

REDUCING THE NEED TO TRAVEL, WHAT ROLE FOR LAND USE PLANNING?

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ABSTRACT : Land Transport has developed 13 safe and sustainable trends against which to monitor progress towards a sustainable and safe land transport system. These trends will guide decision making over the coming years. One of the trends, development patterns of town and cities reduce the need for people to travel has shown that between 1989 and 2001 there has been an increase in the proportion of the population living in higher density areas although at the same time vehicle kilometres travelled has increased 50%.

The paper will draw on overseas experience supported by NZ examples to demonstrate how the location of community, recreational, educational, business and residential facilities in relation to each other, impacts on distance travelled. The illustrations will highlight how policy decisions in other sectors impact on the transport sector. Consequently, the importance of transport professionals becoming more actively involved in policy development at the strategic level across departments at central, regional and local government level can not be overemphasised. The paper will conclude by encouraging listeners to work more closely with other departments in their organisation to seek better outcomes for the transport sector.

Land Transport Trends

Under the Land Transport Management Act 2003, Land Transport NZ has statutory functions which include assisting and advising approved organisations in relation to the Authority's functions, duties and powers under the Act and the Land Transport Act 1998. Land Transport NZ's statutory functions include:

- to promote land transport sustainability in New Zealand;
- to prepare and adopt a land transport programme and a national land transport programme;
- to promote safe transport on land in New Zealand;
- to provide safety information and advice, and to foster appropriate information education programmes that promote its objective;
- to audit the performance of approved organisations in relation to activities approved by the Authority and the operation of the organisation's land transport disbursement account;
- to assist and advise approved organisations in relation to the Authority's functions, duties, and powers under this Act and the Land Transport Act 1998; and
- to fund research, education, and training activities and activity classes.

Land Transport NZ also has statutorily independent functions to:

- determine whether particular activities should be included in a national land transport programme; and
- approving activities.

Land Transport has developed 13 safe and sustainable trends which will guide decision making over the coming years. Land Transport NZ will know that progress is being made towards sustainable and safe land transport when the following trends occur:

- development patterns of towns and cities reduce the need for people to travel;
- development of towns and cities, design of networks, and operating rules provide a safe and convenient environment for walking, cycling and other personal travel options;
- more people choose active modes of transport;
- people drive in a way that uses less energy and is safe in the conditions;
- fatal and serious injury crashes reduce;
- people use private vehicles less at congested times;
- traffic flows more efficiently with greater reliability on the road network;
- availability and use of shared transport, passenger transport and services for the transport disadvantaged increases;
- the proportion of business and household expenditure on land transport reduces;
- the commercial and private vehicle fleets become more energy efficient, safer and have improved environmental performance;
- commercial transport operators adopt management practices that promote safety, use less energy and reduce emissions, noise and vibration;
- a higher proportion of freight is carried on rail and coastal shipping; and
- freight industry productivity improves.

The first two trends specifically relate to land use planning. Land Transport NZ first reported on these trends earlier this year. The analysis showed that only 4 of the desired trends were occurring, none of which related to land use planning.

In calculating the trends, the analysis looked at the mode choices that had been made and on the attitudes towards the use of private motor vehicles and public transport. In this context two possible

drivers of a reduction in the need to travel (by private motor vehicle) in New Zealand were examined. These were:

- o population and population density
- o the provision of public passenger transport infrastructure and services

The analysis found that population density was highest in the Auckland and Wellington urban areas, followed by Christchurch, Tauranga and Rotorua. In general, the more highly populated urban areas were also the most densely populated.¹



