

## **Examining the Emperor's New Clothes – Myths and Truths for Sustainable Transportation**

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### **ABSTRACT**

Traditionally many local transportation strategies and policies in New Zealand have perpetuated a number of philosophies that seem to hinder truly sustainable transportation. An examination of similar overseas strategies and policies (particularly where sustainable transportation concepts have been around for some time) shows up quite significant differences in thinking.

A number of these differences seem to boil down to the acceptance or otherwise of various beliefs about transportation. These include:

- The ability to “build our way out of traffic congestion” with greater road construction
- The inevitability of future traffic growth, particularly with growing car ownership
- The causal link between transport (roading) improvements and economic growth
- The unwillingness of people to change existing travel habits
- The relative unimportance of walking, cycling and travel demand management in making significant changes to our travel patterns and reducing congestion
- The ability for improved motor vehicle technologies to assist long-term sustainability
- The consequences to businesses of restricting or removing motor traffic and parking on city streets
- The benefits of travel time savings from new or upgraded roads
- Trying to provide improved facilities and accessibility for all transport modes

This paper will examine these (and other) axioms and review the research and practical evidence behind them to assess their validity. The findings reveal some flaws in the conventional thinking and some “myths”. In some cases, it's not so much that the beliefs are technically incorrect; it's just that the wrong perspective is being applied. Suggestions for new paradigms to achieve sustainable transportation in New Zealand will also be discussed.

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## 1. INTRODUCTION

When it comes to land transport in New Zealand, we live in “interesting” times (whether that is a blessing or a curse may depend on your perspective somewhat). Recent central government initiatives like the NZ Transport Strategy (NZ Government 2002) and Land Transport Management Act (NZ Govt 2003) have certainly changed the framework under which land transport planning is now to be based.

The question I have is whether this will translate into a *truly* different (and indeed, more sustainable) approach to transport planning. The most recent National Land Transport Programme and 10-year Financial Forecast (Transfund 2004) illustrates this conundrum. Despite much rhetoric at the time about the increasingly multi-modal focus being taken, the fact remains that over the next ten years, new road construction is currently expected to outweigh the combined funding for public transport, walking/cycling, travel demand management, and alternatives to roading by more than two-to-one (setting aside road maintenance, which would more than double again the funding to roads). Perhaps more worryingly, ten years out in 2013/14 the relative proportions that year are in fact *three*-to-one.

It has to be acknowledged that many walking/cycling facilities are also funded as part of general roading projects; however the amounts are relatively small and certainly won't change the above proportions. One thing not considered above that could significantly change these distributions is the yet-to-be-finalised regionally distributed funding. If, for example, all of this funding went on non-roading alternatives, then relative parity would be attained. If, as I suspect, it is mainly used as a “bonus roading” fund, then the existing disparity grows wider.

### 1.1 RESOLVING SOME TRANSPORTATION TRUTHS AND MYTHS

So why is this approach continuing in New Zealand? In a paper I presented last year (Koorey 2003), I suggested that traditionally many local transportation strategies and policies in New Zealand have perpetuated a number of philosophies that seem to hinder truly sustainable transportation. An examination of similar overseas strategies and policies (particularly where sustainable transportation concepts have been around for some time) shows up quite significant differences in thinking.

A number of these differences seem to boil down to the acceptance or otherwise of various beliefs about transportation. Some of these are discussed below, although there are others. Their acceptance by many of our transport planners/practitioners, elected politicians, and (to a lesser degree) the general public has limited the degree of change to traditional transport planning.

My personal view is that many of these beliefs are in fact “myths”, for want of a better term. But why should my view be any more valid than someone else's? Therefore the aim of this paper is to try to find some evidence to assert or refute some of these beliefs. On balance this may indicate that a change in conventional thinking is appropriate in many cases.

## 2. EVIDENCE FOR VARIOUS TRANSPORTATION BELIEFS

The following sections will outline a number of common transportation assertions I have encountered, and try to examine the relevant evidence for each. The list of beliefs is by no means exhaustive, but does cover a number of key planks that we appear to pin much of our transport planning on. Similar debates, for example, could be entertained on whether cars do provide us with increased “freedom” and mobility, the amount of economic subsidisation by various transport modes, or the benefits of high-occupancy vehicle lanes.

