public transport in New Zealand cities is available, adequate, accessible, affordable and appropriate, and represents a convenient transport option that is competitive compared with driving.

- Reform public transport farebox recovery rules; consider a subsidy or free service for all students.

B4 Improve motorist education

At present, much of the conversation about pedestrian and cyclist safety puts the onus on the vulnerable road users. Campaigns emphasise the need to be visible (e.g. passing out free high-viz vests) or give way to motorists at courtesy crossings. We recommend that more should be done to educate motorists as well:

- Promote the Give Me Room campaign[60] and the "Dutch Reach"[61] - where people open their driver's door with their left hand so that they look over their right shoulder before opening their car door. Add instructions regarding "don't park on the footpath" and "let the bus go first" to drivers' education.
- Include more information about active transport users in the graduated driving licence programme and in ongoing education programmes.[f]

C ENGINEERING (INFRASTRUCTURE, BUILT ENVIRONMENT)

C1 Require and fund a universal, interconnected active transport network

Significant steps have already been taken to ensure that safe infrastructure is in place which will encourage us to walk and cycle. It will be critical that attention is paid to the details associated with these investments to make them work. These include parking and changing facilities, ensuring the right road surfacing for safe cycling and adequate cover and crossings for pedestrians. This must be backed up with long term funding for the development and maintenance of this infrastructure.

- Build (and maintain) an interconnected network of cycleways linking cities and suburbia.

[f] Example: include active modes in Crash Bash: Reaction, a 25 minute simulation for year 11-12 students; more widely disseminate information such as https://nzta.govt.nz/assets/resources/safety-tips-cyclists-truck-bus/docs/leaflet.pdf

- Through the school travel plan audit process, ensure availability and infrastructure of safe routes to school, with drop-off zones being located a reasonable walking distance from the school.
- Through the Signals New Zealand User Group, (a) advocate for a change in signal timing that improves the level of service for pedestrians (especially for older and/or mobility impaired), and (b) change the flashing red person symbol to a flashing green symbol (and/or implement more countdown timers).
- Include bicycle parking requirements in District Plans reflecting planned outcomes, not historic parking demand; establish a crowdsourced national bike parking locator app[62] and encourage councils to add their asset data; invest in and promote high quality bike parking design.[63, 64]
- Improve walkability for the 200 m (bus stops) and 400 m (train stations, bus exchanges/hubs) radii around public transport with a higher Funding Assistance Rate (FAR) and a requirement for Councils to address.
- Encourage the New Zealand Transport Agency to add pedestrian priority measures such as raised zebra crossings, traffic lights and/or illuminated Belisha beacons (not discs) in towns where their state highways create severance.
- Local governments should prioritise elderly, people with disabilities, caregivers with prams and school children when developing new infrastructure (e.g. crossings, kerb ramps, path and street surfaces, parking).

C2 Design and transform towns and cities for people to ensure positive health and environmental outcomes

To support the great work of the NZ Urban Design Forum, Auckland Conversations, Canterbury Housing and Transportation (CHAT), and many others, we need to:

- Integrate "Complete Streets" requirements[65] in the Resource Management Act and transportation plans. New developments should also require public transport infrastructure.
- Update the Setting of Speed Limits Rule and New Zealand Transport Agency school speed zone guidance[66] to emphasise 30 km/h in urban areas and create a Targeted Enhanced Funding programme to implement them more widely.
- Explicitly include local area traffic management in the current and any future Targeted Enhanced Funding[67] to reduce traffic speeds in neighbourhoods.
- Encourage car-free or car-light town and city centres[68] and low-speed (maximum 30 km/h) shared space zones in residential areas especially on roads nearby and around schools.[69, 70]
- Consider means to provide greater effect to the Urban Design Protocol[71] and incorporate the Healthy Streets indicators[72] in new land use developments, encouraging higher density to support active and public modes.