Figure 1: Population density in urban New Zealand, 2001²

¹ Statistics New Zealand. Census 2001

² Statistics New Zealand. Census 2001

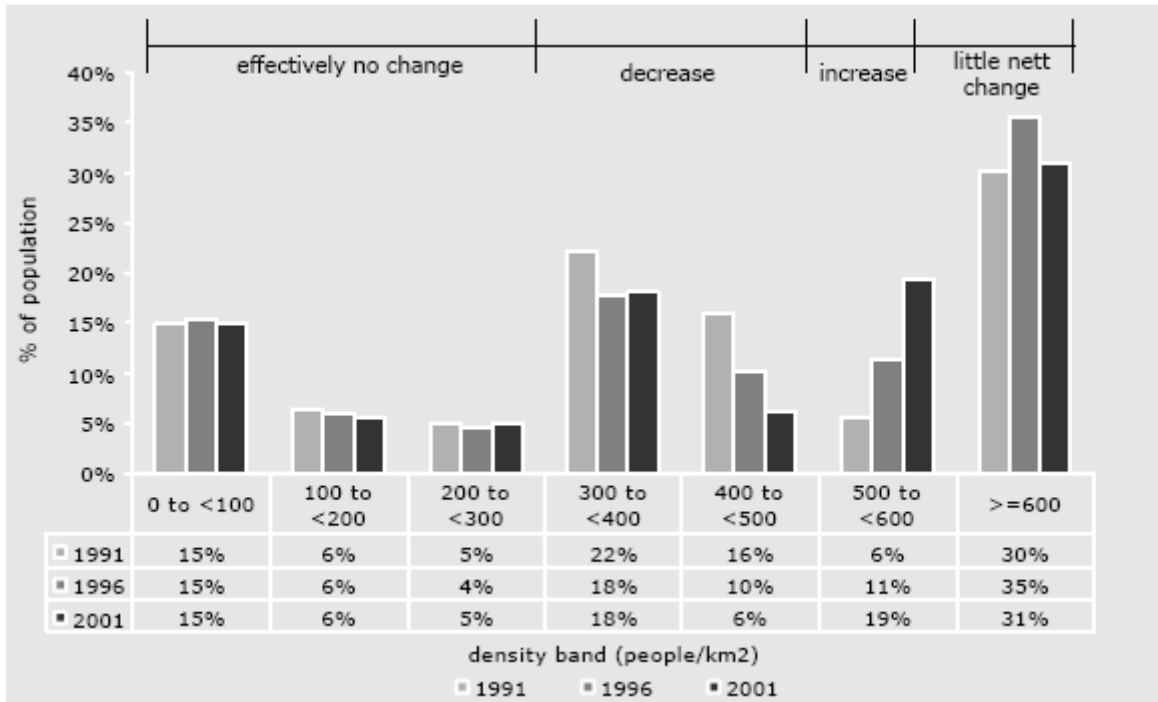


Figure 2 : Changes in population distribution³

Over the period 1991 to 2001 the changes in population distribution

- o were minor in those areas with a density of below 300 people/km²;
- o declined by 14% in those areas with a density of 300 to 500 people/km²;
- o increased by 13% in those areas with a density of 500-600 people/km²; and
- o were minor in those areas with a density of more than 600 people/km².

Based on this information it can be said that the more highly populated urban areas underwent further densification, whereas areas with lower populations tended toward declining population density.

density band (people/km ²)	average density (people/km ²)		mode of travel									
			did not travel		drove (incl. motorcycle)		passenger		active		bus/train	
	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001	1996	2001
0 to < 100	2.1	2.1	38%	37%	47%	50%	3%	3%	6%	5%	0%	1%
100 to < 200	158	163	18%	20%	61%	62%	6%	4%	11%	9%	1%	1%
200 to < 300	241	246	17%	18%	60%	62%	6%	6%	13%	10%	0%	1%
300 to < 400	339	341	17%	19%	58%	59%	7%	6%	13%	10%	2%	2%
400 to < 500	431	417	16%	18%	61%	61%	6%	4%	11%	12%	2%	2%
500 to < 600	540	552	16%	19%	62%	63%	5%	4%	10%	9%	3%	3%
>= 600	920	983	15%	17%	61%	60%	6%	5%	6%	6%	8%	8%

Figure 3 : Main means of travel to work by population density band⁴

³ Statistics New Zealand. Census 1991, 1996, 2001

⁴ Statistics New Zealand. Census 1996, 2001

The table shows that, from 1996 and 2001, travel-to-work choice

- o differences were greatest between urban and rural areas;
- o was not influenced by the density of urban population, except for active modes and bus/train; and
- o changed only slightly over the 5 year period.

