

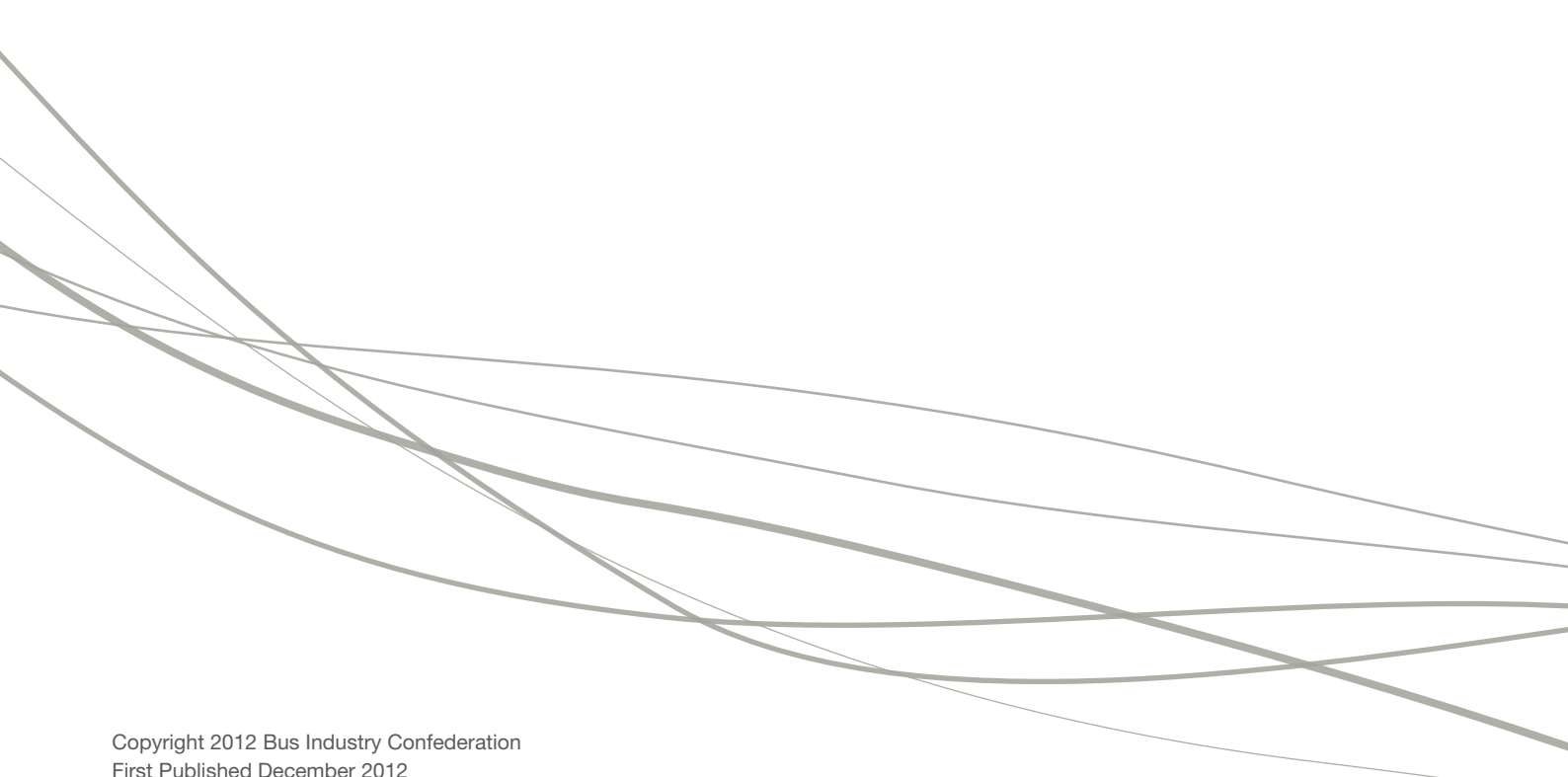
MOVING PEOPLE

> *Solutions for a Liveable Australia*



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Foreword

The Bus Industry Confederation has prepared this report to promote discussion about how Australia should shape its future land transport policy, to promote national goals for productivity, sustainability, liveability and social inclusion. It builds on our earlier report, *Moving People: Solutions for a Growing Australia*, taking a more place-based approach than that report and also looking closely at funding opportunities.

The report has been produced with the assistance of the UITP Australia New Zealand (UITP ANZ). The UITP ANZ encourages consideration of the matters raised in this report as part of moving towards a more sustainable land transport policy for Australia.

The report has been authored by Professor John Stanley, who is an Adjunct Professor in the Institute of Transport and Logistics Studies. ITLS is part of The Business School at the University of Sydney. Dr Janet Stanley of Monash Sustainability Institute, Monash University, has contributed to the chapter on social inclusion.

The report is targeted at key policy makers in all three levels of government who are interested in how to improve the transport performance of Australia's cities and regions. The emphasis on taking an integrated approach to land transport means that policy makers with responsibilities from fields such as land use planning to economic and social policy should also find the work of interest.

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Executive Summary

Context

This report builds upon the *Solutions for a Growing Australia* report produced by the BIC, UITP and ARA in 2010. It highlights three critical areas where a major focus will be needed in coming years to improve the sustainability of Australia's land transport systems: (1) land use/transport integration, (2) funding the transport infrastructure and service improvements required to overcome existing backlogs and cater effectively for growth in demands and (3) dealing with social exclusion that is associated with transport disadvantage. These three areas are closely inter-related.

The recent *National Urban Policy* and COAG Research Council (CRC) Capital City Strategic Planning Review have respectively identified, *inter alia*, policy directions that will assist achievement of more sustainable land transport systems and pointed to some of the shortcomings in land use planning approaches that must be overcome if progress is to be achieved. The CRC report underlines the importance of taking integrated approaches to both tackling problems and framing solutions, particularly in relation to land use/transport and building understanding of social exclusion, the mobility dimensions thereof and what this might mean for policy. These two issues form significant components of the present report.

The Infrastructure Australia mid-2012 review also highlights (*inter alia*) the importance of improving strategic planning and using new approaches to infrastructure/service funding if any impact is to be made in reducing the transport investment backlog.

Some Trends

A quick data update suggests:

- > growth in car traffic has slowed in recent years, to the point where future growth will mainly be associated with population growth (although major new additions to road space in coming years will generate new growth and must be carefully planned, in view of the continuing levels of externalities)
- > road freight traffic has continued to grow strongly (and must be an increasing focus for system management)
- > road and rail access to/from ports is generally a problem in capital cities and is getting worse, as freight traffic volumes build (a big issue for emerging metropolitan land use planning strategies)

- > growth in road expenditure in recent years, relative to traffic growth, suggests a substantial investment backlog (which will have contributed to the flattening in car use, reinforcing the point about being careful about new traffic generation when infrastructure backlogs are tackled. Public transport must be a central element in overcoming the backlog)
- > road roughness and congestion levels are deteriorating in the face of traffic growth and the lagged response in road investment, although improving road productivity has mitigated some potential deterioration in service quality (road system management has made good progress and it is important that this continues)
- > the levelling off in car traffic levels has helped to stabilise road transport GHG emissions but much more needs to be done to cut emissions from the sector (government policy measures to increase public transport use and encourage a switch to low emission fuels/vehicles more generally (e.g. CNG or hybrid buses), together with other policy measures set out in *Solutions for a Growing Australia*, are important here. Federal carbon tax revenues should help facilitate this transition to low carbon transport. The exemption of cars from the carbon price was a missed opportunity. Public transport should be fully exempted from carbon taxes until such time as its competitor, the car, is included)
- > the different trends in growth of car and truck use suggests that trucks are a growing contributor to congestion and GHG emissions and should be a major focus of programs to improve sectoral performance in both areas (pricing reforms, as discussed in section 4, are central in this regard)
- > diesel imports are substantial and growing quickly, increasing energy security risks (adding to the argument for a switch in reliance away from fossil fuels for transport)
- > road fatalities are a positive story, with reductions being achieved in recent years
- > social exclusion associated with transport disadvantage seems likely to be on the rise, although data availability precludes definitive statements (new census data may help. Section 5 includes some discussion on social exclusion).

In short, apart from some improvement in road safety (fatalities), the urgency of transformational change that

was flagged in *Solutions for a Growing Australia* remains. Network performance is not improving. The apparent slowing/levelling off in car traffic growth may ease some pressures for change (e.g. in terms of congestion and greenhouse gas emissions) but the on-going growth in freight traffic remains an offset. Public transport use continues to grow and investment to support continued growth is increasingly important. The rapid growth in import dependence for diesel suggests an increasing risk in terms of security of supply. Land use related issues for transport (e.g. port access, social exclusion, activity distribution in cities) are increasing in significance.

Land Use/transport integration

Major transport improvements can play important city-shaping roles. It is better that this is planned, to achieve intended societal outcomes, rather than arising as an unintended consequence of seeking to solve transport problems in siloed isolation. This requires an integrated approach.

Institutional design for land use/transport integration frequently concentrates on integration **within** one particular level of government. However, if service impacts (benefits and/or costs), service delivery responsibilities and/or funding obligations cross jurisdictional boundaries between levels of government, then institutional arrangements also need to facilitate and manage this cross governmental involvement for effective integration, even if service delivery responsibilities lie largely (or entirely) at one particular level of government (as is common). COAG and Infrastructure Australia processes recognise this complexity, particularly as between the Commonwealth and State Governments. However, current Federal arrangements for our cities are fragmented and under resourced, relative to the national significance of cities. Establishment of an Urban Development, Planning and Cities portfolio and Minister should assist achievement of improved outcomes.

Taking account of the various research findings and urban planning principles presented in the report, the BIC believes that urban transport system development, with a focus on **people movement**, should:

- > ensure that adequate trunk public transport capacity is available to facilitate growth in the central city and movement around the central city. This is about sustaining locational agglomeration economies. This transport policy direction also means ensuring that walking and cycling opportunities are provided to

support use by central/inner urban residents and by others travelling to this area. This will support greater dwelling density in the centre. Peak people movement to/from central cities is not effectively undertaken by car, so transport policy should ensure that public transport, walking and cycling have priority over improved car access. Increasing parking charges and limitation of car parking spaces can support these policy directions and, longer term, road pricing reform should be implemented

- > give road use priority to the low impact modes of light rail, tram and bus, plus walking and cycling, in inner suburbs, as part of transport network management plans and to support higher densities along transport corridors
- > ensure high quality road capacity exists to support high frequency circumferential operation of road-based PT systems in middle and outer suburban areas, crossing radial rail lines and joining up activity centres/clusters. High quality opportunities for walking/cycling should be provided within and to/from activity centres and clusters. Improving accessibility should assist in promoting job growth in activity centres, as part of an integrated set of measures to promote activity centre development. Target PT service frequencies on the trunk circumferential middle-outer corridors in the larger cities should be 15 minutes or better for most service hours (which should be from about 5.00am to midnight in most cases, with a lesser frequency being acceptable late in this operating span)
- > provide local PT services to/from transport nodes/ activity centres, at a frequency that will help to facilitate social inclusion. Relevant local PT service frequencies should certainly not be any less than hourly from 6.00am to at least 9.00pm, with 30 minute frequencies being preferred. Alignment of frequencies between local and trunk PT services is important to maximise patronage potential
- > attach high priority to walkability/cyclability within and to/from local centres, to support greater use of more sustainable travel modes and also assist development of more compact settlement forms
- > provide high quality trunk PT services between outer growth suburbs and the most proximate employment hubs, ensuring that road capacity is sufficient to meet these PT service needs (if rail is not available).

An area where caution is needed is in the extension of

radial rail services to growing fringe suburbs. The use of such services for travel to/from the CBD, or stops on route, is typically of the order of 3-5% of journeys to work from the suburbs in question, often about the same proportion who use bus for more local trips. This rail share is small in relation to marginal service costs. Greater focus should initially be paid to improving local bus access for a wider number of people in growing fringe suburbs, to promote social inclusion, with rail service being mainly provided by longer distance through regional services, until demand levels reach sufficient size to warrant a dedicated urban rail service.

Funding is a major constituent of the glue that ultimately enables integration between land use and transport to be delivered. If integrated land use and transport plans do not include a sustainable funding plan, they are unlikely to succeed.

With the Federal Government being a significant source of funding for transport infrastructure, and the national body Infrastructure Australia playing a major role in influencing those projects that proceed at State/Territory level, closer attention is needed to the most appropriate governance arrangements to support an integrated approach across levels of government. A significant institutional risk in the land use/transport area lies in the Infrastructure Australia approach of concentrating on large (>\$100 m) infrastructure projects. A broader, more systemic perspective is needed if Australian cities are to have properly integrated approaches to land use/transport/infrastructure and meet the high level COAG objectives. This broader approach should ensure that a 'project' might consist of several complementary elements that are embedded in a place-based land use/transport/infrastructure strategy, with the focus being on delivering an effective **integrated system strategy** rather than being preoccupied with single big hits.

Continuing improvements in the land use/transport integration process, as are being pursued by States/Territories, with funding closely connected and the trilogy (land use/transport/infrastructure-services) then linked to processes for identifying possible funding contributions, should provide an effective pathway to intergovernmental integration. This process currently needs Infrastructure Australia to shift its focus more towards systems and networks that will support the COAG goals, within integrated city contexts. Intergovernmental funding agreements should tie the three levels of government in to delivering the integrated solutions at the city level. The establishment of a Federal Urban Development, Planning and Cities portfolio and Minister should assist a move to a more systemic

process across levels of government, with Infrastructure Australia advising on infrastructure priorities.

Sustainable pricing and funding

The infrastructure backlog in Australian land transport, in the current tight fiscal environment, together with the emerging longer term trend of declining fuel excise revenues (at the current excise rate), is highlighting the urgency of finding new ways to fund transport infrastructure. Arguments of efficiency and fairness both support a greater reliance on 'user pays' and 'beneficiary pays' pricing systems. User pays systems, in particular, have the allied benefit of reducing the size of the apparent investment backlog (by encouraging user behavior change), provided equity concerns are handled. In the long term, the BIC sees user pays pricing as the most important policy change that is needed in infrastructure funding.

As argued in *Solutions for a Growing Australia*, for the medium term we propose removal of excise and registration fees and their replacement by:

- > a use-based charge to cover carbon costs (which could remain as a fuel-based charge, like excise)
- > a use-based charge to cover the costs of road construction and maintenance attributable to lighter vehicles (distance and location based)
- > tonne kilometre charges for the additional road damage attributable to heavy vehicles (distance and location based)
- > a use-based charge to cover the external cost component of accident costs (distance and location based)
- > use-based charges to levy the more polluting vehicles for their health (air pollution) costs (distance and location based)
- > a congestion pricing scheme to make users accountable for the congestion costs attributable to their road use (distance, location and time based).

A two year community consultation about how such a pricing scheme, or some variant thereof, would best operate should be undertaken as a matter of priority, extending the work already undertaken by the COAG Road Reform group on heavy vehicle road charging.

Recognising that the implementation of a comprehensive user pays system of this kind will take several years to implement, the BIC proposes immediate indexation of fuel excise and an increase of 14c/L in excise in the near term, with the revenues entirely hypothecated to land transport. The increased urban and regional revenues should be kept separate and used in those locations, without cross-subsidy. This measure will both help in overcoming the transport infrastructure backlog and send improved pricing signals to travellers, moderating the future growth in road infrastructure needs. The hypothecation nexus is critical to any chance of acceptance. Australian fuel excise was indexed until March 2001 but not since that time. It is noteworthy that, if indexation had continued from then until June Quarter 2012, the increase would have been 13.7c/L by the latter date, which is very much in line with the proposed increase of 14c/L.

This process of change would be facilitated by changing the way existing toll roads are priced, to incorporate a congestion premium and to deliver more consistent network charging on tolled routes. More heroically, it could include imposition of tolls of heavily congested sections of untolled freeways, to ease congestion and generate revenue for improvement initiatives.

The increased focus on land use/transport integration as a policy direction focuses attention on how the benefits of transport infrastructure are transmitted through the urban system. Much benefit will ultimately accrue to land owners, who should contribute to the costs of the initiatives that increase the value of their assets. This 'beneficiary pays' approach should be used more widely and there is a range of value capture mechanisms available to this end. Tax increment financing, special assessments, a broad-based low rate metropolitan improvement levy (based on property value), developer contributions and joint developments offer opportunities in this regard, as does increased debt funding for economically productive projects. Asset sales and re-investment of the proceeds is also an opportunity in some cases. Greater use of PPPs for selected projects should also be used (as a form of user pays) provided project selection and risk allocation are carefully managed and responsible governments retain sufficient network control.

Optimising funding opportunities across user pays mechanisms (including those that are associated with PPPs) and various beneficiary pays mechanisms, together with direct government grant funding, requires careful balancing of the funds raised from each mechanism, to ensure the totality is effective and equitable. Across all funding sources, an increased total

commitment will be required in coming years, to lift productivity and enhance liveability and social inclusion, while protecting the environment. The roles of various possible funding sources considered in this section of the report could include:

- > Excise: contribute to road and public transport costs, with full hypothecation of revenue from the proposed 14c/L increase in excise. Not a suitable long term pricing/revenue raising measure.
- > Road user charges (exc. tolls): pay for road costs, including externalities, and contribute to costs of public transport (capital/operating deficit), walking and cycling initiatives that reduce the external costs of road use.
- > Tolls: fund (wholly or in part) the financing costs of specific works on which the tolls have been levied or perhaps specific works on other related links. Higher tolls on congested portions of existing tollways could be used for purposes that can be negotiated with the operator. New tolls on congested existing freeways could be used for road improvements or to contribute to PT improvements that help ease congestion (if the tolls are privately levied following asset sale, the asset sale revenues can be used for similar purposes). Specific tolls could be used to help fund level crossing removal.
- > Broad based Metropolitan improvement levy: fund part of the PT operating deficit, particularly for services in growth areas. Such a levy might also be used to fund other metropolitan services, such as place-making initiatives.
- > Borrowings (can be public or private): fund major public or private projects, on which user charges or tolls might be imposed that can help to repay borrowings.
- > Private equity: a component of the cost of financing PPPs, with tolls and perhaps a government contribution used to provide a return.
- > Tax Increment Financing and special exactions/ rates (value capture mechanisms): involve direct government revenue streams that are used to fund borrowings that have been used for specific investments that will increase property values, which may be transport investments.
- > General Council rates: fund the access component of local road costs.



- > Federal/State grants: national roads, state roads and part of local roads, until such time as road user charging provides the revenue stream to fund the road costs; major PT capital. The grants could be from hypothecated excise revenue or some revenues from asset sales.

Public transport fares are a further source of revenue. Fare revenues typically meet less than half the operating costs in Australian cities. Higher cost-recovery targets should be set when road user charging is in place, with retention of suitable concession fares on equity grounds.

Metropolitan land use/transport strategies should specify how various funding sources will be combined to fund the transport initiatives (capital, operating) required in the plan, in sufficient detail to provide comfort that implementation over the first 10 years or so will be achievable as planned. This implies that an Infrastructure Plan should accompany a Land Use Plan and Transport Plan, along the lines proposed in NSW.

Social Exclusion

Social capital and sense of community, together with mobility (and some other factors), are significant contributors to a person's risk of being socially included/excluded. This, in turn, impacts well-being. The vulnerabilities of those living on the growing urban fringes of Australia's capital cities have been well documented. Regional/rural areas are, like the urban fringe, highly dependent on the car for access and inclusion.

Problems of poor accessibility to the many opportunities that are available in any society can be tackled by improving mobility, changing land use arrangements, changing service delivery models and/or by changing funding models. Integrated approaches to transport policy and program delivery should incorporate all these opportunity pathways. *Solutions for a Growing Australia* argued for implementation of minimum public transport service levels on the urban fringe and in regional areas, to tackle problems of social exclusion.

The current report complements this for regional and rural areas by proposing the implementation of a social enterprise approach to reducing mobility-related social exclusion. A social enterprise approach builds on the strong attachment to community that is characteristic of regional areas and frees up local stakeholders to identify mobility needs and pursue innovative ways of meeting such needs. Successful implementation will require a

funding framework that redirects some existing monies to support the social enterprise approach and a light touch to regulation, rather than excessive bureaucratic control. This is about empowering local communities to solve their own problems in a supportive environment. A number of case studies should be supported by the Federal and State/Territory Governments, to prove up the concept.

In both urban and regional settings, land use/transport policy integration should recognise the multiple dimensions of accessibility, such that social inclusion can be promoted by either improving transport opportunities, improving the local availability of activities, or by cost-effectively improving elements of each. This ties social inclusion firmly back to land use/transport integration in the longer term.

Policy refresh

The major focus in this report has been on how land transport that involves moving people might best fit into an integrated policy/funding framework, particularly in our capital cities. This should begin with improved strategic planning processes, where the focus starts with land use/transport integration but then ranges more widely, to encompass all the important infrastructure and service inputs that might be required to serve growing/changing communities. Public transport is one component of a suite of measures in this mix, to help improve productivity, social inclusion and environmental sustainability and more generally improve the way of life of Australians and visitors.

A particular focus of the report has been on taking an integrated approach to place. This will often throw up different priorities to those that emerge from a 'big project culture', which seems dominant in Australian urban planning at present, partly because of the Infrastructure Australia infrastructure review and recommendation processes. It is important that the focus shifts from big projects to networks and systems that are designed to help meet the COAG high level objectives for our cities. This needs better strategic planning and should involve cross-sectoral intergovernmental funding agreements to implement strategic plans, including their infrastructure and service components, recognising the roles of public and private sectors.

Infrastructure funding is perhaps the biggest single constraint to improved outcomes on the COAG goal for Australian cities and for achieving comparable outcomes in regional/rural Australia. The report has

proposed user pays and beneficiary pays approaches to raising additional funds for infrastructure investment and suggested a pathway to implementation of the user pays approach. Revenue hypothecation is vital in gaining acceptability for such initiatives and for funding improved transport options for those adversely affected by the changes to charging regimes. A number of other possible funding sources have also been noted, which can contribute useful revenue streams to implement infrastructure/services required in coming years.

Implementing user pays/beneficiary pays approaches requires strong political leadership, which will be assisted by a comprehensive community engagement process on reasons why change is needed, how it could work, the benefits that will result and how those who are adversely impacted will be assisted. That conversation is being sought by many stakeholders. It needs to start now.

The report has highlighted issues of social inclusion and the role that public transport can play in enhancing inclusion. This issue is highly relevant to the future of our cities but also to the future of those living in or visiting regional and rural Australia. Minimum public transport service levels have been identified as a key component in advancing social inclusion that has mobility origins, particularly in urban areas. In regional/rural Australia, the report has proposed a social enterprise delivery model for community transport services, to make better use of existing resources and increase local decision taking in needs identification and in the provision of solutions. Federal/State support for demonstration projects should enable this new approach to be road-tested.



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Context

1.1 Moving People: Solutions for a Growing Australia

In 2010, the Bus Industry Confederation (BIC) and its partners, the Australasian Railways Association (ARA) and International Public Transport Association (UITP), released *Moving People: Solutions for a Growing Australia* (Stanley and Barrett 2010; hereafter called *Solutions for a Growing Australia*). That report argued that Australia's current land transport systems face some major long term sustainability problems, as they relate to people movement. It pointed out that our current travel choices for people and freight movement have resulted in:

- > congestion costs of about \$10 billion annually, and rising
- > per capita land transport greenhouse gas emissions that are exceeded by few countries
- > a road toll of about 1,300 or more annually
- > growing obesity concerns, partly associated with sedentary lifestyles (which include low levels of incidental exercise, associated with high car reliance)
- > many people at risk of social exclusion, because of a lack of travel choices, especially on the urban fringe and in regional areas
- > high dependence on imported fossil fuels, which is a significant burden on the balance-of-payments current account and a source of risk in terms of peak oil and energy security (with consequential implications for increasing social exclusion).

