

Cycling

Introduction

Cycling is a mode of transport that produces no harmful emissions, is relatively cheap and, for most people, is suitable for distances up to about 5km. However, many people can and will travel much further. Cycling has many benefits and, although there are issues to overcome (e.g. bad weather, the perception of risk), it has a place in every region. Once people have sufficient bicycle handling skills and confidence, few barriers to cycling exist.

As part of a balanced transport system, cycling, along with walking, creates choices for individuals and a degree of resilience for the transport system. In New Zealand, there have been some notable successes in terms of encouraging people to cycle. Good geography and topography, as well as the climate, can assist uptake, but are not determining factors when it comes to encouraging people to cycle. In many parts of Europe, cycle numbers are high despite adverse gradients and very cold winters.

Cycling is a popular pastime in New Zealand, with many individuals and families cycling during weekends and evenings for health and fitness. However, for a number of reasons, this has not translated into high numbers cycling on a daily basis. To achieve a more balanced transport system, we need to encourage cycling by improving the travelling environment and through education, marketing and investment in cycling infrastructure.

A number of barriers discourage people from using the bike as a mode of travel. Transport planners need to ensure that detailed designs consider cyclists and minimise or eliminate predictable barriers. Some barriers, like negative public perception, require educating and marketing to remove. Other barriers, like busy multi-lane roads, will only be overcome through the construction of separate facilities to protect cyclists, or by increasing the adoption of safer speeds.

Objective

Increasing the numbers cycling

Walking, cycling and other active modes should be central elements of any transport strategy or plan. The underlying objective should be to encourage more people to travel by these modes more often.

Benefits

Accessibility	Cycling may enable individuals who do not have access to a car to reach basic community activities and services such as work, education, health care, welfare and shopping.
Environment	With no emissions or noise, cycling offers many advantages over other modes of transport in terms of the environment.
Economy	<p>Towns and cities that provide pleasant environments for cycling attract and retain business. This brings wide economic benefits in the community, whilst improving revenue for the local councils. The Otago Rail Trail is one clear example of this in New Zealand, with high numbers of cyclists boosting and encouraging business along its route.</p> <p>Cyclists, especially cycle tourists, tend to have higher expendable income than motorists.</p> <p>In a similar way, recreational cyclists often congregate during rides at local cafes and shops that are cycling friendly, supporting local business and the economy.</p>
Congestion reduction	<p>Moving more people by active modes is a means of managing congestion and reducing the vehicle km travelled.</p> <p>Cyclists take up less road space and, if a shift from vehicles to cycling is achieved, can help tackle congestion. Cycling can also help manage congestion by increasing the catchment area for public transport.</p>
Safety and personal security	<p>If more people cycle, there is more natural surveillance on the street, helping reduce crime and increase personal safety.</p> <p>The idea of critical mass suggests that, by increasing the numbers of cyclists in an area to a certain level, the number and percentage of crashes and incidents will start to decrease. It is sometimes referred to as 'safety in numbers', primarily because other road users become more familiar with sharing the road with people who cycle.</p>
Efficient transport spending	<p>Providing seductive cycling opportunities, especially during the peak times, will help tackle congestion. This in turn will reduce the need for extra capacity on our road networks. Cyclists are about 75 percent cheaper to provide for in terms of facility provision.</p> <p>Bicycles are a feather-light mode of transport. Bicycles cause little damage to road surfaces. As a result, cycleways have longer management life cycles and require resurfacing and similar maintenance once every 40 years. This compares to 5–6-year maintenance cycles for the more expensive infrastructure associated with light and heavier vehicles.</p>

Liveability

Community liveability relates to the environmental and social quality of an area as perceived by residents, employees, customers and visitors. Aspects such as noise, local pollutants, attractiveness of streets and opportunities for recreation and social interaction all contribute to the liveability of an area. The ease with which residents can travel as pedestrians or by bike represents a critical component of liveability. As cycling will assist with all these aspects of liveability, it is clear that the benefits of a cycle-friendly environment are substantial.

Benefits continued

Health

The health benefits of cycling are both internal and external to the individual. An individual's own health will improve as cycling regularly, like any physical activity, will prevent or improve a wide range of health conditions, including heart disease, mental illness and diabetes. The health benefits of cycling far outweigh the risk of injury.

There are also the wider benefits to society of a fitter and healthier population. In particular, the costs imposed on health systems due to the lack of regular exercise can also be reduced as a result of people cycling.

In a workplace, the health benefits of cycling are noticed as cyclists take less sick leave and this improves productive time.

Choice

Creating environments that enable cycling increases individuals' choices relating to how they travel. It provides a low-cost travel option for those without access to a car or for those who do not drive. Cycling also reduces exposure to fuel price volatility.



Cyclists in Copenhagen.

Strategic interventions for cycling

Cycling and land-use integration

The location, scale, density, design and mix of land uses are major determinants of the demand for travel. Certain patterns of development (see the 'Land use' topic) can reduce the distances people need to travel and support/facilitate cycling as part of a multi-modal transport network.

