9
Urban and regional development

9.1 Introduction

The objectives of this chapter are to describe how HSR has influenced urban and regional development overseas, anticipate how those experiences might shape future urban and regional development in Australia, and examine public policy and other responses for consideration in the event HSR is implemented in Australia.

In particular, this chapter seeks to answer the following questions:

- What is the likely nature and extent of HSR’s impact on cities and regions?
- What factors can positively affect HSR’s influence on cities and regions?
- What regional development policy and governance measures should be considered in Australia to take advantage of HSR?

In answering these questions three distinct approaches were adopted:

- A review of the available literature on the HSR experience internationally.
- An analysis of potential economic effects including agglomeration, productivity changes and complementary assets including information technology, education and health infrastructure.
- A social appraisal based on case studies.

These three approaches were consolidated into a summary urban and regional economic appraisal and used to define an integrated regional corridor development concept that could help shape future urban and regional development in Australia with HSR.
The examination of the overseas experience included the development of HSR networks in Europe and Asia, commencing with the French Train à Grande Vitesse (TGV) in 1981 and extending to the Taiwan HSR, which went into service in 2007. Factors that would influence an HSR system within the proposed east coast corridor were identified on the basis of that research and relevant theoretical and practical experiences in spatial economics, including the concepts put forward by studies in New Economic Geography. Case studies in representative regions and cities were then examined to postulate HSR’s potential impact on urban centres and regional areas in the HSR corridor. A critical issue is the extent to which an HSR system causes development that would not otherwise have happened, or enhances development that is already occurring. On this important point the evidence is not always clear.

This chapter complements the findings of the cost-benefit and general equilibrium analysis in Chapter 8 by considering the potential impacts at the local and regional levels in terms of population, employment and settlement patterns. The results presented are necessarily high level due to the lack of relevant quantitative retrospective analysis of major transport infrastructure projects on regional development, both overseas and in Australia. Nonetheless, sufficient evidence has been gathered to characterise the potential impacts of an HSR system on economic activity, population change and employment distribution, and to identify supportive regional development policies and programs that would be necessary to capture its benefits. Other related direct and indirect impacts, such as impacts on land use, natural features and conditions, communities and cultural resources, are addressed separately and in greater detail in Appendix 5C.

The potential impacts discussed are not the expected outcomes under a ‘business as usual’ scenario, but are predicated on a number of government policy and program interventions that have not been costed or examined in detail. These interventions would be developed as needed during the implementation phase of HSR, and would depend on the economic environment at the time.

9.2 Overseas experience of HSR

The presentation of overseas evidence of regional development experience is not uniform due to a general lack of rigorous comparative empirical research into pre- and post-HSR regional conditions across different countries. The available research is focused on Spain and France, which have a degree of similarity with eastern Australia, i.e. a concentration of population in cities, with relatively low population density in between. Some information is presented on Taiwan, whose eight-station, linear-corridor HSR connects Taipei and Kaohsiung City, the country’s two largest cities. Germany’s intercity express (ICE) train system is also considered. China and Japan are noted because of the extensive networks in both countries, but meaningful regional development comparisons between these nations and Australia are difficult to draw given the differences in central government control between China and Australia and differences in population density between Australia and both countries.

An emerging view that has been developing over the past 20 years is that the traditional approach to transport economic appraisal, focusing mainly on transport user benefits, misses some significant economic impacts. Work in the discipline of New Economic Geography demonstrates the link between employment density and productivity and shows how a change in accessibility can have significant economic impacts. Such an approach was applied to the Crossrail project in London.

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1 New Economic Geography is the study of the location of economic activity across space, using agglomeration economies to help explain why industries cluster within particular countries and regions.

in 2002–2004 and to the Cologne–Frankfurt routes in Germany\(^3\), and suggests wider economic benefits that may exceed the transport user benefits\(^4\). The literature also suggests that the impacts of transport on productivity (beyond the valuation of transport user benefits) are real and significant and in addition to any benefits captured within the traditional transport appraisal\(^5\).

The international experience does not establish regional development impacts as a direct result of HSR, so the question is one of causation. The most likely reality is that observed changes in regional development are in part influenced by the introduction of HSR but are also influenced by other factors, some of which may themselves be indirect effects from the introduction of HSR.

The United Kingdom Department for Transport’s published report on the history and prospects of HSR cautions against an optimistic picture. It states that, while HSR is often promoted as a mechanism to improve accessibility that will enlarge markets and increase the competitiveness and productivity of firms within a newly-connected region, ‘it would be unwise to pin much faith in new railways as an engine of growth’\(^6\).

### 9.2.1 Spain

**History and objectives**

The first Spanish HSR line, Madrid-Seville, was built in 1992. **Table 9-1** summarises the opening year, populations, speeds, travel time and stations on the three main HSR lines from Madrid. Other lines were built between 2003 and 2008.

<table>
<thead>
<tr>
<th>Opening year</th>
<th>Line (population)</th>
<th>Maximum speed (km/h)</th>
<th>Travel time (hrs:mins)</th>
<th>Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Madrid (3,265,000)– Seville (703,000)</td>
<td>300</td>
<td>2:20</td>
<td>Madrid Puerta de Atocha, Ciudad Real, Puertollano, Córdoba and Sevilla (Santa Justa)</td>
</tr>
<tr>
<td>2007</td>
<td>Madrid (3,265,000)– Valladolid (313,500)</td>
<td>350</td>
<td>0:56</td>
<td>Segovia Guiomar, Valladolid Campo Grande</td>
</tr>
</tbody>
</table>

Sources: Population data are 2011 estimates for cities plus municipalities from www.citypopulation.de; travel times are from RENFE railway timetables.

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5 United Kingdom Department for Transport, *Wider Impacts and Regeneration*, TAG Unit 2.8, 2009.
In Spain, the impact of HSR on any one regional centre appears to depend on factors such as its size, its location relative to other regional centres on the rail line, and its location relative to the capital, Madrid. Madrid is located close to the geographic centre of Spain, but a large proportion of Spain’s population is located on or close to the coast, either from Barcelona to Cadiz on the Mediterranean coast, or on the north coast from the French border to Galicia. Although the primary policy objective of HSR in Spain was to connect all the major coastal cities to Madrid with a rail journey time of not more than four hours, the first line to Seville was also intended to overcome a lack of rail capacity on the Madrid-Seville route and to achieve a policy objective of improved connections to the relatively undeveloped south of Spain.

An Organisation for Economic Co-operation and Development (OECD) report notes that regional inequality increased between 1995 and 2005 in about 70 per cent of OECD countries. Although HSR is not considered in the OECD paper it is worth noting the general trend in regional disparity as context for consideration the introduction of HSR. Spain was one of only eight countries which reduced disparities between larger regions and one of another group of seven countries which did so between smaller regions. Although the introduction of HSR was only one of several policy measures in Spain, it nevertheless would appear that HSR added value to a wider mix of regional policy measures.

Four main types of locations served by HSR in Spain are:

- Metropolitan areas at the start and end of the line – Madrid, Seville and Barcelona are in this category.
- A large city with a terminating station – Valladolid, 162 kilometres from Madrid (straight line distance).
- Large intermediate cities – Cordoba and Zaragoza, which are one hour 43 minutes and one hour 15 minutes, respectively, from Madrid.
- Small intermediate cities – Ciudad Real and Segovia, which are less than an hour from Madrid.

There is one example of a small city with a terminating station, Toledo, which is served by a spur line.

**Findings**

The two large intermediate cities (Cordoba and Zaragoza) appear to have gained most in terms of accessibility to metropolitan areas as a result of having a HSR station. Previously (and unlike Newcastle or Albury-Wodonga in the Australian context), neither of these cities had air services to the capital, and therefore access to Madrid by car was complemented by conventional rail. In contrast, the head of line cities such as Seville had faster access to the capital with air services, and the smaller intermediate cities such as Ciudad Real were much closer to Madrid and therefore had reasonable access by car, coach and conventional rail.

Several research papers present two key findings. Firstly, large intermediate cities such as Cordoba and Zaragoza did not grow solely because of HSR access and, secondly, the presence of an HSR station did not guarantee greater local economic development. Large intermediate cities were already playing the role of the principal city within their sub-region, and an HSR station tended to reinforce that role. They also often had one or more universities with related infrastructure such as hospitals and government offices. The presence of a research university appears to be an important influence on how a HSR station impacts a town or city.

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10 ibid.
11 For example, various local level studies by Bellet: see C Bellet & A Casellas, ‘Infraestructuras de transporte y territorio. Los efectos estructurantes de la llegada del tren de alta velocidad en España’, *Boletín de la Asociación de Geógrafos Españoles*, no. 52, 2010, pp 143-163.
Generally, it has taken ten to 15 years for the regional impacts of Spain's first HSR line to become fully realised, so only interim conclusions about the impacts of the later lines can be made at this time. The most immediate observed impacts relate to business and tourism. The large intermediate cities with an HSR station have benefited from having people transit through the city rather than flying over them. The accessibility of these large intermediate cities can also help to attract congress tourism (day return trips) and leisure tourism. For both business and leisure travel, the short-term impact has been an increase in total visitor numbers but a loss of overnight stays\textsuperscript{12}. HSR has also supported the expansion of back office activities from larger centres to intermediate centres under certain conditions. If the intermediate centres are within an hour and a half of the larger centres, commutes in both directions increase because back office jobs attract commuters from the larger centres\textsuperscript{13}.

Conclusions from the Spanish experience

HSR can both positively and negatively influence the economic and service relationships between small, intermediate and large cities. For example, businesses in small cities can bypass the services previously obtained in intermediate cities and go directly to large cities as a result of HSR. Similarly, employers in large cities can draw employees directly from small cities because of reduced commuting times. In such examples, the intermediate cities become hubs through which small cities gain access to large cities using HSR, thus bypassing some of the services offered by the intermediate cities themselves. For example, Cordoba is a hub which gives access to both Madrid and Seville. HSR brings these two metropolitan cities closer to the smaller cities, and so some roles that were played by Cordoba, the large intermediate city, are now concentrated in Madrid and Seville.

The impacts of HSR can work in either direction. That is, some commuters travel from their residences in large cities to their jobs in intermediate or small cities (sometimes referred to as the ‘reverse commute’). Other commuters prefer to live in small cities and take advantage of higher paying, more specialised jobs in large cities, bypassing jobs in intermediate cities. The actual outcomes depend upon each city’s service and industry base, the presence of a university or related complementary assets, the station location and whether land could be regenerated by the station to introduce wider economic activities and job opportunities. In most cases, land close to the HSR station has been released for new development. However, comparisons with non-HSR cities are needed in order to consider whether the impacts in places like Cordoba and Zaragoza would have happened anyway without HSR.

In summary, research on Spanish HSR suggests that\textsuperscript{14}:

- Large intermediate cities did not grow solely because of HSR access.
- The presence of an HSR station did not guarantee greater local economic development.
- HSR can positively and negatively influence the economic and service relationships between small, intermediate and large cities.
- It has taken ten to 15 years for the regional impacts of Spain's first HSR line to become fully realised.
- The station needs to be located close to the city centre, preferably in a location where there are established business activities.
- The ability to release land, including railway land, for mixed-use development, including offices, residential, conference facilities, public services and open space is important.

\textsuperscript{12} J Puebla, ‘El tren de alta velocidad y sus efectos espaciales’ Investigaciones Regionales, 2005. Similar impacts have been reported in China.
\textsuperscript{13} ‘Back office’ refers to high density, low to moderate cost workplaces frequently used by call-centres, data processing centres, banks, insurance company and some government agencies to house employees.
\textsuperscript{14} Urena, Menerault & Garmendia, loc. cit.
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• A city transport hub with good local, sub-regional and regional services is important.
• There need to be plans for signature architecture to address image and sense of place at each station.
• There needs to be a mix of public and private sector investment because the private sector will not invest in station precincts without a clear public sector commitment.
• A development corporation or similar organisation is needed to undertake collaborative public-private real estate development in the station precincts.

Literature on the Spanish experience of HSR also stresses the importance of good planning and strong political leadership. Local leadership played a key role in exploiting urban regeneration opportunities in Cordoba.

9.2.2 United Kingdom

Effects similar to those experienced in Spain were seen in the United Kingdom following improvements to the existing rail service and transport links that had the effect of bypassing some of the services offered by intermediate cities. Research into Birmingham's office property market found that rents were lower than in similar sized (and even smaller) centres, and that activity was low, with very little attraction of new businesses.

Interview evidence pointed to some firms closing or slimming down their operations in the city because clients could be served from London (or in some cases Manchester) thanks to better rail services. The analysis suggested that effective market areas for services based in London now included the Birmingham area because of improved transport links. This is consistent with New Economic Geography, in that it suggests that agglomeration benefits in London outweigh the costs of travel and the dispersal factors of land costs, congestion and competition within the larger urban area.