D ENFORCEMENT AND REGULATION

D1 Change the decision making framework / planning rules (that affect transport options) to enable good health and wellbeing at a population level

Rules should enable effective participation and evidence-based decision making. While the link and place based One Network Road Classification (ONRC)[73] has improved consistency across New Zealand and includes consideration of users in addition to traffic volumes, it may not be helping to achieve multi-modal outcomes. This, and the distinction between "streets" and "roads", should also be considered in other relevant policies, guidelines and standards.

- Recognise the term "street" and the user hierarchy (pedestrians first) approach[g] in the access through arterial classes of the national One Network Road Classification system.

[g] This could be supported by considering the social costs of various modes in a New Zealand adaptation of the following tool: http://discoursemedia.org/urban-development/cost-commute-calculator-data

D2 Change regulations to improve road safety for active transport

Numerous rules have been changed in response to the recommendations of the Cycling Safety Panel,[44] but additional interventions are necessary (including for pedestrians):

- Fund and prioritise police enforcement of rules to protect people who walk and cycle. Train police to minimise a pro-motorist bias in enforcement and crash investigations. Pass a "minimum passing cyclists gap" rule to communicate to drivers what a safe gap is[60] and enforce it.
- Consider legislative changes to explicitly give pedestrians priority at side road junctions[74] and once they have entered the carriageway to cross the road.
- Provide guidance to improve value and consistency of Department of Internal Affairs (DIA) required reporting on footpath Level of Service (LOS), currently defined locally.
- Fund and install more red-light cameras.

D3 Regulate for healthy transport options to and from schools

Active transport to school can help maintain or increase physical activity levels, improve cardiovascular fitness and may have benefits for maintenance of body weight in children and adolescents. Shifting from passive to active transport to school also reduces congestion (especially around schools) and the associated air pollution.

- Require every school to have a school travel plan.

D4 Improve and enforce regulations for better air quality

New Zealand tends to lag behind the world in the regulatory standards we set for vehicles that enter our markets. We need to catch up and ensure that such vehicles are of a standard as high as that found in other Organisation for Economic Co-operation Development (OECD) countries.

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Transport Research Network
William Evans Fund

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APPENDIX A: New Zealand's Walking and Cycling Strategy

The last time that New Zealand had a walking and cycling strategy was 2005's Getting there - on foot, by cycle: A strategy to advance walking and cycling in New Zealand transport.[h] The strategy had four focus areas and ten priorities, but is no longer available online or as official government policy.

The push to implement these actions was during 2006-09. The last mention of the implementation plan at the central government level was the Ministry of Transport's 2008 Statement of Intent,[75] after which the change in Government resulted in stopping further work other than Cycling Model Communities and the New Zealand Cycle Trails. Nevertheless, progress has been made on many of the actions as listed in the following table.

While no national walking strategy has been developed, the New Zealand Transport Agency has recently launched a new walking-specific website[76] with a broad range of information and research on staying safe, infrastructure planning, design, investment strategies and benefits.

The government-convened Cycling Safety Panel's 2014 report[43] made 35 recommendations. The New Zealand Transport Agency translated these into a Cycling Safety Action Plan in 2015.[77] The final implementation progress report was issued in December 2018.[44]

Getting There Implementation Plan strategic actions	Progress up to 2019
Getting There Research, Monitoring and Evaluation Action Plan	While the authors have not found any such action plan, there were over 30 research studies conducted in New Zealand on walking and/or cycling topics from 2006 to 2011. The NZ Transport Agency has developed a national guideline for monitoring cycling activity as part of the Urban Cycleways Programme. No such guidance exists for monitoring walking.
Getting There Transport Sector Alignment Review	The authors have not found any such review. However, the intentions of this action have been partially met through activities that foster innovation such as the Bike to the Future Awards sponsored by the NZ Transport Agency, given to innovative projects every two years at the national 2WalkandCycle conference. An assessment of how transport policy and practice helps or hinders active transport objectives does not appear to have been conducted.
Getting There Decision Maker Communication Action Plan	A 2008 document "Raising the Profile of Walking and Cycling in New Zealand: Guide for Decision-Makers" was published by the Ministry of Transport. The Benefits of Investing in Cycling document has been produced but no walking equivalent.
Getting There Information Centre	A study in about 2006-07, using input from the US Ped-Bike Info Center (PBIC), investigated the feasibility of setting up a similar information centre in New Zealand potentially hosted by a university. The Cycling Network Guidance site has been launched and an online updated Pedestrian Planning and Design Guide is planned; an integrated information centre with case studies regarding specific interventions is lacking. A walking-specific site has been launched.