These issues are of national concern because they impinge severely on the national goals of economic competitiveness, environmental sustainability and social inclusion.

Solutions for a Growing Australia further argued that the evidence that these issues are generally getting worse, not better, indicates that **transformational change**, not the incrementalism of the past, will be required to deliver more sustainable long term outcomes. This was also the conclusion from the Australian Davos Connection Infrastructure Summit held in October 2008 (ADC Forum 2009).

To substantially improve the sustainability of Australia's land transport systems, *Solutions for a Growing Australia* proposed that national land transport policy for at

least the next decade needs to pursue the following outcomes:

- > managing congestion costs and improving economic competitiveness and livability as it is affected by land transport
- > achieving substantial cuts in transport greenhouse gas emissions
- > ensuring adequate mobility options are available for all Australians (and international visitors)
- > making the transport system safer
- > encouraging healthier transport choices
- > increasing our energy security, by reducing our reliance on (imported) fossil fuels.

It argued that there were three key transport policy directions for people movement that were required to progress achievement of these outcomes:

1. Changing the modal balance for transport of people (and goods) away from such a high dependence on motor vehicles to methods of transport with less impact on the triple bottom line (i.e. increase our relative use of walking, cycling and public transport).
2. Improving the environmental performance of all transport modes but particularly of cars (and also trucks), because of their dominant roles.
3. Ensuring that travel opportunities are available to all, irrespective of personal circumstances.

These three policy objectives were translated by *Solutions for a Growing Australia* into six major **Program Directions**, with indicative actions of the types shown below (including some actions for freight, to underline the need for an integrated policy approach).

1. Reducing the demand for travel
 - > Land use planning (increased density, co-location)
 - > Maximising opportunities for walking and cycling
2. Achieving a shift to lower carbon transport modes
 - > Cars to public transport, walking and cycling
 - > Trucks to rail
3. Improving vehicle utilisation
 - > Higher car occupancy
 - > More efficient freight movements

4. Reducing vehicle emissions intensity
 - > More efficient vehicles
 - > Smaller passenger vehicles
 - > Alternative fuels
 - > Intelligent transport systems
 - > Better driving practices
5. Increasing mobility opportunities
 - > Provision of reasonable base public transport service levels
 - > Using existing public transport opportunities (e.g. school and community buses) more effectively
6. Creating a more sustainable freight network
 - > Focus on freight movement to ports, hubs and to connect key manufacturing/distribution centres.

Solutions for a Growing Australia showed how pursuit of these program directions would contribute to multiple goal achievement, emphasising the importance of an integrated policy/program package. A seven point action plan supported the policy/program directions.

Solutions for a Growing Australia was widely circulated in the Australian transport policy arena and most states and territories, together with the Federal Government, have subsequently examined their transport programs in the outcome-based way that the report proposed.

This report revisits Australian land transport policy to examine in closer detail some of the more critical areas from *Solutions for a Growing Australia*, drawing (inter alia) on data and new policy reports that have become available since that time. It takes the opportunity to explore a few vital issues in more detail than was possible in *Solutions for a Growing Australia*, particularly three issues that go to the heart of an integrated approach to transport policy: land use/transport integration, sustainable funding and social exclusion.

1.2 Three important recent Australian transport policy developments

1.2.1 National Urban Policy

The Council of Australian Governments' (COAG) has set a national objective to ensure Australian cities are *globally competitive, productive, sustainable, liveable, socially inclusive and well placed to meet future challenges and growth* (COAG 2009). The *National Urban Policy* released in 2012 set out a number of objectives to support pursuit of this national objective. Key objectives

that have significant transport components, and related initiative areas highlighted by the National Urban Policy are (DoIT 2011, pp 19-20; using the objective numbering system from that document):

1. Improve labour and capital productivity by
 - > aligning workforce availability and capacity to meet labour force demand (an accessibility dimension here)
2. Integrate land use and infrastructure by
 - > integrating planning of land use, social and economic infrastructure
 - > investing in urban passenger transport
3. Improve the efficiency of urban infrastructure by
 - > maximising returns on new and existing infrastructure
 - > connecting private investment capital to infrastructure and assets of high public benefit
 - > utilising smart infrastructure
4. Protect and sustain our natural and built environments by
 - > supporting sustainable development and refurbishment of our built environment
5. Reduce greenhouse gas emissions and improve air quality by
 - > supporting and investing in low emissions technologies
 - > putting a price on carbon
 - > sustainable urban planning and regulatory reform
6. Support affordable living choices by
 - > locating housing close to facilities and services, including jobs and public transport, in more compact mixed use development
 - > supporting new outer metropolitan housing with access to facilities, services and diverse education and employment opportunities
7. Improve accessibility and reduce dependence on private vehicles by
 - > improving transport options
 - > reducing travel demand by co-location of jobs, people and facilities
8. Support community wellbeing by
 - > providing access to social and economic opportunity
 - > redressing spatially concentrated disadvantage
 - > enhancing access to cultural, sporting and recreational activity

9. Improve the planning and management of our cities by
 - > facilitating a whole-of-governments approach
 - > integrating planning systems, infrastructure delivery and management
 - > encouraging best practice governance and applying the principle of subsidiarity
10. Streamline administrative processes by
 - > encouraging participation and engagement with stakeholders
11. Evaluate progress by
 - > Research, analysis and reporting.

The National Urban Policy outlines what the Federal Government intends to do under these various headings in pursuit of the national objective, working closely with COAG. The land transport-related directions highlighted are consistent with the policy/program directions set out in *Solutions for a Growing Australia* and, in many cases, go further than the report, particularly in relation to taking a whole-of-governments approach. However, the National Urban Policy does not include a sustainable funding model (or related pricing reform commitments), which means it has no time dimension to delivery.

The Australian Government has also released its *Sustainable Population Strategy* (DSEWPC 2011). As noted by Infrastructure Australia (2012), that report has been criticised for lack of specificity and for not engaging with the detail of what managing population growth might involve. For example, the 2010 ADC Cities Summit pointed out that the populations of Sydney and Melbourne will both be well into the 5-10 million range in coming years, population numbers at which the balance between the agglomeration economies of growth and the external costs of growth become contestable (ADC Forum 2010). Such issues should have been confronted in the *Strategy*, with consideration of whether Australian settlement policy should, or should not, be actively promoting growth in new cities and stronger growth in regional cities.

1.2.2 COAG Capital Cities Strategic Planning Review

COAG asked the COAG Reform Council to undertake three tasks in relation to capital cities, the first of which was to review State and Territory capital city strategic planning systems against nine agreed criteria. An Expert Advisory Panel was appointed to assist the Council in these tasks. The CRC report on its strategic planning process review argued that (CRC 2012 p. 2):

... Australia is at a watershed point for its capital cities and their strategic planning. Population growth, demographic change, increasing energy costs and the shift to a knowledge economy have changed the assumptions underpinning the shape and development of Australian cities. Strategic planning of capital cities must change accordingly, underlining the importance of COAG's agreement of criteria to 're-shape our cities'...

The panel highlighted some particular issues that have not received an adequate response from governments, one of which was social exclusion, the spatial implications of which were seen to be poorly analysed and understood (CRC 2012). More generally, the CRC report was important because it pointed out that no city had planning systems that were fully consistent with the various criteria that had been agreed by COAG; most jurisdictions were 'partially' or 'largely consistent' with most criteria.

In terms of future transport policy in Australia, the CRC report underlines the importance of taking integrated approaches to both tackling problems and framing solutions, particularly incorporating land use/transport integration, and building understanding of social exclusion and the mobility dimensions thereof and what this might mean for policy. These two issues form significant components of the present report.

1.2.3 Infrastructure Australia mid 2012 report

A comprehensive assessment of the state of play in terms of development of strategic plans and converting them to infrastructure priorities is provided by the work of Infrastructure Australia. Infrastructure Australia (2012) reports on the organisation's latest assessments, pointing out more generally that (Infrastructure Australia 2012, p. 8):

To build on progress to date, the nation needs to concentrate on further improving performance in:

A. strategic planning – establishing credible long term infrastructure plans, which focus on better use of existing infrastructure as well as new capital investment;

B. funding and financing – implementing measures to increase the pool of funds available to invest in new projects and use more efficient financing mechanisms,

particularly in partnership with the private sector;

C. governance and reform – making meaningful improvements to existing policy and regulatory arrangements to make infrastructure markets more responsive to community needs and market demands.

1.3 Report structure

This report updates *Solutions for a Growing Australia*, in light of the National Urban Policy, the COAG Capital Cities Strategic Planning Review, Infrastructure Australia's mid 2012 update, policy directions in some States, key outcomes over the past few years and research by Australia's peak public transport bodies. Section 2 summarises key trends in some critical outcome indicators. Section 3 discusses land use/transport integration, an area that was highlighted in *Solutions for a Growing Australia* but has become positively centre stage in policy terms, in light of the COAG Capital Cities work and related Infrastructure Australia processes. Section 4 discusses funding opportunities. *Solutions for a Growing Australia* argued that road pricing reform was critical to achieving a more sustainable land transport system in Australia, in terms of both behavior change and funding. Section 4 examines what this might mean in more detail, suggests some starting initiatives on a path of reform and considers complementary funding opportunities that might enable a stronger attack on the land transport issues confronting Australia. Section 5 explores transport/social inclusion links in greater detail, recognizing the close links to land use in many cases and adding a rural/regional flavor to the report. Section 6 summarises the main policy conclusions from the research.



two

Outcome Trends

2.1 Scope

This section of the report looks at some key land transport performance indicators, to identify trends and key issues requiring attention. The intention is not to repeat the findings and data analysis of *Solutions for a Growing Australia*. Instead, the presentation searches for any evidence of possible *changes in key outcome indicators*, to assess what these changes might mean for policy. In the short time since *Solutions for a Growing Australia* was published, it is perhaps optimistic to expect much change in performance indicators. However, some early suggestion of changes that were beginning three or four years ago may now be more or less apparent. Also, it is important to continually monitor the big picture indicators, to see if trends are positive or otherwise.

2.2 National land transport traffic growth

A forty year picture of change in the Australian land transport task in Figure 2.1 shows growth of road (car) passenger vehicle kilometres far in excess of population growth, until the middle of the last decade. Population grew by 68 per cent from 1971 to 2009 but road passenger kilometres grew by over twice this rate (+155%). Since 2004, however, and corresponding with a jump in fuel prices, passenger kilometres travelled by road have been flat. BITRE (2012) comments on this, suggesting that saturation levels appear to have been reached in per capita road travel, with future growth in the road passenger task becoming largely a function of population growth. Governments, particularly the Federal Government, have an element of policy control here, through immigration rates.

Figure 2.1 shows that the public transport modes of rail and bus have had different growth experiences over the past forty years. Bus travel grew very quickly through the 70s and 80s, particularly outside the capital cities (not shown separately in Figure 2.1), but has slowed since. Rail lost numbers in the early 70s but has recently shown strong growth, to now exceed total passenger kilometres achieved in the 70s. The 2010 bus task (20 billion passenger kilometres, or bpkms) was a third bigger than the rail task (15 bpkms) but the combined bus and rail total (35 bpkms, or 12 per cent of the share of car, bus and rail combined) was dwarfed by the road contribution (260 bpkms). Growth, however, has recently been concentrated in the public transport modes, rather than car.

If the growth in the road task is broadened to include truck movements (primarily for road freight), Figure 2.2

shows that truck vehicle kilometres grew very strongly over the four decades shown. Truck vehicle kilometres (vkms) more than trebled over this period, while car vkms grew by about 175 per cent. With car vkms showing the same flat picture as car passenger kilometres over the last half decade, it is likely that both increasing road congestion and increasing road damage are now most significantly influenced by what is happening to truck/freight traffic.

The idea of possible saturation in car travel is not unique to Australia. *The Economist* (5th May, 2012) points out that British car use has fallen over the last four years and that Britons are making about 11-12 per cent fewer trips today than in 1996 (by all modes, with car the dominant mode). Professor Lee Schipper has noted the same trend, of what he calls “peak travel”, for the US. Changing shopping patterns and increased use of the internet and social media seem to be exercising an influence. Some of the shopping changes (e.g. fewer trips with more on-line purchase) are reducing car use but increasing freight delivery movements.

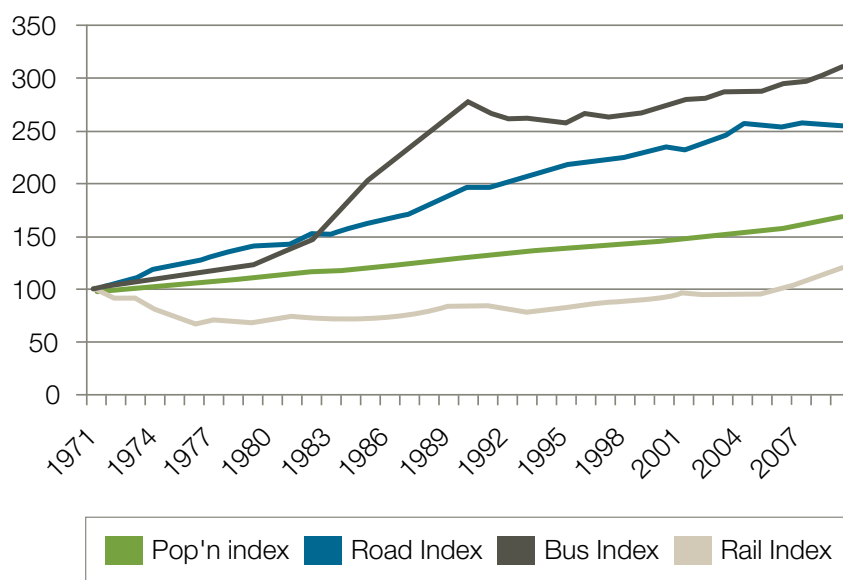
2.3 Road expenditure growth

Taking the shorter period from 1985-86 to 2008-09, Figure 2.3 shows growth in road travel (passenger vehicle vkt and freight tonne kilometres of tkms) and in road expenditure, compared to population growth (1986 = 100). Population growth averaged just under 1.3 per cent per annum over this period. Road travel (vkt) grew at a faster rate and freight (tkms) faster still. Road expenditure change (in real terms), also shown in Fig. 2.3, lagged population growth until very late in the period, which meant it fell well behind growth in car and freight traffic. The lag in road expenditure, some of which could have been to assist road-based public transport, was particularly pronounced between 1998-99 and 2005-06. The implication is that the productivity with which we use our road systems increased dramatically, or road condition and/or levels of service have declined, or a bit of both.

Institution of Engineers report cards on Australian infrastructure condition¹ and evidence of growing congestion levels in our cities suggests that both explanations are operative. The Institution of Engineers has used consistent assessment procedures over a number of years, to rate the quality of Australia's

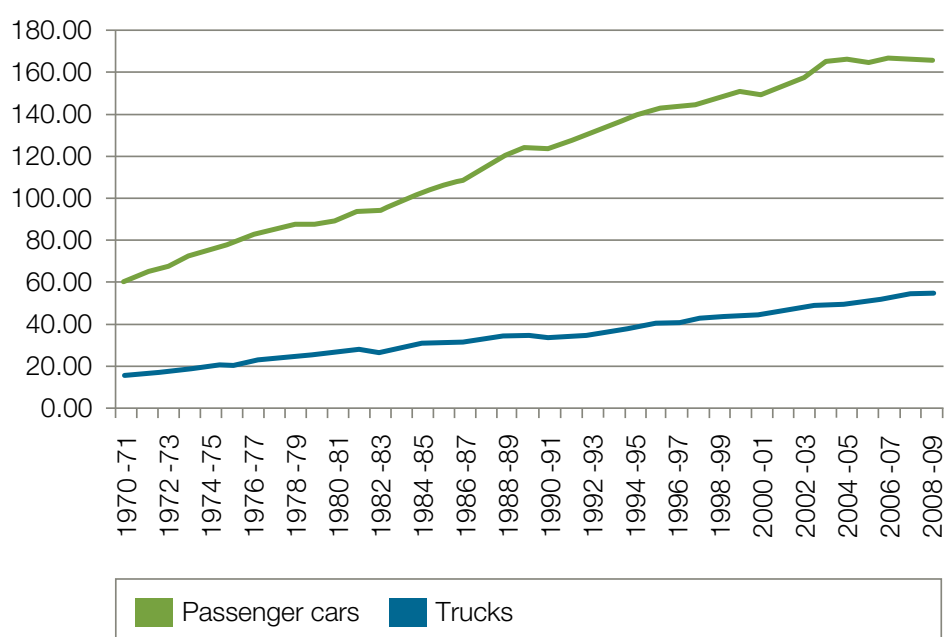
1 <http://www.engineersaustralia.org.au/infrastructure=report-card>

Figure 2.1: Growth in national land transport passenger transport task (billion passenger kms), compared to population growth (1971=100)



Source: BITRE (2012)

Figure 2.2: Growth in land transport vehicle task (billion vkms)



Source: BITRE (2012)

infrastructure systems, including road, rail and port systems. Table 2.1 sets out the national level assessments for 1999, 2001, 2005 and 2010, and State level assessments for 2010. It shows essentially no change in national road condition overall, with national roads having the highest rating at C+ and State/Territory Roads at C and local roads having the poorest condition at D+. These performance relativities are probably appropriate, given traffic volumes and the significance of the various road categories, but the levels of the ratings and absence of any substantial improvement over the past decade suggests a holding position on quality, implying improved productivity in system maintenance in the face of traffic growth. The Institution comments, however, that a C rating indicates that major improvements are still required.

Rail generally rates on a par, or poorer, than roads. The individual state/territory level score card commentaries, however, suggest that metropolitan rail infrastructure is in poorer shape in many cases than freight rail, especially where the latter serves mining.

Port ratings are also shown in Table 2.1, with ratings generally being better than both roads and rail. However, state/territory commentaries suggest that road and rail access to/from ports is generally a problem in capital cities and is getting worse, as traffic volumes build (freight volumes through the major capital city ports have been growing strongly), underlining the importance of taking stronger positions on land use/transport integration.

Austrroads publishes high level indicators of the condition of roads, by state and territory, in terms of a surface roughness measure. For rural roads, the proportion of travel undertaken each year on roads with a roughness level of less than a condition threshold of 4.2 IRI is measured. In 2010-11, of the six jurisdictions that reported, all reported 92% or more of their rural roads met this threshold. However, three of the six had recorded higher percentages within the decade prior to that date, suggesting that roughness has deteriorated, albeit only marginally in most cases.²

In urban areas, the comparable roughness measure against which road travel is measured is 5.33 IRI. All six states and territories that reported against this indicator were at, or above, 96%. Again, three of the six jurisdictions that reported had higher proportions at

some stage during the preceding decade, suggesting urban road roughness is also coming under pressure from increasing traffic volumes.³

If road expenditure had grown at the same rate as population over the period shown in Figure 2.3, total road expenditure would have been \$35 billion higher, in constant prices, in aggregate over that period. However, pressure on roads is more accurately reflected in growth in the road task. Had road expenditure in real terms grown at the same rate as vkt, which is still well below the growth rate in road freight, total road expenditure would have been about \$75 billion higher in aggregate. That is equivalent to about five years total spending on roads, suggesting a substantial backlog⁴. The impact of heavy road vehicles on road condition, and growth rate in freight traffic, suggests that the actual backlog could be larger again. Comparable estimates are not able to be produced for rail/public transport, because of data differences between modes. A recent report by Infrastructure Partnerships Australia suggests that transport infrastructure funding has fallen substantially over the 18 months to March quarter 2012. This adds weight to the view that the backlog is increasing. Infrastructure Australia has linked the transport infrastructure backlog to declining national productivity growth, highlighting problems in financing.⁵

2.4 Capital city road traffic growth

Some 14 million of Australia's 22 million people, or almost two-thirds, lived in our capital cities in 2009. Figure 2.4 shows very strong growth in freight traffic in these capital cities, the aggregate task increasing by a factor of about five from 1971 to 2008, from 8 to 40 billion tonne kilometres. This was a growth rate averaging a high 4.5 per cent per annum, faster than national GDP growth (at just over 3 per cent p.a.; capital city data is not available) and capital city population growth (about 1.3 per cent per annum). Car traffic (vkt) increased by about 160 per cent over the period and capital city total population numbers by 60 per cent. In short, vehicle kilometres of travel per person, and particularly the freight task per person, grew substantially.

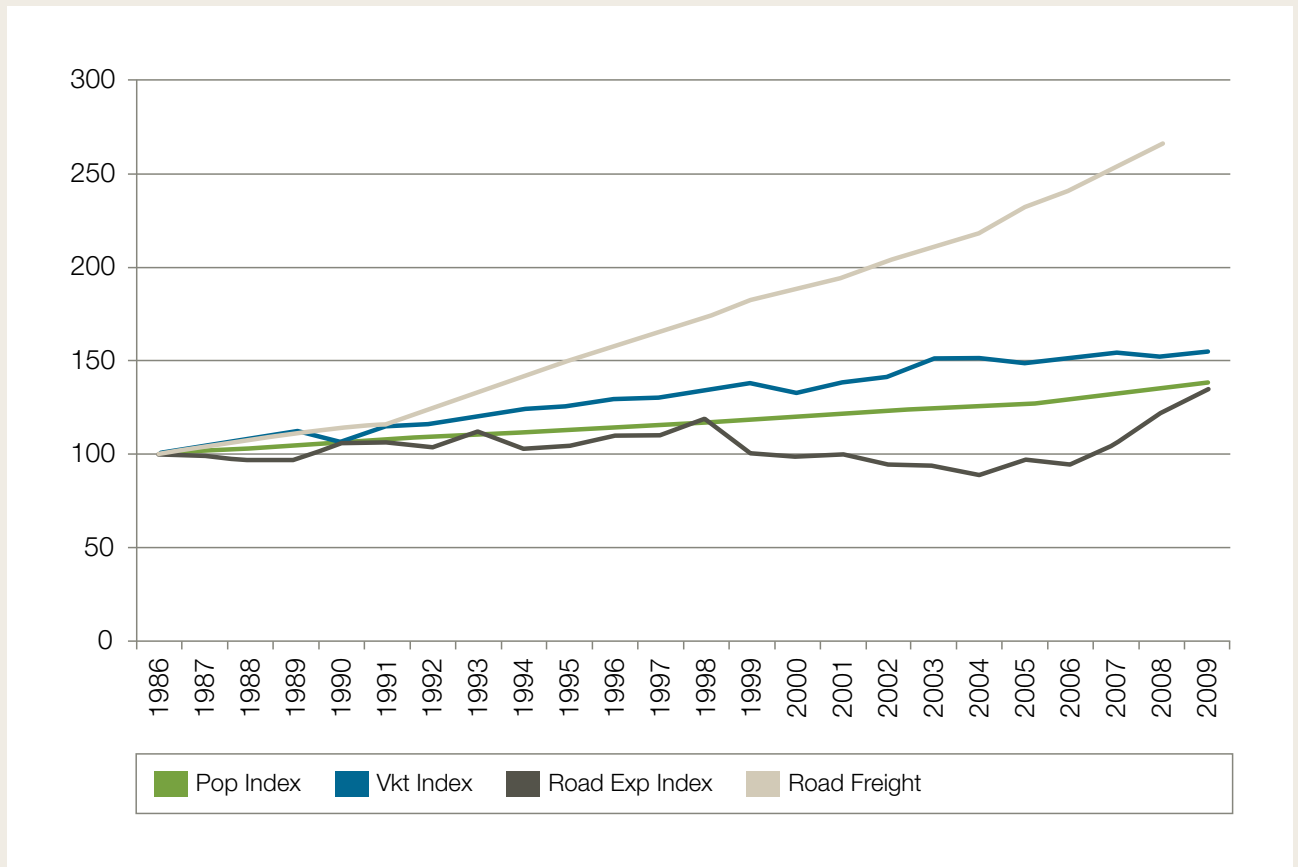
2 <http://algin.net/austrroads/site/Index.asp?id=32>. Accessed 5th April, 2012.

