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Transporting Australia's Future

A Discussion Paper

A NEW AND SUSTAINABLE FUNDING APPROACH TO TRANSPORT DEVELOPMENT IN AUSTRALIA, 2010 to 2050

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Transporting Australia's Future

Foreword

Infrastructure provision has lagged population growth in Australia for three decades. If we are to seize an advantage in what is the fastest growing region of the world's economy, obstacles to the development and delivery of infrastructure must be met with real and sometimes challenging solutions. *Transporting Australia's Future* is both a call to action and a pathway for governments to lead the reform of our current system of transport infrastructure funding, and develop the policies urgently required to provide—at no added cost to government—the investment we need to secure a sustainable and prosperous Australia.

Since 2004, Australia's strong economy, supported by the mining boom and AusLink investments, together with an increase in private financing has seen some improvements in the delivery of infrastructure projects that have helped to manage congestion costs and supply constraints. The benefits of this investment to our productivity are clear. However, while positive, these improvements are against a growing infrastructure deficit that puts at risk our ability to maintain economic prosperity in the longer term.

Current public debate about the merits of an increasing population is, undoubtedly a response to increasing congestion and declining quality of life in Australian cities that have failed to keep pace with growth. Increased infrastructure investment that improves economic capacity and productivity must be the first policy response to these challenges and will have the added benefit of easing pressure on migration policy and achieving a more sustainable future. *Transporting Australia's Future* highlights opportunities for governments to reform transport funding and move towards win-win policies to fully fund a developed national and cities sustainable transport system, which could be implemented in two generations.

This paper explores in more detail those recommendations set out in Consult Australia's *Transporting Australia's Future: Call to Action*. Presented as a discussion series, these chapters provide the basis for further policy debate on these issues, and the reforms required to guarantee the infrastructure we need for the future.

Contents

1 | INTRODUCTION

Recent world financial events have led Australian governments, and almost all other governments globally, to review revenue bases, forward budgets, spending programs and debt levels. Deferring transport investment to reduce sovereign debt, in the face of competing social infrastructure sector needs, may be the direction of most other OECD countries, but it does not need to be the position of Australian governments.

The good news for Australia is that we have a relatively sound economic position in the region, and a free and forward-thinking society (which readily takes up new products and accepts new challenges and ways of doing things ahead of most other countries). This provides a firm and confident basis for strong and committed governments to make the necessary transport funding reform decisions that are needed to pay the bill for tomorrow's growing transport infrastructure capacity needs.

Australia could lead the world in real transport reform: reform that maintains pre-GFC government funding priorities and avoids loss of investment momentum to enable continued and sustainable growth for an increasing population. However, pressing on with investing in essential transport capacity will require Australian governments to back new ways to increase the nation's infrastructure funding base.

The following series of brief discussion papers presents some key transport funding issues and proposes measures to address them that are central to achieving fully developed and sustainable transport systems in this country.

A number of policy choices are described which government could consider to significantly raise new revenues and increase government's capacity to maintain investment in both economic and social infrastructure across the country.

There is a pressing need to change to a more sustainable transport system, consistent with multiple transport objectives. Major areas of transport reform are presented in keeping with the Henry Review tax reform principles, which if developed could lead to a more prosperous country with Australia's competitive and regional leadership assured. The six broad areas of reform are:

- ***Better use of existing assets and resources*** through higher density city development, government asset sales, better use of lazy government assets, greater use of Information Technology Systems (ITS) applications, and integrated planning and governance.
- ***Phased introduction of user-pays charging and full cost recovery***, including the introduction of real prices to cover all operating, social and environmental costs, and a move away from a declining fuel tax regime.
- ***Transport Pricing*** including congestion pricing and network-wide distance-based user charges.
- ***Hypothecation*** of new transport revenue to fund public transport improvements and freight movement.
- ***New Private Sector Finance arrangements*** with governments sharing future traffic and revenue risk and uncertainty with private financial institutions investing in transport infrastructure.
- ***New Public Finance arrangements*** including the introduction and application of Tax Increment Financing by councils and state governments to fund urban growth and higher density development; the development at Green Transport Banks and carbon trading by state and Federal governments investing with superannuation funds in green infrastructure.

1 | INTRODUCTION

Implementing just one of these reform areas would result in a noticeable difference in our ability to fund transport. It is when they are implemented together as part of an overall reform package, we as a nation could fully develop a national transport system.

There is no doubt that Australian communities are demanding better transport services and are prepared to pay more for improved and more reliable transport. A combination of all of the proposed reform measures above could be developed and managed within a new integrated transport funding policy framework.

> ***This would provide multiple-objective outcomes that communities, transport agencies and service providers are looking for:***
>
> ***Sustainable implementation of long-term transport strategies and city transport blue-prints based upon a reliable and committed revenue base for project planning and certainty in infrastructure development.***

A transport strategy without a reliable means of funding is not a strategy at all. This new transport funding policy vision offers the Australian government the opportunity to develop a real means to fund much-needed modern urban and inter-urban transport systems. These might include new and extended existing heavy rail, light rail, new metro and new very fast train services, which could be completed within two generations to create a fully funded national transport system by 2050.

The reform agenda proposed in *Transporting Australia's Future* is only a starting point to gauge interest, including political interest, towards reform that could lead to a real difference in transport in this country. Therefore, this document is not comprehensive, but rather presents ideas for discussion in the wider industry and community, with the view to developing common ideas for governments, to consider.

Consult Australia recognises that there is far more work to be done in collaboration with other leading industry bodies, to governments and the community to achieve this vision for Australia's future.

2 | TRANSPORT AND THE ECONOMY

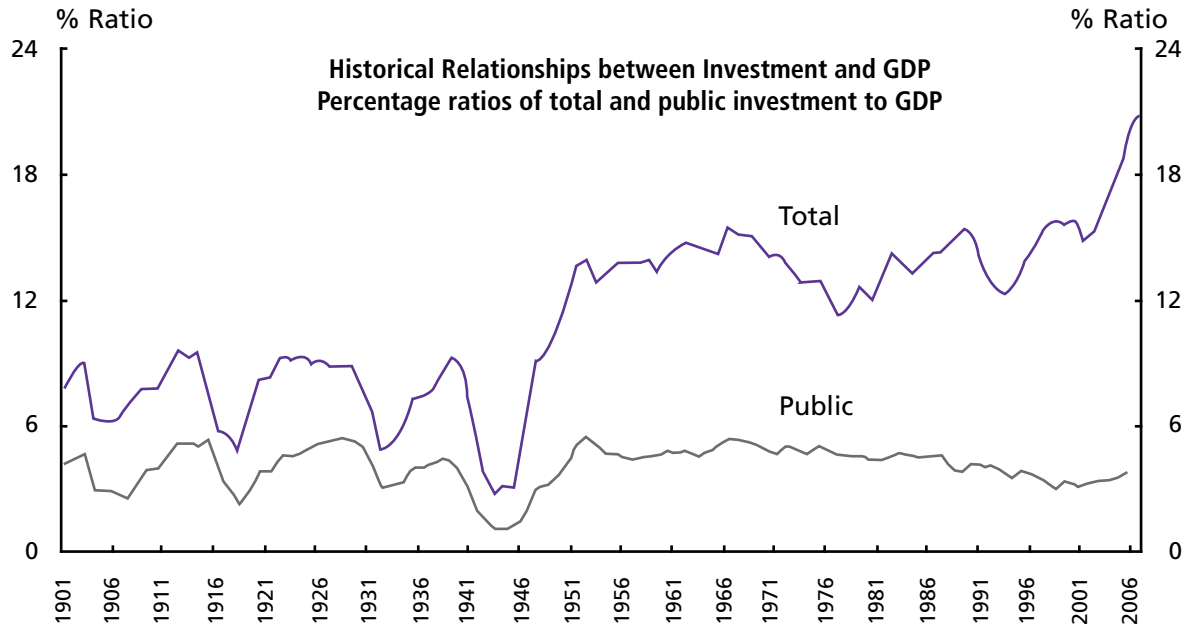
This chapter summarises some of the current relationships between infrastructure investment and the economy. In summary, it shows a pattern of declining public investment and increasing private investment in infrastructure over periods of increasing population. Trends in transport infrastructure are further described in Chapter 3. This chapter also shows that some parts of the economy are less dependent on transport as they once were and that some analysts and policy makers are looking to a de-coupling of the economy from infrastructure investment to satisfy sustainability objectives. It concludes with a cautionary note on the importance of keeping investment levels high to avoid stalling the economy.

2.1 Transport Investment and the Australian Economy

Australia's economy is more dependent on transport than most other OECD countries. We owe the country's economic and social development and well-being in large part to past investment decisions in transport infrastructure.

The historical relationship between economic growth (GDP) and public investment in Australia is shown in **Figure 2-1**.

Figure 2-1



Source: Coombs and Roberts (2007)

Public investment in infrastructure in Australia has been falling as a percentage of GDP. This is most noticeable in the 40-year period from the mid 1960s to about 2004. Private investment has increased considerably from 2001, but this includes categories other than transport (**Figure 2-1**). Public investment has increased since about 2005, but has still not returned to the levels of the 1970s and 80s, even though population growth is higher.

2 | TRANSPORT AND THE ECONOMY

Transport as a Proportion of the Economy is Declining

Transportation costs vary from one industry to another. They represent a significant portion of total costs in some resource-based industries, so modest transport cost changes can have major profitability impacts, but represent a much smaller portion of costs in other industries, and this portion is declining, as indicated in **Table 2-1**

	Farming	Mining	Construction	Manufacturing	Utilities	Retail	Fire	Service	Other	Total
1992 Relative to outputs	8.0%	4.3%	7.7%	3.5%	1.9%	4.7%	0.7%	2.9%	0.6%	3.1%
1996 Relative to outputs	7.6%	3.8%	7.4%	3.2%	1.8%	4.7%	0.6%	2.7%	0.8%	2.9%
1992-1996 change	-5.0%	-11.6%	-3.9%	-8.6%	-5.3%	0.0%	-14.3%	-6.9%	33.3%	-6.5%

Table 2-1

Transport as a portion of output varies significantly from one industry to another, and is declining for the economy overall.

Table 2-1 shows the relative decline in transport activity to economic output of about 0 - 3 per cent pa by the different sectors reported. This has led some to argue against increasing levels of infrastructure funding to transport to achieve greater sustainability, referring to a de-coupling of transport from the economy.

2.2 Decoupling Transport from the Economy

This section provides an overview of trends in decoupling Australian transport activity from economic growth, poses a question about the usefulness of the decoupling concept as a goal of policy or as a policy itself, and reviews some Australian experience.

Trends

Economic (or income) growth and population growth are the two key drivers of growth in transport activity. Transport can be defined as 'decoupled' if it grows at or around the rate of population growth (1.3 per cent a year in Australia over the past decade, higher more recently[1]) and not decoupled if it increases at a similar rate to the economy (3.5 per cent a year over the past decade).

Road transport (the dominant mode in passenger transport and very important in freight transport) and aviation (the leading mode in longer distance passenger transport) are often the main areas of interest in considering decoupling. This discussion focuses largely on these areas.

Car travel (passenger kilometres) in Australia grew by 2.4 per cent a year in the six years to 2003-04 and, with high fuel prices thereafter, was flat in the following four years, giving a decade annual rate of 1.3 per cent, the same as the population growth rate. Trends point in the direction of a car-travel growth rate that is at least moving towards decoupling. These trends include: somewhat denser urban living; population ageing; urban traffic congestion; a well-recognised possibility of continued high fuel prices; and concerns

[1]BITRE (2009) is the immediate source for all statistics in this section, except where otherwise stated.

