Sustainable Urban Transportation Policies - New Zealand and Overseas

Glen Koorey
BE(Hons)(Civil), ME(Civil), BSc(CompSci), MIPENZ, Reg.Engr.
Principal Researcher, Traffic Engineering & Road Safety
Opus International Consultants Ltd, Central Laboratories, Lower Hutt
(on study leave, University of Canterbury)
Executive Member, NZ Cycling Advocates' Network (CAN)
Email: koorey@paradise.net.nz

Abstract

It is commonplace these days to make reference to "sustainability" when planning for urban land transport, particularly in light of recent Government directions. This paper examines various New Zealand metropolitan transportation strategies and studies, and assesses their adherence to the principles of sustainable transportation. The impression given is that traditional road-building approaches still dominate local thinking, and that alternative transport options are seen as minor adjuncts. By comparison, various overseas strategies and policies are also reviewed to see how other localities have attempted to resolve their transportation issues. Their success to date and applicability to New Zealand are discussed, and a number of transportation "myths" are highlighted.

Disclaimer: This paper is based on my personal experiences, research and opinions, and does not purport to represent the views of any organisations that I am affiliated with.

1.   Introduction

The theme of this conference is "sustainable transportation". A common definition for this is a transport system that meets today' s needs, without compromising the ability of future generations to meet their own needs. A broader definition would encompass all of the social, environmental and economic effects that the resulting transport system produces, as transportation does not exist in isolation. Given recent central government directions in this area (NZ Government 2002), it is timely to discuss the implications of this approach.

However the motivation for this paper really came from reviewing a number of recent urban transportation "strategies" (both at a regional level and a corridor-specific level) produced around this country. The general impression given was that continued dominance of motor vehicles was seen as inevitable and that continued road building was also required, on a scale far greater than the alternatives. Often it seems like a chicken-and-egg question as to which of these two outcomes (more motor vehicles or more roads) originally steered the other into the vicious cycle we see today.

But presumably the whole point of a sustainable approach to transport planning is to try to break this cycle. And this should require a deliberate policy to change people' s "unsustainable" travel patterns. Overseas, a number of places are embracing such principles as the *basis* of their transportation strategies, not just as mere adjuncts to traditional road capacity increases.

This paper examines some of these strategies and considers their applicability to New Zealand. It shouldn' t be seen as an "anti-car rant". My wife and I happen to own one (and would struggle at times looking after our young family without one), but where appropriate we choose to walk, bike, bus, or not travel at all (internet technology is great these days...). Clearly, getting that mindset across to others is a difficult challenge, but one that we in the transportation industry should accept.

2.   Urban transportation strategies in New Zealand

The examples given below are taken from some relatively recent reports around the country and demonstrate what appears to be the current state of play in New Zealand. While it is accepted that some of these exercises had their origins before the release of the NZ Transport Strategy (NZTS) in 2002, the signs of the new direction have been there for some time - sustainable transportation principles are not new. So onto some examples:

- Auckland' s Regional Land Transport Strategy update (ARC 2002) identifies major transportation projects planned for completion by the region's councils and Transit NZ by 2011. Over the coming decade the major road projects are estimated to cost about $3.3 billion while public transport projects will total just a third of this at $1.1 billion, continuing the historic funding imbalance. Walking, cycling and travel demand management projects meanwhile are off the radar, totalling just $25 million.

- Wellington Region' s recently completed studies into development of the Western and Hutt Corridors (WRC 2000, 2002) are notable for their almost total absence of mentioning walking or cycling or demand management. One of the few mentions for example is the proposal to add a High Occupancy Vehicle lane to SH2, which would eliminate the existing cycle path, but no specific remedy is investigated. Again, the roading / public-transport split (cost-wise) of proposed projects seems to be weighted heavily in favour of the former.

- In Christchurch, the recent Northern Roading Options Scoping Study (TNZ/CCC 2002) had as its objective "*to identify improvements to the **road network** in the northern area of Christchurch that will be required to meet the **transportation** needs over the next 20 years*" (emphasis added). It' s not hard to spot the apparent conflict of aims. While it is stated that specific studies of opportunities for public transport, cycling and walking are planned separately, the fact that they come after this road network study, with its built-in assumptions of significant future traffic growth, does not augur well for the likely priority of "solutions". Indeed, urgency is already being put on developing and programming the key proposals out of the study.

- Hamilton' s Integrated Transport Strategy (HCC 1999) almost grudgingly seems to acknowledge that *"alternative modes of transport to motor vehicles (e.g. passenger transport, cycling and walking) do have merit, but they **should be developed in a manner appropriate to the growth of the city"**.* However it reverts to traditional form by then declaring *"most attention in the medium and short term should be directed to satisfy the needs of the most popular mode, the car"*. It is also difficult to reconcile the conflicting aims of *"the level of provision for less popular modes must be sufficient to address the decline in their use so that they are still available in the future"* and *"protect the flexibility of access currently available to motor vehicle users by minimising congestion in the future"*. At what point in the future will they stop predominantly providing for the motor vehicle?