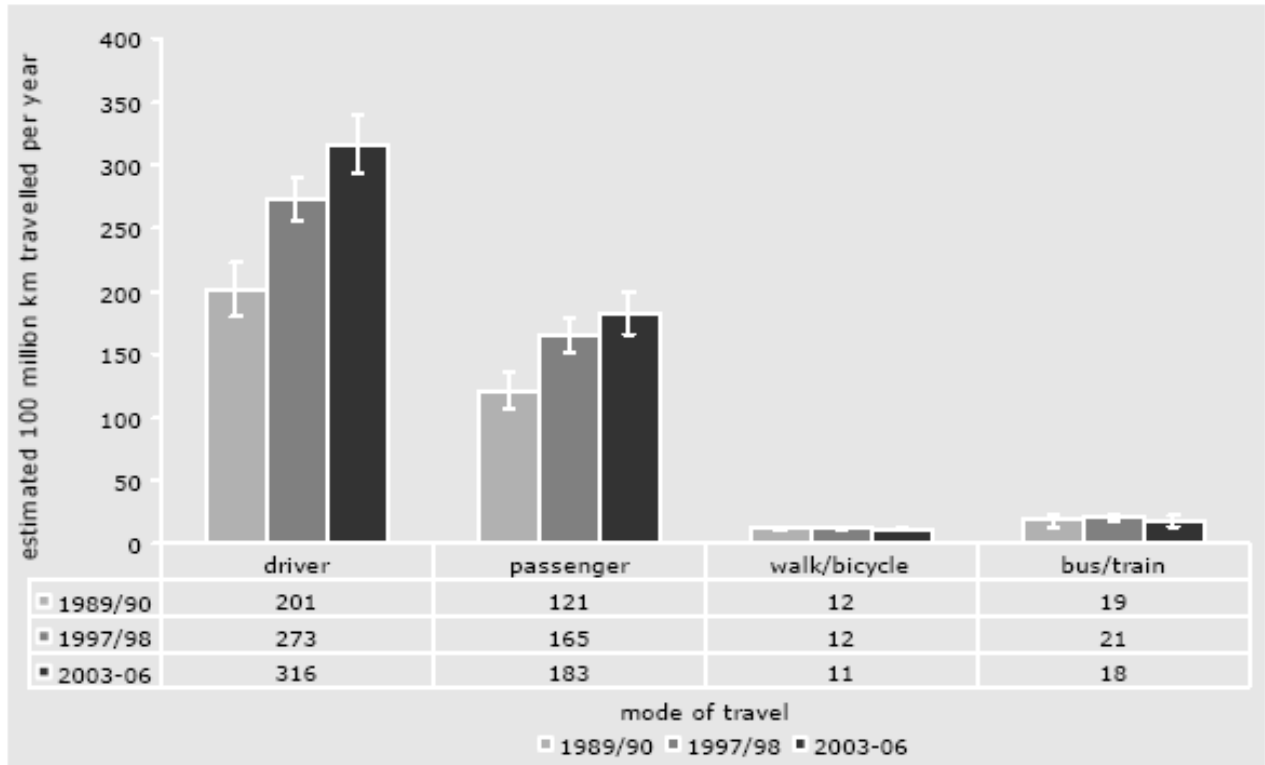


Figure 4 : Trends in mode share for all travel⁵

For the period 1989/90 to 2003-06 the “all travel” patterns may be summarised as follows:

- o 57% increase in vehicle kilometres travelled by drivers;
- o 51% increase in passenger kilometres travelled;
- o kilometres travelled by bus/train users reduced by about 5%; and
- o active modes walking/cycling kilometres have reduced by about 5%.

From this it was concluded that travel to work choice differences were greatest between urban and rural areas and that density of the urban area did influence active mode selection. However, there was a 5% decline in kilometres travelled using active modes and public passenger transport whilst at the same time there was a 50% increase in kilometres travelled using motor vehicles.