9.2.3 France

History and objectives

The first French TGV line, Paris-Lyon, was opened in 1981, primarily to relieve congestion on the main Paris-Dijon-Lyon rail line. The TGV line was then extended south to Marseilles, and other lines and extensions were built when demand was considered sufficient.

Policies to leverage HSR for development, where they exist at all, have been developed locally rather than as part of a national policy initiative. The French literature is short on data and there is little evidence to distinguish HSR-related effects from those that might have happened anyway. For instance, cities not served by HSR often had tram systems installed instead. Where there may have been no net impact on regional development, this is more likely due to the tram and HSR having equal impacts on economic development.

However, there have been significant improvements in journey times as a consequence of the introduction of HSR, which has allowed some themes to emerge. These themes point to HSR possibly acting as a facilitator of improved economic activities, but not as a stimulator for a distressed local or regional economy.

The French HSR system has some differences from other HSR systems that make direct comparisons difficult.

Many of the routes are only partly on dedicated HSR track with normal track to start or end the journey (e.g. Paris-Geneva). In this respect France differs from Japan, Korea, Britain and Taiwan, which use exclusive HSR track for the full distance, and from Germany where there is relatively more conventional track.

15 The HSR development literature reviewed included a substantial number of unpublished French papers.
Findings
A common theme through much of the literature on HSR in France is that HSR can add impetus to regional development, but will not alone cause it. To derive a positive impact from HSR, a region needs some positive attribute or competitive advantage prior to the implementation of an HSR system. In particular, HSR has proved beneficial to towns or regions that have a relatively strong, high-end service sector whose employees tend to be tertiary educated\textsuperscript{16}. Examples are higher education, hospital/medical complexes, information technology-based services, research centres, some back office activity (accounting, information technology, and human resources), science, engineering, marketing and consulting. Consistent with experience on other transport networks, centres at key nodes (for example, Lille) could be expected to derive additional benefit.

The experience of HSR services to areas that rely mainly on manufacturing, agriculture and mining has been that HSR has little impact on the key economic indicators such as employment and property values. Employees in the high-end services corridors tend to travel frequently for conferences and meetings, whereas employees in mining, manufacturing and agriculture do not travel as frequently for business purposes.

Examples of centres where there appears to have been a positive interaction between HSR and regional development include:

- Lille, on the crossroads between Paris, London and Brussels/Amsterdam. One of the main French cities outside Paris, Lille now has the largest university/medical complex in Europe and a substantial regional banking and insurance sector.

- Lyon, France’s second city, is a major business and regional centre and is relatively wealthy. HSR is credited with opening up a new area for development as the old town’s growth was constrained by a river and cliffs.

- Le Mans, now (post-HSR) a major centre for the insurance industry, built on insurance activity that was solely local and regional.

- Rheims, where new university campus extensions have complemented existing tertiary education. It has also become a centre for online information technology-based services and back office services (accounting, information technology, human resources).

- Marseilles, a major port and regional business/service centre, where a successful new business park and entertainment centre (Euroméditerranée) were constructed close to the HSR station.

There are also cases that show little positive, and some negative, impacts associated with the introduction of an HSR station. For example, TGV stations in Le Creusot, Montceau and Montchanin are located in declining mining areas and experienced no measurable regional development impact from the arrival of TGV. In Mâcon, business areas were set up in an attempt to attract activities that needed fast connections to Paris and Geneva, but had limited success. Regional areas in the north eastern part of France around Lille experienced ‘tunnel’ effects, meaning they have the negative noise and visual impacts of the HSR line running through the countryside but no direct improvements in access. Small towns without TGV stations in this area reported losses of some services to larger centres that have stations.

Another common theme in the literature is the varying success of policies designed to enhance the impact of HSR. For example, in Lille, local and regional government and business groups combined to develop several new office blocks in a rundown area (about a kilometre long) between the main Lille station and the HSR station. It was successful, although not in attracting the private sector – many of the tenants are government-controlled or government-influenced banks and insurance companies. The net employment effects in the wider region are not known. There have been suggestions that the Lille development has partly been at the expense of smaller surrounding cities.

In Le Mans, local government and business groups were behind a development near the station which attracted major national insurance companies. However, a similar attempt at development near the Revolta HSR station at Valence made slow progress. Part of the problem was the station’s location, which was well outside the main town.

While the French literature is generally positive, it is also clear that HSR has not always been successful in promoting regional development. Active local policies are often seen as essential to HSR-related development, though not all succeed. Lyon’s post-HSR development was arguably not the result of careful planning; rather, it was a market reaction to an opportunity to escape previous constraints. Nonetheless, strong local policies are clearly desirable.

### 9.2.4 Germany

A study of HSR in Germany examined the high speed link between Cologne and Frankfurt and the impacts on two regional stations. Germany is, of course, much more densely settled than Australia. However, the case is analogous to Australia since the regional stations examined are in sparsely populated areas that had poor rail services prior to HSR. The two cities, Montabaur and Limburg, had relatively small populations at the time of the study (12,500 and 34,000, respectively) and were only 20 kilometres apart. This study found that the increase in market access led to economic adjustments in several indicator variables such as GDP, GDP/capita and employment within a four-year adjustment period.

An increase in GDP of 2.7 per cent in the two cities was indicated as a result of HSR when compared to the rest of the study area. The study concluded that the improvements permanently shifted accessibility patterns and represented a feasible strategy to induce permanent shifts in the distribution of regional economic activity.

### 9.2.5 Taiwan

#### History and objectives

Taiwan High-Speed Rail (THSR) opened for service between Taipei and Kaohsiung City in March 2007. The journey time between these cities was reduced from four hours to 90 minutes as a non-stop trip, or two hours for trains stopping at the eight stations along the line. THSR has attracted substantial market share from air, conventional rail and car travel.

The planning of the THSR route and stations during the mid to late 1990s coincided with a period when city development in Taiwan was in transition, with urban policies focused on the development of new cities and towns in regional areas. THSR alignments and stations that could support the development of these new cities and towns were given special consideration by the government. Apart from the THSR stations in the Taipei area, the majority of the THSR stations were located remotely from these cities and towns and needed to be linked to the existing city areas. Stations were also given specific development roles, as shown in Table 9-2.

#### Table 9-2: Defining role of the major station designated zones

<table>
<thead>
<tr>
<th>Station</th>
<th>Designated zone (hectares)</th>
<th>Planned population</th>
<th>City development role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taoyuan</td>
<td>400</td>
<td>60,000</td>
<td>International business</td>
</tr>
<tr>
<td>Hsinchu</td>
<td>309</td>
<td>45,000</td>
<td>Biomedical technology</td>
</tr>
<tr>
<td>Taichung</td>
<td>273</td>
<td>23,000</td>
<td>Entertainment/shopping</td>
</tr>
<tr>
<td>Chiayi</td>
<td>135</td>
<td>20,000</td>
<td>Leisure/tourism</td>
</tr>
<tr>
<td>Tainan</td>
<td>300</td>
<td>32,000</td>
<td>Bio-science research</td>
</tr>
</tbody>
</table>

Findings

After four years of THSR operation, residential and employment growth in the three metropolises of Taipei, Taichung and Kaohsiung has remained stable. Hence, in the short term and at the macro level, significant regional development impacts have not yet occurred around the three major centres. The impact of HSR on regional development in the medium to long term is not evident as the service is still relatively new.

At the local level, development around the five large intermediate THSR stations has accelerated, particularly at Taoyuan and Hsinchu, followed by Taichung, Chiayi and Tainan in descending order of impact. The reasons for the differences in the magnitude of development are:

- The location of the stations.
- Travel connection time and cost between the station and the town.
- The existing population density and the real estate potential of the station areas.
- Local government land use and public infrastructure planning.
- The existence of flagship projects to attract population and employment.

THSR was less successful in some regional areas, particularly where stations were located away from existing regional centres. Stations located some distance from existing urban areas had the following problems:

- High connection time and cost when passengers must switch from HSR to another form of transport such as local bus or taxi service (or vice versa), causing lower incentive for HSR usage.
- Less potential and attraction for real estate development. In some cases, land use planning and infrastructure development around HSR stations over-estimated the station’s ability to attract jobs and housing.
- Although development costs were lower, the influx of population and industries was lower than expected.

The planning assumptions for THSR were overly optimistic. For example, the assumption that other agencies' supporting infrastructure would be completed in a timely manner proved to be unrealistic and the majority of the rapid transit systems connecting to the HSR stations were not completed in time. This illustrates the need for complementary infrastructure and/or other services to be planned in conjunction with HSR development.

In planning for THSR, there was also little in-depth analysis of the real estate market and an inadequate grasp of problems relating to the inflow (where and when) of industries and population. In order to remedy these shortcomings, the Taiwanese Government is now developing strategies to attract population and employment into the HSR station locations.

In summary the THSR experience demonstrates that:

- Stations should be close to existing intermediate centres with good connections to other transport modes.
- In-depth marketing studies and analysis can be useful to direct location and growth opportunities.
- Development strategies can promote the inflow of population and employment to locations served by HSR.
- HSR regional stations are likely to be more successful with carefully planned integration of complementary infrastructure, such as universities, technology parks and hospitals, with HSR.
- Participation and support of the local government and its implementation capability is important.
- Excellent developers and win-win contract management promote success.
9.2.6 Conclusions from international experience

International evidence suggests that:

- HSR can both positively and negatively influence the economic and service relationships between small, intermediate, and large cities.
- Large intermediate cities do not grow solely because of HSR access.
- The presence of an HSR station does not guarantee greater local economic development.
- It can take ten to 15 years for the regional impacts of HSR to be fully realised.

The international experience suggests that HSR can contribute to, but is not always a cause of, regional development. Regional centres with stable or growing populations and healthy economies appear to benefit more from the addition of HSR than stagnant or declining centres. Regional areas in Spain and France within an hour and a half of major metropolitan areas with supportive economic development programs were more likely to gain both population and economic activity with the advent of HSR. Towns with a manufacturing, mining and agricultural focus are less likely to benefit than those supporting high-end service industries. Intermediate sized areas (50,000 to 100,000+ people), equivalent to the larger regional centres along the preferred Australian east coast HSR alignment, tended to attract population from surrounding communities.

Commuters can travel both to and from regional areas, so some areas experience small gains in local jobs but, overall, regional incomes rise because of higher wage gains by commuters working in higher paying jobs in larger centres. There is also a distinction between population growth, and growth of economic activity. As Vickerman and Ulied report in their economic analysis of the impact of HSR in Europe, a "centralising effect of high speed rail is now a well-established impact". Therefore, it is quite feasible to have growth in population of a dormitory town, with limited additional economic activity within the town itself.

By encouraging businesses to cluster around HSR stations, HSR generates productivity growth. While the greatest impacts are felt in the main capital cities, regional centres also benefit, partly at the expense of surrounding areas.

In many cases, the impacts may result in a redistribution of economic activity, rather than an overall rise in activity, by increasing the concentration of activity towards metropolitan centres. In such cases, for stagnant or declining regional towns, these impacts can accelerate their demise.

The Taiwanese experience shows that potential positive effects are unlikely to be realised if the station is located some distance from the urban area. By contrast, the Australian regional experience is more tolerant of longer distances to access services, and in most of the regional areas along the preferred alignment we have located the station close to the existing airport infrastructure, rather than in the heart of town. The locations of stations such as Port Macquarie, Coffs Harbour, Newcastle and the Central Coast have been selected with the intent of serving wider regional catchments rather than individual centres. Further details are in Chapter 4.

HSR would also have other direct and indirect regional consequences, including noise, intrusions into natural, rural and urban environments, and community and business severance. Those communities, businesses and rural properties that are located close to the HSR line would experience disruption and noise and visual impacts. In the case of HSR on the east coast of Australia, assessment of the impacts and appropriate mitigation measures would be included in the assessment and detailed design stages should a decision be made to proceed with HSR. The process used for the assessment of impacts of HSR is described in Chapter 12 and in more detail in Appendix 5C. However, the proposed alignment for the east coast of Australia was selected to minimise these impacts, as described in Chapter 4, Appendix 3A and Appendix 5C.

19 ibid.
In particular, regional stations were located outside regional towns to avoid urban areas that would be disrupted by property acquisition, noise and visual amenity.

The impacts on regional development described throughout this section are the result of complex, ongoing processes. No clear conclusion can be drawn about where positive or negative impacts would be experienced, especially for the regional centres with HSR stations.

9.3 Issues influencing regional corridor development

9.3.1 Population and productivity

The reason that regional centres in HSR corridors benefit from improved accessibility to major metropolitan areas can be partly explained through agglomeration effects. Agglomeration refers to ‘the external economies available to individuals or firms in large concentrations of population and economic activity. These arise because larger markets allow wider choice and a greater range of specialist services’. The theory of agglomeration explains how productivity improvements can be gained through improved linkages between jobs. Importantly, those productivity gains are additional to the time savings measured in traditional transport benefits. Generally used to assess the impacts of urban mass transport systems, agglomeration can be used to assess, over the longer term, how employment would respond to the change in accessibility delivered by HSR in other ways, with different types of jobs being created, and some jobs moving out and others moving in.

