



Active Communities Travel Planning Literature Review

Prepared for Greater Wellington Regional Council

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Active Communities Travel Planning

Literature Review

1 Abstract

Active Travel Plan programmes have been running in New Zealand since the mid-2000s, with relatively little shared evaluation of the measurable impacts. Active Travel (AT) plans aim to increase active travel (walking, scooting/skating, and cycling) mode share to schools and workplaces, while decreasing private vehicle use, in particular single-occupant vehicles. This has multiple benefits, including improvements in safety and health for students and commuters, better environmental outcomes, less congestion and economic benefits for individuals and the wider community.

Several interventions and approaches were found which may aid the development of a new 'Active Travel in Communities' pilot to be developed by Greater Wellington together with partners and local communities. These successful STP and ATPs shared common factors which led to their success, including combining interventions, targeting 'ready for action' groups specifically and 'pre-contemplative' groups more generally, involving the community, using recognisable branding and being simplistic and flexible.

1.1 Aim

This research and literature review aims to:

1. Analyse whether they are still needed today and why
2. Provide a summary of successful, relevant, and/or local school travel plans (STPs) and active travel programmes (ATPs)
3. Summarise what factors are known to increase their effectiveness

Building a culture of collaboration will help avoid the pitfall of 'reinventing the wheel' across different regions. It is the sharing of information that will facilitate best practice, and the piloting and trialing of active transport schemes is a prudent way for local and national authorities to establish which approaches will best enable modal shifts. (McKim, 2012, p.125)

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1.4 Glossary of terms and abbreviations

ACT	Australian Capital Territory
AT	Active Travel
ATP	Active travel programme
CIM	Children's independent mobility
DfT	Department for Transport, UK
GHG	Greenhouse gas emissions
GPS	Government Policy Statement
GW/GWRC	Greater Wellington Regional Council
MCP	Model Communities Programme
MoE	Ministry of Education
MoT	Ministry of Transport
NZTA	New Zealand Transport Agency
OECD	Organisation for Economic Co-operation and Development
PT	Public transport
PTP	Personalised transport planning
RLTP	Regional Land Transport Plan
SRTS	Safe Routes to Schools
STP	School travel plan
TCC	Tauranga City Council
TDM	Travel Demand Management
TLA	Territorial Local Authority
TTM	Transtheoretical Model/Approach
vkt	Vehicle kilometres travelled
WCC	Wellington City Council
WSB	Walking School Bus(es)

2 Context

2.1 What is the problem - why do we need Active/School Travel Plans?

Walking and cycling has become a less popular mode of transport over the past three decades in most New Zealand centres. This has resulted in an increase in (private) motorised transport and the associated impacts: congestion, traffic accidents, pollution (air, noise and CO₂), less physical activity amongst adults and children, and less 'livable' communities. Travel Plans are one tool which has been used to encourage more use of active travel modes.

In 2007 the transport sector accounted for over a quarter (27.7%) of global energy use of which the vast majority (72.8%) is used in road transport (Kahn Ribeiro, Figueroa, Creutzig, Dubeux, Hupe & Kobayashi, 2012). Urban travel is the single largest source of transport emissions (60% of all kilometers travelled) and transport emissions are the largest growing sector in total greenhouse gas (GHG) emissions (Rode et al 2014, p7). In New Zealand the transport sector uses a larger share of energy than the global average at around 38%, and the actual energy use has also grown by over a quarter since 1990 levels (Ministry of Transport, 2014a). This represents about 40% of GHG emissions from the energy sector or 20% of New Zealand's overall GHG emissions (Ministry of Transport, 2014d). There is significant potential to reduce urban transport emissions through technological improvements, infrastructure and behaviour change (Ministry for the Environment, 2013).

Currently in New Zealand less than 20% of urban trips are made by active or non-motorised modes such as walking or cycling, and less than 3% by public transport (train/bus/ferry), although the Wellington region has significantly higher levels of walking (23%), public transport use (4%) and growing numbers of people cycling to work (73% increase between 2006-2013 to 3.6%) (Ministry of Transport, 2014b; 2014c; New Zealand Parliament, 2014). However, compared to cities in The Netherlands or Denmark, the mode share for sustainable transport modes remains low (Faherty & Morrissey, 2014). Converting more motorised vehicle trips to active or public transport modes would assist in reducing transport emissions (Lindsay, Macmillan & Woodward, 2011).

2.1.1 Active Travel has decreased

A number of factors have made motor vehicle use more accessible and convenient for many New Zealanders, including cheaper vehicle imports, traffic safety concerns and socio-economic factors (Keall et al., 2015). Also, cities with high motor vehicle use are often designed (or redesigned) in a way that actively discourages other modes of transport by making these less convenient or less safe, contributing to a decrease in active travel (Buehler, 2011; Ewing & Cervero, 2009). Children in particular are at risk of losing agency¹ over their transport options, physical activity and freedom to play outdoors. School travel journeys have a disproportionate impact on congestion and traffic accidents, despite initiatives to make areas directly surrounding schools safer; "trip chaining" and perceptions of personal safety contribute to the increase in numbers of children being driven to school. However, it is widely acknowledged that active travel not only has significant health and environmental benefits, but also investment in this area is good value for money (Garrard, 2011; Lindsay, MacMillan & Woodward, 2010; Keall, Chapman, Howden-Chapman, et al. 2015).

Since the early 1970s there has been a substantial decrease in the number of people walking or biking for transport. Ministry of Transport (MoT) Travel Survey data shows that the number of people driving or being driven to work has steadily increased since the late 1980's (Ministry of Transport, 2009). 86% of morning commutes involve private vehicle travel, while use of public transport, cycling and walking continues to fall in most centres. This trend has impacted largely on children's journeys to school and has also coincided with a decrease in physical activity amongst adults. This also has an impact on increasing CO₂ emissions (Ministry for the Environment, 2013). Converting a portion of journeys to work and school from private vehicles back to active modes would help ease congestion, improve road safety and have health benefits on both individual, and potentially, population levels

¹ Children's agency can be defined as 'the capacity of individuals to act independently' (James & James, 2008).

(Lindsay, Macmillan & Woodward, 2010). Travel planning has largely focused on commuters/workplaces or schools themselves, not taking into account the role that these play together, with 'trip chaining' being responsible for a large portion of peak travel. Reducing the need for links in this chain may help reduce overall distances travelled by private vehicles or eliminate the need for trips altogether. (Kingham, Sabel & Bartie, 2011).

Active travel has decreased significantly amongst adult commuters due to socio-economic changes, easier access to vehicles, perceptions of traffic safety and convenience factors. In 2011, New Zealand reported having the 8th highest number of motor vehicles per population (Keall et al., 2015) with most cities consisting of low density urban sprawl²; such environments are linked to less active travel and higher health issues (Buehler, 2011; Lindsay, Macmillan & Woodward, 2010). Faherty and Morrissey suggest that car-dependent cities effectively discourage walking and cycling; as motorised traffic increases, road safety decreases and urban sprawl creates larger distances to travel, making active transport a less feasible option (Faherty & Morrissey, 2014). Where compact cities encourage walking and cycling through short trip distances, car-dependent cities typically are spread over wide areas, with longer trip distances. The dominance of motorised transport occurs not only in allocation of spending in infrastructure, but as mode share increases, also in public attitudes and perceptions (Ministry of Transport, 2016; Bean, Kearns & Collins, 2008). Cities with higher active transport mode share typically prioritise mixed land use, safety, accessibility and connectivity in urban design. Faherty and Morrissey suggest that higher density housing may be difficult to introduce in existing cities, but careful consideration needs to be made in new developments with regards to walkability and access to transit (2014).

2.1.2 School Journeys Suffer

Since the Ministry of Transport Household Travel Surveys began in 1989, active travel (walking and bicycling; AT) to school has steadily declined from 33% in 1989/1990 to 24% in 2009-2013 (Ministry of Transport, 2014). This has widespread consequences as, in addition to the obvious benefits of AT noted above, Mitchell et al (2007) suggest the benefits of children being outdoors extends to the livability and safety of a community;

"The presence of children in public space may also have wider societal benefits, contributing to a sense of community, feelings of trust, and mutual support (Franklin, 2002). Tranter and Pawson (2001) assert that communities can be enhanced through encouraging the use of public space by children, as their presence often helps to break down barriers between adults, and makes the streets more interesting, livable and communal." (p.615, Mitchell, Kearns & Collins, 2007)

The livability of a community in turn impacts on residents' perception of how safe or comfortable it is to choose active travel modes, creating a downward trend when active travel becomes less common. As motor vehicle use becomes more common, demand for better vehicle infrastructure increases, and demand for livable spaces, walking and cycling facilities becomes a lower priority, creating communities where walking or cycling are effectively discouraged by the built environment (Lindsay et al., 2010).

The measurable impact of the school journey on peak traffic volumes is widely debated however a definite increase in vehicle mode share for school journeys is evident. MoT data shows that while only about a third of students were driven to school in 1989/1990, by 2010-14 60% of 5-12 year olds were driven all or part of the way to school and 41% of 13-17 year olds were driven or drove (Ministry of Transport, 2016b). Kingham et al. consider that while some estimates suggest only 8% of peak traffic is directly related to school journeys, there can be a decrease of up to 70% in traffic volumes during school holidays (2011). They found New Zealand research suggests up to 40% of morning rush hour trips are to education, however many of these trips would occur anyway as drivers tend to 'chain' trips together; dropping children off at school before continuing on to work or to do errands.

Nevertheless, Kingham et al. conclude that the overall increase in modal share for private cars has led to an increase in school travel congestion - and accidents - during the school run. While only 6% of total trips (as opposed to 8% of peak traffic) are attributed solely to the school journey, they

² Low density housing built on the periphery of the urban centre (OECD, 2010 as cited in Rode et al., 2014)

disproportionately contribute to traffic accidents during the morning rush hour and afternoon 'school run' (Kingham et al., 2011). While safety initiatives made in the vicinity of schools has helped decrease the number of incidents occurring near schools, the overall increase in traffic volume during these peaks contributes to more accidents over a broader geographical area; if so, a focus on decreasing overall traffic levels at these peak times could lead to fewer accidents (Kingham et al., 2011).

2.1.3 Active Travel Benefits

Active travel has been shown to have significant individual health benefits due mainly to an increase in physical activity (De Nazelle et al., 2011). New Zealand has the fourth highest rate of obesity in the OECD and one in nine children are classified as obese. Health agencies generally recommend 30 minutes of physical activity per day, noting that the greatest benefit comes from simply avoiding inactivity (De Nazelle et al., 2011). Regular physical activity helps prevent a range of diseases, including cardiovascular disease, cancer and type 2 diabetes (Lindsay et al., 2010). Around half of New Zealand adults do not meet the 30 minutes per day recommended (Ministry of Health, 2015). De Nazelle et al. analysed several studies which all concluded that walking and cycling for transportation were related to decreased risk of many health conditions (2011).