- In Auckland, the proposed Eastern Corridor is touted as a "multi-modal transport facility" (Eastdor 2002). The underused railway line has of course already been there for a long time without significant investment, so the new proposals are largely based around a new 4 or 6-lane expressway. Putting aside for now the need for another highway, the preliminary strategy also proposes *"a 4m shoulder would be marked as Bus/HOV lane for the route, **where appropriate**. The provision of cycleways would be outside the road formation **where available land allows"**.* This apparent reluctance to commit to these alternatives at a similarly high standard as the roadway appears to reflect the way that alternative modes do get pushed (both physically and metaphorically) to the margins.

- In its first long-term financial forecast, Transfund New Zealand expect to spend $3.8 billion on new road construction over the next ten years, **three times** as much as that allocated for public transport or alternatives to roading, and **120 times** as much as that allocated for walking and cycling (Transfund NZ 2003). And this doesn' t include the $6.2 billion for road maintenance...

I don' t think I am taking things particularly out of context with the various quotes. Although most strategies these days acknowledge the advantages and potential role that alternative transport options could provide, invariably this is but a brief interlude before returning the "main" issue of how to provide a better roading network. The focus still seems to be on satisfying demand rather than managing it; road building rather than transportation demand management.

3. Overseas urban transportation strategies

A sample of some innovative and successful overseas transportation strategies are provided below to demonstrate what can be achieved with the right political and public will. It should be noted that (deliberately) none of the examples given are based in continental Europe. While there are many outstanding sustainable transportation developments around that region (and I urge you to look into places like Freiburg, Basel, Strasbourg and Utrecht in more detail), the local reaction here is often "but we' re not in Europe", reflecting the perceived geographical, cultural and political differences. We are not in Australia, North America, or Great Britain either but, given our (still) Anglo-centric view on the world, we seem to take a lead from these regions. Hence, I have done likewise in looking for examples to present.

3.1 York, UK
The city of York, in the north of England near Leeds, is an old city dating back to Roman times. Currently it has a population of ~120,000. As part of the new transport regime in the UK, York has developed a "Local Transport Plan" outlining its proposals for the next five years (City of York Council 2001). Some of the objectives make for interesting reading (emphasis added):

- *"To promote a transport system that leads to a healthier society by **reducing the amount of car traffic** in the City and encouraging more sustainable forms of travel.*

- *To enhance and support the economic development and vitality of York through the promotion of sustainable development at appropriate locations that **reduce the need to travel and minimise traffic generation**.*

- *To improve accessibility within the District for all, **especially for those without access to a car**.*

- *To **minimise new road construction** and maintain the safety and efficiency of the existing road network."*

In extensive consultation of the community, traffic congestion was identified as the most important issue facing York for 9 out of 10 people. 73% wanted to see a reduction in traffic to 1991 levels or below. When presented with various options, over half supported the most "radical" package of measures to reduce traffic and encourage other modes. York' s Transport Plan explicitly states the hierarchy of transport users that it is working to (in order from the top):

- Pedestrians
- People with mobility problems
- Cyclists
- Public transport users
- Powered two-wheelers
- Commercial/business users (including deliveries, HCVs)
- Car-borne shoppers
- Car-borne commuters

This translates into the following key themes for projects:

- New/improved cycle/pedestrian routes (already a very good network)
- Overhaul of bus services (currently relatively poor), including new express routes
- Bus priority measures
- Park & ride sites and improvements
- New railway stations
- Acceleration of cycle/pedestrian safety scheme (including Safe Routes to Schools)
- Real-time electronic displays, informing motorists of congestion, etc
- Capacity improvements to the Outer Ring Road at key intersections

Already the city had instigated a number of traffic management and demand restraint measures including raising public long-stay parking charges, more stringent control of parking in new developments, residents' parking zones, and speed-reduction / anti-rat-run measures. The Plan also explicitly recognises the impact of transport on other policies, including climate change, public health, education, economic growth, and personal security/safety.

Of planned expenditure over five years of £42 million, only about 40% will be spent on traffic congestion, bridges and road maintenance, 45% on public transport, and 15% on pedestrian/cyclist/safety improvements. This represents quite a different split to that generally found in urban centres in New Zealand, as indicated previously by the Transfund allocations.