The average distance cycled for one trip leg in New Zealand is now about 4.9km (New Zealand Household Travel Survey, 2009-13). However, experienced cyclists are willing to travel far greater distances and child or novice cyclists a bit less. Land-use planning should take account of these distances and the needs of cyclists when considering the composition of land use and supporting facilities. It is important therefore that processes and policies for cycling and land use are integrated and mutually supportive where possible. This is true from high-level policy and strategies through to the detail of individual developments.

For example, in a number of countries around the world, bike facilities are now part of planning law. In Seattle, planning laws have been amended to support cycling with requirements such as:

- minimum cycle parking requirements
- shower facilities and clothing storage areas required for developments over a certain size.

The integration of land use and cycling should occur at the policy, strategic and operational levels.



Strategic interventions for cycling contd

Cycling and transport integration

Integrating transport policy, planning and operations is fundamental to the success of individual modes, including cycling.

One of the first steps should be to identify the primary routes in a town or city's cycling network. Cyclists should then be given priority along these routes. This means that enabling increased vehicle traffic volumes along defined cycle routes is not compatible with increasing the numbers cycling. Planning across the modes should be integrated. So, if a well-used cycle route is due to be affected by increasing vehicle volumes, the adverse outcomes should be discussed and resolved. Alternative routes could be considered, for both modes, but with real consideration of the transport planning hierarchy and desired outcomes of the overarching strategy.

Walking and cycling are now integral components in the transport system, and well supported by national guidance and policy. However, this needs to be followed through and supported by all authorities involved. For example, at the operational level, contractors should routinely provide for the needs of cyclists during re-surfacing and road works by offering safe detours and signage and look for opportunities to remove pinch points and improve cycling facilities during routine maintenance.

Those responsible for cycling need to maintain links across the organisation in order to ensure that any good work being done on the ground is not cancelled out by poor or inconsiderate planning and work elsewhere. The outcome will improve efficiency within transport spending.

Strategic interventions for cycling contd

Cycling as part of balanced approach

The choice of a mode of travel is determined by a host of factors and influences that differ for every individual. This means that, for example, the needs of a commuter cyclist will be different to the needs and expectations of a family riding for recreation at the weekend.

For all journey purposes, however, the following five attributes are central to best practice planning for cycling:

- safe
- attractive
- comfortable
- direct
- legible.



Cyclists in Seattle, USA

Strategic interventions for cycling contd

Supporting cycle facilities

As with other modes of transport, it is important to provide quality facilities at either end of the trip to support the mode. For cars, we think of car parks and garages; for buses, bus shelters and bus stations. And similarly, for bikes, we need to consider parking, changing facilities and even simple repair facilities.

The nature and type of facilities that might be needed or appropriate will depend on location and available space, among other things. At the very least, somewhere to leave bikes in a safe, secure and dry location should be provided close to destinations. Changing, drying and shower facilities at workplaces would further improve the experience for some.

These facilities could be supplemented by some basic provisions in case things go wrong (e.g. puncture repair kit, bike pump). At some workplaces in the US, the UK and Australia, vehicles are made available in case people need transport after punctures or such like. In some cities, eg. Stockholm, public bike pumps are provided along key cycle routes. There are also agreements in place that employers will provide transport or pay for taxis if, for example, family emergencies require people to get home quickly. Providing for staff in this way will help employers to retain staff and, potentially, reduce the number of car parking spaces they provide.



Cycle parking facilities connected to light rail line, Shadwell, London

Strategic interventions for cycling contd

Marketing and education

New Zealand and international evidence is showing that education and marketing can profoundly affect the uptake of cycling.

The types of marketing and education that may be used to promote cycling include:

- promoting ‘everyday cycling’ in ‘everyday clothes’, i.e. normalizing cycling as an everyday activity
- travel planning (personal or individual, school and work based)
- travel awareness (cycle and walk events)
- walk/cycle maps
- advertising/marketing new routes
- web-based journey planners
- education for school children and adults
- innovative ideas, ‘parking cash out’ (giving commuters who don’t drive to work the cash equivalent of parking subsidies provided to drivers), which provide financial incentives to use travel alternatives such as walking and cycling
- tourist promotion materials that highlight walking and cycling.

The case studies at the end of this topic provide some further examples of this style of intervention, along with supporting data.

Like any initiative, the outcomes of any marketing or education campaign should be measured against predetermined objectives and goals.

Strategic interventions for cycling contd

Maintenance of cycle facilities

Maintaining cycle routes to an acceptable standard is essential if cyclists are to be retained and encouraged. Roads need to be inspected for all modes, including cycles. This may be a challenge in some cases because staff skilled in road surface inspection may not be aware of cyclists' needs. For example, ensuring broken glass is swept from the entire road corridor, and not just the parts used by motor vehicles. Training and education for these staff may be appropriate to ensure that they understand and can identify issues for cyclists.



Maintenance work undertaken on roads also needs to be well thought through with due consideration for cyclists. On identified cycle routes, operations and maintenance teams should be aware of the practical needs of cyclists, in particular safety and comfort.