3 <http://algin.net/austrroads/site/Index.asp?id=37>. Accessed 5th April, 2012.

4 Detailed cost benefit analyses of individual projects are required, of course, to identify relevant backlogs. Expenditure levels are only a rough first indicator of prospective changes in condition.

5 Infrastructure Australia media release, 4th July, 2011, "Infrastructure Australia pushes for better projects and private funding".

Figure 2.3: Growth in road traffic task and road expenditure, relative to population growth (1985-86 = 100)



Source: BITRE (2012)

Table 2.1: Institution of Engineers' Infrastructure Report Card Ratings

Infrastructure Type	Aust 2010	Aust 2005	Aust 2001	Aust 1999	ACT 2010	NSW 2010	NT 2010	QLD 2010	SA 2010	TAS 2010	VIC 2010	WA 2010
Roads overall	C	C		C-	B	C-	C	C-	C-	C-	C+	C+
National roads	C+	C+	C	C		B-	B	C-	C	C+	C+	B-
State/Territory roads	C	C	C-	C-		D+	C-	C-	C	C	C+	B-
Local roads	D+	C-	D	D		D+	D+	C-	D	D	C-	C-
Rail	D+	C-	D-	D-	F	D-	C+	C-	C	F	D	C+
Ports	B	C+	B			C	C+	B	B-	B-	C+	B-

Source: <http://www.engineersaustralia.org.au/infrastructure=report-card>

Figure 2.5 looks at capital city person movement by mode from 1976-77 to 2008-09, showing growth in passenger motor vehicle passenger kilometres (cars, light commercial vehicles plus motor cycles) leading until recent years, when it flattened off (as shown nationally in Figure 2.1). *Solutions for a Growing Australia* highlighted declining per capita car travel in capital cities from the time fuel prices rose significantly in the middle of the last decade. Rail use has increased strongly in recent years, being twice the 1976-77 size in 2008-09, to marginally exceed the growth in motor vehicle road travel over the period. Bus use has also increased strongly, by about 80 per cent over the period shown.

The flattening trend in motor vehicle use shown in Figure 2.5 and strong growth in road freight (btkms) shown in Figure 2.4 supports the suggestion that freight movement is a significant contributor to increasing road congestion levels and to changes in road condition.

2.5 Congestion

Annual data on road congestion levels in Australian cities is difficult to find. Congestion costs are estimated infrequently by BITRE. BITRE (2007) projected that capital city congestion costs would double, from about \$10b to \$20b, from 2005 to 2020, but that projection did not anticipate the flat performance of passenger car travel over the last half of the 2000s.

Austroroads publishes some data on travel speeds on urban roads. Five jurisdictions reported 2010-11 data on the difference between actual and nominal travel time in the morning peak (minutes per kilometre), an indicator of congestion. The delay measure increased in all five jurisdictions compared to a decade ago, although Victoria reported less delays in 2010-11 than in 2005-06, the only state to achieve this result.⁶ In short, capital city road congestion levels are generally still getting worse, which means increasing costs for person and freight movement, with adverse impacts on productivity, the environment (emissions) and social inclusion.

2.6 Energy security

In 2009-10, Australian sales of automotive gasoline totalled 18,644 ML, a little below the peak of 19,962 in 2003-04, partly reflecting trends in car travel. In line

with the strong growth in road freight, automotive diesel sales continued to grow strongly, reaching a peak (to that point) of 19,044 ML in 2009-10. The rapid growth in diesel sales has been associated with a fast growth in diesel imports. These increased from 1,400 ML in 1999-2000 to 8,025 ML in 2009-10. In compound terms, this is a growth rate in excess of 20 per cent annually. In 2009-10, imports accounted for over 40 per cent of sales, having been only 10.6 per cent in 1999-2000. This rapid growth in import dependence suggests an increasing risk in terms of security of supply.

2.7 Greenhouse gas emissions

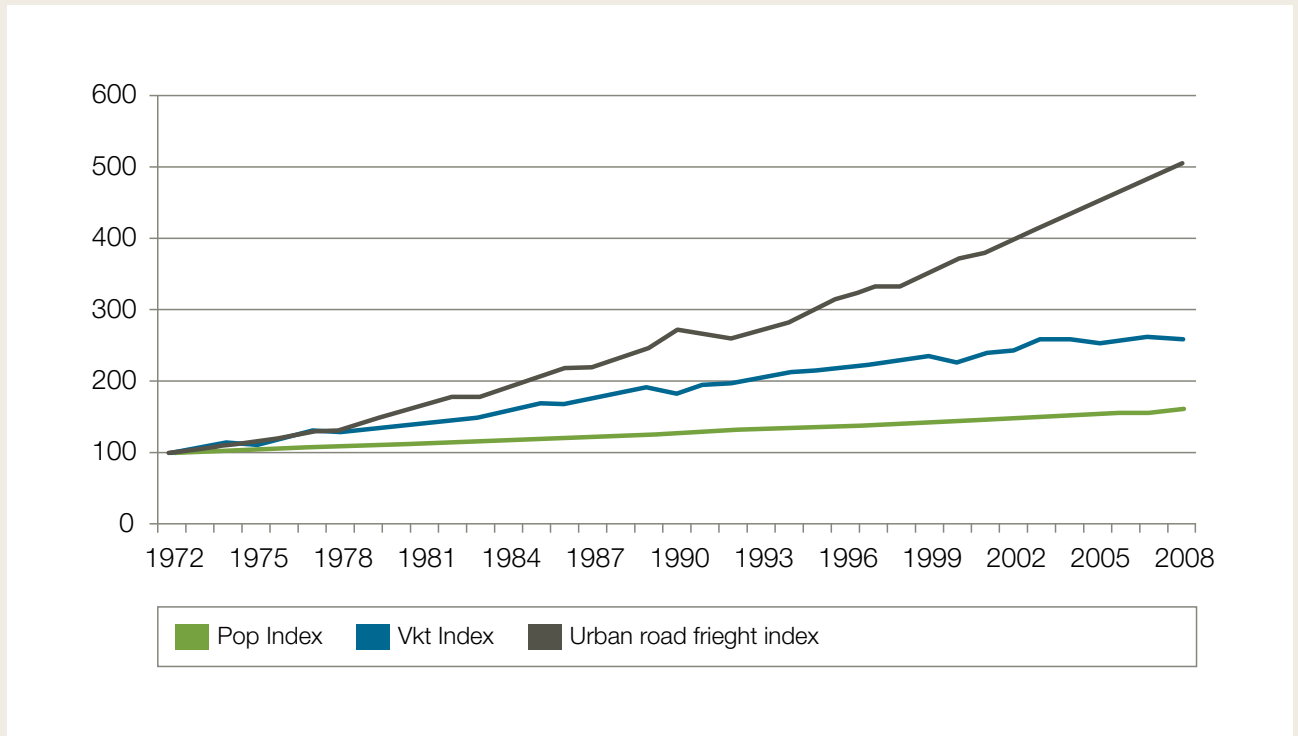
Australia's high per capita greenhouse gas (GHG) emissions are well known. The relatively low share that comes from the transport sector (about 14 per cent) is primarily due to the poor emission performance of our electricity generation sector, which is heavily coal dependent. In per capita terms, however, our road transport emissions are high in international terms, particularly because of our low density settlement patterns and high reliance on motor vehicle travel. Figure 2.6 shows that total direct Australian transport GHG emissions more than doubled from 1976-77 to 2009-10, from 40mt to 87mt CO₂ equivalent.

Over the shorter period from 1989-90 to 2009-10, Figure 2.7 shows the size and growth in road transport emissions. Total road transport emissions have levelled off in recent years, in line with trends in motor vehicle use, a growing market share for public transport and improved vehicle emission performance.

A levelling off in road transport GHG emissions is not sufficient if future Australian GHG emissions targets are to be met. Motor vehicle GHG emissions still accounted for 73.7mt of the total 87.1 transport sector emissions, such that reducing transport GHG emissions still means taking concerted action to reduce road transport GHG emissions. *Solutions for a Growing Australia* indicated the vital importance of taking an integrated approach in this regard, the scale of cuts that will be needed in coming years being well beyond what can be achieved by any single policy intervention. In short, GHG emissions performance is improving but nowhere near quickly enough. The exclusion of cars from the carbon price is a missed opportunity in this regard.

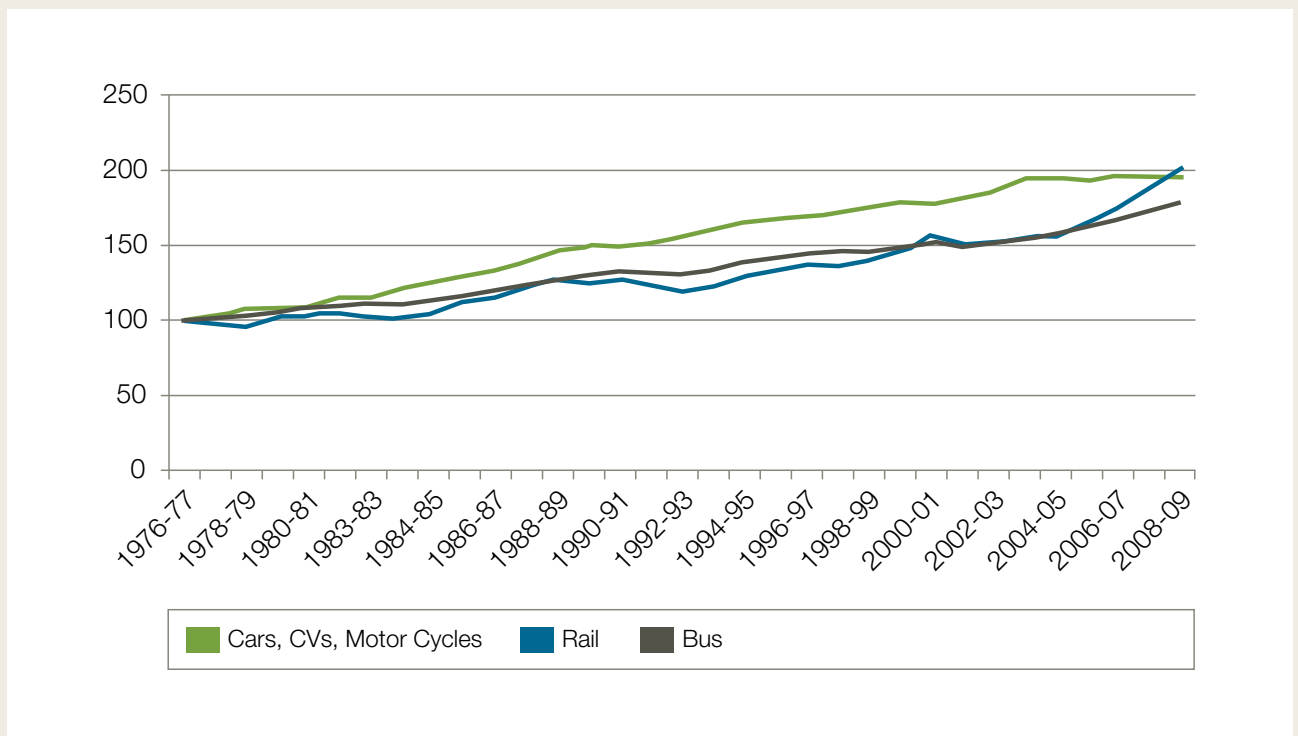
⁶ <http://algin/net/austroads.site/Index.asp?id=70>. Accessed 5th April, 2012.

Figure 2.4: Capital city land transport task: growth in vehicle kilometres and tonnes kilometres (billions), compared to population growth (1972=100)



Source: BITRE (2012)

Figure 2.5: Capital city transport task: growth in total passenger kilometres travelled (1976-77 = 100)



Source: BITRE (2012)

2.8 Accidents

Fatalities on Australian roads have reduced in recent years, suggesting successful road safety campaigns (Figure 2.8).

2.9 Social exclusion

There is no data, to our knowledge, which tracks performance of Australia's land transport systems in terms of reducing transport disadvantage and the associated risks of social exclusion, reflecting the conclusions of the COAG Capital City Strategic Planning Review about the need to build understanding in this area (see section 1.2.2 above).

Various studies have identified and measured the risk of social exclusion and linked this to transport disadvantage, with Australia being at the forefront of this research internationally (see, for example, Currie (2011) and Stanley et al. (2011)). However, it is not possible to assert whether any progress is being made in terms of reducing the significance of this problem. Given the lags in provision of public transport services in the fast growing fringes of our capital cities and the continuing low availability in most regional/rural areas, it seems most likely that problems of transport disadvantage and associated social exclusion will actually be getting worse. This conclusion has recently been mirrored by Infrastructure Australia (2012, p. 41):

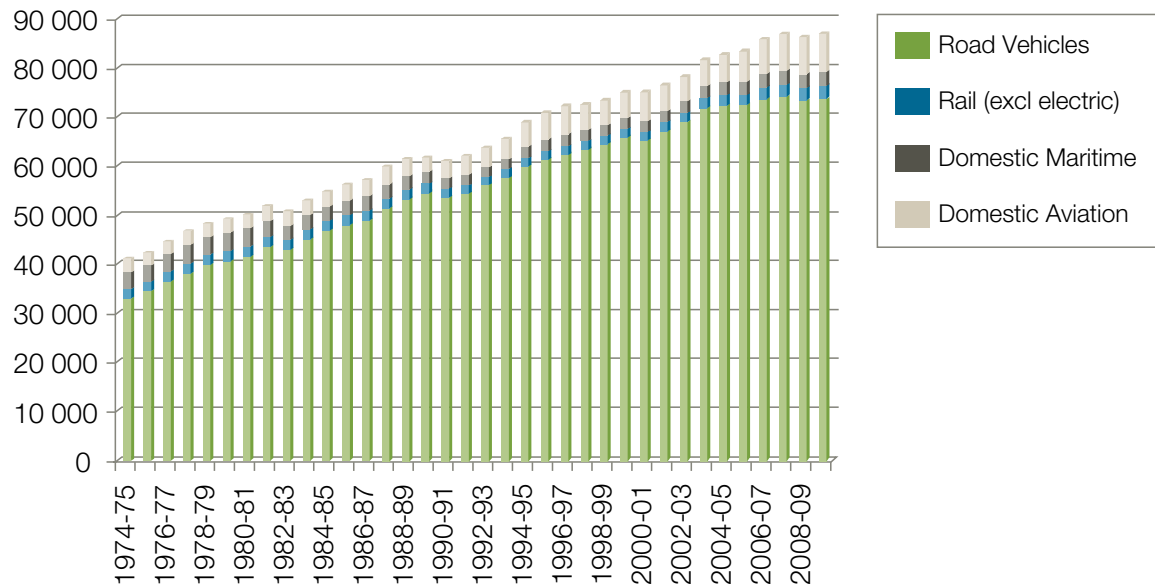
Faced with issues such as decreasing housing affordability, limited access to local employment opportunities, inconsistent access to public transport, and increasing traffic congestion, there is an arguable case that we are making little or no progress in planning for or developing liveable cities. Worse, some of our larger cities appear to face a future of greater division rather than inclusion.

2.10 Overview

This quick data scan suggests:

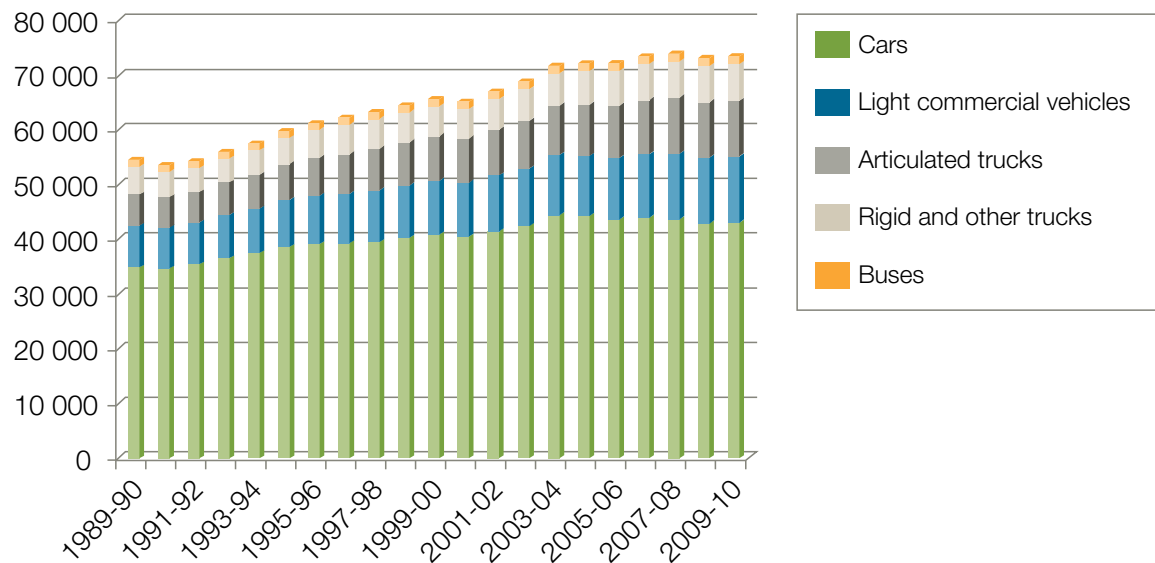
- > growth in car traffic has slowed in recent years, to the point where future growth will mainly be associated with population growth (although major new additions to road space in coming years will generate new growth and must be carefully planned, in view of the continuing levels of externalities)
- > road freight traffic has continued to grow strongly (and must be an increasing focus for system management)
- > road and rail access to/from ports is generally a problem in capital cities and is getting worse, as freight traffic volumes build (a big issue for emerging metropolitan land use planning strategies)
- > growth in road expenditure in recent years, relative to traffic growth, suggests a substantial investment backlog (which will have contributed to the flattening in car use, reinforcing the point about being careful about new traffic generation when infrastructure backlogs are tackled. Public transport must be a central element in overcoming the backlog)
- > road roughness and congestion levels are deteriorating in the face of traffic growth and the lagged response in road investment, although improving road productivity has mitigated some potential deterioration in service quality (road system management has made good progress and it is important that this continues)
- > the levelling off in car traffic levels has helped to stabilise road transport GHG emissions but much more needs to be done to cut emissions from the sector (government policy measures to increase public transport use and encourage a switch to low emission fuels/vehicles more generally (e.g. CNG or hybrid buses), together with other policy measures set out in *Solutions for a Growing Australia*, are important here. Federal carbon tax revenues should help facilitate this transition to low carbon transport. The exemption of cars from the carbon price was a missed opportunity. Public transport should be fully exempted from carbon taxes until such time as its competitor, the car, is included)

Figure 2.6: Australian transport direct greenhouse gas emissions (gigagrams of CO₂ eq.)



Source: BITRE (2012)

Figure 2.7: Australian road transport greenhouse gas emissions (gigagrams of CO₂ eq.)

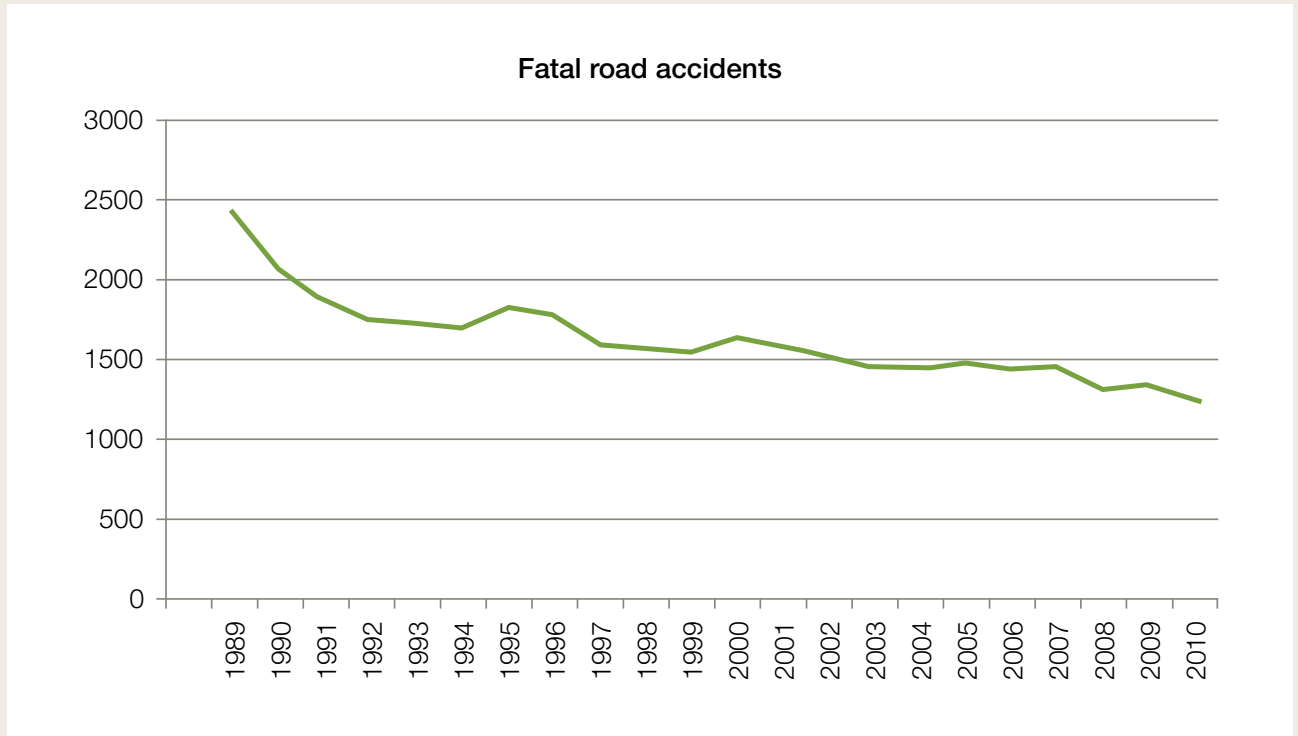


Source: BITRE (2012)

- > the different trends in growth of car and truck use suggests that trucks are a growing contributor to congestion and GHG emissions and should be a major focus of programs to improve sectoral performance in both areas (pricing reforms, as discussed in section 4, are central in this regard)
- > diesel imports are substantial and growing quickly, increasing energy security risks (adding to the argument for a switch in reliance away from fossil fuels for transport)
- > road fatalities are a positive story, with reductions being achieved in recent years
- > social exclusion associated with transport disadvantage seems likely to be on the rise, although data availability precludes definitive statements (new census data may help. Section 5 includes some discussion on social exclusion).

These conclusions are in-line with those in *Solutions for a Growing Australia*, increasing the urgency of transformational changes if the COAG national objective for our cities is to be achieved and relevant comparable outcomes are to be delivered for regional/rural Australians. Land use planning is an important influence on many of the trends noted and is central to achieving policy change towards more sustainable outcomes.

Figure 2.8: Australian fatal road accidents



Source: BITRE (2012)



three

Land Use/Transport Integration

Today the challenge is to take transport out of its box in order to ensure the health, vitality and sustainability of our metropolitan areas

(Brookings Institution 2008, p. 9).

3.1 Context

The concentration of people in cities improves productivity and many aspects of liveability, particularly through scale economies and agglomeration effects in production and consumption. The origins of agglomeration economies in production have been well understood for many years. They include such sources as improved access to inter-industry information flows (information spillovers), thick labour markets, better access to specialized services (e.g. legal services, design and testing, financial services) and to public infrastructure, together with economies of scale that may accrue to individual firms.