In essence, regional centres in proximity to major metropolitan areas are able to take advantage of concentrations of population and economic activity to exchange information and technology, thereby increasing the productivity of the HSR corridor. This is an important issue for regional Australia where the ‘tyranny of distance’ hampers inter- and intra-company linkages. These linkages are cumulative, not singular. That is, the presence of a university or research centre augmented by HSR creates ‘magnet infrastructure’, which ‘pulls’ information and people to a place that may be outside the normal bounds of communication. In the United States, for instance, places such as Davis, California or Ogden, Utah – locations with strong universities and excellent air connections – act as magnets for San Francisco (119 kilometres from Davis) and Salt Lake City (62 kilometres from Ogden), respectively. In the Australian context, examples include the redevelopment of Darling Harbour, and Honeysuckle in Newcastle. These initiatives can generate new circumstances for centres. Their successes are reliant on good transport links. Comparable regional centres in eastern Australia would be Canberra and Newcastle. While these policies have been uneven in their impacts there has been population growth in some places like Albury-Wodonga, which gained improved accessibility from the upgrade of the Hume Highway.

Most domestic migration ‘occurs within regions or cities, rather than between them’, but inter-regional drivers are important in shaping population distribution in regional areas. These trends are particularly relevant to this study in coastal and inland cities along the east coast. Coastal cities, defined as cities within 50 kilometres of the coast with populations of 25,000 or more, generally experienced the highest national growth rates between 2001 and 2009, driven by Australians’

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25 J. Daley and A. Lacey Investing in Regions: making a difference, Grattan Institute May 2011.
26 Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2011, Spatial trends in Australian population and movement, Report 122, Canberra ACT.
long-held attraction to coastal living, tourism and leisure amenities, and lifestyle choices, particularly among retirees. Cities experiencing economic restructuring and job losses, such as Newcastle and Wollongong, experienced slower growth.

The second highest rates of regional population growth occurred in inland cities, classified as urban centres with populations of 25,000 or more, located more than 50 kilometres from the coast and not classified by ABS as remote or very remote. New residents to these during the same time period tended to be younger and drawn by tertiary education and jobs.

Jobs growth in inland and coastal cities on the east coast has tended to be in the service sector, with half of new residents employed in retail, accommodation and food services. This is reflective of the primary reasons people move to these areas, which are lifestyle-related, to be close to family and friends, and for retirement. Job opportunities, an important factor in regional development, ranked as the sixth most cited reason for migration from metropolitan to non-metropolitan areas in a 2004-2005 survey. As discussed below, HSR could attract a different mix of residents and higher order employment opportunities given appropriate policy responses. Forecast regional populations for centres along the preferred HSR alignment are shown in Chapter 4.

There will be significant future population growth in the east coast capital cities which needs to be accommodated. The CBD/inner areas of those capital cities already have high public transport mode shares for journeys to work to and from the CBD (62 per cent in Melbourne and 75.5 per cent in Sydney). CBD employment is forecast to double in these cities over the next 30 years. Given existing levels of congestion, it is unlikely that public transport capacity can be increased to fully cater for this demand from within the cities. In that case, regional locations within two hours’ travel by HSR that have capacity for increases in business growth could assist in making the metropolitan centres more globally competitive by providing less congested future growth options. This could allow regional centres to serve as secondary locations for lower-cost back office functions and new start-up businesses requiring less frequent access to the major centres. HSR and complementary infrastructure such as the national broadband network (NBN) could enable these regional centres to offer a high quality of life and less congestion without sacrificing connectivity to metropolitan areas.

Regional centres that have good transport links to capital cities can attract employment and population growth for two reasons. First, housing, schools and social amenities are usually less expensive and more accessible in non-metropolitan areas. Second, back office opportunities would likely increase in regional areas to take advantage of lower occupancy costs and wages. This is particularly true when the combination of other complementary assets is strong enough to generate the magnet effect described earlier. The complementary assets that should be considered in the Australian context are identified and discussed below.

### 9.3.2 Complementary assets

In this study, the term ‘complementary assets’ refers to a number of commonly occurring assets and qualities identified in international and Australian research that can facilitate regional development. Complementary regional assets include the following:

- High speed internet, such as Australia’s NBN program.
- Universities and technical education facilities.
- Hospitals and bio-medical research centres.

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26 ibid, p. 46.
27 ibid, p. 54
28 ibid, p. 46.
29 ibid, p. 46.
• Well developed and supportive public governance and business-to-business connections within a region and between a region and a major metropolitan centre.
• Cultural, recreational and tourist amenities that attract visitors from outside the region.
• Quality-of-life amenities and cost-of-living benefits, such as a favourable climate, affordable housing choices, access to recreational and sporting opportunities and a less congested living environment.

Overseas research has found that in some locations (such as those in Spain and France), the presence of an HSR station in combination with some of these assets has helped facilitate regional development. The extent of HSR’s influence appears to be enhanced by the quality and the number of the complementary asset(s) in a given location. More and better quality complementary assets increase HSR’s impact on regional development. While this may seem self-evident, it is important that government policy makers and other stakeholders consciously recognise and clearly understand a region’s complementary assets when planning for HSR.

This should include an assessment of the value of the complementary assets to the region without HSR. Further, the provision of these facilities where they do not already exist in the HSR corridor would add considerable cost to government. This includes the opportunity costs associated with not providing these assets to other (non-HSR) regions. From an equity and access perspective, it can be argued that it is better for assets to be placed in centres without HSR stations. In health for instance, this would allow patients near a station to take advantage of enhanced access to metropolitan services, while those in regions without HSR would have them provided at a regional centre. This suggests that if funds for higher level medical facilities are limited, they may be best used in rural areas not serviced by the HSR corridor rather than regional centres serviced with HSR which would allow patients access to capital city services.

9.3.3 National Broadband Network

The NBN will provide fast broadband access to all but the most remote areas of Australia, including to all the cities and towns proposed to be served by the preferred HSR system.32

The combination of high speed communication with knowledge-dependent enterprises has been shown to produce higher levels of regional employment with complementary population growth. The accelerated development of technology companies in the existing technology hubs of Silicon Valley in California and Route 128 in Boston are good examples of such growth.33

The intersection of the NBN as an information highway and HSR as a new transport and access facilitator would be highly complementary. As a result, locations where NBN and HSR both exist would be attractive to new and growing information-based businesses, since accessibility to domestic and overseas markets would be enhanced. Where fast broadband connections are located near regional HSR stations, enhanced opportunities for regional development would also exist.

While the combination of NBN and HSR has the potential to be a powerful connection, there is also the possibility that NBN could compete with HSR, because the availability of fast broadband may reduce the need to travel.

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32 The NBN program proposes to provide broadband access to Australian homes and businesses through a mix of three technologies: optic fiber, fixed wireless and next-generation satellite.
9.3.4 Higher and technical education

Higher education and technical training opportunities would be enhanced by HSR. HSR links would promote resource sharing and rationalisation of university resources, including teaching staff, by allowing universities to provide advanced degrees in more areas by moving academic staff quickly and easily within the corridor. Specialised, highly-skilled staff could be transported to more distant locations than is currently practical using conventional means of travel. This would allow for more students to pursue advanced degrees in non-metropolitan settings where living costs are generally lower than in capital cities, and for companies to provide upgraded training to staff in distant locations. University offerings in towns near HSR regional stations are presented in Table 9-3.

Table 9-3 University curricula near regional HSR stations

<table>
<thead>
<tr>
<th>University of Newcastle</th>
<th>Rural Clinical Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Cross University</td>
<td>Arts, business, hotel and catering management, education (secondary, technology), human services, information technology, nursing, psychology and social science.</td>
</tr>
<tr>
<td>University of Newcastle</td>
<td>Rural Clinical Campus</td>
</tr>
<tr>
<td>University of Newcastle</td>
<td>Rural Clinical Campus</td>
</tr>
<tr>
<td>Charles Sturt University</td>
<td>Accounting, business studies, clinical practice (paramedic), creative industries, health and rehabilitation services, justice studies and social work.</td>
</tr>
<tr>
<td>University of Newcastle</td>
<td>Nursing, midwifery and teaching/arts double degree, Rural Clinical Campus.</td>
</tr>
<tr>
<td>University of Newcastle</td>
<td>Aboriginal studies, architecture, arts, biomedical sciences, biotechnology, business, commerce, communications, computer science, construction management, development studies, economics, engineering (chemical, civil, computer, environmental, mechanical, mechatronics, mining, software, telecommunications), fine art, finance, forensic science/law, industrial design, information science, information technology, law, mathematics, medicine, music, nursing, nutrition and dietetics, occupational health and safety, occupational therapy, physiotherapy, psychology, science, social science, social work, speech pathology, surveying, teaching (all) and visual communications.</td>
</tr>
<tr>
<td>University of Newcastle</td>
<td>Applied information technology, arts, education (early childhood, primary), fine art, food technology, herbal therapies, human nutrition, management, nursing, oral health, science and social science.</td>
</tr>
</tbody>
</table>
Table 9-3  University curricula near regional HSR stations (continued)

<table>
<thead>
<tr>
<th>Location</th>
<th>University</th>
<th>Degree offerings—near HSR stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wagga Wagga</td>
<td>Charles Sturt University</td>
<td>Agriculture and wine science, allied health, animal and veterinary sciences, clinical centre and research laboratories, business, communications and creative industries, environmental science, exercise and sports science, information technology, library and information studies, medical science, nursing, policing, security and emergency management, psychology, science, teaching and education, and theology and religious studies.</td>
</tr>
<tr>
<td>Wagga Wagga</td>
<td>University of Newcastle</td>
<td>Rural Clinical Campus</td>
</tr>
<tr>
<td>Albury-Wodonga</td>
<td>Charles Sturt University</td>
<td>Accounting, adventure ecotourism, business, ecotourism, education (early childhood, middle schooling), environmental science management, international business management, marketing, occupational therapy, parks, physiotherapy, podiatry, recreation and heritage, photography, speech and hearing science, speech pathology and tourism management.</td>
</tr>
<tr>
<td>Albury-Wodonga</td>
<td>La Trobe University</td>
<td>Arts, behavioural science, business, education (primary), electronic commerce, environmental management and ecology, hospitality management, nursing, science and social work.</td>
</tr>
<tr>
<td>Albury-Wodonga</td>
<td>University of Newcastle</td>
<td>Rural Clinical Campus</td>
</tr>
</tbody>
</table>


9.3.5 Hospital and medical

While higher level medical services (especially access to specialists) may be better met in the future through advanced internet services, HSR presents the opportunity to move skilled physicians, scientists and resources to the locations in need. The actual impact would depend upon the quality of the underlying hospital and medical skills in the regions, but HSR opens up additional options such as moving patients, specialists or equipment.

In summary, the proximity of regional hospitals to HSR could provide the potential for:

- Sharing specialist professionals among hospitals and clinical treatment centres so patients can be treated and recover closer to home.
- The better use of expensive equipment, as access would be faster with HSR.

Exactly how HSR would be used is likely to vary from situation to situation. In particular there is a strong potential for it to be used to transfer patients to expanded centralised facilities. This provides a better service to the patient, but may not expand local medical capacity.

34 Anchor Institutions, Driving economic impact through alignment with regional systems, 9 August 2012.
9.4 Social appraisal

This section considers the social dimensions of HSR on urban and regional development. It builds on themes explored in the phase 1 study, which examined the social benefits of using HSR to improve community access to key social infrastructure, to also consider the social costs and tradeoffs of HSR. It demonstrates how the social benefits, costs and tradeoffs of HSR can help shape decisions about the location and design of stations, and identifies policy issues to consider in later phases to maximise the benefits and mitigate the costs of HSR.

Detailing the type and magnitude of social benefits, costs and tradeoffs of major transport infrastructure projects, such as HSR, is a complex task seldom undertaken at the early feasibility study stage, and prior to certainty about alignments and locations. This is because the changing social patterns of communities and the longer term behaviour of populations make a definitive and meaningful social appraisal of HSR difficult to empirically detail and quantify. Adding to this complexity, HSR would be undertaken over an extended future timeframe, across multiple jurisdictions.

Given these complexities, this section summarises the key themes that would shape the social aspects of HSR in the future. Appendix 5E presents the full technical report on this subject. This approach is consistent with the overall strategic environmental assessment framework developed in this phase of the study (see Appendix 5C). Under this framework a preliminary appraisal of the environmental and social issues that would need to be investigated and assessed in detail during the planning, detailed design and construction phases of HSR. This would entail more traditional forms of quantitative social impact assessment, including consultation with regional communities.

In order to anticipate how social issues in the future could interact with the development of an HSR network in Australia, a case study approach was developed around common themes that were identified in consultation with social policy agencies. Three case studies were developed to analyse the social issues that would be likely to arise during the construction, operation and maintenance phases of HSR:

- Case study 1: Workforce and community development.
- Case study 2: Access to health and related services.
- Case study 3: Tourism, recreation and social inclusion.