During any construction work, it is important that cyclists are catered for. Where an existing facility will be disrupted by the work, alternative provision for cyclists should be made. This means appropriate signs should be erected to direct cyclists to temporary facilities and links severed during the work should be reinstated to the same standard. Roadworks signs should not be placed where they are a hazard to cyclists.



Strategic interventions for cycling contd

Cycle lanes

Kerbside cycle lane: This is a lane marked beside a kerb exclusively for cyclist use. The marking comprises an edge line and cycle symbols at regular intervals.

Wide kerbside lane. This is wide enough to allow cyclists and motor traffic to travel beside each other with a reasonable degree of comfort. It can be used where there is not enough road width for separate cycle lanes.



Kerbside cycle lane with parked cars acting as buffer.

Sealed shoulder. This has a consistent, adequate width and an appropriate surface for cycling outside the main carriageway, along the edge of an un-kerbed road. It is generally the most appropriate facility in rural areas.

The width of 1.5m+ sealed shoulders should provide adequate safety from heavy vehicles and fast-moving cars.

Cycling in bus lanes. A bus lane is a lane reserved for buses in which cyclists are allowed to travel, unless indicated otherwise. However, this should only be used as a last resort as it is not ideal for cyclists and buses to be sharing these lanes.

Strategic interventions for cycling contd

Cycle paths

An **exclusive** cycle path can only be used legally by cyclists:

- Exclusive cycle paths are preferred as primary cycling routes or where speed is not managed at Safe System levels, and where there may be insufficient corridor space for a separated path
- Care is required to ensure pedestrians can be well accommodated elsewhere.

A **shared** path is shared with pedestrians and possibly others (e.g. horse riders). Shared paths benefit a range of path users but need to be managed effectively. They are appropriate where both cyclists and pedestrians need a path, but their numbers are modest. It is important that:

- the path's design is suitable for its use and demand
- authorities adequately monitor users' behaviour on the path
- the connections between path, road and driveways are carefully considered.

Separated paths are paths with separate sections for cyclists and pedestrians. Separated paths are appropriate if they form part of a primary walking and cycling route, or where speed is not managed at Safe System levels. There should be adequate separation (such as different path levels) between cyclists and pedestrians.



Example of a separated path in New Zealand

Strategic interventions for cycling contd

Intersections for cyclists

When planning intersections for cyclist use, the goal is to accommodate cyclists safely with a reasonable level of service. The principles and further references are provided in *Cycle network and route planning guide* (NZTA, 2004) and Design guidance is available in the *New Zealand Supplement to Austroads Part 14* and the *High risk intersections guide* (NZTA 2013). Vicroads provides some specific information on signalised intersections, 'Providing for cyclists at signalised intersections' (Vicroads, 2001) and Sustrans (1997) and Wilke & Koorey (2001) provide information on some of the issues regarding cyclists and roundabouts.

Cycle crossing points

It may sometimes be necessary for cyclists to cross traffic lanes and, in these cases, principles of directness and safety should inform decisions on how crossings are managed.

The needs of users need to be understood, and these may vary according to the location, e.g. a school or a park.

Public cycle hire

Public cycle hire schemes offer free or very low cost bicycles for hire at a large number of venues across a city. The largest public bicycle scheme is in Paris, with over 20,000 cycles and 1800 cycle stations.



Public hire cycles in use – Paris, France

Typically, public hire bicycles are accessed by a prepaid swipe card and the first 30–60 minutes are free. The cycles should be considered part of the transportation network and enable people to make short trips that would otherwise be made by car, taxi or bus. The cycles should be well maintained and replaced as needed to ensure the level of service is kept high.

In New Zealand, cycle helmets must also be provided, given the law relating to mandatory helmet use. This need not be an obstacle, as the successful Brisbane cycle hire scheme has shown.

Case study – Nelson, New Zealand

Introduction

Nelson has some of the highest walking and cycling rates in the country (in 2005, 5.8 percent cycled and 8.3 percent walked/jogged to work). The council places a significant focus on providing supportive environments for walking and cycling.

The approach outlined here can be thought of as a comprehensive package of measures to encourage both walking and cycling in the region.

Cycling facilities

The following physical improvements have occurred in the region:

- New off-road cycle paths and on-road cycle lanes, supported by maps. The Railway Reserve cycleway in the suburb of Stoke was particularly successful. A school that borders the cycle way managed to increase cycling to 60 percent of its 750 students. The extra surveillance provided by increased walking and cycling has overcome concerns about crime.
- Advanced stop boxes have been implemented.
- Bridges and underpasses enable cyclists to avoid major new arterial roads.
- A comprehensive ‘central area’ upgrade, with significant traffic calming – speed tables, signalised crossings, landscaping and tree planting – that reduces vehicle speeds from 40–50km/h to 30–40km/h.
- Sheltered cycle parking.
- Sheltered cycle network maps at regular intervals.



