4 HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

Economic infrastructure, such as roads, rail lines and ports, generally provides direct and immediate economic benefits in the building and operational stages and productivity benefits in the longer term. Infrastructure enables new housing supply, efficient transportation of goods and services, reliable delivery of essential services and improved travel times. Social infrastructure, such as quality schools and hospitals, allows the delivery of critical services to the people of New South Wales.

The right infrastructure lifts productivity and participation, delivering longer term economic and social benefits.[1]

The general government sector's net capital expenditure is projected to rise at an average annual rate of 5.1 per cent — exceeding average GSP growth — reaching $23.0 billion in 2055-56. While it is a smaller component of expenditure[2], making up less than five per cent of the total in 2014-15, appropriate and adequate infrastructure investment is critical to ensuring that the state achieves its economic potential.

Well designed infrastructure, suitable housing development and employment opportunities together make New South Wales an attractive place to live and work. More housing, as noted in Chapter One, will encourage migration to the State, which boosts the working age population and helps offset the impacts of the ageing population on the economy.

Infrastructure investment is essential for the 1.8 million new homes that are projected to be built over the next 40 years. They will need basic services, such as water, electricity, schools, hospitals and local amenities and also the transport infrastructure that connects homes with employment opportunities. Better transport infrastructure increases the number of residential areas that are within commuting range, and is therefore a key driver of growth and prosperity.

Well designed infrastructure, suitable housing development and employment opportunities together make New South Wales an attractive place to live and work.

4.1 Government infrastructure investment

The general government sector's investments in public infrastructure include ongoing infrastructure spending on schools, hospitals, public transport, and information technology as well as larger, one-off investments in hospitals, rail systems and roads. As at 2014-15 the gross capital expenditure budget is significant, around $9.4 billion, but well below the $64.5 billion in annual recurrent spending (excluding interest expenses).

In this Report, gross capital expenditure is the general government acquisition of non-financial assets, including assets acquired under finance leases. Net capital expenditure[3] is gross capital expenditure less sales of non-financial assets and less depreciation.

General government capital investment has grown strongly over the past 10 years. Over this period, nominal gross capital expenditure more than doubled to around $9.4 billion in 2014-15. As a percentage of GSP it rose from 1.2 per cent to 1.8 per cent. This high level will be maintained for at least the next four years.

1 Productivity Commission, 2015. The role of public infrastructure (PC Productivity Update). PC Canberra

2 Expenditure is expenses (excluding interest) plus net capital expenditure

3 This is equivalent to net acquisition of non-financial assets as used in the Budget. Note that sales of non-financial assets do not include leases or sales of businesses, which are classed as financial asset transactions.

Chart 4.1 Gross nominal capital expenditure to 2055-56

Source: NSW Treasury

General government capital investment has grown strongly over the past 10 years. Over this period, nominal gross capital expenditure more than doubled to around $9.4 billion in 2014-15.

Chart 4.1 presents general government gross nominal capital expenditure projected to 2055-56. Over the projection period, general government gross capital investment is projected to grow at an average rate of 4.1 per cent per annum, reaching $49.2 billion in nominal terms in 2055-56.

Capital expenditure is expected to be high over the next four years, in particular in 2018-19 due to the recognition of around $3.4 billion of Public Private Partnerships — mostly in transport. Beyond the forward estimates it is projected to return to its long-run trend. Capital projects funded through the Rebuilding NSW program, and Restart NSW commitments and reservations, are included in these projections.[4]

Capital expenditure for all areas except Transport is generally modelled by maintaining constant capital to expense ratios,[5] consistent with long-term trends[6] across Australia.[7] Transport is modelled differently because it is highly capital intensive and increases in capital stock tend to drive expenses. Therefore for transport, real capital stock is grown in line with real GSP, consistent with its long term historical tendency to broadly align with growth in the overall economy.

In net terms, general government capital expenditure is projected to rise from around $3.0 billion in 2014-15 to $23.0 billion in 2055-56, or by 5.1 per cent on average over the projection period. This is higher than the average GSP growth rate of 4.7 per cent.

The increase by $20 billion of net capital expenditure in 2055-56, compared to 2014-15, contrasts with an increase of nearly half a trillion dollars in recurrent expenses over the same period. Given the relative sizes of the increase, total expenditure (recurrent expenses and net capital expenditure, excluding interest) is expected to grow at an average rate of 5.3 per cent over the projection period.