These case studies also identify the types of public investments or policy interventions that would be necessary to support the development of HSR. The purpose of this appraisal is therefore to provide the results of each case study and identify the key implications of selected social issues on HSR over the coming decades.

9.4.1 Theoretical framework

The theoretical framework underpinning the case studies is based on:

- Organisation for Economic Co-operation and Development (OECD) published guidance on how to identify the wider impacts of transport infrastructure investment on development.\(^{35}\)
- The United Kingdom’s Transport Analysis Guidance framework for understanding accessibility and social inclusion.\(^{36}\)
- The United Nations’ Economics and Social Council Transport and Development Assessment Report which provides a framework for recognising the economic and social benefits that transport developments provide.\(^{37}\)
- Infrastructure Australia’s Better Infrastructure Decision Making Guidelines, which assist government and private organisations in developing infrastructure projects and frameworks for decision making.\(^{38}\)

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36 United Kingdom Department of Transport, *Transport analysis guidance (TAG): the accessibility sub-objectives*, TAG Unit 3.3.6, 2011.
9.4.2 Themes

The key themes of this report are offered as potential criteria that would guide a future detailed social appraisal of HSR. They were developed from the theoretical framework and in consultation with selected stakeholders from 16 government agencies that have responsibility for shaping the development and implementation of social policies in the states and territories. Stakeholders were selected on the basis of their knowledge about social policy and ability to speak authoritatively about the likely future impacts of HSR on communities. Only the most significant themes that were supported by analysis of the social policy literature are presented in this section:

• Capability and capacity development of communities – this theme considers the development of a workforce that not only meets the needs of HSR, but also provides meaningful social engagement. This theme is examined through case study one.

• Improved access to vital social and other services – this theme considers the social outcomes that are generated through improved access to public services. Health and ageing services are used to provide supporting evidence of why this theme has longer term significance to communities living across the HSR system. This theme is examined through case study two.

• Enhanced inclusion of individuals and groups into the social fabric of the nation – based on ideas about equity and equality, this theme considers the benefits and costs of improving the level of inclusion for individuals and groups within communities through access to education and health services and recreational travel. This theme is examined through case study three.

Further discussion and supporting information on the social appraisal, including the full case studies, can be found in Appendix 5E.

9.4.3 Case study one: Workforce and community development

This case study considered the role of HSR in both workforce and community development. By drawing on ABS and other published data, the case study explored concerns that Australia’s conventional rail industry workforce may not be able to meet the future needs of a world-class HSR.

Competition for labour within both the conventional rail and other industries employing similar skills would be a key issue for HSR. The development of pit-to-port freight networks to cater for the Australian resource industries would place pressure on workforce demand from within the rail industry, while other national infrastructure and resource projects would exert pressures on labour from other industries. These pressures have the potential to drive wage growth in the rail industry as well as the construction sector; however, there is significant time available to plan for this.

Stakeholders also identified HSR as a potential means of improving social outcomes in regions that have historically experienced relatively low educational attainment. The establishment of stations and operations and maintenance facilities in areas such as the Gold Coast, Newcastle and Albury-Wodonga were seen as having the potential to improve the skill levels of workers in these areas, potentially leading to a wider choice of career or employment paths for regional workers.

The accessibility to higher education institutions for both the local communities, and those currently living in metropolitan areas wishing to access regional universities, was also seen as potentially leading to positive community development and vocational opportunities. The case study concluded by discussing the need for a nationally coordinated approach to workforce development, and the importance of a detailed study exploring the labour and skills needed for implementation of HSR in greater detail.
The participation of local suppliers of goods and services (such as steel fabricators, mechanical and electrical trades for maintaining mechanical and plant and equipment) was seen as crucial in capturing economic benefits for regional communities along the corridor, notwithstanding the potential to raise costs if local suppliers are not as competitively priced as the wider market. Workforce management programs and regional procurement policies (such as Victoria’s Social and Regional Procurement Policy) have the ability to leverage benefits to regional areas through local procurement, leading to capacity building in those communities. Local supplier and procurement policies provide regional communities with the opportunity to directly receive part of the economic and social benefits from the construction and ongoing operations and maintenance of HSR. There would be a dedicated body of trained and qualified maintenance personnel at regionally based maintenance facilities to manage the maintenance regime – including record keeping, logistics management and trend tracking – and to perform the maintenance tasks. Many of these tasks require specific high level technical skills. The number of depot staff would be dependent on the number of, and distances between, infrastructure depots. Appendix 2C provides details of the maintenance requirements of the HSR system.

**Tradeoffs associated with pursuing benefits**

Policies that are aimed at pursuing particular outcomes related to the HSR workforce, education system and social indicators through the construction, and location of stations and O&M facilities would likely entail tradeoffs of varying magnitude. Some of the foreseeable tradeoffs have been summarised in Table 9-4.

<table>
<thead>
<tr>
<th>Potential benefit</th>
<th>Possible tradeoff</th>
</tr>
</thead>
</table>
| Improved educational attainment from locating O&M facilities in areas characterised by low qualification | • Potential to reduce the synergistic outcomes associated with locating these facilities in areas that have an abundant supply of required skilled and semi-skilled labour  
• Reduced efficiency in the provision of O&M services caused by long distances from suppliers  
• Increased labour costs for O&M in order to attract skills from metropolitan and other locations |
| Regional uplift and flow on effects | |
| Local supplier and procurement policies aimed at building regional capacity | • Potential for construction costs to increase if local suppliers are not competitively priced compared to market price  
• Potential loss of productivity arising from the requirement to deal with local contractors that may not have the skills and expertise of other national and international providers |

Source: AECOM analysis.

**Policy considerations – implementing national policy coordination**

A firm conclusion from consultations is the need for a nationally coordinated workforce development approach for HSR. The anticipated intra-and inter-industry competition would require states and territories to consider improving the level of coordination in the delivery of targeted education and training that achieves national workforce results. However, this is likely to generate significant tradeoffs between current state-based arrangements delivering against local objectives and conditions, as well as those associated with supporting the skills needs of other industries.
Coordination could be driven by a skills summit, industry-specific council or coordinating body with specific authority to guide investment in education and training at a national level. The work of the summit, council or body should not only address key short and medium term issues, but also substantive longer-term policy issues. Findings have not been tested with stakeholders.

It is suggested that the summit, council or coordinating body should focus on:

• Improving education and training pathways for the rail industry workforce. This could involve:
  – Attracting more graduates into the industry, using strategies that seek to provide better linkages between education providers and communities from which graduates would be drawn.
  – Delivering strong support for training and development for existing rail industry workers with a focus on retraining.

• Improving the pathways into work and careers that:
  – Attract specialists from other industry sectors, for example risk management and customer service to move into HSR.
  – Develop people in complementary professions to create an improved and defined pathway into HSR.
  – Improve access for rail industry workers who are approaching retirement, or who have retired, to continue working in the industry.

• Enhancing the linkages between the Australian rail industry workforce and the global market. This could include strategies that seek to source workers from offshore environments where specialist skills are required.

• Increasing the level of industry-led action in the future development of an HSR workforce.

The roles and responsibilities of a national summit, council or coordinating body would need to be balanced against the current authority of state-based training bodies funded to deliver local policy objectives.

To assist the work of the summit, council or coordinating body, it would also be important to understand the severity of shortages and their follow-on workforce impacts at a statistical area level. As such, a detailed labour market and skills study is necessary to understand the severity of the shortages and their social and economic costs on HSR. A detailed workforce study is likely to identify:

• The estimated number and type (by employment category) of labour and skills gap at each major stage of construction/operation. This would examine the periods when skills gaps are anticipated to be most severe, as well as influences from other industries (e.g. mining).

• The likely geographic location of any labour or skills shortages.

• The cost factors associated with skills gaps, including financial modelling of wage rates to determine where escalation of costs would become material.

• The length of time necessary to adequately address any labour market or skills gaps.

• The policy solutions and investments necessary to address any systematic or sustained labour or skills gaps.

The workforce study results should inform any future planning and investments relating to the development of a dedicated HSR workforce.

Case study one conclusion

Stakeholders also identified HSR as a potential means of improving social outcomes in regions that have historically experienced relatively low educational attainment. The establishment of stations and O&M facilities in regions such as the Gold Coast, Newcastle and Albury-Wodonga has the potential to improve the accessibility of higher education institutions for both the local communities, and those currently living in metropolitan areas, which, over time, can lead to positive flow-on effects. The inclusion of local suppliers was also identified as a means of improving the welfare of workers living in remote areas, not only through the construction period but also through ongoing maintenance and operation of the HSR system. However, these potential benefits need to be balanced against the potential social costs that may arise from investment in HSR.

39 RSA, loc. cit.
A need identified through the consultation process is for a nationally coordinated workforce approach to analyse any future planning and investment requirements in the development of a dedicated HSR workforce.

9.4.4 Case study two: Access to health and related services

Rural and regional healthcare systems

Rural and regional healthcare systems play an important role in delivering a diverse range of public, private and not-for-profit services to people living in non-metropolitan areas. Public health services delivered to people living in rural and regional populations include hospitals, cancer clinics, community-based services, mental health services, ambulance and other transport services and aged care services. Private health services across rural and regional areas include hospitals, nursing homes, general practices and medical specialists, privately funded allied health providers and aged care services. The rural and regional health sector also includes numerous not-for-profit organisations offering a range of health services and health-related support services such as transport and home-based assistance.

Local government agencies are also involved in the delivery of regional health and health-related services including maternal and child health, school-based health and home and community care programs.

Health providers in rural and regional areas determine the mix of services that are provided to local communities. These decisions are also influenced by service agreements with government agencies, the availability of resources such as labour, and the needs of patients within specific localities.

As a consequence, not all levels of services are provided in all locations (despite the longterm policy commitments of state and territory governments to the delivery of most services in regional locations)\(^41\). This means that not all patients currently have equitable access to services and expertise.

This section examines how investment in significant infrastructure (such as HSR) can improve the level of access people have to public and social health services.

Ageing population

Since 2002, the Australian Treasury’s \textit{Intergenerational Report} has considered the longer term social and economic impacts of population ageing on future generations. The population projections contained within each report (2002-2010) have identified that between 2002 and 2100, the nation’s population will gradually age until the middle of the century, where it will plateau until 2101\(^42\).

The ABS’ medium series projections (which form the basis of Treasury’s projections) are presented in Figure 9-1. The projections show that by 2015, 15.3 per cent of the population will be aged 65 years or older. This is expected to increase to 22.8 per cent by 2055.

- The proportions of persons aged 65 or above in each state are similar to national projections with the exception of ACT where the proportion of persons aged 65 years and above is expected to be higher.
- The proportion of persons aged 85 years and above in each state is expected to increase by 2055, with the highest increase expected in ACT.


\(^{41}\) ibid.

Figure 9-1  Population projections – proportion of the population 65 and 85 years and over 2015-2055

Source: ABS\textsuperscript{43}.
After 2030, projections suggest the proportion of people aged 85 years and above will increase more rapidly across the eastern states of Australia. For example, ACT is expected to experience 50 per cent growth in this cohort between the years 2030 and 2040. This growth will be closely mirrored by NSW and Queensland, which will experience 41 per cent and 44 per cent growth respectively over the same period.

While estimates suggest the growth rate in people aged 85 years and above will peak by 2035, it will gradually grow by 1.5 per cent until 2101. This growth will mean that a significant proportion of Australia's population will be in age cohorts that typically require high levels of health care and hospital services.

In short, an ageing population will place significant structural demographic pressure on Australia's metropolitan and regional health systems to meet the growing needs of populations. Through HSR, Australia has the opportunity to provide increased access to those people in regions served by HSR that will require health services, but cannot effectively access them due to current private and public transport arrangements.

Access to hospital and specialist services
The level of access individuals have to health facilities and services is an important contributor to the health and well-being of communities. This is because high levels of access protect and promote health within communities, as well as preventing illness from occurring in the first place. However, ensuring that all social groups and all regions have equal access to facilities and services is costly, complex and difficult to implement in a country such as Australia. For example, the Queensland Health Action Plan acknowledges:

Consultations with stakeholders have highlighted the need to continually improve the level of access communities have to health services. In particular, high quality services that are delivered in non-metropolitan regions are a way of fulfilling regional policy objectives and improving community health outcomes. Consultations have indicated that, while significant improvements have been made at the local (primary and community) health service level, it is widely recognised that many people living in regional areas are still faced with long waiting lists for elective hospital surgeries, and long lead times for access to specialist services in out-patient settings. As a consequence, many individuals living in regional areas are required to travel over night or long distances to see medical specialists or receive complex diagnostic services based in metropolitan areas.