Tools for cycling continued

Other measures adopted

- Adult cycling courses – in partnership with the district health board and local group 'Bicycle Nelson Bays'. This initiative is important in providing skills for cyclists, especially in using new facilities such as advanced stop lines. It is also a good example of partnership working, as health is also a major beneficiary from these active modes.
- Bike Nelson maps online.
- Quarterly Active Transport Forum.
- A cycle crash hotline – 0800 CYCLE CRASH (0800 292532) – helps gather information about cycle safety in the area and thus address issues.
- Data collection – this supports the programme of works and other initiatives.

'Safer Journeys to School'

A 'Safer Journeys to School' project has been initiated. A travel survey of children and parents about travel to school was conducted.

Based on information from the survey, cycling trains were established. These are similar to a walking school bus with at least one adult (the conductor) cycling along an agreed route, collecting children at designated train stops.



Case study – Brisbane, Australia

Introduction

Brisbane is a city of 1.5 million people located in the south-east corner of the state of Queensland in Australia. South-east Queensland is experiencing very rapid population growth.

Brisbane has a sub-tropical climate with hot (an average of 30 degrees Celsius) wet summers and warm (average of 20 degrees Celsius) dry winters. This climate facilitates an outdoor lifestyle and encourages cycling.

Due to the growth of the city, a number of large transport infrastructure projects have recently been completed or are underway. Cycling has been seen as an essential part of these new infrastructure projects, with high-quality facilities providing a comprehensive cycle network for commuters in Brisbane.

Recent construction has enhanced the cycle experience for Brisbane cyclists. The new infrastructure recently constructed has strengthened the existing cycle network and provides a strong base for the growth in cycling numbers that are being experienced as the population in the region expands.

Extent of network

Brisbane has over 760km of existing cycleways and cycle paths (approximately 412km on-road and 348km off-road). This network is supported by an online interactive map, paper active transport maps and a transport information centre.

Some major new off-road portions of the network have been completed in the last few years. These have been constructed in conjunction with highway and public transport infrastructure projects. An example is the South East Busway, a grade-separated bi-directional busway. Alongside this busway is a purpose-built cycleway that runs for 12km and provides a popular cycle link from the south-east Brisbane suburbs to the CBD.

The cycle network has been the subject of a number of election commitments. During the 2008 election, the future Lord Mayor promised to spend \$100 million over four years to improve and complete the cycle network.

Case study – Brisbane, Australia continued

Brisbane bridges

The city of Brisbane is divided north/south by the Brisbane River. The Brisbane City Council and state government have constructed three new cycle bridges recently: the Goodwill Bridge (2001), Eleanor Schonell Bridge (2006) and Kurilpa Bridge (2009). The Goodwill and Kurilpa Bridges are cycle and pedestrian inner-city links connecting the CBD legal and government districts with the south Brisbane cultural precinct. The Eleanor Schonell bridge provides a cycle, pedestrian and bus link to the University of Queensland. This bridge also links with ferry and bus stops.



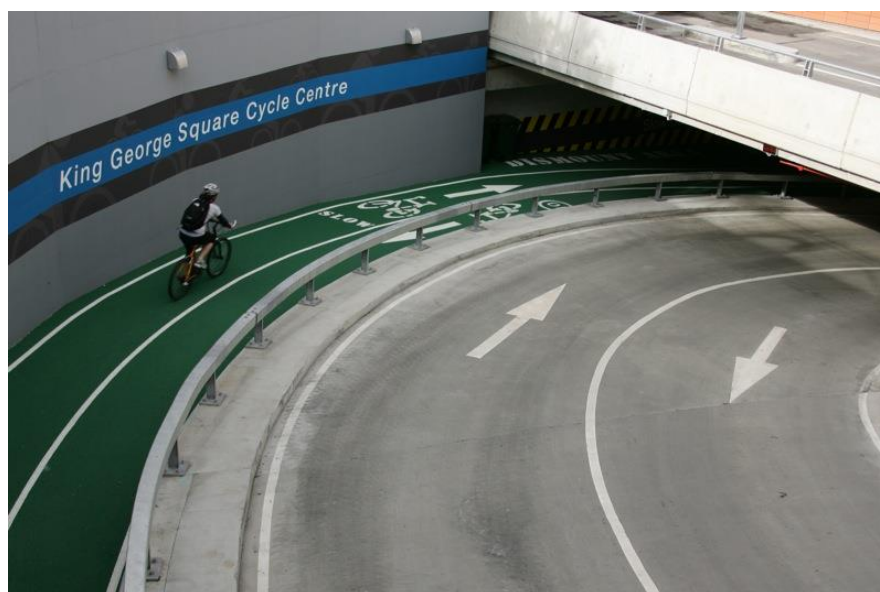
Goodwill Bridge Brisbane

These bridges improve the safety, efficiency and attractiveness of the cycle network by providing cycle links at key locations. The Eleanor Schonell Bridge reduced the cycle distance to the University of Queensland by up to 12 kilometres.