Getting There Implementation Plan strategic actions	Progress up to 2019
Getting There Workforce Development Action Plan	The authors were unable to find any published mention of this action plan. However, delivery of the NZ Transport Agency-approved walking and cycling training courses to upskill general transportation professionals has continued to be offered regularly.
Walking and Cycling Model Communities Programme	Implemented in Hastings and New Plymouth and subsequently reinforced with the Urban Cycleways Programme.
Road Controlling Authority Benchmarking Programme	Several starts have been made on this but the task is incomplete.
Strengthening User Group Networks Programme	Both Cycling Advocates Network (CAN) and Living Streets Aotearoa (LSA) were provided with Government funding between 2006-10 for staff to help expand advocacy networks across New Zealand and to develop skills in making submissions. CAN and LSA remain influential representative groups with many local chapters but sustainability is still an issue.
Long-distance Cycle Networks Investigation Project	The NZ Cycle Trail network was established in 2009, with 22 "Great Ride" trails funded for development. Continued development of the NZ Cycle Trail and connecting links is in progress.
Expansion of road user training and education related to pedestrians and cyclists	Although the Road Code for Cyclists, a mobility scooter safety pamphlet, and Feet First have been published, motorist education is lacking.

APPENDIX B: Links to Relevant Reports and Policy Documents

International policies/goals

- United Nations Sustainable Development Goals:
  https://www.un.org/sustainabledevelopment/sustainable-development-goals/
- World Health Organization, Global Action Plan on Physical Activity:
  https://www.who.int/ncds/prevention/physical-activity/global-action-plan-2018-2030/en/
- United Nations Decade of Action on Road Safety:
  http://www.un.org/en/roadsafety/

Transport

- New Zealand Government (2018). *Government Policy Statement on Land Transport.*
  https://www.transport.govt.nz/multi-modal/keystrategiesandplans/gpsonlandtransportfunding/
- New Zealand Transport Agency (2018). *Statement of Intent 2018-22.*
  https://www.nzta.govt.nz/resources/nz-transport-agency-statement-of-intent-main-index/soi-2018-2022
- New Zealand Transport Agency (2015). *Cycling safety action plan: making cycling safer and more attractive.*
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  https://www.saferjourneys.govt.nz/assets/Safer-journeys-files/Cycling-safety-panel-final-report.pdf
- New Zealand Transport Agency (2017). *Research Report 606. Towards a safe system for cycling. Development and application of a cycling safety system model. Preparing New Zealanders for utility cycling.*
  https://www.nzta.govt.nz/assets/resources/research/reports/606/606-towards-a-safe-system-for-cycling.pdf
- New Zealand Transport Agency (2017). *Research Report 621 Regulations and safety for electric bicycles and other low-powered vehicles.*
  https://www.nzta.govt.nz/resources/research/reports/621/
- New Zealand Transport Agency (undated). *Education portal.*
  https://education.nzta.govt.nz/
- New Zealand Transport Agency (undated). *Walking portal.*
  https://www.nzta.govt.nz/walking-cycling-and-public-transport/walking/
- New Zealand Transport Agency (undated). *Cycling education portal.* Includes Bike Ready cycling skills training programme and Bikes in Schools programme information.
  https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-education/
- New Zealand Transport Agency (undated). *Cycling network guidance.*
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- New Zealand Transport Agency (2016). *Benefits of investing in cycling in New Zealand communities.*
  https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/benefits-of-investing-in-cycling/cyclelife-benefits-booklet.pdf
- Ministry of Transport (2017). *New Zealand Household Travel Survey 2015-2017*
  https://www.transport.govt.nz/assets/Uploads/Research/Documents/18b14beb02/Household-Travel-Survey-intro-Dec2017.pdf
- Ministry of Transport (2018). New Zealand's vehicle fleet breaks records
  https://www.transport.govt.nz/news/land/new-zealands-vehicle-fleet-breaks-records/