It is difficult (and impractical) to cite every piece of research or analysis on this topic, without this paper becoming a full-blown thesis. In many cases, I have instead paraphrased my interpretation of a number of related papers. Suffice to say that the aim has been to illustrate that many commonly held beliefs about transportation planning are very much open to challenge.

### 2.1 THE ABILITY TO “BUILD OUR WAY OUT OF TRAFFIC CONGESTION” WITH GREATER ROAD CONSTRUCTION

The classic traditional response to increasing traffic volumes and resulting congestion has been to assume that, by providing some additional road capacity, congestion will be reduced resulting in improved travel times. In the short-term, this result is patently evident; however the key question must be: will this result in a better solution long-term?

The best long-running analysis of congestion trends in the United States is the Annual Urban Mobility Report published by the Texas Transportation Institute (TTI 2003). Over more than 20 years, traffic congestion has been measured in 75 urban areas, together with measures of investment in roading and public transportation.

The most recent TTI report looked at the question “*can more road space reduce congestion growth?*” The analysis showed that additional roadways do reduce the rate of increase in the amount of time it takes travellers to make trips in congested periods. However they also noted that the growth in facilities has to be at a rate *slightly greater* than travel growth in order to maintain constant travel times, if additional roads are the only solution used to address mobility concerns. Only five of the 75 areas studied had actually added new road capacity (lane-miles) at about the same rate as traffic growth (or within 10%). Even in these areas there had been an 80% increase in peak-hour travel times.

The apparent futility of road-building exercises is demonstrated by a study covering thirty California counties between 1973 and 1990, which found that, for every 10% increase in roadway capacity, traffic increased 9% within four years’ time (Hansen 1995).

A common stated justification for increased road capacity provision is to reduce congestion. Yet, human nature often dictates that, in a congested situation, any perceived improvement in travel times will be quickly swallowed up by new, longer, or rescheduled trips to achieve an acceptable “equilibrium”

again. This potential for induced traffic as a result of new road construction, has been demonstrated by SACTRA (1994) and other reports. As Duany *et al* (2000) stated:

*“The question is not how many lanes must be built to ease congestion but how many lanes of congestion would you want?”*

Not surprisingly, efforts to provide capacity or service improvements for other modes such as public transport and walking/cycling can also fuel (more desirable) induced traffic growth in these modes. The explosive recent growth of bus patronage in Christchurch through new services, faster ticketing, and increased frequencies is testament to that. And studies such as Dill & Carr (2003) have demonstrated that commuters will use cycle lanes if they are provided.

An interesting consideration that is not always appreciated is the suggestion that the delays involved while construction of major roading projects take place can be as great as the predicted travel time savings from the completed facility. STPP (1999) for example quoted case studies where commuters now using the road won't break even on the time they wasted during construction until 8-10 years after the project is completed, and even one case where the time lost will never be recouped.

**Conclusion: While new road capacity might provide some immediate relief (once construction delays have finished), it appears impossible to keep up in the long-term with the growth in traffic demand that this new capacity fuels.**

## 2.2 THE INEVITABILITY OF FUTURE TRAFFIC GROWTH

One notable finding that comes out of some of the above findings is that traffic growth has historically widely exceeded the growth in populations and car ownership/availability. Extrapolating this growth into the future has generally been seen as a *fait accompli* in transport planning studies, with no discussion about the validity or the merits of such a forecast. It is perhaps not surprising that this “demand-side” approach to transport planning inevitably results in a self-fulfilling prophecy.

There are however examples of cities, particularly in Europe, that have managed to produce a reduction in motor traffic growth. Freiburg in southwest Germany, with a population of about 200,000 is one such case (EAUE 2001). Between 1976 and 1992 the percentage of trips by car declined from 60% to 46%. This is despite the growing number of inhabitants (an increase of 25,000); the absolute number of car entrances to the city centre fell from 236,000 to 232,000. This was achieved through a combination of measures to restrict motor vehicle use and promote public transport, walking and cycling.