The health benefits, reduced health costs and increased lifespan are significant (Mulley et al., 2013). Rabl and Nazelle found that;

"For a driver who switches to bicycling for a commute of 5 km (one way) 5 days/week 46 weeks/yr the health benefit from the physical activity is worth about 1300 h/yr, and in a large city (4500,000) the value of the associated reduction of air pollution is on the order of 30 h/yr. For the individual who makes the switch, the change in air pollution exposure and dose implies a loss of about 20 h/yr under our standard scenario but that is highly variable with details of the trajectories and could even have the opposite sign. The results for walking are similar... the loss due to fatal accidents is at least an order of magnitude smaller than the health benefit of the physical activity" (p.121, 2012)

Increasing access to physical activity via active transport would certainly have health benefits to individuals, with the potential for additional benefits to the wider population through decreased air and noise pollution; the risk associated with increased traffic fatalities from AT modes is minimal (Lindsay et al., 2010; Mulley et al. 2013).

2.1.4 Benefits to children

Children who use active travel on the school journey benefit from better health, social and education outcomes (Garrard, 2011; Alliance for Biking & Walking, 2014). Physical activity benefits children's physical development, aerobic fitness, weight, mental health and cognitive function, yet almost half of all New Zealand children are not physically active everyday (Garrard, 2011; Nestle MILO team, n.d.). Active travel on the school journey provides children with greater levels of much needed physical activity than those travelling by car (Mackett et al., 2004 as cited in Whitzman & Pike, 2007). In addition to the obvious physical benefits of more physical activity through the school journey, a recent Danish Study, found that:

"[children] who bicycled to school were better able to concentrate. In fact, walking and bicycling to school had a stronger impact on a child's ability to focus than having breakfast and lunch. The physical activity associated with walking or bicycling to school advanced the child's mental alertness to the equivalent of a student half a year further in their studies" (Egelund, 2012; as cited in p69, Alliance for Biking & Walking, 2014).

The additional benefits extend to children having more positive emotions (compared with children using passive modes for school travel), and parents of active children reporting "stronger connections to dimensions of well-being" (p516, Ramanathan, O'Brien, Faulkner, & Stone, 2014).

Australian studies have shown that children's independent mobility (CIM; or 'parental license') is negatively affected as the proportion of children travelling independently to school decreases³ (Schoeppe, et al. 2015). CIM and unstructured outdoor play are essential for a child's development. VicHealth suggests that CIM has many benefits;

"Being independently mobile helps children in their development of spatial awareness, decision-making, self-confidence and knowledge about their local neighbourhood "(Zubrick et al. 2010; as cited in VicHealth, 2015).

They also found other benefits to CIM;

"...children have a greater opportunity to interact with other children when they are not under adult supervision. This fosters independence and responsibility, which in turn builds children's confidence, self-esteem and social skills (Hillman, Adams, & Whitelegg, 1991)." (p.6, Zubrick et al., 2010)

With numbers of children travelling independently to school decreasing, both in Australia and New Zealand (Ministry of Transport, 2014; Schoeppe, et al. 2015), these physical, mental and social benefits are adversely affected.

2.1.5 Economic Benefits

While it is difficult to place an accurate or even approximate dollar value to kilometers travelled by active modes as opposed to non-active modes, several attempts have been made to quantify the economic benefits of active travel. All conclude that active modes are much better value for money than traditional (motor vehicle) travel and frequently the benefits are underestimated. Mulley et al. propose a "weighted benefit of \$1.68 per km (range \$1.23–\$2.50) for walking and a \$1.12 per km (range \$0.82–\$1.67) for cycling that includes both mortality and morbidity changes resulting from a more active lifestyle" (p.27, 2013) for the Australian context.

In New Zealand, Lindsay, MacMillan et al. found there was a large personal financial incentive;

"Each year, such a move [shifting 5% of vehicle kilometres in short trips to cycling] would reduce vehicle travel by approximately 223 million kilometres and save about 22 million litres of fuel and \$37 million in fuel bills" (p. 57, 2010)

They conclude that a shift of 5% would create health benefits worth \$200 million per year.

Active Travel modes clearly have economic and health benefits, are better for children's development, ease congestion and lessen pollution. Yet AT has decreased over the past three decades; this has impacts on the environment, health, safety and wellbeing. This literature review looks at what has been achieved to date with current active travel programmes, both locally and overseas, and what factors are known to be more successful. An overview is provided of specific programmes and the features which were noted to be particularly useful or successful. Finally, recommendations are made to aid planning of future travel programmes.

2.2 How has this situation arisen?

The decrease in active travel has not occurred in isolation. However, it is also not ubiquitous; many countries in Europe have kered the decline in AT with proactive approaches (National Cycling Fund, Danish Road Directorate, 2015). Both adult journeys and children's independent mobility (CIM) need to be taken into account, as the latter often impacts on parent's choices and concerns. Changing socio-economic factors, such as an increase in vehicle ownership and more women in the workforce, have contributed greatly to an increase in motor vehicle mode preference, as has city design (urban sprawl) and culture change.

Many socio-economic factors have led to the decline in active travel including an increase in car ownership, urban sprawl, more women returning to the workforce and time poor families (Conlon,

³ Study period between 1991 and 2012

2013). The average number of vehicles owned per household has increased from 1 to 2 over the past two decades (Statistics NZ, 2015a), while the total distance driven has increased by 16% over a slightly shorter period (population has only increased by 7% over the same period) (NZTA, n.d.). New Zealand has the 8th highest car ownership in the world (Keall et al. 2015).

2.2.1 Influence of Parents & Children

Changes in family dynamics in particular have contributed to a decrease in children's independent mobility (CIM). A recent study by Vic Health (2014) says, "working parents reported that time restrictions meant that they had to drive children to school" (VicHealth, 2014). While another study reports that, "the factor most strongly associated with students travelling by car was their parents' car journey to work" (p. vi, Fry et al, 2009). This finding is reflected in Greater Wellington's own surveys conducted through the School Travel Plan Programme where (other than safety or ability) 'convenience' was stated as one of the main reasons for driving children to school (Greater Wellington, 2012). The literature identifies three factors which prevail around decreased CIM: parental convenience, concerns about traffic safety and fears regarding child safety and/or social expectations to be a 'good parent'. A comment on a recent article on decreasing numbers of children using active transport captures these concerns;

"I drive mine. I drop her off on way to work. It would be selfish and dangerous telling her to walk while i drive past her waving [sic]." (TJS01, 2015)

Parental fears have had a significant influence on children's independent mobility. VicHealth has recently released preliminary findings of research into parental fears and how they affect children's independent mobility. They found that children's independence was directly related to parental concerns. VicHealth reports;

"Parents who were more concerned about safety in general and harm from strangers in particular reported that their children were less likely to play and travel independently in the community" (VicHealth, 2014)

This fear of danger, in particular 'stranger danger', could be attributed to a number of factors including media exposure and social norms. VicHealth also found that;

"Parents recognised that the chances of their children being harmed by a stranger were probably low. But they were very aware of high-profile cases of child abduction and felt that they would never forgive themselves if something did happen to their children".

Increasing isolation and media exposure has affected risk assessment, contributing to an increasingly risk-adverse society when it comes to children. There is a high level of social pressure for parents to conform to this ideal and protect their children in every way possible (Gill, 2007). Those that don't conform are criticised for being 'bad' parents and in some cases have been accused of neglect (CNN & Wallace, 2015).

2.2.2 Traffic Safety

Legitimate concerns around traffic danger or road safety have also contributed to the decline in active modes of travel. While actual fatalities have decreased (MoT, 2015a), the coverage given to them by the media has become more emotive and our exposure to 'news' has increased, on balance creating a perception of more dangerous roads (Gill, 2007). Prominent road safety campaigns and vehicles with higher safety standards appear to confirm this belief, not helped by the increase in traffic volumes and speeds (MoT, 2015b). In particular, this impacts on adults concerns around children's road safety and places responsibility on children to keep themselves safe from a young age;

"This process does not address the problem of adult drivers being given priority over children. Health educators "want to teach children to be careful and to be scared, rather than look into limiting the traffic" (Davis and Jones, 1996, p. 109), ignoring the fact that these education measures have proven to be less effective than anticipated (Roberts et al., 2002)." (Mitchell et al, 2007)

The convenience of car travel has become so ingrained in society that we often forget the toll it takes on those who do not directly benefit from it.

2.2.3 The Rise of the Automobile

Currently in New Zealand less than 20% of urban trips are made by active or non-motorised modes such as walking or cycling, and less than 3% by public transport (train/bus/ferry), although the Wellington region has significantly higher levels of walking (23%), public transport use (4%) and growing numbers of people cycling to work (in Wellington City 73% increase between 2006-2013 to 3.6%) (Ministry of Transport, 2014b; 2014c; New Zealand Parliament, 2014). However, compared to cities in The Netherlands or Denmark, the mode share for sustainable transport modes remains low (Faherty & Morrissey, 2014). Converting more motorised vehicle trips to active or public transport modes would assist in reducing transport emissions (Lindsay, Macmillan & Woodward, 2011).

Car ownership (per person) in New Zealand has steadily risen since the 1970s while the number of commuters using active modes has dropped (McKim, 2012). This trend has coincided with an increase in GDP per person, a decrease in the real retail price of petrol (i.e. the price of petrol relative to cost of living), and, since the late 1980's, a decrease in the purchase price of cars (McKim, 2012). Over the past three decades, infrastructure, policy and culture has been dominated by provision for motor vehicles. While our main urban centres have suffered from urban sprawl, increasing average commuting distances.

Buehler suggests that socio-economic factors such as income and car ownership alone do not explain preference for motor vehicle transport (2011). In industrialised countries where car ownership is widespread, other factors are also of significance; "Urban form and land-use influence time cost and convenience of different modes of transport" (Buehler, 2011, p. 645). Areas with low density housing on the city periphery may make cycling and walking unattractive, either due to a lack of infrastructure or the increased distance to the destination, whereas higher density housing or mixed use areas⁴ often decrease the travel distance and are typically found in central areas which have better facilities for pedestrians and cyclists. In a comparison of Germany and the USA, Buehler found that urban form, as well as car ownership, mixed use of land and proximity to public transport all affected the mode share of motorised vehicles. However, even taking these factors into account, households in the USA made a 25% higher share of car trips than their German counterparts, and for all scenarios Americans made less active or public transport trips than Germans in the same scenarios (Buehler, 2011). Buehler suggests that policies which make motorised vehicle travel less attractive⁵ than public or active transport are responsible for this discrepancy (2011).