4 Projects in Rebuilding NSW and Restart NSW reservations are included in the projections as they are committed government policies. However, these are not all reflected in the budget. Capital projects to be funded through Rebuilding NSW will not be reflected in the Budget until the electricity leases are finalised and they are approved; similarly Restart NSW reservations are included in the Budget only when they are approved.

5 This is consistent with a constant capital to output ratio assumption, modelled by maintaining a constant real capital stock to real expense ratio

6 Over the past fifteen years, the ratio of real capital stock to real expenses across all Australian state and territory and local governments has stabilised following a period of steep decline since the 1960s. See Technical Note for further details.

7 For the first 10 years to 2024-25, capital expenditure for each area of government activity is based on 10 year capital plans, smoothed to minimise year-on-year volatility in its transition to the long-run projections

HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

GENERAL GOVERNMENT NET CAPITAL EXPENDITURE IS PROJECTED TO RISE TO

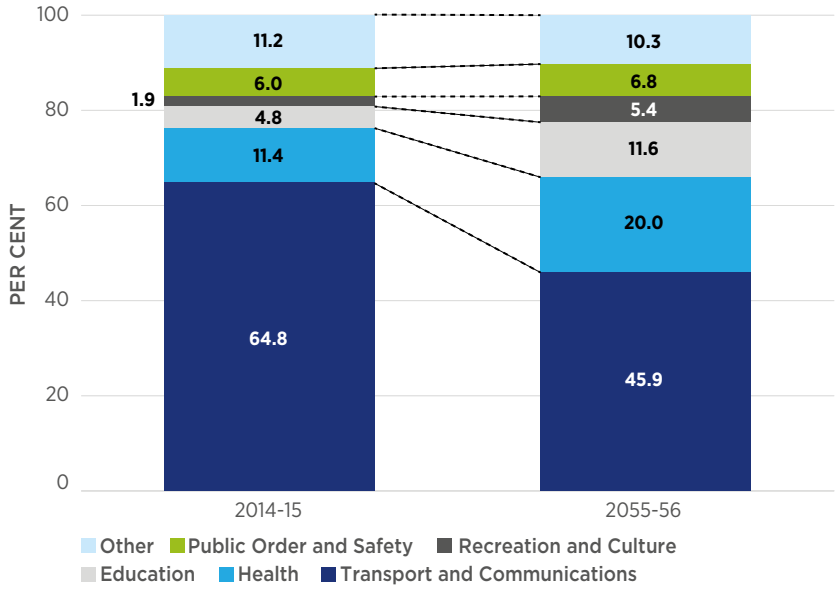
▲ $23b

in 2055-56.

Composition of infrastructure spending

The largest component of infrastructure spending in 2014-15 was Transport and Communications, at 65 per cent (Chart 4.2). After transport, education and health together make up the next biggest infrastructure categories and are expected to nearly double their share of total capital expenditure by 2055-56. The faster growth in health and education infrastructure spending compared to transport is driven by the growing demand for health and education services that is expected over the next 40 years, as discussed in Chapter Three.

Chart 4.2 The health and education share of gross capital expenditure will increase



Source: NSW Treasury

4.2 Housing

Trends and outlook

Despite a clear uplift in actual residential construction since 2012, New South Wales has an estimated accumulated housing undersupply of around 100,000.[8] This is the result of housing construction not keeping pace with strong population growth (Chart 4.3).

Source: ABS Census, ABS cat no. 3101.0 and NSW Treasury

The short-term outlook for housing construction is strong, with annual dwelling approvals reaching over 70,000 in 2015, the highest since data collection began in 1970 (Chart 4.4). While over the last four years approvals for both houses and attached dwellings have significantly increased, the strongest growth has been in apartments, especially apartment complexes of four storeys or more.

The strong short-term outlook for housing construction suggests that within the next few years we can expect new supply to meet additional annual demand, after which we expect to see inroads made into the accumulated undersupply. The rate at which this gap is closed will, however, depend on future housing construction, population growth and household formation preferences.

Over the long-term we expect housing supply growth averaging 45,000 a year to 2030-31 — and 43,500 to 2055-56 — which would result in the construction of around 1.8 million new homes over the next 40 years, closing the undersupply gap over time.

