

Chapter 6

Infrastructure and Transport



The dynamics of Australia's cities, outlined in previous chapters, have increased demand for a diverse range of transport infrastructure and services to the point where, in total and across most modes, demand is at record levels.

While transport for many is a necessity of daily life and can of course always be improved, the true value of transport only becomes fully apparent when transport networks fail, become congested, incur delays, or are unsafe or unaffordable. The objective of transport planning and investment should be to maintain transport networks as enablers, globally and locally, rather than barriers to increased personal and business mobility. This chapter focuses on transport infrastructure not only because of the rapid increase in demand but also because transport infrastructure plays a crucial role in shaping cities, their economies and, ultimately, our urban lifestyles.

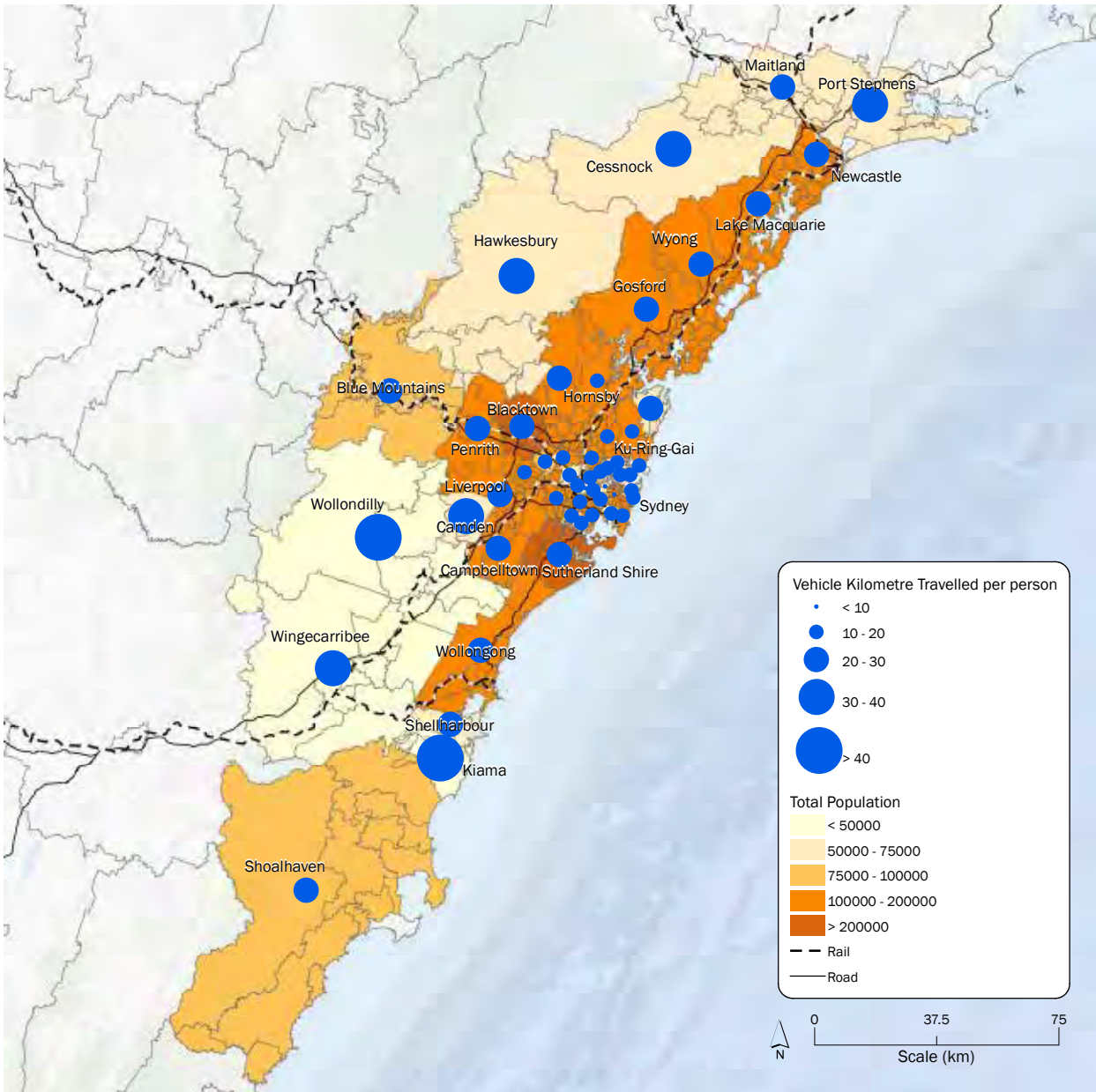
Australian authors Wellman and Spiller (2012) divide infrastructure investments into follower and leader types. The provision of essential infrastructure such as electricity and water, is at least as important as transport for productivity; but is generally a follower of urban development. By contrast, certain transport infrastructure investments can determine the physical shape of cities, leading population and employment patterns over long periods and evolving in patterns that can be difficult or costly to reverse.

Australia has made substantial transport infrastructure investments in cities over the past 20 years, and there are numerous plans to increase infrastructure investments significantly in the coming years. The impact of these investments will have long lasting impacts on Australia's cities. This chapter considers key issues and tensions that can help inform decisions on when, where and how to make smart transport infrastructure investments.

The length of an average metropolitan trip across Australia’s 4 largest cities climbed from around 2.5 kilometres at the start of the twentieth century (when urban passenger transport was still dominated by non-motorised travel) to a current level of close to 7.5 kilometres per trip (BITRE 2014b).

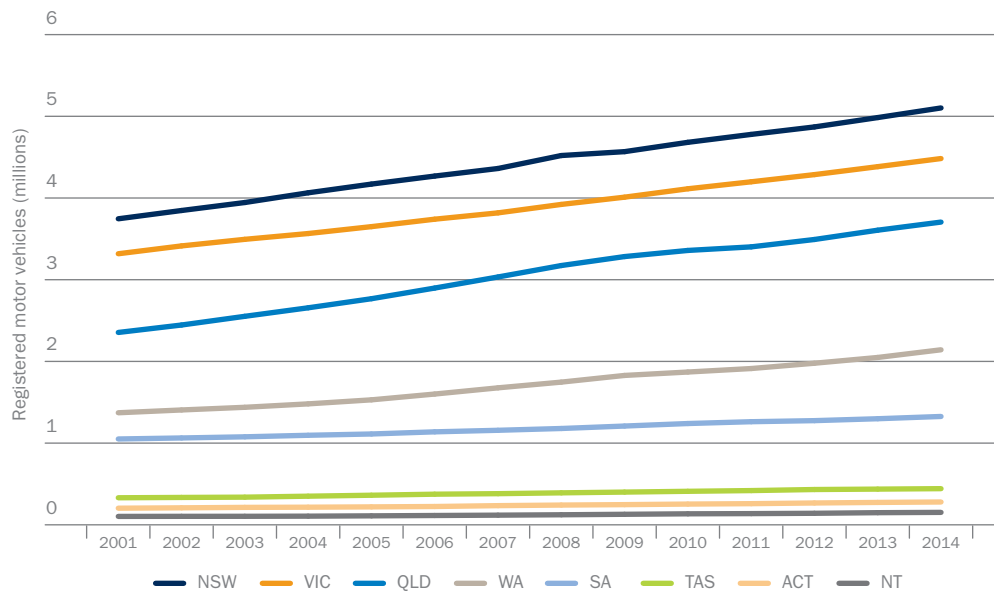
To illustrate, Map 6.3 shows a distinct cluster of between 10 and 20 vehicle kilometres travelled (vkt) per day around Sydney City, and in general increasing vkt further out – although not all these trips would be travel into the centre of Sydney.