It's not just in Europe either; there are even examples in the car-centric USA. In Boulder, Colorado for example, the city's Transportation Master Plan saw single-occupant vehicle use go from 47% of trips in 1990 to 40% in 1998 (City of Boulder 2001). Despite increased growth in population and regional travel, the city achieved such success through the use of fixed city limits, completing

the pedestrian/bike network before adding new roads, Travel Demand Management (TDM) strategies, and public transport partnerships with major organisations such as the University of Colorado and the Chamber of Commerce.

Most of the traffic growth is not due to population or car ownership increases; rather it reflects an increasing propensity to make more trips of longer average distances. As was outlined in the previous section, this effect often comes about as a result of increased road construction and more dispersed land use. Therefore, by tackling these issues, much of the traffic growth problem disappears. Otherwise, increased traffic capacity makes longer commutes less burdensome and, as a result, people are willing to live farther and farther from their workplace and other destinations.

The logical corollary to this induced traffic is that, by removing road capacity, some motor traffic can be made to "disappear" and a number of studies have demonstrated this effect (e.g. Cairns *et al* 1998). In one study (Kruse 1998), an analysis of sixty road closures worldwide found that 20% to 60% of driving trips disappeared rather than materialising elsewhere. Locally, there are examples in Dunedin and Nelson of four-lane roads that have been converted back to two-lane roads, without major disturbance.

A lot of change however can be effected simply by changes in existing travel behaviour. At a local level, many travel plans by businesses and other large organisations have seen car use by staff and other visitors drop dramatically; often the equivalent of many years' traffic growth. For example, Christchurch City Council's "Green Easy Travel" Plan has seen staff journeys to work by car drop by more than 20% (Woods *pers.comm*). It is therefore not unreasonable to expect that similar efforts across a wider cross-section of organisations and communities throughout a city could halt traffic growth in its tracks.

Increased car ownership/availability also 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.

**Conclusion: Much of the predicted traffic growth is driven by additional road capacity and subsequent dispersed land use; efforts to reverse these are likely to be quite effective. Concerted efforts to change travel behaviour can limit any remaining growth.**

### 2.3 THE CAUSAL LINK BETWEEN TRANSPORT (ROADING) 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 2003 Road Traffic Reduction Bill



introduced to New Zealand Parliament), is seen by many 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.

Investment in other travel modes may in fact be more beneficial. In another study (Aschauer & Campbell 1991), the economic benefits generated by building highways were shown to be less than half that of the benefits generated by public transport spending.

It is also likely that targeting of particular trip purposes is required to get optimal use of our transport system. For example, 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". To quote T&E (2001):

*"We should view transport like other inputs to our growing economy by ensuring we use as little as possible for as great a benefit as possible, rather than simply trying to use ever more and more transport without regard to how efficient it is. We need to be as efficient with its use as we are with resource consumption, energy use, or labour productivity."*

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 has begun local research into this (Ballingall *et al* 2003).

**Conclusion: While roading improvements may contribute some assistance to economic growth, the causal effect is not well established. Equally, it may be that other transport measures, such as improvements to other modes or traffic reduction policies can result in similar or greater positive effects on the economy.**

## 2.4 THE UNWILLINGNESS OF PEOPLE TO CHANGE EXISTING TRAVEL 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, in the first instance, if these habits are causing an unacceptable cost to society, then (ethically speaking) people should 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. 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.

In Western Australia, the "TravelSmart" programme has already found significant success at a suburban scale (WADoT 2000), and is being replicated elsewhere including New Zealand. 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. 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).

Similar more recent schemes have been trialled in Christchurch under the "Go Smarter" banner. Three trial business plans in Christchurch saw cycling use by staff increase by 23% overall, while a community programme saw a 5% decrease in car driver trips by residents, with corresponding increases in cycling, ride-share, and bus use (Blyleven 2003).