In the 20 years to the mid-2000s, peak housing completions were around 50,000 while troughs were in the 30-40,000s (Chart 4.5). Cycles lasted around five to six years from peak to peak, and completions averaged over 42,000 per year.

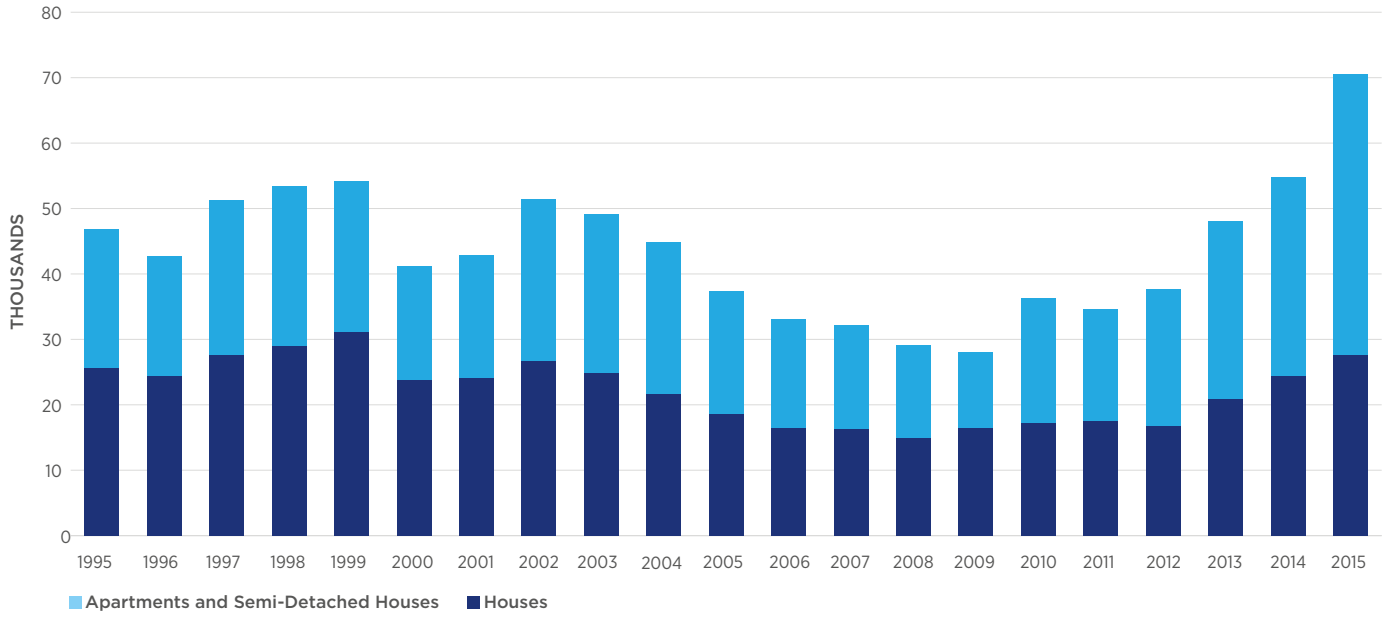
In the seven years from 2005, however, housing completions averaged just under 30,000 per year. While there has been a significant recovery in activity in the last few years, the seven years of low activity combined with strong population growth, have created a pent up demand for housing in New South Wales (particularly in Sydney).

Despite a clear uplift in actual residential construction since 2012, New South Wales has an estimated accumulated housing undersupply.

8 See Technical Note for methodological details. This estimate is comparable to recent private sector estimates, such as the current undersupply estimate of 90,000 by ANZ. NSW Treasury analysis in the 2014-15 Budget suggested an undersupply of around 120,000 dwellings in 2014. More detailed work for this Report provides the updated estimate of just over 100,000 in 2015