Consultations also identified the significant impacts (usually negative) these issues have on the carers of families and friends of patients. For example, many carers living in regional areas are required to take time from paid work to assist patients attending metropolitan medical appointments. Such leave can create further hardship (both economically and emotionally) for carers of people living with chronic or severe illnesses and conditions (see also WA Carers’ research on carer impacts of travel to medical appointments).45

Health services workforce distribution
The ability of health professionals to reach patients in their local settings is another important factor in the wellbeing of communities. Patients, especially the elderly, infirm and those suffering chronic conditions, often require face-to-face interaction with medical professionals. However, the majority (between 80 and 90 per cent) of Australia's 52,497 clinical and non-clinical workers are located in major cities (see Figure 9-2), placing significant travel requirements on the medical workforce to meet the needs of regional areas. Currently these travel requirements are met through air and road transport, which is often costly, time consuming and indirect.

44 Queensland Health, loc. cit.
While state government stakeholders acknowledge that changes in health technology and the way services are delivered will partially offset the need for health practitioners to visit regional areas, the need for health professionals to administer treatments in face-to-face settings will remain. Some health stakeholders have expressed the view that an HSR could be used to reduce the burden on medical workers who are often required to travel significant distances (using multiple modes of transport) to see patients and access facilities. HSR also offers opportunities for medical practitioners to better access multiple regions in a single day or in overnight travel settings (see Scholtz and Nieuwoudt’s submission to the Australian Parliament).

HSR offers similar potential for medical and workforce training by offering students and medical registrars greater opportunities to receive training in non-metropolitan areas. This has the potential to expose students to a broader range of patient conditions, treatments, techniques and environments than are available in metropolitan locations.

Such benefits have the potential to improve the quality of life for travelling medical workers (and students) which are likely to generate complementary benefits for patients and carers.

Source: AIHW

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47 J Scholtz & R Nieuwoudt, Medical services in Moranbah and the impact of non-resident workers, submission to Parliament House Standing Committee, Moranbah Medical District, September, 2011.
Social benefits of improved patient and carer experiences

Research by the Council of Australian Government (COAG) Reform Council identified that health outcomes are not equal for all Australians. The research suggested that for Australians living outside major cities, little improvement or worsened health outcomes are a consistent feature of the social landscape. For example, those living outside major cities had higher rates of a range of preventable diseases, lower rates of cancer survival, were more likely to have babies with low birth weights, and experienced longer waiting times for elective surgery and doctor appointments. For older Australians living outside major cities, the research further suggested that waiting times for hospital beds in residential care facilities were higher and that sub-acute care services were received at a lower rate than in major cities.

When patient satisfaction was surveyed, it was determined that people in major cities reported better patient experience compared to people in more remote areas. This was particularly evident in NSW, where a higher proportion of people outside major cities were unsatisfied with the amount of time doctors and nurses in emergency departments spent attending to their needs.

Improved accessibility to health care facilities in major cities and in major regional areas with base hospitals would have a positive impact on communities. Ease of accessibility and shorter travel times would reduce the locational boundaries currently facing communities and encourage patient movement to areas of higher health care supply, such as those in metropolitan areas. HSR has the added bonus of providing opportunities for patients to access health services (such as diagnostic services) in key regions in a single day, without the need for costly overnight accommodation expenses, or personal vehicle use. Realising such opportunities would of course be contingent on the pricing structures of regional trips, and on the level of connectedness between neighbourhoods and HSR stations, as most stations will be located outside major regional centres.

Shorter travel time improves the experience for carers as well, allowing an efficient and accessible opportunity to accompany patients during time spent away from home. Data provided in Appendix 5E shows the average length of stay in hospital is between 2.4 days and 3.5 days, which is anticipated to increase as the population ages. By improving access to health care facilities, HSR provides opportunities for carers to more freely travel between facilities and their home location. This has the significant potential to minimise the financial and family costs associated with caring responsibilities.

Social costs of loss of services and expertise located in regional areas

The current healthcare workforce is characterised by an uneven distribution of specialist healthcare professionals between major cities and those areas outside major cities. Inner regional and outer regional areas have lower proportions of hospital non-specialists, specialists and other clinicians than major cities. Improved transportation between major cities and inner and outer regional areas would create opportunity for patients to become more transient and seek out specialist medical care. The workforce could potentially cluster around major cities where demand is higher and access from regional areas is available. As a result of the centralisation of these services, regional areas could lose services and expertise as specialists move to major cities.

Any loss of facilities or expertise could have negative effects on community health, if patients from regional areas choose not to use HSR to access health care treatment.

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49 AIHW, 2012a, loc. cit.
Cost of improving community transport

Improved accessibility to health care services is reliant on the level of accessibility provided by transport infrastructure within local communities. Community and local transport networks are necessary to facilitate travel from neighbourhoods, facilities and areas where HSR stations would be located. For HSR, stations would be, in most circumstances, situated on the outskirts of cities and would require intermediary transport to and from these locations (see discussion in section 9.2.6).

The cost of improving community transport to promote use of HSR transportation would in most circumstances fall upon local communities. A significant level of analysis would be necessary to determine whether current local and community transport networks would meet the future service delivery objectives an HSR, and the level of investment necessary to ensure communities have adequate access to stations and health facilities.

Increased demand on major service centres

The availability of an HSR network may result in increasing demand for healthcare services in major centres. Data from the COAG Reform Council demonstrates that there is an increasing incidence of people delaying consultations with healthcare professionals due to financial costs and other barriers, such as accessibility of healthcare services.\(^\text{50}\)

If access to healthcare services were improved, it may result in patients who had not previously accessed healthcare seeking these services, in turn driving up demand. As demand increases, the cost of delivery is likely to rise over time. This is likely to place further strain on Australia’s healthcare resources as the population ages.

Tradeoffs associated with pursuing benefits

The tradeoffs associated with utilising HSR as a vehicle to improve access to health and other public services are summarised in Table 9-5.

<table>
<thead>
<tr>
<th>Potential benefit/cost</th>
<th>Possible tradeoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved access to specialist health care services</td>
<td>• Potential reduction in services and expertise in local communities</td>
</tr>
<tr>
<td></td>
<td>• Potential for increased demand in major cities for specialised health care</td>
</tr>
<tr>
<td></td>
<td>• Potential for increased centralisation of specialist health care around major cities</td>
</tr>
<tr>
<td></td>
<td>• Potential increased local and community transport costs to connect individuals to stations and health care facilities/services as most stations would be located outside regional cities</td>
</tr>
<tr>
<td>Improved coordination in the delivery of services</td>
<td>• Potential loss of services and expertise in regional and local areas</td>
</tr>
<tr>
<td></td>
<td>• Potential loss of autonomy over service delivery for health care regions</td>
</tr>
</tbody>
</table>

Source: AECOM analysis.

\(^{50}\) COAG Reform Council, loc. cit.
Case study two findings

This case study shows that an ageing population and the changing expectations of communities for high quality services will drive demand for health services. The ability of governments to meet this demand will be shaped by a rapidly evolving health technology sector, the ability of governments to finance (public and private) health delivery, and, importantly, the level of access individuals have to facilities and professionals.

Many people living in regional areas are faced with longer waiting lists for elective hospital surgeries, and longer lead times to see specialist services in out-patient settings than metropolitan residents\(^1\). As a consequence, many individuals are required to travel overnight or long distances to see medical specialists or receive complex diagnostic services based in metropolitan areas. This is especially problematic for older age cohorts who often require face-to-face interaction with professionals in metropolitan settings. It is also problematic for the friends and families of patients, who often face financial hardship when located in regional areas and have caring responsibilities. Furthermore, the majority of Australia’s clinical and non-clinical workforces are located in major cities, placing significant travel requirements on the medical workforce to meet the needs of regional areas. Currently, these travel requirements are met through air and road transport, which is often costly, time consuming and indirect.

This case study suggests that HSR could reduce the burden on patients, carers, medical workers, and medical students who are often required to travel significant distances using multiple transport modes to access healthcare services and facilities. Although the status quo is that patients generally travel to centralised healthcare facilities, rather than the health workforce travel to regional facilities, the case study also demonstrates that there are opportunities provided by HSR to improve service delivery by enabling health workers to travel from capital cities to the rural clinical campuses currently established in most of the regional centres that would be served by a HSR station for both training students and staff as well as treating patients. Through increased coordination and supportive policies, HSR could provide opportunities to better manage changes in demand and minimise the level of duplication occurring across services and facilities. Such coordination would require health services to be delivered through new and more effective delivery models. HSR could offer significant opportunities to reconfigure the way other public services are delivered to communities and individuals.

9.4.5 Case study three: Tourism, recreation and social inclusion

Recreation and leisure activities play an important role in promoting the inclusion of people within our communities. Involvement in leisure activities adds meaning to community life and contributes to people’s overall quality of life. Recreation can encourage personal growth and self-expression, and provide increased learning opportunities not met in people’s working lives.

For many people, participation in leisure and recreation (through physical activity or sport) can lead to improvements in physical and mental health. This is backed by a large body of public health research that has consistently shown that increased physical activity can lead to fewer health and mental health problems and higher productivity at work.

Participation in leisure and recreation activities can also have social benefits. It creates social opportunities by allowing people to connect and network with others. It can also contribute to family and other group based bonding\(^2\).

By generating increased opportunities for access to towns, regions or cities, communities can capture the health and social benefits associated with tourism. A discussion about these social benefits, as well as the costs and tradeoffs of increasing access to tourism opportunities through HSR, are outlined below.

\(^{51}\) AIHW, 2012a. loc. cit.

Current trends in tourism

Tourism is a major industry that contributed approximately 2.5 per cent or $34 billion to Australia’s gross domestic product in 2011. Tourism directly employs more than 500,000 people and is one of Australia’s largest export industries, earning nine per cent of Australia’s total export earnings. When looking at Australia’s exports services only, travel (which comprises business, education-related and other personal travel) accounted for 61 per cent of Australia’s total exports services earnings in 2011. Tourism plays a key role in regional economic development, with tourists spending 46 cents of every tourism dollar in regional areas.

Tourism in Australia goes beyond leisure travel, encompassing a wider ‘visitor economy’ that includes travel for the purposes of business, visiting friends and relatives, education and work.

International and domestic tourism

In the year ending 31 March 2012, Australia received 5.5 million international visitors who spent 196.6 million nights in the country. Figure 9-3 shows that of the 5.5 million international visitors, 44 per cent of visitors came to Australia for holidays, and 25 per cent to visit friends and relatives (VFR). The remainder of international visitors came for business, education and other reasons.

55 Australian Government, Composition of Trade Australia, Department of Foreign Affairs and Trade, Canberra 2011b.
56 Tourism Australia, Tourism 2020 – whole of government working with industry to achieve Australia’s tourism potential, December 2011.
57 Tourism Australia, loc. cit.
58 International visitors are those international visitors aged 15 years and over (Australian Government 2012a).
Chapter 9 Urban and regional development

Figure 9-3  International visitors by main purpose of journey (year ending 31 March 2012)

Source: Australian Government\textsuperscript{59}.

Figure 9-4  Domestic overnight visitors by main purpose of journey (year ending 31 March 2012)

Source: Australian Government\textsuperscript{60}.

\textsuperscript{59} Australian Government, 2012a, loc. cit.
\textsuperscript{60} Australian Government, 2012b, loc. cit.
During the same period, Australia received 73.3 million domestic overnight visitors, who spent approximately 279 million visitor nights across the states and territories. Of the 73.3 million domestic visitors, the main purpose of visit was holidays (42 per cent), VFR (34 per cent), business (19 per cent) and other (5 per cent) (see Figure 9-4).

The main mode of transport used by international visitors was largely aircraft (43 per cent), followed by private rental vehicles (28 per cent). In contrast, most domestic overnight visitors used private vehicles (69 per cent) and air transport (23 per cent).

State, territory and regional tourism

Figure 9-5 and Figure 9-6 show that for international and domestic overnight visitors, the main travel destinations are NSW, Queensland and Victoria, accounting for 80 per cent of all international visitors and 79 per cent of all domestic visitors.

Figure 9-5  International visitors by state/territory visited – in millions and as a proportion of total visitors*  

Source: Australian Government

*Visitors by state or territory sum to more than total visitors due to stop overs. Data also relates to the year ended 31 March 2012.

61 Overnight travel involves a stay away from home of at least one night, at a place at least 40 kilometres from home. A person is an overnight visitor to a location if they stay one or more nights in the location while travelling.

Australian Government, Travel by Australians, quarterly results of the National Visitor Travel Survey, Transport Research Australia, Department of Resources, Energy and Tourism, Canberra, 2012b.


Of all international visitor nights reported in the financial year 2011-2012, 79 per cent were spent in a city whereas 21 per cent were spent in a regional area. By contrast, of all domestic visitor nights, 36 per cent were spent in a city whereas 64 per cent were spent in a regional area.\(^{65}\)

Key destinations for international visitors were Sydney (2.6 million visitors), Melbourne (1.7 million visitors), Brisbane (900,000 visitors), the Gold Coast (740,000 visitors) and Tropical North Queensland (612,000 visitors).\(^{66}\)

Research on regional travel shows that international and domestic visitors use air transport and private vehicles as their main mode of travel to regions such as the Gold Coast and Tropical North Queensland (places that enjoy good accessibility in terms of regional airports and highways).\(^{67}\) In contrast, domestic visitors to areas such as the Sunshine Coast (Queensland), the Northern Rivers Region (NSW), the Mid North Coast (NSW) and the South Coast (NSW), mainly use private vehicles, followed by air travel. International visitors, however, rely heavily not only on private vehicles but also on long distance coach and rail.