When it comes to other sustainable transport measures, some reluctance is often shown by decision-makers and practitioners alike. There is often a view that the public are "not ready" for such initiatives (and often many of the public feel the same towards the other parties). 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. Blessington (1994) quotes a survey of Europeans in 13 different countries which showed that 84% of the public and 85% of politicians supported investment in public transport; however, only 49% of politicians believed that the public agreed with them.

It is interesting that, in many of our current wrangles over changing travel patterns, the politically-sensitive spectre of people being "forced out of cars" is often raised by traditionalists. Yet many studies often find that people would like to use other travel means (particularly walking & cycling), but feel threatened by traffic volumes and/or speeds and a lack of safe facilities. For example, surveys of schoolchildren and their families in Christchurch (CCC 1999) found that, although 53% of children travelled to school by car only 29% want to, preferring to use other means such as walking and cycling. An alternative take on the situation therefore would be that, to date, people have been *forced into* cars. Some restrictions on the use of motor vehicles may be necessary to undo this and return some level of priority to other modes as they may have had in the past.

**Conclusion: There are many relatively easy methods available to give people more information and motivation for using alternative travel options. The desire by people to see more effort go into sustainable transportation shouldn't be underestimated either by decision-makers or practitioners.**

## 2.5 THE RELATIVE UNIMPORTANCE OF WALKING, CYCLING AND TRAVEL DEMAND MANAGEMENT IN MAKING SIGNIFICANT CHANGES TO OUR TRAVEL PATTERNS AND REDUCING CONGESTION

Despite the potential change figures quoted above, there still seems to be little recognition of the use of walking, cycling, and travel demand management in NZ transportation strategies. The belief continues that more roading and, to a lesser extent, better public transport are the key weapons in tackling traffic congestion, with the others merely as "add-ons".

It is important first to recognise just how much walking and cycling already goes on in New Zealand (LTSA 2000). Only slightly fewer cycle trips are made than by public transport (both about 2-3% of all trips), while walking makes up 19% of all trips. In that context, it is interesting how much funding is invested into relatively expensive public transport provision, compared with funding for walking and cycling; presumably additional investment in the latter two would be more cost-effective.

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 not just localised transport but wider metropolitan planning issues also. 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 encourage 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 be made using other means, clearing the existing road for those longer-distance travellers who may have fewer options.

Demand management and travel behaviour approaches also seem to be under-rated. As the previous sections illustrated, these measures can be exceptionally effective in producing travel change. They can also be very cost-effective too. A review of the financial impacts of the TravelSmart programme in Western Australia (Ker 2002) found that returns to the State (due to public transport revenue, health service savings, road cost reductions, etc) were 3.1 to 4.7 times the initial investment over a 25 year period. A wider socio-economic evaluation, including other social and environmental benefits likely to accrue, found a benefit-cost ratio over the same period of about 77:1.

However, 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, tacked onto 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.

**Conclusion: Given their relative cost-effectiveness and long-term sustainability, walking/cycling and demand management strategies should form the basis of our transportation programmes. Public transport and road improvements should be the add-ons to these, not the other way around.**

## 2.6 THE ABILITY FOR IMPROVED MOTOR VEHICLE TECHNOLOGIES TO ASSIST LONG-TERM SUSTAINABILITY

Over the decades, 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. This has often been used as reason not to get worried about the long-term viability of motor vehicles. 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.

Between 1975 and 1991, for example, the fuel economy of the average new car in the U.S. improved by roughly 76% (CETS 1992); of interest however is the fact that most of these gains were made by the mid-80's, with later figures

being stagnant. More recent data (NHTSA 2004) also suggests that any gains in fuel economy are being nullified by the growth in larger vehicle markets such as SUVs. The wider introduction of hybrid (petrol/electric) vehicles looks set to make significant inroads again into this ongoing challenge.

As discussed in previous sections, there is considerable evidence also to suggest that any efficiencies gained by lower fuel consumption are somewhat negated by an increase in distances travelled (partly as a result of cheaper running costs too). Certainly, national fuel consumption continues to grow dramatically.

