

Selected international transport investment and funding frameworks and outcomes

FINAL REPORT

Commissioned by the Australian National Transport Secretariat
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Executive Summary

This report has been commissioned by the National Transport Secretariat to provide advice on international best practice in transport investment and funding. The report provides a detailed overview of the transport policy objectives of seven countries, their transport budgets, policy outcomes and identifies a number of issues and practical examples of transport investment methodologies and strategies. The seven countries are the USA, Canada, New Zealand, the UK, Denmark, Germany and the European Union. It is acknowledged that the European Union is not a country but it does have a very clear transport policy and approach to funding and investment which is relevant to the debate in Australia.

The research carried out for this project was directed by Professor John Whitelegg in the UK with the participation of leading transport researchers and policy experts in each country. All the information on each country has been validated by experienced researchers in those countries.

All the countries examined in this report are having difficulties in formulating a coherent response to the policy debate around growth in demand for transport. Transport investment and funding is recognised as the key to "breaking the logjam" and there are some impressive policies and strategies in our seven countries that are of relevance to the debate in Australia. These are reviewed in our report and include:

- The approach in the UK which is to be very clear about policy (the 1998 Transport White Paper), very clear about funding, investment and the role of the private sector (the 10 year transport plan) and very clear about evaluation and assessment methodologies (Guidance on Multi-Modal Methodologies)
- The approach in Germany which is based on clear scenarios setting out possible and desirable outcomes over the period up to 2015. These scenarios are associated with innovative funding mechanisms such as the new lorry tax which is discussed in our report
- The approach in the USA (TEA-21) which is to providing federal funds to passenger transport projects designed to reduce congestion and pollution and improve air quality
- The approach in Denmark which is to ensuring the best possible integration across all passenger transport modes and achieve one of the best outcomes in the world for levels of use of non-car modes of transport for everyday journey purposes.

In our report we take a very clear view that the policies reviewed are not being judged on some scale of acceptability or desirability. They are taken as "given". Our interest is to identify what is really interesting and important for the debate in Australia around best practice.

In section 9 of the report we identify clear, practical funding and investment initiatives that we believe have the potential to transfer to Australia. The initiatives are in place or about to be put in place and are the result of many years of debate and research in their respective countries and they are designed to solve the same set of problems that Australia is also tackling. They are:

- Congestion charging in London
- The new lorry tax in Germany
- The federal congestion mitigation and air quality improvement program in the USA
- The urban transport showcase program in Canada
- The transport and environment fund in Denmark
- The satellite/GPS technology ("Galileo") in the European Union

We think these practical funding and investment initiatives are very important and as important as the high level policy debate. They provide working models for Australia and from our global perspective and knowledge of Australia they are appropriate, effective and helpful as a contribution to the Australian debate

about funding and investment. Equally we are very sensitive to and well aware of the unique and distinctive characteristics of Australian geography, history culture and constitutional relationships between different levels of government. Nothing in transport ever translates directly from one country to another country (not even from Denmark to the UK). Only Australian transport professionals, politicians and citizens can determine what is acceptable and what will work in Australia.

Transport investment and funding has now entered a new and exciting phase. This is the case globally and in Australia with the discussions around AusLink. The balance is shifting everywhere. It is shifting from road based modes to a much more intelligent and transparent funding model applicable to all modes. It is shifting from the 20th century notion that the state or the government pay for transport to a much more differentiated model where users pay for their use of their chosen transport method in a fair and transparent way. It is shifting from state provision to a mixed model of state and private sector provision. It is shifting from 20th century arguments about "road versus rail" to a genuinely multi-modal and integrated approach to cities, regions and corridors and it is shifting from a purely economic view of transport to a view of transport as something that determines individual, community and societal welfare (social inclusion, community severance).

New approaches to transport funding and investment are crucial to the success of transport policies and we have identified those methods and approaches that offer the greatest potential for implementation in Australia.

1 Introduction

- 1.1 This report was commissioned in September 2002 by the Australian National Transport Secretariat. It is intended to provide an evidence-based assessment of transport policy options, international variations in the selection of policy objectives, the nature of transport budgets and the links between objectives, budgets and actual outcomes. It is also intended to identify what is working well in an international context, what is not working and what could be considered for adoption in Australia. The report is policy neutral in the sense that it is not concerned with the merits or otherwise of the policies themselves. These are simply taken as "given" and the focus of the study is on the overall process linking objectives, targets, budgets and outcomes as a platform for a debate about improving the policy process in Australia and the efficacy of transport policies in Australia in delivering the widest possible social, economic and environmental objectives of that policy
- 1.2 This report has been co-ordinated and written by Professor John Whitelegg based on information received from a network of "country consultants". The individuals involved are listed in table 1.

Country	Name	Organisation	Contact details
Canada	Todd Litman	Victoria Transport Policy Institute, British Columbia	litman@vtpi.org
USA	Todd Litman	As above	As above
Denmark	Professor Per Homann Jespersen	Roskilde University, Denmark	Phj@teksam.ruc.dk
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UK	John Whitelegg	Eco-Logica Ltd	Ecologic@gn.apc.org
European Union	John Whitelegg	As above	As above

- 1.3 The procedure followed in this has been divided into 11 work packages:

- Agree aims and objectives of the study following the original consultant brief
- Produce a questionnaire for the country consultants (approved by NTS) requesting information on the objectives, targets and budgets of transport policy in the 7 countries (Note: the European Union is not a country but for the purposes of this study will be regarded as such and we will refer to the 7 country study)
- Assemble, collate and audit the country responses and check for consistency and quality
- Go back to country consultants if necessary for clarification
- Produce a Stage 1 report based on the this first questionnaire
- Submit this report to NTS for comment and approval
- Produce the Stage 2 questionnaire on outcomes (approved by NTS) and circulate to all country contacts
- Assemble, collate and audit the country responses from Stage 2 and check for consistency and quality
- Go back to country consultants if necessary for clarification
- Submit this report to NTS for comment and approval
- Produce final report and recommendations arising from the project as a whole

- 1.4 This report is the final draft report and brings together all the work carried out in Stage 1 and Stage 2. The full Stage 1 report is included here as Appendix 1 and the full Stage 2 report Appendix 2.

2 The Transport Investment Challenge

- 2.1 Every country we have looked at in this project is experiencing difficulties in coming to terms with the magnitude of the tasks associated with transport investment decision making. Transport is very often a victim of its own success. Citizens will travel further and faster because they can and because this widens opportunities, experiences and economic options. The manufacturing and logistics industry will move goods around much further than (say) 10 years ago and in so doing will reduce costs, increase competitiveness and widen consumer choices. These trends are global and very closely linked to the global under-pricing of transport (Maddison et al, 1996). At the same time urban areas are under severe environmental pressures from traffic noise, danger and pollution and the costs of keeping up with high quality infrastructure are very large indeed. Also we know that the growth in demand for transport still leaves large numbers of citizens excluded from benefits, many of whom disproportionately experience the costs. Communities suffer from large traffic volumes and the scientific evidence on transport and greenhouse gases shows that this sector of the economy is responsible for up to 30% of these gases and is still growing. To add to these difficulties many citizens demand more mobility and less congestion and fail to see the contradictions. Demographic change can also increase the demand for transport as more people of retirement age have the time and the cash to move around by car. All of these factors in combination represent a powerful challenge to decision makers and governments and the challenges will become more demanding and not less as the full force of privatisation and liberalisation sweep through all sectors of transport and the realisation that oil will run out enters the political domain (see www.hubbertypeak.com)
- 2.2 Most transport decision making at national level is still fragmented and lacks the necessary "joined up thinking" that is needed to think through investment decisions along corridors where all modes need to be managed at the same time. In spite of much lip service paid to "land use and transport planning" it is still very much the case everywhere that there is no real connection between one of the main drivers of transport demand (land use) and transport itself. Integration is very much the watchword of transport thinking in many countries (eg the UK) but it is very clear to all observers that integration does not happen in practice. Rail and highway investment decisions still take place very much in isolation from each other and the rate of progress of private finance is very uneven between modes. Essentially most countries have an ad hoc system of investment prioritisation in place which does not do justice to the need to manage transport in the interest of economy and environment at the same time and in the interest of all citizens and all types of communities at the same time
- 2.3 This does not have to be like this. The UK has put a great deal of effort into linking all stages of the process leading to investment and into methodologies that are more sophisticated at delivering wider societal objectives than cost benefit analysis (eg GOMMMS, "Guidance on the Methodology for Multi Modal Studies", DETR, 2000a). Both the UK and the USA are working towards new ways of delivering best value and policy effectiveness. In the UK "Public Service Agreements" (PSA) link the allocation of public expenditure to published targets with the aim of delivering modern, responsive public services. These PSAs closely reflect the objectives of the policies themselves. The 10 year Transport Plan set down 8 PSA targets and achieving these targets is integrated into the GOMMMS process for evaluating transport investment proposals (see section 9.7). In the USA a new federal system of scrutiny carries out a "reality check" of policies to make sure that federal budgets are used to deliver on targets and actually change things on the ground (Gudmundsson, 2002).
- 2.4 This report is intended to shed light on the total policy process and to identify what is being done well in each of the 7 countries studied and how it is being done. This in its turn is intended to inform a debate in Australia about how to construct an Australian solution to transport investment decision making and prioritisation.
- 2.5 This report is organised around best practice in the total investment process. It uses the detailed information reported in the country reports to identify the key issues in transport investment thinking and the key things that can be employed to influence future thinking on transport investment decision making. This is done under a small number of headings:

- Making the links: transport investment based on strategy, targets, objectives, funding, outcomes and monitoring. The case of the UK
- Integration: from rhetoric to reality: the case of Germany and Denmark
- The importance of Vision: where do we want to be in 10 years time. The case of Germany
- Having our cake and eating it: the case of de-linking in the European Union
- Working in harmony with the private sector: the case of Denmark
- Recognising the needs of all citizens: social inclusion in New Zealand, the UK and the USA

3 Making the links: transport investment based on strategy, targets, objectives, funding, outcomes and monitoring. The case of the UK

- 3.1 The UK has undergone a paradigm shift in transport policy, transport thinking and transport planning. The prevailing orthodoxy in the late 1980s was exemplified by the government document "Roads to Prosperity" (1989) in which road building and increases in capacity of existing highways were seen as essential to a modern economy and to the performance of UK industry and services. This has now changed. Interestingly the change originated with a Conservative government and the publication in 1994 of PPG13 (Planning Policy Guidance Note 13) which established the planning principle of reducing the need to travel and of using the land use planning system to influence location of traffic generating activities so that newly generated trips were more likely to use public transport, walking and cycling.
- 3.2 This shift in transport policy is often referred to as the shift from "predict and provide" to "predict and prevent" and is now associated with a much clearer view about the role of demand management, public transport, walking and cycling in the overall approach to dealing with transport investment, congestion, safety, accessibility, social inclusion and the environment. Road building is still part of overall thinking and in December 2002 the UK government was severely criticised by many groups for approving several large road projects amount to about £4 billion
- 3.3 The main policy document bringing all these principles and objectives together is the 1998 White Paper "A new deal for transport: better for everyone". In our detailed review of country policies (Appendix 1) we identified 9 objectives in this policy document and 4 targets. These are supported by 3 further objectives in PPG13 and 16 further targets in "Transport 2010. The 10 Year Plan" (DETR, July, 2000b).
- 3.4 Transport policy in the UK is now informed by a coherent set of targets and objectives.
- 3.5 Nevertheless targets and objectives cannot deliver desired outcomes unless they are integrated into a funding and delivery mechanism that can be shown to work at all geographical scales down to the very local level. This is achieved in two ways in the UK. The first way is through the 10 year plan. The broader national picture (very much based on the New Deal document) is associated with a funding strategy contained in "Transport 2010. The 10 Year Plan". This document takes up the targets and objectives in the New Deal and ties them firmly into a funding mechanism that is based on funds from both the public and private sectors. It is a transport strategy, a budget and a delivery mechanism all rolled into one. It is also a firm commitment in terms of partnership with the private sector. The second way is through the Local Transport Plan process (LTP).
- 3.6 Every highway and transport authority in England (there are separate arrangements for Scotland and Wales) is required to produce a Local Transport Plan or LTP. These are 5 year plans which set out in detail the transport plans for a particular region and is associated budgetary requirements. They are both transport plans and bids for central government funds and they must deliver government's transport objectives. Each year they are reviewed, monitored and rolled forward for a further 5 years. The "Annual progress Report" or APR is scrutinised by central government and by transport and environmental groups who

carry out this scrutiny report at the request of central government.

3.7 The LTP is the delivery mechanism for achieving transport policy objectives. Central to the LTP process is the government's assessment of the quality of the LTP which in 1999 guidance is set out clearly under 28 headings which include:

- Problem identification/objective setting
- Strategy development
- Implementation programme
- Performance indicators/targets and monitoring
- Co-ordination with any air quality action plan and action on noise
- Establish an integrated strategy for reducing car use and improving children's safety on the journey to school
- Green transport plans (employer transport plans)
- Action on climate change
- Disability issues
- Measures to promote social inclusion
- Recognise the particular needs and special character of the countryside
- Encourage cycling and walking
- Establish a road safety strategy
- Airport surface access

3.8 LTPs must also carry out their own appraisal of the schemes that are put up for funding and do this under the government's 5 criteria:

- Environment
- Safety
- Economy
- Accessibility (includes social inclusion)
- Integration

3.9 Appraisal on these same 5 dimensions also takes place on a wide area basis (outside of the LTP process) where particular sets of problems have been identified and solutions spanning all modes are examined. This is referred to as the Methodology for Multi-Modal Studies. This is associated with guidance from the Department for Transport known as "GOMMMS". GOMMMS is intended to improve the quality of transport investment decision making by using the 5 criteria listed in paragraph 3.8 and making very sure that problem definition is clear and that all potential solutions to the particular problems are interrogated with equal rigour. This includes "appraisal of options, seeking combinations which perform better as a whole than the sum of the individual components". GOMMMS is available from the Department for Transport in two volumes under the title "Guidance on the Methodology for Multi-Modal Studies", DETR (now DfT), March 2000a.

3.10 UK transport policy and investment decision making is now fully contained within a process that has defined targets and objectives; these are set within a delivery mechanism for making sure that it happens at local level and making the funds available in a way that is regularly monitored and progress checked against targets and objectives. As impressive as this is it is not the same thing as bringing about the desired changes at local and regional level.

3.11 In the UK we have concluded that the UK is not achieving its transport policy targets and objectives (see Appendix 2). In particular walking, cycling and bus use is down (though rail use is up). Wider evidence and the transport policy debate has also noted that congestion is worsening. In December 2002 the government announced that it could not meet its objectives in the 10 year plan for reducing congestion. Traffic speeds in central London are on average 15 kph. Greenhouse gas outputs from transport are increasing rapidly as is

noise though air pollution from mobile sources is declining Integration which is a key plank in UK government policy is generally perceived of as poor quality and in many areas is worsening.

3.12 Transport professionals in the UK would generally agree that the policy framework, mechanisms and funding arrangements are robust enough to deliver desirable outcomes. The failure to do so is, therefore, disappointing. The reasons for the failure lie in a number of different areas of policy and behaviour including:

- The spatial fragmentation of society. More activities take place at locations which are separated by long distances and difficult to access by public transport. Longer distances also reduce the attractiveness of walking and cycling
- Changes in health care and education have produced a market for these services where consumers travel large distances to access facilities that are perceived to be "good". This often bypasses local facilities
- Changes in retailing have shifted the shopping trip to large supermarkets, many of which are in out of town or edge of town locations associated with large areas of free car parking
- Rising affluence has produced a huge increase in leisure time activities so much so that leisure trips are now more significant as a proportion of total trips than the journey to work
- More people in work and a strong economy has produced more trips
- More women more elderly persons and more young people (especially 17 and 18 year olds) now own cars and expect to use them
- The overall poor performance of privatised railway operations with exceedingly poor records of punctuality, reliability and overcrowding and the highest railway fares in Europe (see Christian Wolmar (2001) "Broken Rails: how railway privatisation wrecked Britain's railways", Aurum Press, London)
- The complete lack of a mainland European standard of integration based on through ticketing and highly effective interchange
- The lack of quality contracts between government and private operators

Many of these factors are societal trends that are difficult to influence. Indeed many commentators would see some of them at least as desirable. Others are clearly matters for government and the UK government has opted for a totally free market based transport system (outside London). The combination of both has produced transport problems and these problems "fuel" a rise in the demand for motorised transport that can under certain circumstances cancel out the successful outcomes of well founded transport policies.