Map 6.3 Vehicle Kilometres Travelled – Sydney 2011



Source BITRE 2014b

The growth of Australia’s cities has coincided with record levels of car ownership. Every state or territory registered record numbers of motor vehicles in 2013–2014, as seen in Figure 6.6.

Figure 6.6 Stock of registered motor vehicles, 2001–02 to 2013–14

Source: ABS 2014.

Given the structure of large parts of Australia's cities, motor vehicle travel is essential if city residents are to be able to access jobs and services. However, such travel also comes at a cost. Rising congestion and environmental costs are borne by all with private costs, largely the costs of owning and operating a motor vehicle, having also risen. These rising costs are increasingly becoming a strain for the functioning of our cities and their economies and they place considerable burden on those residents who have few transport alternatives and are required to travel long distances. Without investment in additional capacity or demand management innovations for current infrastructure, the economic extent of congestion costs in our capital cities has been estimated to grow from \$13.7 billion in 2011 to around \$ 53.3 billion in 2031 (Infrastructure Australia 2015).

Public transport

Public transport performs many critical functions in Australia's cities. As a minimum, public transport provides a base level of mobility essential to everyday life for many who cannot or choose not to own or drive a car for certain trips.

Beyond this important social equity function, public transport plays a critical role in delivering the cities' residents to their workplaces, as evidenced in the journey to work transport mode shares graphs (Figures 6.3a, 6.3b and 6.4). As explored in the **Economy** chapter, agglomeration economics mean that across Australia's cities a high proportion of jobs are clustered in central city CBD locations or other employment clusters.

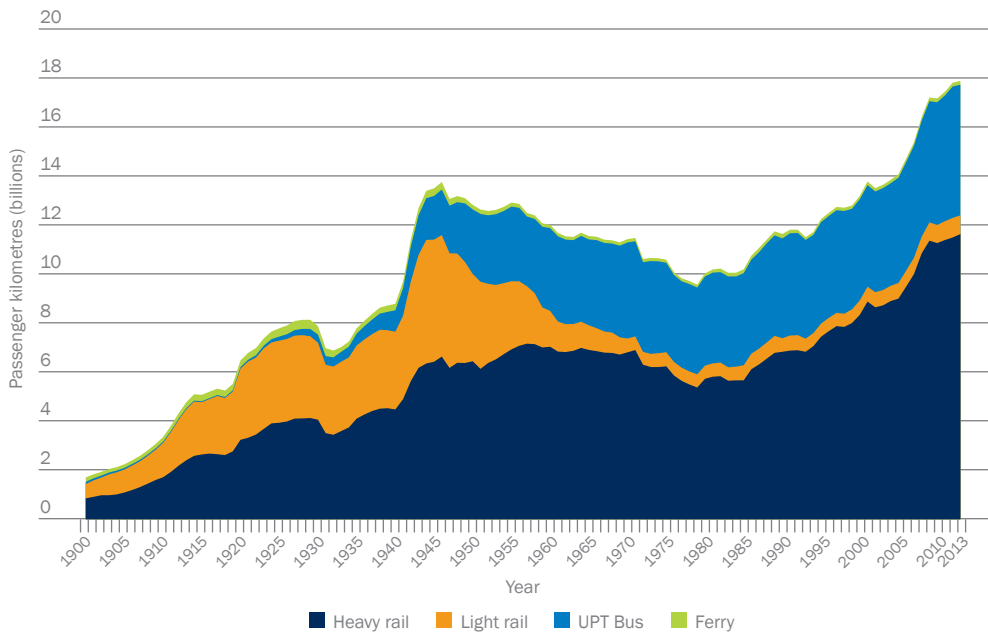
As economies increasingly become more knowledge intensive, this clustering intensifies, driving intense patterns of demand for travel into inner cities and city CBDs.

With such inward-focused travel demand and with space in city centres at a premium, leaving less for parking or for roads, the travel needs of many city centre workers can only be met by mass public transport. As Australia's urban economies have transitioned and more jobs are located in city centres, patronage on public transport has grown significantly. In the past decade, the rate of average annual growth of public transport patronage (2.4 per cent) surpassed the rate of population growth in capital cities (1.8 per cent).

Additionally, the presence of public transport infrastructure attracts higher-density development, with corridors of higher density housing and commercial premises locating along transit routes. This is an increasingly common urban form change in Australian cities.

Public transport kilometres travelled in Australia’s cities, as shown in Figure 6.7, have grown by more than 4 billion passenger kilometres since the late 1940s, when over half of all metropolitan trips were taken using public transport. The bulk of these kilometres travelled are carried on the heavy rail lines of Australia’s cities, reflecting both growth in patronage due to population growth as well as longer trips being undertaken from extending outer areas.

Figure 6.7 Public transport passenger kilometres, metropolitan Australia



Source: BITRE 2014b.

Increased public transport usage has in part, been achieved by investing in additions to public transport networks, especially in Perth and Brisbane, where new rail and bus infrastructure has been built in recent years.

As observed in the **Settlement** chapter (see Figure 3.2), rail passenger journeys have seen a sharp growth in Melbourne and Sydney. But in Melbourne and Sydney, the increase in passenger kilometres has come about despite investment in the network remaining largely static, with patronage growing significantly and overcrowding beginning to occur.

In these cities the rail networks are designed in a hub and spoke fashion, optimised for serving the city centre, and the increase in patronage is a result of job growth in the high-productivity city centres and rising road congestion that results from travel to those centres.

Active transport

It is no surprise that rising congestion has also led to an increase in active transport (walking and cycling) in Australian cities. Before the introduction of the tram and train, and later the car to Australian cities, walking was the dominant mode of urban travel, greatly limiting the spread of the cities. With the introduction of motorised modes of transport, cities have spread. However, with increasing traffic jams and crowded public transport, residents are returning to walking and cycling where they can.

