

# Fast rail

A catalyst for growth in the regions



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# Contents

<b>Executive summary</b> .....	<b>4</b>
<b>1 Introduction</b> .....	<b>5</b>
1.1 Striking the right balance for cities and regions .....	5
1.2 Maximising fast rail benefits for regional centres .....	6
<b>2 Why do more for the regions?</b> .....	<b>8</b>
2.1 Improving liveability and wellbeing for city and regional areas .....	8
2.2 Recalibrating after COVID-19 .....	10
<b>3 What does it take to grow regions?</b> .....	<b>11</b>
3.1 Spain .....	11
3.2 Taiwan .....	12
3.3 France .....	12
<b>4 How can fast rail planning realise the right balance between city commuting and regional centre growth?</b> .....	<b>13</b>
4.1 Creating high-end opportunities ahead of fast rail .....	13
4.2 Enabling city living-regional working .....	15
4.3 Locating fast rail stations as part of a broader hub .....	16
4.4 Evolving project economic appraisal tools and techniques to find the right balance for regional centres .....	16
<b>5 Conclusion</b> .....	<b>18</b>
<b>Where to next</b> .....	<b>19</b>
<b>References</b> .....	<b>20</b>

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# Executive Summary

New fast rail connections could play a key role in our future population settlement patterns by facilitating regional city living for capital city workers.

COVID-19 will change where people want to work from and where businesses establish. Early indications are people will work from home more and may choose to live outside our capital cities. For example, a recent survey by Jacobs commissioned by United Kingdom National Rail Delivery Group showed commuters expect to be working from home around two and a half days a week once the risk of infection was acceptable, up from just half a day pre-pandemic.

However, a key question that is yet to be answered in proceeding with fast rail is: **How will fast rail benefit regional economies beyond providing access to jobs and activities in capital cities?**

Overseas, fast and high speed rail projects connecting regional centres to capital cities have produced mixed results for regional centres. Those that have thrived and become vibrant places to live and work have struck the balance between becoming commuter towns for capital cities and establishing themselves as economic hubs in their own right; building their own identity and attracting new investments, businesses and people to the region.

Right now, a substantial number of jobs in regional centres cater for the current or future population; for example, retail, health, education and construction jobs. These jobs have low flow on effects and contribute to an employment lag in regional centres where population grows faster than jobs.

In comparison, jobs in industry sectors such as professional services or finance, which are currently concentrated in our capital cities, have greater flow on effects. It is these “catalyst” jobs that will make a real difference to the structure of regional economies and drive regional economic development.

**To fully unlock the economic potential of Australia’s regional centres, we believe fast rail projects must consider the need to attract high-end catalyst jobs to regional centres.**

This paper identifies four actions that will assist in shaping fast rail projects to be facilitators for regional economic development rather than simply extending the commuter belt of nearby capital cities:

- Creating high-end catalyst employment opportunities ahead of fast rail arrival.
- Enabling regional workers to retain personal and professional connections by facilitating city-living/regional-working through reliable and convenient travel times in both directions.
- Locating fast rail stations as part of a broader hub.
- Evolving project economic appraisal tools and techniques to find the right balance for regional centres.

Implementing these four actions will require joined up planning, procurement and delivery, involving relevant fast rail authorities, parts of State Government (e.g. planning, health, education etc.), Commonwealth Government (e.g. regional infrastructure) and the local councils.

# 1

## Introduction

### 1.1 Striking the right balance for cities and regions

Fast, frequent and reliable rail services can change the economic dynamics of cities and regions.

British Rail introduced fast 125mph (200 kph) services on many intercity routes in the 1980s. This led to a big increase in longer distance commuting on these corridors, especially to and from locations within 60 to 90 minutes of London, and the greater engagement of regional centres with the city economy (Figure 1).

Milton Keynes (c.200,000 people) is one these locations and is a fast rail success story. The regional city has been able to strike the right balance between being a major commuter region for London whilst also attracting inward commuting from other regional towns.

**Figure 1:** South East England - Selected Fast Rail Commuter Routes<sup>4</sup>



Reliable fast rail services combined with the ability to attract large businesses offering higher wage jobs, has seen Milton Keynes become a vibrant place to live and/or work. A number of large established businesses use it as a base, and it has one of the highest business start-up rates in the country.<sup>1</sup> Similarly, Swindon (c200,000 people) has grown rapidly due to faster links to and from London and is a major employment centre itself.