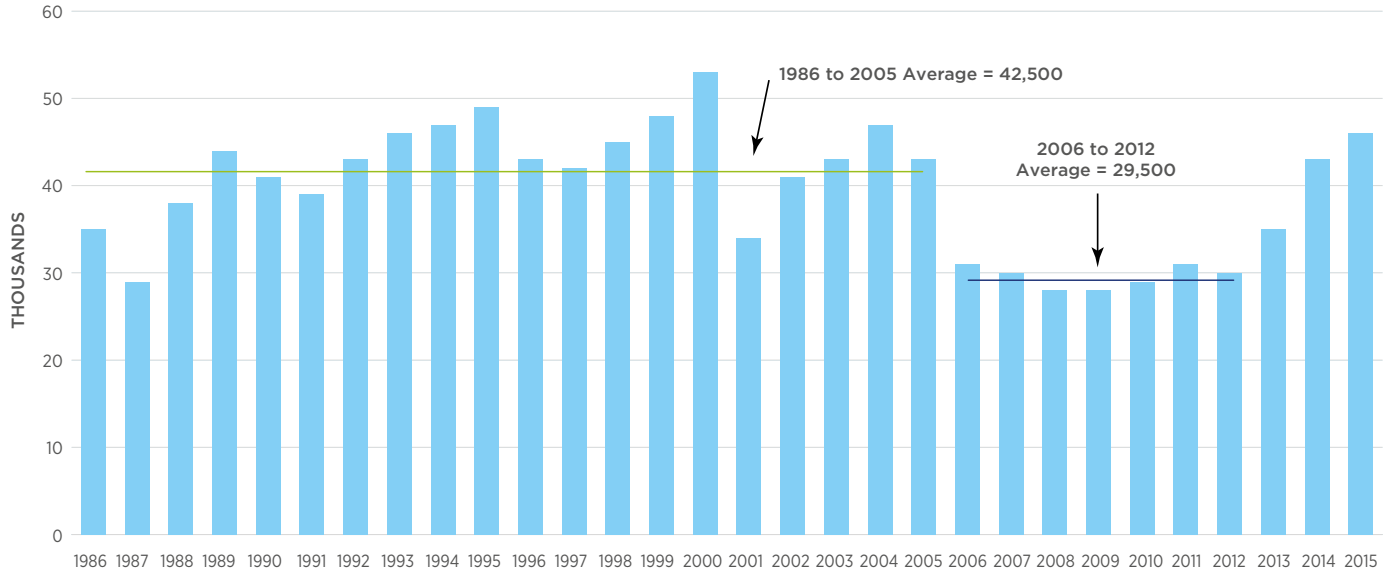
HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

Chart 4.4 NSW dwelling approvals reached record highs in 2015 at just over 70,000



Source: ABS cat no. 8731.0

Chart 4.5 NSW housing completions are recovering from a seven year slump[9]



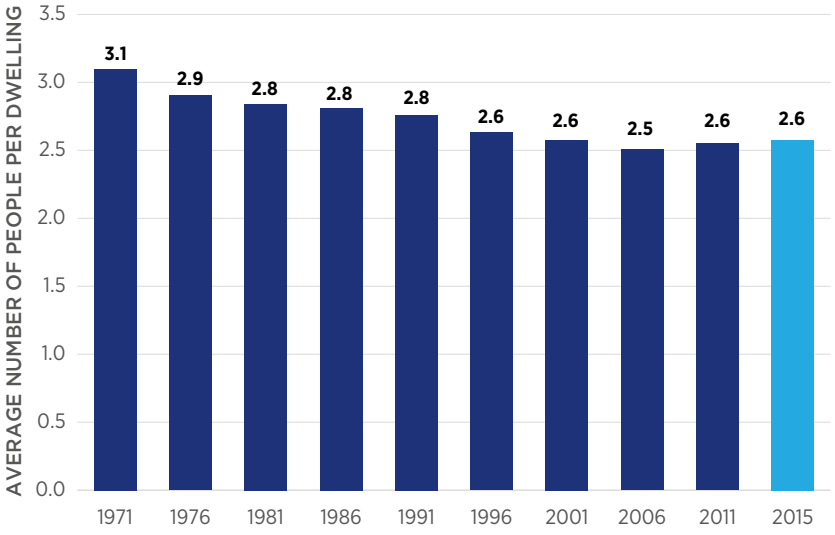
Source: ABS cat no. 8752.0

The terms 'housing undersupply' and 'housing oversupply' do not refer to a strict mismatch between supply and demand. Prices adjust to balance supply and demand. Rather, undersupply refers to supply being lower than the level of demand indicated by an analysis of long-run household formation trends.

9 Note that the difference between completions in this chart and annual production in Chart 4.3 is demolitions

Over the past decades, improvements in wealth, lower fertility rates, higher divorce rates and greater longevity have driven a long-run trend towards fewer people per household.[10] Chart 4.6 shows the average number of people per dwelling declining from 3.1 in the 1971 Census to a low of 2.5 in 2006. In 2011, the number of people per dwelling increased to 2.6, where it has remained.