3.13 None of this should be interpreted as defeatist or pessimistic. The GOMMMS document discussed in para 3.9 lists 60 measures that can solve transport problems across all 5 criteria on which they should be assessed. The OECD in Paris has also produced a report "Environmentally Sustainable Transport" or EST (OECD, 2002) which shows how a significant improvement in congestion, pollution and reduced greenhouse gases can be achieved. The problem in the UK is the lack of fiscal, land use, public transport, walking and cycling integration and political expediency that led to the abandonment of the fuel duty escalator (i.e. a 6% rise year on year above the rate of inflation on fuel taxation) and a return to high levels of road building after a commitment made in the 1998 White Paper which made it clear that road building was a measure of "last resort". The clear evidence in other countries (eg Denmark and Germany) is that integration does work and the UK has not been able to achieve this result. Interestingly this is not a matter of funding and is certainly relevant to the delivery of AusLink objectives. Successful integration is achieved when there is a clear political commitment to the concept of integration and is not achieved when this commitment wavers over time. The Danish and German governments have pursued integration with some vigour for over 20 years and have achieved good results.

4 Integration: from rhetoric to reality. The case of Germany and Denmark

- 4.1 Twenty years plus of global transport research have identified the advantages and personal welfare gains of the car. Indeed the seminal work of Colin Buchanan in 1963 ("Traffic in Towns") made it very clear that the car has conferred enormous advantages on individuals and at the same time done enormous damage to cities. Central to the advantages of the car are its "seamless travel" possibilities. There is no need (in a car) to worry about interchange, connections, timetables, paying for fares etc. The car does not impose waiting times and delays at points of interchange and this is a significant consideration in travel choice behaviour. Public transport integration is the art of reducing this waiting time penalty to an absolute minimum. Under certain circumstances a combination of reduced waiting times and high quality public transport prioritisation in congested cities can produce better travel times for public transport when compared with total travel times for the car. Broeg (2002) has shown that car users regularly underestimate the costs of a car journey and overestimate the costs of a public transport trip. The same result can be found in estimates of the time taken to travel between two points. This perceptual "mismatch" requires specific attention in transport plans and strategies including ways of making the costs of car use more "up-front" and obvious (eg tolls and congestion charges) and making public transport charges more like the way we pay for car use (eg annual travel cards that eliminate the need for frequent payments for journeys and segments of journeys by bus or train).
- 4.2 In Denmark and Germany a great deal of attention is given to the seamless travel characteristics of public transport. In the greater Copenhagen area it is quite possible to get a bus which then stops at a railway station and then to wait for no more than 10 minutes for a train. Careful attention to bus routes, train timetabling and the physical nature of interchange (eg the avoidance of long walks) can significantly enhance the attractiveness of public transport. Whilst there is always room for improvement this is the norm in Germany and Denmark.
- 4.3 Integration also means through ticketing and attractive fares. In both countries most fares are structured around zones or times (eg a one hour ticket) which allows for any number of bus and train trips in that zone or in that time window. There is no need to purchase additional tickets. In the UK outside London a bus-train-bus trip which would not be unusual as a commuter trip and would involve the purchase of 3 separate tickets. Integration is further enhanced by high quality bus lanes designed to keep buses free running and "speeding up measures" on German tram systems. Many minutes of time savings on tram journeys can be achieved by making sure that a tram costing £1 million is never stopped in traffic to allow a few cars (each with one person only in the car) to have priority at an intersection.
- 4.4 Integration in Germany and Denmark is achieved through special companies that have a regional transport authority status. The company serving greater Copenhagen is "HUR" and in Appendix 2 we list 56 regional transport companies in Germany. These are known as "Verkehrsverbund" or Traffic/Transport Associations. These regional companies operate like private companies but have a strong political representation i.e. elected politicians from the region sit on the Board. All bus and regional rail services are co-ordinated by this Board and a high quality system of co-ordination is the result. This is the model that has been rejected by successive UK governments who have opted for free market principles without co-ordination and quality contracts to guarantee services. The reasons for this rejection are a little obscure (especially when the alternative rejected is working so well in other European countries) but is in conformity with a strong set of market principles and a strong suspicion of municipal/state responsibility for transport services. All UK governments since 1979 have preferred the market as the main provider of transport services and have accepted as a corollary that the market should not be constrained or hampered by any kind of municipal or political interference.
- 4.3 In Copenhagen integration is also a matter of land use-transport co-ordination. For many years the physical development of Copenhagen has been concentrated in the "fingers" of land that radiate outwards from the centre. This so-called "finger plan" steers new developments to locations which are easily accessible to the main public transport corridors, especially the "S-trains" (high frequency suburban railway). Segregated bicycle paths and bicycle facilities at stations ensure that there is easy access in a small number of minutes for many thousands of travellers to this "S-train system. Dispersed land use patterns as is increasingly the

norm in the UK have the effect of building in car-dependency and reducing the number of those who can easily access bus and train services.

5 The importance of Vision: where do we want to be in 10 years time. The case of Germany

5.1 The German national transport plan (summarised in Appendix 1) discusses the possible future direction of transport in this country under three different scenarios:

- Laissez Faire
- Integration
- Ecologic

Laissez Faire is the "business as usual" scenario with an extrapolation of existing trends, the **Ecologic** scenario is a weak sustainability scenario with a more favourable development of public transport and rail transport and **Integration** is the compromise position somewhere in-between the other two. The integration scenario gives the future development of transport in Germany a very clear set of goals and a vision of what things should be like in 2015.

5.2 The German approach is very similar to that pursued by the OECD which has produced an "environmentally sustainable transport" (known as EST) strategy. This strategy has adopted the "backcasting" methodology which recommends the identification (i.e. vision) of a desirable end state (eg 60% reduction in greenhouse gas emissions from transport) and then identifies what steps must be taken between "now" and the target date by which the objective should be realised. The importance of EST is the emphasis given to establishing the vision in the first place. Henceforth transport planning and investment decision making is based on what is needed to get to the desired end point and not on other criteria eg cost-benefit analysis. The whole emphasis of transport investment thinking then shifts to an objective led mode of operation. This replaces the current mode of operation which seeks to predict future states and conditions and then tries to deal with the consequences of those outcomes. Full details of the OECD EST project can be found on: www.oecd.org/env/ccst/est

5.3 The German vision is not particularly visionary in the sense that it embraces quite modest changes from the laissez faire (LF) approach. Road transport (mainly private car) has a 79.2% modal share in the LF scenario, 77.3% in the integration (I) and 72.8% in the Ecologic (E). Public transport follows the progression 6.6% (LF), 7.6% (I) and 8.8% (E). Given that there are already several cities in Germany with over 30% of journeys made by public transport this is not a very demanding vision. Its importance lies not in the size of the quantitative shift away from the car but in the principle that it is possible to establish a vision that can be quantified. Transport investment decisions can then be assessed against the degree to which they will contribute to this vision (or not). For all scenarios the baseline is 1997 and the target year is 2015

5.4 The German targets are broken down in some detail (they are reproduced in full in Appendix 1) so that in the case of freight transport (of some relevance to the AusLink debate) it can be seen that railways are expected to increase their share of tonne-kilometres from 16.3% in the LF scenario to 24.3% in the Integration Scenario. The corollary is that road freight declines from 69.5% (LF) to 61.5% (integration). These targets are based on a wide ranging discussion about the economy and about the environment and have been justified in terms of national environmental and economic policy objectives. Detailed policies are then put in place to make sure that freight transport modal share can move in the right direction. This is achieved through the new lorry tax and the allocation of increased expenditure to rail transport (see Section 9)