Agglomeration effects in consumption, an important element of liveability, are a relatively new area of quantitative research. However, Borck (2007), for example, provides evidence of agglomeration externalities in consumption from a German case study, with bigger cities (in population terms) showing benefits for residents from a larger range of service choices, across areas such as restaurants and bars, concerts, dancing, theatres and museums. Such benefits are familiar to Australians living in, or visiting, our cities.

There is a trade-off in city size between **agglomeration benefits** and the **external costs** of (for example) traffic congestion, pollution, noise and social exclusion. Bigger cities tend to have greater agglomeration benefits but larger external costs. Getting the balance right is a key task of urban policy. The tension between agglomeration benefits and external costs is not only an issue of absolute city size. It frequently also arises when cities grow quickly, infrastructure and services lagging behind population growth.

Transport is a major contributor to agglomeration benefits (particularly through its contribution to accessibility and the related concept of effective density) and is a vital requirement in growing suburbs. It is also a source of some of the major external costs of cities, especially (but not only) congestion. Getting the land use/transport balance right is thus a vital element in having a great city.

Noted urban scholar Robert Cervero (2001) argues that large cities that are compact, enjoy good accessibility, matched by efficient transport infrastructure, are among the most efficient urban settlements. These cities do not arise by chance: they require decades of careful management and guidance.

3.2 The need for integration

The agglomeration/external costs trade-off illustrates why an integrated approach is important in land use/transport policy and planning. People and goods do not usually move around simply for the sake of it. For people movement, for example, the demand for transport is essentially derived from the demand for activities that people wish to undertake. In consequence, understanding what drives demand typically requires some understanding of the way spatial systems work. This includes understanding how different land use configurations impact on travel demands and, in turn, how transport systems influence land use. Major transport improvements, in particular, can play important city-shaping roles. It is better that this be planned, to achieve intended societal outcomes, rather than arising as an unintended consequence of seeking to solve transport problems in siloed isolation. This requires an integrated approach. Infrastructure Australia (2012) has pointed out, for example, how failure to integrate land use and transport can have flow on effects to social exclusion.

The importance of integrating land use and transport policy and planning has been widely recognised for a long time but the practice of implementation generally falls short of expectations. The Discussion Paper for the new Sydney Metropolitan Strategy candidly notes, for example (NSW Government 2012, p. 31): *Delivery of strategic plans in NSW has been poor*. The recent COAG Reform Council Capital City Strategic Planning Review is an important step along the path of improving the practice of integration, with the *National Urban Policy* and Infrastructure Australia (IA) funding pipeline providing policy and funding reinforcement.

States are constructively seeking to deliver more integrated approaches. NSW, for example, is currently pursuing integration between three 20 year strategies: a Metropolitan Strategy for Sydney (and regional strategies), a State Infrastructure Strategy and a Long Term Transport Master Plan. Victoria is including transport priorities as an integral part of its Metropolitan Planning Strategy for Melbourne, due for completion in 2013. The Sydney Metropolitan Strategy emphasises the importance of a place-based approach to integration (NSW Government 2012 p. 21): *A place-based approach provides a better basis to co-ordinate housing, employment and economic growth outcomes*. They might also have mentioned the contributory role of transport.

Institutional design for land use/transport integration frequently concentrates on integration **within** one particular level of government. However, if service impacts (benefits and/or costs), service delivery responsibilities and/or funding obligations cross jurisdictional boundaries between levels of government, then institutional arrangements also need to facilitate and manage this cross governmental involvement for effective integration, even if service delivery responsibilities lie largely (or entirely) at one particular level of government (as is common). COAG and IA processes recognise this complexity, particularly as between the Commonwealth and State Governments.

Figure 3.1 sets out a broad framework for integration which recognises the importance in an Australian context of structuring arrangements both within and **between** levels of government, to support an integrated approach. Alignment of goals between layers of government becomes an important process in such cases, together with the use of evaluation and monitoring processes that help to assure accountability for outcomes. Funding agreements can help to cement cross-governmental integration, as has been practised (for example) in Canada with respect to major transport infrastructure projects.

Internationally, the most common institutional arrangement for land use/transport is that local government, acting at a regional level, has primary responsibility to drive the process, based on the principle of alignment of decision taking responsibility with the jurisdiction in which the consequences (costs and benefits) of those decisions are most concentrated. In some cases this may mean a single local authority, if that authority covers the entire geographic space of interest. In others, it may require some means of local authorities working together to act regionally, as in Vancouver (for example). Figure 3.1 shows the relationships with local government exercising this driving role. It is recognised, however, that Australian experience places States in this position. The BIC sees a stronger role for local government in land use/transport integration as an important element in delivering effective outcomes, because of the vital role local government plays at the coal face.

Higher levels of government (national/federal, state/provincial) have legitimate interests in land use/transport integration, particularly because of impacts on high level social goals (e.g. the national economic significance of city economic performance in the knowledge economy and the impacts of poor land use/transport integration on this performance; the national and international

Figure 3.1: A Framework for Land Use/Transport Integration



Source: Based on Stanley and Smith (2012)

environmental consequences of city performance - e.g. ecological footprint, especially with respect to greenhouse gas emissions associated with transport and land use choices). It is such impacts on high level social goals that justify Federal funding flows to support implementation and outcome achievement at subsidiary levels of government. Legislative frameworks set at higher levels of government may also impact directly on what is possible at local government level in terms of implementation.

In terms of integration across levels of government, as it impacts on the development of our cities, the current Federal arrangements need attention. This is all managed by the Minister for Transport through Infrastructure Australia, the Major Cities Unit and COAG, with BITRE undertaking research on an intermittent and non-systemic basis. This seems a fragmented approach, with the Infrastructure Australia ambit, in particular, being too narrow to deal with urban issues and the Cities Unit too small to help deliver significant change (the Unit has, however, played a very important role in benchmarking city performance). Given the national economic significance of our cities, a Federal agency with an urban mandate seems more likely to support progress towards the COAG goals. This could be an Urban Development, Planning and Cities portfolio and Minister. This Ministry could be further supported by the Federal Department of Infrastructure and appoint, for example, Capital City Commissioners who act as the conduit between delivery of Capital City plans (as outlined in Figure 3.1), State and Local Governments, IA and COAG. An institutional model along such lines would help to improve the connections between the Federal role and State and Local Governments and help support intergovernmental funding agreements to implement relevant transport/infrastructure plans and programs (see also, section 3.5).

Australia's approach of vesting responsibility for urban planning and transport at state level is unusual. So far as integration between land use and transport is concerned, local government also has a good case for a significant seat at the Australian intergovernmental table.

The framework in Figure 3.1 shows a long term land use strategy (about 25 years, although there are good arguments for taking a 40-50 year perspective, to increase the focus on land use elements) marginally leading preparation of an associated and integrated long term transport strategy. This phasing is because a view on broad land use issues, such as the balance between growth on the fringe versus more compact settlement patterns, and whether or not to protect agricultural lands or scarce natural areas on urban fringes, should help

to guide strategic transport directions, because of the way major transport initiatives can support, or detract from, intended outcomes. The 25 year transport strategy is then seen as being given more detail in a Ten Year Transport Plan, which should include a related funding plan. The 25 year strategy should be updated about every five years and the Ten Year Plan annually. The first three years or so of the Ten Year Plan need specifics on policies, projects and funding, with the subsequent seven years being more indicative.

The BIC sees community buy-in as essential for effective policy development and program/project delivery, with local government an important player at this level. Figure 3.1 shows community engagement as a continuing process, to reflect this importance. The nature of the consultation will vary throughout the process but must be a genuine effort to engage and draw ideas from a wide cross-section, not simply providing information about what others have decided is going to be done. Virtualisation tools are enabling new forms of community consultation around complex land use decisions, such as neighbourhood densities, and should assist a widening of consultation opportunities.

3.2 Urban policy/planning directions

3.2.1 General directions

With liveability being such an important part of 'brand Australia' and contributor to attracting talented people who drive the knowledge economy, a critical policy issue is how to sustain Australian cities' high liveability rankings as our cities grow. For example, no city in the Mercer or The Economist top ten liveability rankings has over 5 million people and only two cities in each ranking exceed 2 million population. This suggests that there are challenges in sustaining liveability rankings as the population of Sydney and then Melbourne reach and then exceed this apparent threshold of about 5 million.

The BIC's preference is for the policy focus to be on creating **better cities**, where the external costs of city size are mitigated, without any loss of the agglomeration benefits that are so important to productive and liveable cities, rather than on city size. This mitigation may involve accelerated growth in some regional cities.

The ADC Forum Cities Summit has argued that building better cities requires a concerted focus at both the strategic or city-wide and local or village/precinct levels, although urban land use planning strategies for our cities typically ignore the latter (ADC Forum

2010). The **city-wide level** is where broad policy and program directions for city development are set. It is at this level that strategic land use plans are settled and major supportive, city-shaping infrastructure investment decisions are made.

The **village/precinct level** is the urban space in which people conduct most of their daily lives and is where their sense of community is likely to be most firmly based. Village/precincts can range from small local centres, through large activity centres to Central Business Districts or parts thereof, with a sense of distinctiveness/identity being a key defining quality. Planning and developing villages/precincts, such that a greater range of activities can be undertaken locally, will support local job creation, social inclusion and enhance accessibility, while reducing emissions and the broader ecological impacts of population growth.

In the knowledge economy, the village/precinct assumes increased locational significance, because of its role in liveability, to the point where urban planning strategies should seek to promote this level as well as the more amorphous city-wide level. The Sydney Metropolitan Strategy's recognition of the importance of place may presage such an integrated approach across strategic and village/precinct levels. This would be a significant step forward in Australian land use strategy. The Melbourne Planning Strategy's interest in a '20 minute city' is also very positive in this regard.

Better Cities encompasses a number of components, including (ADC Forum 2010):

- > encouraging growth in new cities/regional centres as well as adding numbers to existing cities
- > substantially upgrading the condition of our existing cities, with a particular focus on the future of the middle ring suburbs in our capital cities. These contain a high proportion of population and jobs and are within reach of the growing outer suburbs, where jobs are most scarce and improved transport connections are urgent (because of the way transport infrastructure has lagged population growth on the fringe), including connections to the areas of middle suburban employment/services concentration
- > focusing on enhanced liveability of villages/precincts within cities (including walkability, cyclability and local public transport)
- > pursuing greater community involvement in both planning for, and then delivering, city futures, at both

the strategic and local levels, as part of the process of sharing common visions and achieving deliverable outcomes.

The ADC Cities Summit pointed out that, across the developed world, there is widespread agreement among urban planners about the **principles of effective city planning** that should contribute to cities becoming Better Cities. These were seen, in broad terms, as follows (ADC Forum 2010, p. 34):

- > planning should be for "whole communities", providing for access to jobs, schools, shops and services, recreational facilities, open space, and for access to other people
- > outward growth of cities should be constrained
- > "green" areas should be retained within and around cities
- > "close to market" agricultural and horticultural land should be retained as far as possible
- > large cities should have a networked polycentric shape rather than a single central business district
- > higher density and mixed use development should be encouraged at public transport stops, particularly rail stops but also along major public transport routes (e.g. tram lines; key trunk bus routes)
- > all neighbourhoods should have access to urban villages and be walkable and cyclable
- > use of public transport should be encouraged wherever possible
- > use of the car should be discouraged wherever possible
- > both open space and recreational space should be accessible to every neighbourhood
- > public space should be human scale, well designed and encourage concentrated and varied activity
- > neighbourhoods should have a diversity of housing to enable people of a wide range of ages and economic levels to live there
- > housing, neighbourhoods and cities should be planned to maximize energy and water efficiency



- > planning for industry and freight should include consideration of neighbourhood amenity as well as economic efficiency
- > regional residential and employment land use should be built around public transport
- > regional institutions and services should be located in urban areas
- > cities should have the capability to respond to disasters and the resilience to respond and rebuild.

The particular approach to such matters will be nuanced by local political priorities. Transport and transport-related elements are pervasive in this listing, at both local and strategic levels, underlining the many dimensions encompassed by the concept of land use/transport integration.

Possibly the single most difficult issue confronting Australian urban planning at present is the governance issue concerning resolution of the conflict between **desired strategic directions for city development**, which will involve increases in densities in some parts of our cities, and the **preferences of local people**, who frequently do not accept that increased densities are appropriate in their locality. Long delays in development frequently result, which often leads to Ministers calling projects in, taking local government out of the planning decision. This is a vital governance issue because of the increasing importance that needs to be attached to the village/precinct level in future city growth. The solution is likely to require a partnership between state government and local governments acting regionally.

Successful delivery of higher densities requires both strategic and local level engagement (integration across the strategic and village/precinct levels), which clearly considers reasons for changing density (social benefits in the broadest sense of the term) and works through ways of minimising the costs to individuals/groups who perceive they are adversely affected, while maximizing local benefits from increased activity possibilities. Transport policies can help effective achievement of such policy directions, through (for example) local measures that enhance walkability/cyclability and improve public transport service levels and strategic initiatives that support more compact settlement patterns, rather than encouraging sprawl.

3.2.2 Australian capital city directions and outcomes

This section looks very briefly at the urban planning directions being pursued by two Australian capital cities, to add detail and context to the general principles discussed in section 3.2.1. Detailed differences exist between cities, reflecting local circumstances and priorities, but the broad directions set out in section 3.2.1 are common.

Melbourne

BITRE (2011) has discussed changes in population, employment and commuting in Melbourne post-2001 and compared key outcomes to the policy intent of the Melbourne 2030 Planning Strategy and its updates. The report discusses how:

- > in 2006, the Inner sector had 28% of jobs (8% of population), Middle sector 39% of jobs (47% of population) and Outer sector 31% of jobs (42% of population). These data illustrate the inwards morning peak tidal commuting flows (and return in the evening)
- > between 2001-10 population growth was highest in the Inner sector (3.0% p.a.), followed by the Outer sector (2.6% p.a.), Peri-urban sector (1.8% p.a.), with the Middle sector the slowest growing (1.0% p.a.). 58% of population growth occurred in the Outer sector, 26% Middle, 12% Inner and 4% Peri-urban
- > jobs growth has been widely dispersed throughout the urban area, with major growth in City of Melbourne (inc. Southbank-Docklands), Wyndham North (urban fringe in the west), Greater Dandenong, Melbourne Airport and the Monash University Health/Research Precinct but the spatial structure of commuter flows remained relatively stable between 2001-06, commuter flows increasing in complexity
- > CBD commuters were under 5% of total commuters for many urban SLAs, the most common commuter journeys being within the home LGA and to neighbouring LGAs, suggesting it is important to focus on shorter non-CBD oriented trips, particularly in middle and outer areas, as well as on trips ending in the CBD, if an increase in the PT, walk and cycle mode share is desired
- > overall population density increased from 1455 persons/km² to 1566 persons/km² between 2001-06, the largest increases being in the Inner suburbs, supporting a growing role for walking, cycling and PT in the journey to work.

The report makes a number of points about the city's urban outcomes compared to Melbourne 2030 objectives, including (BITRE 2011):

Objective: concentrating residential development in centres

- > Good progress in the CBD and inner areas but only limited progress in the Central Activities Districts and Principal Activity Centres (CADs and PACs housing 9.8% in 2001 and only 9.9% in 2006).

Objectives: increasing population density; restricting rural residential development; shifting the growth focus to the north and west; directing fringe development to Growth Areas

- > Good progress.

Objective: Limiting urban sprawl

- > Limited progress. Melbourne 2030 aimed to reduce the Greenfield share from 38% to 31% over the 2001 to 2030 period. From 2001-2006 the fringe took 38% of dwellings and 51% of population growth. The revised target in Melbourne@5million is 53% of new dwellings be in established areas.

Objective: Concentrating jobs growth in centres

- > Isolated progress. The CADs, PACs and Specialised Activity Centres had a lower job growth rate than the rest of Melbourne (0.9%, c.f. 1.3%) but Melbourne Airport and Monash Precinct had rapid jobs growth.

Objective: Strengthen Central Melbourne's role as primary business hub

- > Some progress. The BITRE assessment may be a little stronger if undertaken today, with jobs growth since 2008 (the end of its data).

Objectives: Provide more jobs outside central Melbourne; increase public transport's mode share

- > Good progress.

Objectives: Encouraging walking and cycling; reducing car dependence through development of activity centres

- > Some progress. Good increase in walk/cycle mode share in inner/middle areas. Car mode share fell but mainly because of the CBD work travel mode share increasing.

Objective: Ensuring development is focused in accessible locations

- > Some progress but outer suburbs, with half the growth, are away from most PT services and/or have PT frequencies longer than 30 minutes

(reducing accessibility).

Objective: reducing average commuting times and distances

- > Negative result, with average commuting times remaining unchanged and average distances increasing.

In summary, the failure in the activity centre policy to drive more concentrated employment and residential growth has been a major reason why the Melbourne 2030 goals were only partly achieved. Fringe area growth has continued to be higher than planned, with a subsequent upwards revision of the target for the fringe. These outcomes pose challenges for policies to increase densities.

Perth

Perth is a low density city, whose outer sub-regions accounted for 74% of the total population growth of the Perth and Peel region from 1971 to 2006 (BITRE 2010). The urban centre is not as densely populated as Sydney, Melbourne or Adelaide. Employment is most concentrated in the inner and middle suburbs (66% of jobs in 2006) but the population share lags this at 44% of employed residents. The Outer region had 50% of population and 30% of jobs. These disparities lead to substantial commuter flows but the balance is projected to improve somewhat in coming years, as relative job numbers increase in the Outer Region (lifting the jobs share to 38% by 2031, still well below population share) (BITRE 2010).

Urban policy directions are to improve urban containment and consolidation, encourage job growth in centres and outer suburbs, encourage use of PT and reduce commuting times and distances (BITRE 2010). The BITRE (2010) assessment of progress is, in summary terms:

Objective: Limiting urban sprawl

- > Limited progress. Most growth is still in new fringe areas.

Objectives: Raising population density; employment in centres; transit oriented development

- > Some progress, such as employment growth in activity centres slightly exceeding employment growth outside such centres.

Objectives: Outer suburban employment growth; encouraging public transport use

- > Good progress; outer region employment grew at the same rate as population. PT mode share has increased but Perth is still very highly car based



Objective: Reducing average commuting times and distances

- > No change. Short and long trips have both risen in importance.

Perth's rapid population growth has been accompanied by positive employment outcomes in outer areas but progress in increasing densities is slow and trip times/distances are sticky with respect to the changes in urban settlement patterns. Improving transport sustainability needs to accelerate the rate of change in urban consolidation, which should help to lower trip times and distances.

Implications

The Melbourne and Perth experiences suggest that some progress is being made on increasing densities but that this is falling short of policy expectations. Sydney's experience (not reported herein) is more favourable in this regard. Transport policies at both the strategic and local levels should be used more proactively in support of land use policies, to drive stronger outcomes in this regard. Land use/transport strategies should be tested for deliverability on density outcomes, which inevitably means working more closely with the market to achieve desired policy outcomes, rather than adopting policy positions and hoping they might work. The dominance of population and travel being located in the middle and outer suburbs, notwithstanding the emphasis often devoted to the peak hour journey to work in the CBD, suggests it is important to increase the attention on activity/travel patterns in/to these areas. This means a greater focus on shorter trips and on modes that are more suited to such travel patterns, together with improving connections between outer and middle areas.

3.3 Urban transport and land use

Ewing and Cervero (2010) have produced a very useful meta analysis of studies on relationships between travel and the built environment, drawing on statistical analysis from about 50 published studies. They examine the influence of density, diversity (of land uses), design (particularly street network characteristics), destination accessibility (ease of access to trip destinations) and distance to transit. While the subject matter is almost all from the US, the findings provide some insights that are likely to have wider application. They report impact elasticities, which show the sensitivity of various response variables (such as vehicle miles of travel or VMT) to changes in a range of potential causal influences. While most elasticities are quite small, the combined effect of a number can be significant large,

implying that **policy packages** will usually be very important in the land use/transport space. Similar factors have been examined for Sydney by McKibbin (2011), with the central zones excluded from analysis because they skewed the data set. The main Ewing/Cervero findings are summarised below, with relevant McKibbin findings presented for a local comparison.

Ewing and Cervero (2010) find that, of the various land use variables considered, **destination accessibility** is the most important factor in determining a household or person's amount of driving and walking. The more accessible a centre, the lower the VMT, probably because of lower car ownership rates and less car dependence in highly accessible central/inner areas and the higher the walking mode share. Distance to downtown is also highly related to vehicle miles travelled, VMT increasing with distance. Personal characteristics, such as household income, have a larger influence on VMT than such land use variables.

McKibbin finds **destination accessibility by public transport** an important influence on mode share of non-car modes (PT, walk and cycle) for the journey to work in Sydney. The relative accessibility performance of PT compared to the car is significant in the Sydney work, such that improving car access without improving PT access will increase the car mode share.

An important inference from this work on destination accessibility is that, if governments want to promote locational agglomeration economies (i.e. lift urban productivity), while reducing the external costs of road use, a major focus should be on opportunities for redevelopment and revitalisation of central locations, supported by improvements in accessibility by public transport⁷. Ewing and Cervero (2010, p. 12) suggest that *Almost any development in a central location is likely to generate less automobile travel than the best designed, compact, mixed-use development in a remote location.*

Ewing and Cervero (2010) found the design metrics of **intersection density and street connectivity** were also important influences on vehicle miles of travel, particularly through their impact on cycling and, more particularly, walking. Short blocks and many intersections seem to shorten travel distances, with higher intersection density seeming to be strongly linked to increased walking. They point out that linking

⁷ This is very much in line (for example) with the current Victorian Government policy focus on urban renewal, supported by the Regional Rail Link and Melbourne Metro Rail projects.

where people live and work (the jobs/work balance) allows more walking, particularly if intersection density is supportive. This is an important design insight for promotion of activity centres and urban villages, more important than **mixed use** in the reported findings. McKibbin did not find street density had a significant influence on PT mode share, suggesting that this could be because of the difficulty of finding suitable metrics.

Transit accessibility is related to VMT and to walking (greater accessibility reducing VMT and increasing walking), while transit use is most closely correlated with **distance from a transit stop** and the shape of the street network. While Ewing and Cervero (2012) identified these aspects as significant, their finding was based on a small number of studies. McKibbin found distance to transit to be a significant but minor influence on mode choice for the journey to work in Sydney, suggesting that this effect may perhaps be being obscured by destination accessibility that the train station provides.

Perhaps surprisingly, neighbourhood population and job densities were not as strong influences on VMT as some other factors (such as location) in the Ewing and Cervero work. This may be because of problems of multi-collinearity, since dense settings usually have mixed uses, short blocks and central locations, all of which Ewing and Cervero suggest shorten trips and encourage walking. McKibbin found that density had only a moderate influence on transport mode share for the journey to work in Sydney, re-iterating concerns about multi-collinearity.

Ewing and Cervero went to pains to control for problems of self-selection – e.g. people walk more in places with a good walking environment because people who like to walk choose to live in such places! However, as Kaid Benfield of the US Natural Resources Defence Council points out on his blog ⁸

All indications in the market suggest that we have a large, growing, unmet demand for close-in, walkable neighbourhoods and an emerging surplus of automobile-dependent environments; research consistently shows that, where walkable neighbourhoods in smart locations exist, walking goes up and driving goes down... The environment doesn't care what the psychological motive is.