Chart 4.6 Number of people per dwelling has declined since 1971, until recently



Source: ABS Census data to 2011; 2015 estimates from ABS cat no. 3101.0 and 6416.0

Those groups most strongly responsible for the 2011 up-tick in people per dwelling were those in their mid-to-late 20s and early 30s, who tended to live longer with their parents or in group households. At the same time, the long-run trend towards more single-parent families has reversed, which is consistent with recent declines in divorce rates. There has also been an increase in multi-family households.

What is unclear is the extent to which these changes represent a permanent shift in behaviour — and thus the demand for housing — or whether the undersupply of housing and an associated decline in housing affordability has driven an increase in the number of people per household.

Looking forward, ageing is likely to see underlying pressures towards smaller households continue to build. For example, as the population ages, there will be a higher share of couples with no children at home, and one-person households.

Overall the projections are for housing supply to grow by an average of around 45,000 dwellings each year through to 2031. This is consistent with *A Plan for Growing Sydney (2014)*[11], and differences in population growth between Sydney and the rest of the state. Over the next 40 years, the housing production profile corresponds to an average annual increase in the NSW housing stock of around 43,500, consistent with a projected gradual easing in demand pressures.

Housing prices and migration flows

As mentioned in Chapter One, for the first time, this Report incorporates modelling of the linkages between overseas and interstate migration into New South Wales, housing prices and housing supply, and employment opportunities. Migration responds to employment opportunities, and to housing prices. Conversely, population growth, in particular migration, also affects housing prices, since this affects underlying demand.[12]

Looking forward, ageing is likely to see underlying pressures towards smaller households continue to build. For example, as the population ages, there will be a higher share of couples with no children at home, and one-person households.

Migration responds to employment opportunities, and to housing prices. Conversely, population growth, in particular migration, also affects housing prices, since this affects underlying demand.

10 In the 35 year period to the mid-2000s
11 NSW Department of Planning and Environment, A Plan for Growing Sydney, 2014
12 See Technical Note for details

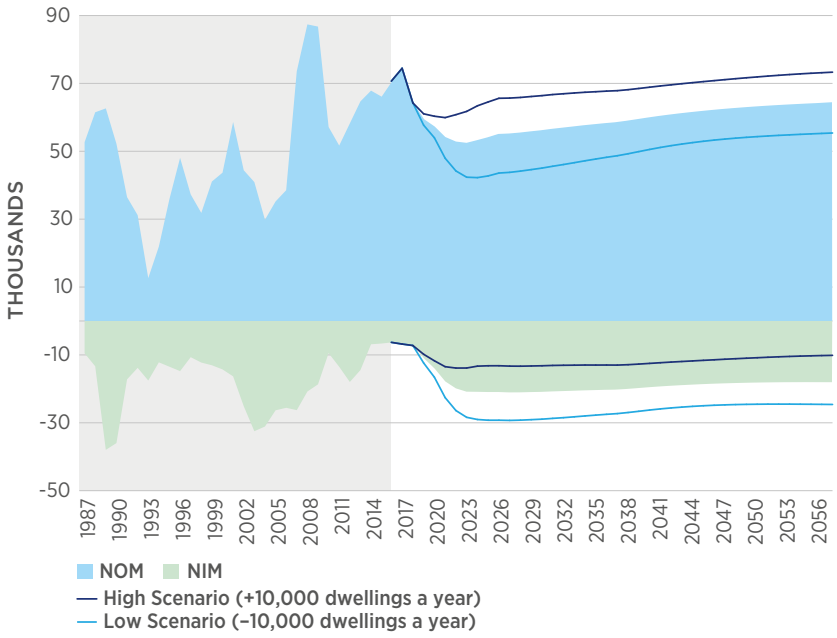
HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

An extra 10,000 dwellings per annum would reduce housing price growth in the near term, leading to improvements in affordability.

Including these relationships means that the modelling captures the trade-offs between housing supply, migration flows, labour market strength, economic performance and the fiscal gap. For example, if housing supply is changed relative to the central scenario, population and ageing also change, with implications for the fiscal gap. An extra 10,000 dwellings per year, with no response from other states, would boost both overseas and interstate migration to New South Wales (Chart 4.7) and increase the traditional working age population by over 600,000 by the mid 2050s. This in turn reduces the impact of ageing (Chart 4.8) and generates stronger economic growth.[13] A younger population and stronger economy will bring more employment opportunities and associated fiscal improvements further detailed in Chapter Six.