A better motor vehicle engine also fails to reduce two key problems with their use: congestion and safety. 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. In the latter case there has been some work on features like truck under-run protection and "pedestrian-friendly" front bonnets, but they don't fully address the problem of minimising these collisions in the first place.

It is important to remember too that opting for modes like walking and cycling does away completely with the need for minimising fuel use or emissions – they don't have either (if you discount a bit of harder breathing).

**Conclusion: The improvements in engine technology have made for a cleaner, cheaper vehicle; but this is only further fuelling demand for more travel. It also does little to resolve congestion and safety issues.**

## **2.7 THE CONSEQUENCES TO BUSINESSES OF RESTRICTING OR REMOVING MOTOR TRAFFIC AND PARKING ON CITY STREETS**

Somewhat intrinsically linked to the previously-mentioned "roading versus economy" argument is the local manifestation of this for businesses in towns and cities. It seems that any proposal to remove or restrict traffic (be it through removal of parking, traffic management, or ultimately pedestrianisation) is met with cries of protest from local businesses that such moves will harm their trade.

Yet, numerous studies have found that such moves, when well planned, are likely to produce an increase in trade. T&E (2001) quotes a study that indicates that a sustainable transport approach benefits trade in German towns. Of the 38 cities studied, 14 had above average retail growth. Of these 14, 10 had below average provision of infrastructure for the car.

A study looking at pedestrianisation in German and British cities (Hass-Klau 1993) concluded that not only could one expect a substantial increase in pedestrian numbers after motor traffic had been excluded, but retail turnover could be expected to increase compared with the turnover in similar shopping areas that had not been pedestrianised. To quote from Hass-Klau:

*"It seems to be a law of nature that retailers will resist the implementation of pedestrianisation and traffic calming; this may be because they do not yet have information networks from which they can learn about other towns"*

*experiences. However, they virtually never campaign for the abandonment of a scheme once it has come into operation. It is notable that, once a scheme has been put in place, traders are often the main people to voice a desire to extend its boundaries or period of operation.”*

While on a local scale, there *could* be an immediate reduction in passing trade by motorists, this argument seems to overlook a number of points:

- Generally people's demand for goods and services do not change with changes in accessibility; people still need to eat, wear clothes, see a doctor, and so on. What *may* change is where they obtain these things, but the economy of a community as a whole is not likely to change. Some businesses may benefit, some may lose out.
- Often people will continue to go to the same destination for goods and services, even if their mode of travel may change. For example, people may be working in nearby areas, so they are still likely to go to the same businesses in their breaks. Specialist or niche businesses are also likely to continue to receive existing custom by virtue of what they provide. And for central city areas, there are often additional attractions (e.g. entertainment, “atmosphere”) that supplement people's reasons for wanting to visit.
- Moves to remove or restrict traffic are usually done to provide improved facilities or service for other modes and/or to improve the streetscape. These effects are likely to see an increase in people arriving using these modes, and an increase in people generally because of the enhanced surroundings. Many people are in fact turned off by shopping environments in busy traffic streets.

**Conclusion: The doomsayers in business tend to be rather overstated; in many cases, improvements for non-motorist traffic and the street environment can produce greater trade. Some types of businesses could lose out, but no doubt they can find a more suitable location and another niche will step in to take advantage of the new environment.**

## **2.8 THE BENEFITS OF TRAVEL TIME SAVINGS FROM NEW OR UPGRADED ROADS**

Usually the greatest justification used for new road construction in congested areas is the savings in travel time by future motorists. Even though the figures may often only amount to savings of a few seconds per motorist, the sheer weight of traffic volumes, now and in the future, invariably result in significant monetary benefits being calculated.

This approach pre-supposes that people value having some extra time to do something instead of travel. There is a growing weight of evidence however that suggests that the main thing people do with any savings is to travel further or make more trips (van Wee *et al* 2002). While this could be considered a valid benefit for people to attain, in terms of sustainable transport it clearly nullifies any aims to limit growth in travel (particularly by motorists).