On the other hand, Peterborough's population (c100,000 people) has grown rapidly due to the easy commute into London. However, unlike Milton Keynes and Swindon, it has not yet established itself as a prominent economic hub where people live, work and play. It relies on the fast rail network to connect its population to jobs in London and Cambridge.<sup>2</sup>

In the UK today, High-Speed Rail 2 (HS2) (Figure 2) is underway. Opponents have argued that reduced travel times between Birmingham-London and Manchester-London will draw these cities further into London's commuter catchment belt<sup>3</sup>, potentially hollowing out local economies for the capital's gain. London's influence on its surrounding regions has already increased in some parts of the UK and, particularly in Birmingham, there is a risk that reduced travel times to London will encourage growth in services delivered by city-based providers in the regional centre<sup>3</sup>, further eroding local economic growth.

To overcome the risks, HS2 has worked closely with the regional city planning authorities to integrate stations into regional city planning, aligning with regional transport links, putting stations at the heart of regenerative development and making stations a "destination" in their own right.

## Fast or high speed rail - is the definition important?

Whilst there is no universally agreed definition, we consider fast rail to refer to rollingstock and infrastructure capable of providing speeds of between 160 km/h and 250 km/h and high speed rail to that capable of providing speeds of greater than 250 km/h.

For the purpose of this paper however, the definitions are largely irrelevant. What's important from a regional growth perspective are the challenges and opportunities faster connections — in Australia's case, fast rail connections — between regional centres and capital cities might bring.

**Figure 2:** High Speed Rail 2 in the UK<sup>5</sup>



Today, the Australian National Faster Rail Agency is working alongside State Governments and some private sector proponents to progress business cases for fast rail corridors in Victoria, New South Wales and Queensland (Figure 3). The current plans focus on delivering fast, reliable and regular connections from regional centres to capital cities in the morning and in the reverse direction in the evening. Most of these proposed routes connect regional centres to metropolitan and central business district (CBD) locations, with many stopping at outer suburban locations along the way.

Labour market economics suggest that, with improved transport access, regional-based employees will seek out job opportunities (and higher wages) in metropolitan areas, particularly in the metropolitan CBD. Careful planning is needed to mitigate the potential downsides of fast rail for regional centres, such as becoming a dormitory suburb for capital cities and the hollowing out of regional economies.

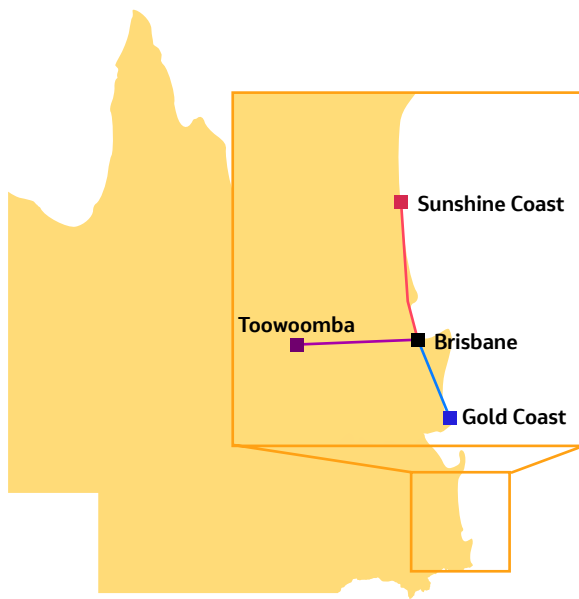
As Australia embarks on its own fast rail journey, the critical question for planners is:

**How can regional centres maximise the growth opportunities created by fast rail and avoid becoming just a dormitory suburb of a capital city?**

## 1.2 Maximising fast rail benefits for regional centres

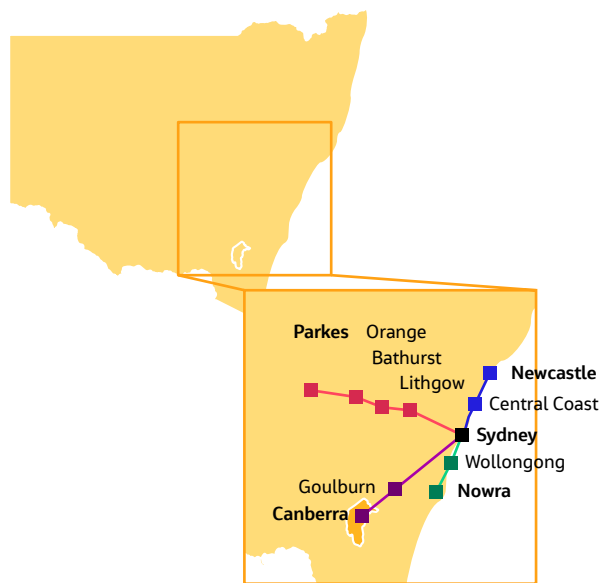
In March 2019, the Australian Government announced measures to take the pressure off our capital cities by distributing population growth more evenly across city and regional centres and supporting regional economic growth.<sup>6</sup> Fast rail linking capital cities with nearby major regional centres was identified as a priority measure.