Faherty and Morrissey suggest that car-dependent cities effectively discourage walking and cycling. As motorised traffic increases, road safety decreases and urban sprawl creates larger distances to travel, making active transport a less feasible option (2014). Where compact cities encourage walking and cycling through short trip distances, car-dependent cities typically are spread over wide areas, with longer trip distances. The dominance of motorised transport occurs not only in allocation of spending in infrastructure, but as mode share increases, also in public attitudes and perceptions (Faherty & Morrissey, 2014). Cities with higher active transport mode share typically prioritise mixed land use, safety, accessibility and connectivity in urban design. Faherty and Morrissey suggest that higher density housing may be difficult to introduce in existing cities, but careful consideration needs to be made in new developments with regards to walkability and access to transit (2014).

2.2.4 Summary

While concerns around active travel cannot be outright dismissed, there appears to be a perception that the risk involved with active travel has increased over the past 25 years, whereas evidence suggests that the opposite may in fact be the case (Lindsay, Macmillan, & Woodward, 2010). Road traffic fatalities and serious injuries are decreasing, fears of abduction are still overly exaggerated,

⁴ Mixed use areas are defined by Faherty and Morrissey as areas "which incorporate a range of social activities" (2014, p. 2374)

⁵ "Differences in transport policy that make car travel slower, more expensive, less convenient, and alternatives to the automobile more attractive in Germany may help account for the remaining differences" (Buehler, 2011, p. 644)

and the number of people injured or killed while using active modes remains relatively low. The ease of use, access to and reliance on motor vehicles, however, is increasing, at large social and economic cost.

3 What have Travel Plans achieved to date? What works?

“Behaviour change programmes such as school travel plans and workplace travel programmes have had good uptake and have resulted in positive behaviour change. A 2011 report on the implementation of workplace travel plans in a number of large organisations in the Wellington region suggested the following percentage change in mode share for journeys to work among participating organisations and businesses (before and after travel plans were implemented): a 18% change in public transport mode share, a 20% change in cycling mode share and a 11% change in single occupant car mode share.”

RLTP 2015, p.129 (GW, 2016b)

3.1 Reviews of behavioural interventions and AT programmes

Much research has been conducted in the area of programmes that aim to increase cycling and walking, or decrease vehicle use. However, many studies are of the type known as ‘grey literature’⁶ - conducted by the agencies involved and not peer-reviewed, so they do not meet criteria for accurate comparison. However much can still be learnt from them. Below is a summary of the most recent reviews of active transport interventions, travel plans or activities aimed at increasing cycling and/or walking.

A 2010 review of active transport interventions related to the school journey in the USA, UK and Australia found that these interventions mostly resulted in a small increase in AT only (Chillón et al, 2011). Interventions which targeted schools, parents and the community with a specific goal in mind were more effective than more generic approaches. The review reports a lack of consistency in study sizes and evaluation quality, making true comparisons difficult. Lessons learned from the literature should be considered in the scope of such evaluations; distance to schools, for example, was often overlooked as a contributing factor. The authors suggest that;

“Acquiring buy-in from schools, parents, and community members can be challenging, but may be an essential component in the effectiveness and sustainability of the intervention. The interventions with the highest effectiveness [32-34] shared two common elements: a) a strong involvement of schools through principals and teachers working actively in the intervention, and b) parents receiving specific materials and being encouraged to walk.” (Chillon et al. 2010, p.14)

Having more groups involved helps expand the reach and engagement of an intervention program, while targeting participants who lived within a certain distance⁷ made active travel a more practical option, and helped to narrow down or eliminate potential participants who could not practically change their commute mode.

Pucher et al. found in an analysis of 139 studies (of varying quality) that a combined approach where public policy encourages cycling through infrastructure, programs, land use planning and vehicle restrictions resulted in substantial increases in cycling (2010).

⁶ University of Otago describes ‘Grey literature’ as:

“...materials not published commercially or indexed by major databases. While GL may be of questionable quality it has been shown to have an impact in research, teaching and learning. Sometimes, GL is the only source of information for specific research questions.” Source: <http://otago.libguides.com/greylit-health>

⁷ Chillón et al. cite two or three miles (~3-5km) as an achievable walking commute for children (2010); Emond & Handy cite 2.5 miles for active transport (2011).

“An extensive and rapidly growing literature suggests the need to facilitate bicycling through appropriate infrastructure (such as bike paths and bike parking), traffic calming, training and education programs, and other supportive measures. Countries and cities with high levels of bicycling and good safety rates tend to have extensive infrastructure, as well as pro-bicycle policies and programs, whereas those with low bicycling rates and poor safety records generally have done much less” (Pucher et al., 2010, p107)

While the link between cycling infrastructure and increased levels of cycling was quite distinct, there was also a strong indication that additional facilities, such as showers at work or bike racks on buses, encourage more cycling.

The evaluation of travel programme interventions was much less robust as studies often focused on vehicle trip reduction, however, they did result in an overall increase in walking and public transit use (Pucher et al., 2010). Programmes which focused solely on cycling, included Bike to Work days, Ciclovias, and skills training. These all showed a measurable increase in cycling, over the short term. Bicycle access is seen as a large (and obvious) barrier to cycling, and bike share programmes have been shown to increase cycling, although they are often implemented together with infrastructure improvements, so the scale of their impact is not known. Several studies showed an increase in cycling when speed limits were reduced. Also worth noting was the culture in which programmes were implemented;

“Research has found that non-cyclists who are surrounded by other cyclists may be more likely to have contemplated cycling and thus more responsive to policy interventions (Gatersleben and Appleton, 2007). Thus, the very same infrastructure provision, program, or policy might have different impacts on bicycling in different contexts, making it risky to generalize about the effectiveness of any individual measure.” (p121)

Pucher et al. conclude that all interventions are reliant on the combination of factors and more effective when combined, (e.g. bike to school programmes work best in traffic calmed neighbourhoods), with a “fully integrated package of strategies” implemented in a community being the most effective.

Yang et al. conducted a more robust review of the literature, excluding many of the non-peer reviewed studies or ‘grey literature’, and found less strong evidence of increases in cycling. Their review found that interventions applied to whole communities were more effective long term than those which were more individually focused, despite the effects still being modest. School based interventions are most effective when they include a family or community component, and workplace interventions show potential although little (peer-reviewed) research exists in this area yet. Addressing attitudes and perceptions alone, while low-cost, shows little evidence of working. Targeting individuals is only effective amongst those who already have shown interest in taking up cycling, while lack of infrastructure influences interest.

Ogilvie et al. conducted a similar review with regards to walking interventions (2007). They found that targeted and tailored approaches were most effective; providing personalised information to individuals or households who were already motivated to change their behaviour. Studies of interventions on the community or area level were less convincing, as they often focused on isolated groups. They conclude that various approaches should be offered, with individuals able to select which may work for them (whether it’s individual counselling from a health professional, feedback from a pedometer, walking groups or media campaigns).

Bock et al. looked at interventions to increase physical activity based in communities, and found similar conclusions to the studies above (2014). Success was dependent on culture and context; they found that interventions which used face-to-face counselling or personal contact were most effective with 35% change, while those tailored specifically to women or specific ethnic groups also had higher success rates (28% and 39% respectively)⁸. Overall tailored programmes were most effective as well

⁸ “Interventions using face-to-face counselling or group sessions were most effective (net per cent change: 35.0%; p = 0.014). Net per cent change was also higher in studies exclusively tailored to women (27.7%; p = 0.005) or specific ethnic

as personal contact, while traditional approaches were just as effective as more recent ones, although the latter was underrepresented in the review (Bock et al., 2014).

A Danish study on how to attract new cyclists concluded that the community or social communication approach was most effective; speaking from one cyclist to another (potential) cyclist who may be less experienced or cycle less often (National Cycling Fund, 2015). However, this is in the context of high overall cycling mode choice, where 99% of the population identifies as a 'cyclist'. The researchers suggest that communication must be inclusive, focusing on the gains to be had while addressing any specific challenges, and that being part of a team helps overcome those barriers. Again, infrastructure and facilities are important, but must be accompanied by campaigns to raise awareness, or be very visible in themselves (National Cycling Fund, 2015).

Overall, behavioural interventions alone have had limited success in reversing the trend of decreasing AT. Yang et al found that they achieved only a modest increase; 3.4% at a population level, or an additional 8 trips per person per year (Yang et al., 2010). Even improvements in infrastructure combined with promotion and education, have only succeeded in a small increase in active mode share in New Zealand's model communities (Keall et al, 2015). Against this trend, however, Wellington has increasing numbers of cycling commuters and the highest rates of active travel overall (Statistics NZ, 2015b) which may be linked to current travel programmes, high employment density, a decrease in car use, or popularity of public transport as no significant infrastructure developments have occurred over this period, showing that locally culture and context are contributing factors to changes to improve AT/ST in transport mode trends.

3.2 Specific programmes

The following programmes have shown some success and/or provide useful information on what may be relevant for future AT programmes in New Zealand. (NB. This review has focused on programmes running from 2010-2016 although some noteworthy older programmes are also mentioned.)

3.2.1 Model Communities

Keall et al. conducted a quasi-experimental study of the Model Communities Programme (MCP) in two New Zealand cities, Hastings and New Plymouth (Keall et al, 2015). They found that the interventions, which consisted of infrastructure and behavioural programmes, resulted in an increase of 30% in overall active travel (both walking and cycling), and halted a strong decrease seen in two control cities, and overall nationwide trends. They conclude that significant investment and effort which supports active travel can reverse the current trend towards increased motor vehicle use, but do not analyse which approaches are more likely to be effective. Data collected by Hastings District Council found that the numbers of people cycling had increased significantly⁹, suggesting that the Model Communities approach was more effective than stated by Keall et al. (Hastings District Council, 2014; NZTA, 2013).

The New Plymouth School Travel programme was launched in conjunction with their Model Communities Let's Go project. There are currently thirty schools involved with travel planning in the Taranaki region (Let's Go, n.d.). The programme consisted of a range of activities, including skills training, challenges, special events and safety improvements. A survey conducted at the end of 2015 found that the majority of schools chose to take part in the mapping activity. The programme was perceived by teachers to reduce school gate congestion, improve safety and increase active travel to school (Let's Go, 2015). The number of students walking, cycling or scootering to school doubled in the second year and more than tripled by the third year of the programme. While it would be expected that these numbers would drop if support was discontinued, the decrease over three years is not expected to fall below the second year results. During the winter, survey results show slightly lower

groups (38.9%; $p = 0.034$) ... Our results suggest that interventions using personal contact as well as tailored interventions are most promising." (p276, Bock et al., 2014)

⁹ Along the Havelock Road corridor, the number of cyclists has increased from around 30 per day prior to the cycle path construction to over 300 per day (HDC, 2014) and more generally, HDC says they are exceeding their goal of 8% p/a cycling mode share increase (NZTA, 2013).

active transport use, but significantly more students are using active transport than before the travel plan began (Abley Transportation Consultants, 2014).