6 Having our cake and eating it: the case of de-linking transport and economic growth in the European Union

- 6.1 There is a long standing assumption in transport policy and transport investment that economic growth inevitably produces higher levels of demand for transport. The UK Royal Commission on Environmental Pollution in its 1994 report "Transport and the Environment" concluded that: "the growth of freight transport, measured in tonne-kilometres, has broadly paralleled the growth in GDP". This assumption is at variance with other economic activities. Advances in energy efficiency in buildings, energy efficiency in the manufacturing process and computer power/cost ratios show very clearly that it is possible to "get more for less". It is possible to decouple linkages between growth in output and growth in energy use. This is the central argument of the book by Weizsaecker, Lovins and Lovins (1997) "Factor 4: doubling wealth, halving resource use", Earthscan, London. Chapter 3 of this book details examples of "Revolutionising Transport Productivity".
- 6.2 The European Union is the first governmental body to adopt the de-linking principle as a key part of its transport policy. Denmark has recently adopted a similar policy. In its September 2001 Transport policy document: "European Transport Policy for 2010: time to decide" the European Commission established the principle of de-coupling economic growth and transport growth:
"This will involve greater efforts in order gradually to break the link between transport growth and economic growth and make for a modal shift, as called for by the European Council in Gothenburg. Such a shift cannot be ordered from one day to the next, all the less so after half a century of constant deterioration in favour of road, which has reached such a pitch that today rail freight services are facing marginalisation (8%)..."
Source: European Transport Policy 2010: time to decide, page 10
- 6.3 De-coupling is a powerful idea but also realistic and practical. It offers another way of assessing proposals for transport investment decisions. Is a particular proposal (highway or rail) likely to lead to higher levels of transport output (freight or rail) and is this consistent with a policy objective to de-couple? More importantly it also reduces the importance of the general argument in favour of more transport capacity if this argument is founded on the existence of a link which has now been challenged.

7 Working in harmony with the private sector: the case of Denmark

- 7.1 Denmark has had a great deal of experience in working with the private sector in delivering transport investment projects. These include:
- The Oresund Link (the road and rail bridge and tunnel connecting Denmark and Sweden)
 - Bus services (eg with the UK company Arriva)
 - Rail services (eg with Arriva in West Jutland)
 - The new Copenhagen metro system opened in Autumn, 2002
- 7.2 These projects have not been without lively debate and controversy but have proceeded smoothly and delivered ambitious projects reasonably on time and on budget.
- 7.3 The involvement of private bus companies such as Arriva has been very successful. Bus companies supplying bus services have to enter a contractual agreement with the co-ordinating body (eg HUR in the greater Copenhagen area). This is very different to the UK approach based on complete privatisation which leaves matters of fares, schedules and integration to the companies themselves with no input from elected governmental bodies. In the case of HUR a 100 page document "Tender conditions and specifications. Eight invitation to tender", 1998 specifies in detail the kind of services that has to be delivered. Essentially this is a quality contract. The private company provides the buses and runs the buses in exactly the same

way as a UK company but has to agree to set of quality standards.

7.4 The 8th invitation to tender comprises an invitation to provide 550,000 bus hours per year and 129 buses. HUR will determine " the route network, the scope of services, the location of bus stops, intervals, general interchanges and connections, other bus stop conditions etc". The contract covers detailed conditions relating to:

- Type of bus (eg low floor)
- Branding, logo, colour
- Environmental performance
- Availability of information on buses and at stops
- Punctuality and reliability
- Radio communication systems

A system of financial penalties is put in place to deal with failures to meet the required standards.

7.5 The Danish approach to harnessing the energy and skills of the private sector whilst locating this within a very clear collective view of standards and quality is a significant contribution to the debate about the public and private finance mix in transport investment.

7.6 It is instructive to compare the Danish experience of private sector involvement with the UK. The UK experience of railway privatisation has been a dramatic failure (Wolmar, 2001) and the earlier bus privatisation led to a 25% decline in bus use in metropolitan areas outside of London. The Danish privatisation approach has been characterised by harnessing the energy and resources of the private sector within a clear system of objectives and quality control laid down by public bodies including the routine involvement of elected politicians as in the running of the Greater Copenhagen Transport Authority (HUR). In the UK this has not been the case and all decisions about transport have been left to the private companies themselves with no reference to wider spatial, social, community and economic objectives. This has not worked.

8 Recognising the needs of all citizens: social inclusion in New Zealand, the UK and the USA

It is only relatively recently that transport investment and policy has been directly linked to the needs and aspirations of disadvantaged and socially excluded groups in society. This is surprising given the fundamental importance of transport in facilitating access to jobs, education and training and health facilities. If citizens cannot access these facilities then it is very unlikely that they will be able to play a full part in community life and to realise their ambitions and aspirations for gainful employment, income and a stable and secure family life. Barriers to access include a number of conditions and issues:

- The unavailability of public transport will disadvantage those who do not own a car or those who do not have access to a car at times when it is needed. Poorer groups often have to endure poor accessibility and reduced mobility in inverse proportion to need and public transport improvements can lead to increases in land and property values forcing poorer groups out to poorly serviced peripheral areas
- Heavy traffic on main roads (and in some cases secondary roads) can act as a real physical barrier and deter children and the elderly from moving around for short distance trips in their own communities
- Poorly designed public transport vehicles, railway stations and pedestrian facilities can prevent those with mobility difficulties from using public transport. Low-floor buses, lifts at stations and ramps can dramatically improve public transport accessibility for those in wheelchairs, those with physical mobility difficulties and others. This group is estimated to be 10% of the population in the UK

8.1 There is another dimension to transport and social exclusion and this is related to impacts. Road traffic accidents disproportionately impact on the poor. Those groups of people who are unemployed or on low

wages can experience road traffic accidents fatality rates five times higher than well-paid professional groups. Deprived communities also experience the worst levels of air pollution and noise pollution.

- 8.2 Transport investment can either worsen these inequalities or be targeted to assist those groups who have traditionally "lost out" in public spending on transport. In the UK the Cabinet Office has carried out an analysis of transport spending in the UK 10 year plan and concluded:

"Although the 10-Year Transport plan heralds a large increase in the transport budget it is heavily skewed towards modes used by higher earners. Of the plan's £120 billion allocation only 11% relates directly to buses, compared with 40% for passenger rail. Based on assumptions about how much low income people travel, and what modes they use, DTLR calculates that the bottom income quintile will gain 12% of the total spending whilst the highest quintile will gain 38%... [these figures] do illustrate the fact that resource allocation is regressive"

Source: Making the Connections: transport and social exclusion. Interim findings from the Social Exclusion Unit, Cabinet Office, UK, Chapter 4, pages 7-8 www.cabinet-office.gov.uk/seu/transport.htm

- 8.3 Measures to reduce and remove social exclusion in transport are part of the UK transport investment appraisal process detailed in the Transport White Paper and part of the guidance on Local Transport Plans. Many UK local authorities have developed wide ranging and specific social exclusion policies and integrated this into their planning for transport and their bids to central government for funds eg the Merseyside LTP covering Liverpool and adjacent local authority areas

- 8.4 Social exclusion is also part of the transport agenda in New Zealand. About 30% of New Zealand citizens do not have access to a private motor vehicle because of disability, age, income or inclination and may, therefore, be reliant on public transport for some of the journeys they make. The New Zealand government has a disability strategy to address some of these problems: www.moh.govt.nz/moh.nsf

The government also runs a "Total Mobility Scheme" (a taxi voucher programme) to assist with these groups. Government policy is clear:

Transport touches the lives of all New Zealanders. Mobility is a fundamental need for citizens to participate in society. Accessibility impacts on individual's ability to manage their lives. Tangata Whenua have specific interests and aspirations in relation to land, waterways and ownership and control of their assets.

Source: Ministry of Transport Strategic Plan, 2001-2006, Introduction by Alastair Bisley

And in the same document:

We must ensure that transport supports social interaction and wellbeing, especially for those who are most vulnerable in society or for those who are mobility impaired. To achieve this, the types and level of service need to improve. We also need to continue improving our safety record and work more closely with communities and those affected by transport to find effective and affordable solutions.

- 8.5 The USA has also identified this theme as an important one:

Improve equity for low income and minority communities concerning the benefits and burdens of transportation facilities and services. This is part of US government monitoring of performance of all areas of intervention:

Transit Service: For the 80 million Americans who do not drive, public transit provides access to school, work, market, community services and family. Public transit also lessens highway congestion and helps maintain environmental quality by slowing the growth of automobile traffic. And it provides transportation alternatives. Together, these features help improve our communities.

The US Department of Transport (DoT) has established performance targets for the percentage of the urban population living within 0.25 miles of a transit stop with a service frequency of 15 minutes or less outside the rush hour. Target percentage and actual percentage were approximately the same in 2001 at 11.68 and 11.54 respectively.