**Figure 3:** Routes with business case funding currently under investigation<sup>7</sup>



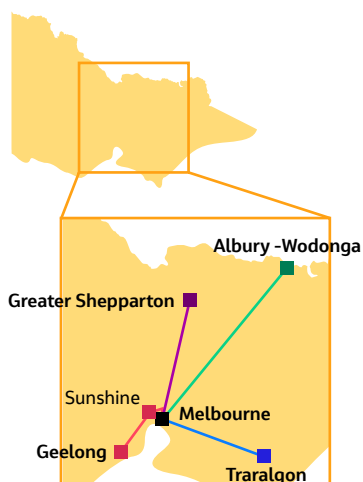
### Queensland

- Brisbane to **Sunshine Coast**
- Brisbane to **Toowoomba**
- Brisbane to **Gold Coast**



### New South Wales

- Sydney to **Nowra**
- Sydney to **Newcastle**
- Sydney to **Canberra**
- Sydney to **Parkes**



### Victoria

- Melbourne to **Albury-Wodonga**
- Melbourne to **Traralgon**
- Melbourne to **Greater Shepparton**
- Melbourne to **Geelong**

# 2

## Why do more for the regions?

### 2.1 Improving liveability and wellbeing for cities and regional centres

For decades, Australia has experienced steady population and economic growth.

In the last 30 years, our population has increased by around 66%.<sup>8</sup> Much of that growth has been centred in our capital cities. Around 70% of the Australian population live in a capital city and in 2019, capital cities accommodated around 79% of total population growth.<sup>9</sup> In fact, except for the Northern Territory, population growth in capital cities outstripped the rest of their respective state by nearly 2:1 (Figure 4).

Population growth and urbanisation bring with them a host of challenges, including unbalanced job creation, poor access to employment centres, increasingly unaffordable housing, congested roads and public transport, and harder-to-access services such as health and education.

To accommodate recent rapid population growth, the greater metropolitan areas of our capital cities are rapidly expanding into their receptive hinterlands and, in some instances, engulfing nearby regional centres.

These peri-urban or hinterland areas are projected to continue to grow at approximately 1.5% per annum.<sup>14</sup>

**Figure 4:** 2018/19 Population change in cities and regions<sup>9</sup>

	QLD	NSW	ACT	VIC	SA	TAS	WA	NT
<b>Capital City</b>	2.1%	1.7%	1.5%	2.3%	1.0%	1.5%	1.3%	-0.8%
<b>Rest of State</b>	1.3%	0.8%	n/a	1.4%	0.4%	0.9%	-0.01%	0.01%

### The growing cost of congestion in Australia

As the distance between our homes and workplaces grows, road congestion becomes a very real issue for many families, particularly those living in the outer suburbs. It also comes at a significant economic cost to the nation. According to Infrastructure Australia, road congestion and public transport crowding cost the Australian economy \$19 billion in 2016, and the figure is expected to rise to \$39.8 billion by 2031.<sup>10</sup>



**Figure 5:** City versus Regional Growth rates<sup>11, 12, 13</sup>



Many areas currently lack the social, economic, environmental and physical infrastructure needed to support populations of this size.<sup>14</sup>

Economic growth has also centred around our capital cities.

Before the recent COVID-19 induced recession, Australia enjoyed an unprecedented period of sustained economic growth. For 28 straight years the size of the Australian economy increased<sup>15</sup> and, during this time, its characteristics changed considerably. Manufacturing declined and business services grew as part of a new knowledge-based economy.

It turns out the types of jobs required in a knowledge-based economy thrive as part of a central business district and many of our cities, particularly Melbourne and Sydney, have evolved into international centres for financial and professional services.

Today, in Victoria and New South Wales, capital city economic growth is more than three times the rate of regional and rural areas. In Queensland, the South East has grown nearly twice as fast as the rest of the state (Figure 5).

In recent years though, economic growth had slowed down. This, in conjunction with our over-reliance on Melbourne and Sydney to drive Australia's economy, prompted the Business Council of Australia to publicly call on government to select 10 regional cities as a focus for renewed investment to 'power the economy.'<sup>16</sup> Cities such as Geelong, Ballarat, Newcastle, Wollongong, Toowoomba and Busselton were suggested as contenders. With the exception of Busselton, all are regional locations earmarked for potential fast rail connections in the Australian Government's Fast Rail Plan.<sup>17</sup>



## COVID-19 impacts on rail demand

A recent survey conducted by our team in the UK for National Rail's Rail Delivery Group investigated the longer term impact of COVID-19 and changes in working from home patterns on rail demand. The survey found that rail commuters anticipate a major shift in their working from home patterns post-COVID. Pre lockdown, rail commuters reported an average 0.5 days spent working from home each week, compared to an anticipated 2.6 days each week spent working from home post-COVID. The technology and professional sectors expected to see the largest shift.