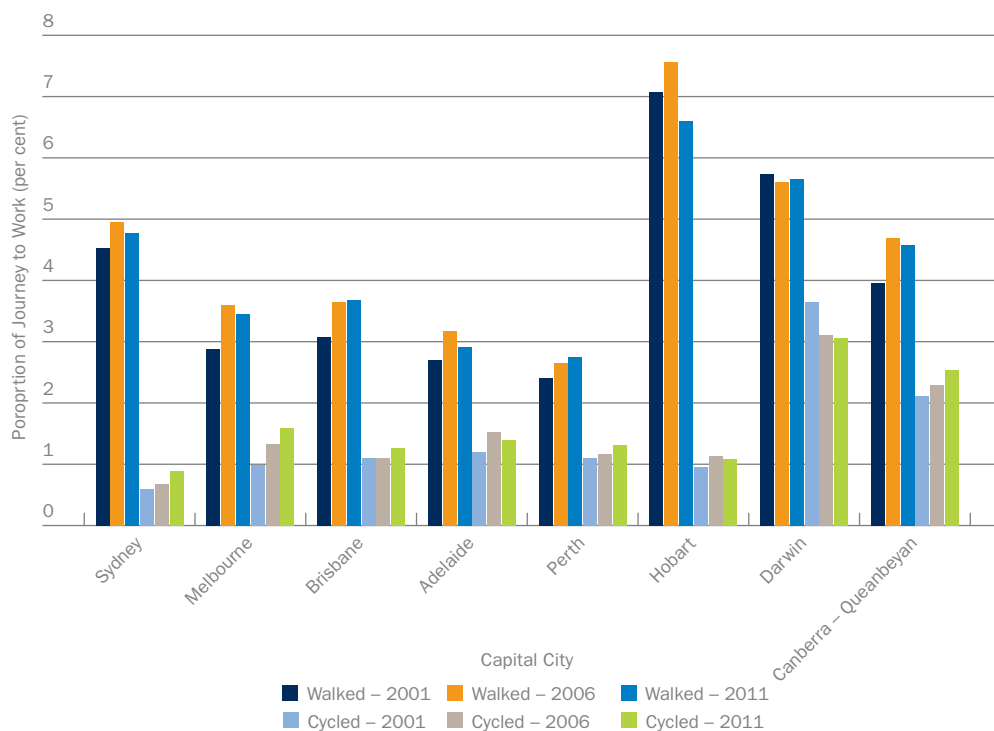
Whether someone is able to walk or cycle to work depends heavily on the distance between their home and workplace and the pedestrian, cycling or shared path infrastructure that supports and promotes active travel.

As a result, the majority of commuters using active transport are those who live and work in the older and higher density inner areas of Australia's cities.

In these inner urban areas, the number of people who are walking and cycling has been rising considerably in recent years, although it started from a low base of the overall transport mode shares. Cycling has increased its transport mode share over the 2001–2011 period in most capital cities (with the exception of Darwin).

The number of people cycling to work in Melbourne has grown by 38 per cent, rising from 20,598 people in 2006 to 28,606 people in 2011. In the same period the number of those in Sydney cycling to work increased by 47 per cent, up to 17,838. Given the small proportion that cycling and walking constitutes of overall mode share, these rises are well beyond what might be expected through population growth over the time, which would be in the order of a 17 per cent increase in total numbers.

Figure 6.8 Share of active transport by commuting mode, 2001–2011



Source: BITRE (unpublished) analysis of Journey to Work (active transport).

Active travel offers a number of benefits to cities, especially by reducing demand on other congested modes of transport. It also offers health benefits to those people who opt to walk or cycle, reduces greenhouse gas emissions and provides more human-scale activity on city streets. Additionally, in contrast to road and public transport infrastructure, improvements to active transport networks are relatively cheap and can be made comparatively quickly.

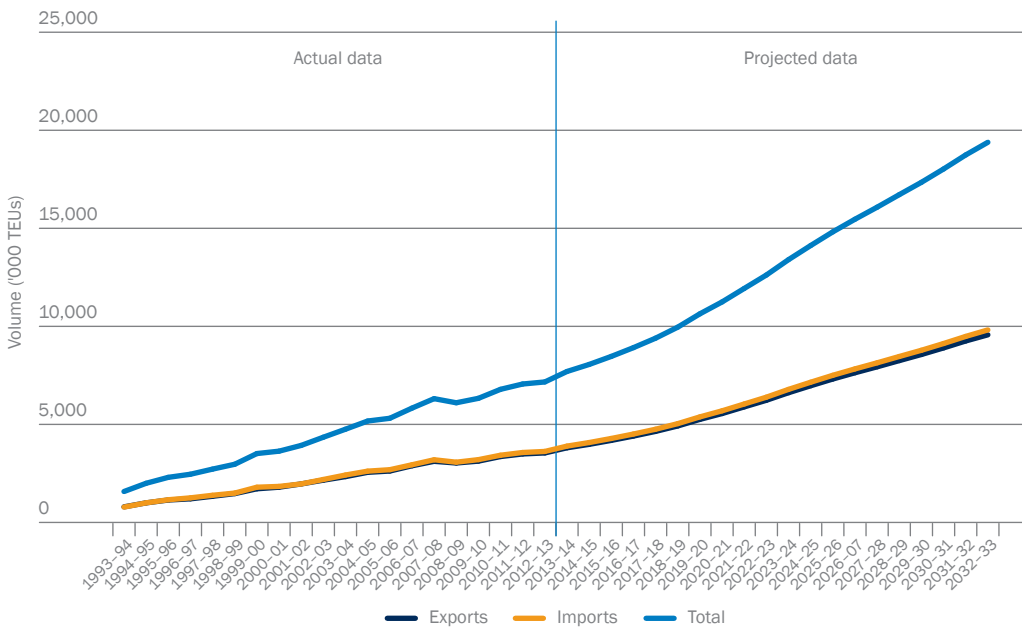
Ports

This chapter has so far considered the rising pressure on transport infrastructure caused by passenger travel. But transport of freight is also a significant contributor to the total transport task and to congestion, especially on urban roads during peak periods.

The **Economy** chapter illustrated the growing role of global trade in the Australian economy. The dramatic increase in the amount and value of freight that moves through Australia’s ports (especially containerised freight through capital city ports) is a major driver of increased demand for transport infrastructure.

Freight is moving through ports at record levels, as identified in Figure 6.9, and is projected to increase further. This growth in container movements through Australia’s urban ports has substantial implications for cities with road and rail congestion, land shortages and development and competing land use tensions around ports and distribution hubs set to escalate further.

Figure 6.9 Australian containerised imports and exports for all ports, 1993–94 to 2032–33



Source: BITRE 2014e.

OECD research points to the impacts of economic growth especially where ports are located in central cities, as is the case with Australia’s largest container ports, in Sydney and Melbourne.

“Port-cities benefit from part of the economic impacts of ports. Most of the direct port-related value-added is still created in port-cities. Port-cities also benefit from the effects of clustering industries in a port area, and the possible economies of scale and knowledge transfer related to it. Several resource-intensive industries continue to be attracted by port areas, as location in a port limits their transportation costs.” (OECD 2013).

Case Study: Port of Melbourne

The Port of Melbourne in particular plays a critical role in a much larger regional and national freight and logistics network. The port is Australia's busiest container port, handling over one-third of Australia's total container trade.