An extra 10,000 dwellings per annum would also reduce housing price growth in the near term, leading to improvements in affordability. This would encourage additional inward migration, which would gradually absorb the additional supply, and all else being equal this downward pressure on price growth would ease over time. However, the longer term result would depend on a range of other factors in the economy, including the behaviour of other states. If, for example, other states also increased their housing supply, then this would result in a larger and more sustained improvement in housing affordability in New South Wales (and in those other states).

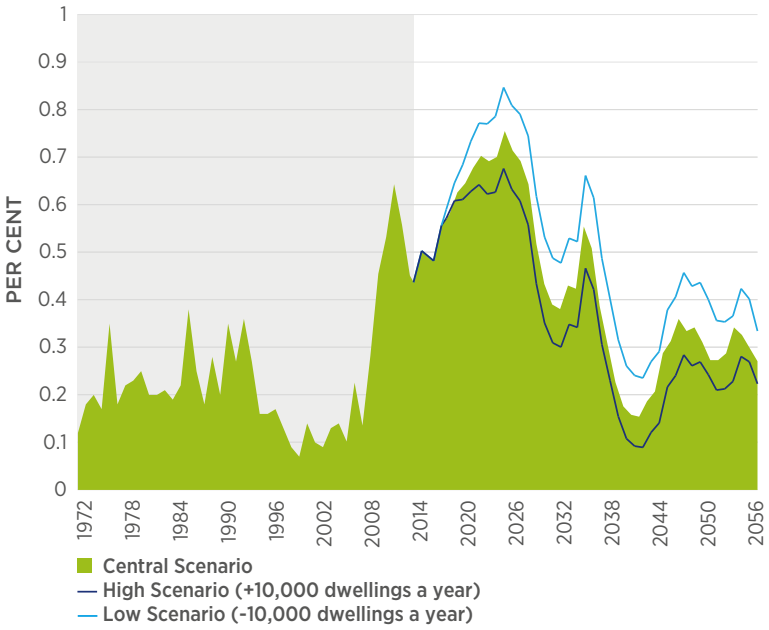
Chart 4.7 NSW Net Overseas Migration (NOM) and Net Interstate Migration (NIM) under different housing scenarios



Source: ABS cat no. 3101.0 and NSW Treasury

13 The projected response does depend upon the response (if any) of other jurisdictions. The assumption adopted for the Rest of Australia (RoA) is for housing stock per capita to remain unchanged from the central scenario. This means that as additional housing construction in New South Wales draws in extra migration to the State (by reducing relative house prices), housing construction in the RoA is assumed to decline in proportion to the loss of population from the RoA to New South Wales. As a consequence, from an Australia-wide perspective, the additional New South Wales housing construction each year is gradually offset by weaker construction elsewhere, so that this scenario corresponds to only a moderate cumulative shock to Australia's aggregate housing supply

Chart 4.8 Annual increase in NSW aged dependency ratio under different housing scenarios



Source: ABS cat no. 3101.0 and NSW Treasury

The housing challenge

The base case envisages the NSW housing stock increasing by 45,000 dwellings a year over the next 15 years. However, there may be some challenges with meeting this rate of supply.

To begin with, while there are still some greenfield development opportunities within reasonable commuting distance to key job growth centres, there are now fewer than in past decades. This constraint is increasingly acute in Sydney, exacerbated by its particular geography — bounded by the sea, national parks and the Great Dividing Range. In other parts of New South Wales this is less of an issue, although concerns about protecting farmland and the environmental issues associated with coastal development do present challenges.

As a result, new housing supply will increasingly need to come from either a redevelopment of brownfields land or greater density in existing residential areas. Technology or additional infrastructure may make this easier to achieve. For instance, new technologies may reduce the costs of safely remediating contamination on old industrial sites.

New transport infrastructure is improving access to employment opportunities in Sydney's Central Business District (CBD), or along the so-called Global Economic Corridor from the CBD north to Macquarie Park and south to Sydney Airport.

These issues highlight the complementary role that infrastructure investment, including local infrastructure, will have in enabling significant population growth in both Sydney and regional New South Wales, without compromising productivity or amenity for both existing and new residents.