2 | TRANSPORT AND THE ECONOMY

about petroleum consumption outstripping production (the "peak oil" effect). This is despite growth in personal incomes which, in itself, is improving the long-term affordability of car travel.

In contrast, **domestic aviation travel** grew by 6.6 per cent a year in the decade to 2007-08. Aviation travel, domestically and internationally, continues to be highly responsive to income growth. With growth in tourism, in global business travel, and in international family reunion travel as part of a more globalised labour market, this growth can be expected to continue. With its 'visibility' and with the particularly high global warming impacts of aviation emissions, the aviation sector is seen as a particular target for international carbon pricing, which would add to its costs. However, over the longer term, the sector can be expected to absorb any cost increase of this kind, whether through further expansion of the successful low cost aviation model or through fuel-efficiency advances. Thus, aviation growth is anything but decoupled from the wider economy, and there seems limited if any prospect of this occurring in the foreseeable future.

Australian **road freight** (72 per cent of the non-bulk/intermodal freight task and 36 per cent of the total freight task, in tonne-kilometres) grew by 4.4 per cent a year over the decade to 2006-07. For many years, road freight and the freight task in general have grown slightly faster than the economy as a whole. Importantly, road freight vehicle travel growth (vehicle kilometres) is significantly lower, at 2.1 per cent a year (decade to 2007-08), but this growth rate is still above that for car travel. Overall, freight transport is far from decoupled. In fact the Australian economy is far more dependent on road freight than all other OECD countries.

What are the future prospects for freight transport growth? Analysis of trends in Europe would suggest that these might depend on the speed and extent of change in the structure of the Australian economy. The road freight sector experienced no growth in the United Kingdom between 1997 and 2004, whilst in 15 European Union countries, it increased by nearly a quarter (Jacobs Consultancy 2006).

The UK trend has been linked to a marked decline in the freight intensity (freight to GDP ratio) of the UK economy, with a shift in production away from traditional manufacturing and primary industry towards a service-based economy in which goods transportation plays a smaller role. Over the 1990s and early 2000s, the UK service sector grew nearly twice as fast as the service sector of comparison EU countries. In Australia, the property and business services sector increased from 10 per cent of GDP to 14.5 per cent over the past decade, while manufacturing's share of GDP declined from 15 per cent to 12 per cent, indicating that Australia is not immune from a similar structural trend. However, based on historical freight growth to GDP growth ratio, current forecasts are for business as usual growth, implying a doubling of the tonne-kilometre task over 20 years (BTRE 2006)[2].

[2]At a global level, questions remain about whether the 'decoupling' of freight demand observed in countries undergoing a structural decline in manufacturing is offset, or more than offset, by additional transport associated with importing manufactured goods from China and other emerging economies. It is possible that the shift of production to more distant locations, combined with greater use of 'just in time' inventory practices, may mean that a national perspective on freight demand is misleading.

2 | TRANSPORT AND THE ECONOMY

Decoupling: goal, policy or blind alley?

Should decoupling be seen as a goal of policy, or as a policy itself, or is the concept too high-level to be useful in a practical sense as either? Notably, the European Union has set itself an objective of reducing the link between freight transport demand and economic growth (decoupling) in order to achieve more sustainable transport. The objective of decoupling is to reduce congestion and other negative side-effects of transport. Policies to support decoupling centre on modal shift, i.e. shifting freight from road to water and rail (Jacobs Consultancy 2006).

The risk in a decoupling approach is that a critical distinction between outcomes and strategies to achieve those outcomes becomes confused at both levels, impeding real progress. At the outcome or end state level, a decoupled world in which economic growth proceeds without freight transport growth may be desirable, as there would be no increase in the externalities of freight (greenhouse emissions, pollution, congestion, noise etc.), but how is it to be achieved? Similarly, at the policy or strategy level, a future in which most freight is routed by rail - i.e. in order to arrive at decoupling—is attractive on account of the resulting lower environmental footprint, but how, in a 'just in time' market economy with multiple and dispersed freight origins and destinations, do we get there?

Arguably, a better approach is to address the negative side-effects of transport innovatively but directly, rather than seeking to reduce or eliminate transport activity itself. From one side, a transformational approach to transport energy through decarbonisation offers an ultimate scenario of continuing transport and economic growth, without adverse climate change impact. This may call for a range of largely supply-side policies, from research and development, through technology-forcing regulation and including infrastructure development to support new transport energy systems. And from the other side, an urban passenger transport system that is already moving towards decoupling from economic growth still often presents unacceptable levels of negative side-effects (congestion, greenhouse gas emissions). Numerous policy alternatives are available to address these side-effects more or less directly, ranging from: new road infrastructure and improved public transport services; through vehicle emission regulation; road and parking pricing; behaviour-change information campaigns; and extending to land use and urban planning policies.

Australian experience

The National Transport Commission (NTC) has considered the issue of decoupling freight and economic development, writing as follows:

> *The glaring gap in policy relates to the decoupling of freight and economic development, which would require central planning, and or community behaviour shifts well beyond general experience to date. Indeed when the concept of reducing the task was discussed in interviews and at the workshops in the course of this study, there were very few who considered the objective as a pragmatic one. Many simply could not understand how it could even be considered (NTC 2006).*

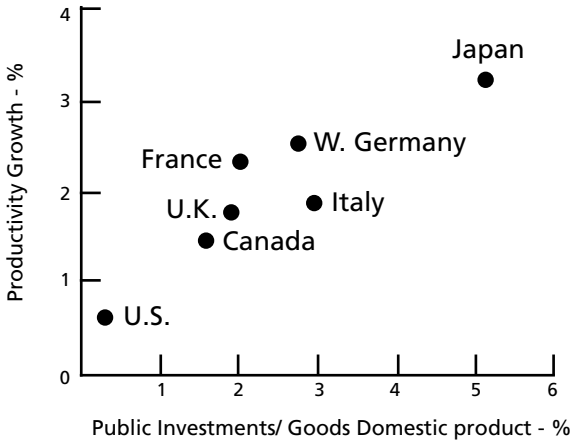
The Commission identified a possible measure involving undertaking a broad community awareness program on balancing development and amenity, but considered it would be likely to have limited effectiveness and would potentially divert resources from higher priority activities.

2.3 Underfunded Transport Can Stall the Economy

Evidence provided to the US Congress as part of the Intermodal Surface Transportation Efficiency Act of 1991 identified the relationship between public investment and productivity growth. It has been well argued that countries and states with higher levels of infrastructure investment tended to have higher rates of real productivity growth as shown in **Figure 2-2**.

Figure 2-2

Public Investment and Productivity



While productivity in Japan has notably declined since the early 1990s, and while data and methodological difficulties are endemic, transport infrastructure investment is widely recognised as facilitative of sustained economic growth.

The link between economic strength and infrastructure investment has been re-assessed around the world, both in the face of the 2008/9 global financial crisis and in the threat of a double-dip recession in the US and in Europe over 2010/11 and 2011/12. Investment in infrastructure has been a key element in Australia's successful response to the GFC, as has been the case in the US. In today's competitive, global economy, there are important implications and risks for government investment policies. Developments across the world in response to Global Financial Crisis, re-asserts the connection between infrastructure investment and a strong economy.

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3 | TRENDS IN INFRASTRUCTURE

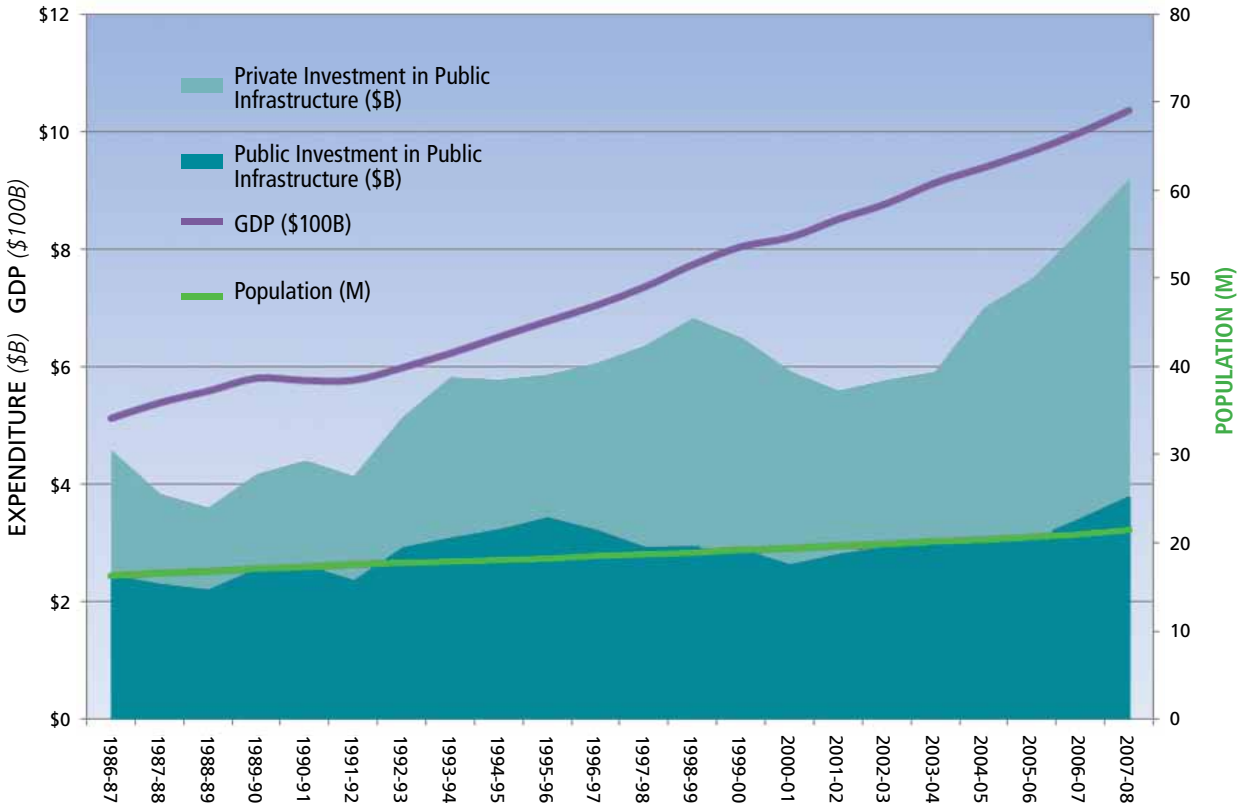
Infrastructure trends provide a basis and only one input to setting infrastructure policy. Trends however can mislead conclusions if they are not based on reliable and unbiased data. A key additional requirement is consistent definitions of data series, something that is not always available. The following chapter attempts to summarise transport infrastructure trends in Australia using available data, mostly reported by the National Transport Commission.

3.1 Economic Infrastructure Expenditure in Australia

Public sector funding of transport infrastructure investment in the public domain has shown a general growth since the 1980s in line with population growth (this does not include private investment in private infrastructure). This has been complemented by an increasing level of private sector investment that has significantly increased as a proportion of total expenditure from 2001, as shown in **Figure 3-1**.

The strong increase in private sector expenditure from 2001 has supported the relatively lower growth in expenditure from the government.