3.2   Boulder, US

The city of Boulder sits in the US state of Colorado, on the outskirts of the Denver metropolitan area, with a population of ~100,000 residents. In 1989, Boulder' s Transportation Master Plan established the ground-breaking goal of a 15% mode shift of daily trips out of single-occupant vehicles (SOVs) by 2010. By 1996 the Plan (City of Boulder 1996) had developed the following principal objectives:

- *"No growth in long-term vehicle traffic (presumably only motor vehicles!)*
- *A reduction in SOV travel to only 25% of all trips by 2020*
- *Continuous reduction in mobile source emissions of air pollutants*
- *No more than 20% of roadways congested (Level of Service F)"*

To achieve these, against the backdrop of increased population growth and increased regional travel in and out of Boulder, the city pursued four action areas:

- Growth management within Boulder Valley, i.e. fixed city limits
- Transportation investment focused in "multi-modal corridors"

- Transportation Demand Management strategies
- Partnerships with other key organisations, e.g. the University of Colorado, the School District, the Chamber of Commerce

The original approach taken in 1989 is interesting. First, incentives were developed to encourage the shift to alternative modes, e.g. better facilities. If subsequent surveying found that the goals were not being met, then disincentives to get people out of SOVs would also be developed. The 1996 review found that the original targets weren' t being met quickly enough, so some disincentives were introduced to the revised plan, e.g. public/private parking pricing and supply restrictions.

In terms of financial priorities, the Plan had the following hierarchy:

- *"System preservation (e.g. link reliability, maintenance) and travel safety*
- *Transit capacity, functional efficiency (e.g. Intelligent Transport Systems), pedestrian/bike connectivity/capacity*
- *Quality of life (e.g. environmental protection)*
- *Automobile capacity"*

For example, the Plan gives preference to completing the pedestrian/bike network before adding new roads. This has included, to date, over 80 miles (130 km) of bike facilities completed, including 35 road underpasses.

The initial success of the Plan can be seen in 1998 travel surveys that showed that SOV use had gone from 47% of trips in 1990 to 40%. A recent update of the plan (City of Boulder 2001) addressed the key questions of "how are we doing?" (i.e. what is working) and "what should we work on?" (i.e. what is not working).

The development of Boulder' s bus system provides an interesting case study (McKay 2001). A remarkable 60,000 Boulder residents (i.e. 60%) have a city bus pass that enables them to ride the bus services for free (even connecting to Denver). A number of innovative strategies have been used to attract these numbers. For example, at the University of Colorado' s Boulder campus, the 26,000 students voted to add (US)$15 to their tuition fees each semester for an unlimited bus pass. Similarly, other large employers such as the hospital and Chamber of Commerce have also arranged for bus passes for their workers. To add to the attractiveness of the system, a "safe ride" arrangement provides a free taxi for employees stuck after bus operating hours. Also, a Boulder city bylaw requires developers of new residential subdivisions to buy each household three years' worth of bus passes. After three years, virtually all residents choose to continue paying through their local residents' associations, after having seen the benefits of the pass.

3.3   Perth, Australia

The city of Perth lies on the edge of the Indian Ocean in Western Australia, and is currently home to about 1.4 million people in the greater metropolitan area. Like many traditional modern cities, Perth developed in a relatively sprawling fashion. But by the 1990s there was a turnaround in transportation thinking, sparked somewhat by earlier proposals to remove existing railway lines and extend the freeway network. Through community action, those proposals never eventuated and the State government developed a fairly ambitious metropolitan transport strategy (WA DoT 1995) to address the long-term problems of growing traffic congestion through to 2029.

A key element of the plan was recognising that a significant proportion of the expected future traffic growth needed to be shifted to various other modes. Faced with an estimated 64% growth in trips by 2029, the proposal plans to reduce the proportion of car drivers from 71% (assuming current trends) to just 46% (which equates to just a 20% increase in private motor vehicle trips over this period). A range of strategies will be put in place to shift people to car passengers, walking, cycling, public transport, or not even making the trip at all (e.g. teleworking).

Although the Strategy recognises that *"cars will remain the dominant form of urban passenger transport in metropolitan Perth for the foreseeable future"*, it also states *"increasing car dominance*

is undesirable" and *"technological changes alone cannot resolve problems created by increasing car use technology."* The Strategy provides an interesting comparison of the three possible approaches to provide sufficient road capacity:

- "Demand satisfaction", i.e. continuing to extend the road system and enlarge existing roads so peak traffic demand would be satisfied. A common approach in many large cities, this satisfies short-term transportation requirements, but continued urban development inevitably results in road space becoming congested and air quality and urban amenity being reduced. There is never sufficient land and funding available to provide the roads this option would eventually require.

- "Congestion limiting", i.e. providing for only limited further road development. As congestion increased, road users would individually choose the best option for their needs. This approach would encourage many users to alter their travel patterns to avoid peak travel periods, but would also promote increased travel and congestion on secondary and residential roads. Also, commercial users and emergency vehicles could be seriously affected.

- "Travel demand management", i.e. encouraging public behaviour to lower demand for using the road system so as to promote its effective and efficient use. This option would give priority to effective users, such as multiple passenger vehicles and commercial vehicles.

The Strategy identifies all three approaches as having a significant role to play in Perth.

In identifying key measures to use, the Strategy says *"There will be an increasing need to promote efficient use of integrated transport infrastructure and networks, in many cases through **non-built solutions** to transport requirements. The transport network and system needs to focus on accessibility and the **efficient movement of people and goods, rather than the movement of vehicles**."* Better use of tools such as providing transport information, looking at land use proposals, and transport pricing are also envisaged.