While much of this trade originates in or is destined for the city of Melbourne, the Port of Melbourne is also the primary trade gateway to the global market for South-East Australian products. The port is geographically located at the hub of Australia's national distribution network. Around 50 million tonnes of general freight is moved between Victoria and the rest of Australia each year, which means that Victoria is moving significantly more than any other state. Freight that is being moved includes:

- domestically manufactured goods and products moving from point of production to interstate and international markets
- containerised imported goods taken from the Port of Melbourne to distribution centres then repacked for interstate destinations
- a smaller but significant volume of goods being land-bridged directly between the Port of Melbourne and interstate destinations (principally to South Australia and Western Australia) to avoid the need for vessels to call at those ports.

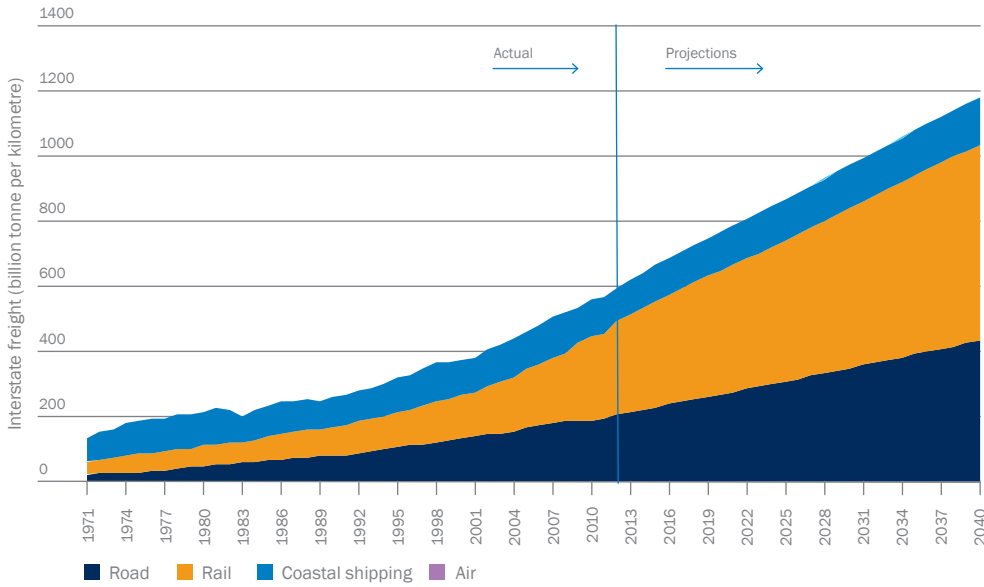
As the dominant international port in the region, the Port of Melbourne receives export goods from South Australia, New South Wales, Victoria, Tasmania and New Zealand before sending them on to markets across the world. Just over half of all container exports that depart from the Port of Melbourne originate from within metropolitan Melbourne, with 23 per cent from regional Victoria and 23 per cent from interstate (GHD 2010a).

The Port of Melbourne also plays a critical role as the first point of entry for imported products that enter Australia and are then distributed across the city, Victoria and interstate. The efficiency of the port and the transport infrastructure that links it to various markets is important in keeping import costs down. Of the containerised imports that arrive at the port, 9 out of 10 (87 per cent) are unpacked within the Melbourne metropolitan region, highlighting the important role that the port plays in the city's wider distribution network (GHD 2010b).

However, the freight task associated with moving international and interstate cargo has implications far beyond Australia's ports. The increase in port volumes directly affects increases in freight volumes across all national freight modes, as seen in Figure 6.10.

The volume of freight through Cairns port increased by 0.5 million tonnes in 2008-09 to 1.2 million tonnes in 2012-13. The volume of freight through Geelong port increased to 12.8 million tonnes in 2012-13. Launceston had a large decrease in the value of international freight between 2006-07 and 2012-13, with international freight down by \$913 million.

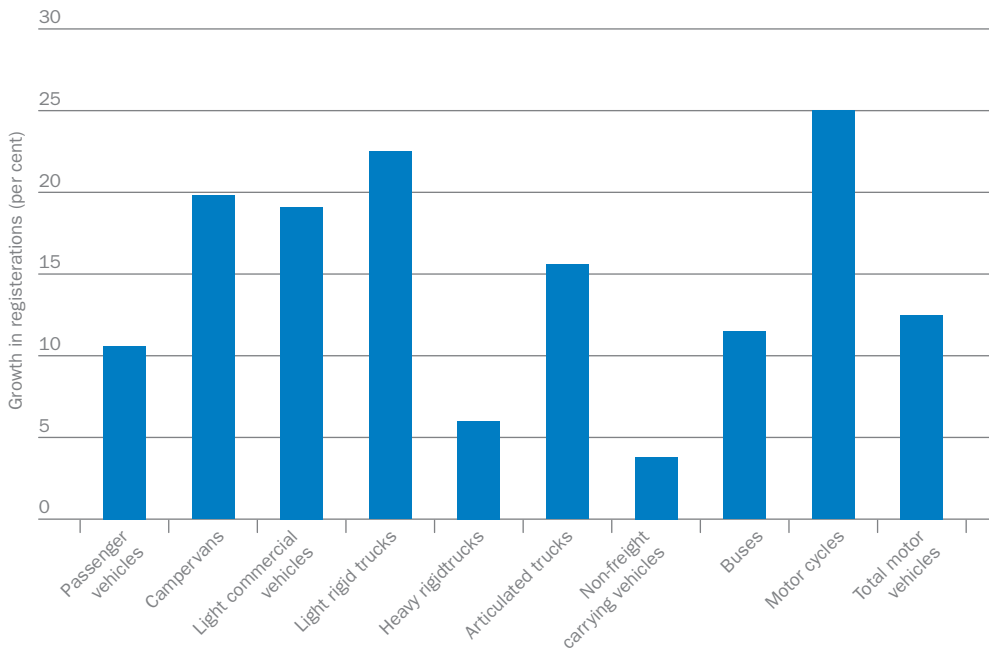
Figure 6.10 Total interstate freight estimates and forecast by mode, 1971-2040



Source: (BITRE) 2014, Freightline 1 – Australian freight transport overview, BITRE, Canberra (Figure 8).

The increasing importance of road freight movement to the economy has seen a boom in the registration of trucks, with the growth in truck registrations outstripping passenger vehicle registrations over the past 5 years.

Figure 6.11 Growth in number of vehicle registrations, 2009-2014



Source: ABS 2014.

The trends outlined above are projected to continue, with an increase in the number of jobs in the logistics sector and increased stress on the road networks, especially on the already crowded main roads of Australia’s capital cities.

Key freight route maps

Anticipated continued growth in freight volumes will give rise to a range of increasingly complex challenges for the Australian community. In recognition of this, all levels of government and industry have agreed on the need to apply a national focus and effort to deliver a streamlined, integrated and multimodal transport and logistics system, capable of efficiently moving freight throughout Australia.

A focus for government, as agreed by Commonwealth, State and Territory Transport Ministers in 2013, was the need to identify Australia's nationally significant places for freight and to map the road and rail links connecting them. Governments also agreed on the need to reflect the maps in state-based strategic freight plans.