3.2.2 Safe Routes to School

The Safe Routes to Schools (SRTS) programme operating in the USA since 2005 has reportedly had some success with some schools seeing between 5-20% increases in walking and moderate increases in cycling (Active Living Research, 2015). This programme aims to increase walking and cycling to school through encouragement, education and infrastructure/engineering. The five 'E's' are rounded out by evaluation and enforcement. The recent report found that the SRTS programmes have improved students' health (physical and mental), increased the number of students walking and cycling, improved safety and decreased costs for health and transport in school communities. Further research is needed to identify which aspects or combinations of interventions are most effective.

In Wellington, the City Council ran a school travel programme at Redwood School, Tawa from 2008-2010. This programme was designed to address issues around congestion at the school gate which caused concern for students' safety (Ministry of Education, 2008). The programme included infrastructure improvements, such as speed humps and crossing islands, identifying safe routes to school and penalising illegal or dangerous parking (WCC, 2009). They also held events, such as 'Walk on Wednesday' which celebrated children walking to school (MoE, 2008). Although no evaluation of the programme took place, Principal Pieter Braun said,

"All of these education programmes – getting kids involved, getting mums and dads involved – have made a difference...Working with the school and our road patrols, they have had a huge impact on children's understanding of safer ways of getting to and from school." (p16, WCC, 2009)

Deputy Principal, Sue Goodin, was surprised by how easy and successful the 'Walk on Wednesday' initiative was,

"It just happened! The children walked and the carparks were empty. It was incredible. It just seemed to work." (MoE, 2008)

The school was eager to create a culture shift to reduce congestion, with around 60% of students surveyed being driven to school before the programme started (MoE, 2008). With the recent completion of the Tawa Valley cycle path, Ara Tawa (WCC, n.d.), this suburb may make an interesting case study to analyse longer term effectiveness of school travel programmes.

3.2.3 Te Ara Mua-Future Streets

Te Ara Mua-Future Streets in Māngere, while still in progress, takes a combined approach to infrastructure, community engagement and promotional activities (Mackie et al, 2015). The project has involved two years of detailed consultation and engagement with the community and is currently (2016) in the build phase. Māngere-Otahuhu Local Board Chair Lemauga Lydia Sosene says:

"It's fantastic seeing the community's suggestions finally coming to life. The whole Future Streets project will give our community more options for getting around this neighbourhood. More importantly, it'll make it much safer, particularly for children, parents and seniors walking to and from school, housing and local community facilities". (Auckland Transport as cited in Transportblog, 2016)

While not in itself a travel programme, the effects of actively involving the community and using local knowledge in redesigning public spaces has created a sense of pride or ownership resulting in higher uptake of the active modes.

"The community in and around these areas are the local experts as they know their streets better than anyone. We want Te Ara Mua-Future streets to be a project that the Māngere community can be proud of" (Te Ara Mua - Future Streets, 2016).

This engagement is particularly important as any potential loss or change to communities, real or perceived, may result in protests, which in turn may stifle, or completely prevent, the development

from occurring (Hindmarsh & Matthews, 2008). This furthers the argument that effective engagement is critical, as, “If local interests are not given a voice in decision-making processes, conditional supporters may turn into objectors” (Wolsink, 2007, as cited in Hindmarsh & Matthews, 2008, p219-220).

3.2.4 ACT Active Travel review

A 2011 ACT Government Health Review of Active Travel to School looked at a range of policies and programmes across Australia, New Zealand, Great Britain and the USA (Garrard, 2011). It found that these initiatives had varying levels of success and there was a long way to go before these countries reached the active mode share seen in some European and Asian countries. Programs in Australia were more successful at increasing walking than cycling, and trip distance played a significant part in transport mode choice. Garrard concludes that even well-implemented behaviour change programs are not enough to encourage population level change in active travel to school;

“based on limited process/implementation evaluation data to date, the determinants of success are likely to include factors associated with schools and their social, cultural and built environments, program type and quality of program implementation.” (p36-37, Garrard, 2011).

The review looked specifically at the following programmes:

3.2.4.1 Streets Ahead

Streets Ahead (VicHealth) ran between 2008 and 2011 in Victoria, Australia. It was a program designed to promote active travel as well as children’s independent mobility¹⁰. Six areas were selected, each with a cluster of primary schools facing greater than usual health inequalities for that area. The projects each took a different approach based on their communities’ needs and characteristics.

“Flexible program delivery was critical to allow approaches to be tailored to the local people and local environment, and to respond to their needs and wants. In one project this involved broadening out the project’s focus, to embrace and support the goals of a local community group. This group went on to become an advocate of Streets Ahead.” (p.6, VicHealth, 2011)

Important aspects of the programmes were the officers’ ability to adapt and involve the community and community groups. Involving whole families was seen as critical but difficult; parents were time-poor and lacked engagement skills, but once engaged, having a ‘parent champion’ made a large impact on the success of the project. They also found that time was needed to build successful relationships; even the three-year span of the project was seen as too short by some officers involved (VicHealth, 2011).

One school saw increases in active travel from 15.3 to 24.5% over the three-year period, however it was not specified which activities contributed to this increase (p9, VicHealth, 2011). In another region, “Hands Up!” surveys showed an increase over the period from 35% active travel more share to 49% by 2010 (p.15, VicHealth, 2011), while a third region saw an increase from 25% to 40% active travel (p.17 VicHealth, 2011).

Examples of successful activities include:

- Mother’s and Father’s Days (where parents walked or biked with children)
- Active Kids Committee
- Community maps
- Awareness raising events, such as Ride2School day, Walktober, Walk on Wednesday

¹⁰ “CIM refers to children’s freedom to move about unaccompanied by an adult in public spaces. VicHealth supports CIM, as it helps develop motor and spatial skills, practical coping skills, local environmental knowledge, confidence, independence and responsibility in children.” (p4. VicHealth, 2011)

- School Travel planning
- “Frequent Rider” passes and rewards
- Having a project officer based on site at schools
- Recognisable and memorable branding
- Treasure hunts or activities where residents could ‘meet the neighbours’

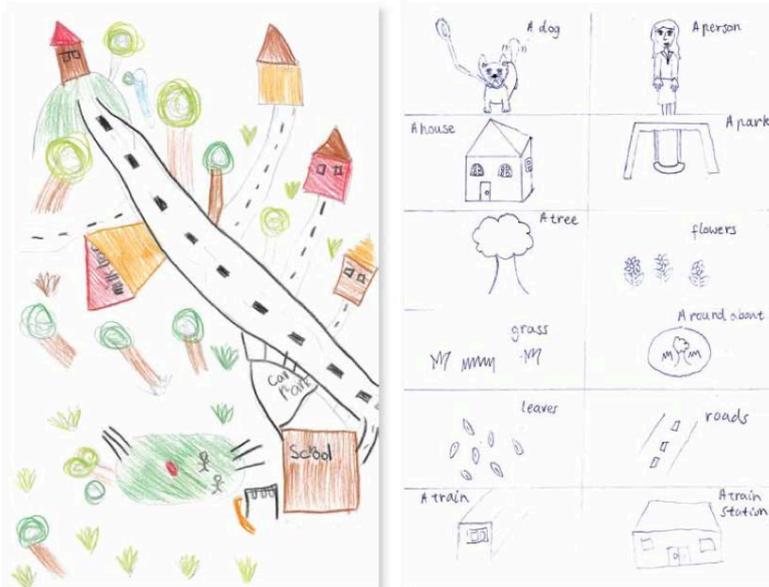


Figure 1:

Perhaps the most telling illustration of the difference active travel makes to children was shown by the children’s illustrations of their journey to school. Students who walked or biked often drew detailed pictures with a connected journey from A to B (left), whereas students who were driven to school tended to draw fragmented images with no connectivity (right).

Source: p20, VicHealth, 2011

3.2.4.2 Three School Travel Programs

The Victorian Ride2School programme saw an increase in active travel in a committed school which made intensive efforts to change behaviour but little evidence of increases in schools which had less intensive programmes. They noticed higher numbers of children walking and biking on ‘event’ days and an increase after the installation of bike storage facilities (p.34, Garrard, 2011)¹¹.

An Auckland School Travel Plan evaluation in 2007 saw a reduction of car mode share of 3.4%; Active travel increased by 2.4% and public transport use by 1%. Hinkson et al suggest that the effect of a school travel programme increases after the third year, and maximum benefits would be achieved after three or more years (p.36, Garrard, 2011)¹².

The Active School Travel programme in Brisbane aims for a 10% reduction in car trips, and saw an increase in active mode share between 18% and 25% from year to year. This programme consisted of a first year of intensive support from a council officer, followed by a further two years of varying (as needed) support. The programme is supported by a range of initiatives, including:

- Bike skills training

¹¹ Read more: Garrard, J, Crawford, S, Godbold, T (2009). Evaluation of the Ride2School Program: final report. Melbourne, Deakin University.

¹² Read more:

Sullivan, P, Percy, A (2008). Evaluating changes associated with workplace and school travel plans - something old, something borrowed, something new. From www.patrec.org/atrf/index.php?forum

Hinkson, E, Duncan, S, Kearns, R, Badland, H (2008). 2008 School Travel Plan Evaluation: 2007 School Year. Auckland, Auckland Regional Transport Authority.

- Walking Wheeling Wednesdays
- Walking school buses
- Park and stride
- Carpooling
- Road safety education

However, over half the schools involved were no longer actively participating in the programme the following year. Whether or not they were still involved in activities or had seen further decreases in car mode share is unknown (Garrard, 2011)¹³. These programs suggest that the intensity of support and the duration of the program are all strongly related to the success of the program.

3.2.4.3 Davis High School cycling insights

The city of Davis, California, is already well-known for its cycling culture, with 15.5% mode share for journeys to work and 33% for journeys to the local high school. A survey of students found that social-environment, individual, and physical environment factors all contributed to a student's' decision to cycle. Examples given;

“Parental encouragement and the student’s comfort with bicycling are key factors, and perceived distance is more strongly associated with bicycling than actual distance.” (p.71, Emond and Handy, 2010).

Perceived distance and imposing physical barriers (in this case a freeway divided the southern suburbs from the school) posed the largest physical barriers, although it was noted that Davis has a large existing network of cycleways, so safety may be less of a concern.

They found that 2.5miles (~4km) was the comfortable threshold for high school students biking to school. Parents rather than peers were the biggest social influence; if parents readily offered rides, students were much less likely to bike while bicycle-oriented families were more likely to have students who biked to school. On an individual level, the enjoyment of cycling and confidence were the largest determinants to cycling. It was also noted that gender played a significant role, with female students much less likely to bike to school than male students. Emond and Handy conclude that a multi-pronged approach is needed to encourage cycling; while good infrastructure enables cycling, skills training and social-marketing aimed at both students, particularly girls, and parents would be needed to encourage it (Emond and Handy, 2010).