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\(^{64}\) Australian Government, 2012a, loc. cit.

\(^{65}\) Australian Government, 2012c, loc. cit.

\(^{66}\) Australian Government, 2012a, loc. cit.

\(^{67}\) Australian Government, Economic importance of tourism in Australia’s regions – Phase 2: large tourism-dependent regions, Transport Research Australia, Department of Resources, Energy and Tourism, Canberra 2011c.
Mode choice patterns also vary depending on the age of the visitor. For both international and domestic visitors, rail and bus become a more important mode when the passenger is over 50 years old.

Social inclusion

Government support for socially inclusive communities emerged during the 1970s and 1980s in response to the changing conditions of labour markets, and the inability of welfare systems to meet the needs of more diverse populations. Since this time, there has been a growing recognition among governments that effective social inclusion requires policy action that recognises the importance of difference and diversity in closing the physical, social and economic distances between people. This recognition reflects a proactive, human development approach to social wellbeing that seeks to minimise the barriers or risks associated with divided communities.

Today, government interventions that ‘bond, bind and bridge people within communities’ are central components of many OECD countries’ policy settings. In Australia, social inclusion is a significant policy agenda of the current Government that is underpinned by dedicated programs and long-term commitments to improving the inclusiveness of communities (see www.socialinclusion.gov.au for additional information).

Analysis of the available policy research in the United Kingdom, Canada and Europe identifies that most socially inclusive policies are commonly built on five key dimensions, including:

- Valued recognition and respect for individuals and groups. This includes recognising the differences and diversity of communities, as well as the common ‘worth’ of individuals.
- The value of human development. Nurturing the talents, skills, capacities and choices of children and adults to live a life they value and to make a contribution both they and others find worthwhile.
- Involvement, access and engagement in community life. This involves having the ability or opportunity to be involved in decisions affecting oneself, family and community, and to be engaged in community life.
- The benefits of physical and social proximity to reduce social distances between people. This includes shared public spaces and neighbourhoods.
- Promotion of material and emotional well-being. This involves the development of policies which allow people to participate fully in community life.

These dimensions are important for understanding why nationally significant infrastructure, such as HSR, could be used to deliver socially inclusive outcomes.

Key stakeholder issues

State and territory-based stakeholders identified a broad range of themes about the role of tourism and travel in generating socially inclusive communities. These themes focus on the travel barriers from conventional trains and other transport modes currently confronting people from disadvantaged groups within society; particularly mobility impaired people (such as people who are mobility impaired and the elderly). The issues raised below identify opportunities where HSR could provide a significant improvement over conventional travel for these groups of people.

Low incidence of travel among the mobility impaired

Consultations with state-based community and planning agencies have identified that people who are mobility impaired often do not have the same opportunities to travel as others without

68 Combined Pensioners and Superannuants Association, Closing the Transport Gap – Meeting the transport needs of transport disadvantaged people in NSW, Sydney, 2010.
71 P Donnelly & J Coakley, The role of recreation in promoting social inclusion, working paper series on social inclusion, University of Toronto and University of Colorado, 2002.
those limitations. This is supported by a United States travel survey data which shows that people who are mobility impaired are significantly less likely to travel for tourism purposes than people without disabilities.\(^{72}\)

The right to travel and access tourist activities is regarded as a key social right for people who are mobility impaired, their families and their carers. This right is founded in international law and supported by the Australian Disability Discrimination Act 1992 which makes ‘disability discrimination unlawful and aims to promote equal rights, opportunity and access for people who are mobility impaired’ (www.heroc.gov.au/disability rights/)\(^{73}\).

Travel, tourism and recreation are important elements in the quality of life for all people. For the mobility impaired, their families and their carers, the opportunity to go on a holiday can be an especially important chance to relax and recuperate. However, there are currently many travel barriers facing the mobility impaired, which range from physical access issues, through to the actual cost and time associated with travel. The barriers often found in conventional rail and other existing transport modes are discussed in more detail below.

**Community and local transport**

The linkages between stations and people’s homes were considered by all stakeholders to be fundamental elements facilitating the potential use of HSR. As outlined in Appendix 5E, disability-friendly community and local transport networks would be necessary to facilitate travel between neighbourhoods and HSR stations. Such connections are often vital for people who are mobility impaired and the elderly who typically do not have private vehicles and who rely on intermediary transport for connections to major public transport hubs.

**Station design**

Consultations in Queensland and Victoria highlighted the importance of station design in encouraging people who are mobility impaired to use HSR. Research into travel behaviour has consistently shown that the design and services offered at stations are significant factors in the tourist experiences of mobility impaired people, as well as the elderly. Security checkpoints, the length of distance between toilets and boarding gates, the use of coaches between terminals, and secondary airports with minimum facilities (and no aerobridges) are significant factors influencing the travel habits of people who are mobility impaired. The design and location of stations and the perceived level of safety at stations are also significant factors impacting on travel decisions of the elderly and the disabled. Security arrangements for stations would need to be important aspects in the future design phases of HSR.

**Suitability of the train**

Consultations with state agencies highlighted the problems associated with conventional train travel that could be addressed by HSR. For example, densely packed conventional trains without allotted seats, lacking sufficient leg space and containing overly restrictive armrests and seating arrangements present significant barriers to people who are mobility impaired. People with mobility impairments often have difficulties using toilet and bathroom facilities on vessels that lack wheelchair access and suitable onboard aisle chairs. For example, many short-haul flights (less than three hours) use single-aisle, narrow body aircraft, which pose great difficulties accommodating people with wheelchairs who need to access toilet facilities. By its design and nature, HSR would provide superior options for people with mobility impairments to these restrictions.

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\(^{73}\) L Selepak, loc. cit.

The World Health Organisation (WHO) defines disability as 'any restriction or lack (resulting from an impairment) of an ability to perform an activity in the manner or within the range considered normal for a human being'.

Fundamental aspects of the *Disability Discrimination Act 1992* are based on the Universal Declaration of Human Rights adopted in 1948, to which Australia is a signatory. The Declaration states that ‘all are born free and are equal in dignity and right’ (article 1). It also declares that everyone has the right to freedom of movement (article 13) and the right to rest and leisure (article 24) (United Nations 1948).
**Fares and the costs of travel**
Consultations in Queensland, NSW and Victoria have commonly identified that the cost of travel would be a significant factor in HSR’s ability to deliver social outcomes. Because people with mobility impairments are frequently older and have less disposable income, travel fares would need to be ‘low, simple and unrestricted (not subject to restrictions such as advance purchase and minimum stay away)’ to achieve maximum benefit for this travel segment\(^74\). Cancellations, postponements and rerouting on conventional travel modes were noted as causing significant problems for people who are mobility impaired when they are travelling independently and without carers. Strict baggage allowances, such as those used by low cost airlines, do not adequately account for wheelchairs and other mobility devices used by disabled people.

**Reservations and ticketing**
In order to attract travellers who are mobility impaired, it is important for reservations and ticketing systems to encourage participation in travel by these groups. Research undertaken at the University of Technology, Sydney on low cost travel has found that emerging trends in travel and tourism ‘discourage sales through travel agents, and opt instead for distribution through their own website or through call centres’. These arrangements cause problems for people who are mobility impaired when they need to contact airlines and travel providers to ensure they can adequately accommodate their travel needs or specific physical and mental requirements. The research also suggests that people who are mobility impaired often feel ‘uncomfortable’ and ‘intimidated’ when making reservations and arrangements through internet booking systems and call centres. As a consequence, there is a strong preference for these groups to use face-to-face methods when booking travel\(^75\).

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9.4.6 Social costs, benefits and tradeoffs
This section discusses the potential social benefits and costs arising from the analysis of key data and research and the outcomes of stakeholder consultations. It also considers some of the tradeoffs that arise in pursuing social policy outcomes from HSR.

**Potential benefits**

**Inclusion benefits**
Independent research and study results suggest that HSR could also assist in closing the physical, social and economic distances separating socially disadvantaged people in regional areas. HSR could provide people living in non-metropolitan areas with better linkages than are currently offered through conventional inter-regional public transport networks. This has the potential to benefit the elderly, disabled and other mobility impaired people in regional station locations as ‘many in this group feel socially excluded because they have lost an important means of maintaining their independence and connection with their community\(^76\). These benefits would support people in disadvantaged regional situations that experience reduced access to private transport and the limited availability of appropriate conventional public transport. The benefits would also be realised by international and domestic travellers visiting relatives, friends and families in locations that are currently difficult, financially costly or time consuming to access.

**Improved quality of life**
HSR would provide the option to undertake leisure-related trips to a broader range of areas that would be ‘closer’ in terms of travel time. By making leisure travel easier, HSR could deliver a broader health benefit for the community and associated savings in the provision of health and mental services. This outcome is enhanced when leisure travel leads to physical activity and improved physical and mental health.

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\(^74\) ibid.
\(^75\) ibid.
\(^76\) Combined Pensioners and Superannuants Association, loc. cit.
**Improved quality of service**

Although mature age visitors in regional areas rely on conventional public transport services, these services are limited, with the scheduling of some services leading to prolonged waiting periods for connecting services. Further, the infrequent provision of services sometimes leads to unnecessary overnight stays, which has an adverse financial impact on travellers. HSR could provide improved services in terms of travel time and reliability of service to areas that are currently not very accessible, particularly for daytrips. This would broaden the travel horizons of some people who would otherwise not use conventional regional services.

In comparison to conventional services, HSR would provide a more comfortable travel space and better amenities, such as toilets and catering. These are standard features of HSR overseas and are very important for mature and mobility impaired passengers and passengers with health conditions. The preference for improved quality of conventional rail service in urban areas is well established, where research has consistently demonstrated that older or less mobile passengers attach greater value to service levels than other passengers.

**Potential costs**

**Exclusion of key regions**

The outcomes of the international literature review concluded that, although HSR would offer important accessibility benefits to the areas that it serves, it may be a disadvantage to areas that do not have a station. With the introduction of HSR, tourism-related development and investment could become more heavily concentrated in those areas with an HSR station, leaving areas without a station in a relatively disadvantaged position. As Rus et al. indicate:

> Transport improvements may, thus, be as likely to lead to an increase in regional disparities as they do to increasing cohesion. This is not universal or inevitable outcome; it will depend on the specific situation of the region, the initial levels of accessibility and the change in them and the existence of other policy measures which may accompany the transport improvement.

**Costs of providing public and community transport**

Access to HSR stations would be an important factor in the success of HSR in catering for the travel needs of disadvantaged groups in regional areas. For older or mobility impaired passengers, the ability move easily between the station and their destinations would also be a key factor in influencing whether this disadvantaged group of passengers use HSR.

Costs associated with accessing remote HSR stations would make its use less attractive to disadvantaged groups. Without other supportive measures, this is likely to place pressures on local authorities to meet any funding gaps associated with providing community access to HSR stations.

**Loss of existing rail and transport services**

The patronage results demonstrate that HSR would take passengers from existing transport services within the HSR corridor, such as CountryLink rail in NSW and privately-owned coach services throughout the network. This would reduce the demand for existing regional services and the viability of alternatives to HSR. Without supportive policies and programs, this would leave the disabled or disadvantaged further marginalised from recreational and leisure opportunities, even if they are in close proximity to an HSR station.

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77 ibid.
### 9.4.7 Tradeoffs

The possible tradeoffs associated with using HSR to deliver social outcomes are summarised in Table 9-6.

<table>
<thead>
<tr>
<th>Potential benefit/cost</th>
<th>Possible tradeoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion benefits</td>
<td>• Potential loss of services in areas that are not serviced by HSR due to lower patronage levels (from the opening of HSR). This could entail possible exclusion of areas adjacent to the HSR corridor but not having an HSR station. Potential shift of tourism from capital cities to regional areas and associated visitor expenditure</td>
</tr>
<tr>
<td>Improved quality of life</td>
<td>• Potential loss of quality of life in areas adjacent to the HSR corridor but not having reasonable access to an HSR station. This could potentially include a loss of income in those areas where visitors could not easily return within the same day prior to HSR</td>
</tr>
</tbody>
</table>
| Improved quality of service | • Loss of patronage in other existing transport modes  
• Potential financial costs to ensure stations and trains are disability friendly  
• Personal and local community costs of providing public and community transport |

Source: AECOM analysis.

### Case study three conclusion

The study explored HSR’s potential role in delivering community outcomes that achieve social inclusion. Data presented in the case study on the travel patterns of international and domestic visitors shows that the most frequently cited reason for travel is to visit friends and relatives. Furthermore, most visits happen to or within the east coast states of Queensland, NSW and Victoria, with international visitors spending most of their time in a capital city, while domestic visitors spend most of their time in regional areas.