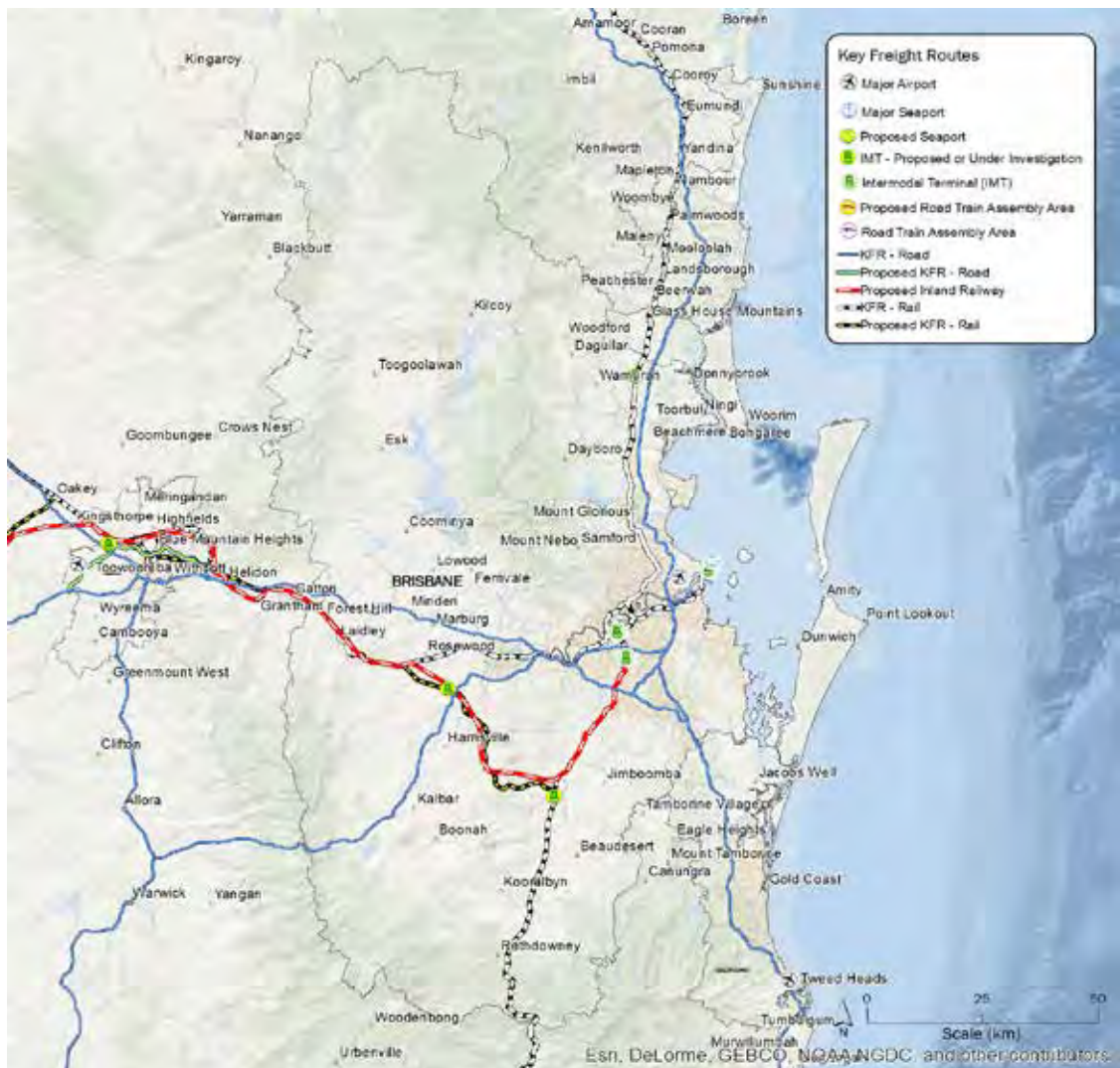
Map 6.4 Map of key freight routes, Sydney, 2014



Source: Department of Infrastructure and Regional Development 2014.

Commonwealth, state and territory governments are also collaborating on developing maps illustrating Australia's key freight routes. This will serve as a strategic tool that can inform strategic planning, operational and investment decisions relating to the Australian freight network.

Map 6.5 Map of key freight routes, Brisbane, 2014



Source: Department of Infrastructure and Regional Development 2014.

A key challenge in developing these maps has been identifying the routes connecting Australia's key places for freight on a consistent basis that takes into account current and future expected flows and policy commitments across all states and territories.

The maps are publicly available on the Transport and Infrastructure Council website. <http://www.transportinfrastructurecouncil.gov.au/publications/>

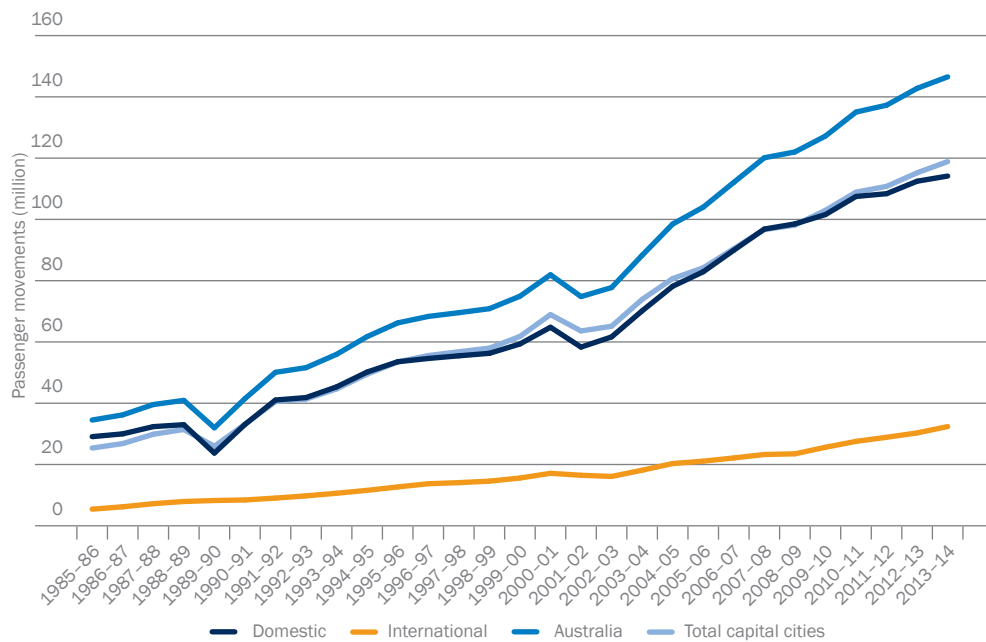
Airports

Airports provide a disproportionate amount of economic value to the Australian economy given the volume of freight moving through them, with international air freight representing less than 0.1 per cent of Australia's total merchandise trade by volume, but making up over 21 per cent of total trade by value (worth over \$110 billion in 2011–12) (BITRE 2014c). Airports offer great benefits to city economies, both directly and indirectly. The pattern of increasing demand observed in all other transport modes is also seen in airports.

The **Human Capital and Labour** chapter described the way that a growing knowledge economy permits firms and workers to specialise. Once a worker has a combination of specific skills, they may be called upon to travel to use those skills.