⁵ Ministry of Transport, New Zealand Household Travel Survey

Overseas research

In spring 2001, the UK Prime Minister asked the Social Exclusion Unit (SEU) of the Cabinet office to explore, and make recommendations to overcome, the problems experienced by people facing social exclusion in reaching work and key services.

This culminated in 2003 with the publishing of "Making the Connections: Final report on transport and social exclusion". In the conclusions it stated that:

- *people may not be able to access services as a result of social exclusion. For example, they may be restricted in their use of transport by low incomes, or because bus routes do not run to the right places. Age and disability can also stop people driving and using public transport.*
- *problems with transport provision and the location of services can reinforce social exclusion. They prevent people from accessing key local services or activities, such as jobs, learning, healthcare, food shopping or leisure. Problems can vary by type of area (for example urban or rural) and for different groups of people, such as disabled people, older people or families with children.*
- *historically, nobody has been responsible for ensuring that people can get to key services and employment sites. As a result, services have been developed with insufficient attention to accessibility. And too often accessibility has been seen as a problem for transport planners to solve, rather than one that concerns and can be influenced by other organisations, for example by locating, designing and delivering services so that they are easily and conveniently available.*⁶

The SEU report identified several areas where changes were needed to improve access to local facilities. Specifically they stated *"that land-use planning policies in the 1980s and early 1990s had allowed more dispersed patterns of development. These policies encouraged out-of-town shopping, leisure and office developments and low density housing. They also allowed the concentration of activities in larger units and the closure of local facilities. People with access to a car did not find this difficult. But people's travel needs became increasingly complex, and public transport did not adapt."*⁷

The report recommended that key to bringing about change was reducing the need to travel through more proactive land-use planning policies. It went on to recommend that such policies should promote appropriate developments in suitable places and that such policies should focus on shops, leisure facilities and offices in town centres and encourage more efficient use of land. Another recommendation put forward included that of complementary policies which would encourage "outreach, home and virtual delivery of services"⁸.

New Zealand Research

The Transport Sector Strategic Directions 2006-2009 published by the Ministry of Transport sought to identify the gaps in knowledge and barriers to achieving better integration within and between transport and land use planning and in March 2006 commenced the Integrated Approach to Planning project. The team for this project comprised representatives of the Ministry for the Environment, Ministry of Transport, Land Transport NZ, Transit NZ, Aviation Security Service, Civil Aviation Authority of New Zealand, Local Government New Zealand, Maritime New Zealand, Ontrack New Zealand Railways Corporation and Transport Accident Investigation Committee.

⁶ Making the Connections Social Exclusion Unit, UK Cabinet Office, 2003

⁷ Making the Connections Social Exclusion Unit, UK Cabinet Office, 2003

⁸ Making the Connections Social Exclusion Unit, UK Cabinet Office, 2003

The Integrated Approach to Planning study, which is still ongoing, consists of 3 phases and the first phase report has recently been released. In the report it states that “where significant improvements are needed...the country is well placed to take these steps and realise the benefits of an integrated approach to land-use and transport planning.”⁹

The assumption underlying the Integrated Approach to Planning project is that the performance in land use and transport planning is not as effective and efficient as it should be. The need to integrate transport and land use planning results from the governments’ drive for national sustainability and improved efficiency.

The report further identifies that inadequate integration leads to increased costs and results in lost opportunities to provide the best integrated systems. Further the lack of integration increases risks to existing infrastructure and consequently requires reverse sensitivity measures to be used. The consequence of this is seen through inefficient urban form (such as sprawl).

It is now acknowledged in New Zealand that integration for the transport sector needs to occur at three levels:

- integration between land use and transport;
- inter-modal integration; and
- institutional integration.

It is widely acknowledged that a range of views exists on the relationship between land use and transport. This debate typically focuses on whether transport infrastructure should serve land use and urban form, or whether transport infrastructure should shape the urban form and land use.