Choice of travel mode for tourism seems to vary by age bracket with more mature groups relying relatively more than younger groups on rail and bus services. Research also shows that people experiencing disability or disadvantage are often excluded from opportunities to travel and the physical and mental benefits associated with leisure.

Data on current usage of regional rail services shows that rail plays an important role in catering for the tourism travel needs of mature age visitors in regional areas. However, these conventional rail services are frequently limited and impose a significant travel burden on the mature age passenger in terms of time to get to/from the station, waiting time and accessibility issues at the station.

Findings from this study suggest that HSR would deliver improved services in terms of travel time and reliability from regional areas to regional centres and metropolitan areas. HSR would broaden the travel horizons of some people that may otherwise chose not to travel using conventional services. Yet, for HSR to be effective in meeting the travel needs of elderly and mobility impaired passengers, consideration would need to be given to policies, services, scheduling, amenities and fare structure that cater to these groups.
Finally, although HSR can have important accessibility benefits to the areas that it would serve, it would be important to consider the potential adverse effects on those areas that would not have a station. Appropriate policies and programs would be important to support any locations that were bypassed but which would benefit greatly from access to HSR.

9.5 Urban and regional economic appraisal

Implementation of HSR would significantly change accessibility between capital cities and regional centres and could provide opportunities for regional economic development. In addition to the presence of complementary assets discussed above, the ability of regional towns and cities served by HSR to take advantage of that potential would depend on:

- Supportive and aligned regional development policies at the Australian Government, state/territory government and local government levels.
- The willingness of regional stakeholders to embrace and invest in the opportunities possible with HSR.
- The availability and appropriate application of investment. Significant regional growth would require public and private sector investments to flow from capital cities into regional centres.
- Metropolitan and regional planning policies which encourage and support new development in regional centres with HSR stations.
- The timing of HSR opening in relation to broad economic trends. For example, investing in HSR as part of other economic development activities in a rising economic environment might be more effective than in a declining one.

There are clearly significant uncertainties involved in determining how these initiatives should be developed and what outcomes should be pursued. In part, they are associated with the nature and scale of the proposed HSR system and require forecasting responses and conditions many years into the future. They are also uncertain, however, because they would require responses from outside the transport sector. They would need businesses to change how they operate, investments to switch to new locations, and tourists to change their travel patterns.

In examining the potential impact of HSR, these inherent uncertainties need to be acknowledged but should not prevent an assessment of what the regional development impacts might be. The following analysis assumes proactive and positive responses are undertaken by key stakeholders in an effort to release HSR’s full potential. Two distinct impacts under these circumstances are considered:

- Improvements in productivity.
- Changes to tourist spending patterns.

9.5.1 Improvements in regional productivity and economic performance with HSR

The bulk of the productivity gains from HSR are captured in the cost-benefit analysis reported in Chapter 8. However, HSR could have wider economic benefits through its impact on ‘effective density’ by bringing places of residence and employment effectively closer together through a reduction in travel times. Effective density provides an indicator of access to jobs where the number of accessible jobs is divided by the journey time required to reach them. Benefits can then arise in a number of ways:

- It is easier to match workers to specific vacancies and to find employees with the right skills.
- It enables greater specialisation of supply leading to a more efficient production of goods and provision of services.
- It leads to knowledge flow-on (i.e. greater opportunities for formal and informal contact through increased accessibility).
- Employees have a greater choice of jobs.
- There is more competition between companies and between individuals.

As the HSR system is constructed, accessibility to major cities from areas such as the Central Coast (to Sydney) and Gold Coast (to Brisbane) would
improve, allowing employers to access a larger labour pool and employees to have a greater choice of employers. Internationally, positive economic benefits (so-called ‘agglomeration benefits’, as described previously) have been attributed to such impacts, and are included in the quantitative assessment of the benefits of investments in transport infrastructure. However, as noted above, because of the uncertainty of these effects in the current context, they have not been included in the core economic analysis results.

The theory of agglomeration explains how productivity improvements can be gained through improved linkages between jobs. Importantly, those productivity gains are additional to the time savings measured in traditional transport benefits. Over the longer term, employment would respond to the change in accessibility delivered by HSR in other ways, with different types of jobs being created, and some jobs moving out and others moving in.

In the following case studies a calculation is made of the change in effective density. Changes in effective density produce a short-term increase in productivity with no change in employment scale or type.

**Regional case study – Newcastle**

Newcastle, two and a half hours’ drive north of Sydney, served as one of several case studies for this analysis. On the basis of simplified assumptions, effective density in Newcastle was calculated in a manner consistent with United Kingdom Department for Transport guidance for a base case without HSR, and for a reference case with HSR. Effective density provides an indicator of access to jobs where the number of accessible jobs is divided by the journey time required to reach them. To apply this analytical technique to Australia, it was assumed that the change in productivity in Australian regional centres would be proportional not just to the journey time to the nearest Australian capital city, but also to employment in the Australian capital city relative to employment in London. For example, regional centres with improved accessibility to Brisbane increase their productivity by only 24 per cent of the observed change in the United Kingdom, because there are just over one million jobs in Brisbane compared to 4.5 million in London. These estimates are at best indicative, being based on a methodology and assumptions developed for the British context. A model designed specifically for Australia would have to account for local industry, densities and competing transport systems.

The analysis suggests there could be a 23 per cent improvement in effective density in Newcastle as a result of HSR. Applying a typical agglomeration elasticity of 0.07, relating changes in productivity to changes in effective density, would increase average employment productivity in Newcastle by 1.6 per cent. That in turn would increase average wages by $720 per year and Gross Value Added by $1,440 per year (output in Australia is broadly double earnings). With 80,000 jobs in Newcastle, that would equate to an increase in Gross Value Added of $115 million per year, in current prices.

Sensitivity tests showed how productivity improvements might change with different scenarios, as shown in Table 9-7.

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Productivity improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSR reference case</td>
<td>1.6%</td>
</tr>
<tr>
<td>HSR access time (to Sydney) +20 minutes</td>
<td>0.8%</td>
</tr>
<tr>
<td>Agglomeration elasticity of 0.04</td>
<td>0.9%</td>
</tr>
<tr>
<td>Car journey time (to Sydney) +20%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Central Sydney jobs +30%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>
These results are illustrated in **Appendix 5I**.

The results are clearly sensitive to the HSR journey time and the assumed agglomeration elasticity, but increase in line with higher employment densities and slower commuter car travel, which seem likely to be realities in the future. HSR would therefore be expected to generate a modest improvement in productivity of one to two per cent for Newcastle City. The UK approach suggests that the regional centres (Albury-Wodonga, Gosford and Coffs Harbour) could gain productivity growth from HSR of:

- Between 0.5 per cent and two per cent in the short term through agglomeration impacts arising from improved access to the capital cities.
- Between four per cent and 11 per cent over the long term, as businesses change, restructure and relocate to take advantage of the opportunities provided by HSR.

To put it into context, the increase is roughly the same as the average annual increase in labour productivity in Australia over the last decade[^79].

These productivity gains are entirely additional to the impacts measured within the traditional transport appraisal and would deliver significant economic gains across an Australian east coast corridor that currently comprises some 1.3 million regional residents and is expected to grow over the next 20 to 30 years. Current total wages within those regional centres are currently more than $50 billion per year, so a short term one per cent average increase would equate to $0.5 billion per year, and a longer term seven per cent average increase would equate to $3.5 billion per year. These increases are not currently accounted for in national budget estimates. These results are based on current values and are not inflated over time for real productivity growth or increased employment levels.

The German and United Kingdom studies show that HSR could potentially play a role in shaping where economic activity takes place along its corridors, but the extent of this role depends on the particular circumstances. For example, HSR stations can affect population movements, company locations and linkages between companies where supportive public programs and policies are in place. However, European evidence also shows that the presence of an HSR station alone is not a sufficient condition for economic development to take place, either at the local level (or close to the station) or within the sub-region in which the HSR station is located[^80]. A critical unresolved issue is the extent to which an HSR system causes development that would not otherwise have happened, or enhances development that is already occurring.

Where HSR increases productivity in the regional centres, it could also assist in delivering other policy objectives, such as income distribution and economic growth. In addition, there would clearly be feedback between economic growth taking place in the regions and increased demand and willingness to pay for HSR services. These increases are generated by access combined with other attributes of intermediate-sized centres.

Given the time period over which HSR would be implemented, and the lengthy period over which these productivity changes take place, the build-up of productivity benefits would be considerably slower than the build-up of user benefits. Nevertheless, they would provide a counterbalance to the historic trend of migration from regional areas to capital cities and, if combined with other initiatives, could enhance regional centres as places to live and work.


[^80]: C Bellet & A Casellas, loc. cit.
9.5.2 HSR tourism links

Tourism is an important industry in Australia, generating $94 billion in spending and contributing $34 billion to Australia’s gross domestic product in 2011\(^81\). Tourism directly employs more than 500,000 people and is one of Australia’s largest export industries, earning 9 per cent of Australia’s total export earnings\(^82\). Tourism plays a key role in regional economies with tourists spending 46 cents of every tourism dollar in regional areas\(^83\).

In the year ending 31 March 2012, Australia received 5.5 million international visitors (international visitors aged 15 years and over) who spent 197 million nights in the country\(^84\). During the same period, over 70 million domestic overnight visitors spent approximately 280 million visitor nights across the states and territories. The main purpose of those visits was holidays (42 per cent), visiting family and friends (34 per cent) and business (19 per cent). For international and domestic overnight visitors, the main travel destinations were Queensland, NSW and Victoria, accounting for 80 per cent of all international visitors and 79 per cent of all domestic visitors.

Of all international visitor nights reported in 2012, 79 per cent were spent in a city and 21 per cent were spent in a regional area. By contrast, of all domestic visitor nights, 36 per cent were spent in a city, while 64 per cent were spent in a regional area.

There are two key features of tourism in Australia which HSR has the potential to change:

- International visitors spend almost all their time in the capital cities. Some 90 per cent of international visitor time in Victoria and NSW is spent in Melbourne and Sydney.
- For day visits from the capital cities, there is a clear link between the number of visits and the journey time from the capital city.

These features are illustrated in Figure 9-7.

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81 Australian Bureau of Statistics, loc. cit.
82 Canberra 2011a, op. cit.
84 Canberra, 2012b, ibid.
HSR has the potential to change the distribution of visitor spending. This is because tourists and business travellers who currently spend most of their time in the large metropolitan centres would have greater opportunity to visit nearby regional locations. The increase in accessibility to regional areas could extend tourist stays for several days since they could retain accommodation in the central city and explore outlying areas on day trips. For example, the Mid North Coast of NSW received over 3.1 million domestic overnight visitors in the 2011-2012 period, with a visitor expenditure value of $1.8 billion. The share of total NSW domestic visitors to the Mid North Coast region was almost 20 per cent. International tourism is significantly lower with around 125,000 visitors, who spent in the order of $50 million in the region[85]. With the short travel times to this region provided by HSR, it would be possible to attract international visitors from Sydney for day trips, with appropriate marketing, pricing and packaging of tours.

Again, the scale of the change will be highly dependent on responses from within and around the regional centres served by HSR. Proactive centres that have existing attractions and/or generate investment in new facilities would do best. Canberra, with its museums and cultural attractions, would be less than an hour from Sydney with HSR, and might be a significant beneficiary. While it is not expected that this regional redistribution would significantly boost national economic performance, it could have a significant economic impact on regional centres.

9.5.3 Supporting policy issues

HSR could become an important adjunct to, and augment opportunities for, regional development in Australia. It could enhance, but would not necessarily produce, economic development or transform localities served by HSR. If combined with effective land use and regional planning, complementary assets and supportive public policies, it could lead to population and economic growth within regional centres, but much of this growth would come from moving people and jobs from other locations within or immediately outside the region. Productivity increases could result in small increases in aggregate Australian jobs over time, in addition to those associated with the operations and maintenance of HSR.

For towns with strategies for complementary infrastructure, HSR could improve links between major cities and regional communities. HSR could also increase the utilisation of facilities such as regional universities and hospitals by expanding their effective catchments, while at the same time helping to reduce population losses from regional communities to the capital cities. It could also result in a concentration of a particular type of business in non-metropolitan areas (for example, those seeking low cost back office locations, start-up operations and emerging green technology enterprises). Through productivity improvements arising from these changes, HSR could improve the competitiveness of local companies attempting to compete in a global economy.

However, establishing the required combination of policies, strategies and complementary infrastructure would not be straightforward. For regional areas seeking to maximise the opportunities presented by HSR, the local policy environment and general macro-economic conditions would be crucial. There is no generic policy that would work for all locations, and a diversity of responses would be likely to produce better outcomes. A well-placed HSR station combined with complementary assets, land available for development, zoning and planning to encourage new development, possible tax incentives for inward investment and a significant existing employment and population base would create the ideal conditions for beneficial regional development impacts to emerge.