When firms are specialised they may in turn need to call upon specialised services that are not available locally. Globally integrated cities tend to have airports that accommodate a lot of business travel. Given the increasing economic importance of the knowledge economy to Australia's cities in addition to the rising numbers of ordinary Australians undertaking air travel, it is no surprise that airport demand is at record levels.

Figure 6.12 Air passenger movements through all Australian airports, 1985–86 to 2013–14



Source: BITRE 2014.

The transport demand caused by increased passenger movements in airports is felt in the surface transport infrastructure of cities as passengers travel to and from airports.

Infrastructure planning

Longer commuting times for those not using active travel can potentially diminish the connectivity that makes cities valuable. The **Population** chapter of this report noted the significant additional population forecast for our major cities in coming decades. Past population growth has been accompanied by large increases in our cities' transport activity and higher costs to provide infrastructure, and increases in some measures to mitigate congestion.

Growing demand for transport and increasing calls for infrastructure investments in Australian cities has sparked intensive research on these issues. Research on city development consistently emphasises the importance of integrated planning, particularly integrating transport and land use planning. A recent report from Infrastructure Australia also argues against fragmentation in urban transport planning:

“Urban transport has not been viewed as an integrated system dealing with both people and freight flows. Key issues include: integrating transport systems; integrating long-term infrastructure planning and land-use planning; the impact of urban transport systems on productivity; the importance of urban access and equity; coherent and consistent funding and financing; consistent measurement and reporting of results.” (Infrastructure Australia 2013)

There is a growing consensus that broad-scale, multimodal, high-level planning systems are needed.

One concept that has received research attention and shows promise is a focus on the metric of 'accessibility' (Curtis et al. 2013, Levine 2011 and Litman 2014).

This metric measures the ability of citizens to access the services they require and thus shows benefits if, for example, land use planning allows population and services to be located nearer to one another; traditional point-to-point travel time metrics would not capture this.

Traditional 'predict and provide' models of transport planning can work at small scales and over short timeframes. They may prove less satisfactory when they advocate for infrastructure that shapes a city in a way that is, in the long run, unsupportable. Transport infrastructure investments that encourage population clusters at a distance from jobs could fall into this category. Such infrastructure investments can necessitate further expensive investments at later times.

Integrated planning outcomes will recognise that different parts of the city have different transport tasks and different infrastructure needs. Bicycle paths and light rail may be more important in the inner parts of cities, and feeder buses and private vehicle commuter flows more important in outer parts of cities.

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Co-locating jobs and housing

One often-discussed solution to conflicts caused by increased transport demand is to manage the number of people competing for finite space by relocating jobs away from the city centre, either to alternative centres or to suburbs where people reside. This is seen as a way to manage transport demand and ensure ongoing viability for communities.

As discussed in the **Economy** chapter strong jobs growth has occurred near the airports of Australia's major cities. The case study below explores the potential impacts on employment opportunities and the spatial skills mismatch around a developing airport.

Case study: Badgerys Creek Airport

The international evidence on airport employment shows that airports can be significant sources of employment, providing jobs for both skilled and unskilled workers. As well as direct employment, airports also contribute to employment in upstream industries that supply goods and services to airports. Airports may also provide significant employment benefits to the local area; however, as an example, in 2006 only 20 per cent of employees at Sydney airport lived within a 30-minute commute of the airport.

The Bureau of Infrastructure, Transport and Regional Economics (BITRE) has developed a skill/occupation/industry mismatch index that can provide insight into which areas of Sydney are compatible with the expected demand for jobs, in terms of the skill mix, occupation mix and industry mix, at the new airport at Badgerys Creek.

It found that, for an early stage of the airport operation, suburban fringe locations in Western Sydney tend to provide a better match to the airport skills and occupation mix than many of the more established parts of Western Sydney. Statistical Area Level 2 (SA2) areas such as Rosemeadow – Glen Alpine, Bradbury – Wedderburn and Leumeah – Minto Heights (all in Campbelltown) were very compatible with the occupation mix at an early stage of airport development involving up to 4 million passengers.

Based on the 2011 Census, around 100,300 Western Sydney residents work in manufacturing, 91,000 work in retail and 90,400 work in health care industries, while 55,700 work in transport, postal and warehousing and 51,600 work in public administration and safety.

At the 5 major capital city airports, about half of all on-site employment is in the transport, postal and warehousing industry and an early stage airport requires a significantly higher proportional representation of community and personal service workers (which includes police, firefighters, travel advisors and hospitality workers) and technicians and trade workers.

With the full operation of the new airport, the European 'rule-of-thumb' for airport employment is considered to be generally around 1,000 direct on-site jobs per million passengers per annum. Recent evidence for Australian airports shows a lower figure – around 600 jobs per million passengers per annum.

Source: BITRE 2013a and 2013b.

Policy attention has also been given to seeking ways to improve the co-location of jobs and people in response to changed industry structures.

Often, such discussions consider what is described as the self-sufficiency of parts of cities. This measure is the ratio between the jobs in an area and the employed people resident in that area.

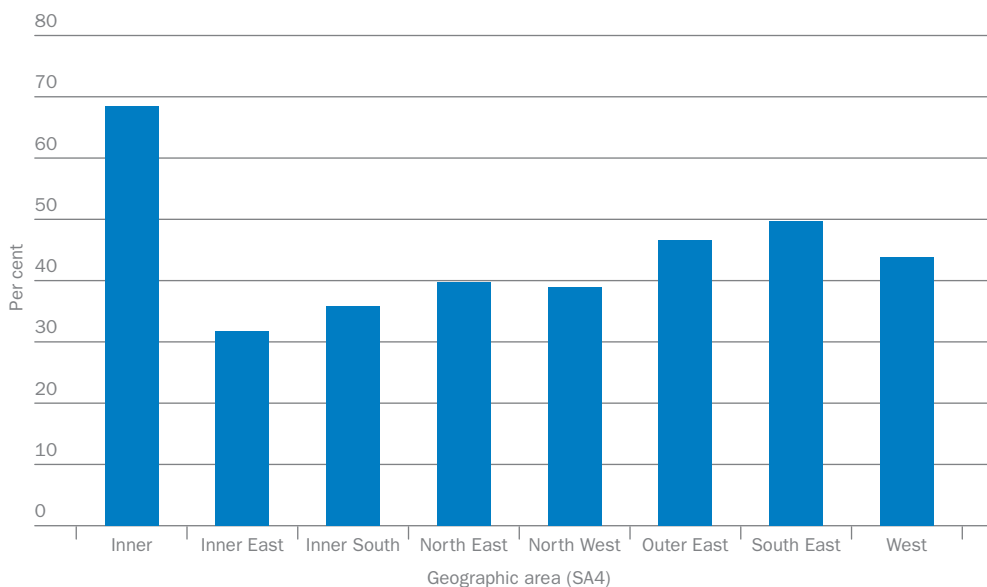
Such a measure can be important. It can highlight where population is increasing – for example, through significant residential development – in the absence of suitable industries to create jobs for new residents or it can show the impacts where reductions in employment occur. It is also the case that the self-sufficiency rate can be the same in 2 different areas, but because of age and employment demographics be producing quite different results in the number of residents working locally – which is often of greater interest when discussing the co-location of people and jobs.