Source: www.dot.gov/performance/environment.html

9 Lessons on Investment and Funding

- 9.1 In this section we identify those aspects of international investment and funding frameworks that have a clear relevance to the debate in Australia about the future of transport investment and about integrated transport funding across all modes and across passenger and freight transport. It is our view that the practical initiatives reviewed in this section are capable of translation to and adaptation in Australia. Indeed they have been selected for this purpose. Equally we fully acknowledge the very special circumstances of Australia (very large distances, economic growth, population growth) which will necessitate careful evaluation of US, Canadian and European experience for its applicability to Australia.
- 9.2 All our case study countries have similar transport investment and funding frameworks. By frameworks we mean the traditional departmental budgeting system that is characteristic of all plural democracies. Departments and Ministries bid for funds ("tax dollars") and apply those funds in ways that reflect wider political objectives and especially in transport ways that reflect the prevailing orthodox about transport spending. This was very well summarised by our Danish consultant who described a very ad hoc system of funding that was the result of political compromise and incremental development over a period of 20-30 years. Denmark is a "best practice" example of transport policy and integration but has not achieved this status through reform of the transport investment and funding process. There is very little formal integration of transport funding across modes, very little direct linkage of transport funding to policy objectives and no retrospective validation or performance checking to make sure that funding decisions linked to objectives have, in fact, achieved those objectives.
- 9.3 In spite of this lack of "joined up thinking" there are a number of practical initiatives (not high level policy) that can be examined in more detail for insights into ways in which the transport investment and funding system is evolving in these countries. These are listed by country in sections 9.4-9.13 of this report.
- 9.4 UK: New pricing and charging initiatives**

The UK has set up some innovative methods of providing resources for transport spending. New legislation makes it possible for local authorities to introduce congestion charging and work place car parking taxation. Both are intended to raise money for ring fenced transport investments and to allow local authorities to exercise more control over their own transport policies (and to keep the cash raised through these new taxes and charges). Workplace car parking taxes have been very unpopular and widely attacked by the business community as business unfriendly and likely to damage the local economy and damage the competitiveness of British business. Local authorities are very wary of introducing this new kind of taxation. Congestion charging is proving more popular with the London scheme beginning on 17th February 2003 and others (eg Leeds and Bristol, Edinburgh) under active development. Businesses in London have supported the charging scheme even though it will increase costs. The support is based on the assumption (backed by traffic modelling) that the charge will reduce congestion by about 15% and that this is enough to free up a lot of road space and improve the efficiency of logistics, distribution and the competitiveness of London's economy. The London scheme is likely to raise £100 million pa which will be used to provide much needed investment in buses and the underground though the relationship between this plan and the privatisation of the tube is still very unclear. For more information see:

<https://www.cclondon.com/WebCenterBrandedTR4/StaticPages/index.aspx>

A much smaller road pricing scheme has already been introduced in Durham (an historic city in north east England). In the Durham scheme the primary objective was to reduce traffic flows on a key road that gave access to the castle and the Cathedral. This has been very successful indeed and has produced a two thirds reduction in traffic volume.

- 9.5 The London congestion charge will be carefully monitored and offers a great deal of real world experience of a significant intervention measure that has the potential to transfer to every Australian city. Laird (et al) (2001) have identified the scale of the "road deficit" in Australia as \$19 billion per annum if congestion costs are taken into account and \$8 billion per annum if congestion is excluded. Congestion charging is particularly appropriate if a significant proportion of the deficit arises from congestion in cities. This is

the case in Australia

- 9.6 Congestion charging in the UK has been extensively researched in preparation for its introduction in London. The majority of Londoners support the scheme (they elected Ken Livingstone as Mayor with this project as his main manifesto commitment). Vehicles will be monitored with 700 cameras at 180 access points on the boundary of the charging area. The cameras are designed to recognise number plates and store the data to cross check with the data base of those who have paid the £5 charge. Each day the number plates of those who have not paid will be cross checked with the national licensing authority for the names and addresses of the owners and within hours the demands for fines will go out. Vehicle owners who have not paid the charge will be fined £80 (reduced to £40 if paid immediately). Fines are expected to raise £30 million pa. The costs of setting up the system total about £200 million which will be fully paid by income in the first 18 months. A number of vehicles are exempt from the charge: motorbikes, mopeds, taxis, emergency vehicles, electric vehicles and LPG vehicles)
- 9.7 In the Transport White Paper (1998) the UK government introduced "the new approach to appraisal" or NATA as it is normally referred to. NATA is designed to ensure that all transport problems are examined against a full range of alternative solutions including solutions other than road enhancement. This is very important indeed and has significant implications for investment. Under NATA it is no longer possible to examine 3 or 4 alternative road schemes or a road widening scheme as the full set of possible solutions. Solutions such as demand management, congestion charging, lorry taxes, rail strategies and much more have an equal role to play in the search for solutions and must be "worked up" so that they can be compared with the traditional highway solution. This approach is summarised in para 4.195 (page 133) in the Transport White Paper. NATA has now been enhanced to make it more applicable to transport investment for other modes. The enhanced version is described in details in "Guidance on the Methodology for Multi-Modal Studies" which is usually referred to as GOMMMS. GOMMMS is an important contribution to the discussion of transport investment and funding because it requires a thorough evaluation of the full range of possible solutions to transport problems in a way that can inform the decision making process and priorities for investment.

9.8 Germany: a new lorry tax

Germany has passed a new law introducing a tax on all lorry journeys in Germany including lorries that are registered outside of Germany and using German motorways purely for transit (eg from Italy to Denmark). The new tax will be introduced on 1.8.03 and is known as the "LKW-Maut" (www.bmwbw.de/lkw-maut-720.htm). The tax will be charged at an average rate of 0.15 Euros per kilometre and will raise about 3.4 billion Euros per annum. (This is equivalent to a kilometre tax of 27 Australian and an annual income from the tax of 6.18 billion Australian dollars.) The figure of 15 cents (0.15 Euros) was calculated from extensive research on the total costs of lorry activity in Germany. Details of this calculation (which includes all externalities) can be found on the web site. The income from the tax will be entirely devoted to the national congestion "busting" programme and will be spent 50% on new highway infrastructure and 50% on new rail and waterway infrastructure. The 50/50 split was a pragmatic political decision influenced by the participation of the Green Party in the coalition government with the SPD (the Social Democratic party). The "congestion "busting" element consists of a targeted programme of new infrastructure to remove road and rail bottlenecks eg new railway lines and new motorway lanes. All the technical development work has been done to support this project and it is very suitable to implementation in Australia given that it is all satellite and GPS based. The development costs and satellite technology have been paid for by the German Government in partnership with private sector. Individual lorry operators and logistic companies will be responsible for paying for the equipment that is installed in the lorry itself. There is no need to install road side equipment of any kind which in a country of very long distances would be prohibitively expensive.

The lorry tax offers an effective mechanism for ensuring that lorries pay the full costs associated with their activities and for raising funds to support a more integrated road-rail-waterway-coastal shipping mix for freight transport. The pre-existing system offered no incentive for an intelligent discussion about the commercial advantages of modes other than road because road was heavily subsidised as it is in Australia (Laird et al, 2001). The applications of a specific charge related to the externalities of road freight offers

the possibility for a real shift of freight from road to rail, assisted in part by the extra cash provided by the tax for rail infrastructure. Australia is reportedly the most road freight dependent country in the world (Laird et al, 2001). There is considerable strategic, economic and environmental merit in reducing this dependency and bringing about a better fit between the total costs of road freight in Australia (the road deficit) and the amounts paid in taxation by this sector. Such discussions are always controversial and the arguments are well aired in Laird et al (2001).

9.9 USA: The Congestion Mitigation and Air Quality Improvement Program (CMAQ)

Matched Funding Programs

The U.S. government has a variety of transportation programs funded by federal fuel taxes. The federal government does not actually construct transportation facilities or provide transportation services, rather, it provides matching funds to lower levels of government. A state or regional government submits projects that meet various regulatory and design requirements, and if the project is approved, that jurisdiction must provide between 10-60% of project funds, depending on the type of program.