McKibbin (2011) highlighted the relatively small role of the various factors analysed on mode share of non-car modes for the Sydney journey to work. **Car ownership, income and workplace location** were far more important influences, suggesting that efforts to promote transit oriented development (TOD) should target reducing car ownership (e.g. low parking availability). The author suggests that TOD should mainly focus on building population growth in highly accessible locations, to drive use of non-car modes (car ownership declining in higher density, more PT accessible locations).

Solutions for a Growing Australia reported the findings of a study by Bento et al. (2005), which examined the effects of urban form and public transport supply on travel mode choices and annual vehicle travel in 114 US cities. This was one of the studies included in the Ewing and Cervero analysis. Bento et al. (2005) found that **population centrality, the jobs-housing balance, city shape and density**, in combination, had a significant effect on the amount of vehicle travel, generally mirroring the Ewing and Cervero conclusions. The effect of moving a sample of households from a city like Atlanta (733 persons per km²; 7000 rail miles of service/km²; 10,000 bus miles of service/km²) to a city with the characteristics of Boston (1202 persons/km²; 18,000 rail miles of service/km²; 13000 bus miles of service/km²) was a projected reduction in annual vehicle travel of 25 per cent. The result underlines the important role of urban renewal and supportive role of a good public transport system, to increase the scope to generate locational agglomeration economies and reduce the external costs of road use.

SGS Economics and Planning (2012) has looked at the connection between employment accessibility and higher density housing, finding a strong connection. Their analysis also found, *inter alia*, that access to public transport and proximity to activity centres were important drivers of net housing density, supporting a public transport service/activity centre focus in PT service enhancements, as part of a policy package to support more compact urban settlement patterns. This should also serve to help build job growth in such locations.

3.4 Urban transport policy directions to support land use

The BIC strongly supports the Council of Australian Governments' (COAG) national objective to ensure Australian cities are *globally competitive, productive, sustainable, liveable, socially inclusive and well placed to meet future challenges and growth* (COAG 2009). Taking

8 http://switchboard.nrdc.org/blogs/kbenfield/massive_study_confirms_that_de.html. Accessed 5th June, 2012.

account of the various research findings and urban planning principles outlined above, the BIC believes that place-based urban transport system development to support pursuit of this national objective, with a focus on **people movement**, should include:

1. Ensuring that adequate trunk public transport capacity is available to facilitate growth in the central city and movement around the central city. This is about sustaining locational agglomeration economies and, for the largest cities, will mainly mean ensuring that there is sufficient trunk rail capacity to cater for mass movements at a satisfactory service level. In some cases and in the smaller cities, Bus Rapid Transit may often be the preferred solution, as demonstrated in Brisbane. This transport policy direction also means ensuring that walking and cycling opportunities are provided to support use by central/inner urban residents and by others travelling to this area. This will support greater dwelling density in the centre. Peak people movement to/from central cities is not effectively undertaken by car, so transport policy should ensure that public transport, walking and cycling have priority over improved car access. Increasing parking charges and limitation of car parking spaces can support these policy directions and, longer term, road pricing reform should be implemented (see chapter 4). If major new central area bypass roads are built, direct access/egress to/from the central city should not be available in close proximity, because of the adverse impact this would have on PT use. The central area is not the major location for jobs, residences or most activities. Its importance should not be overemphasised within the context of the total transport budget.
2. Road use priority being given to light rail, tram and trunk bus services, plus walking and cycling, in inner suburbs, as part of transport network management plans and to support higher densities along transport corridors.
3. Ensuring high quality road capacity exists to support circumferential operation of road-based PT systems in middle and outer suburban areas, crossing radial rail lines and joining up activity centres. High frequency trunk PT services should be provided along these circumferential corridors and high quality opportunities for walking/cycling should be provided within and to/from activity centres. This should help to increase the PT/walk/cycle mode share for work and non-work journeys, most of which are not to the CBD but are within home LGA or to a neighbouring LGA. Improving accessibility should assist in promoting job

growth in activity centres, as part of an integrated set of measures to promote activity centre development (e.g. selective increases in density, mixed use development, focus on growing higher order service employment, etc). Target PT service frequencies on the trunk circumferential middle-outer corridors in the larger cities should be 15 minutes or better for most service hours (which should be from about 5.00am to midnight in most cases, with a lesser frequency being acceptable late in this operating span).

4. Providing local PT services to transport nodes/activity centres, at a frequency that will help to facilitate social inclusion. This is discussed in more detail in chapter 5 but relevant local PT service frequencies should certainly not be any less than hourly from 6.00am to at least 9.00pm, with 30 minute frequencies being preferred. Alignment of frequencies between local and trunk PT services is important to maximise patronage potential, such that if rail is operating on 15 minute headways, connecting buses should operate on a multiple of 15 minutes.
5. A high priority being attached to walkability/cyclability within and to/from local centres, to support greater use of more sustainable travel modes and also assist development of more compact settlement forms, particularly in the middle and outer suburbs (inner suburbs are already typically characterised in this way).
6. Providing high quality trunk PT services between outer growth suburbs and the most proximate employment hubs, ensuring that road capacity is sufficient to meet these PT service needs (if rail is not available). In many cases this will mean improving trunk PT service between outer suburbs and middle suburbs, where jobs are more readily available, while also seeking to increase the availability of local (non-transport) services and of jobs in growing outer suburbs, to reduce the need to travel.

An area where caution is needed is in the extension of radial rail services to growing fringe suburbs. The use of such services for travel to the CBD, or stops on route, is typically of the order of 3-5% of journeys to work from the suburbs in question, often about the same proportion who use bus. This rail share is small in relation to marginal service costs. Greater focus should be paid to improving local bus access for a wider number of people in growing fringe suburbs, to promote social inclusion, with rail service being mainly provided by longer distance through regional services, until demand levels reach sufficient size to warrant a dedicated urban rail service.

In addition to these spatially focused policy directions, improved land use/transport integration also requires a suite of generic policies, such as pricing systems that reflect social costs and road safety treatments to reduce risks to travellers (including pedestrians and cyclists). The focus in the present chapter is on the spatial elements but chapter 4 provides a comprehensive argument for also reforming Australian road pricing, to both influence behaviour change and help fund transport improvements.

3.5 Institutional integration across governments

Funding is a major constituent of the glue that ultimately enables integration between land use and transport to be delivered. If integrated land use and transport plans do not include a sustainable funding plan, they are unlikely to succeed. The current NSW approach of having three integrated plans (land use, transport, infrastructure) is thus very promising, provided the infrastructure funding plan includes both (1) funding mechanisms to make better use of existing infrastructure and (2) ways of funding infrastructure upgrades.

With the Federal Government being a significant source of funding for transport infrastructure, and the national body Infrastructure Australia (IA) playing a major role in influencing those projects that proceed at State/Territory level, closer attention is needed to the most appropriate governance arrangements to support an integrated approach across levels of government. A significant institutional risk in the land use/transport area lies in the IA approach of concentrating on large (>\$100 m) infrastructure projects. The Section 3.4 priority foci for urban transport, developed from the perspective of integrating transport and land use, will often mean that priority should be given to a number of smaller initiatives that add up to an effective place-based development strategy, particularly in middle and outer suburbs, within an integrated land use/transport/infrastructure strategy. The IA philosophy tends to distract State/Territory attention away from such integrated place-based approaches towards the big hits.

A broader, more systemic perspective is needed if Australian cities are to have properly integrated approaches to land use/transport/infrastructure and meet the high level COAG objectives. This broader approach should ensure that a 'project' might consist of several complementary elements that are embedded in a place-based land use/transport/infrastructure strategy, with the focus being on delivering an effective

integrated system strategy rather than single big hits. The establishment of a Federal Urban Development, Planning and Cities portfolio and Minister should assist a move to a more systemic process at Federal level and across levels of government, with Infrastructure Australia still advising at Federal level on infrastructure priorities.

In our cities, the process of land use/transport/funding (infrastructure/services) integration is the key foundation for an integrated approach. The COAG Capital Cities Strategic Planning Review showed that there is a long way to go in the delivery of integrated land use/transport processes, the relatively small number of projects that pass Infrastructure Australia's benchmarks being a good indicator of the strategic planning shortcomings in this regard. Continuing improvements in the land use/transport integration process, as are being pursued by States/Territories, with funding closely connected and the trilogy (land use/transport/infrastructure and services) then linked to processes for identifying possible Federal funding contributions, should provide an effective pathway to intergovernmental integration between the States/Territories and Canberra.

This process currently needs Infrastructure Australia to shift its focus more towards **systems and networks** that will support the COAG goals, within integrated city contexts. Local government engagement should be at city level, in terms of the development of integrated land use/transport/infrastructure and services policies and plans, including funding arrangements. Local government should also be engaged at the national level, in terms of negotiating high level revenue/cost sharing arrangements. Intergovernmental funding agreements should tie the three levels of government in to delivering the integrated solutions at the city level. The establishment of a Federal Urban Development, Planning and Cities portfolio, as proposed herein, would better fit an integrated approach than current arrangements.



four

Sustainable Pricing and Funding

4.1 Context and some principles

There is a strong case to be made that Australian land transport infrastructure spending is below the level that is needed, as suggested by the results of many transport benefit-cost analyses on unfunded proposals, together with the decline in real expenditure levels highlighted in section 2.3 above. The consequences include foregone productivity gains, lesser levels of environmental improvement, a higher road toll and greater social exclusion. Infrastructure Australia highlights this problem, in the context of increasing demands on government revenues from other sectors as well as infrastructure (Infrastructure Australia 2012, p. 46):

Hard decisions about how we pay for our infrastructure or dramatic changes to outlays in other sectors will be required. In the absence of action on these fronts, it is difficult to see how governments will have the capacity to pay for the infrastructure proposed in current plans, let alone that which may be required in the future.

Increasing transport infrastructure/services spending requires increased funding for its realisation. The Committee for Melbourne (2012) distinguishes infrastructure funding from financing: funding is the source of funds that *ultimately* pays for the infrastructure, while financing is the means of paying up front. The focus in the current report is on funding. The Committee for Melbourne identifies three main sources of funding:

1. the community via government funds (general taxation)
2. infrastructure beneficiaries (e.g. value capture levies)
3. infrastructure users (e.g. congestion taxes; tolls).

The current fiscal environment in Australia is not conducive to greater reliance on the first of these funding sources, which is increasing the focus on the second and third avenues, both of which have arguments of efficiency and fairness to support their application.

It has long been recognised that transport expenditure, pricing and funding should be more closely connected and that ‘user pays’ principles should underpin pricing, if efficient outcomes are desired, recognising a need to ensure distributive goals are not prejudiced in the process. More recently, the increasing focus on integrating land use and transport planning has encouraged a broadening of the ‘user pays’ focus to ‘beneficiary pays’, with attention to the role that various value capture techniques might play in helping to fund transport infrastructure. The beneficiary pays approach

recognises that users are not necessarily the only ones who might gain from infrastructure improvements.

Australia’s Future Tax System (the Henry Tax Review) recommended that governments should consider **user pays pricing** of roads through network-wide variable congestion pricing (particularly on congested toll roads but extending wider, if cost-effective), with transparent use of revenues. It also argued for accelerated roll-out of mass-distance-location charging for heavy vehicles (Commonwealth of Australia 2010). Infrastructure Australia (2012) has supported these recommendations.

Solutions for a Growing Australia argued that pricing reform was central to both behaviour change and funding, to tackle the critical national land transport policy issues that were set out in that report (Stanley and Barrett 2010). It proposed a user pays marginal social cost pricing regime, as summarised in Figure 4.1, where price signals would be used to influence behaviour and raise revenue. This is a broader approach than congestion pricing.

Pricing reform in land transport is a current concern in many jurisdictions. The UK Institute for Fiscal Studies has just completed a study on motoring taxation for the UK RAC Foundation (Johnson et al. 2012). The report noted the declining fuel tax revenue flow to the national government (from improving fuel efficiency and slow traffic growth) and how significant this would become in total national government revenues in coming years (a £13 billion fall from the current £38b revenue flow by 2029, at current fuel taxation and vehicle excise rates). It also pointed out that fuel taxation is an inefficient way to charge for road use, because only a small part of the external costs of road use are correlated with fuel use. To deal with this declining revenue base and improve the efficiency of the pricing regime, Johnson et al. (2012) recommend a pay-as-you-go pricing system, with road pricing (including congestion charging) leading to reductions in fuel taxes and vehicle excise duties. We return to some elements of this report in subsequent sections.

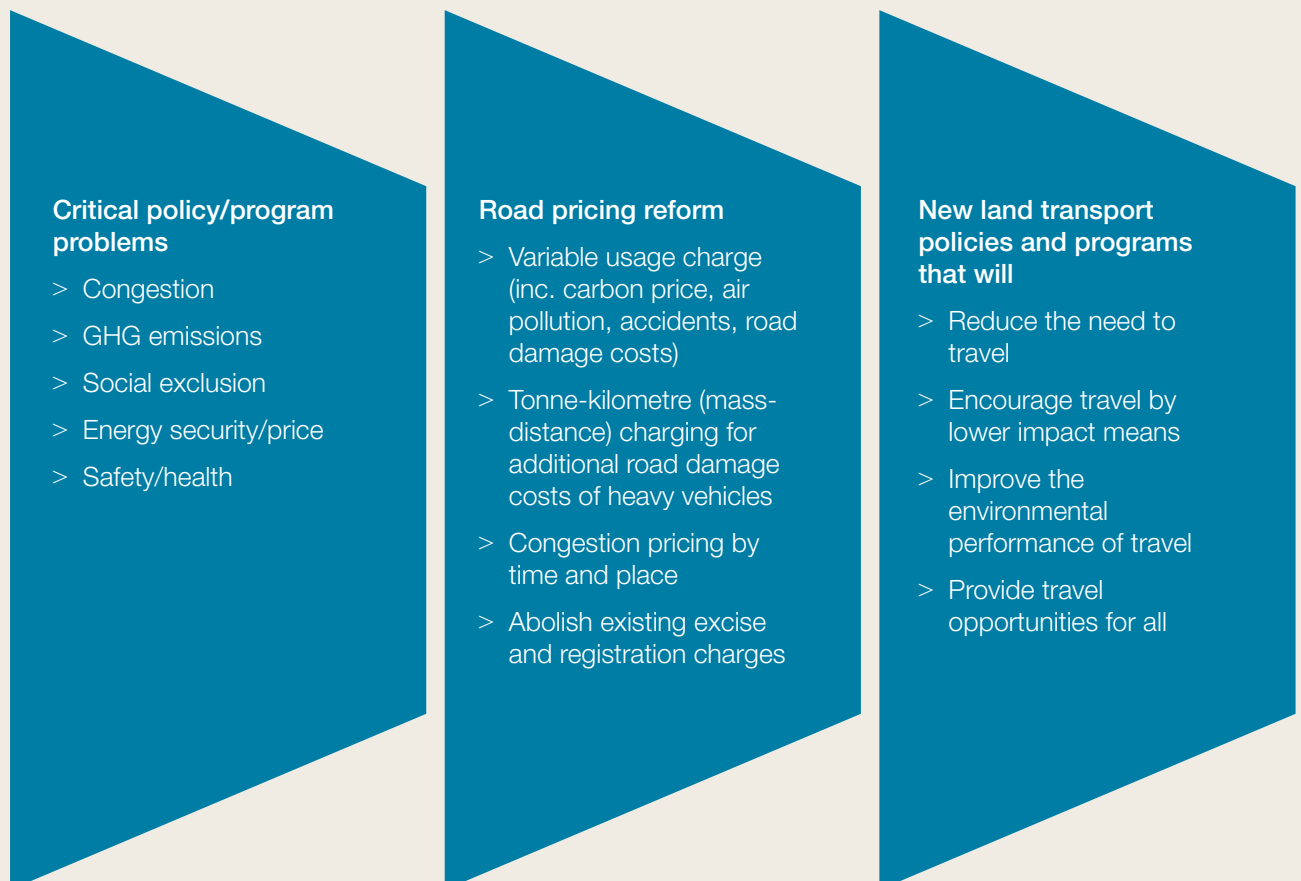
The US Federal gas tax provides revenue to the Highway Trust Fund. However, that tax has been unchanged at 18.4c/gallon since 1993. Revenue flows into the Fund are declining as per capita car use drops and fuel economy rates improve, resulting in less money for spending on roads and public transport (both of which receive money from the Fund). Congress has had to provide top up funding since 2008. The US National Surface Transportation Infrastructure Financing Commission report, *Paying Our Way*, proposes shifting from the current US road funding system, based largely

on indirect user fees in the form of federal motor taxes, toward a new system built around more direct user charges, in the form of fees for miles driven (NSTIFC 2009). The Commission points out that the current US transport system is underpriced and that a vehicle mile travelled (VMT) charging system is the consensus choice for the future, which will strengthen the connections between expenditure, pricing and funding. It proposed that the US Federal Government commit to deploying such a system by 2020, this timeline recognising the difficulties in implementation. Funding shortfalls in the US Highway Trust Fund provide a sharp edge to the consideration of this matter in the US, as in the UK.

The US Commission set out six guiding principles for funding/financing transport (NSTIFC 2009, pp 26-7):

1. The funding and finance framework must *support the overall goal of enhancing mobility* of all users of the transportation system.
2. The funding and financing framework must *generate sufficient funding to meet national investment needs on a sustainable basis...*
3. The funding and financing framework should *cause users and direct beneficiaries to bear the full cost of using the transportation system to the greatest extent possible...* This will not be possible in all instances, and when it is not, any cross-subsidisation must be intentional, fully transparent, and designed to meet network goals, equity goals, or other compelling purposes.
4. The funding and financing framework should *encourage investment in the transportation system...*
5. The funding and financing framework should *incorporate equity considerations* – for example,

Figure 4.1: Solutions for a Growing Australia: Problems and Policy Directions



generational equity, equity across income groups, and geographic equity.

6. The funding and financing framework should support the broad public policy objectives of energy independence and environmental protection.

These guiding principles are useful for thinking about land transport pricing and funding reform in Australia. Sections 4.2 and 4.3 discuss road expenditure, revenues and external costs. Section 4.4 then looks at reshaping road user charges, starting with an increase in fuel excise and then broadening into a marginal social cost pricing regime, with hypothecation to strengthen the linkages between expenditure, pricing and funding.

Value capture mechanisms are an important opportunity for funding transport infrastructure. These sit somewhere between general taxation and user charges as a revenue source, being essentially viewed as payments by non-user beneficiaries (e.g. landowners or developers; the identity of user beneficiaries and non-user beneficiaries may, of course, sometimes co-incide). Value capture mechanisms reflect the principle of ‘the beneficiary pays’ rather than ‘user pays’.

The link between transport and land use is partly reflected in land prices, where accessibility is an important linking component. For example, National Economics (2010), in its annual *State of the Regions* report for the Australian Local Government Association, has demonstrated the general connection between land prices and accessibility for Australian urban areas. NIEIR reports the following equation for Australian metropolitan areas, estimated using their LGA data base on a quarterly basis for the years 1991-2010.

\ln denotes natural logarithm. Note that the estimated equation allows four quarters for dwelling price effects to show up following a change in a driver variable. Since the variables are in natural logarithms, the coefficients are elasticities. The highest elasticity is that relating to industry hours of work within an LGA’s travel time catchment. The higher the hours of work available per working age resident, the higher will be the real market price of dwellings. This accords with expectations, as do most of the other elasticities.

The implication of the NIEIR analysis is that transport improvements which improve accessibility to employment (in a metropolitan setting) will increase property prices. This can be seen as a capitalization of

$$\begin{aligned} \ln(MDP)_t = & 3.34 + 0.44 \ln(GCCs)_{t-5} + 0.61 \cdot \ln(ISSi)_{t-5} + 2.03 \cdot \ln(IHci)_{t-5} \\ & (5.9) \quad (10.0) \quad (18.9) \quad (12.0) \\ & + 0.05 \cdot \ln(FSi)_{t-5} + 0.45 \ln(DPHURi)_{t-5} + 0.82 (\ln(ODSi)_{t-1} - \ln(ODSi)_{t-6}) \\ & (4.9) \quad (10.3) \quad (5.5) \\ & - 0.28 \cdot RD + 0.24 RESD \\ & (10.0) \quad (5.4) \end{aligned}$$

$$R^2 = 0.68$$

Where:

MDP = Average market dwelling price LGA i , at time t in 2007-08 \$s.

$GCCs$ = Cost of greenfield construction site, S (fringe value for all LGAs located within a metropolitan area; nominal valuation elsewhere).

$ISSi$ = Supply of services (education, health, entertainment etc)
LGA i given hours supplied within LGA i travel time catchment.

$IHci$ = Competition for industry hours of work within LGA travel time catchment i .

FSi = Share of flats in total dwelling stock LGA i .

$DPHURi$ = Dollar per hour from work for residents in LGA i , 2007-08 \$s.

$ODSi$ = Occupied dwelling stock LGA i .

RD = 1 if LGA in Rural zone.

$RESD$ = 1 if LGA in Resource-based zone.

some of the user benefits from the relevant transport initiative into land prices, benefits ultimately being appropriated by land owners. Value capture mechanisms are intended to take back part of this increment in land prices to help fund the initiative that underpinned creation of the value increase.

The Centre for Transportation Studies at the University of Minnesota (CTS 2009) has identified a number of value capture mechanisms that are potentially useful as a means of funding transportation infrastructure, as set out in Table 4.1. A number of value capture mechanisms identified in the table are considered in Section 4.5.

4.2 Road user revenue/expenditure trends

An important (user pays) charging principle argued in *Solutions for a Growing Australia* is that transport users should generally be confronted with meeting the social costs of their travel choices, unless there are good policy reasons for doing otherwise. This was consistent with the principles set out by the US Commission (summarised in Section 4.1). It raises the question of how much Australian road users currently pay in various road taxes and charges. A connection has been made for Australian road charging purposes between charges levied on heavy vehicles and the road damage costs and other costs of using roads attributable to those vehicles (but excluding other externalities) but no such explicit charging principles apply to light vehicles.

Figures 4.2 and 4.3 show all motor vehicle taxes and charges, except general revenue raising levies (e.g. GST, FBT), to provide a basis for comparing total possible motorist contributions to meeting all costs of road use, including external costs. Figure 4.2 shows that, over the period from 2000-01 to 2008-09, revenue from total motor vehicle taxes and charges peaked at \$16.6b in 2007-08 but declined by \$1b in 2008-09. Revenue raised from petroleum products excise peaked earlier, in 2004-05, declining steadily since (over the period shown) in current prices (and, of course, faster in real terms). Excise was indexed between 1983 and 2001 but has remained unchanged since that time, the lack of indexation contributing to the excise outcome shown in Figure 4.2. State and Territory charges levied on road users increased quite quickly from 2000-01 and peaked in 2006-07, then declining by \$0.75b to 2008-09 in current prices. Toll revenues showed strong growth for a few years to 2007-08, peaking at about \$2b, then declining in 2008-09.

Figure 4.3 uses the data in Figure 4.2 to highlight the changes in relative revenue shares. Taking a broad scan across the full period, it is clear that:

- > toll revenues were the strongest growth source in both absolute and relative terms – in short, a form of user pays charging is becoming more significant but is still relatively small in total
- > State and Territory charges have also been a source of growth
- > excise seems to have peaked, with the flattening in motor vehicle use (see Figure 2.2 in Section 2), improving vehicle fuel efficiency and lack of any inflation adjustment in the excise rate driving revenues down. This pattern broadly reflects trends in the UK and US (as discussed above) and raises similar long term concerns about revenue streams that might be available to fund transport infrastructure.