The Strategy also sets some interesting targets, such as:

- *"Raise car occupancy rate from 1.21 in 1991 to... 1.25 in 2029."* (which might not seem much, except that the predicted 2029 occupancy using current trends is just 1.13)

- *"Limit average personal car trip lengths from 8.4 km per trip in 1990 to... 7.2 km in 2020."*

- *"Ensure at least 80% of all new residences are located within 1.5 km of commercial, service and educational facilities."*

- *"Reduce the number of people who are exposed to traffic noise levels exceeding 68 dBA."*

A key weapon in Perth's arsenal is the "TravelSmart" programme, which has already found significant success at a suburban scale, and is also being replicated in other States. TravelSmart is a behavioural programme, based on marketing of alternative travel options at an individual, household or organisational level. A key aspect is that the programme informs and motivates people - it doesn't advise or force change. This is crucial to achieving sustained behaviour change.

TravelSmart works by targeting those who choose to travel by car, but may have other options. In the main household programme, households are contacted and asked how they currently travel and whether they would like information about alternative options. Those who are not interested in further information are left alone, allowing concentration on those who are. Those already using walking, cycling and public transport are rewarded with small gifts to encourage them more. The remaining group are provided with whatever information they request on these modes, such as personalised bus timetables, cycle/walking maps, trial train tickets, general information guides, etc. If necessary, people can even request home visits by someone to discuss any issues or concerns further (e.g. checking out the state of their old bike). People are encouraged to at least consider changing just 2 or 3 of their car trips per week - an achievable objective that empowers people, as it doesn't require giving up the car or changing lifestyles.

The first major TravelSmart trial was in South Perth covering 15,000 households. One year after the initial programme, there was still a 21% increase in public transport trips, 24% increase in walking trips, 91% increase in cycling trips, and a corresponding 11% decrease in car trips (in fact a 17%

reduction in vehicle-km travelled). These statistics cover the entire original sample, *including* the 40% of initial respondents who were not interested and subsequently left alone. As a result of this staggering success, the programme is now being rolled out across all of Perth. Extrapolation of the pilot test results to half the Perth population could deliver a reduction in vehicle kilometres travelled on the road network of 7-8%, for the equivalent cost of about 7km of four-lane expressway.

3.4   Portland, US

The metropolitan area of Portland comprises about 1.5 million people straddling the Oregon/ Washington state border in northwest United States. Oregon is notable for its 25-year-old State policies that require regional and local districts to develop Transportation System Plans (TSPs) that provide for *"reducing vehicle miles travelled per capita by 10% over the next 20 years, reducing parking spaces per capita, and improving opportunities for alternatives to the automobile"*.

As a result, the 2000 Regional Transport Plan (RTP) for the Portland "Metro" area (Metro Council 2000) seeks to limit urban sprawl and successfully link land use and transportation planning over the next 40 years. This includes for example the development of "station communities", located along light rail corridors and featuring a high-quality pedestrian and bicycle environment. These communities will be designed around the transportation system to best benefit from the public infrastructure. While they will include some local services and employment, they are mostly residential developments that are oriented toward the central city, regional centres and other areas that can be accessed by rail.

Within the Metro area, the city of Portland itself (pop. 400,000) has developed a TSP that mirrors the wider metropolitan aims (City of Portland 2001). Right from the outset, it states *"Constructing significant amounts of new automobile capacity to accommodate growth is not the answer because of the enormous costs and impacts. Adding more streets and parking lots divides neighbourhoods, uses valuable land, encourages urban sprawl, and has negative environmental impacts."*

Instead the TSP aims to *"Develop a balanced, equitable, and efficient transportation system that provides a range of transportation choices; reinforces the liveability of neighbourhoods; supports a strong and diverse economy; reduces air, noise, and water pollution; and lessens reliance on the automobile while maintaining accessibility"*. Some of the many interesting policies that the Plan proposes to achieve this aim include:

- *Develop a strong school curriculum on transportation safety and travel choices with emphasis on environmental consequences, neighbourhood liveability, personal safety, and health.*
- *New land uses and major expansions of land uses that attract a significant volume of traffic from outside the neighbourhood should be discouraged from locating on "Neighbourhood Collectors".*
- *Complete a network of bikeways that serves bicyclists' needs, especially for travel to employment centres, commercial districts, transit stations, institutions, and recreational destinations.*
- *Provide safe and convenient access for pedestrians and bicyclists to, across, and along "Major Transit Priority Streets".*
- *Pedestrian improvements at major "multimodal" intersections should include wide sidewalks, special lighting, crossings at all legs of the intersection, and special crossing features where motor vehicle volumes are high.*
- *Promote walking as the mode of choice for short trips by giving priority to the completion of the pedestrian network that serves Pedestrian Districts, neighbourhood shopping, schools, parks, transit stations, and stops.*
- *Locate high-density development within a half-mile of transit stations on Regional "Transitways", with the highest densities closest to the stations.*
- *Reduce traffic speeds through enforcement and design in high-density areas, including main streets and centres, to levels that are comfortable for bicyclists and pedestrians.*
- *Reduce and manage automobile travel demand and promote transportation choices before considering the addition of roadway capacity for single-occupant vehicles.*