Regional communities without an HSR station are likely to be subject to pressure from nearby centres with HSR. However, they could also benefit from HSR if they were able to develop effective connections between their facilities and the stations. In all cases, the best results would come from intelligent responses based on an informed understanding of a region's strengths and constraints, and of the nature of the likely HSR impacts in each location.

The preliminary environmental Strategic Assessment (SA) undertaken for this study and summarised in Appendix 5C examined the urban and regional planning factors associated with the development of the HSR preferred alignment and station locations. From this assessment, five examples emerged as representative of the kinds of urban and regional development settings likely to exist in the HSR corridor that would be affected by the project. Case studies were prepared to highlight the nature of the urban and regional planning and development issues that would emerge; these are summarised in Table 9-8.
Table 9-8 Overview of HSR case studies

<table>
<thead>
<tr>
<th>Location</th>
<th>Characteristics</th>
<th>Assets</th>
<th>Strategic vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaudesert</td>
<td>• Growing regional area&lt;br&gt;• Connected with growing Gold Coast</td>
<td>• Mixed agriculture and residential lifestyle area</td>
<td>• Primarily dormitory community for increased expansion of Gold Coast and Brisbane</td>
</tr>
<tr>
<td>Coffs Harbour</td>
<td>• Regional centre with growing economy&lt;br&gt;• Strong local capabilities</td>
<td>• Attractive location&lt;br&gt;• Growing population&lt;br&gt;• Strong tourism</td>
<td>• Continued balanced growth in housing retail and light manufacturing and office</td>
</tr>
<tr>
<td>Lower Hunter Region</td>
<td>• Growing population within easy access to Sydney with better transport&lt;br&gt;• Strong economic base with growth in coal and related services</td>
<td>• Natural resources&lt;br&gt;• Expanding university and health sector&lt;br&gt;• Growing national companies located in region that service resources&lt;br&gt;• Strong back office activity already present&lt;br&gt;• Tourism assets in wine and other products and services including water recreation&lt;br&gt;• Lifestyle</td>
<td>• Moving to wider economic base than resources to emphasize lifestyle, education and health&lt;br&gt;• Transport infrastructure investment to facilitate greater accessibility and economic activity</td>
</tr>
<tr>
<td>Sydney Central Station</td>
<td>• Australia’s largest metropolitan area&lt;br&gt;• Central transport interchange for local, metropolitan and regional services&lt;br&gt;• Tourist destination</td>
<td>• Longer term growth forecast for population and employment&lt;br&gt;• Business, convention and tourism trade&lt;br&gt;• New convention and entertainment centre complex</td>
<td>• Focus of future CBD growth for commercial and residential development&lt;br&gt;• Major public transport investments proposed in light rail, suburban rail and bus services</td>
</tr>
<tr>
<td>Albury-Wodonga</td>
<td>• Centrally located between Sydney &amp; Melbourne&lt;br&gt;• Logistics hub&lt;br&gt;• Growing region</td>
<td>• NBN hub&lt;br&gt;• La Trobe and Charles Sturt Universities&lt;br&gt;• Regional hospital&lt;br&gt;• Industrial land&lt;br&gt;• Lifestyle</td>
<td>• Diversified economic base&lt;br&gt;• More dense cores for cities&lt;br&gt;• Strengthen back office</td>
</tr>
<tr>
<td>Location</td>
<td>Constraints</td>
<td>Opportunities</td>
<td>Regional collaboration</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Beaudesert</td>
<td>• Requires better alignment of transportation in the HSR corridor along with local road and mass transit options</td>
<td>• HSR station serves growing population area&lt;br&gt;• Co-location of station with other mass transit options such as bus and local rail</td>
<td>• Part of sub-regional planning for South East Queensland. Well thought out long-term plan but little connection to HSR</td>
</tr>
<tr>
<td>Coffs Harbour</td>
<td>• Station will increase day tourists and need for better local transport.</td>
<td>• Tourism and lifestyle</td>
<td>• State government planning with good local capacity but needs stronger long-term direction</td>
</tr>
<tr>
<td>Lower Hunter Region</td>
<td>• Transportation into and around in the region is overwhelmed by growth&lt;br&gt;• Poor internal transit system in communities</td>
<td>• Improved transportation with the arrival HSR&lt;br&gt;• Tourism enhancements of more visitors for day trip and some overnight stays&lt;br&gt;• Lifestyle</td>
<td>• Strong regional planning framework that could be built on with HSR as base for regional collaboration and links to other transport including expanded air services to national and international destinations</td>
</tr>
<tr>
<td>Sydney Central Station</td>
<td>• Physical and funding constraints to much needed transport solutions&lt;br&gt;• Heritage and strata title restrictions to urban renewal</td>
<td>• Relatively low density around station&lt;br&gt;• Several large urban renewal sites are ripe for development&lt;br&gt;• Air rights development over railway land&lt;br&gt;• Possible residential relief value for metropolitan housing shortfall with improvement transport links</td>
<td>• Sydney Metropolitan Development Authority and Landcom transition to UrbanGrowthNSW could provide catalyst to enhance metropolitan strategy</td>
</tr>
<tr>
<td>Albury-Wodonga</td>
<td>• No formal regional planning and collaboration systems</td>
<td>• Growing population&lt;br&gt;• Strong education and health sectors&lt;br&gt;• Logistic hub&lt;br&gt;• Good long-term planning strategy for both localities</td>
<td>• HSR could add to current direction of cities and region but regional (and cross border) collaboration required</td>
</tr>
</tbody>
</table>
9.6 Integrated regional corridor development concept

The framework needed to implement an effective regional development concept for an HSR system on the east coast of Australia would require the alignment of public policies, programs and capabilities across Australian Government, state/territory government and local government agencies. Overseas experience, case studies and the nature of complementary assets on the east coast indicate that the following considerations would need to be addressed in coordinating a corridor regional development concept for HSR:

- **Alignment with local and regional planning** – HSR stations should be located in a logically determined HSR precinct. The HSR station precinct should be subject to a comprehensive master plan and infrastructure strategy integrating the HSR station at the site, precinct, town and regional planning levels.

- **Market and user-demand research** – thorough market and user-demand research would be required to understand the commercial, social and community opportunities presented by HSR. Investments in physical assets should be matched by complementary marketing and outreach strategies and programs which engage local businesses and stakeholders.

- **Tailored regional development strategies** – regional development opportunities would be unique to and should be tailored for each HSR station location. Regular stakeholder engagement would be required to achieve this objective.

- **Access** – ensuring appropriate local and regional transport networks are available to access HSR stations.

- **Complementary assets** – regional development strategies and programs built around key complementary assets provide the best opportunities for capturing and leveraging HSR’s regional development opportunities.

- The most promising complementary assets include:
  - NBN.
  - Higher and technical education.
  - Healthcare and related biomedical research.
  - Tourism.

9.6.1 Regional corridor development framework

Four key tasks would be needed to implement the corridor regional development concept:

- Land acquisition and land use planning.
- Precinct and corridor master planning.
- Regional development projects and stakeholder engagement.
- Complementary HSR projects.

The regional corridor framework is aligned with the proposed governance structure outlined in Chapter 10, which puts the case for a new authority (the HSR Development Authority) to develop the HSR system.

**Land acquisition and land use planning**

The first key task influencing regional corridor development would occur when preferred sites and alignments within the HSR corridor for stations, ancillary infrastructure and the HSR route are agreed between the states, ACT and Australian Government. The HSRDA would then be created to procure the required land. At this point, the HSRDA would take over the HSR planning, preparation and program development roles previously performed by various state and territory government departments. Chapter 11 contains further detail.

**Precinct and corridor master planning**

Precinct and corridor master planning in this context refers to two different scales of master planning that would need to be aligned with the HSR corridor. Precinct master planning is broad-scale regional planning undertaken by state planning authorities in conjunction with local councils in regional areas. Examples of regional...
planning include the *South East Queensland Regional Plan*[^6] and the *Mid North Coast Regional Strategy*. These regional plans can encompass many regional centres and multiple local government areas and address a wide range of regional population, employment, environmental, infrastructure and land use issues.

Corridor master planning refers to more detailed metropolitan and urban renewal planning, undertaken by state and ACT agencies such as Places Victoria in Melbourne and the Sydney Metropolitan Development Authority (now UrbanGrowth NSW Development Corporation) in NSW. Queensland, NSW, Victoria and the ACT all have existing regional and metropolitan planning and development agencies that perform similar functions for metropolitan areas and specific urban renewal sites in the major metropolitan centres. As proposed in Chapter 11, the corridor master planning task would be carried out by, or closely coordinated with, these agencies.

### Regional development projects and stakeholder engagement

International experience discussed previously highlights the need for HSR station precincts and routes to be carefully and thoughtfully integrated within the existing urban and regional fabric of cities and regions within the HSR corridor. International experience shows that the potential commercial development opportunities and urban renewal benefits of an HSR system are generally only realised relatively close to the HSR station, but that the costs of poor planning and execution can extend for some distance within the region and reduce regional opportunities. It is therefore critical that a coordinated approach is pursued to policies, station precinct planning, land use planning and complementary access improvements between the HSRDA and existing state, ACT and local agencies.

It is apparent from the urban and regional planning case studies detailed in Appendix 5D and from investigations undertaken in assessing station and corridor options that regional and metropolitan planning agencies in the HSR corridor would need to update their planning strategies to reflect HSR, and would also need to strengthen their planning and implementation capabilities to take advantage of an HSR system. It would therefore be necessary for the HSRDA to undertake early discussions with the relevant state and territory metropolitan and regional planning and transport agencies if the HSR system is approved for development.

### Complementary projects

HSR can assist in economic development improvements in cases where it facilitates the integration and enhanced use of nearby complementary assets such as education, health and telecommunications infrastructure. This does not happen by chance. Local planning and leadership would be needed to achieve positive results.

Tailored projects such as forging new links between hospitals in the regional centre and metropolitan areas, attracting more students to regional campuses and other measures should be pursued.

Therefore, if a decision were made to develop an HSR system, it would be imperative that regional stakeholder organisations take advantage of HSR to:

- Develop integrated land use and economic development plans for the portion of the corridor in their region.
- Work with local governments and the private sector to maximise HSR benefits to the region.
- Act as a continuing reference group for HSR issues for regional communities.

The concept embedded in this approach is to tailor the current economic development instruments and agencies so they can integrate HSR into their programming, to maximise resources and spread benefits throughout the regions. Stakeholder engagement at the local level across the corridors should be aimed at finding synergies for communities along the route where opportunities and resources can be matched.
9.7 Conclusion

HSR can have both positive and negative impacts on the economic and service relationships between small, intermediate and large cities. The presence of an HSR station does not guarantee greater local economic development and, should positive impacts arise, it can take ten to 15 years for them to become fully realised.

A critical issue is the extent to which an HSR system causes development that would not otherwise have happened, or enhances development that is already occurring. On this important point the evidence is not always clear.

Based upon international experience and local assessments, HSR has the potential to improve the productivity of the Australian economy at the national, regional and metropolitan levels. However, changes will also result in significant permanent relocations of people or jobs both within and outside the corridor. While final outcomes for specific regions are unclear, it is expected that the benefits of HSR would be more prevalent in the major cities. Regions without an HSR station are unlikely to benefit significantly from the HSR network.

HSR could conceptually enhance regional centres as alternatives to metropolitan centres and stem the steady drift of people and jobs to the more congested and expensive capital cities. However the history of the impact of transport improvement on Australian towns is that they concentrate activity in the larger centres and create commuter towns lacking in higher level services. Without concerted efforts to the contrary, this is also a likely outcome of the introduction of HSR.

When combined with NBN and other complementary assets, HSR offers the prospect of enhancing access for regional residents to improved health, educational, cultural and sporting activities. This could make regional areas more attractive for living and/or working. In addition, there is the prospect of increased back office operations and for some start-up, knowledge-based businesses in regional areas to take advantage of lower cost housing, labour and facilities. International tourists and visitors could also be enticed to spend more dollars in regional areas, as the areas would be more accessible. However, these benefits cannot occur without careful planning and proactive public and private investment.

International experience is mixed – there are examples of regional success but others where little difference or even declines are observed. Integrating complementary assets with HSR could have positive regional impacts but these have been associated with pre-existing complementary assets and station locations complementary to the existing regional CBDs. In Australia, it would appear that the most successful regions are likely to be those with existing high end education, health and technological sectors.

An investment of the magnitude and nature of HSR can have unintended consequences and impacts, such as causing small regional cities to lose jobs and residents to nearby regional centres with HSR stations. These negative impacts would need to be controlled and mitigated though effective regional development policies, early and careful planning to position local businesses for change, and appropriate human and capital investment in complementary assets.

HSR is not a panacea for regional development. To gain positive and sustained benefits, regional communities along the corridors would need to follow deliberate strategies. Existing strategies are not equipped for HSR, but they could be redesigned with a clearer focus, increased capacities and a high level of cooperation between Australian, state and local government agencies.