The allocation formula are complex and may change from year to year. In 1999, \$95,494 million was spent on roads and \$29,027 million on transit services. Perhaps 3% of roadway expenditures was devoted to walking and cycling facilities. Information is available at: BTS, Government Transportation Financial Statistics (www.bts.gov/programs/government_transportation_financial_statistics). This is a searchable database that provides access to federal, state, and local transport revenues and expenditures.

One benefit of this approach is that it allows the federal government to implement strategic national transportation goals and it leverages additional funding for projects with national importance. It also allows the federal government to establish a variety of procedural and design standards that are adopted "voluntarily" by state and local jurisdictions in order to qualify for funds.

This has been a well recognised approach by transportation planners and policy makers. For example, the USDOT, and professional organizations such as AASHTO and ITE are quite involved in setting funding formulas and standards that specific programs must meet to receive federal support. Highway engineers are extremely proud of the degree of standardisation and high quality designs that have resulted. Criteria varies from one project to another, and is highly technical. See for example the National Highway System laws and regulations at www.fhwa.dot.gov/legregs/title23.pdf.

In the past, most federal transportation funding was dedicated to highway capital investments. These practices were criticized for favoring highways over transit for addressing urban transportation problems, and for favoring capital expenditures over operations and maintenance. In response to these concerns, the range of programs and the diversity of qualifying projects has increased over time.

Federal funding can now be used for:

- Highways
- Transit capital expenditures
- Transit operation
- Nonmotorized facilities (walking and cycling paths, bike lanes and sidewalks)
- Congestion Mitigation and Air Quality Improvement Programs (Which can include just about any activity that reduces vehicle traffic or encourages more efficient vehicles. In the past, roadway capacity expansion projects were allowed, on the assumption that this reduces emissions associated with congestion, but acceptance of such projects has declined in recent years due to research indicating that they may increase emissions over the long run due to induced traffic).
- Safety programs
- Environmental and community enhancements (Which can include a wide range of projects, such as wetlands improvements and redeveloping urban streets.)

For more information see <http://www.fhwa.dot.gov/legregs/title23.pdf>

Congestion Mitigation and Air Quality Program

The Congestion Mitigation and Air Quality (CMAQ) Improvement Program is one of the newer, more flexible funding programs. It provides federal funds to support state and local projects that reduce transportation related air pollution. The U.S. Department of Transportation (DOT) administers the program, in consultation with the U.S. Environmental Protection Agency (EPA). These projects include both traditional and non-traditional highway and transit projects. Examples of non-traditional projects include marketing and outreach to reduce driving, reduced fare programs to encourage transit use, transportation demand management programs, and programs to increase the use of clean alternatively-fueled vehicles. The highest priority for CMAQ funds are transportation control measures (TCMs) identified in approved State Implementation Plans (SIPs).

CMAQ projects compliment many of the more traditional strategies for reducing air pollution from transportation sources. Traditionally, states and local governments have relied on technological control measures to reduce air pollution and attain the air quality standards. Industrial processes with significantly lower emission levels, cleaner exhaust emissions from vehicles, and lower evaporative emissions from fuels have resulted in cleaner air in many cities. Yet the increase in the number of vehicle miles traveled (VMT) in recent years counteracts these gains and may slow progress toward achieving healthy air. Strategies to reduce VMT and reduce congestion in order to make travel less polluting are increasingly viewed as integral components of sustainable air quality plans.

How Does the Program Work?

TEA-21 provides for as much as \$8.1 billion for the CMAQ program from 1998 through 2003. The funds are apportioned to the states annually, based upon a legislated formula, with each state guaranteed 0.5% and the rest apportioned on the basis of population and the severity of the air pollution in ozone and carbon monoxide nonattainment and maintenance areas. As with most of the federal transportation programs, a state or local match of funds is required. Two project eligibility requirements apply to the CMAQ program. First, the money must be spent on projects which reduce ozone, carbon monoxide, or PM-10 from transportation sources. Second, the money must be used in nonattainment or maintenance areas (i.e., areas that do not meet federal air quality standards), if one exists within the state. The state is responsible for distribution of funds among multiple nonattainment areas. If the state does not have an ozone or carbon monoxide nonattainment or maintenance area, the funds may be used anywhere in the state for any activity eligible under the CMAQ or Surface Transportation Programs.

What Kinds of Projects are Eligible for CMAQ Funds?

Because of the program's high degree of flexibility, CMAQ projects can vary greatly from area to area. However, there are some common characteristics, due to the program's focus on air quality. Generally, CMAQ projects are developed through a coordinated planning process and target the pollutants for which the area is in nonattainment or maintenance. CMAQ projects can usually be classified in one of the following categories:

- Travel Demand Management Strategies
- Transit Improvements
- Shared Ride Services
- Traffic Flow Improvements
- Pedestrian and Bicycle Programs

These broad categories provide wide-ranging flexibility and can support specific projects that vary greatly in design, scope, and implementation. The categories are not intended to be exclusive; other activities, such as public education and outreach programs and the conversion of vehicle fleets to clean alternative fuels, are also eligible.

Effectiveness

In 1998 Congress ordered a review of the CMAQ program to be conducted by the NAS, and sponsored by the Selected international transport investment and funding frameworks and outcomes © Eco-Logica 2003

Federal Highway Administration. The NAS Committee evaluating the program finds that there is "strong support for the CMAQ Program among a broad range of regional transportation planners, operating agency staff, air quality officials, and interest groups consulted for the study." Released in June of 2002, the final report notes that the Program, "has value" and should be reauthorized. Among other things, it also recommends projects that improve air quality should remain CMAQ's primary focus, suggests that local air quality agencies be more directly involved in project selection and recommends that other pollutants regulated under the CAA, be covered under the program, with special emphasis on fine particulate matter.

The CMAQ program is also strong on scrutiny and reality checks. The U.S. Federal Highway Administration has developed guidelines and technical tools for evaluating the congestion and emission impacts of specific projects. See: <http://www.fhwa.dot.gov/environment/tcm3.htm>. To be accepted, projects must provide measurable benefits as well as meeting other requirements, such as being part of regional transportation and air quality plans.

The CMAQ program has considerable relevance to the special circumstances of Australia. It tackles serious problems which are recognised globally as difficult issues and it does so within a federal structure that is comparable to the situation in Australia. Its use of fuel taxes and its blend of federal and state responsibilities is directly transferable to Australia

References

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NAS, *The Congestion Mitigation and Air Quality Improvement Program: Assessing 10 Years of Experience*, National Academy of Sciences (www.nap.edu/html/SR264/SR264.pdf), 2002.

United States Environmental Protection Agency, Office of Transportation and Air Quality (www.epa.gov/omswww).

9.10 Canada: Urban Transportation Showcase Program

Sustainable Transportation Issues in Canada

The Canadian federal government has made a commitment to sustainability and climate change protection, as indicated by requirements for each federal government to produce a sustainability plan, a commitment to sign the Kyoto accord, and federal funding to create the Canadian Center for Sustainable Transportation (www.cstctd.org), as well as numerous related programs and projects.

Transportation is one of the biggest sustainability challenges facing Canada. In many regions, transportation or transportation fuel production is the largest source of greenhouse gasses, and one of the fastest growing emission sources. Traditionally, the Canadian federal government has primarily been concerned with freight and long-distance transport issues, and has left development and funding of highway and urban transit services to provincial, regional and local governments. However, sustainability goals and fiscal problems facing Canadian cities has prompted the federal government to initiate a new, urban transportation funding program. In order to leverage a maximum impact on future travel, the federal government has structured the program as a competition between cities to design, implement and evaluate innovative, integrated urban transportation strategies.

Urban Transportation Showcase Program

The Urban Transportation Showcase program is a five-year program created to demonstrate, evaluate and promote effective strategies to reduce GHG emissions from urban transportation. Through this program, Transport Canada will work in partnership with provinces and municipalities, to establish a number of transportation "showcases" in selected cities, for demonstrating and evaluating a range of urban transportation strategies within a broad planning framework. The impacts of these strategies on other urban challenges (such as smog reduction, congestion, infrastructure costs) will also be evaluated. This new

information will lay a foundation for the adoption of effective, integrated GHG emission reduction strategies in urban centres across Canada by 2010.

The program was developed in consultation with provincial, territorial, municipal and other partners in response to the 1999 Transportation Climate Change Table Report. The report identified a need for Canada to develop better planning and practices for transportation and land use. A two-stage, nation-wide competitive process to select four or more Canadian cities to showcase their strategies for dealing with these urban challenges is underway.