Case study – Brisbane, Australia continued

King George Square Cycle Centre

The King George Square Cycle Centre (KGSCC) is a new user-pays cycle facility located in the Brisbane CBD. KGSCC was constructed in conjunction with an underground bus station and refurbishment of the main city square. The facility provides cycle racks, lockers, showers, laundry service and bike maintenance for over 400 members. The members have a choice of a variety of payment levels, depending on the frequency of use. KGSCC has direct access to the inner-city cycleway network.



Riders' entrance to King George Square Cycle Centre

Although this is a user-pays facility, other similar facilities have been constructed by private companies for employees. The new Suncorp Metway building, in the Brisbane CBD, has a similar underground facility free to employees and the Brisbane Hospital is constructing a similar facility.

City Cycle

This is a new initiative that provides 2000 public use cycles at locations through the inner city. For a very low annual cost, you can access these cycles for half-hour trips within the city. 150 locations in Brisbane provide swipe card access to these cycles.

This is a new scheme based on similar schemes in European cities. It will be interesting to see how popular the scheme is in a city that does not have an existing culture of public use bicycles.

Case study – Seattle, Washington

Introduction

Seattle has a damp climate and hilly terrain, yet it is seen as one of the best cycle cities in the US. 16 % of Seattle's residents cycle at least two days a week and another 20 % ride at least occasionally.

Seattle bicycle counts showed a 3-fold increase in cyclists in downtown Seattle between 1992 & 2011 (from 1,104 in 1992 to 3,330 in 2011).

Master Plan

The city adopted its first 'Bicycle Master Plan' in 1972 and the oil shortages of 1973 and 1979 boosted interest in cycling. The success of these plans and successive ones has resulted in strong support for cycling among Seattle's residents and leaders. The 2013 Master Plan is currently out for consultation

(<http://www.seattle.gov/transportation/docs/bmp/2013/SBMP%20Complete%206%205%202013%202%20pm.pdf>).

The vision for the draft 2013 Master Plan is: 'Riding a bicycle is a comfortable and integral part of daily life in Seattle for people of all ages and abilities'. The plan sets the following performance targets:

	Performance Measure	Target
Ridership	Bicycle Counts	Triple ridership between 2013 and 2030
Safety	Collision rate	Reduce collision rate by half (50 percent) between 2013 and 2030
Connectivity	Percent network completion	Full system completion by 2035
Equity	Areas lacking bicycle facilities	No parts of the city lacking bicycle facilities by 2030
Liveability	% of households within ¼ mile of a bicycle facility	100 percent of households in Seattle within ¼ mile of a bicycle facility by 2035

Seattle has a substantial trail network, but cycle facilities are still not always fully connected. The plan aims to join up the network and remove or mitigate barriers such as roadway crossings and difficult topography.

Facility maintenance

The Seattle Department of Transport (SDOT) recognises that cyclists are particularly sensitive to maintenance problems and that hazards like potholes, irregular surfaces and debris can cause serious problems. Maintenance affects the comfort and appeal of facilities, and poor maintenance is likely to reduce biking rates.

SDOT is gathering material life-cycle information to better gauge current and future maintenance needs. On-street bicycle facilities need to be maintained as part of other routine roadway maintenance, but with greater attention to detail to ensure smooth travel for more vulnerable street users.



Case study – Model Walking and Cycling Communities, New Plymouth and Hastings

Introduction

Model communities are urban environments where walking and cycling are offered to the community as the easiest transport choices. The idea is to provide safe environments for novice users, with a range of community destinations within reasonable riding or walking distance from residential population centres. Climate, topography and demographic characteristics are also important factors.

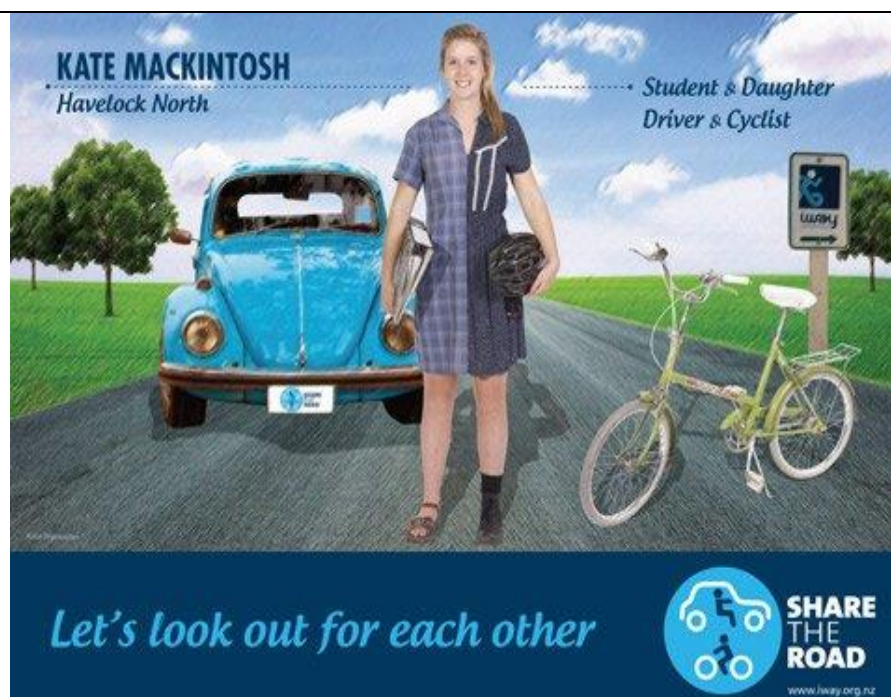
In 2010, two North Island cities were successful in their bids to become New Zealand's first model walking and cycling communities.