This concept of a constant “travel time budget” (i.e. people tend to spend a fixed amount of time travelling each day) has been studied with interest for a couple of decades (John Allard and Frank Graham & Partners 1987). While an individual's travel time budget seems to depend on demographic and sociological parameters, progress in transportation (for example the advent of bicycles, trains, and motor vehicles) has not changed budgets considerably over time. One change may be a tendency to spend more time travelling for leisure rather than for business.

There is some evidence that constant travel time budgets also apply to the transportation of goods (Norberg-Hodge, 1994). By examining the connection between the improvement of transportation infrastructure and economic globalisation, it appears that as infrastructure is improved, goods are being shipped over longer distances. Again, this can have implications for sustainable transportation, as opposed to “produce and sell locally” policies.

The ramifications for project evaluation are significant. If additional travel mileage is generated to replace any travel time savings on individual trips, then, on a national basis, the costs of transport remain largely unchanged

Travel time concepts can also be flawed when we consider modal shifts and replace like trips with like. For example, encouraging people to walk or cycle instead of driving may appear to increase travel times. This however assumes that the same destinations will be pursued; in the long-term, a person may elect to shop or work closer to home, so that walking/cycling is more viable.

**Conclusion: Measuring travel time savings due to roading projects may give us a false picture if we don't account for the costs associated with additional (or longer) replacement trips generated also.**

## 2.9 TRYING TO PROVIDE IMPROVED FACILITIES AND ACCESSIBILITY FOR ALL TRANSPORT MODES

While the move in New Zealand to invest more planning and funding into non-motorised travel options is laudable, it is notable that invariably this has been in conjunction with continuing (if not greater) investment in road construction. While this may be a politically easier approach, the question must be asked whether this will achieve any significant change in travel behaviour.

Compared with their overseas counterparts, the New Zealand transportation strategies and policies 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 former aims. 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 expressway?

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). Therefore tools such as transport pricing, traffic/parking restrictions, and limited road capacity improvements are usually necessary if we want to achieve desired change.

One approach for example is to let some major roading projects be delayed by a few years to allow new alternative initiatives, implemented first, to compete fairly with the existing roading network. Some of the deferred road funding could also be used to speed up the rollout of other initiatives, whilst still allowing an overall saving in transport expenditure. It is easy to envisage that the success of the alternatives may reduce the need to provide the roading options, deferring them even further and allowing further alternative investment to be provided instead. Ultimately this "virtuous cycle" seems far more productive (and cost-effective) than the traditional one where road building feeds further traffic growth and vice versa.

**Conclusion: Parallel provision of more roading and alternative travel modes are unlikely to greatly change existing travel habits, especially when the funding remains significantly weighted towards the former. At least delaying road capacity improvements can give alternatives a chance to prove their worth.**

### 3. CONCLUSIONS

The above findings reveal some apparent flaws in the conventional thinking and what I would term "myths". In some cases, it's not so much that the beliefs are technically incorrect; it's just that the wrong perspective is being applied. For example: yes, motor vehicle technologies are constantly improving; however is this resulting in more sustainable transportation use? We need to apply new paradigms to achieve sustainable transportation in New Zealand.

I'm aware that in many cases there is also evidence refuting some of the above findings. Some of my "beliefs" may be considered myths by others. In a few cases, it may be difficult to ever resolve this one way or the other, given the inherent ambiguities in the particular assertion being contested. For others, while we can take a good look at evidence from overseas, it may also be prudent to do our own research and see whether these assertions also apply in New Zealand.

At the time of submitting of my abstract, the proposed title of this paper seemed a nice catchy way to attract the punters. So it appeared very serendipitous when, during my investigations, I found this quote from Whitelegg (1993) on the claims of economic benefits from roads:

*"There is simply no evidence of the claimed link between access [to roads] and employment or economic prosperity. **The emperor has no clothes.**"*



Clearly I'm not the first to question the received wisdom of our predecessors. The sheer weight of arguments and evidence I have come across in preparing this paper also tend to support this scepticism of the status quo. I would hope that we all can now try to apply these philosophies in our own transport planning activities.

#### 4. REFERENCES

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