- *Require commercial and high-density development to orient to and provide pedestrian and bicycle connections to transit streets and, for major developments, provide transit facilities on a site or adjacent to a transit stop.*
- *Examine the benefits of limiting drive-through facilities in existing or planned areas of high-intensity development and high levels of pedestrian and transit activity.*
- *Consider eliminating requirements for off-street parking in areas of the City where there is existing or planned high-quality transit service and good pedestrian & bicycle access to transit.*
- *Require institutions and other large employers to minimize the amount of employee parking through demand management measures such as carpooling, ridesharing, flexible work hours, telecommuting, parking management, and employer-subsidized transit passes.*
- *Accommodate future increases in regional through-traffic on existing "Regional Trafficways".*
- *Support pricing strategies that are based on the environmental and social costs of motor vehicles. Choose corridors to implement market-based pricing where high-quality transportation alternatives to driving exist.*

4.   Resolving some transportation myths

A comparison of the local and overseas transportation plans above shows up quite significant differences in thinking. A number of these differences seem to boil down to the acceptance or otherwise of various "myths" about transportation. Some of these are discussed below, although there are others.

4.1   The self-fulfilling prophecy of traffic growth

Virtually all transportation strategies tend to provide estimates of projected traffic growth if historical trends continue. Instead of using this to justify why further road/parking capacity is needed, we need to start turning these predictions on their head and using them to highlight the problem of doing the status quo. Given the obvious economic, environmental and social problems associated if the projections become reality, a more "sustainable" response would be to say: "*OK, you've shown us what will happen if we do nothing new, and we don't want that. Now tell us how to prevent it.*"

Increased car ownership/availability does *not* have to translate into more car use. If better encouragement of alternatives travel modes is provided and technology allows greater use of "tele-commuting/shopping", then cars may be seen more as "backups" to these options. Overseas, many places are taking that concept further by introducing shared "pool cars" for residents or employees, eliminating the need for each person to have their own motor vehicle available.

The other underlying issue that is often raised is the potential for induced traffic as a result of new road construction, as demonstrated by SACTRA (1994) and other reports. The logical corollary to this is that, by removing road capacity, some motor traffic can be made to "disappear" and a number of studies have demonstrated this effect, such as Cairns *et al* (1998). Locally, there are examples in Dunedin and Nelson of four-lane roads that have been converted back to two-lane roads.

4.2   The link between transport improvements and economic growth

A common reason put forward for implementing various transportation (particularly roading) projects is the likely economic benefits that the new facility will generate. Conversely, any proposal to delay a certain project, or indeed to restrict traffic growth (such as the recent Road Traffic Reduction Bill introduced to New Zealand Parliament), is seen as damaging to the economy.

SACTRA (1999) was asked to examine this hypothesis in more detail. Specifically it was asked to consider:

- Do transport "improvements" lead to increased economic activity?
- Is it possible to "decouple" growth in traffic levels from growth in the economy?

The authors found that measures that reduce transport costs could encourage economic performance in many ways. However, while the theories dealing with the linkages between transportation improvements and economic activity were strong, direct empirical evidence on the size and nature of these effects was limited. Overall they supported the view that, in general, any contribution to the sustainable rate of economic growth of a mature economy with well-developed transport systems is likely to be modest and "not guaranteed".

The authors found many studies that showed a strong correlation between economic growth and road traffic growth, however there was no consensus on a causal effect. They felt that it was more likely that economic/income growth has a strong effect on traffic growth (instead of *vice versa*), but that traffic was also influenced by the price, speed, and quality of transport. An extensive review of empirical studies suggested that these factors can significantly vary the amount of traffic for a given level of national income. Therefore, policies to change the volume of traffic for a given level of economic activity are feasible.

It should be noted that "transport improvements" were not defined tightly in terms of improved amenity for travellers; it could include traffic restriction measures for example, if there was a net gain in benefits nationally. Indeed, the authors found that traffic reduction policies that result in a better alignment of "prices" (i.e. real resource costs to the country, including pollution, congestion, accidents, etc) and "costs" (i.e. perceived by transport users) can reduce these external costs and increase economic welfare.

It is encouraging that the NZTS notes *"in the long run economic development and transport growth need not be directly related"*, and the Ministry of Transport proposes local research into this. Although it is readily accepted that efficient cross-town transportation of goods and services is a vital necessity of business, it is hard to see economic merit in the inefficient use of roads by many commuters, long-distance freight-haulers, and parents on the "school run".