Program description

The Showcase Demonstration component of the program provides funding through a nationwide competition where at least four multi-year proposals will be selected to demonstrate and evaluate a range of integrated actions, plans, technologies and strategies aimed at reducing GHG emissions from urban transportation. Selected municipalities will showcase a variety of options appropriate to their local circumstances. The showcases will include: transportation services, infrastructure investments, demand management initiatives, land use strategies, pricing strategies, public outreach and advanced technologies. Proponents are encouraged to develop integrated proposals that include a combination of coordinated strategies.

A national Information Network will be established to circulate and promote information on successful GHG emission reduction strategies. Through Web sites, conferences and seminars, newsletters, and progress reports, the participants in the Network will have the opportunity to share results from the showcases and discuss lessons learned, best tools and best practices. The Network will help lay the foundation for adoption / replication of successful strategies in cities across Canada by 2010. Workshops were held across Canada in August and September, 2001 to consult with stakeholders on the proposed components of the Information Network.

The program was announced in 2001. In response, Transport Canada received 48 Expressions of Interest to the program. These were reviewed by a selection committee consisting of representatives of various agencies and stakeholder organizations. In December 2002 fifteen of the proposals were selected for further consideration. Each selected municipality will receive up to \$30,000 to develop and submit more detailed proposals. The municipalities selected have four months to develop and submit their detailed proposals. The selection committee will then review the proposals and assist the Minister of Transportation in selecting at least four for full implementation. Information from the showcases and other sustainable transportation best practices will be shared with cities across Canada through the national information network.

Short-Listed Projects

The fifteen projects chosen to receive development funding are described below:

Gatineau emphasises park-and-ride, as well as more reserved bus lanes as a means of improving the competitiveness of public transit. This proposal also includes the use of hybrid electric bus technology.

The **Greater Vancouver Regional District** proposes an innovative, broadly based combination of programs involving development of land use patterns that support greater transit use and the application of a variety of transportation demand measures, including a universal transit pass and main street transit priority corridors.

Halifax proposes maximising the passenger, as opposed to the vehicle, carrying capacity of existing under-utilised corridors and possibly reducing road space for automobile use and increasing space for transit.

London, Ontario proposes an integrated package targeting parking as a key to control traffic. In addition, a number of traditional travel demand management mechanisms are also included.

Montreal proposes the use of a fleet of electric vehicles based in downtown Montreal and at selected suburban commuter rail stations, intended for trips in areas that cannot be well served by conventional public transit.

Ottawa proposes a multifaceted approach to reclaiming a busy city street (Carling Avenue) from cars and trucks to make the street more friendly to transit and pedestrians.

Waterloo proposes linking three communities with cycle-friendly, express bus service along a clearly defined corridor, incorporating information technology to provide real-time transit information and web-based trip planning opportunities.

This program has significant potential to transfer to Australia. The Canadian governmental structure is similar to Australia and the pattern of federal funding and "lower level" bidding is one that can work well

to advance transport and sustainability objectives.

References

Urban Transportation Showcase Program, Transport Canada
(www.tc.gc.ca/Programs/Environment/UrbanTransportation/menu.htm), 2002.

9.11 Denmark: The Transport and Environment Fund 1992-1995

In line with the reorientation of Danish transport policy around 1990 described in earlier reports a fund was established by the Government in order to support

local action plans for transport and environment, worked out by municipalities comprising larger townships as part of the municipal planning system. The action plans will contain activities aiming at reducing the environmental impact of transport in the towns, including improvement of road safety. The activities can e.g. aim at reducing car traffic or the speed of traffic or promote bicycling or public transport as long as it is improving the environment.

Larger townships were defined as > 8000 inhabitants.

The idea was to make the municipalities integrate environmental considerations in transport planning, where environment was considered as a totality consisting of six parameters:

- Road safety
- Energy consumption
- Air pollution
- Noise
- Barrier effects
- The visual environment

In order to qualify for funding, the municipalities had to make a plan extending to 2010 consisting of

- A mapping of the actual state of these parameters:
- Targets for the reduction of the problems. These targets had to be in accordance with the Government's "Transport 2005"-plan
- An action plan

The fund was of 150 mill. DKK ~ 20 mill. € and administered by the Danish Environmental Protection Agency (DEPA). The fund was used for three purposes"

- Direct support to projects with up to 50% of costs
- Seminars and co-operation activities between the municipalities and between DEPA and the municipalities
- Production of information material, guidance etc. from DEPA to the municipalities

The pool was allocated to 136 projects in 51 municipalities, which is the major part of the municipalities in the target group. The total project costs for the 136 projects was 575 mill. DKK. The action plans gave rise to preparation and execution of 1341 projects with a total costs of 2150 mill. DKK. By 1998 25% of these projects were implemented or under implementation. So, the geographical coverage and the degree of implementation were concluded to be satisfactory.

Of the 51 municipalities, 23 reported that the fund had contributed to putting traffic and environmental matters on the political agenda. 32 municipalities stated that the capabilities of the staff in technical and methodological matters had been improved, and 17 that the capabilities within long-term planning had been strengthened.

Documented environmental impacts are shown in table 2

Table 2. environmental impacts		
Objective	No. of projects with objective	No. of projects with documented positive impact
Road safety	120	55
Noise	65	0
Energy consumption	21	9 measured by CO2-emissions 10 measured by TJ's
Air pollution	23	9 measured by NOx-emissions 9 measured by HC-emissions 1 measured by CO-emissions 7 measured by particle emissions
Barrier effect	62	Before: 67 % large or very large barrier effect After: 20 % as reported by the municipalities
The visual environment	67	Before: 67 % under average or bad visual environment After: 0 % as reported by municipalities

The projects are concluded to have had a less satisfactory performance regarding community participation, with too much traditional top-down approach. However, a clear positive trend could be observed.

Denmark's size, political structure and local-central government links are very different to the situation in Australia. The importance of this project and its relevance to Australia is its emphasis on very specific objectives and criteria and "before and after" monitoring. It provides an effective model for translating national/federal objectives into action at city/municipal and state level in a way that can easily be "back checked" for effectiveness and value for money. It also stimulates an element of "competitive bidding up" in terms of creativity and innovation. An approach of this kind is well suited to the kind of situation where there is a strong tradition of local and regional/state government and a desire to achieve national transport policy objectives without diminishing local creativity and responsibility. This approach reinforces and celebrates the creativity of regional, state and local bodies and invites them to bid for funds. Australia has a strong tradition of city and state government and this approach is more likely to be successful and appropriate under these circumstances.

A more detailed discussion of Danish successes in traffic reduction and road safety can be found in Andersen (1997) and in Bunde (1997).

9.12 European Union: the Galileo Project

The European Union is a unique organisation. It has 15 member states each of which is a sovereign nation state but each of which has signed the Treaties of Rome, Maastricht, Amsterdam and Nice which have progressively ceded aspects of that sovereignty to this supra-national body. On 1st January 2004 10 new sovereign nations will join the Union and will be part of a geographical area extending from the west of Ireland to the borders of the ex-Soviet Union and part of a Union committed to the free movement of goods, people, capital investment and businesses. This large entity puts a great importance on transport (see Appendix 1) and has backed up this importance with substantial resources for investment and innovation. One of the innovations is of considerable relevance to Australia. The EU has provided 1.25 billion Euros (2.27 billion Australian Dollars) of public expenditure to support the Galileo project. The Galileo project is an ambitious GPS system based on European technology and 38 European satellites that will provide real-

time locational and other information for all cars, lorries, aircraft, ships, barges on rivers, emergency vehicles, oil rigs, geological exploration, security services and much more. It is designed to make Europe totally independent of current GPS technology which is still controlled by military interests in the USA and to provide a substantial boost for the efficiency of transport, reduced congestion, reduced pollution, increased employment and social benefits from a more efficient transport system.