Most successful, however, was the culture change seen in The Netherlands in the 1970s;

“The Netherlands in the 1970s, the risks posed by motor vehicles to child cyclists and pedestrians were a major factor for the introduction of traffic safety measures that prioritised cyclist and pedestrian safety over motor vehicle mobility. Examples include 30 km/hr speed limits in most urban areas, and the legal responsibility of car drivers to avoid collisions with cyclists. The Dutch approach is: “Cyclists are not dangerous; car drivers are: so car drivers should take the responsibility for avoiding collisions with cyclists” (Ministry of Transport Public Works and Water Management 2009).” (p39, Garrard, 2011)

This broad-based policy approach focuses on providing safe and convenient active travel options to schools. It includes, infrastructure, road safety education and campaigns, speed reductions (particularly outside schools), and legislation assuming driver fault in collisions with child pedestrians.

This paper suggests that if children are seen as the ‘canary in the coal mine’ for active mode share, it appears that a combination of good infrastructure, supportive policy, consistent skills training and social-marketing are required to achieve meaningful change in mode share for school travel.

3.2.5 Pedal Ready, Bikeability, and Bikes in Schools

¹³ Read more: Brisbane City Council (2009). Active School Travel Program: 2008 summary evaluation report. Brisbane, Brisbane City Council.

Pedal Ready is a Wellington Region cycle skills training programme based on similar programmes overseas (CAN, 2011). Students are first taken through theory and off-road skills training before being assessed for on-road skills. Studies from the USA, Canada, the United Kingdom, Australia and Belgium have found mixed results in improving safety through such programmes, with many reporting increased knowledge but no increase in safety (Carlin, Taylor & Nolan, 1998; Ducheyne, De Bourdeaudhuij, Lenoir & Cardon 2013; 2014; Fesperman, Evenson, Rodríguez & Salvesen, 2008, Hooshmand, Hotz, Neilson & Chandler, 2013; Lachapelle, Noland & Von Hagen, 2013; Macarthur, Parkin, Sidky & Wallace, 1998; Hatfield, 2012). Several studies noted that a more longitudinal approach would be beneficial to assess the long term gains (Lachapelle et al., 2013). One Australian study noted no positive effects and the possibility of an increased risk of harm if children were encouraged to cycle more or without supervision (Carlin et al., 1998). The Belgian study found an increase in children's skill level, but no change in parents' attitudes or increase in cycling to school (Ducheyne et al., 2014). A common theme throughout many studies was echoed in a review of 25 bicycle skills training interventions, which found that while these typically improved knowledge they did not automatically lead to a decrease in injuries or improved skills and attitudes (Richmond, Zhang, Stover, Howard, & Macarthur, 2013). More research is needed, specifically in the New Zealand context, on cycle skills training influence on travel mode in schools.

Bikeability is a cycle skills programme operating throughout the United Kingdom since 2007 and has reached over 1.5 million people to date (Ipsos MORI, 2015). Children in schools where Bikeability was offered were more likely to have completed cycle skills training but there was no evidence that they cycled more often, or cycled independently more often than children who had not been offered Bikeability (Goodman, van Sluijs, & Ogilvie, 2016). A review of the programme found that while Bikeability increased children's perceived safety and confidence (both from the parents and children's point of view), it had little impact on the number of children cycling (Ipsos Mori, 2015; Department for Transport, 2012). However, some encouraging indications were discovered; Bikeability training in feeder primary schools was associated with higher numbers of students cycling to secondary schools, and regions that have a longer history of Bikeability training have higher proportions of children cycling to school (DfT, 2012).

Over the summer of 2014-2015 Greater Wellington supported two schools in the region to build bike tracks and purchase helmets, bikes and bike storage as part of the Bikes in Schools programme. Both these schools, Pinehaven in Upper Hutt and Tawhai in Lower Hutt, also received cycle skills training from Pedal Ready (now a Greater Wellington programme) during term one. In term two of 2015 Pinehaven parents were surveyed on their children's cycle use. This found that 87% of children were cycling more often outside of school and 25% were cycling more often to school (Greater Wellington, 2015). A further 18% indicated that they intended to ride to school more often in future. In addition to the children's behaviour change, 45% of parents claimed they were riding more often for recreation and a small number had taken up riding a bike for transportation (Greater Wellington, 2015). More work is needed to assess the longer term effects of the bike track on both children's and parents use of bikes outside of school, but initial results and anecdotal evidence from other schools in the Bikes in Schools programme suggest that bike tracks have a positive effect on cycling for transport (Bike on, n.d.).

3.2.6 Active A2B

Between 2010 and 2016 Greater Wellington Regional Council ran an annual active transport challenge, 'Active A2B', which ran over four weeks. They found that,

"competitions can be a valuable tool to encourage and promote sustainable travel. Many people find motivation through competition, and find that the team aspect acts as a further measure of support for achieving their goals." (Greater Wellington, 2014, p.9)

This programme significantly contributed to an increase in active travel amongst participants. Cycle mode share increased from 9% to 14%, while car mode share decreased from 79% to 63%. On average participants reduced their vehicle kilometres traveled by 12.3km per week. If staff time is excluded from calculations the cost to benefit ratio is around 1:4 (Greater Wellington, 2013). However, no data exists of the ongoing impact on travel mode choice after the programme ends.

3.2.7 Other New Zealand programmes

3.2.7.1 Walking School Buses

In New Zealand, Walking School Buses (WSB)¹⁴ were first trialed in Christchurch in 2000 (O'Fallon, Sullivan & Cottam, 2002). In the 2000 trial, 10% of children used the WSBs regularly; 60% of these children had previously been driven to school. The early success is highlighted in the report;

“Over 1 year later, in 2002, there were 20 WSBs operating in 7 schools in Christchurch and about 40 more operating in the rest of New Zealand. This is a huge increase from mid-2000 when there were 4 WSBs in the whole country.”
(p.6, O'Fallon, Sullivan & Cottam, 2002).

The researchers found that WSBs were best suited for students who lived within 2km of the school, where adult volunteers are available and as part of an integrated approach (O'Fallon, Sullivan & Cottam, 2002).

In 2001, VicHealth launched a large WSB campaign, with a \$4.5 million budget to provide funds for coordinators, promotion, school recruitment, training volunteers and establishing routes (Garrard, 2011).

“WSB ‘Snapshot data’ for November 2007 showed 51 council areas were involved in delivering the WSB program. They engaged 141 schools that operated 255 WSB routes, with 487 buses and 4,507 children walking to school as a direct result of the WSB program. These children were supported by at least 974 volunteers.” (p33, Garrard, 2011)

While seemingly effective, evaluations of the programme found WSBs to be resource intensive and of limited cost-effectiveness when implemented by themselves. The program funding ended in 2007 in favour of a more integrated approach, Walk to School and Streets Ahead (Garard, 2011; VicHealth, 2015b). The program was also seen as being too inflexible, struggled with retaining volunteers, lacked appeal to older students and was reliant of physical changes around the school environment. David Engwicht, who is credit with the concept of WSBs, believes they work best when kept as informal as possible (VicHealth, 2015b).

3.2.7.2 Cycle Trains

In 2002 New Zealand researchers discovered there was a latent interest in a ‘cycle train’ programme, following work on the Travelwise to School project (O'Fallon, 2007). This led to the trial of six cycle trains in Nelson in 2006. These cycle trains were mostly self-sustaining and the programme even expanded with another school and two further cycle trains established. The researchers note that ‘cycle trains’ are more complex to establish than ‘walking school buses’ as they require more rigorous safety measures with children cycling on-road (bike and helmet checks, skills training and safety guidelines). In the trial, parents and children both enjoyed the experience, however age restrictions were a limiting factor, particularly for families with children both above and below the 10-year-old cut off. It is suggested that ‘cycle trains’ may be a useful part of the School Travel Plan toolkit, complementing ‘walking school buses’, and proving particularly popular with older primary school students, i.e. 8-11 years old. Other than providing time for bike safety skills sessions, no school resources are required, making cycle trains an attractive option for schools, however they do require a committed coordinator (either parent/community volunteer or council employee is suggested) (O'Fallon, 2007).

3.2.7.3 Feet First - NZTA, 2007-2009

¹⁴ A WSB involves an adult volunteer walking a predetermined route to school and picking up children at set stops. They allow children to walk to school with adult supervision on days when their parents/caregivers may otherwise drive them to school.

NZTA's Feet First was a programme promoted from 2007-2009 (with online resources still available) supporting safe active travel to school by providing curriculum support and resources such as walking charts and safe travel posters (NZTA, 2009-2012). In 2008, 140,000 students took part in a nationwide 'Walk to School Week'; more than twice the number who participated in 2007 (ARTA, 2008); however, in 2009 the format was changed to get kids walking to school for at least one day every week (Neale, 2009). The programme was developed, with a reference group of teachers and principals from around New Zealand, to encourage learning opportunities and support safe walking;

"Students and teachers will have the opportunity to consider the wider issues related to walking such as urban design, community development or the environment." (NZ Principal, 2009).

While there is little information about the effectiveness of the Feet First programme in isolation, Tauranga City Council has said that one aspect, the safety messages, were not well adopted (Tauranga City Council, as cited in Wolfaardt & Campbell, 2013).

3.2.7.4 Tauranga Travel Safe - An Integrated Approach

Tauranga City Council developed their Travel Safe programme with an integrated approach; they are 'community developed' programmes where partnership between all parties involved help build long term outcomes (Tauranga City Council, 2012).

"The key to the success of the programme has been our ability to build and maintain strong relationships with parents/caregivers, school management and senior students through the development of School Travel Plans that affect the wider community positively." (Tauranga City Council, 2010)

Their programme combines School Travel Planning, Kids on Feet, Kids can Ride¹⁵, Travel Smart Senior Students¹⁶ and Caterpillar Feet for preschoolers.

"Our programmes are a form of community development and injury prevention. The students develop everything alongside us from the beginning" – (Karen Smith, TCC, as cited in NZTA, 2011)

In addition to this, Travel Safe officers support schools to develop safe routes with improved access or infrastructure, such as the shared tunnels and redesigned roundabouts leading to Maungatapu School (TCC, 2012).

The Travel Safe Principles are based on the Ottawa Charter for Health Promotion¹⁷. These principles are embedded in the road safety action plan, including an emphasis on upskilling community as much as possible, e.g. cycle skills instructors are local (Karen Smith, personal communication, June 2016).

The Travel Safe Principles are:

- Listening to communities
- Keeping it simple and flexible
- Developing community ownership at the beginning
- Strengthening community action
- Developing personal skills
- Creating supportive environments
- Supporting building healthy public policy

Travel Safe Programme Leader, Karen Smith, stresses the importance of developing programmes alongside the community, evolving to meet community outcome, keeping it simplistic and flexible and involving community / students every step of the way, as *"one programme alone will not give you successful outcomes"* (personal communication, June 2016). With this successful integrated

¹⁵ Over 3000 Year 5/6 students are taught cycle skills annually (TCC, 2012)

¹⁶ 10-12 student leaders in each school develop a 'whole school' approach to walking and cycling (TCC, 2012)

¹⁷ Read more: <http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html>

approach numbers of students walking, cycling or scootering to school have continued to grow with sustainable outcomes.