This debate raises important questions in relation to

- urban density, what is an appropriate level?
- rural and suburban sprawl, what level is sustainable?
- how should land use types be organised and what linkages should be provided between them?
- how appropriate are different transport modes for different circumstances?

The general principles that have emerged from the Integrated Approach to Planning Phase 1 work include the need to:

- take a long-term strategic planning view;
- recognise local and regional difference;
- minimise transport delays;
- minimise the effects of the transport system on adjacent land uses;
- avoid severance;
- increase land use intensities;
- ensure efficient land-use distribution;
- restrict sprawl at the urban limit;
- concentrate employment growth and high density development around public transport nodes;
- develop hierarchical systems and layouts for both land use and transport planning;
- provide choice for the population who need or wish to travel through options that do not use fuel inefficient modes;
- encourage cross agency working; and

⁹ Integrated Approach to Planning, Phase 1 Report. 2007

- o ensure costs are distributed equitably.

Land Transport NZ research

Legislation in New Zealand means that land use and transport issues are handled through three key Acts, namely Land Transport Management Act 2003, Local Government Act 2002 and the Resource Management Act 1991. Whilst there are common themes in regard to sustainability, there are no statutory requirements for approved organisations (including Regional Councils, Territorial Local Authorities and Transit NZ) to integrate the requirements under each of the Acts. However, the Acts do not prevent the integration of processes. The Integrated Approach to Planning project has also concluded this.

Traditionally as a funder of the land transport system Land Transport NZ and its predecessor Transfund have only become involved at the later planning stage (the right hand sector of the diagram). This is where the focus is on individual projects and the outcomes that these alone will achieve, sometimes this is difficult to measure, particularly where funding for 2km of cycle lane is requested.

The results of the safe and sustainable trend analysis together with the findings of Phase 1 of the Integrated Approach to Planning document and international research has provided significant evidence that transport sector needs to be involved earlier in the planning process if it is to increase the efficiency of the transport network.

This would require the transport sector to become involved in land use planning discussions. This is not to say that the transport sector should determine the appropriate location of different land uses but rather that different land use options in an area should be tested by the transport sector prior to the drafting of strategic policy documents to understand their implications.

Such information could then assist decision makers, together with the public, in making informed choices about what is the appropriate land use mix for their town or city or district. This would then be supported by information from the transport sector on the associated transport impacts of this option including the level of funding required to meet future infrastructure investment for each land use mix. In Figure 5 this is represented by the area on the left of the diagram, Land use planning (medium – long term).