- Measuring Walking website with international standard as agreed at Walk 21 Conference: http://www.measuring-walking.org/
- New Zealand Transport Agency (2011). Research Report 426. *'I'll just take the car' Improving bicycle transportation to encourage its use on short trips.* https://www.nzta.govt.nz/assets/resources/research/reports/426/docs/426.pdf
- Vision Zero Network (undated). *Resource Library.* https://visionzeronetwork.org/resources/

Health

- New Zealand Health Strategy: https://www.health.govt.nz/publication/new-zealand-health-strategy-2016
- New Zealand Government (2018), *Progressing and monitoring our government's priorities.* https://www.beehive.govt.nz/sites/default/files/2018-09/Progressing%20Our%20Government%27s%20Priorities%20.pdf
- New Zealand Treasury (2018). *Living Standards Framework.* https://treasury.govt.nz/information-and-services/nz-economy/living-standards
- Ministry of Health (2015). *Eating and Activity Guidelines for New Zealand Adults.* https://www.health.govt.nz/publication/eating-and-activity-guidelines-new-zealand-adults
- Ministry of Health. New Zealand Health Survey. https://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/new-zealand-health-survey
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- Shaw C, Russell M (2016). Benchmarking Cycling and Walking in Six New Zealand Cities. Pilot study 2015. Wellington, New Zealand: New Zealand Centre for Sustainable Cities, University of Otago. http://sustainablecities.org.nz/wp-content/uploads/Benchmarking-cycling-and-walking-in-six-NZ-cities.pdf
- United Kingdom: New report assesses impact of physical inactivity on UK heart health and economy: https://www.bhf.org.uk/what-we-do/news-from-the-bhf/news-archive/2017/april/new-report-assesses-impact-of-physical-inactivity-on-uk-heart-health-and-economy

Land use

- Transport for New Homes Association (2018). *Transport for New Homes: Project Summary and Recommendations.* http://www.transportfornewhomes.org.uk/wp-content/uploads/2018/07/transport-for-new-homes-summary-web.pdf

APPENDIX C: Authors' Details

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Mr Andrew Jackson

Consulting Jackson Ltd, Wellington, New Zealand

In his consulting role, Andrew Jackson led New Zealand Transport Agency's programme to create a Future Transport Technology Roadmap and has consulted a number of public sector organisations on strategy including NZ's Treasury and Ministry of Education, and a range of multinationals. He represented Udacity in New Zealand (a Silicon Valley company providing training in leading edge programming). He was the Deputy Chief Executive of the Ministry of Transport where he was responsible for strategy and research and before that was the Deputy Secretary for Competition, Trade and Investment in the Ministry of Economic Development. Prior to coming to New Zealand he worked for the UK's Chief Scientific Adviser (Professor Sir David King) bringing together groups of world leading scientists under the Foresight banner to tackle challenging issues. Projects he led included those on Obesity, Psychoactive substances and Addiction and Intelligent Infrastructure.

Mr John Lieswyn

ViaStrada, Christchurch, New Zealand

John is a former US national road cycling champion who now plans and designs streets for all transport modes, ages and abilities. John prepares master plans, business cases, and undertakes a variety of transportation research. He has extensive experience in automatic data collection, demand estimation, and level of traffic stress modelling. Since 2016, John has curated the NZ Travel Planners website, collating resources for school and workplace travel planning. He is active in the Engineering NZ Transportation Group and in mentoring young transportation professionals.