Figure 3-1 Transport Infrastructure Expenditure (public domain)



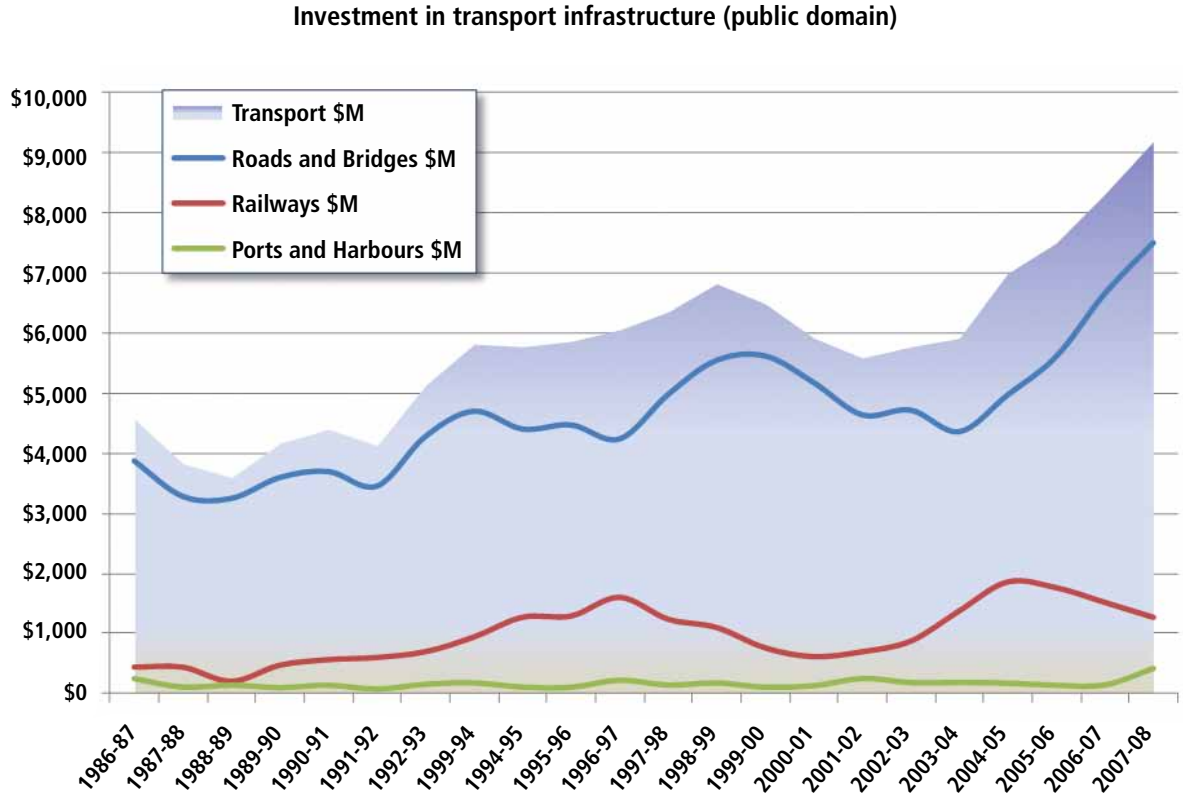
3 | TRENDS IN INFRASTRUCTURE

In summary, while public investment in transport infrastructure lagged population growth up to 2004, it has increased strongly since then and especially over the last two financial years (not shown on the chart), reflecting both an increased priority to infrastructure under the Federal Labour Government and a stimulus response to the Global Financial Crisis. Private transport investment, including both investment undertaken for the private sector and Public Private Partnerships (PPPs), has also grown strongly over the 2000s. Nevertheless, infrastructure gaps persist, particularly in, near, and between major cities. Infrastructure maintenance has not kept pace with new investment. While there is no up-to-date data for recent years, the indications are that while government investment from economic stimulus policy has increased, private finance has significantly fallen.

Investment by Mode of Transport

Figure 3-2 shows how public investment has been distributed between modes. Transport infrastructure investment has been dominated by investment in roads over the last 15 years, with a notable upturn since 2004, offsetting a decline in rail investment. Road expenditure itself has been dominated by new infrastructure, with an almost constant expenditure in State budget allocations to the maintenance of existing assets (See **Figure 3-5** and **Figure 3-6**).

Figure 3-2 Investment in Transport Infrastructure

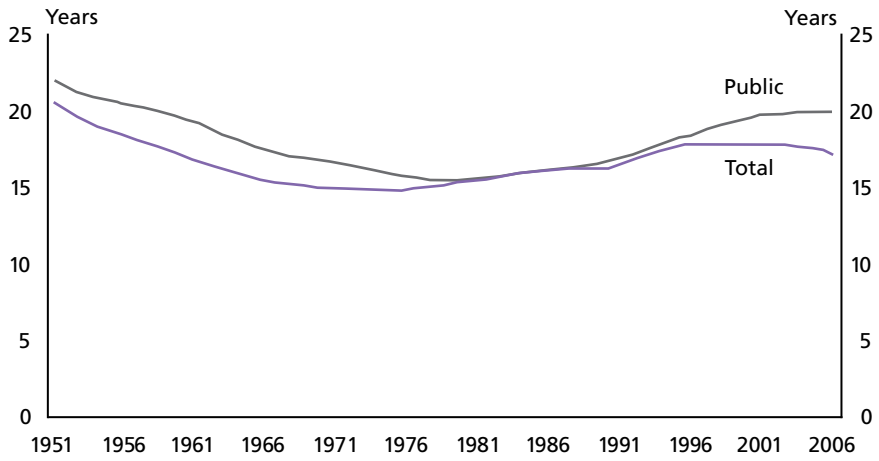


3 | TRENDS IN INFRASTRUCTURE

Average Age of Infrastructure

Figure 3-3 shows how the average age of infrastructure (all sectors) has changed over the last 50-60 years. There appears to be trending-down of the average age of total assets with government assets showing little change since 2001.

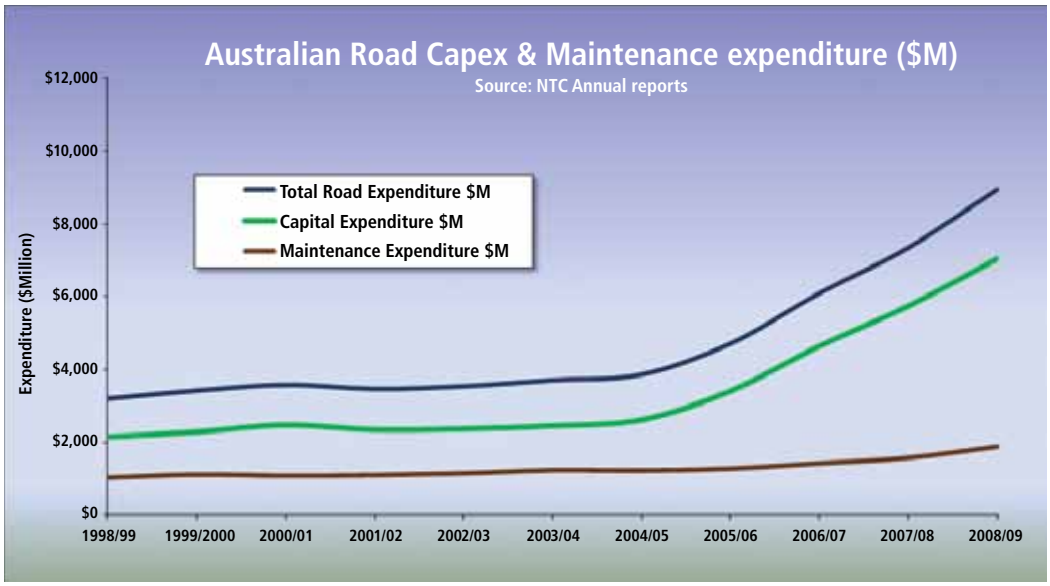
Figure 3-3 Average Age of Infrastructure, 1950-2005



Road infrastructure capital and maintenance spending profile

Road infrastructure in Australia has experienced significant increases in capital expenditure over recent years. Capital expenditure has increased from $2,377 million in 2002/03 to $7,052 million in 2008/09 (in actual year dollars), representing an increase close to 200 per cent over the six years, or close to 20 per cent a year unadjusted for inflation. More than 86 per cent of the increase occurred during 2004/05 to 2008/09, with annual capital expenditure increasing at a higher rate of 28 per cent. This is evident from **Figure 3-4**, where the gradient of the line increases after the year 2004/05, in part as a result of AusLink funding.

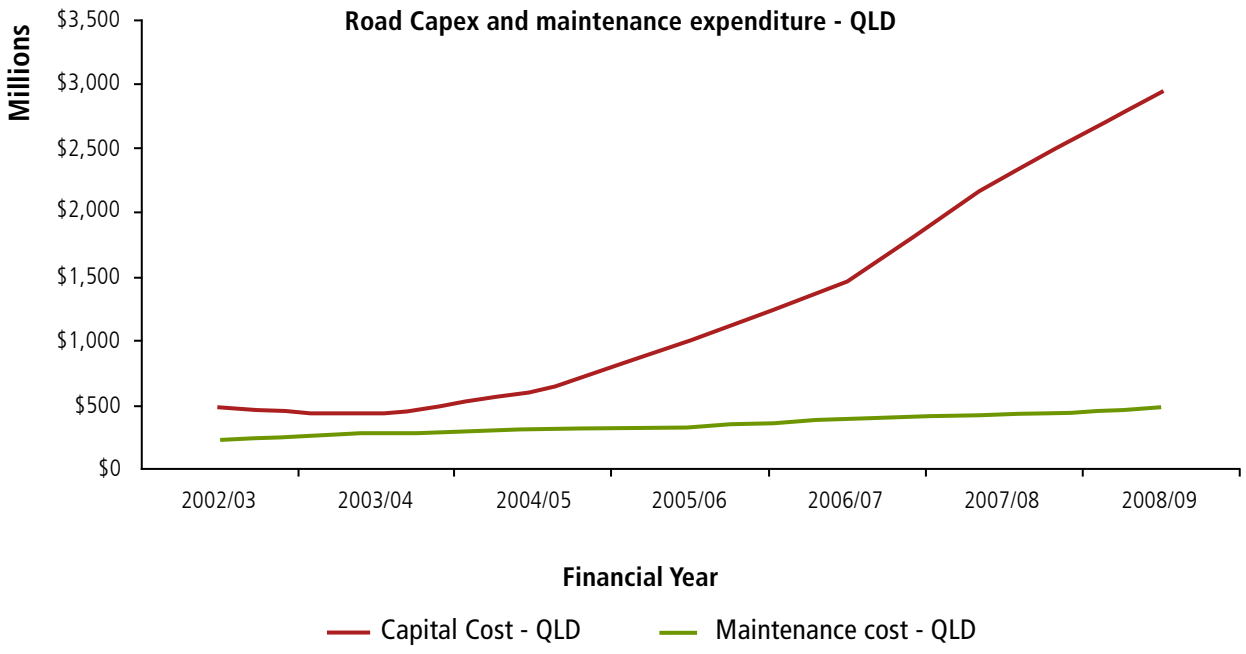
Figure 3-4 Road Capex and Maintenance expenditure in Australia



Maintenance expenditure has been relatively stable over the same time period, as illustrated in **Figure 3-4**. Maintenance expenditure went from $1,157 million in 2002/03 to $1,880 million in 2008/09, an increase of around 8.4 per cent per year, or 63 per cent over the six years. However, maintenance expenditure as a proportion of capital went from 48.7 per cent in 2002/03 to 26.7 per cent in 2008/09. The share of maintenance when compared to capital has decreased as a result of the disparity of growth rates.

While overall capital expenditure has outgrown maintenance expenditure, there is significant variation across States and Territories. In Queensland, where there are significant mining resources, road capital expenditure has trended up dramatically, with an increase of over 600 per cent from 2002/03 to 2008/09 as shown in **Figure 3-5**. Consequently, Queensland's share of Australia's total capital expenditure on roads has gone from 20 per cent to 42 per cent, more than doubling its share in 6 years. Road maintenance expenditure has also increased significantly in this state, with an increase of over 100 per cent, going from $230 million to $485 million. This growth rate is still relatively low when compared to capital expenditure, with capital expenditure 6 times higher than maintenance expenditure in 2008/09, compared to 2 times higher in 2002/03.