3.2.7.5 Getting Around Wellington 2009

A 2006-2007 Sustainability Trust project supported by Greater Wellington Regional Council and Wellington City Council applied a Personalised Transport Planning approach to getting people out of cars and using PT or AT. This technique uses one-on-one conversations with individuals or households to inform, persuade and often incentivise small achievable changes in behaviour. The focus is on how an individual's life could be enhanced by change, rather than asking for altruistic sacrifices to be made. Pascoe found that,

“Aggregating the results from international examples, it appears that personalised transport planning has the ability to reduce car driver trips by between 7 and 15% in urban areas and 2 to 6% in rural areas (Cairns, Sloman et al. 2004; Parker, Harris et al. 2007).” (p.28, Pascoe, 2009)

The Getting Around Wellington project had no overall effect on vehicle kilometres travelled (vkt), but follow-up interviews suggest that the portion of participants who reported achieving their car reduction goals showed a reduction of 4% in their vkt. However, this project may have been influenced by a large drop in petrol prices during the study period¹⁸, bus strikes and other factors relating to the short intervention period. It was also noted that public and active transport modes were seen as neither attractive nor accessible for many participants. Pascoe concludes, “a PTP programme is best delivered in an area where extra capacity on public transport services exists and active transport alternatives are viable (Parker, Harris et al. 2007)” (p.74, Pascoe, 2009).

3.2.8 Pedalgogy - Rototuna Junior High School

The standout example of New Zealand school travel planning is without doubt Rototuna Junior High School in Hamilton. This new school, opened in February 2016, has achieved a massive 60% mode share for cyclists with a further 30% of students walking, scooting, bussing or skateboarding (Megan Campbell on RadioNZ National, 2016). Principal Fraser Hill says they deliberately limited car parks in the dead-end street to discourage driving (Cann, 2016). Also one of the contributing schools, Te Totara Primary has a strong active transport culture and a Walking Wheels competition, started by Rototuna Deputy Principal Paula Wine. She says, "If they start from five years of age and they really take pride in that, that's the culture that we inherit when they come to us." (Wilson & Boyer, 2016). In addition to encouragement and competitions at the schools, the Hamilton City Council and Waikato Regional Council have been actively involved by providing temporary cycling infrastructure and affordable bus services for students to help ease congestion;

“With the safe biking and pedestrian paths around our area we think getting to school in this way is a safe and sensible option,” (Principal Fraser Hill in “Councils and School appeal for driver patience”, 2016).

Also local police allow students to ride on footpaths where no cycle lanes are provided (RadioNZ National, 2016). The latest update from the school is promising;

“Some people seemed to think the cold and rain would see the students being driven to school but the good news is the bike racks are still full. There is a bit of a drop off on days where thunderstorms are forecast but the rest of the time the cycling levels are consistent.” (Megan Campbell, June 2016, personal communication).

Replicating this scenario at existing schools would obviously prove more difficult but it is a template worth investigating for any new builds or significant redevelopments, and does again show the effectiveness of encouragement and support alongside suitable infrastructure.

¹⁸ “From July 2008, when the initial baseline data was gathered, to early January 2009, petrol prices fell 86 cents per litre and diesel prices fell 88 cents per litre, signifying a 40% drop” (p.67, Pascoe, 2009)

4 Discussion

4.1 Community Engagement

Chillon et al. found that the Community Action Model framework is a popular tool for active travel interventions. Coming from the health sector, Hennessey et al explain it takes into account socio-economic factors, such as race, ethnicity and income levels. It consists of a 5-step process which aims to change the environment in which a particular issue occurs, using the strengths within the community;

“Its intent is to create change by building community capacity, working in collaboration with communities, and providing a framework for residents to acquire the skills and resources necessary to assess the health conditions of their community and then plan, implement, and evaluate actions designed to improve those conditions” (Hennessey, 2005, p. 612).

This model aims to act in two ways: by changing the environment (social or physical) to enable a more equitable setting and to *enable* individuals to ‘do it for themselves’ by providing them with the skills and resources needed.

Beierle and Konisky suggest that the key goals of effective community engagement should be: incorporating public values into decision-making, resolving conflict and restoring trust in public agencies (2000). The values of a wide range of community members should be represented and public perceptions of risk given adequate acknowledgment. Conflict resolution is best done through participatory decision-making, emphasising shared community values and building relationships (Beierle & Konisky, 2000).

The success of Active Living by Design programmes run in Portland and Seattle appears to lie in the gradual roll out of the 5P’s: “preparation, promotion, programs, policy, and physical projects” (Dobson & Gilroy, 2009, p. S437). The cornerstone of the effective programmes is the relationships established at the outset between invested partners, such as community groups, businesses, advocates, schools, residents and agencies (Deehr & Shumann, 2009). This suggests that an effective community project needs to begin engagement well before any decisions are made on their behalf, and community groups should be involved at the outset.

While many authors (Beierle & Konisky, 2000; Head, 2007; Wagenet & Pfeffer, 2007) agree that engaging the public can be challenging, an increasing number of techniques exist to help enable communication, including; “citizen forums, roundtables, inquiry groups, world cafes, deliberative polls, 21st century town meetings, and open space technology” (Cronin & Jackson, 2004, as cited in Hindmarsh & Matthews, 2008, p. 226). These can range from weak to strong forms of engagement “informing, consulting, involving, collaborating and empowering citizens” (Head, 2007). The overriding theme of the literature is that information must both be willingly received and actively taken into account, as well as information from experts being adequately distributed to affected parties.

4.2 Stages of Change

The Transtheoretical Approach (Prochaska & DiClemente, 1984) views behaviour change as an ongoing process, where an individual moves through the stages of change¹⁹:

- Pre-contemplation: never thought of it, say they would never consider it
- Contemplation: could conceive of the possibility of change
- Ready for Action: attracted to the prospect, actively considering actions and implications
- Action: has tried or experimented with change, has experienced effects, assessing
- Maintenance: may revert to previous behaviour, will benefit from reinforcement²⁰

¹⁹ Greater Wellington Regional Council currently uses the TTM Stages of Change categories to assess potential for cycling and in their Active A2B programme.

Studies on commuter cyclists have shown that as people move through the stages their attitudes towards cycling become more positive and their perceived barriers change (Gatersleben & Appleton, 2007). Importantly, the study revealed that;

“neither all cyclists nor all non-cyclists are the same which may have important implications for targeting cycling policies” (p.309, Gatersleben & Appleton, 2007).

The researchers go on to suggest that besides people who are already ‘cyclists’ and those who have never contemplated cycling, there is also a group who “would like to cycle and could be persuaded to cycle under the right circumstances” (p302, Gatersleben & Appleton, 2007).

Prochaska’s model suggests that people on the extreme end (‘never contemplated cycling’) generally had negative attitudes towards cycling; raising awareness of problems which could be solved by more people cycling could bring them closer to action (Gatersleben & Appleton, 2007). The researchers go on to suggest that cycling is perceived by many in the pre-contemplative group (particularly women) as ‘something people unlike themselves do’; they would feel strange if they cycled unless a large culture change occurred which could take many years (Gatersleben & Appleton, 2007). The contemplative group were aware of the benefits but could not overcome the perceived barriers (e.g. rain, wind, other difficulty) without motivation and tailored action plans (e.g. best route identification, bike loan scheme). The preparation group perceived fewer structural barriers, but more personal barriers (such as prior commitments) and would benefit from flexible work hours or tailored action plans. Positive feedback and social support would encourage those already cycling occasionally (the ‘action’ group) to cycle more often; for example, emphasising the flexibility and convenience (an immediate consequence) and the eventual savings (environmental, financial and health). All groups were concerned about safety.

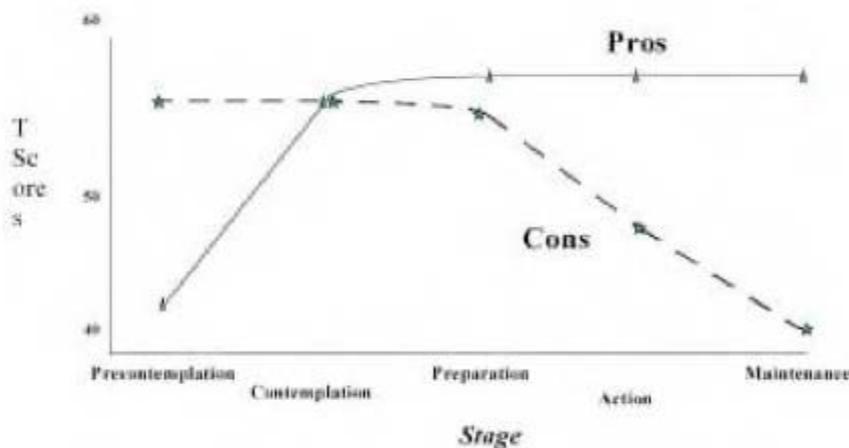


Figure 2: The Relationship between Stage and the Decisional Balance for a Healthy Behavior

(Source: CPRC, 1998)

The CPRC overview discusses the ‘Decisional Balance’; a construct which weighs the importance of an individual’s ‘pros’ and ‘cons’ against each other²¹ (CPRC, 1998). The diagram above shows how this pattern may emerge for healthy behaviours such as exercise or AT. At ‘pre-contemplation’ the cons far outweigh the pros. At ‘contemplation’ they are more balanced and at ‘preparation’ the pros peak and the cons begin to fall away as barriers are overcome. The Transtheoretical model is a particularly appropriate model for widespread recruitment as it acknowledges that individuals may be at different stages of readiness to change and interventions must be prepared across those stages (CPRC, 1998). This translates into a higher rate of retention as those who are recruited find that the interventions fit their specific needs. This model acknowledges smaller steps in progress (cognitive,

²⁰ p.20, Davies et al. 1997, as cited in Beetham, 2014; CPRC, 1998; Gatersleben & Appleton, 2007

²¹ Based on the Janis and Mann model of decision making (1985)

emotional and behavioural changes) and is not focused solely on the behavioural outcomes. It suggests:

“Interventions should be evaluated in terms of their impact, i.e., the recruitment rate times the efficacy” (p10, CPRC, 1998)

This implies that a widespread campaign focusing on changing attitudes in the ‘pre-contemplative’ group has as much validity or importance as a campaign which may convert an ‘action’ individual into an ‘maintenance’ cyclist (and thereby directly increasing the number of trips made by bike), as those individuals in the ‘pre-contemplative’ group may also move one step closer to action.