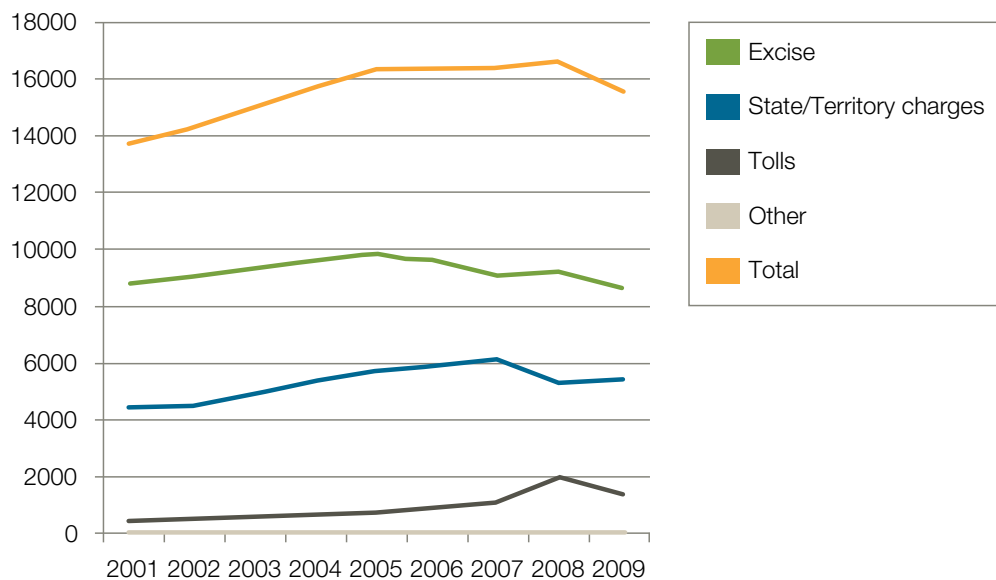
Figure 4.4 compares total Australian road expenditure levels, excluding private expenditure (e.g. on subdivisional roads and presumably on future toll roads), with revenues raised from road users. The revenue figures exclude tolls, because private road spending is excluded, but includes all petroleum products excise paid by road users as revenue. The figure suggests that the very strong growth in spending that occurred during the latter half of the period, relative to revenue trends, means that road users should no longer be seen as a government cash cow. Substantially increasing expenditure levels, alongside a declining excise take, have dramatically changed the revenue/expenditure balance. Even though the Federal Government spends far less than it receives in revenue paid by road users, this is more than offset by state and local spending well in excess of user charge revenues to those levels of government.

It is arguable that part of the road expenditure by local government should be seen as a charge for property access and met out of rate income. For example, the National Transport Commission's 2007 Heavy Vehicles Charges determination argued that (NTC 2007, p. 10) "...75% of urban local road expenditure and 50% of rural local road expenditure exists solely to provide access, amenity, or provide for non-motorised road users" and should therefore not be subject to a road use charge. Urban local road expenditure accounted for about 60% of local government road expenditure at the time of the NTC 2007 determination and rural local roads 40%. However, annual local road expenditure reported in NTC (2007) is about \$5b, substantially higher than the local

Table 4.1: Value capture in a framework of transportation finance

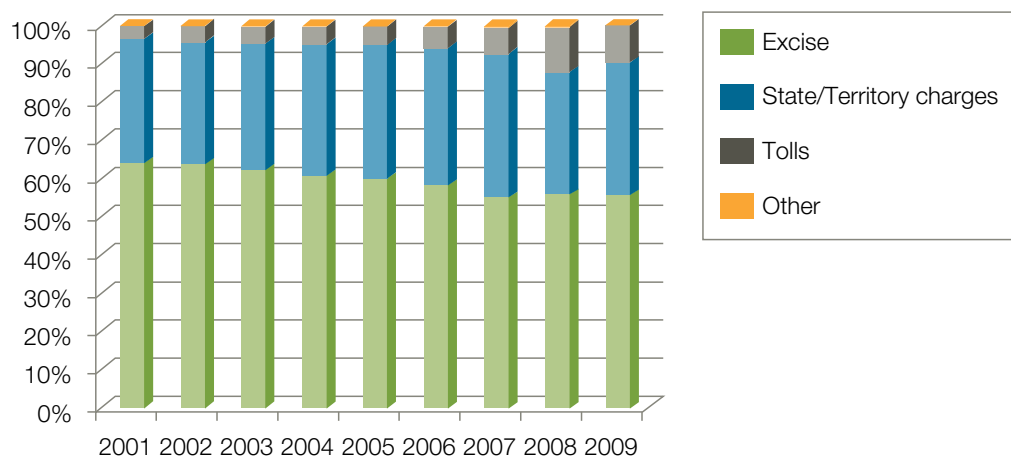
Funding Mechanism	Beneficiaries		Measurement of Benefit	Finance Instrument
General revenue	General public		General tax base	General fund allocation; property tax; transportation sales tax (US)
Value capture	Restricted non-user beneficiaries	Landowners	Land value growth	Land value taxes
			Property tax growth	Tax increment financing
			Assessed special benefits	Special assessments
			Transportation utility	Transportation utility fees
		Developers	Off-site development opportunities	Development impact fees
			Off-site access benefits	Negotiated exactions
			Development privileges	Joint development
			On-site development opportunities	Air rights
User fees	Users of transportation facilities	Vehicle operators	Gas consumption	Gas taxes
			Mileage	Mileage-based charges
			Vehicle units/types	Vehicle sales tax; license tab fee; wheelage fees
			General access rights	Tolling
			Demand-controlled access rights	Congestion pricing
			Rights to incur environmental impacts	Transportation environmental taxes/fees
		Passengers	Ridership	Fares or permits

Figure 4.2: Motor vehicle taxes and charges: 2000-01 to 2008-09 (current prices)



Source: Derived from BITRE (2011), Table 6.

Figure 4.3: Relative motor vehicle revenue contributions



Source: Derived from Figure 4.2 above.

government road expenditure included in Figure 4.4 (which ranges between \$2.2b and 3.4b), suggesting that the BITRE data used in that figure already includes some such adjustment to local road expenditure figures.

In short, the argument that is frequently propounded by road user interests that the sector more than pays its way is increasingly questionable on road spending alone. Addition of external costs suggests substantial under-recovery, as shown in the subsequent section.

4.3 Road cost recovery including external costs

Economic theory recognises that, in a competitive market economy, the existence of external costs and benefits creates a situation where the market decisions of individual consumers and producers no longer add up to an efficient outcome for society. Market prices do not reflect these externalities and there will be too much (negative externality) or too little (positive externality) production of the good or service that causes the externality.

In a submission to the Australian Tax Forum 2011, Stanley and Hensher (2011) pointed out that, in land transport, most discussion of external costs has focused on the external costs of road use. The typical external costs that are usually considered in this context are:

- > congestion
- > greenhouse gas emissions
- > local air pollution
- > noise pollution
- > the external cost of accidents
- > road damage.

It is arguable that high community dependence on motor vehicles increases risks of social exclusion for many people, which suggests that there is also a social exclusion external cost of road use (Stanley et al., 2011). Energy insecurity is also increasingly being considered as a negative externality of fossil fuel dependence associated with motor vehicle use (Parry and Small 2005).

The most comprehensive early Australian examination of external costs of road use was probably the Bus Industry Confederation's submission to the 2001 Commonwealth Fuel Tax Inquiry, a submission whose preparation was assisted by ExternE project consultant, Paul Watkiss (BIC 2001), who was also a co-author of the important UK report on the external costs of road

use (Sansom et al. (2001). That submission estimated the total external costs of road transport in Australia at \$30 billion (Table 4.2).

Revenues collected by governments from road users were estimated at \$11.5 billion, well below the total external costs. Stanley (2010) updated these costs and revenues and estimated the total external costs of road use at over \$40 billion, with revenues at \$16 billion, suggesting a wider total deficit than a decade ago, as shown in Table 4.2.

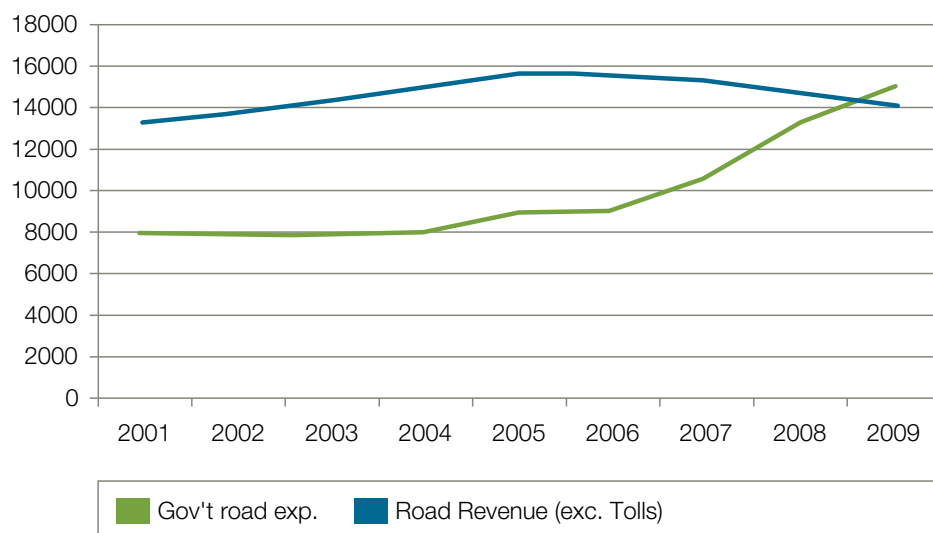
However, if one is seeking to implement an **efficient road pricing regime**, the total external costs of road use are not relevant. Market pricing on the basis of **marginal social costs** is a requisite for efficient resource allocation, marginal social costs being the change in total social costs for a unit change in the amount of travel.

The 2001 the BIC research considered marginal social costs and presented estimates of fuel-based charges that might be used to cover various external costs, with congestion costs excluded – on the argument that this should be charged on a city-specific basis, rather than being recovered through fuel charges. The BIC's analysis showed that, in addition to road users as a whole not meeting the full external costs of their road use, based on its assessment of marginal social costs (BIC 2001, p. 76):

- > the fuel excise (~38 c/L) was probably about right in 2001 as a charge for internalising the costs of urban road use by cars, ignoring congestion costs, but was too high in relation to rural road use by cars. It is important to note that fuel excise has not increased since 2001 but the external costs of road use have grown
- > the external costs of urban road use by heavy vehicles were probably higher than the (then) current excise rate (ignoring congestion costs) but rural external costs for these vehicles were probably similar to excise rates.

An implication of the 2001 analysis was that heavy vehicles should not receive any rebates of the fuel excise, unless they could demonstrate they created external benefits. This can be shown for buses, for example, which reduce the external costs of road use. To that end, current heavy vehicle road use charging arrangements unduly penalise bus because they neglect the external benefits that the mode delivers. This should be corrected until such time as a full road user charging system is in place. Thus, for example, bus should be exempt from a carbon charge until cars are subject to

Figure 4.4: Total road expenditures and Federal/State revenues 2000-01 to 2008-09 (current prices)



Source: Derived from BITRE (2011).

Table 4.2: Total External Costs of Road Transport and Road-Related Revenues

Cost/Revenue Item	2001 BIC est. (\$b)	2010 Stanley est. (\$b)
COSTS		
Road expenditure	4.6	14
Congestion	12.8	10
Air pollution	4.3	4 (inc. noise)
Climate change	2.4	5
Noise	1.2	(in air pollution)
Accidents	5	10
Total Costs	30.3	~43
REVENUES		
Commonwealth excise	12	
Less diesel fuel rebate	-2	
Less DAFGS	-0.7	
Registration fees	2.2	
Total Revenues	11.5	16
ROAD "DEFICIT"	~20	~27

Source: BIC (2001); Stanley (2010)

the charge and buses should be exempt from road use charges until a marginal social cost pricing scheme is in place, as a second best way of recognising the social benefits the mode provides.

For road vehicles more generally, the deterioration in aggregate social cost recovery performance since 2001, as illustrated in Table 4.2, suggests marginal costs have probably increased and that higher charges should now be levied on all road users. We return to this point below, where marginal social costs (as distinct from aggregate social costs) are considered further.

The main conclusions to be drawn from this brief overview of research on road user revenues and expenditures and on the wider external costs of motor vehicle use are that:

- > there is now a long history of quantifying the external costs of transport
- > the focus of this quantification has been on the external costs of road use
- > Australian road users do not meet the full social costs of their travel choices and it is increasingly arguable that they may not even meet the direct road infrastructure/servicing costs associated with their road use
- > this suggests that the current set of road user charges do not recover sufficient revenue from road users
- > bus is an exception to this generalisation, because of the social benefits it produces, which are not recognised in road charging regimes and which would justify lowering of road use charges, until a reformed road pricing system is in place
- > road infrastructure/servicing costs tend to be dwarfed by other external costs of road use, which suggests that road use charging regimes should have a much broader focus than simply seeking to recover only road damage costs and, in Australia's case, explicitly only heavy vehicle road damage costs
- > the gap between the total and marginal social (or external) costs of road use in Australia, and current road user charges, is increasing, suggesting that there is increasing urgency for reform of road pricing (in both charge levels and the charging base)
- > the growing international literature on the externalities of road use, and increasing implementation of

congestion pricing schemes, suggests that there is likely to be a growing incidence of such initiatives in the coming decade.

The favoured treatment of public transport suggested above (bus in this particular case, because the discussion is about road user charging) is supported by staff of the World Bank and Asian Development Bank, who argue (WB & ADB 2012), p. 37:

In an ideal world, user fees, tolls, fuel taxes and other charges to beneficiaries would cover urban transport investments and maintenance costs, taking into account the positive externalities of public transport...

The proposed lowering of road use charges on public transport (bus) is a second best solution until such time as a reformed road pricing system can be implemented.

4.4 Re-thinking fuel excise

4.4.1 Is the current excise sufficient?

Figure 4.3 underlined the sharp reversal of the road revenue/expenditure balance against road use. Pressures to improve fuel economy standards, to lower greenhouse gas emissions, and the apparent saturation in per capita motor vehicle travel will serve to continue the decline in excise receipts on petrol in coming years, in the absence of any increase in the excise rate. Excise receipts on diesel can be expected to increase but Figure 4.2 showed that this has not been sufficient to deliver an increase in total excise receipts. As in the US, where the Highway Trust Fund revenue stream has been in decline for some years, and in the UK where excise revenues will create a major funding hole in coming years, the excise rate applied to petroleum fuels needs to be increased. The last such adjustment for excise in Australia was in 2001, apart from the periodic changes in the charges levied on heavy vehicle fuel use.

Excise is an imperfect way of charging for road use, because most of the external costs of road use are not well correlated with fuel use. Carbon emissions are the major exception. However, given the political will, fuel taxation is able to be adjusted much more quickly than the time taken to implement a new and broader charging system. There are strong grounds for Australia moving to a new basis for charging for land transport, particularly road use, as argued in *Solutions for a Growing Australia*. In the short term, however, increasing excise rates would

be a move in the right direction and would improve the efficiency of transport resource allocation, while generating funds that could be hypothecated to land transport improvements. What might this require in terms of an increase?

In work for the Henry Tax Review, Clarke and Prentice (2009) adapted a model developed by Parry and Small (2005), to estimate optimal fuel charges for Australia. The Parry and Small model derives an optimal fuel tax (or excise), based on maximising social welfare while raising revenue. It includes three components (Johnson et al. 2012):

1. a range of external costs of road use (local pollution, greenhouse gas emissions, energy security, accidents, congestion), to enable calculation of what is sometimes called a Pigovian (externality-reducing) tax that prices the marginal costs of the relevant externalities
2. an adjustment to allow for the efficiency trade-off between commodity taxation and income taxation, called the Ramsey component (such that the excess burden of different taxes can be included within a welfare optimising framework, along with external costs). The Ramsey component recognises that welfare maximising revenue raising from commodity taxation should impose higher taxes on commodities with lower price elasticities of demand (such as petrol and diesel used for motoring)

3. a congestion feedback component, which relates to positive impact on labour supply, and social welfare, of reduced congestion. This element is very small within the total.

The relevant external costs are estimated as marginal external costs but a lack of detailed knowledge of the shape of the relevant damage functions for a number of externalities inevitably means that marginal and average social costs per kilometre are assumed to be the same. Congestion is the most glaring exception to this, where marginal costs far exceed average costs in congested road conditions.

Johnson et al. (2012) set out three sets of estimates of marginal social costs of road transport for the UK, as shown in Table 4.3. Putting their numbers in approximate Australian currency (purchasing power parity) suggests marginal external costs ranging between 11c/km and about 23/km (ignoring price levels as between different years). If congestion costs are excluded, where the notion of a single cost/km is very dubious in light of the variation in marginal congestion costs between low volume rural roads and highly congested urban arterials, the Bayliss and DfT figures are both about 4 cents/km if expressed in 2009 prices at PPP. At an assumed fuel economy rate of 10L/100kms, this set of external costs would approximately be equal to the Australian excise rate of ~38c/L). We explore this further in subsequent sections.

Table 4.3: Estimates of the marginal costs of road transport (pence/km)

Type of cost	Sansom et al., 2001 (1998 prices)		DfT 2010 (2002 prices)	Bayliss 2011 (2009 prices)
	<i>Low</i>	<i>High</i>		
Congestion	9.71	11.16	13.1	4.60
Infrastructure	0.42	0.54	0.1	0.57
Accident	0.82	1.40	1.5	0.88
Local air quality	0.34	1.70	0.4	0.57
Noise	0.02	0.78	0.1	0.50
Greenhouse gases	0.15	0.62	0.3	0.64
Total	11.46	16.20	15.5	7.76

Source: Johnson et al. (2012).

Table 4.4: Parameter Assumptions Used for Base Application of Parry Model to Australia

Parameter	Base Value Used	Comments
Initial car fuel efficiency (miles/gallon)	21.5	Authors' estimate
Pollution damage - distance-related (c/ml)	2.4	Clarke and Prentice (2009)
Pollution damage - fuel-related (c/gal)	32	Assumes carbon at \$25/t; energy security 10c/gal
External congestion costs (c/ml)	10.9	Clarke and Prentice (2009) on a mile basis
External accident costs (c/ml)	3.5	Parry (2009)
Fuel price elasticity	-0.21	Parry and Small (2005)
VMT portion of fuel price elasticity	0.4	Clarke and Prentice (2009)
VMT expenditure elasticity	0.6	Parry and Small (2005)
Uncompensated labour supply elasticity	0.2	Parry and Small (2005)
Compensated labour supply elasticity	0.35	Parry and Small (2005)
Government spending/GDP	0.35	Clarke and Prentice (2009) low estimate
Fuel production share	0.0156	Clarke and Prentice (2009)
Producer price of fuel (c/gal)	227	Clarke and Prentice (2009) on gallon basis
Initial tax rate on fuel (c/gal)	144.4	Clarke and Prentice (2009) on gallon basis

Source: Stanley and Hensher (2011), Table 6.

Table 4.5: Fuel Charge Estimates for Australia (c/L)

Basis of calculation	Externality Component	Ramsey Component	Optimal Tax	Revenue/ Current
Base estimate	\$0.44	\$0.50	\$0.94	2.27
Accident costs increased (higher value of life)	\$0.57	\$0.55	\$1.13	2.64
No congestion costs	\$0.39	\$0.48	\$0.87	2.11

Source: Stanley and Hensher (2011) table 7.

The Clarke and Prentice adaptation of the Parry and Small research, however, led them to conclude that the Australian excise on fuel should be considerably higher than the current rate. Their estimates of the optimal fuel tax ranged between \$0.83/L and \$3.28/L well above the current excise rate of 38.143 c/L. The major source of variability in their estimates is in the Ramsey component, which changes substantially as underlying modelling assumptions are varied. However, as Clarke and Prentice (2009) note, **all their estimates suggest that simply recovering the external costs of road use through the fuel excise would require an increase of about 10 c/L on the current excise rate, the externality component of their optimal fuel tax being relatively stable at just under 50 c/L.** This conclusion essentially confirms that in Section 4.3, where it was argued that the current excise rate is too low if excise is to be used to charge for road use (albeit that it is an imperfect way of charging).

4.4.2 Stanley and Hensher (2011) Estimates

Dr Ian Parry kindly made his optimal fuel tax models available to Stanley and Hensher. To apply the model, Stanley and Hensher (2011) adopted the assumptions set out in Table 4.4, in most cases aligning with the assumptions adopted by Clarke and Prentice (2009). Road damage costs are not included, on the basis that marginal road damage costs relate primarily to heavy vehicle use and should be recovered from heavy vehicles.

As an aside, it should be noted that the carbon price assumed by Stanley and Hensher is \$25/t, in line with early application pricing under Australia's carbon pricing scheme. The UK (non-traded) price, estimated with respect to the UK meeting its emissions reductions targets, is far higher at £56/tonne, or about \$80/t at purchasing power parity. It is thus arguable that the greenhouse gas externalities embedded in the Stanley and Hensher estimates are too low from a long term cost perspective.

The base optimal fuel (petrol) tax estimated by Stanley and Hensher (2011) is \$0.94/L (Table 4.5). The externality cost component of this is 44 c/L, similar to the estimates produced by Clarke and Prentice and again suggesting that the Australian fuel excise is not sufficient to cover the external costs of road use. The Ramsey tax component in the Stanley and Hensher base estimate is \$0.50/L, similar to the Clarke and Prentice "low share of government" estimate, mainly because the Stanley and Hensher base model run uses the 35 percent government spending share that Clarke and Prentice use

as a sensitivity test for their low government spending share scenario. In the Stanley and Hensher base case, revenues to government from the optimal fuel tax are more than double existing revenues but they increase relatively less than the increase in the fuel excise (or tax) rate, because higher fuel prices drive fuel economies.

Some Sensitivity Tests

Estimating the external part of **accident costs** is a difficult and under-researched area and the Henry Tax Review did not include accident externalities in its discussion of road pricing reform. There are two major issues in the Australian context: first, estimating accident costs; and second, estimating the external part of these costs.

BITRE (2009) estimated Australian road crash costs at \$17.85 billion in 2006. That report used a hybrid human capital approach to valuing life. It is arguable that a willingness-to-pay value for life is more consistent with other values used in transport cost-benefit studies. If the Hensher et al. (2009) value of \$6.2 million for life is used, which is now included in the NSW RTA economic evaluation manual, BITRE (2009) estimates that total accident costs would increase to \$27.12 billion.

BIC (2001) cites work that suggests that 20-35 percent of accident costs might be external, in the sense that they are not covered by private insurances. Stanley and Hensher use the low end of this range (20 percent) and apply it to the BITRE base accident cost estimate of \$17.85 billion to get an estimate of \$3.6 billion for the external costs of accidents. If the total cost of accidents increases by \$9.27 billion when a willingness-to-pay value for life is used, the full amount of this increase in total accident costs can be added to the base estimate of accident externalities to re-estimate accident externalities. This gives a value of \$12.9 billion. Spread over 224b vkms (BITRE 2009) this suggests accident externalities of about 5.8 c/km (in 2006). Using this as a sensitivity test in Table 4.5 increases the optimal fuel tax by 19 c/L, with the externality component of the tax increasing by 13 c/L to 57 c/L. Revenues are an estimated 2.64 times current fuel tax revenues under this scenario.

Given the strong argument that a willingness-to-pay approach is the most suitable way to assess the welfare impacts of most public policy, this accident cost sensitivity test case is the modelling run on which the BIC would place most weight in terms of optimal fuel charging.

Seeking to internalise congestion costs into a fuel charge requires the assumption of a fixed congestion charge rate per unit distance. This is clearly unrealistic. For example, UK research suggests that marginal congestion externalities range from 0.03p/km on uncongested motorways to £2.40/km on heavily congested 'A' roads in conurbations (Johnson et al. 2012). ATC Australian evaluation guidelines for urban areas suggest **congestion costs** ranging between 17-90c/vkt in 2004 prices (ATC 2006). The 10.9c/ml used by both Clarke and Prentice, and Stanley and Hensher, is at the bottom end of this range. However, it can properly be argued that congestion costs should only be levied in those locations where congestion is a serious problem, rather than recovered through broader charges.