Figure 3-5 Road Capex and Maintenance expenditure in Queensland

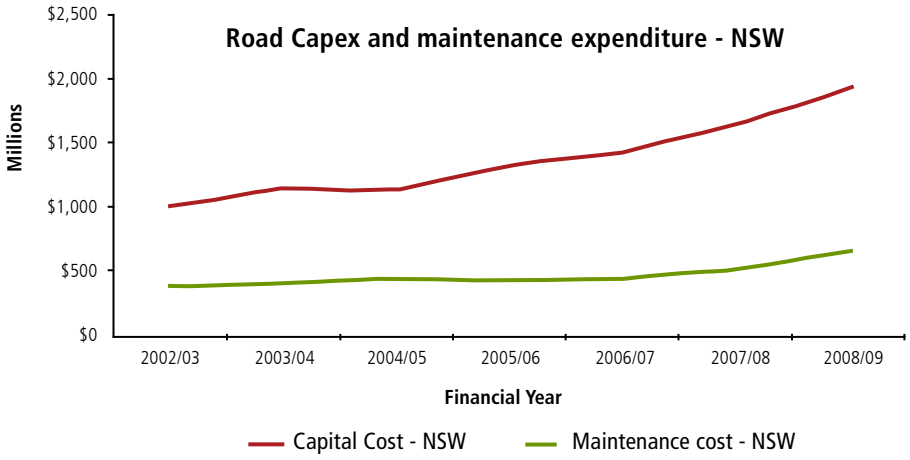


Source: NTC annual reports

Figure 3-6 shows that when compared to Queensland, NSW has not experienced such a change in capital expenditure. Capital expenditure in NSW has increased by a relatively modest 11.5 per cent per year, going from $1,010 million to $1,941 million. NSW has experienced slightly lower growth rates in maintenance when compared to Queensland. Maintenance expenditure totalled $664 million in 2008/09, implying a growth rate of 9 per cent a year. Despite NSW experiencing a lower disparity between capital and maintenance expenditure growth rates, the share of maintenance expenditure as a proportion of capital expenditure still decreased from 39 per cent to 34 per cent.

Figure 3-6 Road Capex and Maintenance expenditure in NSW

Source: NTC annual reports

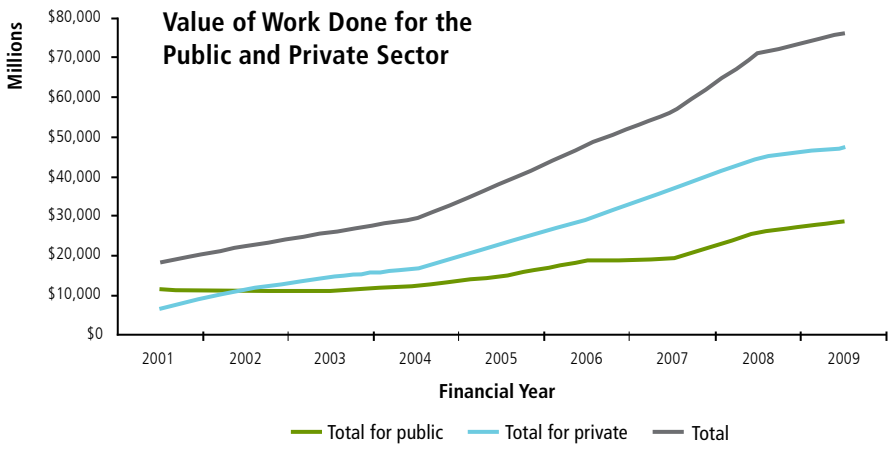


Private infrastructure spending profile

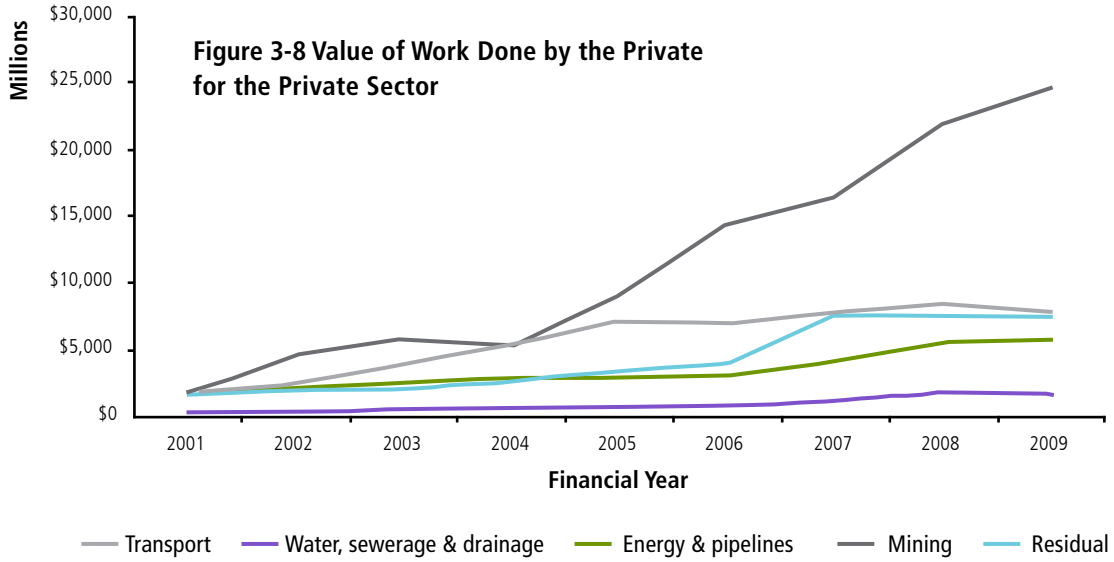
Capital infrastructure spending for both private and public sectors has increased significantly over the past ten years. **Figure 3-7** shows that the total value of work done by both sectors has increased from $18.5 billion in 2001 to $76.1 billion in 2009, with the bulk of the increase attributable to the private sector. (This is consistent with **Figure 3-1**). Private sector investment increased from around $7 billion to around $47 billion in 2009, a 576 per cent increase. The rate of increase was particularly strong during 2004 to 2008, where the annual increase of value of work done averaged around 20 per cent per year. From 2001 to 2009, the value of work done for the public sector increased from $11.5 billion to 28.8 billion (12 per cent per year). The higher private sector growth rate has resulted in the value of work done for the private sector going from 39 per cent lower than work done for the public sector to 64 per cent higher in 2009.

Figure 3-7 Value of work done for the public and private sector

Source: ABS



Infrastructure investment growth in the private sector has varied significantly across infrastructure sectors, with particularly strong growth related to mining infrastructure. Mining infrastructure spending has gone from $1,821 million in 2001 to $24,665 million 2009. This accounts for 57 per cent of the total increase in value of work done experienced in the private sector in this timeframe. Other utilities have experienced modest increases when compared to mining. Transport expenditure, which includes roads, bridges, railways and harbours, increased by $6,215 million in the 8 years from 2001 to 2009. Over the same period the value of work done in water, energy, and other infrastructure sectors increased by $1,324 million (22 per cent a year), $4,159 million (17 per cent a year) and $5,790 million (21 per cent a year). **Figure 3-8** shows the value of work done for the private sector in the different infrastructure segments.



3.2 Current Capacity Investment Needs

A review of engineering investment forecasts in Australia has been published by Investment Monitors since 2001. This covers projects categorised as under construction, committed, under consideration and possible. This provides a forecast of investment needs within a planning framework necessary for construction planning and approval, typically a 10-year horizon. However, it does not attempt to address the longer – term planning framework necessary to recognise policy, environmental and population futures. Forward estimates of $717 billion expenditure have been assessed at March 2010 for all economic infrastructure.

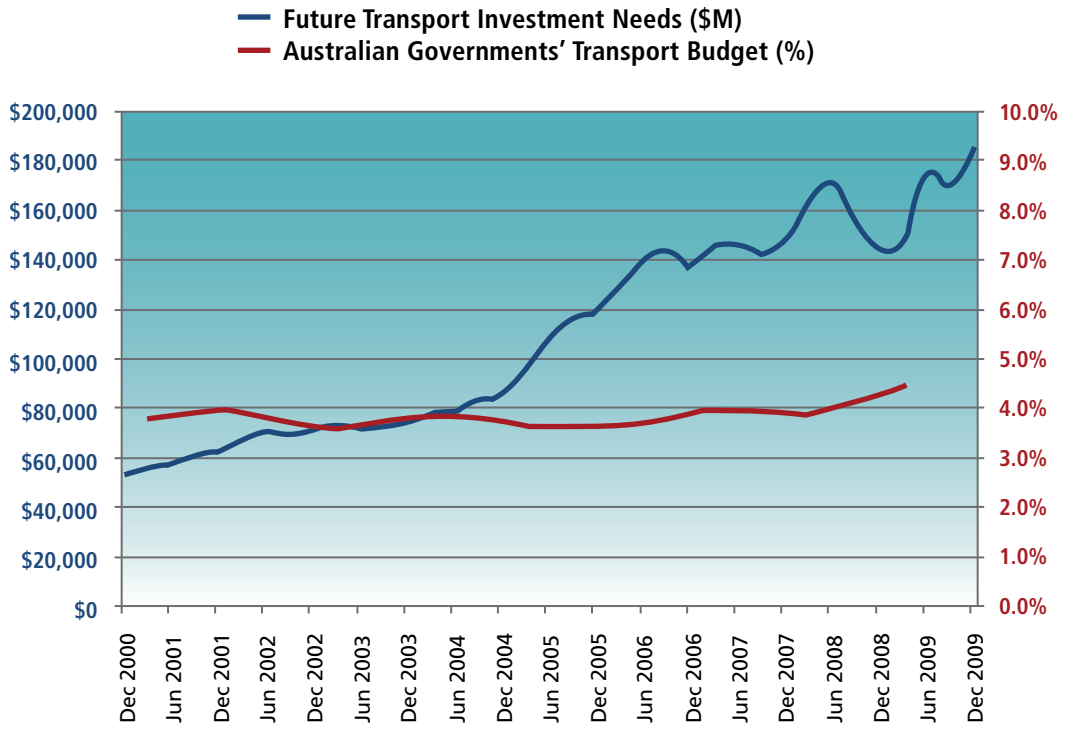
Figure 3-9 presents this expanding future for transport infrastructure. Over $186 billion (26 per cent of total infrastructure) is earmarked as essential transport infrastructure to move the nation. More than half of this (over $100 billion) is for government funded transport projects, including backlog projects. This investment future has been identified as necessary for the continuation of today's movement efficiency and competitiveness. More than this will be needed to transport our growing population, predicted to increase by 50 per cent to 37 million by 2040, only one generation away.

Data shown in **Figure 3-9** suggests that in the last 9 years, total transport investment needs have increased over 300 per cent, and are increasing. Over the same timeframe, the total government expenditure on transport has been about 4 per cent of combined government budgets.

Widening Infrastructure Gap

Australian governments' contribution to transport infrastructure has remained at about 4 per cent of budget. In comparison with this relatively stable government contribution, the forecasts for transport investment needs to continue to grow, and will place severe tension on existing infrastructure funding sources. To address this expanding funding deficit governments have some options: expand reliance on private sector financing through enhanced Private Public Partnerships (PPPs); capture community funds such as superannuation investments; develop new user-based sources. To keep pace with need it is suggested that all of these options need to be developed.

Figure 3-9 Future Transport Infrastructure Investment Needs



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4 | COMMUNITY EXPECTATIONS AND USER WILLINGNESS TO PAY

The community's expectations for the provision of transport infrastructure and levels of service are not dissimilar to those expressed in other developed countries. Adequate transport infrastructure that is reliable and provides an appropriate level of comfort are all important in making it possible for members of the community to participate in work, study, sport and recreation in our cities.