4.3 The Portland Model

Becoming increasingly popular in transportation cycling are the “Four Types” categorisation developed by the City of Portland in 2005 (Geller, 2009):

- “The Strong and the Fearless”
- “The Enthused and the Confident”
- “The Interested but Concerned”
- “No Way No How”

The Portland model is a useful tool to understand the different types and ratios of transportation cyclists in an urban area, and their differing needs. This model is based on surveys of Portland residents where fear of people driving cars was repeatedly shown to be the number one reason people do not ride bikes (Geller, 2009). While it appears similar to the TTM Stages of Change, it differs in that there is no suggestion of movement from one category to another. Rather, it is implied that infrastructure needs to be designed to appeal to the different groups. While it is a useful model to identify the types of infrastructure suitable for different ‘types’ of cyclist, it does not assist us in assessing suitable behavioural intervention programmes.

Four Types of Transportation Cyclists in Portland
By Proportion of Population

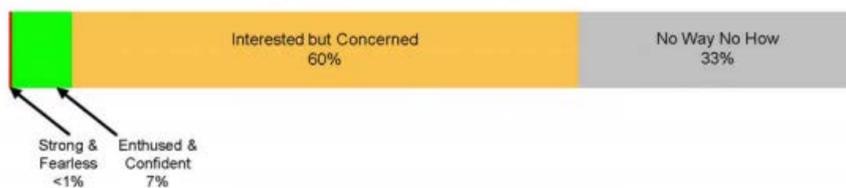


Figure 3: Four Types of Cyclist (Portland)

(Source: Geller, 2009)

4.4 Behaviour Change Theory

It is clear from the literature that no one ‘foolproof’ programme or intervention exists. A variety of factors must be taken into account and the programme designed to capitalise on the local contextual and cultural factors. McKenzie-Mohr’s “Community Based Social Marketing” Model provides an useful template for this process which holds up to the findings of this literature review (Mckenzie-Mohr, 2000). Community-based social marketing is a process designed to make psychological understanding of human behaviour more accessible to put into practice. There are four steps:

1. Uncovering barriers to behaviours and selecting behaviours to promote
2. Designing a programme to overcome the barriers
3. Piloting the programme

4. Evaluating the programme once it is broadly implemented²²

Social marketing emphasizes the need to target niche groups in a community to overcome their specific barriers to engaging in the desired behaviour (Mckenzie-Mohr, 2000). This process also suggests analysing which behaviour will have the most impact in achieving required outcomes (Mckenzie-Mohr, 2000).

Together with Schultz’s barriers versus benefits matrix (below), this model can be used to identify the best combination of interventions to meet the needs and wants of a particular community (Mckenzie-Mohr, 2000; Schultz, 2013).

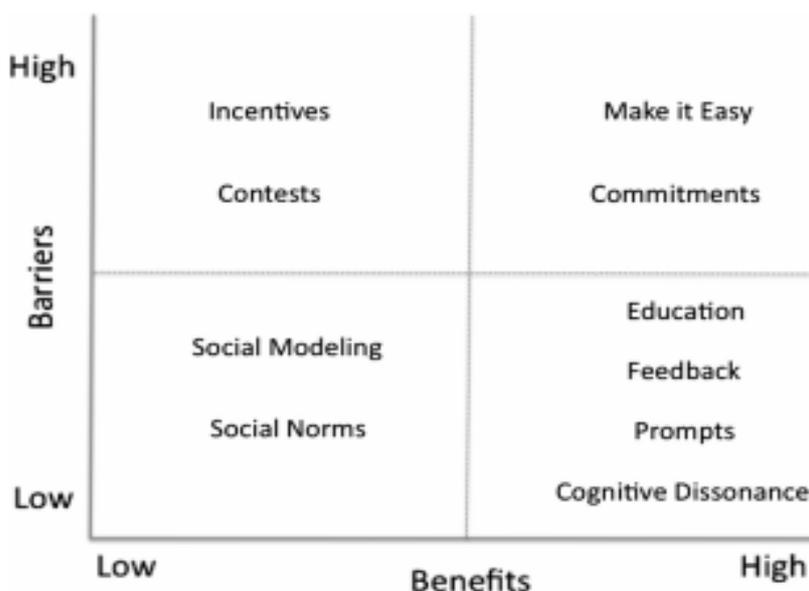


Figure 4. Schultz’s matrix: “When various behavior change tools work best”

(Source: p.110, Schultz, 2013)

Figure 2. When various behavior change tools work best.

To choose an intervention that encourages a target behaviour (in this case, increasing trips by active transport modes), Mckenzie-Mohr recommends firstly addressing the known barriers (McKenzie-Mohr, 2000). Schultz’s matrix plots barriers against benefits; these are regarded either as high or low and interventions are presented within (Schultz, 2013). It is important to identify benefits and their potential value to a group. This allows us to deduce which behaviour change interventions may be most effective within that group. Schultz classifies different combinations of benefits and barriers and makes recommendations on which tools may be most effective in each case (Schultz, 2013, p.110). Behaviours which have high benefits and low barriers could be influenced using education, feedback and prompts; behaviors with high benefits and high barriers require an approach with commitments and ‘making it easier’; incentives and contests work best where the barriers are high and benefits low; while social modelling and social norms are best applied when both barriers and benefits are perceived as being low (Schultz, 2013, p.110).

Using such a method would have useful practical applications for local councils or organisations in choosing which type of intervention may be most successful for their particular ‘stage of change’ (based on surveys and interviews to identify barriers/benefits). Their choice can be further refined by identifying the need for antecedent or consequent tools and informational or structural approaches.²³

4.4.1 Barriers and Benefits

²² Mckenzie-Mohr, 2000

²³ Note: Using multiple interventions can be more effective in encouraging behaviour change than a single intervention approach (Gardner & Stern, 2002; Abrahamse, Steg, Vlek & Rothengatter, 2005).

The first stage of the Social Marketing process is to identify known barriers and benefits. Greater Wellington has conducted and reviewed numerous surveys²⁴ to assess what factors may encourage or inhibit uptake of walking and cycling in the region. Although these results are not specific to any one community, they do paint an overall picture of known factors and can be useful in future survey design.

4.4.1.1 State of Cycling and Walking Surveys

The State of Cycling Report (2001-2012) has analysed barriers and benefits for cycling in the Wellington region:

The 2012 Transport Perceptions Survey found the top three reasons people cycled to work/study were:

- *Exercise/fitness (51%)*
- *Cost/to save money (47%)*
- *Convenience/quicker (29%)*

In previous Transport Perceptions Surveys information was collected on respondent's reasons for not cycling more often. The two main reasons, identified in each of the previous 4 surveys were:

- *Don't have a bike/don't cycle/don't like cycling (37%)*
- *Safety/no cycle lanes/busy roads/traffic too fast (22%) (p.22, Greater Wellington, 2012)*

The State of Walking Report (2001-2015) reported the following perceived benefits to walking to work/study:

- *exercise/fitness (42%)*
- *cost/to save money (23%)*
- *convenience/quicker (11%) (p.21, Greater Wellington, 2015a)*

Barriers to walking in suburban areas included:

- *hilly terrain,*
- *long distances to public transport stops,*
- *the relative convenience of driving a private car (p.36, Greater Wellington, 2015a)*

4.4.1.2 Benefits

Another important tool in encouraging behaviour change is the use of motivating factors. Behaviour is often motivated by multiple factors (Lindenberg, as cited in Steg & Vlek, 2009), so it is important to identify what these beneficial factors could be within any behaviour change campaign. Knowledge can also be a motivating factor when combined with other behaviour change tools.

Schultz describes benefits as the following,

"Benefits refer to a person's beliefs about the positive outcomes associated with the behavior. This could include saving money, protecting the environment, or receiving social recognition." (Schultz, 2013, p.109)

They are distinct from barriers, in that barriers are usually structural, whereas benefits are more closely linked to our beliefs or values.

²⁴ For example: 2012 Transport Perceptions Survey, Household Travel Survey, Short Trip Active Mode Research, School Travel Plan Data, GWRC rail and bus surveys

4.4.1.3 Moral and normative concerns

Moral and normative concerns can also be a motivator for pro-environmental behaviour, but their value may depend on the community being asked to change. An individual's beliefs, concern about the environment, feeling of obligation towards behaving a certain way and desire to be approved can influence behaviour (Steg & Vlek, 2009). Norms are seen as most effective when the behaviour is very visible, such as littering in public places. This supports Schultz's (2013) suggestion that social norms are best applied in low barrier and low benefit situations.

4.4.1.4 Affect

The final motivational factor listed by Steg & Vlek is affect. They define this in relation to Dittmar's theory which proposes that "the use of material goods fulfils three functions: instrumental, symbolic, and affective" (Steg & Vlek, 2009, p.311). This factor relates to material possessions and is particularly relevant in terms of car ownership and use.

4.4.2 Antecedent Interventions

Behaviour change tools can be broadly divided into two categories; antecedents and consequences. Antecedents are the tools which alter a variable prior to the actual desired behaviour taking place; whereas consequences occur after the activity (Schultz et al., 1995). Examples of antecedent tools are: prompting, commitments, normative influence, goal setting and removal of barriers ('make it easy'). All of these tools have been shown to increase pro-environmental behaviour significantly. Consequences include feedback and incentives (rewards and punishment) (Schultz et al., 1995).

4.4.2.1 Removal of barriers

Possibly the most significant step towards the uptake of pro-environmental behaviour is the removal of barriers. As mentioned earlier, barriers create a significant obstacle to uptaking a new behaviour, so their removal should be considered whenever possible, to create a meaningful widespread change in behaviour (Schultz et al., 1995; McKenzie-Mohr, 2000b; Schultz, & McKenzie-Mohr, 2014). However, it must also be noted that the removal of barriers is also likely to be the most cost and resource intensive tool. Creating separated cycling infrastructure or providing a bike share programme, for example.

4.4.2.2 Prompting

Prompting is the dispensing of information, usually through leaflets/brochures, stickers or posters. It can be a simple reminder that an action is required, usually placed in proximity to the service, near a main thoroughfare for example, rather than an attempt to change attitudes or motivation (McKenzie-Mohr, 2000b). Repeated prompts work best and a written prompt followed by an oral plea work most effectively, however prompts alone are not as effective as other behaviour change tools (Schultz et al., 1995). They are best suited for encouraging habitual behaviour on a lower effort level, such as switching off lights, remembering shopping bags or putting out kerbside recycling (Schultz, 2013).

4.4.2.3 Commitments and Goal-setting

Commitments can be an effective strategy for behaviours which have high barriers and high benefits, or require significant, ongoing change (Schultz, 2013). An individual is asked to make a written or verbal commitment to engage in a certain task. Public commitments, such as online pledges, have also been shown to be more effective (Schultz, & McKenzie-Mohr, 2014) and specific pledges are more likely to be effective than more general statements (Schultz, 2013). McKenzie-Mohr suggests that,

"when an individual agrees to an initial small request, the likelihood that he or she will subsequently engage in more substantial activity increases dramatically - the so-called 'foot-in-the-door effect.'" (2000a, p.534).