Governments have opportunities to make planning choices and rigorous investments that encourage migration and focus on improving living standards, participation and productivity.

HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

4.3 Investing in housing and infrastructure for the future

Investments in the right productivity-enhancing infrastructure can stimulate economic growth and, in turn, improve living standards.

Few would dispute that individuals should be able to access affordable homes close to services, such as hospitals and schools, in the areas where they can find work and want to live. The increasing population of New South Wales means that the following are critical to ensuring that New South Wales remains an attractive place to live and work: an expanded housing supply in the right locations; transport investments that improve connectivity of housing and jobs; and adequate supporting infrastructure that accommodates both population growth and ageing.

Apart from housing, essential infrastructure investments include schools and hospitals, public transport and roads, sewerage and electricity networks. They also include more localised amenities like shopping centres, parks, cycle lanes and parking, which contribute to overall wellbeing. Such supporting infrastructure is typically provided by local and state governments and the private sector, and can help in building and maintaining community support for increased residential development.

A gradual movement towards smaller high-rise housing within commuting distance of employment centres that are increasingly clustered around the Global Economic Corridor (GEC).

A clear trend that has emerged in Sydney is a gradual movement towards smaller high-rise housing within commuting distance of employment centres that are increasingly clustered around the Global Economic Corridor (GEC) (Box 4.1). Those areas that already have well-developed connectivity to employment need continued investment to keep up with the population growth and remain 'liveable'. Equally important is that new housing developments have access to services and transport infrastructure, to allow access to areas with high economic activity. This not only includes improvements to public transport, but also improvements that reduce traffic congestion.

As an illustration of the economic costs associated with urban road traffic congestion, the Bureau of Infrastructure, Transport and Regional Economics has estimated national metropolitan congestion costs for the 2015-16 year at approximately $16.5 billion (in 2010 dollars). This reflects the cost of personal and business time, vehicle operating costs and the costs of air pollution damage.[14] Managing demand to spread peak periods can go some way to managing the additional road and public transport demands, but, over the longer term, an increase in capacity is inevitable.

Proper coordination of planning policies and investments in supporting infrastructure is vital. Development of new housing requires integration between land use planning and infrastructure provision to align the delivery of essential services, including water supply, sewerage, electricity, communications, health and education facilities, transport that facilitates access to employment and other opportunities, and other amenities.

Frequently, this infrastructure is provided by a range of state, local government and private sector entities, each of which may have different priorities. A particular challenge can be local infrastructure such as regional roads, which may be used by multiple local government areas. It will also be important to continue to develop comprehensive evidence identifying the extent to which housing development in different areas is being constrained by land use regulations or infrastructure capacity.

14 Bureau of Infrastructure, Transport and Regional Economics, 2015. Traffic and congestion cost trends for Australian capital cities, Department of Infrastructure and Regional Development

Box 4.1

The economic benefits of agglomeration in urban centres

In 2014, the Grattan Institute noted that urban areas with relatively high levels of economic activity and employment tend to be more productive (per working hour).[15] This higher productivity means that Sydney's Global Economic Corridor now generates 39 per cent of NSW GSP and houses 16 per cent of its population.[16]

The Grattan Institute also found that the distribution of economic activity in Sydney has shifted over the last decade. In the decade to 2015,[17] the number of jobs located in inner Sydney areas grew by 22 per cent. This compares to 15 per cent in other parts of Greater Sydney.[18] Additionally, there has been an underlying change in the composition of employment towards high-skilled, 'knowledge-intensive' jobs. For example, employment in professional, scientific and technical service jobs grew by 55 per cent between 2000 and 2015. Indeed most of this growth occurred in locations within or close to Sydney's GEC.[19]

These statistics partly reflect the benefits from firms and workers clustering together in cities (also known as agglomeration). This includes reduced transport costs, labour market pooling and the greater opportunities to share knowledge between people and firms.[20]

Therefore, without 'picking winners', planning and related policies have opportunities to enable strong commercial centres in locations where firms want to establish and grow. This will retain highly productive and potentially mobile workers, maximise productivity and efficiency and support growth.

Housing and infrastructure investments also need to accommodate broader societal needs. For example, appropriate housing will be required for older and retired Australians wishing to downsize in their local suburb or the so called 'seachangers' or 'treechangers' who move away from employment centres after retirement (Box 4.2). This will not only free up existing housing stock but also provide for the desired lifestyle changes and contribute to wellbeing. Infrastructure such as hospitals and transport is needed to accommodate the location choices of an ever growing population of older Australians.