Since then, the two cities, New Plymouth and Hastings, have both achieved a great deal. Not only have they literally changed the shape of their cities with stunning new shared paths that make the most of their cities' topography and natural beauty, they have also worked hard to link to and upgrade existing paths and cycle lanes.

They have built on their community's enthusiasm for outdoor recreation and getting around on foot and by bike to attract new cyclists and walkers, and provided practical and direct commuting routes for workers, students, shoppers and others.

Why the model community approach?

Until 2010, walking and cycling investment had generally taken a piece-meal approach and only addressed parts of the network and/or delivered one-off education programmes. For this reason, the NZTA board were interested in seeing what difference the Transport Agency could make if it allocated significant investment in one or two locations to deliver a suite of initiatives.



Case study – Model Communities, New Plymouth and Hastings

New Plymouth and Hastings were successful in part because of their councils' longstanding commitment to walking and cycling, strong leadership from their mayors and elected members, and the support and enthusiasm of council officers.

The two cities have similar populations and similar visions for their model community, but they have each adapted their approach to fit local conditions such as existing walking and cycling facilities, topography and the demographic profile of their residents.

New Plymouth set out to encourage mainly recreational cyclists and walkers to transition from the well-used coastal walkway to commuting on road and on the many upgraded and newly connected pathways. A strong focus on safety around schools and getting school children and their parents to walk and cycle to school is embedding the active transport habit in the next generation.

Hastings, on the other hand, focused more on providing links between the places where people live, work and learn, with new pathways connecting the centre of Hastings to outlying towns and enhanced on-road facilities. An additional focus has been on disadvantaged communities where accessible transport options are important and the health benefits of active transport modes are the greatest.



For more information see

<http://www.nzta.govt.nz/planning/process/doc/model-community-story-spread.pdf>

Case study – Vélib' Bicycle Hire in Paris

Introduction

In July 2007, Paris started a scheme involving 10,000 self-service bicycles for hire. The Paris Vélib' (Vélib' is short for vélo liberté or freedom bicycle) has grown to over 20,000 bicycles and 1450 bicycle stations.



Vélib' cycle in use

Bike quality

The Vélib' cycles are sturdy 3-gear city bikes with a basket. They are designed to be easy to ride and have chain and cable guards. They are fairly robust in construction to handle regular use. The bike stations are accessed via prepaid swipe cards. Where no free bikes are available, users can use the rental terminals to find the closest locations with bikes available.



A typical Vélib' cycle station

Fare structure

Vélib' access subscriptions are available for 1 day for 1.7 euro, 1 week for 8 euro or 1 year for 29 euro. The first 30 minutes of riding is free to encourage short journeys and recirculation of the bikes.

Usage charges are the same for all subscription types, apart from the number of initial free minutes, and are designed to encourage short term rentals and a fast turnover of cycles.

Case study – Vélib' Bicycle Hire in Paris continued



Usage charges

Locations

The bike stations are located approximately 300m apart throughout the city. The current network of stations has been planned to ensure that all residents of Paris have a Vélib' cycle within 3 minutes walk. It is important the stations are fairly close together to ensure that the walk to your destination is short and if your first-choice station is full, the alternative venue is close. Some of the bike stations have replaced roadside car parks.

Funding and maintenance

JCDecaux and Paris City have formed a partnership to provide the Vélib' cycles. Paris City provides space for the facilities and JCDecaux maintains the fleet. The profits are shared between both parties. The cycles cost approximately 300 euro to purchase. JCDecaux is an advertising company and as part of the arrangement has access to billboards in Paris. To maintain the fleet, JCDecaux has cycle-based mobile mechanics that do basic maintenance and a floating workshop for more comprehensive maintenance.



This barge acts as a floating workshop to repair Vélib' cycles

Case study – Vélib' Bicycle Hire in Paris continued

Use

The Vélib' cycles have become a critical part of the transport network in Paris. Due to the widespread availability and very low cost, they are used by all sectors of the community, including commuters, shoppers and tourists. Having a 30-minute free timeframe has encouraged the use of the bicycles for transport between destinations rather than purely for leisure. In the first three weeks of the Vélib' scheme, the cycles were rented 1.2 million times. On average, each Vélib' cycle is borrowed about six times per day. Unexpectedly, the Vélib' cycles have about 24 percent of their use between 9pm and 3am.