The self-sufficiency rate illustrates the gap that would exist if every worker in an area sought a local job. It is important to note that this measure does not consider the extent to which the employed people in the area work in the area rather than elsewhere. In addition, the self-sufficient rate cannot show, for example, if high paying, high productivity jobs are being replaced by low paying, low productivity jobs or show where full time work is replaced by casual and part time work.

The proportion of employed people residing in an area whose employment is also in that area is called ‘self-containment’. This measure is important, as it directly impacts transport demand – both distance and type of travel – and because it reminds policy makers that simply creating jobs in an area is not necessarily sufficient to increase the employment of residents of that area. These jobs could be filled by people travelling from elsewhere, particularly if the jobs require qualifications or skills not held by local residents (in much the same way that many resources sector jobs are filled by people resident in other locations).

The areas of cities with the highest number of jobs – especially inner – tend to exhibit the highest degree of self-containment. These areas are also well served by transport infrastructure and have higher dwelling prices.

Figure 6.13 Self-containment rates for selected geographic areas surrounding Melbourne, 2011



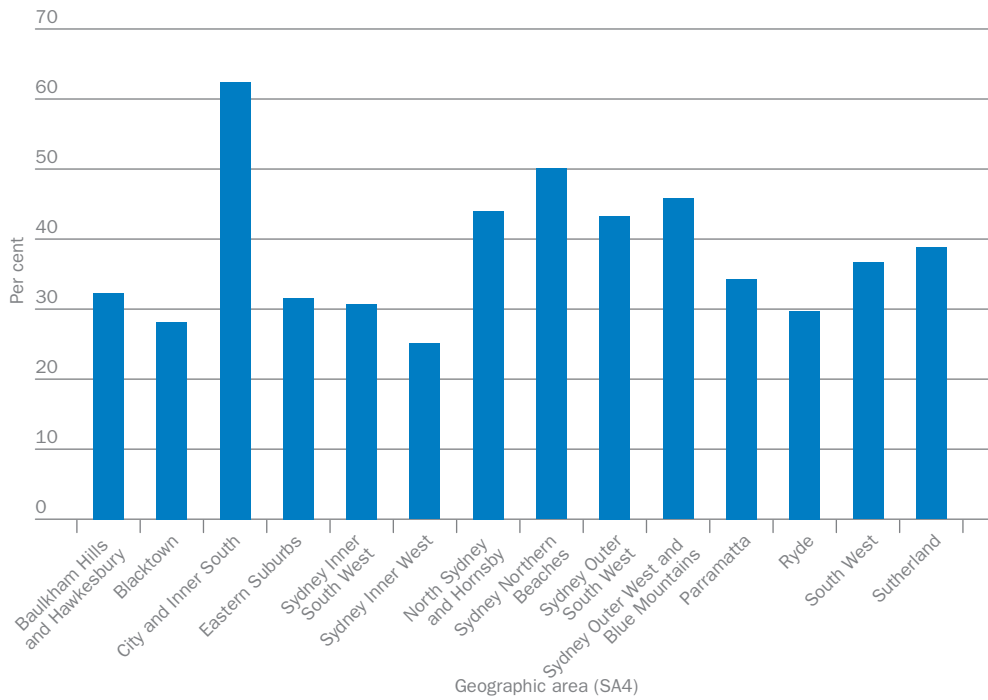
Source: ABS 2012.

Note: These proportions exclude the Place of Work Not Applicable and Not Stated categories.

Figures 6.13 to 6.15 indicate that not only are there high job concentrations for inner city business districts, but in Melbourne, Sydney and Brisbane a substantial number of jobs are evenly distributed out to the periphery. Relatively close to Brisbane, the Sunshine Coast and the Gold Coast have noticeably high levels of self-containment.

This is in the range of 30-45 per cent, reflecting the compliment of necessary population serving industries required to maintain high quality urban living such as schools, education and municipal services.

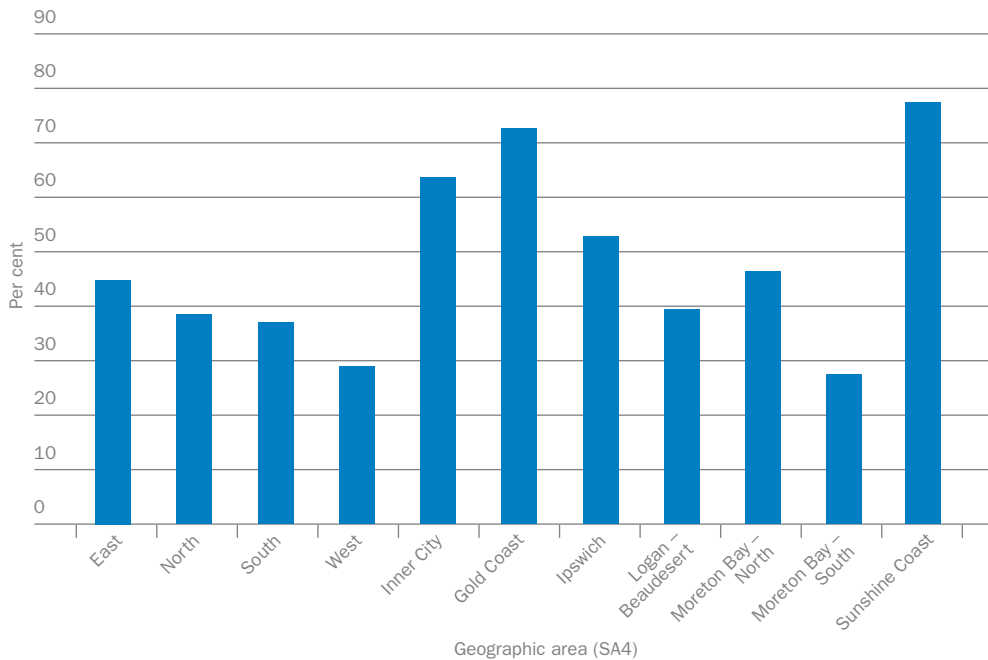
Figure 6.14 Self-containment rates for selected geographic areas surrounding Sydney, 2011



Source: ABS 2012.

Note: These proportions exclude the Place of Work Not Applicable and Not Stated categories.

Figure 6.15 Self-containment rates for selected geographic areas surrounding Brisbane, 2011



Source: ABS 2011.

Note: These proportions exclude the Place of Work Not Applicable and Not Stated categories.

Relocating jobs

A theme common to several submissions to the recent Productivity Commission Inquiry into Public Infrastructure was that of promoting decentralisation of Australia's population in order to reduce the burden on existing urban infrastructure. Often that idea was accompanied by a suggestion that jobs should be relocated to rural or regional areas, where unemployment is relatively high. As the Productivity Commission notes in its recent report on public infrastructure, there are a variety of factors that impact on where businesses choose to locate – and historical evidence shows that it is particularly difficult to convince businesses to move away from cities, which are rich with customers, suppliers and deep pools of skilled labour.