4.3   The advantages of the motor vehicle

A typical statement from a transportation strategy in New Zealand is *"the car offers unparalleled advantages in terms of flexibility, comfort, security and convenience and this is likely to remain the case for some considerable time"*. While it would be churlish to completely deny the utility of motor vehicles (particularly in certain circumstances), this is rather like saying that the ability to dump one's rubbish wherever handy is far more convenient to the person concerned than having to find a bin or dump. Clearly, it fails to acknowledge the costs involved, both to the vehicle users (of which much is not directly apparent at the time) and to society. New Zealand's 1800-odd traffic injuries and fatalities per year to pedestrians and cyclists and the estimated 400 deaths a year due to pollution-related illnesses are examples of factors that do not directly affect motorists.

A more appropriate approach would be to clearly identify the true costs of the relative travel modes and find ways to make these costs upfront to each user. Current Government research into this area (MoT 2002) may provide some useful information, although it is notable that it is only examining motorised road/rail modes and not walking or cycling.

4.4   The unwillingness of people to change habits

There is often a concern (particularly by those who are democratically elected) about pushing too hard to force people to change their travel behaviour. Yet, as has been pointed out above, if these habits are causing an unacceptable cost to society, then (ethically speaking) people must be made to either wear these costs or change their patterns.

But it doesn't have to be as grim as this though. A lot of people's existing travel patterns are due to inertia, rather than a specific dislike of alternative options. Misconceptions about the relative convenience, cost, and other attributes of different modes can also colour people's views. As the TravelSmart programme demonstrated, relatively moderate encouragement and provision of information and support can be sufficient to get travellers to try something new. It may be as simple as learning how often buses go near their home. And in many cases they get a pleasant surprise, e.g.

public transport allows them time to read during their travel, travelling by bike doesn' t seem quite so slow or dangerous as imagined, etc. Alternative travel habits won' t be appropriate for everyone (or every time), but it usually only requires some to switch some of the time to make a difference.

4.5   The relative unimportance of walking and cycling for long-distance corridors

Assuming that public transport even gets a look in, many supposedly "multi-modal" transportation strategies fail to look beyond two-dimensional thinking of road vs bus/rail and consider the contribution that walking and cycling can make to wider metropolitan planning issues. At first glance, this may seem realistic for long-distance journeys, but it fails to account for three important points. Firstly, the very fact that land use planning will continue to allow for further long-distance growth needs to be questioned. Strategies should be concentrating on how to encourage growth mostly in short-distance trips, which can be accommodated by walking and cycling. Secondly, such strategies fail to consider the importance of walking and cycling to link with public transport over long distances. Unlike motor vehicles, public transport cannot get to everyone' s doorstep, but "walk' n' ride" and "bike' n' ride" can. Finally, in many cases, longer-distance travellers are being held up along corridors by a lot of short-distance travellers also using the same routes. Proactive walking and cycling programmes can encourage some of these short trips to made using other means, clearing the existing road for those longer-distance travellers who may have fewer options.

4.6   The benefits of improved motor vehicle technologies

Motor companies have made considerable strides to improve the efficiency of their engines (in terms of petrol/diesel consumption and emission outputs) as well as looking at the use of alternative fuel sources. While this is good news for the environmental effects of motor vehicles and the likely depletion of fuel reserves, it is only a relatively small contribution to the transportation problem. For example, a 10% reduction in fuel use and emissions might seem like quite a significant advance; yet simply opting to use a different mode to travel to work for just one day a week could produce possibly a 20% reduction. There is some evidence also to suggest that any efficiencies gained by lower fuel consumption are somewhat negated by an increase in distances travelled, as a result of the cheaper running costs. A better motor vehicle also fails to reduce two key problems with their use: congestion and collisions. It doesn' t really matter whether you drive a petrol, electric or solar powered car, you' ll still be stuck in traffic and you' re just as likely to run over someone.

5.   Applicability to New Zealand

Many European examples of sustainable transportation are considered not directly applicable to New Zealand, because of the different layout and development of their towns. Certainly, many old towns established hundreds (if not thousands) of years ago often feature relatively narrow thoroughfares designed for walking and the horse and cart, compared with the wide corridors of cities from the last century. Likewise, successful strategies used in non-Western places like Curitiba (Brazil) and Singapore are often dismissed because of the completely different social and cultural outlooks (although with increasing globalisation, that may become less relevant).

However, three of the four overseas examples given (York excluded) are relatively modern Western settlements, developed largely in the 20th century under traditional auto-centric transport planning. And historically, none of them were noted for already having a high non-motorist base to start from. It is fair to acknowledge that they have encountered their own implementation difficulties along the way and are far from being model "sustainable" cities (yet), but these examples should provide the most relevant templates from which to apply similar strategies in New Zealand. Other comparable settlements such as Seattle (US), Nottingham (UK), Oxford (UK) and Hamilton (Canada) should also be studied for further guidance and ideas.

That is not to say that examples from other parts of the world should be ignored because of major perceived differences in society. It will require identifying what constraints may prevent the same success here and either addressing these somehow or accepting that the "bang for buck" may be not as great here. An analogy might be to consider how typical New Zealand cuisine has diversified

over the past few decades to embrace a whole range of global cooking styles (but we might choose to tone down some of the spicier dishes!).