If congestion costs are removed from the Stanley and Hensher (2011) base case, Table 4.5 shows that the optimal fuel tax falls from \$0.94/L to \$0.87/L for cars, with the externality component (39 c/L) being almost exactly equal to the current excise rate. This accords closely with the rough extension of the UK research to Australia in section 4.4.1, although the composition of the various external costs within this total differs somewhat. For example, UK work uses a higher carbon price than the \$25/t used by Stanley and Hensher (2011). The sensitivity test provides a rough basis for identifying which particular external costs of Australian road use might be reasonably considered as being internalised, on average, through the current excise system. In making this point, it needs to be recalled that there are no road damage costs in the analysis reported in Table 4.5, since marginal road damage costs of light vehicles are negligible and, in a reformed marginal social cost-based road pricing regime, would be primarily recovered from heavy vehicles.

The most relevant results for policy result from combining the above two sensitivity tests, i.e. incorporating a higher price for accident costs (because it more accurately reflects a willingness to pay approach) but excluding congestion costs (on the presumption that these should be priced on a location-specific basis). The resulting external cost combination implies an externality charge of about 52c/L (ignoring the Ramsey component), or about 14c/L above the current excise rate. This charge would be higher still if a higher carbon price was used, as in the UK.

In short, the current fuel excise rate seems likely to underprice the marginal social costs of car use, probably by about 14c/L, ignoring congestion costs and road damage costs. Clarke and Prentice argued for a 10c/L increase in fuel excise. The current research

suggests that the increase could arguably be higher, ignoring congestion costs and also road damage costs, the latter being primarily applicable to heavy vehicles. Truck charges should, therefore, far exceed the current excise rate, since relevant road damage costs would need to be added and costs such as air pollution and noise would be higher per vehicle kilometre. As argued in Section 4.3, however, external benefits attributable to buses indicate a lowering of charges (higher rebate of fuel excise) levied on that mode, until such time as a comprehensively reformed road pricing system is in place. Revenue from a 14c/L higher fuel charge, by way of example, would total over \$5 billion annually if levied on both petrol and diesel fuel use and should be hypothecated to improve land transport systems, including public transport.

Australian fuel excise was indexed until March 2001 but not since that time. It is noteworthy that, if indexation had continued from then until June Quarter 2012, the increase would have been 13.7c/L by the latter date, which is very much in line with the proposed increase. It suggests that, had indexation been continued, the rate by June 2012 would have been about 52c/L and that would have been a fair payment for most external costs of road use.

4.4.3 Pathways

Australian road users need to pay more for their use of roads and, to improve the efficiency of resource use, the basis for setting charges should be broadened to include external costs of travel. While excise is not closely linked to congestion costs, which are the major reason why road user charges need to be reformed, increasing fuel excise is seen as a first step in the direction of a reformed pricing system. This will encourage some behaviour change in the direction that is required to lower external costs and will generate additional revenue for the Federal Government. These additional revenues, raised by increasing fuel excise, should be fully hypothecated for land transport purposes, strengthening expenditure/pricing/funding links. The ultimate aim should be abolition of fuel excise and vehicle registration charges and their replacement by variable road use charges, as proposed in *Solutions for a Growing Australia*.

Increasing fuel excise across the board will mean that most rural and regional car users are overcharged for their road use, until such time as a variable usage charging system replaces fuel excise and registration. To deal with this problem, the additional revenue raised

from rural/regional car users should be solely dedicated to improving rural and regional transport infrastructure and services, primarily roads. The additional revenue raised from urban road use should be dedicated to urban transport applications more broadly, including roads, public transport, walking and cycling. This will both help in overcoming the transport infrastructure backlog (urban and rural) and send improved pricing signals to travellers, moderating the future growth in road infrastructure needs. The hypothecation nexus is critical to any chance of acceptance. In less technical terms, for this option to have even a slight chance of being politically palatable, the funds must be intrinsically linked to infrastructure investment and improvement, and be readily seen to be so linked.

The process of pricing reform would be further facilitated by changing the way existing toll roads are priced, to incorporate a congestion premium and to deliver more consistent network charging on tolled routes. More heroically, it could include imposition of tolls on heavily congested sections of untolled freeways, to ease congestion and generate revenue for improvement initiatives. For example, a toll on Melbourne's West Gate Bridge could be levied, to help fund the proposed East-West Link, the de-congestion benefits that bridge users would receive from the opening of the EW Link being a solid beneficiary pays argument for them making a contribution to funding of the Link.

In summary, then, a first set of steps towards implementation of road pricing reform in Australia should include:

1. Immediate indexation of current fuel excise rates, such that they at least keep pace with future inflation.
2. In the near future, implementing a step change in those fuel excise rates (14c/L is proposed), as an improved proxy for recovering marginal costs of road use⁹.
3. Changing the way existing toll roads are priced, to incorporate a congestion premium and to deliver more consistent network charging on tolled routes (giving clearer price signals to users, as supported recently by Infrastructure Australia, 2012).

4. Imposition of tolls of heavily congested sections of untolled freeways, to ease congestion and generate revenue for improvement initiatives.
5. Reducing road use charges levied on bus, in recognition of the external benefits from use (from section 4.3), until such times as a comprehensively reformed road pricing regime is implemented.

The focus of this report is moving people. In the interests of an integrated approach, however, the BIC also strongly supports the implementation of mass, distance, location (MDL) charging for all heavy vehicles, giving due recognition to the external costs generated by particular classes of heavy vehicles. Such a pricing model would improve charging for heavy vehicle road use and assist the pathway to reforming charging of light vehicles. The Henry Tax Review (Commonwealth of Australia 2010) proposed MDL charging for road wear by heavy vehicles. The BIC proposes that this be extended to all external costs.

Imposition of congestion charges on tollways will obviously require consideration of existing contractual provisions and decisions about how any additional revenue that might result from such a scheme should be used. Alternatively, it may be that a solution seeks to lower off-peak prices while peak prices are raised, with a neutral impact on overall toll-road operator cash flow.

Long term, the BIC sees mass, distance, location charging as the ideal solution for all modes, replacing excise and registration charges, because of the flexibility that it provides to vary charges for road use to more accurately reflect the marginal social costs of road use (for example):

- > road damage that relates to vehicle mass and dimensions and to the roads where the travel takes place
- > congestion that is location specific
- > air pollution and noise costs that are also location specific
- > the distance users travel, which will affect the quantum of their social costs.

Charges would be set to internalise the external costs of travel as closely as possible. This is a pay-as-you-go charging system, as proposed for the UK by Johnson et al. (2012) and supported by the RAC Foundation and as proposed for the US by the National Surface

⁹ Increasing fuel excise is only a short to medium term measure. It has recognised weaknesses, particularly the loose connection between fuel use and external costs. For example, electric vehicles are not charged, which is appropriate in terms of their performance with respect to some externalities (e.g. environmental benefits) but not for others (e.g. congestion, accident costs).

Transportation Infrastructure Financing Commission (NSTIFC). Arguably a price on carbon should remain reflected in a fuel tax, because of the direct link of carbon emissions with fuel use. Otherwise, fuel tax would go.

The difficulty of implementing pay-as-you-go charging was recognised in *Solutions for a Growing Australia*, which proposed a wide ranging community consultation about the need for reform and the best way to implement such reform, under COAG leadership. The COAG Road Pricing Reform study has made progress in regard to improving charging of road use by heavy vehicles but a much broader set of reforms is needed, to include light vehicles and the major external costs of road use. A suitable community consultation would need a two to three year period to cover such issues as:

- > why road pricing needs to change
- > the options for change
- > how these options will impact on various stakeholders (where scenarios would be useful in describing expected outcomes)
- > what will happen to revenue raised from the charges
- > what measures might be implemented to mitigate particular adverse impacts
- > how privacy will be protected if comprehensive mass, location, distance charging is adopted.

It should be managed by eminent independent people, who are committed to the need for open dialogue. The BIC strongly supports the need for such a conversation.

As a counter to the inherent political anxiety usually involved in tackling road pricing reform, it is noteworthy that survey work recently undertaken by Professor David Hensher and colleagues from the Institute of Transport and Logistics Studies, University of Sydney, has found that more than 80 per cent of Sydney motorists surveyed said they would accept some form of road pricing scheme. Just over 62 per cent said they favoured a cordon-based payment of \$8 to enter the Sydney CBD in peak hour and \$3 outside the peak. They would be prepared to pay this on top of existing registration and fuel costs, so long as 100 per cent of the revenue so

raised was used to improve public transport.¹⁰

Public transport service levels and fare setting should both be an integral part of the community conversation about road pricing reform. The current failure to price the external costs of road use is a significant argument in favour of governmental funding support for public transport. If road prices more closely reflect the relevant marginal social costs of the travel in question, the case for funding support to public transport, through a low cost recovery rate, reduces. However, there will still remain strong social safety net arguments for some governmental funding support of public transport, even in a regime of marginal social costing of road use.

Background research undertaken for the US National Surface Transportation Policy and Revenue Study Commission (which reported in 2008) found that future US Highway investment needs could be very substantially reduced (by about a third over the long term) by implementation of a congestion pricing regime (NSTPRSC 2008). While investment levels in public transport needed to increase, above what they would otherwise have been, to cater for patronage numbers that are increased by user pays pricing of roads, the expected fall in required future road system funding was found to be in excess of this increased public transport funding requirement. The overall result was an expected reduction in US land transport infrastructure funding requirements, which helps to ease funding requirements. We are not aware of any such research having been undertaken for Australia but expect that the findings would be similar.

4.5 Other land transport funding opportunities

As argued in Section 4.1, it has long been understood that accessibility influences land prices and is itself influenced by the quality of the land transport system. Those places that have higher accessibility typically have higher land prices. Transport improvements frequently improve accessibility and increase land prices, benefitting landowners and developers. Reflecting the *beneficiary pays* principle, value capture mechanisms can be used to convert part of this created benefit into revenue, which can be used to help fund the relevant transport initiative that generated the value gain, or other public purposes. The recent Infrastructure Finance

10 ITLS media release on 27th June, 2012.

Working Group (2012) report, *Infrastructure Finance and Funding Reform*, recommends use of techniques such as value capture. Table 4.1 set out a number of possible approaches to value capture, some of which are briefly elaborated below. CTS (2009) and Committee for Melbourne (2012) are very useful overviews of opportunities in this regard.

4.5.1 Tax Increment Financing

Tax increment financing (TIF) is widely used in the US and can now be used by local government in the UK to help drive local investment and economic growth¹¹. In essence, TIF allows a (usually) local government to borrow against predicted growth in locally sourced revenues in a defined area, to help fund activities that will drive that growth. TIF has been used for fifty years in the US to fund a range of infrastructure and development projects, with almost every US state having passed relevant enabling legislation. Bonds are usually issued to provide the necessary upfront funds for infrastructure/urban renewal initiatives, additional annual local tax (rate) revenues being used to meet interest and principal repayments. TIF is particularly suited to an urban renewal context.

TIF might also be relevant at state jurisdictional level, where the incremental revenues could be state property related taxes (primarily land tax and stamp duty). This revenue would be used mainly to fund infrastructure otherwise funded by state governments. However, there seems no reason why local government could not also use a TIF model to bring forward infrastructure/urban renewal programs, this being the more usual jurisdictional level of application.

A key issue in relation to TIF as a possible funding source is the extent to which the infrastructure programs being financed lead to a **net increase** in development-related revenues to the sponsoring government, as distinct from simply diverting revenue from one area to another (even within the same municipality). US evidence on this account is mixed, Dye and Merriman (2008), for example, finding little evidence that TIF actually led to net new development in a Chicago area case study.

In a governmental context where infrastructure is in short supply and available capital funds are scarce, net increases in governmental revenue streams seem

more likely to be realisable to meet payments on borrowings for infrastructure. That would seem to be the case in Australia at present, particularly in cities where population growth pressures are severe. Major urban renewal projects, which usually include substantial transport infrastructure components, should be suitable candidates. Joint ventures between government land agencies and local government, or between local government and the private sector, could see local government drawing on TIF finance to help accelerate infrastructure provision and its subsequent rate income flows.

4.5.2 Special assessments

These impose special charges on property close to a new facility, with the charges only being raised for those properties that receive a special (identifiable) benefit from the public improvement, such as a new transport facility. Committee for Melbourne (2012) uses the generic description of Benefitted Area Levy for this type of funding source. For example, Melbourne's Regional Rail Link and Sydney's North West Rail project will benefit properties located adjacent to proposed stations. Some value capture in relation to such properties also may be pursued through means such as air rights development or joint development projects, but all properties that will clearly gain could be subject to a special assessment, to value capture part of the relevant uplift. This approach is widely used across the United States, typically for local infrastructure improvement projects. It has much in common with TIF.

Property Council Australia (2012) notes that a number of Australian jurisdictions apply a value capture levy, citing (for example) a recently introduced value capture charge introduced in Queensland by the Urban Land Development Authority.

4.5.3 Metropolitan improvement levy

This is a broad-based charge related to all properties in a large area, set at a low rate and used to fund specific government services. It might be levied on a flat rate per property basis or on a proportion of property value basis. The advantage of the latter is that it implies an element of value capture and is not as regressive as a flat levy. Discussing this approach in a transport context, Committee for Melbourne (2012) calls this a Broad-Based Transport Improvement Levy. Melbourne has a Parks Levy, for example, which fits this model.

11 Property Council Australia (2012) calls this funding method Growth Area Bonds.



One way to increase the availability of funding for transport infrastructure/service initiatives that deliver community value would be to implement such a levy, hypothecated for transport purposes, particularly where the relevant services are widespread throughout the charging area, such as public transport services. Thus, for example, a metropolitan improvement levy could be used to help fund PT service costs in growing suburbs, on the argument that there are both direct user benefits (including social inclusion benefits, as discussed in Section 5), 'option benefits' (essentially insurance benefits, to those who might possibly need to, or wish to, use the service at some future time = a form of beneficiary pays) and reduced external costs of road use from the availability of such services. The redistribution of revenue raised from inner/middle to outer areas implied in this arrangement may have equity benefits, since most public transport services/benefits currently accrue to inner/middle urban residents.

4.5.4 Development impact fees (aka developer contributions)

Development impact fees, also known as developer contributions, are one-time charges levied on new development. They are commonly used in Australia (e.g. for greenfields development and major projects such as Docklands) and are mainly levied on new development, to help recover costs of public infrastructure/services, growth-related public service costs, such as new rail level crossings (if a development creates a need for such a facility), parks/open space and perhaps local public transport. These charges have some similarities to negotiated exactions but differ insofar as development impact fees are usually determined by formula, related to expected public service costs attributable to a level of new development, rather than through the less-formal negotiation processes typically used with negotiated exactions. Levying such charges on a consistent basis across all new urban development is appropriate, particularly with urban infill being expected to play a bigger role in most cities.

4.5.5 Negotiated exactions

Negotiated exactions might cover similar types of costs to a development impact fee but are subject to negotiation, rather than being the outcome of a formal, formulaic process. They may be in-kind contributions (e.g. of open space), instead of money. CTS (2009) explain that negotiated exactions are not typically applied to off-site infrastructure provision.

4.5.6 Joint development

In a transport context, joint development refers to the development of a transport facility and adjacent private real estate, often based around a railway station where higher density development might accompany station re-development (e.g. transit oriented development). In an Australian setting, this might involve a partnership between a public land development agency or transport authority, and a private sector developer. There are a number of possible joint development models, with varying equity, risk allocation and revenue/cost treatments. Joint development may include air rights development (see 4.5.7), such as above a railway station. Such proposals are unlikely to generate sufficient funding to facilitate developments beyond those covered by the particular joint development arrangements but they can be significant for a small number of particular major development opportunities.

4.5.7 Air rights

Major new transport projects, or urban development projects, may add value to the space above (or below) a transport facility. For example, air rights above Wurundjeri Way in Docklands (Melbourne) have been part of a development proposal before the market for bidding in early 2012. Air rights agreements establish the right to develop above (or below) a facility, in exchange for a financial contribution or future additional property and/or income taxes (depending on jurisdictional income raising opportunities). Revenue from such an initiative may be used for a range of public purposes, such as place making, but is most likely to be retained within the development site.

In Australian cities, development above railway stations usually has a high cost for podium development, relative to surrounding land prices. This typically means high density development will be needed to establish a financially feasible opportunity.

4.6 Increased borrowings

A traditional way of financing investment in land transport infrastructure has been government borrowings. A major advantage of this approach is that it enables the funding of these financing costs to be spread over the life, or part thereof, of the asset, so that the generation(s) that benefits can meet the financing costs. A disadvantage, however, is that these costs are not specifically financed by users (unless explicitly

levied as a user charge for the facility developed with the borrowings, like a toll) but by taxpayers more broadly. In the current fiscal environment, where the Federal and State Governments are seeking to keep a tight rein on spending, increased borrowings for infrastructure are not popular politically, even if the relevant investment might generate significant public value.

The Governor of the Reserve Bank was quoted in *The Age* (Business Day, 26 July 2012, page 1) as saying:

In fact, the Commonwealth of Australia and its constituent states are at present able to borrow at about the lowest rates since Federation.

Such historically low borrowing costs, in real terms, should encourage governments to look closely at doing more with this funding source.

Property Council Australia (PCA) (2012) has examined the scope for the Victorian State Government to increase its level of debt funding of infrastructure, as part of a concerted effort to lift the State's level of infrastructure improvement¹². This is seen as a fundamental building block in lifting the State's declining rate of productivity growth. PCA (2012) note that the State's budget position is in good shape and that Victoria has perhaps the least likelihood of any state of its credit rating being downgraded. Drawing on US and Queensland experience, the report suggests that if the state's credit rating was to be downgraded from AAA to AA+, this would increase borrowing costs by between 0.4 and 0.7 per cent.

PCA's (2012) analysis suggests that Victoria's net infrastructure investment "... is set to decline back to pre-2006 levels (when expressed as a share of GSP) by 2014-15". They further suggest that the state might be able to borrow an additional \$3b per annum for three years (\$9b in total) without exceeding benchmark levels (of a net debt plus superannuation to revenue ratio of 130 per cent), that might lead to downgrading of credit risk. Borrowing an additional \$5b annually for three years would see this ratio reach 139 per cent in year 3. The report suggests that an additional \$9b borrowing for infrastructure spending would be achievable without a downgrading of credit risk but a larger borrowing amount would be likely to see a downgrade. The report suggests

that the increased borrowing costs occasioned by such a downgrade (from AAA to AA+) might be justified if the relevant investment is well chosen.

Given that the PCA (2012) analysis picked Victoria for its investigation, the state it thought was best placed in terms of credit risk, it would not be appropriate to attempt to scale up (by the usual factor of 4) to extrapolate Victoria's results to a national figure. However, the analysis does suggest that current infrastructure borrowing constraints may be too tight and that productivity benefits could flow from a more relaxed borrowing stance, as part of a wider package of infrastructure funding streams. The \$9b identified by PCA (2012) as potentially able to be funded by increased borrowings would be sufficient to meet almost one quarter of the estimated capital costs (of \$38.9b) of the State's top transport infrastructure priorities identified by PCA.

This thought, that the current focus on maintaining AAA credit ratings has been taken too far, is also reflected by the Infrastructure Finance Working Group, who argue that (IFWG 2012, p. 7):

Arguably, rigidly applying the strategy of maintaining AAA credit ratings can be counter-productive, particularly where States have a range of important infrastructure projects with high economic value ... that need to be undertaken promptly and can generate long-lasting benefits.

4.7 Public Private Partnerships

PPPs have played a major role in development of some of Australia's most significant transport infrastructure investments over the past couple of decades, particularly urban toll roads, where private equity and borrowings for infrastructure financing are rewarded through associated user pays (toll) funding. Public transport service delivery contracts for private sector provision also represent a form of PPP.

As an investment vehicle, PPPs have lost some of their lustre in recent years, with (for example) concern over high and escalating bidding costs and some significant shareholder losses being associated with some poorly bid projects (some PPPs seem to have been particularly vulnerable to 'optimism bias'). PCA (2012) indicate that private borrowing costs are perhaps 200 basis above public costs, suggesting that PPPs need to play a role of complementing publicly funded infrastructure, such

¹² Interestingly, this report gave no attention to user pays financing methods.

that the total level of investment is higher than would otherwise be possible. Higher private sector borrowing costs (and profit expectations, in a risky environment) mean that careful selection of major projects to be the subject of PPPs is vital. From a public sector viewpoint, it is critical that the granting of a major transport PPP, with its associated long term operating rights, does not entail significant loss of transport network control.

In view of the losses on some major recent projects, a greater reliance on the public sector taking more of the construction stage risk, with the operational stage being contracted out once traffic flows have settled down (essentially as a management contract), might be worthwhile for some project PPPs.

Level crossing abolition programs in capital cities, especially Melbourne, provide an interesting opportunity for PPPs. Bundling a number of projects for bidding might attract a better price than a series of one-off bids. More importantly, given high project costs and the difficulty of covering all those costs by land value capture initiatives, tolling of vehicles using the level crossing post-improvement might be an effective way to help meet project costs. This has the additional advantage of reinforcing the concept of user pays. Electronic tolling could be used to this end, with the state or perhaps local government being party to the proposal, depending on the way cost-recovery is packaged.

4.8 Asset sales

Infrastructure Australia (2012) has drawn attention to the possible sale/lease of government assets as a means of freeing up funds for new infrastructure, providing the example of the NSW Government's announced intention to re-invest some of the proceeds from selling a long term lease of Port Botany, back into state infrastructure. Sale of existing freeways is another possibility for raising substantial sums. This could take form of outright sale, a long term management lease or perhaps the narrower form of the sale of a lane on a freeway, for use as a high occupancy toll lane.

Asset sales, and privatization of service delivery, have been used by states/territories for many years, to free up funds for investment and/or shift infrastructure commitments to the private sector, with a flurry of activity two decades ago (as part of the micro economic reform agenda of that time). The BIC supports the Infrastructure Australia approach, which includes stimulating an informed community discussion about the arguments for/against retaining assets in government

ownership. In the land use/transport context, such a discussion should include consideration of how to manage the possible loss of policy control over very significant elements of the transport network, in the event of sale of major parts thereof. IA suggests possible linking of future Federal infrastructure funding to state/territory government balance sheet reform. This concept could be extended to include reform of pricing of existing infrastructure. Such matters should form part of the broad debate about the assembly and funding of fully integrated land use/transport and other infrastructure and services/funding policies and plans across all three levels of government.

4.9 Conclusion on Sustainable Funding

The infrastructure backlog in Australian land transport and current Federal and State governmental foci on reining in spending, together with the emerging longer term trend of declining excise revenues (at the current excise rate), is highlighting the urgency of finding new ways to fund transport infrastructure. The IMF has argued that commodity exporting countries experiencing a sustained boom should adopt counter cyclical policies, preserving windfall revenue gains during the good times to boost public investment spending in times of lower prosperity (IMF 2012). The focus on boosting public investment spending reflects the IMF's findings that *public investment expenditures give the strongest output effect by raising private sector productivity ... and subsequently increasing private capital, labor and corporate incomes, and consumption* (IMF 2012, p. 150). The Australian Government's Mineral Resource Rent Tax (MRRT) revenue fits this approach and is one way to boost investment in land transport infrastructure investment.