In addition, moving jobs (either out of cities or within them) can sometimes add to demand for transport infrastructure rather than reduce it. Given the costs associated with changing residence, employment and education needs of family members and links to existing communities, individuals may choose to retain their existing residence rather than relocate to the new location of their job, particularly if infrastructure is provided that allows them to do so at a reasonable cost. Australia's recent experience with fly-in fly-out (FIFO) workers, particularly in the resources sector, shows that a number of people, where transport systems allow, will prefer to reside in major cities.

As noted in the **Economy** chapter, there is evidence that a doubling of city size is associated with an extra increase in productivity of between 2 and 5 per cent (OECD 2013).

The challenges associated with increasing productivity will continue. There are no simple levers to affect geographic labour mobility. Evidence shows that policies that aim to influence where people live and work in regional and remote areas have limited effectiveness. A combination of personal and locational factors relating to housing, employment and local infrastructure will influence an individual's decision to relocate (PC 2014b).

Future population increases are likely to challenge policy makers to find ways to minimise the impacts on transport demand, on costs associated with new infrastructure and on the overall success of Australian cities.

Infrastructure's city shaping role

In increasing the capacity of cities, consideration must be given to the role that transport infrastructure can play in shaping cities. With the changing spatial distribution of employment (discussed previously in the **Economy** chapter), many jobs (in particular, higher-skill, higher-paying jobs) are centralising in Australia's major cities.

At the same time, as illustrated in the **Settlement** chapter of this report, much of the population growth across Australian cities continues to occur on the urban fringes. The result is that an increasing number of people are living further away from city centres and the jobs they provide, leading to a growing need to effectively connect homes and workplaces (Ahrend 2013; Kelly et al. 2013; Fensham 2013).

The development history of Australia's cities clearly illustrates the vital city-shaping role of transport infrastructure. In recent times an investigation of completed large-scale investments in Melbourne's transport network revealed the extent of the long-run economic and land use impacts brought about by major investments. Melbourne's

City Loop, CityLink and Western Ring Road projects each had, and continue to have, a profound and long-lasting influence on the economic and physical growth of Melbourne in addition to the transportation functions they were designed to (SGS Economics & Planning 2013).

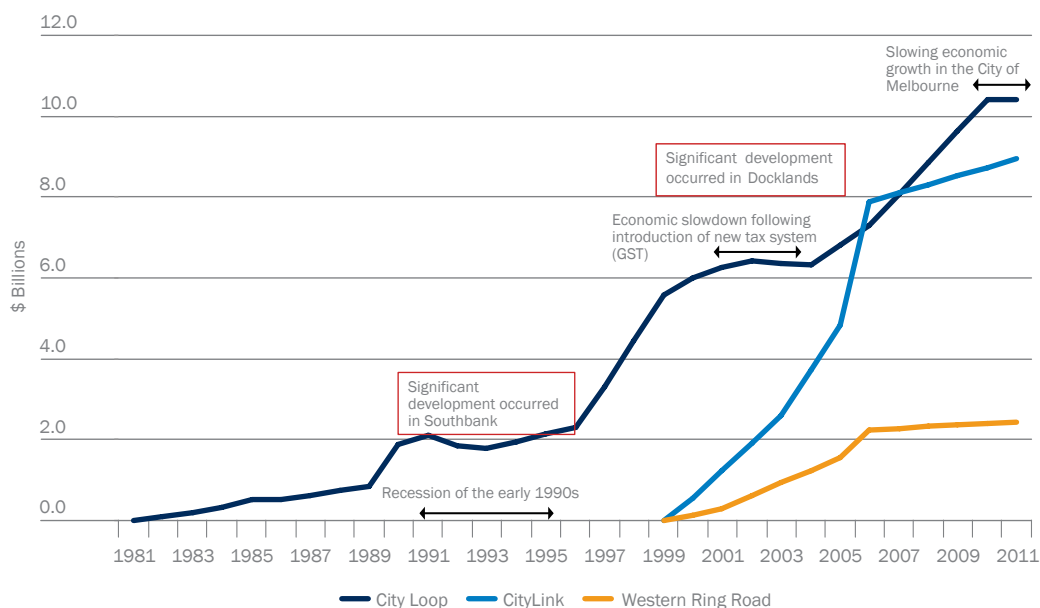
For example, SGS Economics & Planning (2012) have estimated that CityLink (completed in 2000) improved the accessibility of large sections of Melbourne by linking the north and south-east of Melbourne with the central core of the city. The project facilitated the establishment of an estimated further 70,300 jobs in Melbourne with a corresponding extra 58,200 households, resulting in employment growth and productivity improvements that added an estimated \$9 billion to the Melbourne economy in 2010–11 (see Figure 6.16). Similarly, Melbourne's City Loop (completed in 1985) added an estimated \$10.4 billion to the Melbourne economy in 2011, largely through clustering an estimated additional 74,000 jobs in central Melbourne. Many of these jobs were more productive than they would have been if they were located elsewhere (SGS Economics & Planning 2012). Table 6.2 illustrates the often long lead time between project conceptualisation and project completion.

Table 6.2 Estimate summary of benefits to metropolitan Melbourne, 2011

| | CityLink (\$ billion) | Western Ring Road (\$ billion) | City Loop (\$ billion) |
|------------------------------|--------------------------|-----------------------------------|---------------------------|
| Project conceptualisation | 1969 | 1954 | 1929 |
| Project completed | 2000 | 1999 | 1985 |
| Productivity improvements | \$1.4 | \$0.2 | \$1.2 |
| Move to more productive jobs | \$7.5 | \$2.2 | \$9.2 |
| Total GVA Uplift | \$9.0 | \$2.6 | \$10.4 |
| New jobs | 70,300 | 24,900 | 74,000 |
| New households | 58,200 | 17,400 | n.a. |
| Freight improvements | \$0.08 | \$0.15 | n.a. |

Source: ABS 2012.

The estimated benefit streams of these respective major transport projects over time are illustrated in Figure 6.16. Notable is the slow ramp-up but consistently compounding benefits associated with the City Loop compared with the much more immediate, but soon slowing, benefits resulting from construction of CityLink and the Western Ring Road.

Figure 6.16 Benefit stream across time of selected Melbourne transport projects (\$ billions), 1981–2011

Source: SGS Economics & Planning (2012).

Conclusion

There can be no doubt that there is increased demand for transport and increasing calls for infrastructure investments in Australian cities. Increased population, greater employment and increased education outcomes bring with them challenges, particularly the need to effectively manage competing demands for space. Nowhere is this more apparent than on our transport networks, which are critical to the movement of ever-increasing numbers of people and goods.

Projections of population growth and transport demand are driving policy thinking at all levels of government. It is vital for policy makers to consider the importance of integrated planning, particularly integrating transport and land use planning. By adopting these approaches, it is recognised that different parts of a city have different transport tasks and different infrastructure needs.

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