Professor Jennifer Mindell

UCL (University College London), London, United Kingdom

Dr Jennifer Mindell is Professor of Public Health at UCL. As public health doctor based in UCL's Research Department of Epidemiology & Public Health, she conducts research on community severance (the barrier effects of busy roads) and road casualty rates, and leads the UCL Health Survey for England team. She is Editor-in-Chief of the award-winning Journal of Transport and Health. She is on the Executive of both the Transport and Health Study Group (convenor of its Latin American network) and the International Professional Association on Transport and Health and chairs the UK Faculty of Public Health's Health Improvement Committee.

Dr Enrique García Bengoechea

Faculty of Education and Health Sciences, University of Limerick, Limerick, Ireland

Enrique's main area of research is community-based physical activity and health promotion. Enrique is currently the Dean's Research Fellow in Physical Activity and Health at the University of Limerick. Previously, he has held research and academic appointments at the Alberta Centre for Active Living, McGill University and the University of Western Sydney. Enrique is a member of the team of the Built Environment and Active Transport to School (BEATS) research, based at the University of Otago. He is also an Adjunct Fellow with the new Institute for Health and Sport (IHES) at Victoria University in Melbourne.

Professor John Spence

Faculty of Kinesiology, Sport, and Recreation, University of Alberta, Edmonton, Canada

Professor Spence has expertise in theories of health behaviour, research methods, and population health. His research focuses on the benefits and determinants of physical activity and how physical inactivity and sedentary behaviour are related to obesity. Recent work has examined the role of policy initiatives for promoting physical activity and reducing sedentary behavior in Canada. For instance, he has led evaluations on the effectiveness of tax credits and a micro-grants program to support children's access to physical activity and sport.

Associate Professor Ben Wooliscroft

Otago Business School, University of Otago, Dunedin, New Zealand

Assoc Prof Ben Wooliscroft is the Associate Dean Research in the Division of Commerce and a transportation and energy researcher affiliated with the Centre for Sustainability, University of Otago. His primary interest is in the place of active transportation in the move towards more efficient, healthier, more sustainable and more equitable mobility in New Zealand. He is an Associate Editor of the Journal of Macromarketing and an active macromarketing researcher, dealing with the interactions between markets and society. Other research focuses on ethical consumption (including transportation) and sustainable business models (including sustainable mobility's place in business).

Ms Celia Wade-Brown - QSO

Living Streets Aotearoa, Wellington, New Zealand

Celia Wade-Brown has been active in local government for 20 years, with two terms as Mayor of Wellington. She founded Living Streets Aotearoa, the nationwide voice for people on foot, in 2002 and is currently their National Secretary. Celia walked the 3000 km trail in 2017 and is now a trustee of Te Araroa Trust. She is also a trustee of the international Walk21 Foundation.

Associate Professor Kirsten Coppell

Dunedin School of Medicine, University of Otago, Dunedin, New Zealand

Associate Professor Kirsten Coppell is a specialist in Public Health Medicine and Senior Research Fellow in the Department of Medicine, University of Otago. Her research interests and expertise is in the area of diabetes, prediabetes, non-alcoholic fatty liver disease (NAFLD), nutrition and public health approaches to diabetes prevention, particularly community-based approaches. Kirsten is the NZ College of Public Health Medicine Training Programme Supervisor for the South Island.

Professor Erica Hinckson

Auckland University of Technology, Auckland, New Zealand

Professor Erica Hinckson is currently the Head of School-Sport and Recreation at Auckland University of Technology. Her research is focused on understanding the links between the environment, physical activity, sedentary behaviour and health. She is on the steering committee for the International Physical activity & Environment Network-Adolescents, IPEN study, chair of the international Council of Environment and Physical Activity and inaugural member of Citizen Science Global Research Network.

The Active Living and Environment Symposium

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