Its total cost will be 3.6 billion Euros (6.54 billion Australian Dollars) and it will be operational in 2008. The cost will be met from public funds raised in the normal way through national taxation in each of the member states and passed on to the European Union. It is entirely satellite and computer based so there are no costs associated with fixed communication facilities along railway lines, roads and waterways. It will allow all freight transport shipments to be instantly tracked and will form a basis for all congestion monitoring and intervention and (if necessary) for a new generation of congestion charging and road pricing. It is currently envisaged that the installation in vehicles will be paid for by the owners/operators themselves who will then pay a fee to the private operator of the system for its use. No information is currently available on the cost of vehicle systems. By 2020 it is expected to produce a revenue of 875 million Euros per annum (1590 million Australian Dollars). The revenues will be used to enhance and develop the system. It is not currently envisaged that the system will be used for road pricing, congestion charging or lorry taxes though it will be compatible with such a use in the future. More details can be found on:

http://europa.eu.int/comm/dgs/energy_transport/galileo/doc/gal_exec_summ_final_report_v1_7.pdf

9.13 New Zealand: Public Transport Patronage Funding Scheme

This scheme was introduced in November 2000 (<http://www.transfund.govt.nz/patronage.html>.)

Previously Public transport subsidies were given to regional councils in capped blocks. The new system gives funding based on patronage. Hence there is now an incentive for Regional Councils to increase patronage.

Its objective was to encourage greater use of public transport at key times and places where it would deliver the greatest transport benefits and help to reduce congestion. Under the scheme, Transfund provides increased funding to regional councils for growth in passenger numbers above an agreed baseline.

The scheme has been extended for a further year to 30 June 2004, pending the development of a longer term passenger transport funding scheme. The Patronage Funding Scheme was introduced in November 2000 and was originally planned to run until 30 June 2003. The scheme has been highly successful and has resulted in an overall increase in passenger transport usage of 12% since its inception. In particular, Auckland's use of public transport has increased by 14%, while Canterbury has seen growth of 22% in passenger numbers.

10 Conclusion

10.1 Every country is having difficulty in managing the growth in demand for passenger and freight transport. In Europe the difficulties are severe with rising demands on tax dollars and problems of integrating transport within the wider approach to sustainable development and greenhouse gas reduction. To add to these problems aviation is now growing faster than road transport and adding to the greenhouse gas inventory and making large demands on public expenditure and sensitive areas in and around every major European city.

10.2 Notwithstanding these difficulties there is a great deal of best practice around and progress is being made towards genuinely "joined-up" thinking in transport and an investment strategy that can assist in delivering the widest possible set of economic, environmental, social and sustainability objectives. The stark reality is that there is not one example of all these things being done at the same time in the same place.

10.3 Caution is also necessary in translating international best practice to the very specific context of Australia. Australia is very different to a European country in history, culture and geography and best practice has to be interrogated and modified in order to be very sure that it is acceptable and workable in Australia. The USA and Canadian experience is based on similar governmental structures but there are still important differences.

10.4 Equally there is widespread agreement and understanding throughout the world that the current approach to transport investment and funding in many countries is not performing well. The prevailing view is that "we cannot carry on into the future doing the same things in the same way as we did in the past". This current situation in many countries has a number of characteristics:

- Current transport choices and year on year increases in demand for private motorised transport are not sustainable
- The growth in private motorised transport is seen as inevitable and a function of economic growth, progress, freedom and choice. It is desirable.
- Road freight transport is seen as inherently more flexible, efficient and reliable than rail freight transport
- Investment decisions usually take place within an organisational context that has been in place for many years and is dominated by highway engineers and highway planners. Transport investment decisions are dominated by the organisational importance of one mode
- Investment decisions are not made in an objective led planning context where problems are clearly defined, solutions listed and all kinds of solutions (including land use planning, fiscal intervention and behavioural modification) are given equal weight when tested against a set of fundamental principles
- Evaluation methods that cannot embrace this wider policy environment are the norm (eg cost benefit analysis and its dependence on time savings and accident savings)
- Walking and cycling are under-valued and are seen as very local matters even when transport data show that many car trips on the national highway system are equally local
- Transport spending is not linked into the achievement of wider social, economic and sustainability objectives
- There is very little internalisation of external costs

10.5 There are a large number of practical and innovative approaches to transport investment and funding currently in place or about to be put in place around the world. These new approaches have a long history of debate. London had its first discussion about congestion charges in the 1930s. The London congestion charge and the German lorry tax are indicative of a new approach to transport investment. In the UK this new approach is sometimes referred to as "the new realism". The approach has some important characteristics. These include a much deeper commitment to public consultation and participation to build a consensus across all groups in society on what should be done to deal with transport problems. Importantly the approach also involves full involvement and participation with the private sector and a much closer linkage between what the transport user does and what he or she pays. The congestion charge and the lorry tax are not punitive taxes designed to "punish" those who damage the environment. They are designed to be very fair and to encourage a much wider thinking about choices. Both taxes/charges are based on the principle that individuals, businesses and society as a whole will benefit from a shift away from severe dependency on

road transport. At the same time a stream of revenue is created which in the case of Germany will help fund both rail and road infrastructure and in London help to improve the tube and the bus system. The widening of choice and the improved availability of funds for a wider range of infrastructures is a key to future improvements in transport funding and investment.

10.6 A genuinely integrated, holistic, societal and best value transport investment decision making system would have a number of characteristics. These characteristics are our core recommendations for consideration, adaptation and adoption in Australia. They are:

- At the highest level there would be a vision of where we want to get to in 2010 or 2015. What do we actually want to achieve in terms of modal split, emissions, social inclusion, economic and strategic objectives. This is the main thrust of German transport planning (see the German section in Appendix 1) and is the main conclusion of the transport work of the OECD in its "Environmentally Sustainable Transport project (OECD, 2002). If we do not know where we want to be in 10 years time it is highly unlikely that transport investment decisions will represent best value in the widest social, economic and environmental sense
- At the next level this vision has to be translated into a number of clear and operational objectives. This has been the case in the UK (see UK section in Appendix 1) and has led to clear policies now bearing fruit in the London congestion charge (see section 9.5) designed to reduce congestion by 15%
- These objectives must then be associated with a thorough review of all the different ways in which they can be delivered/achieved. All possible measures and groups of measures should be examined including land use, fiscal incentives, behavioural modification. This is the case in the UK where the evaluation and assessment procedure (see section 9.7), GOMMMS, has for the first time put all potential measures and solutions on an equal footing and required all transport investment decisions to prove how they perform against accessibility, safety, environment, economy and integration objectives (DETR, 2000)
- A method of linking the federal/national, state and local has to be found that can deliver federal objectives whilst respecting local diversity and local geographical differences. This is essentially the basic principle of European Union policy enshrined in the Transport Policy White Paper (CEC, 2001) and described in the EU section of Appendix 1. It is also the principle underlying the US CMAQ program (see section 9.9) and efforts in Denmark to encourage local authorities to bid for specific transport funds (see section 9.11)
- Transport policy and transport investment decision making should be carried out in a modal-neutral manner. It cannot be done properly by highway engineers or railway organisations. This requires organisational change and new skills in a professional, educational and training context. This has not been fully achieved in any of our country case studies though the German emphasis on modal specific targets and a 50/50 split on transport funding between rail and road (see section 9.8) provides a much clearer context for investment decision making than that on offer in countries without modal targets
- Public participation is essential to the design and delivery of effective transport policies. Careful thought has to be given to the methods to be employed in involving the public in transport policy decision making. Public participation is well advanced in the UK and in Denmark.. In the UK it is a formal part of the Local Transport Plan process (see Appendix 1) and in Denmark it is part of the monitoring process for tracking the performance of public transport (see Appendix 1)
- Much more monitoring and performance evaluation is needed so we know how well (or not) our measures are working. This is part of the Danish approach to specific transport funding (see section 9.11) and is also part of CMAQ funding in the USA (see section 9.9).
- New methods of financing transport are needed to include: road pricing, congestion charging, market based parking charges and full internalisation of external costs. The European Union has a strong political commitment to full internalisation (see Appendix 1) and it is only a matter of time before this is implemented across all road, rail, water and air modes for both passenger and freight transport. The UK (see section 9.5) has made progress with congestion charging as a device to reduce congestion and raise revenue and the same principle is being applied by Germany to deal with road freight (see section 9.8)

10.7 It is possible to construct a modern, citizen based, socially inclusive and best value transport system and transport investment decision making model. We are getting nearer to it all the time in the countries studied in this report. It is within the grasp of Australia to get there first if (and only if) that is what Australians want.

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