However, it is clear in the major Australian cities that the community's expectations are not being met, and that the funding arrangements in place have much to do with this. By way of example, the recent report, *Independent Public Inquiry, Long-Term Public Transport Plan for Sydney*, stated that there was "a high level of concern about the current state of public transport in Sydney and a high degree of willingness to help find ways to fix and improve the system." In particular, there was a call for greater levels of funding to sustain and improve the public transport system, and support for greater long-term financial certainty in public transport funding. The observation was also made that a well functioning governance model needs to be in place to underpin any long-term financial plan for public transport. This chapter outlines those issues that inform community expectations and willingness to pay for transport and services.

4.1 Willingness to pay

As governments are ultimately accountable for transport infrastructure and services, they also have to deal with the public's willingness-to-pay for increased land transport mobility, either in the form of higher taxes or user charges. In general, the shorter the travel times and the more reliable the arrival times, the lower transport costs are and the higher the community's willingness-to-pay. This is reflected in the responses of a random sample of Sydney residents, surveyed for the purpose of the Inquiry, as summarised below:

- 62 per cent of respondents preferred high investment in public transport, in the full knowledge that this would necessitate tax and user charge increases.
- 75 per cent of respondents would be willing to support a funding package involving higher costs in fares, congestion charges and taxes if this were to achieve a 20 per cent decrease in public transit travel times.
- Respondents favoured investment in public transport as part of buying an entire mobility system, not a specific travel time benefit for themselves.

4.2 Preference for improvements

The top two improvements valued most by people interviewed in Sydney and noted in the above Sydney Inquiry, are:

- Improved peak rail capacity; and
- Improved bus services on major routes.

The experience elsewhere in Australia suggests that governments and transport authorities will have to spend more on road infrastructure in the future, or face increasing congestion and economic and political consequences. The view expressed is that at best, spending more on rail will only moderate the future increase in road infrastructure spending, not eliminate it.

4 | COMMUNITY EXPECTATIONS AND USER WILLINGNESS TO PAY

4.3 Response to congestion pricing

In implementing a user-pays approach to road pricing, motorists would pay directly for driving on a particular road or in a particular area. Road pricing can be used to reduce traffic congestion, and to charge motorists directly for their roadway costs. This is fairer than current practices that result in substantial cross-subsidies.

In the case of congestion pricing, the intention is as much to achieve a change in behaviour, as it is a source of revenue that could then be used to fund the development of relevant transport infrastructure. As a rule, people are more responsive to price signals if there is better information about the cost of providing the service and quality of substitutes. In the case of transport, the community requires better information on current prices and estimated travel times for alternative routes. Congestion pricing schemes allow much better collection of information about people's willingness to pay for transport infrastructure improvements, which could help inform government decisions.

In 2003, the city of London introduced a congestion charge of £5 a day on private vehicles entering a 20 km^2 area of its central business district. Although it was controversial at the time, public acceptance has grown and there is support to expand the program to other parts of London. The London charge today (2010) is over double that of 2003, and is accepted for the benefits that it brings. Other cities that have also introduced congestion pricing are Stockholm and Singapore. In all cases, the community has come to accept the need for congestion pricing and the benefits achieved. This issue is explored further in Chapter 7.

4.4 Reliability

It has been widely recognised that the reliability of transport infrastructure is particularly important in terms of its impact on trade, production costs for businesses and community well-being. According to O'Fallon (2003), poor quality or unreliable transport infrastructure services may mean that firms are reluctant to invest in productive capital, or have to reduce such investment in favour of "complementary" capital to compensate for the lack of infrastructure.

4.5 Affordability

In general, affordability improves overall if consumers were to pay directly rather than indirectly for the use of roads, parking facilities and other elements of a transport system, because direct payment allows them a new opportunity to save money by reducing vehicle ownership and use. With congestion pricing, consumers would save if they were to use alternative modes, routes or travel times to avoid driving on congested roads. Overall, affordability tends to improve as greater diversity is introduced into the transportation system, as it gives users affordable alternatives that can reduce their vehicle use.

4.6 Implementation

Electronic charging methods have advanced to the point where they can replace the use of mechanical fee collection, and provide this service as a reduced transaction cost. It is now possible to reform policies and practices to take advantage of these electronic charging methods and processes, both in the interests of government and the community.

4 | COMMUNITY EXPECTATIONS AND USER WILLINGNESS TO PAY

User-pays transport satisfies multiple objectives. It offers a win-win outcome for government and users. Funding reform implementation based on user-pays would:

- Result in more efficient transport;
- Avert increased car and oil use as well as provide for necessary funding to support population growth; and
- Increase travel choices for disadvantaged households.

Because win-win funding solutions provide multiple benefits, most importantly sustainability, they offer opportunities for cooperation between interest groups. A first step towards implementation of win-win funding reform is to develop partnerships between industry, government and the community to support sustainable reform programs.

A greater level of implementation can be justified if social and environmental objectives are valued and prioritised. Community expectations and user willingness to pay for reliable services should not be underestimated.

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5 | THE HENRY TAX REVIEW AND TRANSPORT REFORM

Australia's Future Tax System Review (the Henry Review) was released in May 2010 (taxreview.treasury.gov.au) along with the Australian Government's response (futuretax.gov.au).

The Henry Review lays out a long-term vision for a tax system "oriented towards supporting strong and sustainable economic growth" with strong population and "increasingly fragile ecosystems".

The Henry Review proposes that the Australian tax system should primarily rely on four pillars—personal income, business income, private consumption and economic rents from natural resources and land—that are supplemented by taxes which "efficiently address social or economic costs". An example of this is direct user charging rather than taxpayer funding, where governments intervene in markets to achieve more efficient or equitable societal outcomes.

5.1 Enhancing Social and Market Outcomes

While markets generally efficiently allocate resources to their highest value use, they may not always arrive at the prices that are ultimately best for society. This is because individuals base decisions on their own private interests – including the prices they pay – which fails to take into account *spillover* costs.

To improve the efficiency of such markets when financing some government provided goods and services, such as public roads, the most efficient way is to charge users a price reflecting the avoidable cost of providing that good or service rather than to tax.

As an example, a congestion tax works to reduce usage. People reduce or avoid roads with a congestion charge by sharing rides to work, cutting down on unnecessary trips or using public transport where possible. Some trips at busy times will still depend on cars – for these drivers the tax would be unavoidable. However, they will benefit from faster and more reliable trips, as those that can avoid the congestion tax will no longer be on the roads.

For reasons of practicality, a tax is usually applied only on inputs to the behaviour (an easily measurable commodity), rather than the amount of the spillover cost itself. However, the tax will be less efficient in creating incentives to reduce the costs the less closely related the taxed input is to the spillover cost. For example, taxing petrol to reduce urban congestion is not particularly effective, even though fuel is used in cars that contribute to congestion.

Taxes and regulation can be used to correct for spillover costs. Regulatory costs should be recovered from those who are best able to reduce the social costs the regulation is targeting.

5.2 User Charging

The Henry Review notes that "[P]ublic goods should be generally funded from broad-based taxes. However, user charging can be an efficient means of financing some government-provided goods and services and of rationing individual access to community resources."

For user charging to be efficient, users need to be charged the cost that their consumption imposes on others. This cost would theoretically be what a well-functioning market would charge, but might need to be higher or lower depending on whether there are wider social costs or benefits.

5 | THE HENRY TAX REVIEW AND TRANSPORT REFORM

5.3 Road Transport Taxes

The Henry Review concludes that "[C]urrent road tax arrangements will not meet Australia's future transport challenges". It further notes that "[P]oorly functioning road networks harm the amenity, sustainability, liveability and productivity of society."

Therefore, if the Australian tax system moved from indiscriminate taxes to efficient prices it would allow the country to better leverage the value of its existing transport infrastructure. This would lead to less congested roads, shorter travel times and investment in road infrastructure that addresses user demand and provides a foundation for further productivity growth, improved living standards and more sustainable cities.

In major cities, location-specific congestion charges should vary according to the time of day. This would lead to city roads being less congested during peak periods, with higher travel speeds and shorter travel times, which in turn results in saving time for road users, reducing vehicle costs and reducing greenhouse emissions. The revenue generated from congestion charges on roads could then flow back to the community financing public transport in affected areas.

In addition, heavy vehicle charging could ensure that individual trucking operators pay their own specific costs and no longer cross-subsidise other operators. Truck operators would have incentives to avoid route choices and vehicle configurations that cause the highest costs, but would have access to roads and bridges where and when they are willing to pay. Revenue from road-wear charges would directly fund road maintenance.

Negative spillovers not currently amenable to pricing would be addressed through regulations. The transport sector would pay for greenhouse emissions through an economy-wide scheme, not through ad hoc sector-specific taxes.

In exchange for targeted charges, road users benefit. They would pay less fuel tax, motor vehicle stamp duties would be abolished, compulsory third party insurance would be fairly priced, and taxi license quantity restrictions that push up taxi fares would be removed.

The revenue from efficient charges could help finance new urban transport infrastructure, and cover the cost of heavy vehicle damage. However, these charges would not pay for the full cost of providing and operating the road network. The remaining costs could be funded from general tax revenue, or by retaining a network access charge (such as annual vehicle registration) or a variable charge (such as fuel tax) set to recover the efficient costs of road provision. Important non-economic community objectives would still be funded from general revenue through well-defined community service obligations.

Spending on roads should match anticipated need and be determined strategically according to comprehensive and transparent benefit-cost analysis. This would help ensure new roads are built where needed, and roads are maintained to minimise total life-cycle costs, including costs to road users. Road users with specific needs could enter commercial agreements with road suppliers.

Existing institutions have not led to the most efficient use and supply of roads. Prices are essential to making the best use of roads, but they must be coupled with improved governance that better serves the needs of road users, now and in the future. New investment based on economic criteria, and accountability for investment decisions would help ensure that roads are in place to address future needs.

The Productivity Commission also reported favourably towards user pays and distance based charges for heavy vehicles. At that time, the Commission's report was widely consulted on and generally supported.

5 | THE HENRY TAX REVIEW AND TRANSPORT REFORM

When COAG made the decision to proceed with mass distance charges for heavy vehicles it was largely based on the Commission's report.

5.4 Conclusion

With respect to road pricing, the Henry Review makes a key recommendation (not accepted by the Government):

Governments should analyse the potential network-wide benefits and costs of introducing variable congestion pricing on existing tolled roads (or lanes), and consider extending existing technology across heavily congested parts of the road network.

The Henry Review suggests that, where tolls are levied by private infrastructure operators, state governments should negotiate to compensate operators if the switch to variable tolls involves a loss of revenue (and conversely to pass the gain to road users or government if there were gains in revenue). The Review notes that introduction of congestion pricing on existing roads would place stress on existing public transport services and draw attention to inadequacies. Introduction should be coordinated with—and help finance—additional investment in public transport.

The Henry Review also supported the aims of the COAG Road Reform Plan and recommended an acceleration of its timetable towards mass-distance-location-based charging.

The Review concludes: *The challenge is formidable. It requires coordination across all levels of government. But reform would promote the best investment in and use of our roads, lift national productivity, and improve the lives of millions of Australians.*

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6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

The extent to which traditional revenue sources continue to fund infrastructure points to a need to identify new, more sustainable revenue sources for governments in the longer-term. Increasing commitments by governments to reduce greenhouse gas emissions, and the inevitable shift towards alternative fuels and green energy sources, reduced private car travel, hybrid vehicles and increasing use of public transport means reduced revenue from fuel excise and related taxes. This chapter sets out these challenges, and identifies new sources of revenue to inform public policy objectives.