Goal setting by an authoritative body (such as local government) has also been shown to have a positive effect on encouraging pro-environmental behaviour (Schultz et al., 1995).

4.4.2.4 Normative Influence

Normative information can be separated into 'descriptive norms', which are beliefs about which actions are common in a given situation, or 'injunctive' social norms, beliefs about what 'ought' to be done in that situation (Abrahamse & Steg, 2013). Schultz (2013) suggests that norms which make use of both descriptive and injunctive norms are most effective. Norms are most effective for people who are not already interested in participating in a particular behaviour, and are more effective when they come from a close referent group (Schultz, 2013).

4.4.2.5 Block leaders

Finding a volunteer who already participates in the desired behaviour and asking them to encourage their neighbours to also participate in that behaviour has been found to be very effective in pro-environmental campaigns. The use of block leaders is particularly effective as it is not resource intensive (Schultz et al., 1995). The information is more palatable as it comes from someone within the community or social network of the individual who is approached. This closeness is important as we place higher value on the opinions or knowledge of people who we feel similar to or who we like (Abrahamse & Steg, 2013).

5 Conclusion and Recommendations

5.1 Conclusion

There is no silver bullet for Active Travel and School Travel programmes, but the literature and recent local experience does make apparent which factors of programmes are necessary to be most effective: combining social and individual level interventions with physical or structural changes; engaging meaningfully with the target community; and tailoring programmes to individuals or smaller target groups. Other modes should be actively discouraged where practical, to remove the 'ease' associated with those.

Programmes would be more likely to be successful if run in communities where infrastructure is good or being improved, and where there are committed and popular local 'champions' either in the school community or neighbourhood. Local 'leaders' need to be committed to the cause, including teachers, principals, parents, local politicians and other influencers. Recognisable programme branding which includes a local flavour helps to build and maintain a relationship with the community.

Individuals who are already contemplating a change to more active modes and those who are already in AT-oriented groups (families or workplaces) should be targeted first, but not exclusively. Those who have never contemplated active travel for themselves must also be included in the conversation to begin a culture change which actively encourages and enables AT. Programmes need to provide a range of tailored options which may appeal to different individuals needs or wants. They also need to be simplistic and flexible enough to allow them to be adapted or tailored.

Lessons can be learnt from the experience of Greater Wellington's, and other organisations, campaigns to improve the design and delivery of Travel Programmes within the Wellington Region. Information gathered about communities can help to tailor and target their needs, while local volunteers can be supported to extend limited resources. Importantly, there needs to be a long-term vision, which enables both culture change and more direct outcomes.

5.2 Recommendations: Use of success factors

- Combined interventions work best (particularly when combined with a physical-environmental change such as infrastructure or facilities),
- Interventions should be targeted at the 'pre-contemplative' as well as the 'ready for action' groups (and those in between) to build culture change as well as more tangible outcomes
- Programmes should be tailored to the group or individual, recognising different cultural and contextual factors; where resources are limited programmes should target those already considering change
- Community involvement is essential, particularly for school based programmes,
- Keep programmes simplistic and flexible
- Branding should be local, recognisable, and separate from Government or Agencies

5.2.1 Combined Interventions

An essential ingredient for successful programmes which increase active transport is combining both physical and social environmental changes. Addressing concerns about safety or convenience by building safer infrastructure or providing easy access to active transport is a necessary component of any successful behaviour change programme. With Wellington currently undergoing significant changes and investment to cycling and public transport infrastructure, it seems logical to direct any interventions in communities which will see significant physical-environment improvements.

5.2.2 Culture Change and Behaviour Change

Prochaskas' approach suggests that there is an advantage to targeting both those 'ready to change' and those who have not yet contemplated it (pre-contemplative). Targeting the former group may result in tangible outcomes (i.e. more trips made by active modes), while targeting the latter group may result in culture shift which will enable the 'pre-contemplative' to shift into the 'contemplative'

stage. Widespread culture and policy change that accepts or even encourages active modes may also create a more comfortable and safe environment for those partaking in AT (through increased awareness and lessening the perception that 'these people aren't like me').

5.2.3 Tailoring Programmes

Another recurring theme, was that of tailoring interventions to the audience or making available a range of interventions which may appeal to different audiences. Specifically, if resources are limited, targeting those who are already contemplating change to active modes, those who come from bicycle-oriented families or workplaces, and targeting women or girls, who are currently less likely to take up active modes. Where programmes were designed with input from the community or individuals involved (e.g. Kids Committees, group training) they were seen as more likely to be effective. Also, cultural and contextual factors need to be taken into account.

5.2.4 Community Engagement

Another element which is currently under-utilised in travel programmes is community involvement. Successfully and meaningfully engaging local communities, parents, schools, and identifying potential 'block leaders' can make an enormous difference to the success and longevity of programmes. Where Council officers were located within schools, they were able to deliver more intensive and effective school travel programmes but to sustain this intensity is difficult. Where engagement occurs over long periods of time, communities feel a sense of pride and ownership.

5.2.5 Simplistic and flexible

Keeping programmes simplistic is seen as a critical factor for achieving outcomes in travel planning. Allowing programmes to evolve or adapt to meet each specific community or schools' needs is key to success.

5.2.6 Branding

Recognisable branding and visibility was also mentioned as having an important supporting role in programmes. Making this branding local, so the community has a sense of ownership and pride in the brand is important. A recognisable brand can establish and grow a relationship with a community. Successful programmes often have visible, desirable, and consistent use of names, logos and messages ('taglines').²⁵

²⁵ See also: Toronto Cycling Think & do Tank, (2013). A Toolkit to Accelerate the adoption of cycling for Transportation. Retrieved from <http://www.torontocycling.org/a-tool-kit-to-accelerate-the-adoption-of-cycling-for-transport.html>

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²⁶ Conference version of report available here: <http://conf.hardingconsultants.co.nz/workspace/uploads/paper-groundwater-courtney-54f39369569d8.pdf>

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8 Appendix

8.1 Why is Greater Wellington involved?

“Greater Wellington Regional Council’s (GWRC) Sustainable Transport programme contributes to the strategic outcomes of the Wellington Regional Land Transport Plan, which in turn contribute to the objectives of the Government Policy Statement (GPS) on land transport and the national Safer Journeys’ Strategy. The GWRC Sustainable Transport programme is funded by the New Zealand Transport Agency and the ratepayers of the region.” (Greater Wellington, 2015c)

The following sections of Greater Wellington plans and policies support the need to continue working in the Active Modes/Travel Plan area.

Regional Land Transport Plan 2015

8.1.1.1 Vision –

To deliver a safe, effective and efficient land transport network that supports the region’s economic prosperity in a way that is environmentally and socially sustainable.

Key points include (p.9-11):

A well planned, connected and integrated transport network

- *Improving integration within and between modes*

An attractive and safe walking and cycling network

- *Promotion and education to improve active mode use and safety.*

An efficient and optimised transport system that minimises the impact on the environment

- *Promoting awareness of travel options and benefits through programmes such as travel plans for schools and workplaces, Active a2b, Let’s Carpool website, and events/campaigns.*
- *Improving and promoting the use of public transport, walking and cycling, particularly during peak periods.*

8.1.1.2 Relevant ‘Outcomes sought’ (p.35) –

Liveability:

- *Increased mode share for pedestrians and cyclists*
- *Improved level of service for pedestrians and cyclists*
- *Increased use of active modes for journeys to school*
- *Reduced harmful emissions from transport*

8.1.1.3 Relevant ‘Policies’ (p.44-47) –

RS 3., RS 4., R 1., R 5., I 1., I 10., I 11., WC 1 - WC 6., E 2., and E 4.

8.1.1.4 Travel Demand Management (p.127) –

TDM helps to achieve the goal of a “more economical and resource efficient transport system” (p.127). This necessitates reducing demand on resources at peak times and increasing awareness about travel mode choices.

Travel demand management is a collection of measures used to:

- maximise the use of the existing network
- reduce the demand for travel, particularly by single occupancy vehicles
- influence use of efficient and sustainable travel options

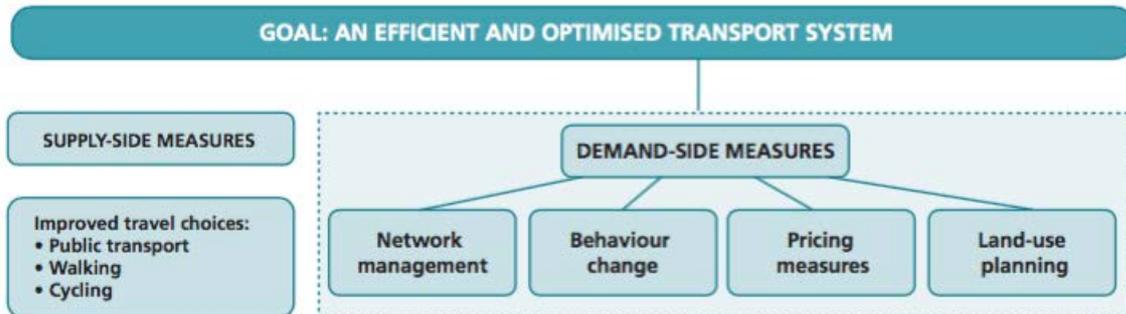


Figure 5: Supply-side and demand-side measures (Source: RLTP 2015, p.127)

8.1.1.5 14.6 Priority Action Areas

“Behaviour change tools need ongoing support and promotion. This is the case in the short term to ensure that a critical mass is reached so that the tools are effective and in the longer term to ensure that behavioural change is sustained over time. Land use and parking policies adopted in the short term will have a significant impact on land use and travel patterns in the longer term. Technology changes will occur over time and longer term are expected to influence both travel patterns and the efficient operation of the transport network.” (p. 131)

Relevant Action Areas (p. 131-132):

- Promote and facilitate active and safe school travel through school travel programmes and activities
- Promote the uptake of efficient and sustainable commuting and business travel within workplaces, organisations and the wider community
- Carry out travel awareness activities, events and campaigns

School Travel Plan programme

The Wellington Region School Travel Plan Programme began in late 2006. The programme was developed to involve the whole school community and to implement a series of actions with the following objectives:

- Increase students’ ability to safely use active and sustainable transport modes
- Work with road controlling authorities (TLAs) to improve aspects of the local environment which influence safe, active and sustainable travel
- Reduce school-related car journeys
- Support a culture which encourages parents to choose active and sustainable travel for their children

- *Enhance community awareness of, and involvement in, children's road safety and travel to school*
- *Help children to gain independence and confidence*

This work relied on the combined efforts of School Travel Plan Coordinators located in nearly every local council, the schools involved in the programme, School Community Officers (formerly known as Police Education Officers) and the Regional Council. (p.7, Greater Wellington, 2015c).