It should be pointed out that already there are a number of trials underway in New Zealand of many of the ideas featured above (and others). For example:

- Environment Canterbury has trialled business travel plans at three large Christchurch organisations. At Christchurch Polytechnic, for example, there was an 11% reduction in car driver trips to and from work in the last year. A household individualised marketing trial of 500 households in East Papanui (similar to Perth' s TravelSmart programme) has also reaped significant increases in people walking, cycling or using buses. A similar personalised marketing trial is also currently in progress in two North Shore (Auckland) suburbs.

- The Auckland Regional Council ran a promotion at several Auckland District Health Board sites, to assist hospital staff individually with their specific public transport needs. Formal evaluation found that 66% of hospital staff that gave public transport a go during the promotion have continued to use public transport.

- Lincoln University has been successfully running a "rideshare" scheme since 1998, using customised software developed by EECA. It has reduced the number of staff and students driving alone to the Lincoln campus by 12% since its inception. Similar Rideshare schemes have since been set up at Canterbury and Otago universities.

- North Shore City has started a "Travelwise to Schools" programme to help schools adopt and implement travel plans. These will focus on improving walking and cycling networks to and from school and raise awareness of local road safety issues.

- Christchurch bus patronage has increased a remarkable 50% in the past three years, as a result of various initiatives including super-low floor buses, a new central "Bus Exchange", the introduction of the "Orbiter" ring route service, and electronic "next bus" information at stops.

- Dozens of "walking school buses" are now operating in cities and towns around the country. A walking school bus involves a group of parents rostered to walk with a group of children to and from school. Children are picked up and dropped off at specific stops on a designated route by parent volunteers who act as ' drivers' . Recent research by Auckland Regional Council shows that as a result there are nearly 700 fewer car trips each day from 39 schools in that region alone.

While these initiatives are very laudable, they have tended to depend on the motivation of individual councils or organisations to give them a go. As a result, the programmes are very fragmented at both a local and national level, and there are many areas that are missing out on these opportunities because of insufficient promotion (or support) by local politicians, transport planners or the public. Certainly, they have generally not been seen as "core" policies of the relevant district transportation strategies, merely minor "optional extras". This seems odd, given the relative "return on investment" that many of these can provide, for much less than the cost of a new road.

Compared with their overseas counterparts, the New Zealand transportation strategies are quite notable for their lack of stated conviction about their aims. There is more likely to be talk of a "balanced" or "integrated" transport system, rather than an explicit statement that says *"we need to reduce the proportion and number of motor vehicle trips"*. Yet the latter policy is needed to realistically achieve the first. Trying to provide for more motor vehicles *and* providing for alternative modes at the same is not likely to result in a significant change in past travel behaviour. Why would you switch to using the brand new train service (or cycleway) if your council has also just "upgraded" your existing motorway?

When trying to pin down the reasons for the current inertia on sustainable transport, it' s easy to start playing the blame game. Politicians say that the public are "not ready" for such initiatives. The public feel that the politicians are scared from doing anything that might upset voters (our relatively short-term electoral cycles doesn' t help either). The transportation staff in the middle might get blamed for only producing "traditional" strategies and projects, while some of the more "enlightened" may feel that the public and politicians alike are not sufficiently knowledgeable on

the likely benefits. Interestingly, some overseas studies (e.g. Glazebrook 1999) have found that the respective groups tend to *underestimate* the relative support for alternative transport solutions by the other groups, with their own stated level of support invariably being higher. If the respective parties could perhaps see past these preconceived notions, there may actually be a surprisingly high level of agreement on encouraging truly sustainable transport.

6.   Some final remarks

To wrap this up, I offer a few final observations and recommendations:

- Many studies have found that to get effective modal shift, there must be both incentives and disincentives for existing motorists, i.e. "carrots and sticks". It may be reasonable (and usually more politically acceptable) to provide the carrots first (i.e. better alternative travel options), but in practice it is often the sticks that have the greatest effect, and local research has demonstrated this too (O' Fallon *et al* 2002). **We need to get more determined about using tools such as transport pricing, and traffic/parking restrictions if we want to achieve desired change.**

- It has often been variously estimated that traffic congestion on Auckland's "incomplete" roading network costs the country in excess of $750m a year in lost earnings (as an aside, when will the roading network be considered totally "complete"?). Of course, using the standard Transfund valuations, the costs of road injuries and fatalities to the country can be estimated at roughly $2 billion per year. And yet, when we compare planned congestion-relief funding with road safety funding for the country... safety affects *all* transport users in New Zealand, congestion only affects relatively few. **Greater funding and priority for the improved safety of all transport users must be provided.**

- Cities don' t have to be particularly big or congested before they start implementing sustainable transportation policies. Indeed, it is probably easier if these habits are instituted at an earlier stage in a city' s development; it is clear that the strategies of the two larger overseas areas presented (Perth & Portland) are still more "auto-centric" than the smaller two. A reasonable analogy might be that of trying to instil good behaviours in children, so that any bad conduct doesn' t manifest itself into something more serious when they are older. Two of the example cities given above are only about the size of Hamilton or Dunedin. **There is no reason why all of our cities of at least 30,000 people shouldn't start thinking seriously about where they want to be a generation from now.**