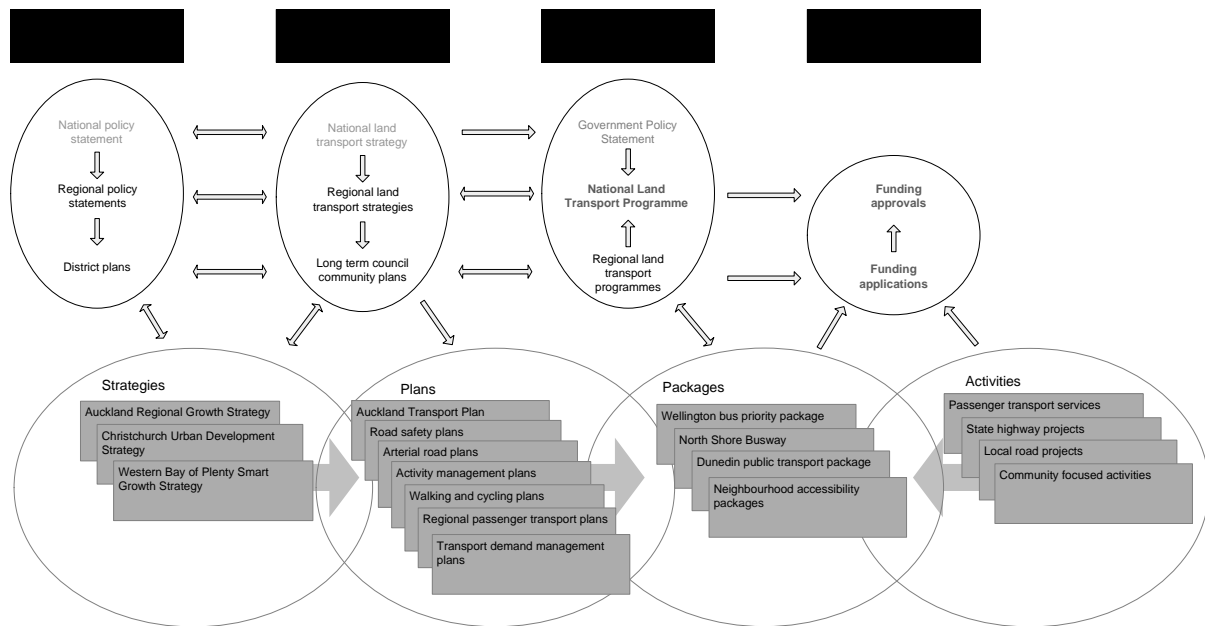


Figure 5 : An integrated approach to land transport planning¹⁰

In the UK as a result of the findings of the SEU report, the practice of accessibility planning was introduced to support funding applications for transport investment (both maintenance and new works). All councils are now required to provide evidence of how transport investment will improve the level of accessibility to key services and to demonstrate that all options, including changes to land use, to relocate shops, health, education and employment sites nearer to existing residential areas, in order to reduce the need to travel.

In seeking to define accessibility the authors of the SEU report simply ask a question: can people get to key services at reasonable cost, in reasonable time and with reasonable ease? Currently in New Zealand there is limited analysed data that is consistent between regions to answer such a question. Land Transport NZ has a project underway to develop a tool which could be used to assist regions to understand the levels of accessibility within their region. This would enable projects to be strategically identified and then packaged to target regional issues for all modes of transport. It is early days for this project and for the country in understanding what is meant by accessibility. However, it is just one of many tools that can be developed to better integrate land use and transport planning making decisions.

Land Transport NZ are now preparing guidelines for its staff, which it plans to make available to external organisations in the future which will provide guidance on how to deliver integration between modes, legislation and institutions. It will include examples from around New Zealand that illustrate good practice of these levels of integration. This project has representatives from the Ministry of Transport, Transit NZ and external advisors. Consultation with the Ministry for the Environment and Local Government New Zealand will occur over the coming months. The guidelines are another tool to aid the processes towards better integration of land use and transport

¹⁰ Land Transport NZ

planning with the purpose to deliver a more efficient and effective transport system that achieves the desired trends.

Statistics NZ reports that the 65+ age group will make up over one-quarter of New Zealand's population from the late 2030s, compared with 12 percent in 2005 and that the number of people aged 65+ in the labour force will treble from an estimated 38,000 in 2001 to 118,000 in 2026. The population of all regions, cities and districts is expected to be older in the future.

This shift in population make up will place additional and different demands on the transport network to that we experience today. If the lessons learnt from the SEU report are applied then an older population will seek to utilise local facilities that they can walk to or take the bus. However, such journeys will only be viable if the facilities they need to access are located in their local town or on a bus route. If facilities are centralized in major towns or only accessible by the motor vehicle then accessibility will reduce.

Conclusion

Traditionally transport planning has reacted to changes in land use. It is now recognised that this approach is not sustainable and that transport planners must actively engage with land use planners during the drafting and ongoing development of strategies and plans.

Engaging in this process can ensure that transport investment contributes positively to community planning and the design of our urban and rural towns and cities and further, that sustainable development control strategies can be put into place to improve modal choice and reduce the need for additional transport infrastructure.

It requires a different way of working, not additional work. Professionals working together towards the common objectives of the government and reinforced by their organisations objectives. However, if as a sector we are to achieve the land transport trends then we will need to effectively engage with planners, developers and other key service providers earlier to enable better informed decisions to be made that can contribute towards reducing the need to travel.

Finally, I would like to thank my colleagues in the Performance Monitoring Team at Land Transport NZ for presenting the facts. Also I would like to acknowledge the work of the Integrated Approach to Planning team.

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