6.1 Policy Shifts Towards New Sources of Revenue

Governments' ongoing reliance on revenue generated through taxes on petroleum and carbon-based fuels represents a failure in policy that inhibits the ability of governments to fund the infrastructure necessary for a sustainable future. Increasing environmental and social concerns about the longer-term impact of fossil fuels underscore economic arguments contributing to an inevitable decline in government revenue from traditional transport-based sources. Most recently, the oil spill in the Gulf of Mexico crystallised these concerns with President Obama stating a renewed commitment for the United States to develop alternative fuel sources over the next decade.

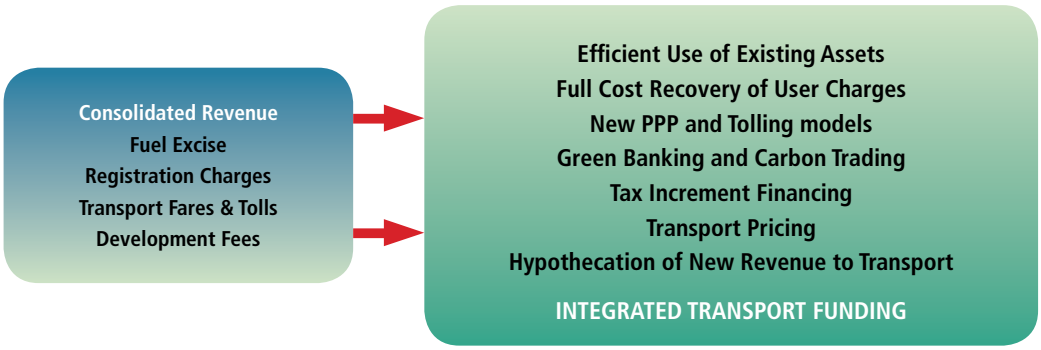
Current policy mechanisms generating revenue from transport are clumsy, socially inequitable and economically inefficient: vehicle sales tax; inequitable insurance; vehicle registration charged irrespective of use; subsidised fares which fail to cover real costs, access or means are just some examples. The weight of transport literature and commentary on the current, largely inappropriate, pricing and revenue sources is significant. Not only do current user charges fail to cover (in a lot of cases) the direct costs of capital provision (e.g. bus-ways and railways) and operation (long distance buses, ferries and rail services and some freight operations to/from ports), the existing policy framework also fails to capture the indirect costs of transport including congestion and vehicle emission impacts.

Socio-economic reasons support equally powerful arguments for reform of current revenue sources. Not least of these are the often competing, but in the case of transport reform, compatible and consistent objectives of economic efficiency and social equity in respect to transport pricing. A user-pays charge, based upon network and service usage, is fair and preferred from an economic efficiency standpoint when compared to the coarse tax structure of fuel excise and vehicle sales tax which penalise infrequent users and encourage network congestion leading to higher fuel use and greenhouse gas emissions.

A major criticism of the current transport governance and treasury arrangements (based on little or no economic rationale) relates to taxes structured to maximise net contribution to general consolidated revenue. The simple alternative of revenue hypothecation targeting specific transport policy, including demand management, would provide a more sustainable approach to meet changing government objectives and community needs. There have been many studies which have concluded that transport users and taxpayers alike are prepared to pay more for services, if and only if, the extra revenue is used to invest in transport improvements. **Figure 6-1** summarises the changes proposed to achieve a more sustainable revenue base.

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

Figure 6-1 Movement to a More Sustainable Revenue Base



Supporting this shift in policy must be a clear acknowledgement across government, business and the community of the range of objectives achieved with integrated transport funding. The widest possible understanding of these objectives as fundamental to the design and reform of transport infrastructure funding is crucial in succeeding with the substantial changes required. These objectives are set out in **Figure 6-2.**

Figure 6-2 Objectives for Funding Options

6.2 New Sources of revenue supported by international experience

International experience suggests a number of policy options (as flagged in **Figure 6-1**) to generate new sources of revenue through the implementation of tested policy frameworks that can be adapted to Australia's economic, political and cultural objectives. Australia's strong economic and political position presents a unique opportunity to invest in change. Examples of the types of reform being considered or implemented overseas, and which should be considered in any future reform of transport funding in Australia include:

- Better use of existing assets and resources
- Full cost recovery through user charging and real fares
- Road pricing

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

- Hypothecation of revenues to fund public transport
- New models for Public Private Partnerships (PPPs)
- Tax Increment Financing (TIF)
- Green Banks

These opportunities for reform are considered in more detail through sections 6.3-6.7 of this chapter. As part of an integrated framework for reform these initiatives should be pursued alongside:

- Greater private financing of infrastructure (which Australia has pioneered), and micro-economic reform of full introduction of user-pays principles;
- Cost-recovery (including staged introduction of real fares); and
- Internalising the external costs of transport including congestion and vehicle emission costs.

As a tool to assess the merits of revenue sources, Table 6-1 lists the major sources of revenue to fund transport including some of those new sources not currently used in Australia. It presents a preliminary assessment of their relative merit against a range of goals specific to transport funding policy.

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

Table 6-1 Assessment of Potential Revenue Sources

Revenue Source	Revenue Adequacy	Ease of Imple-mentation	Economic Efficiency	Equity	Sustainability
Existing Source					
Fuel Excise Tax					
Registration fee					
Vehicle Sales Tax					
Traditional tolls					
Development Fees					
Potential New Source					
Sell underutilised Government land/ asset					
Full cost of recovery through user fees and real fares					
Green Banks					
Congestion pricing					
Milage-based user fees					
Tolling new lanes					
Tolling existing lanes					
New Public Private Partnership model, sharing risk					
Incremental tax financing					
Carbon use tax					
Note: All revenue from new sources to be hypothecated to transport infrastructure					
Legend:  Excellent  Very Good  Good  Not Good  Poor  Very Poor					

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

6.3 Better and More Sustainable Use of Existing Assets and Resources

The proposal to better use existing assets and resources aims to drive the effectiveness of existing government agencies and policy, and reform the way we operate existing services to generate increased capacity, ahead of new and expensive investment. Some examples include:

- The development of larger and better resourced regional governments supported by the amalgamation of existing local government areas (see Consult Australia, (October 2009), *Sydney Towards Tomorrow*).
- Higher density land use and development within existing urban footprints (see City of Melbourne, (March 2010), *Transforming Australian Cities*).
- Use of lazy government assets and more accountable government agency balance sheets (E.g. Rail Corporation NSW continues to hold unused high value real estate in metropolitan Sydney).
- New metropolitan rail operations (putting passengers first and not trains), including sectorisation and practice reform to create capacity and reliability improvements (E.g. NewRail in Brisbane and the 2008 Western Brisbane Transport Investigation).
- Application of information technology in motorway network use management, including (e.g. managed motorways, and the introduction of differential pricing to encourage greater road use in non-peak periods).
- Ensure state governments focus on core activities and engage the private sector where they are best placed to provide best possible service delivery.

Two contemporary examples best illustrate the need for this last area of reform. In Brisbane, the Queensland Government is pursuing expensive infrastructure-led development solutions for bus-ways and rail capacity enhancements ahead of operational improvements which would benefit a larger number of passengers at less cost. In Sydney, selling underutilised railway-owned land for higher economic rent alternatives could yield major opportunities to develop new transit lanes and linked new light rail services through the CBD with new transport interchanges at Wynyard.

6.4 Full Cost Recovery through User Charging and Real Fares

There are a wide range of views within government and across the transport and infrastructure sectors on the issues of cost recovery, user charging and 'real' fares.

In the context of transport reform, the principle of user pays is borrowed from the utilities sector (gas, electricity and water), where users are charged according to how much of the service is used, based on a unit charge and the costs of provision. This is unlike current transport policies where private users are taxed on an access charge (road tax, licence fee, etc) and through a fuel excise tax (based on fuel use at the pump), depending on distance travelled and size of vehicle. In parallel, public transport users are charged subsidised fares which typically do not cover the full costs of provision and operation.

The current national debate on heavy vehicle charging has evolved from a rationalised structure that supported a market-sensitive pricing regime within a cost-recovery framework, to a national agreement to move to an overt mass-distance structure. The task of introducing a similar rationale for light vehicles has often been seen as politically too sensitive, and too complex given issues of equity, transport accessibility and congestion issues. As a result, heavy vehicle usage is charged, while light vehicle usage is taxed.

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

Many bus operations set fares close to gaining full cost recovery, but there are large revenue shortfalls in government rail services across the country running into billions of dollars each year and limiting investment in the passenger rail sector. The example of British Rail in the 1980s which introduced annual average fare rises above Consumer Price Index (CPI) has paid dividends with United Kingdom rail companies now in a stronger position and better able to invest in rail infrastructure.

Transport costs, and therefore charges are likely to increase at a faster rate of growth as oil and congestion costs rise at significantly higher rates than previous years. The objective of moving to 'real fares' which recover full public transport costs, and accounting for full cost-recovery across all services should remain a government priority. The full introduction of user charging and information technology applications is a prerequisite to achieving the cost-recovery objective. Social equity can be dealt with as a separate issue utilising the processes that are already in place, such as pensioner-fares.

Most goods and services in market economies are sold to consumers at prices determined by the interplay of supply and demand. It is largely this interplay that has guided the development and modernisation of other similar network industries including telecommunications and electricity. Yet when it comes to transport, there is a reluctance to embrace the market economy and we continue to rely on a tax-based financing system that has little or nothing to do with the true costs of using or providing transport infrastructure. This is not a sustainable policy.

6.5 Road Pricing

A comprehensive debate regarding the full application of user-pays road pricing, including a national and technically feasible scheme is long overdue in Australia. As noted in Chapter 5, the Henry Review has put road pricing back on the national agenda. In parallel, the Roads Australia report on Road Pricing by Dr. Max Lay AM (2010) puts a strong argument for a phased introduction of road pricing.

International experience suggests that there are political and institutional barriers to the implementation of road pricing and congestion charging, even if technological and financial difficulties are overcome. Chapter 7, provides a more detailed examination of this important area, ripe for reform, drawing on this extensive overseas experience.

6.6 New Public Private Partnerships (PPPs)

New road tolls to increase road capacity have been favoured by the United Kingdom Prime Minister David Cameron, along with a renewed call for policies to increase private sector financing of key infrastructure within a new PPP framework.

In Australia, an innovative private sector supports investment in large-scale infrastructure projects. The financial failures and limited returns offered to private investors following the development of some recent toll roads (e.g. the Cross-City Tunnel, Lane Cove Tunnel, Clem Jones Tunnel) have been a turning point towards the development of new PPP models.

Recent work by Infrastructure Australia (May 2010) has identified practical solutions to the procurement of PPP's under new models, which share traffic and revenue risks between government and the private sector. The application of 'availability payments' to procure the Peninsular Link in Melbourne points towards how new PPP models can be developed.

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

Along with new PPP financing models, comes the opportunity to gain significant private investment in new tollway capacity, new rail rolling stock and the introduction of time-of-day pricing to generate higher levels of asset utilisation.

6.7 Tax Increment Financing (TIF)

Local and state governments throughout Australia are struggling to fund the necessary investment in urban infrastructure required to build and renew essential public services and amenities in our cities and towns. The present system, which relies heavily on upfront developer charges, increasingly scarce local government capital funding, and inconsistent state and federal government grants, has not provided a reliable or adequate source of capital investment needed to make our cities vibrant, attractive and sustainable places to work and live. New funding methods must be found that provide consistent, long-term, and equitable sources of capital investment for urban growth and renewal.