- One factor that has been touched on is the important link between land-use planning and transport planning. The perceived importance of that link seems to vary considerably in New Zealand between jurisdictions, while at the top (central government) the link seems almost totally absent. It is perhaps significant that a number of countries and states are moving to creating a "Department of Infrastructure and Planning", or similar-such title, to acknowledge that transport can' t be planned in isolation from the other disciplines. Meanwhile in New Zealand, we still have just a Ministry of Transport... **Central and Regional Government need to investigate the merits of more centralised urban planning (again).**

- A comment I have heard when suggesting a greater weight on non-motor vehicle options is that *"70% of travellers can' t be wrong"* (or whatever the particular proportion of car users is in that place). This seems to miss the point that the very reason for such a high proportion of people using private motor vehicles today has been the ongoing preference to providing for them over the past 50 years, to the detriment of the other modes. It didn' t just happen overnight when the motor vehicle first appeared. **Transportation planning must start focusing more on desired future outcomes and less on our existing situations, however disparate the two are.**

My final plea is for **considerably greater recognition of the use of walking, cycling, and travel demand management in urban transportation strategies.** It is very difficult to achieve much with these tools when they are only "tacked on" to core policies for roading and public transport (and just as importantly, land-use planning policies too). Instead, our transportation strategies

should start by asking *"How can people walk/cycle to their destinations? Do people need to make the trip at all?"* before considering other transport options.

It's been said that solving traffic congestion by building more roads is rather like curing obesity by buying larger trousers. Let's hope that this country's transportation and political leaders start to see that getting out for a walk (or bike ride) could be the answer to both problems.

References

- Auckland Regional Council (ARC) 2002. *Draft Regional Land Transport Strategy Update*. Sep 2002, Auckland.

- Cairns S, Hass-Klau C., Goodwin P. 1998. *Traffic Impact of Highway Capacity Reductions: Assessment of the Evidence*. Landor Publishing, London, UK.

- City of Boulder 1996. *Transportation Master Plan 1989 - 1996 Update*. Boulder, CO, US.

- City of Boulder 2001. *Transportation Master Plan Update 2001: Summary*. Boulder, CO, US.

- City of Portland 2001. *Portland Transportation System Plan*. Portland, OR, US.

- City of York Council 2001. *Policies into Action: Local Transport Plan 2001/02-2005/06 - Executive Summary*. York, UK.

- Eastdor 2002. *Eastern Corridor Strategy Study: Final Report*. Aug 2002, Auckland.

- Glazebrook G. 1999. *Community Values in Transport*. Warren Centre for Advanced Engineering, Sydney University, Sydney, NSW, Australia.

- Hamilton City Council (HCC) 1999. *Hamilton's Integrated Transport Strategy (HITS)* Jul 1999, Hamilton.

- McKay P. 2001. "Reinventing Our Wheels; How the continent's best transit works", in *The Ottawa Citizen*, Thu 31 May 2001, Ottawa, ONT, Canada.

- Metro Council 2000. *Regional Transportation Plan*. Portland, OR, US.

- (NZ) Ministry of Transport (MoT) 2002. *Surface Transport Costs and Charges Scoping Study for New Zealand: Terms of Reference*. Wellington.

- New Zealand Government 2002. *New Zealand Transport Strategy*. Dec 2002, Wellington.

- O'Fallon C., Sullivan C., Hensher D. 2002. *Understanding Underlying Constraints Affecting Decision-Making by Morning Car Commuters*. Working Paper ITS-WP-02-13, Aug 2002, Institute of Transport Studies, Sydney, NSW, Australia.

- Standing Advisory Committee on Trunk Road Appraisal (SACTRA) 1994. *Trunk Roads and the Generation of Traffic*. Report to (UK) Dept of Transport, Dec 1994, London, UK.

- SACTRA 1999. *Transport and the Economy*. Report to (UK) Dept of the Environment, Transport & the Regions, Oct 1999, London, UK.

- Transfund NZ 2003. *10 Year Financial Forecast*. Jun 2003, Wellington.

- Transit NZ & Christchurch City Council (TNZ/CCC) 2002. *Christchurch Northern Roading Options Scoping Study: Final Report*. Nov 2002, Christchurch.

- Wellington Regional Council (WRC) 2000. *Western Corridor Implementation Plan*. Wellington.

- WRC 2002. *Hutt Corridor Draft Implementation Plan*. Wellington.

- Western Australia Department of Transport (WADoT) 1995. *Perth Metropolitan Transport Strategy 1995-2029*. Perth, WA, Australia.

- WADoT 2000. *TravelSmart: A Cost Effective Contribution to Transport Infrastructure*. Aug 2000, Perth, WA, Australia.