Infrastructure investments into regional New South Wales, and between regional and metropolitan areas, will support continued growth and enhance connectivity to employment centres and retirement options.

This is especially the case given that regional New South Wales is home to over one third of the State's population. Adequate investment in regional infrastructure will assist in ensuring the competitiveness of our regional communities and connectivity to global markets. Accordingly, around 30 per cent of Rebuilding NSW and Restart NSW is allocated to regional infrastructure. This includes the $4.1 billion allocated to regional transport as part of Rebuilding NSW.

Advances in technology can also be an important enabler of connectivity for the regions. Improved connectivity, via practices such as teleworking, are expected to change the way people work, and even the distribution of the workforce, by increasing the attractiveness of regional New South Wales as a place to live and work. As a result, investments will need to be responsive to these changes. For example, the Mobile Black Spot Programme that is currently underway recognises this and aims to improve mobile phone coverage and competition in regional and remote Australia. Investments should also meet the needs of older Australians who live regionally, for example by ensuring adequate access to health facilities.

15 Kelly, J.-F., Donegan, P., 2014. Mapping Australia's Economy. Grattan Institute

16 Infrastructure NSW 2014, Rebuilding NSW State Infrastructure Strategy Update 2014 — Recommendations to the NSW Government, Sydney

17 Australian Bureau of Statistics, 2015. Labour Force, Australia (cat. no. 6291). ABS, Canberra

18 ABS cat no. 6291. "Inner Sydney" is defined as including City & Inner South, Eastern Suburbs, Inner South West, Inner West and North Sydney & Hornsby and "other parts of Greater Sydney" comprises Baulkham Hills & Hawkesbury, Blacktown, Northern Beaches, Outer South West, Outer West & Blue Mountains, Parramatta, Ryde, South West and Sutherland. These regions are defined by the ABS Statistical Area Level 4

19 Australian Bureau of Statistics, 2015. Labour Force, Australia (cat. no. 6291). ABS, Canberra

20 Ellison, G., Glaeser, E.L., Kerr, W., 2007. What causes industry agglomeration? Evidence from coagglomeration patterns. National Bureau of Economic Research

HOW WILL WE MEET OUR INFRASTRUCTURE NEEDS?

Regional New South Wales is home to over one third of the state's population. Adequate investment in regional infrastructure will assist in ensuring the competitiveness of our regional communities and connectivity to global markets.

Box 4.2

The impact of ageing on housing and infrastructure demand

The ABS 2006-11 Australian Census Longitudinal Dataset explored the housing transitions which occurred between the 2006 Census and 2011 Census, of selected Australians who were aged 65 years and older in 2006. The Dataset showed that older Australians affect the housing market through their decisions to downsize, move away from urban areas or move into specifically designed dwellings.[21]

The data also showed that the elderly were more likely to move if they did not own their home, if they did not have young or adult children living with them, or if they were living alone. Older people living outside of capital cities were more likely to have moved than those living in capital cities.

Older Australians who required care and assistance with core activities were more likely to move, compared to older people who did not need care and assistance. Of the elderly who reported a requirement for care and assistance in 2011, but not in 2006, around 25 per cent moved, of whom just under half moved into nursing homes or equivalent.

Different parts of the state will be affected by population ageing to varying extents. The parts most affected will be those that currently have a proportionately larger share of people aged 45-65, therefore in 20 years' time they can be expected to have a larger proportion of people aged 65 and over. Many of these areas are also popular retirement destinations for those older people that choose to move, which will further accelerate the local rate of ageing. The Government's population projections show that in some local government areas, more than 40 per cent of the population is projected to be aged 65 and over in 2031. Areas where the population is expected to age most rapidly are likely to experience an increase in demand for services such as health care and home care and therefore require public social infrastructure investments.

Unless there is adequate and appropriate housing supply and supporting infrastructure, we risk unwinding the potential economic boost from population growth. Adequate supply of dwellings will help moderate house prices and accommodate the population growth that will continue to drive the NSW economy.

21 Australian Bureau of Statistics, 2015. Australians' journeys through life: Stories from the Australian Census Longitudinal Dataset, 2006-2011 (cat. no. 2081.0). ABS, Canberra