Tax Increment Financing (TIF) is the most widely used urban renewal funding and delivery model in North America. While its primary benefit is a conservative, transparent method of redirecting a portion of the value created from urban renewal to fund infrastructure, TIF also encompasses an integrated governance and delivery model based upon achieving consensus among three key constituents: government agencies, the general public and private developers.

TIF was originally conceived in the US as a means of 'kick starting' economically depressed areas by providing a source of funds to 'front load' major capital expenditures in public services and infrastructure. In the TIF model, property tax revenue increases attributed to the TIF program are temporarily diverted to pay for the infrastructure improvements in the TIF District. These property tax revenue increases, referred to as the "tax increment", are used to repay government-issued bonds or privately secured loans which are used to "front load" the infrastructure. Bond holders and investors receive a stable, long-term and often tax-favourable investment, and communities are able to spread large capital expenditures over a 20 – 25 year term.

Properly timed and well-conceived government investment in urban infrastructure provides an essential catalyst to build and renew our communities. The present methods of funding these improvements are failing to keep pace with the cost and the volume of investment needed. Tax Increment Financing offers a proven, equitable method of funding urban infrastructure. It should be considered by government, the public and the development industry in Australia.

6.8 Green Banks

The idea of a Green Transport Investment Bank rests on government controlling investment into green transport and sustainable infrastructure projects from equity raised via asset sales (i.e section 6.3 above), and drawing on additional private sector investment such as sovereign wealth funds, superannuation funds and insurance companies.

In the United Kingdom, pledges by government to establish a Green Bank as part of wider funding reforms are finding international support as a mechanism to leverage investment supporting green infrastructure projects.

This relatively simple initiative is available to all levels of government to incentivise further private sector investment in projects at a national, state and local level.

6 | INADEQUACIES OF CURRENT POLICY AND NEW FUNDING SOURCES

6.9 Infrastructure Bonds

Continued development of specific infrastructure bonds to help private infrastructure investors access pools of retail investment funds such as from superannuation funds is a measure widely used in the US to extend government support of bond insurance and discount on bond interest income. There is a range of bond structures presently available, and an examination of an Infrastructure Partnership Bonds Scheme was announced by the Coalition as part of the 2010 Federal Election Campaign. Such a scheme is worthy of further consideration, particularly how government funds can best be leveraged to ensure adequate private sector investment that supports major project development.

6.10 Hypothecation of New Revenue

The hypothecation of transport revenue and fees back into transport, together with the introduction of full user-pays principles, lies at the heart of transport reform. Without hypothecation and road pricing, Australia will not be in a position to deliver ongoing and sustainable funding to guarantee the delivery and expansion of our transport network. State and Territory governments have, in the main, accepted the Australian Government's health reform agenda and associated hypothecation of funds. The benefits could be far higher to treasury budgets if transport received the same attention.

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7 | ROAD PRICING REFORM

As indicated in Section 6.5, and drawing on the momentum generated through The Henry Review (see Chapter 5) this chapter outlines current international experience with congestion charging, together with Australian policy directions at a national level, in order to draw some key lessons and implications for road pricing in Australia.

7.1 International experience

Singapore

The original Singapore scheme for road pricing was first implemented in 1975 as a paper-based area licensing scheme. The scheme was later upgraded to an electronic cordon charge and is complemented by significant charges to restrain vehicle ownership and expand the rail system. The congestion charge (taken alone) is interpreted as being effective at reducing traffic congestion, with estimates of the own-price elasticity to the charge of between -0.19 and -0.58, resulting in significant reductions in road usage. The scheme is regarded as:

- A technical success (it works);
- A financial success (it makes $50M per year and costs $10M a year to operate); and
- A political success (it has reduced congestion and was carefully implemented to ensure people were comfortable with the system).

London

London has operated an area congestion-charging scheme since 2003. Within the scheme's boundaries, (non-exempted) motorists must pay a fee to Transport for London before the end of the day or face penalty fines. Cars are identified using automatic number plate recognition through a series of fixed and 'roving' cameras. The scheme was intended to reduce journey times, improve reliability and to raise revenue for public transport. The scheme is regarded as a political success (congestion decreased and the Mayor was re-elected), a financial success (revenues exceed operating costs) and a technical success (vehicle identification has high accuracy); however, there is significant debate as to whether the scheme is an economic success.

The Netherlands

The Netherlands is introducing a nation-wide satellite-based road charging regime, which prices based on road location and timing (accounting for congestion). The scheme is undergoing testing of the technology in 2010 with introduction dates of 2012 (heavy vehicles) and 2013-16 (private cars). The scheme and public information campaign have been shaped by social research about perceptions, including how revenues are to be spent. The current proposal involves replacing many of the fixed-cost taxes (registration and other surcharges) which are to be abolished, while funding is to be increased for public transport. The collapse of the Dutch government in February 2010 and subsequent election in June (which has still yet to result in a formed government) means the road pricing plans may not eventuate.

7 | ROAD PRICING REFORM

Manchester

Manchester attempted to introduce a two-tiered cordon charge, with revenues directed towards improving public transport. In 2008, the scheme was overwhelmingly defeated at a public referendum after concerted campaigns from opposition politicians and motoring groups. The scheme was to be staged in such a way that public transport was to be significantly upgraded before the charges were applied. Nevertheless, because revenues were not to be used to reduce other motoring charges and taxes, the charging was perceived as *"just another tax."*

Stockholm

Stockholm introduced an area-based charging scheme similar to London's in 2007 after a 7-month trial. Unlike London's scheme, the Stockholm scheme was facilitated by geography, whereby the number of charging points is significantly reduced due to the nature of archipelago cities (**Figure 7-1**). Nevertheless, the scheme was expensive to implement and initially unpopular with voters, though the latter largely reversed with experience.

Figure 7-1: Stockholm's geography and congestion zone

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New York

New York sought similarly to introduce a three year pilot of a Manhattan central business district congestion charge. The scheme attracted broad based support in respect of a part of the city where more than 95 per cent commute by public transport and received city council approval in March 2008. However, as a taxing measure, approval by the New York State Legislature was required. There it encountered opposition, on a range of grounds including equity for low-income drivers and alleged impact on surrounding areas that might become 'parking lots'. In April 2008, the legislature declined to vote on the proposal, with the consequence that eligibility for the federal grant funds that the city was pursuing for its scheme expired. The episode took place at a time of sharply rising fuel prices – which by July 2008 had themselves reduced vehicle trips into lower Manhattan by 5 per cent.

7.2 Key lessons

Public opinion is generally negative towards road charging. Support can be improved by:

- Good public transport alternatives to congested roads (London).
- Using revenues to remove other road-based charges and taxes (Netherlands).

- Hypothecation of revenues to road and public transport improvements (Netherlands, London).
- Actual experience with a scheme through a trial and referendum (Stockholm).
- Public information campaigns explaining motivation and operation (Netherlands).
- Avoiding or, if not possible, addressing any split in political responsibility between different levels of government (New York).
- Judging the timing of introduction well, in particular avoiding fuel price spikes (London, Stockholm, Manchester and New York).

7.3 COAG Road Reform Plan

COAG's road reform plan is expected to run until 2014 and is primarily aimed at improving price signals for heavy vehicle road use, tackling, among other things, a way to move from the current average cost-recovery model towards a more efficient road use and provision model. An ultimate aim is to have mass-distance location-based (MDL) charging in place to charge (heavy) vehicles for the cost of road wear incurred by the mass carried in each location (i.e. road type) they operate.

The current intermediate phase of COAG's program focuses on incremental mass pricing. The proposed incremental pricing system is two-tiered: first heavy vehicle users are charged for carrying a base maximum mass, they are then able to 'access' additional mass limits by paying an additional ('incremental') charge. This charge is set to recover the cost of the additional wear that the additional mass will incur on the pre-defined set of roads. In this way, the incremental charge sets price equal to marginal cost of road wear, but only for high masses.

7.4 Implications and opportunities for Australia

International experience suggests that there are political and institutional barriers to implementation of congestion charging, even if technological and financial difficulties are overcome. Nevertheless, the Henry Review has put congestion pricing back on the national agenda. A number of key issues, including several touched on by the review, will benefit from further investigation:

- Demand and financial implications of *'variabilising'* existing tolls in Australian cities
- Integrating toll roads into an area or cordon-based congestion charging scheme
- Equity impacts of congestion charging,
- Use of congestion charging revenues – transport purposes, offsetting tax reduction purposes, transparency and governance aspects,
- Public transport and congestion charging – impacts, adequacy, network and service improvement needs,

The current COAG plan faces institutional hurdles in implementation, with responsibilities and revenues for access and use of roads split across all levels of government. There will be ongoing opportunities to support the plan's streams of policy, pricing, legal/regulatory and business systems.

8 | MOVING TO A MORE SUSTAINABLE TRANSPORT SYSTEM

This chapter briefly reports on two of the major transport challenges of our times well documented in current literature:

- Climate change and peak oil
- Changes in the way cities operate

8.1 The Climate Change and Peak Oil Challenge

Climate change induced by human activity poses a significant threat to many communities around the world. Greenhouse gas emissions from transport in Australia contribute around 14 per cent of Australia's greenhouse emissions in 2008 and are some 30 per cent higher than 1990 levels. Passenger cars account for just over half (52 per cent) of these emissions, with commercial vehicles accounting for 35 per cent and domestic aviation 7 per cent. All transport greenhouse emissions are projected to increase by 19 per cent in 2020 compared with 2008 levels, similar to population growth of 19 per cent but significantly less than projected GDP growth of 42 per cent over the same period.

These increases in emissions are occurring against background improvements in fuel intensity of around 1.5 per cent per annum. Such improvements are however being countered by increasing travel – driven in part by population growth but also increasing prosperity. The cost of travel by car and aircraft has grown more slowly than increases in incomes, contributing to growth in demand for passenger travel per capita. Decoupling transport from greenhouse gas emissions will be one of the most significant challenges of decarbonisation of the economy (see Chapter 2). While technologies such as electric vehicles appear promising in the near to medium term, there remain challenges of driving down costs to achieve mass market penetration. Furthermore, in the case of electrification of the transport fleet, significant challenges are presented to the stationary power sector to move to low or zero emission energy sources and adapt the grid to the very different load profiles presented by electric vehicles.

Petroleum-based fuels account for around 97 per cent of transport energy use in Australia. Dwindling conventional oil reserves, combined with rapidly increasing demand for oil globally will lead to rapidly increasing oil prices in the near-term. CSIRO research suggests that the retail price of petrol in Australia could be as much as $8 a litre in 2018. Domestically, oil production has dropped by 29 per cent between 2000 and 2008 and domestic consumption was 62 per cent higher than production in 2008. The implications for the economy of these trends, both in terms of the cost of travel and balance of payments, are significant. Government revenues will decrease, both as a result of reduced oil production and fuel excise as fuel economy improves and the vehicle fleet moves towards alternative fuel sources.

8.2 Increasing Pressure for Change in the Way Our Cities Operate

Australian cities are built around the availability of motorised travel, principally the car. Increasing energy costs, combined with the need to dramatically reduce greenhouse gas emissions, will force significant changes in the way in which our cities operate and are planned. The movement towards more energy efficient public transport and to non-motorised travel (cycling and walking), as well as reducing the need to travel, will become increasingly pressing issues for Australian society. Government investment

in more sustainable transport infrastructure combined with policy measures to encourage the uptake of more efficient vehicles and transport choices by the community will be critical in moving towards a more sustainable transport system.

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9 | A NEW WIN-WIN FUNDING POLICY FRAMEWORK AND IMPLEMENTATION

Non-transport infrastructure (water supply, sewerage systems, ports, energy/power and telecommunications) have existing pricing regimes to fund new infrastructure. Because of this, their long-term benefit and future can be assured. Unlike communications, electricity and other utility networks, transport lacks a strong funding and sustainable pricing regime. This chapter sets out a New Integrated Funding Policy Framework for transport infrastructure.