Arguments of efficiency and fairness both support a greater reliance on user pays and beneficiary pays pricing systems. User pays systems have the allied benefit of reducing the size of the apparent investment backlog (by encouraging behavior change), provided equity concerns are handled. In the long term, the BIC sees user pays pricing as the most important policy change that is needed in Australian transport infrastructure funding. As argued in *Solutions for a Growing Australia*, we propose removal of excise and registration fees and their replacement by:

- > a use-based charge to cover carbon costs (which could remain as a fuel-based charge, like excise)
- > a use-based charge to cover the costs of road

construction and maintenance attributable to lighter vehicles (distance and location based)

- > tonne kilometre charges for the additional road damage attributable to heavy vehicles (distance and location based)
- > a use-based charge to cover the external cost component of accident costs (distance and location based)
- > use-based charges to levy the more polluting vehicles for their health (air pollution) costs (distance and location based),
- > a congestion pricing scheme to make users accountable for the congestion costs attributable to their road use (distance, location and time based).

A two year community consultation about how such a pricing scheme, or some variant thereof, would best operate should be undertaken as a matter of priority, extending the work already undertaken by the COAG Road Reform group on heavy vehicle road charging.

Recognising that the implementation of a comprehensive user pays system of this kind would take several years to implement, the BIC proposes immediate indexation of fuel excise and an increase of 14c/L in fuel excise in the near term, with the revenues entirely and very publicly hypothecated to land transport. The increased urban and regional revenues should be kept separate and used in those locations, without cross-subsidy.

The increased focus on land use/transport integration as a policy direction focuses attention on how the benefits of transport infrastructure are transmitted through the urban system. Much benefit will ultimately accrue to land owners, who should contribute to the costs of the initiatives that increase the value of their assets. This beneficiary pays approach should be used more widely and there is a range of value capture mechanisms available to this end. For example, Tax Increment Financing, Special Assessments, a broad-based low rate metropolitan improvement levy (based on property value), developer contributions and joint developments offer opportunities in this regard, as does increased debt funding for economically productive projects. Asset sales and re-investment of the proceeds is also an opportunity in some cases. Greater use of PPPs for carefully selected projects should also be used (as a form of financing and related user pay funding), provided project selection and risk allocation are carefully managed and responsible governments retain sufficient network control.

Optimising funding opportunities across user pays mechanisms (including those that are associated with PPPs) and various beneficiary pays mechanisms, together with direct government funding, requires careful balancing of the funds raised from each mechanism, to ensure the totality is effective and equitable. Across all funding sources, an increased total commitment will be required in coming years, to lift productivity and enhance liveability and social inclusion, while protecting the environment. The roles of various possible funding sources considered in this section of the report could include:

- > Excise: contribute to road and public transport costs, with full hypothecation of revenue from the proposed 14c/L increase in excise. Not a suitable long term pricing/revenue raising measure
- > Road user charges (exc. tolls): pay for road costs, including externalities, and contribute to costs of public transport (capital/operating deficit), walking and cycling initiatives that reduce the external costs of road use.
- > Tolls: fund (wholly or in part) the financing costs of specific works on which the tolls have been levied or perhaps specific works on other related links. Higher tolls on congested portions of existing tollways could be used for purposes that can be negotiated with the operator. New tolls on congested existing freeways could be used for road improvements or to contribute to PT improvements that help ease congestion (if the tolls are privately levied following asset sale, the asset sale revenues can be used for similar purposes). Specific tolls could be used to help fund level crossing removal
- > Metropolitan improvement levy: fund part of the PT operating deficit, particularly for services in growth areas. Such a levy might also be used to fund other metropolitan services, such as place-making initiatives
- > Borrowings (can be public or private): fund major public or private projects, on which user charges or tolls might be imposed that can help to repay borrowings
- > Private equity: a component of the cost of financing PPPs, with tolls and perhaps a government contribution used to provide a return
- > Tax Increment Financing and special exactions/ rates (value capture mechanisms): involve direct

government revenue streams that are used to fund borrowings that have been used for specific investments that will increase property values, which may be transport investments

- > General Council rates: fund the access component of local road costs
- > Federal/State grants: national roads, state roads and part of local roads, until such time as road user charging provides the revenue stream to fund the road costs; major PT capital. The grants could be from hypothecated excise revenue or some revenues from asset sales.

Public transport fares are a further source of revenue. Fare revenues typically meet less than half operating costs in Australian cities. Higher cost-recovery targets should be set when reformed road user charging is in place, with retention of suitable concession fares on equity grounds. Increasing most PT fares should not have much impact on public transport patronage because it will be happening as part of a process of making all travel more expensive, in recognition of the social costs involved.

Metropolitan land use/transport strategies should specify how various funding sources will be combined to fund the transport initiatives (capital, operating) required in the plan, in sufficient detail to provide comfort that implementation over the first 10 years or so will be achievable as planned. This implies that an Infrastructure Plan should accompany a Land Use Plan and Transport Plan, along the lines proposed in NSW.





five

Mobility and Social Exclusion

5.1 Some definitions

A number of concepts are critical to understanding this subject area. In shorthand terms, our understanding of the major concepts discussed in this chapter is as follows:

- > **social exclusion** = the existence of barriers which make it difficult or impossible for people to participate fully in society
- > **accessibility** = the ease with which a person from a particular place can get to particular services, locations and/or other people
- > **mobility** = the ease with which a person moves around
- > **social capital** = the benefit from social networks, trust and reciprocity within a community
- > **transport disadvantage** = a situation where people experience a shortage of transport options and/or have restricted abilities to use available options, which restricts their mobility and hence their access to goods, services and relationships
- > **sense of community** = the strength of a person's sense of attachment to where they live
- > **well-being** = a person's rating of their quality of life.

Social capital and sense of community, together with mobility (and some other factors), are significant contributors to a person's risk of being socially included or excluded and this, in turn, impacts well-being (Stanley et al. 2011).

5.2 Accessibility as an integrating concept

It is possible for a person to be able to move around freely (i.e. have a high level of mobility), because they may have a car, but to not have good accessibility to shops, banks, etc, because of the lack of such services near where they live. Equally, a person may live next door to a bank but not be able to access this facility because of a personal disability and poor design of access to/egress from the bank. Modern research on social exclusion and transport has largely originated in the UK with the work of the (then) Social Exclusion Unit. Influenced by that work, the UK Local Transport Act 2000 (as amended in the Local Transport Act 2008)

requires preparation of Local Transport Plans, in which accessibility is a major focus.

Lucas (2012) notes the transport/social exclusion research agenda has grown considerably over the past decade. This growth is now including a stronger focus on wellbeing (for example, Mollenkopf et al. 2005; Spinney et al. 2009) and on links between transport, social exclusion and wellbeing (Stanley et al. 2011). It is likely that this research agenda will increasingly merge with growing wider accessibility research agendas, where the focus is on matters like understanding drivers of house/land prices, employment location decisions and agglomeration economies. This will enable a more dynamic understanding of transport and social exclusion and help shift the policy focus towards a more integrated perspective, because of the strong land use element in accessibility. This should help strengthen land use perspectives on policy directions to tackle exclusion.

Figure 5.1 shows that problems of poor accessibility to the many opportunities that are available in any society can be tackled by improving mobility, changing land use arrangements, changing service delivery models and/or by changing funding models. Integrated approaches to transport policy and program delivery should incorporate all these opportunity pathways. In an Australian context, the urban fringe and regional/rural areas have been identified as confronting the greatest problems of transport disadvantage/poor accessibility (Currie et al. 2007), with the VAMPIRE index providing a graphic way of illustrating relative risk on a spatial basis (Dodgson and Sipe 2006).

Lucas (2012) also suggested that, in international terms, the transport/social exclusion research agenda has had a relatively poor policy take-up, Victoria (Australia) being noted as a possible exception. The Victorian effort, like efforts in many other places, is now hitting limits from governmental funding constraints.

The political response to funding constraints is usually to exhort 'doing more with less'. In many environments this is defensible. In the US, for example, public transport is considerably cheaper than paratransit on a passenger unit basis. The same is true in Australia for public transport compared to community transport. While some people will never be able to use public transport, and social justice arguments support attention to meeting the particular mobility needs of such people, those who are capable of using public transport should do so, rather than using more expensive alternatives, to avoid wasteful service duplication. Some US transport agencies have staff whose role is to assist such a transition process.

Figure 5.1: Framework of measures to address transport and access needs

Transport Improvements
<ul style="list-style-type: none"> > Public Transport > Walking and Cycling > Taxis > Private Vehicles
Land Use Improvements
<ul style="list-style-type: none"> > Location > Density > Design
Outreach
<ul style="list-style-type: none"> > Bringing Services to Communities
Funding Schemes
<ul style="list-style-type: none"> > Supporting Initiatives to address needs

Source: Currie et al. (2010).

There are often ways to make better use of existing mobility opportunities, provided barriers can be overcome. For example, in regional areas there are usually free school bus services with spare seating capacity that could be used by others. Welfare or other groups may have been provided with vehicles by community service agencies, vehicles which frequently sit idle. Some people are happy to volunteer to assist others. Capturing such opportunities will be increasingly important to sustaining social inclusion in regional areas in times of tight governmental budgets.

Given the significant role played by attachment to community in regional wellbeing (Stanley et al. 2011), **social enterprise type business models** for tackling mobility related social exclusion at local levels, involving service providers, people needing transport, client agencies (e.g. hospitals; welfare agencies) and volunteers, are likely to be an effective way forward for reducing regional transport disadvantage and improving social inclusion. This requires local empowerment, ideally with strong positive support from higher levels of government, including some freeing up of existing funding flows to enable local decision taking on priorities. A case study of such an approach is underway in Warrnambool in south-west Victoria, an area that has pioneered community-based self help in mobility. This case study is discussed further in Section 5.5.

Doing more with less is most likely to be fruitful where properly integrated approaches are taken to transport (which, in a regional setting, fits the locally run social enterprise model, as a means to improve integration). This includes integration across public transport (including taxis), paratransit/community transport and school transport, integrating transport policies and programs with land use and also with social policy. The broadening approaches starting to emerge on accessibility are supportive of more integrated approaches.

5.3 Mobility, social inclusion and wellbeing

Research suggests that, the lower a person's level of realised mobility (and hence the fewer activities in which the person is likely to engage), the higher the likelihood that the person is at risk of social exclusion, particularly if that person is also socially disadvantaged¹³. Research supports a conclusion that undertaking travel may improve a person's likelihood of social inclusion and their wellbeing, both directly and/or through a mediating influence of building social capital and connection to community. While personal characteristics (for example, *locus of control* and *affect*) are related to the uptake of these activities, it would seem that without the ability to be mobile, many opportunities simply cannot be taken up.

This confirms the important mediating factor of networks and connections to the community for social inclusion and self-rated wellbeing, which in turn confirms the importance of the ability to have mobility. In Sen's (1979) terms, this suggests a role for mobility (as a means of achieving accessibility) as an important *capability* that should be pursued through transport (and social) policy.

Australian valuation work advances the scope for including transport initiatives that are intended to improve the mobility of people at risk of social exclusion (among others) within more conventional cost-benefit analysis frameworks. That work shows high unit values of initiatives that enable increased trip making, which implies increased engagement in activities (Stanley et al. 2011).

¹³ However, some people who have the highest risk of exclusion have a relatively high level of realised mobility, commonly using public transport. These trips often tend to be of the form of 'hanging-out', important to maintaining personal wellbeing through interpersonal interaction.

Mobility is vital in achieving access to opportunities and accessibility-oriented approaches have been particularly important in framing UK approaches to reducing social exclusion with transport origin, as noted above. The strength of an *accessibility approach* is that it helps to focus attention on both transport/mobility opportunities and on activity locations as possible ways of reducing social exclusion, underlining the need to seek solutions in both spaces.

The danger with an accessibility-based approach, however, is that it invites politicians and/or planners to specify those particular activities to which they think people should have good access. This frequently means employment, health care, shops, etc. Australian research undertaken for Bus Association Victoria, however, suggests that people at risk of social exclusion typically use the opportunities provided by improved mobility to build their social capital (Bell et al 2006). This is important in both reducing risk of social exclusion and in promoting wellbeing. Accessibility-based approaches should be careful to not impose narrow values about how best to improve the wellbeing of 'at risk' people. There is benefit in people being free to exercise their own choices.

Government budget pressures are likely to mean less focus on transport programs to tackle mobility-related social exclusion. Responding to these pressures in a way that does not see significant loss of progress in program delivery seems likely to require a more concerted focus on transport/land use/social policy integration and on new governance arrangements, involving greater cross-stakeholder local empowerment. A social enterprise approach seems likely to be a fruitful way to proceed in this context, particularly in regional and peri-urban areas, given the importance of sense of community in regional wellbeing (section 5.5).

5.4 Minimum service levels

The BIC's research has been important in establishing that an important way to reduce risks of social exclusion that have their origins in mobility is to ensure that there is a reasonable base level of public transport service available. This concept is most relevant in urban areas. A reasonable service level is one that enables:

- > most people
- > to access most of the things they need for a fulfilled life

- > at most times.

Enabling all people, to access all things, at all times would be simply not fundable. The appropriate service level in any particular circumstances will depend, inter alia, on the land use/transport/demographic circumstances of particular locations but should be embedded in integrated land use/transport plans for our capital cities and in relevant regional plans. *Solutions for a Growing Australia* argued that, in our capital cities, this minimum should be an hourly service between 6.00am and 9.00pm start of run for most days of the week, with later services on Fridays and Saturdays. Higher frequencies are obviously desirable, if affordable. The BIC research shows that the value of additional trip making for those at risk of social exclusion is very high, such that there is a convergence between the social justice argument for minimum service levels and an argument based on economic benefits of service provision (Stanley et al. 2011).

5.5 A social enterprise model

In regional/rural areas, PT service levels are typically lower, travel distances typically longer and car reliance higher than in metropolitan areas. For those without ready availability of a private vehicle, mobility opportunities can be severely restricted. Various Australian data indicate (see, for example, Stanley et al. 2011; Currie and Delbosc 2010):

- > the importance of mobility for social inclusion and wellbeing in regional areas
- > the greater difficulties of travelling in regional areas
- > the lesser availability of public transport in regional areas
- > the high value of additional trip making by those at risk of social exclusion in regional areas.

Regional groups more likely to be transport disadvantaged and at risk of social exclusion from a mobility origin include young people, older folk, people with a disability, unemployed and those on a low income. The activities they are less likely to be able to undertake are most commonly associated with visiting family and friends, engaging in recreation, etc. These are activities that build social capital, social inclusion and personal wellbeing and thereby reduce future costs associated with exclusion, such as welfare and mental health costs. Public policy initiatives that deliver cost-effective



improvements in regional personal mobility are likely to be valuable to both individuals and the community generally. Where the beneficiaries are likely to be at risk of social exclusion, this value is likely to be particularly high, provided mobility solutions are provided cost-effectively.

In regional areas, there are usually a number of publicly supported transport opportunities, from regular public transport services (PT, local and regional) and Community Transport services (CT) to school buses and subsidised taxis. However, regional mobility services are frequently restricted in availability by:

- > regulation: e.g. which defines the catchment area for student use of school buses
- > institutional restrictions: e.g. limiting carriage of other passengers on school buses; restricting availability of various community transport options to particular client groups, such as people with certain physical conditions or of certain ages
- > provider attitudes: e.g. where some community groups with vehicles are unwilling to make them available to others
- > restrictions in use due to funding arrangements.

A particular concern with government funding of regional mobility solutions is that these solutions operate almost entirely in silos. Silos reflect traditional functional administrative frameworks and encourage behaviour which protects territory and self-interest, whereas accessibility/mobility problems arise on a place basis, which cuts across functions. Administrative systems have not adapted adequately. Transport policy failures have led to 'spot' solutions with poorer service outcomes and lower sustainability. Place-based approaches are required.

It is time to consider new ways of providing regional mobility services, to maximise the public value that is achieved from those services, with a particular focus on efficiently meeting the needs of transport disadvantaged people who are at risk of social exclusion. Stanley and Stanley (2012) argue that matching (1) those with mobility needs with (2) potential mobility providers is likely to be most successfully achieved if both sides have a sense of ownership of the problem. The social enterprise business model seems to be well suited to this application. A social enterprise is a business with mainly social objectives, whose surpluses are primarily re-invested in pursuit of those objectives, in the business or community.

It draws on the entrepreneurial spirit of the business sector, using this for community purposes. This is likely to work well in a region with a strong sense of community and committed community leadership. A social enterprise model in such a region should be able to:

- > better integrate the range of existing regional mobility opportunities and leverage community development more broadly in the process, to improve social capital and sense of community, reduce social isolation and improve wellbeing
- > make better use of existing community mobility resources (e.g. vehicles, drivers, volunteers), capturing synergies across agencies and increasing specialisation and coordination in service planning and delivery, resulting in more efficient and effective client service
- > deliver more transport options and transport opportunities to a wider range of people, particularly those at risk of social exclusion from mobility origins.

In a regional setting, the objectives for a mobility oriented social enterprise should include:

- > improved transport/mobility opportunities for those whose needs are not presently met by mainstream public transport
- > better understanding of mobility needs and current options, leading to more cost effective transport arrangements
- > provision of employment/training opportunities for some people and volunteering opportunities for others (e.g. driving, office, website, etc).

Key components of such a social enterprise model should be (1) removal of the perverse administrative and governance barriers between transport modes and (2) making the needs of the travelling public the central issue. The social enterprise model may not be able to offer a number of alternatives for travel for all people, but it should have a greater chance of doing this than current agency-based transport arrangements.

5.6 Policy directions

The VAMPIRE research (Dodson and Sipe 2007) has highlighted vulnerabilities on the growing urban fringes of our capital cities and National Economics (2010) has linked the failure of Australian housing supply to respond

to growing population demands to the lags in provision of transport infrastructure and other services in outer growth suburbs. Currie and Delbosc (2011) have shown how regional areas are, like the urban fringe, highly dependent on the car for access and inclusion.

Solutions for a Growing Australia argued for implementation of minimum public transport service levels on the urban fringe and in regional areas, to tackle problems of social exclusion, as summarised in Section 5.4. Section 5.5 has extended that work by proposing the implementation of a social enterprise approach to reducing mobility-related social exclusion in rural and regional areas. A social enterprise approach builds on the strong attachment to community that is characteristic of regional areas and frees up local stakeholders to identify mobility needs and pursue innovative ways of meeting such needs. Successful implementation will require a funding framework that redirects some existing monies to support the social enterprise approach and a light touch to regulation, rather than excessive bureaucratic control. This is about empowering local communities to solve their own problems in a supportive environment. A number of case studies should be supported by the Federal and State/Territory Governments, to prove up the concept.

In both urban and regional settings, land use/transport policy integration should recognise the multiple dimensions of accessibility, such that social inclusion can be promoted by either improving transport opportunities, improving the local availability of activities, or by cost-effectively improving elements of each. This ties social inclusion firmly back to land use/transport integration in the longer term.



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six

Policy Refresh

Infrastructure Australia's (2012) highlighting of the need for an increased Australian focus on strategic planning, funding and financing and governance and reform is strongly supported by the BIC. *Moving People Solutions for a Liveable Australia* has highlighted some ways in which this reform agenda can be advanced.

The major focus in this report has been on how land transport, particularly transport that involves moving people, might best fit into the integrated policy framework that an Australian national reform agenda needs, particularly in our capital cities. This should begin with improved strategic planning processes, where the focus starts with land use/transport integration but where integration then ranges more widely, to encompass all the important infrastructure and service inputs that might be required to serve growing/changing communities. It is only when such a broad framework is used that decisions on vital questions, such as the relative emphasis to be given to greenfield versus infill development, can be taken with some confidence. Public transport is one component of a suite of measures in this mix, to help improve productivity, social inclusion and environmental sustainability and more generally improve the way of life of Australians and visitors.

In terms of land use/transport integration, the report has identified the types of transport initiatives that will be needed to meet the needs of moving people in our growing capital cities. A particular focus has been on taking an integrated approach to **place**. This will often throw up different priorities to those that emerge from the 'big project culture', which seems dominant in Australian urban planning at present, partly because of Infrastructure Australia infrastructure recommendation processes. It is important that the focus shifts from big projects to networks and systems that are designed to help meet the COAG high level objectives for our cities. This needs better strategic planning and should involve cross-sectoral intergovernmental funding agreements to implement strategic plans, including their infrastructure and service components, recognising the roles of public and private sectors. This is in contrast to the current approach that concentrates too much on Federal funding support for particular big projects. The broader approach should have the important associated benefit of taking the strategic plans in question beyond the short term political cycle, which has been a major problem with past Australian urban planning.

Infrastructure funding is perhaps the biggest single constraint to improved outcomes on the COAG objective for Australian cities and for achieving comparable outcomes in regional/rural Australia. This report has

proposed user pays and beneficiary pays approaches to raising additional funds for infrastructure investment and suggested a pathway to implementation of the user pays approach, starting with increases in excise (first indexation and then a step increase of 14c/L), imposing congestion charges on existing congested tollways/freeways and then moving to a new road pricing model, as community support increases. This will raise revenue and help to get better efficiency from use of existing infrastructure. Revenue hypothecation is absolutely vital in gaining acceptance for such initiatives, including a focus on funding improved transport options for those adversely affected by the changes to charging regimes. A number of other funding sources have also been noted, including various forms of beneficiary pays funding via value capture. These can contribute useful revenue streams to implement improved infrastructure/services.

Implementing user pays/beneficiary pays approaches is not easy, as demonstrated in many countries. It requires strong political leadership, which will be assisted by a comprehensive community engagement process on reasons why change is needed, how it could work, the benefits that will result and how those who are adversely impacted will be assisted. That conversation is being sought by many stakeholders. It needs to start now.

Some decisions will be difficult and unpopular, for example in relation to the wider application of user charging. These decisions are likely to be unavoidable if we are to secure the infrastructure we desire. Increasing the community's awareness of the need for such decisions will facilitate a more informed debate about how our infrastructure networks can help support our aspirations for the nation. (Infrastructure Australia, 2010, p. 9)

If an integrated strategic planning framework is in place, this conclusion will apply more broadly, to also encompass the services needed by growing/changing communities.

The report has highlighted issues of social inclusion and the role that public transport can play in enhancing inclusion. This issue is highly relevant to the future of our cities but also to the future of those living in, or visiting, regional and rural Australia. Minimum public transport service levels have been identified as a key component in advancing social inclusion that has mobility origins, particularly in urban areas. These service standards should be context specific and should, therefore, be included within integrated city strategic plans, with relevant delivery costing and funding.

In regional/rural Australia, the report has proposed a social enterprise delivery model for community transport services, to make better use of existing resources and increase local decision taking in needs identification and in the provision of solutions. Federal/State support for demonstration projects should enable this new approach to be road-tested.



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Glossary of Abbreviations

ADC	Australian Davos Connection
ARA	Australasian Railway Association
ATC	Australian Transport Council
BIC	Bus Industry Confederation
BITRE	Bureau of Infrastructure, Transport and Regional Economics
bpkms	billion passenger kilometres
btkms	billion tone kilometres
CAD	Central Activities District
COAG	Council of Australian Governments
CRC	Council of Australian Governments Reform Council
CTS	Centre for Transportation Studies
GHG	greenhouse gases
IA	Infrastructure Australia
IMF	International Monetary Fund
IRI	International Roughness Index
LGA	Local Government Area
MDL	Mass, Distance, Location
MRRT	Mineral Resources Rent Tax
NSTIFC	National Surface Transportation Infrastructure Financing Commission (US)
NIEIR	National Institute of Economic and Industry Research
PAC	Principal Activity Centre
PCA	Property Council of Australia
PT	Public Transport
RAC	Royal Automobile Club Foundation
SLA	Statistical Local Area
TIF	Tax Increment Financing
TOD	Transit Oriented Development
tkms	tonne kilometers
UITP	International Association of Public Transport Australia New Zealand
vkms	vehicle kilometres
vkt	vehicle kilometre
vmt	vehicle miles of travel

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