Relocating cycles

The nature of the network means that some cycle stations are heavily used in one direction, particularly stations at the top of hills or close to busy metro stations. A small fleet of trucks is used to relocate Vélib' cycles to the areas that are in higher demand. This is often done in the evening to be ready for the next day's cycle patterns.



A Vélib' cycle relocation vehicle and mobile mechanic

Case study – Vélib' Bicycle Hire in Paris continued

Abuse

The biggest downside experienced by the city of Paris was the higher than expected rates of theft and vandalism. Up to 1 in 5 bikes are replaced each year due to theft or vandalism. Even with this high rate of replacement, the broader positive effects for the city are such that the city has agreed to pay the replacement costs of all these bikes.

Growth

The Paris scheme has been so successful that 4000 Vélib' cycles have been delivered to the towns on the periphery of Paris. They enable local use as well as slightly longer commutes into Paris. The increase in cyclists due to Vélib' has had a significant knock-on effect to higher use of personal bicycles by residents and increased safety among cyclists. Other cities such as London, Mexico and Brisbane are introducing copies of the Vélib' bicycle scheme.

Policy

The main objective of transport policy in Odense has been to increase cycling levels while reducing cycling injuries. The policy targets everyone: men and women, all age groups, and all professions. The emphasis has been on everyday cycling for practical purposes, but there are also programmes to encourage recreational cycling.

The recent focus of the city's policies has been on:

- modernising, improving and better maintaining its existing cycling facilities, which are already quite extensive (Dutch Bicycling Council, 2006; Andersen, 2005)
- a multi-faceted marketing campaign aimed at all groups (Andersen, 2005).

Case study – Odense, Denmark

Introduction

Odense was designated as Denmark's official 'National Bicycling City' in 1999. Its flat topography and moderate climate facilitate cycling.

It has the highest cycle mode share of any Danish city, with cycling accounting for about a quarter of all trips (average in Denmark: 18 percent share). Between 1984 and 2002, cycle trips grew by about 80 percent according to cordon counts. Much of this growth was due to increases in general travel demand in that time (cycling captured a slightly higher percentage share of growth than other modes).

Odense is the third largest city in Denmark, with 185,000 inhabitants (including 40,000 university students, who are among the most frequent cyclists). Cycling volumes are now automatically measured as cyclists pass each of 25 permanent counting stations. This enables frequent monitoring of cycling travel demand, greatly facilitating cycle planning.

This case study summarises a detailed report on several cycle-friendly cities:

Pucher, J and R Buehler (2007) 'At the Frontiers of Cycling: Policy Innovations in the Netherlands, Denmark and Germany', *World transport policy & practice*, 13, no. 3: 3–56.

Safety

While Odense has undertaken many measures to improve cycling safety, cycling injuries remain a top concern. From 1999 to 2004, total cyclist injuries fell from 80 to 57, indicating considerable success.

The correlation between rising cycling levels and falling injury rates in Odense is consistent with the theory of 'safety in numbers', which suggests that more cycling leads to greater cycling safety, as documented for a range of countries and cities by Jacobsen (2003).

Case study – Odense, Denmark continued

Safety continued

Approaches to cycling safety

- Cycle helmet promotion – as part of a trial, the council provided 50 percent discounts on helmet purchases and widely advertised the safety advantages of helmet use in various media campaigns. From 1999 to 2005, the rate of helmet use rose from 1.5 percent to 10.4 percent for adults and from 50 percent to 89 percent for children.
- School cycle training – children in Odense receive training in safe cycling as part of their school curriculum. It is supplemented by a computer game style programme that allows children to react and learn about traffic situations on a computer. The package is crucial as 43 percent of children reach school by bike (www.b-game.dk/demo.php).
- Lights on bikes – The city also has encouraged greater use of lights on bikes at night by offering cyclists free lights. A pilot study including 4000 cyclists resulted in a 32 percent fall in cyclist accidents.

Cycle facilities

Facilities and improvements include:

- 500km of bike lanes and paths
- modifications to bike lane and path crossings
- installation of 5 right-hand turn lanes
- 5 mini-roundabouts
- bright blue painting of cyclist crossings at intersections
- advance cyclist waiting positions (ahead of motorists)
- advance green traffic signals for cyclists
- extensive bike parking near main destinations (stations and shopping areas).

Not only does Odense provide extensive, high-quality cycling facilities, it also implements extensive measures to ensure proper maintenance, including:

- freelance trouble-shooting cyclists who regularly cover the entire network and report any defects or maintenance problems
- a special vehicle with laser technology to inspect the structure underlying every bike lane and path in order to detect possible surface problems before they even occur
- prompt clearance of ice and snow from bike lanes and paths by a special vehicle that sprays a salt solution onto the riding surface.