9.1 Multiple Funding Objectives and Win-Win Outcomes

All Australians and political parties need to accept that some form of road pricing is going to be needed if we are to afford the level of new infrastructure required to support the growth of Australia's population.

Our long-term transport funding goal must be to implement a new National Transport Plan incorporating City Transport Plans. The success of these plans and the new transport funding regime which is required for their implementation, depends on a policy shift towards transport users being charged directly for their use of transport infrastructure (based on the full costs of the trip) and on a trip distance (kilometre) travelled basis; and Treasuries' acceptance of hypothecation. Users could then be billed monthly transport accounts in the same way we currently receive gas and electricity bills. Any necessary social policy subsidies could be identified under such arrangements.

New funding methods must have political acceptance from all sides of government and must be sustainable over the long-term. Significant opportunities now exist to develop multiple funding objectives that would deliver a win-win outcome for Australia. The following funding reform objectives when combined with a new funding framework (section 9.3) would redress most of the current limitations of funding; provide sufficient funds to build a long-term 50 year national and cities transport plan , and achieve multiple objectives to:

- Ensure existing infrastructure is used and maintained effectively.
- Enhance the efficiency of public finances regarding building, operating and maintaining new infrastructure.
- Price through direct user charges, instead of indirect taxes
- Price fairly according to the full whole of life costs of infrastructure and service provision, including congestion.
- Encourage private finance and greater involvement of Public Private Partnerships (PPP) in infrastructure provision under new funding and risk sharing models.
- Link investment to high capacity transport corridors and high density transport nodes.

9.2 New Funding Solutions

New funding and pricing solution options are shown in **Figure 9-2**. Options are briefly described which would satisfy social, environmental and economic objectives and provide the means to develop national transport programs. Considerable research and investigation would be required to determine priorities according to short-term and longer-term strategies, consistent with Infrastructure Australia's mandate.

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9.3 A New Integrated Funding Policy Framework

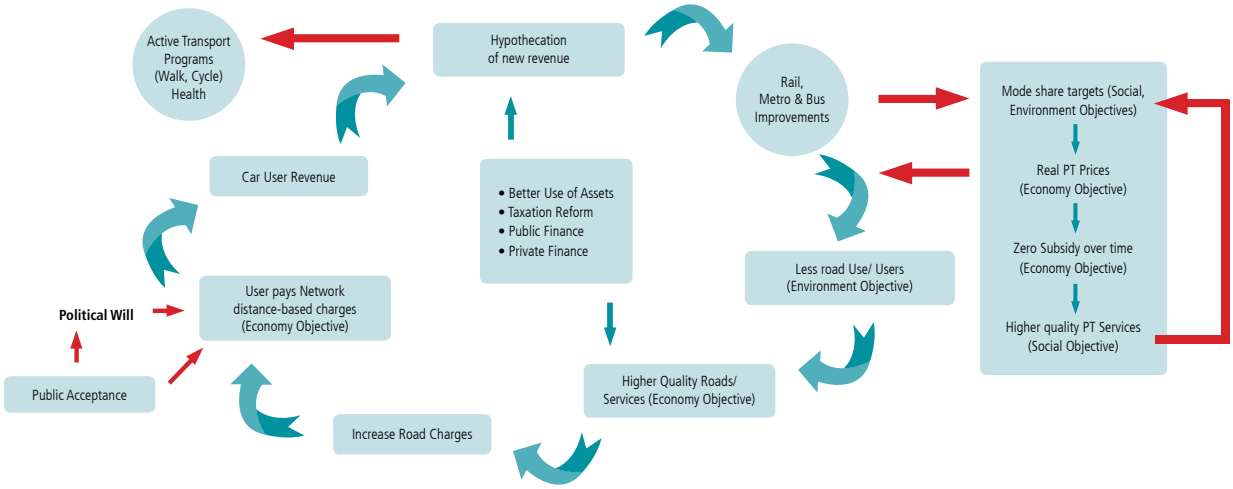
Figure 9-1 shows a conceptual arrangement for a new Transport Integrated Funding framework incorporating the proposed new funding measures. Its application would deliver sustainable and significant long term benefit in:

- Enabling a transformation of our cities in the way they operate in land use and transport integration.
- Funding existing public transport, especially heavy rail services.
- Delivering world class Metro systems.
- Funding active transport (walk and cycle) within higher density neighbourhoods.
- Delivering high quality roads including missing motorway links.
- Building urban and inter-urban Very Fast Train (VFT) services to reduce Australia's carbon footprint.
- Achieving government's Public Transport (PT) mode share targets.
- Enhancing access to ports and export capacity.

A particular focus on raising new revenue for public transport investment and efficient freight movement lies at the heart of the proposed reform.

A key opportunity is that Demand Management-related funding and policy options would both reduce peak demand and defer the need for new peak infrastructure funding which should be a central policy in the short term.

Figure 9-1 New Transport Integrated Funding Framework



Note:

The main points of the proposed reform are:

1) Introduce new funding sources from which the revenue is hypothecated to public transport (city rail, light rail and bus services and inter-urban rail services) and freight movement.

2) A move to road pricing and real PT fares would allow revenues to be raised, improve existing and new PT services, reduce CSOs and PT subsidies and provide efficiency gains across all modes.

3) Integrated funding across all new sources (including better use of assets, PPP and TIF initiatives) would include the phasing out of non-direct taxes.

4) The combined revenue base would provide confidence to implement city transport plans and much needed urban and inter-urban fast rail systems to reduce car and air kilometre travelled and reduce our carbon footprint.

9 | A NEW WIN-WIN FUNDING POLICY FRAMEWORK AND IMPLEMENTATION

9.4 Implementation

The new funding framework would require a significant change in: Treasury policy towards hypothecation of new revenue to transport; political understanding and will; and community acceptance of road pricing to fund much needed public transport infrastructure. It is important to demonstrate that funds collected from road users are directed back into transport infrastructure.

The introduction of user-pays principles leading to new revenue sources should be implemented with the phasing-out of the current access charges (registration fees) and indirect taxes.

Community debate would be required to extend the development, acceptance and staged introduction of a road pricing policy and hypothecation in Australia. Implementation first requires government to embrace this reform challenge through discussion and dialogue with the community.

9.5 Implementation and Governance Reform

So long as transport is the responsibility of government, integrated transport planning and governance remain a common objective. A key to moving forward is to link and integrate the funding of transport to its governance. This currently does not happen in Australia.

Clear policy thinking is frustrated largely by the federal structure and different political agendas. The lack of political agreement on transport policy is demonstrated by the lack of national and state development vision and uncertain commitment to a rate of transport infrastructure spend to meet future capacity needs, be they in support of population growth or enabling economic development.

Introducing full transport user-pays principles, road pricing and hypothecation of transport revenues, as advocated by *Transporting Australia's Future*, into the main stream thinking will require changed management arrangements between federal and state government and between state transport agencies and treasuries. A reverse role may be required with the states responsible for non-GST revenue collection and the federal government responsible for city transport infrastructure policy and planning (or at least the agreement of it), consistent with population and immigration policy, given that population levels drive transport demand.

Table 9-1 provides an evaluation of new funding options based on social, environmental, economic and financial objectives:

9 | A NEW WIN-WIN FUNDING POLICY FRAMEWORK AND IMPLEMENTATION

Table 9-1 New Funding Options

OPTION		Multiple Objectives			
		Social	Environment	Economy	Funding
A	BETTER USE OF EXISTING ASSETS				
A1	Extend Use of user-pays principle[1] and introduce to transport sectors	✓		✓	✓
A2	Introduce prices of existing services to recover full costs[2]		✓	✓	✓
A3	Review Government Agency assets and Balance Sheets, identify and sell lazy assets and hypothecate revenue to infrastructure	✓		✓	✓
A4	Privatise inefficient State-owned operations. Hypothecate funds to infrastructure	✓	✓	✓	✓
A5	Bring to account future maintenance liabilities and invest on basis of minimising total transport costs[3]	✓	✓	✓	✓
A6	Introduce time of day pricing to reduce transport demand in peak hours	✓	✓	✓	✓
A7	Introduce revised retail hours in Centres to spread traffic demand	✓		✓	✓
A8	Fund projects in key economic corridors serving freight as a priority			✓	
A9	Fund projects serving high density centres and transport nodes as a priority	✓	✓	✓	✓
B	NEW FUNDING SOURCES				
B1	Introduce Treasury hypothecation to transport for all new revenue	✓	✓	✓	
B2	Introduce Road Pricing including congestion pricing and network-wide mileage based user fees[4]	✓	✓	✓	
B3	Introduce Green Banks underwritten by government and superannuation funds	✓	✓	✓	✓
B4	Introduce carbon trading and carbon taxes to change behaviour		✓	✓	✓
B5	Move to new PPP model for economic infrastructure in which government shares revenue risk	✓		✓	✓
B6	Delivery of major PPP projects through a combination of shadow prices, availability payments, private investment and government debt	✓	✓	✓	✓
B7	Introduce Tax Increment Financing[5] (TIF) to transform urban infrastructure development	✓	✓	✓	✓

Notes:

(1) Introduce to transport from gas, electricity and water sectors. Reduce non-use transport taxes. See Clark et al, A Conceptual Framework for Reform of Taxes Related to Roads and Transport prepared for Treasury Canberra, June 2009.

(2) Include external costs of greenhouse and congestion, etc. and introduction of carbon trading on fossil fuel use.

(3) All recent infrastructure investment has been subject to standardised economic analysis that includes whole-of-life costing and anticipated maintenance allowances. These future costs are known and should be included in agency accounts as future liabilities.

(4) The objectives of road pricing are both economic efficiency (reduce congestion) and funding (revenue generation). A key reason for the success of the London Congestion Charge is that revenues are used to improve public transport (hypothecation).

(5) Taxation Increment Financing (TIF) is most widely used in the US to fund infrastructure for urban renewal, regeneration and infill. See Langley (2008), A New Approach to Funding Urban Infrastructure in Australia.

9 | A NEW WIN-WIN FUNDING POLICY FRAMEWORK AND IMPLEMENTATION

First Steps Towards Reform & Implementation

- Establish an Independent Standing Commission on Transport Funding Reform, including industry representation, reporting to COAG with an initial 2012-2020 progressive delivery program.
- COAG review responsibility for capital cities transport to reflect Australian population, immigration and economic policies and strategy, and develop mechanisms to clearly monitor the performance of the Australian Government and the states and territories in investing in transport infrastructure.
- Infrastructure Australia (IA) initiate a review of transport needs and community willingness to implement transport reform. Further research is required to consider the costs of infrastructure and services (including analysis of peak and off-peak requirements), and to demonstrate to the community value for money from investments including the infrastructure costs of infill in established suburbs.
- State Treasuries and Transport Departments investigate initiatives to reform transport infrastructure funding in light of the above outcomes, with state governments reviewing state agency balance sheets and accountability for state transport assets. This should include the identification and development (with the private sector and local authorities) of demonstration projects that seek community support for change and demonstrate the win-win nature of the benefits to be reaped. These could include for example:
    - The application of Tax Increment Financing in NSW (e.g. Penrith and Parramatta Road)
    - Trialling managed motorways in Adelaide
    - Trialling road pricing in Melbourne
    - Reform parking policy in Perth
    - Trialling cordon pricing in Brisbane to support the Cross River Rail
- More detailed analysis of necessary tax reform should be facilitated through road transport funding reform and related Henry Review recommendations featuring prominently on the agenda for the 2011 Tax Summit. In the interim, further research is required to review and understand the benefits of hypothecation and user pays policy options to inform community consultation and public policy debate.

NOTES

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