Case study – Odense, Denmark continued

Restriction on cars	<p>The following policies discourage car use in general and provide an additional incentive to cycle or walk:</p> <ul style="list-style-type: none"> • no direct routes for cars to pass through Odense’s city centre from one side to the other • car-free pedestrian streets that have been modified with 3.5m two-way cycle paths through the middle to accommodate cyclists • parking in the city centre is limited and expensive, which discourages car use. <p>The result is less traffic overall as well as less noise, air pollution and fewer traffic hazards.</p>
Coordination with public transport	<p>Bike parking at the main train station in Odense is probably the most important form of integration between cycling and public transport. There are 400 regular bike racks just behind Odense’s Central Station. Below the station, there is also a state-of-the-art bike parking facility with 300 bike racks that provide high levels of security, with video surveillance cameras, as well as piped-in music and conveniences such as toilets, drinking fountains, luggage boxes and a bike shop for repairs and rentals. There are also 800 free parking stands at the second Cycle Centre next to Central Station (Dutch Bicycling Council, 2006; Andersen, 2005).</p>
Promotion	<p>Odense has been imaginative and enthusiastic in promoting cycling among all age groups. The most effective initiatives include:</p> <ul style="list-style-type: none"> • the ‘Cycling Duckie’ programme for very young children, which offers gifts, sweets, balloons and entertainment • a range of cycling competitions for older school children • improved lighting and security of bike parking facilities, especially important for women concerned about their personal safety • the ‘Get Rid of the Sack’ programme targeted at overweight middle-aged men with pot bellies, with cycling viewed as a good way to lose weight • extensive bike touring programmes for older people • a fleet of 67 cycles for 29 companies who let their employees use these bikes during the day for short business trips • special bike tyre air pumping stations all over the city • free test bike trailers to tow kids behind bikes • subsidised bike lights and bike helmets to encourage safety • innovative, cycle trip counters that regularly measure cycling volumes and publicise rising levels of cycling • digital display signs along bike routes that measure the speeds of passing cyclists • cycling website with extensive information for cyclists on routes, activities, special programmes, health benefits, bikes and bike accessories • over 800 articles on cycling in local newspapers and magazines, frequent advertising on radio and TV, and free lectures on cycling • annual Bike Day in June, featuring bike exhibits, raffles, cycling competitions • Cycling Ambassador Programme: 86 cycling ambassadors serving as role models for safe cycling who promote cycling throughout the city, distributing newsletters and information about cycling events.

Complementary measures

Traffic speed and volume reduction	The speed and volume of through traffic can have a serious influence on the desire to ride. For some experienced cyclists, busy roads or high speeds are of no concern. However, less experienced cyclists may find them to be a significant barrier. Keeping traffic speed safe and volume low can therefore complement cycling.
Parking management	<p>Low-cost, freely available parking is a major influence on mode of travel and active management of parking can support a shift in modes to cycling.</p> <p>The location and type of on-street parking can also be a major issue for cyclists. Therefore, managing on-street parking will also complement cycling. In many cases the cost of losing kerbside parking has been outweighed by the economic benefits of more attractive cycling routes, eg. Acland Street Precinct in Melbourne.</p>
Land-use planning	The location, scale, density, design and mix of land uses are major determinants of the demand for travel. Therefore, land use that takes cycling into account will produce positive results.
Public transport	Cycling supports public transport patronage. Ensuring that public transport operators and those responsible for public transport infrastructure consider cyclists will benefit both cycling and public transport.

What other policies will this address?

Public health	Increased cycling is a way to incorporate exercise in daily routines. This leads to better public health outcomes and cycling is one of the most significant ways to improve the health of the general population.
Reduction of obesity	The obesity epidemic in New Zealand is linked to inactivity. Cycling increases activity and reduces obesity.
Liveable cities	Ease of access due to cycling and safe cycling routes are central to creating a liveable city.
Congestion reduction	Conversion from private car trips to cycle trips reduces congestion.
Pollution reduction	Conversion from private car trips to cycle trips also reduces vehicle emissions and improves the environment through reduced pollution.

Further information

New Zealand resources

Austroroads (2009) *Guide to Road Design; Part 6A: Pedestrian and Cyclist Paths* <https://www.onlinepublications.austroroads.com.au/items/AGRD06A-09>

Austroroads (2011) *Cycling aspects of Austroroads guides*. <https://www.onlinepublications.austroroads.com.au/items/AP-G88-11>

Bikewise programme <http://www.bikewise.co.nz/>

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Ministry of Transport (2013) *Cycling for Transport*, NZ Household Travel Survey fact sheet. <http://www.transport.govt.nz/assets/Import/Documents/Cycling-2013.pdf> (accessed February 2014)

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Macbeth, AG, R Boulter and PS Ryan (2005) *New Zealand walking and cycling strategies: best practice*. Land Transport New Zealand research report 274. Wellington: Land Transport NZ.

Other resources

Australian Bicycle Council (2011) *The National Cycling Strategy 2011-2015* <http://www.austroroads.com.au/abc/national-cycling-strategy>

Cycling Embassy of Denmark <http://www.cycling-embassy.dk/tag/odense/>

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Vélib' entry in Wikipedia. <http://en.wikipedia.org/wiki/V%C3%A9lib'> (accessed 6 November 2013)