## 2.2

### Recalibrating after COVID-19

We can't talk about future growth without reflecting on the emergence of COVID-19 and its impacts. For the first time in a generation, our economic future is uncertain, and a positive path forward is far from assured.

The changes the pandemic has brought — particularly when it comes to flexible working — present new opportunities for cities and regional centres that could be leveraged through fast rail investments.

Within the space of a few weeks, the number of Australians working from home increased to somewhere between 32%<sup>18</sup> and 46%.<sup>19</sup> From March to June (and longer for Melbournians), millions of Australians lived and worked almost entirely locally – no longer commuting to a workplace, travelling inter-state or flying overseas for holidays and business. Anecdotally, this time at home has caused many to question higher density city-oriented life; living, working, schooling and socialising in regional locations has become increasingly appealing to many Australians.

Already, businesses have and will continue to develop more appropriate distributed and physical spaces to provide enhanced experience, flexibility and resiliency for their workforce and operations. Fast rail could play a critical role in helping them navigate a COVID-19 reshaped world and improve the liveability and productivity of our cities and regional centres. With better accessibility to and from regional centres helping to overcome the traditional barrier to attracting talent to the regions, businesses could start to respond, adapting to the "living with COVID-19" environment, by seeking alternate workplace locations in regional centres, either choosing to relocate or providing a second office.

Overall, this is potentially good news all round, likely to contribute to improving employee wellbeing and retention, reducing business costs and creating a more attractive and competitive environment for businesses to drive investment.

# 3

## What does it take to grow the regions?

With regional population and economic growth key drivers for Australian fast rail investments, it's prudent for us to look at where fast rail has been successful and unsuccessful as a driver of regional development and why.

The UK has seen mixed results as discussed at the beginning of the paper. Some regional centres have developed into vibrant places to live and work as a result of new fast rail connections, while others have not. The lessons learned are being actively applied to HS2 to help regional cities newly connected to London retain and grow their own unique identities.

Other international case studies provide further insights into the potential impact of Australia's investment in fast rail connections linking regional centres and capital cities.

The Australian Government's *High Speed Rail Phase 2 Report*<sup>20</sup> provides an excellent overview of high speed rail development globally, and we note the key lessons learned from a number of these below.

### 3.1 Spain



High speed rail (HSR) was first introduced in Spain in 1992 with a new connection between Seville and Madrid.

A second line linking Madrid to Barcelona followed some years later. The network connects intermediate and smaller sized regional cities to the capital.

Two intermediate-sized cities, Cordoba and Zaragoza, have benefited the most from HSR. Already home to high-end catalyst job sectors before HSR arrived, the new connection reinforced their role as principal cities within their respective sub-regions.

They have both become prominent employment and amenity hubs outside of Seville and Madrid and commuting has increased in both directions.

Smaller regional cities also benefited and experienced employment growth, especially those within 60 to 90 minutes of a major city where commuting in both directions increased.

In addition to the presence of catalyst job sectors, the location and amenity of station precincts in the regional centres were critical. Precincts were in central locations surrounded by developable land and were planned to cater for high-amenity, multi-purpose users; for example, office, retail, residential, hotel and conference facilities. They were serviced by complementary transport that provided connectivity to surrounding areas and were funded by a mix of public and private investment.

The Spanish experience indicates that there are numerous benefits to be gained by combining rail investment with catalyst jobs in universities, hospitals, government offices and supporting the relocation of back office functions of larger centre-based businesses.<sup>21</sup>

### 3.2

## Taiwan



The Taiwan High-Speed Rail (THSR) connection opened in 2007 and links Taiwan's two largest cities, Taipei and Kaohsiung City, with eight stations along the way. The

service reduced a four-hour road trip to 90 minutes non-stop or two hours with stops.

The five major stations located outside Taipei and Kaohsiung were established in regional locations and earmarked as future new cities – a government priority at the time. Each was assigned its own unique catalyst job specialisation: international business, biomedical technology, entertainment and shopping, leisure and tourism, and bioscience research.

While a combination of short connection times, effective land use and public infrastructure planning, and flagship projects accelerated development in these areas, THSR has initially had little impact on regional development. The government has since developed strategies aimed at driving population and economic growth in these areas.

Taiwan's experience highlights the need to put development strategies in place for areas surrounding regional stations, for collaboration between local government and developers and for good connections to other transport modes.

### 3.3

## France



France's high speed rail service, Train à Grande Vitesse, commenced over 35 years ago and connects multiple regions.

Much like Spain, centres with existing high-end catalyst job focused sectors have benefited the most from faster connections which have helped spur on regional development. Many have developed into major economic and employment centres in their own right, often establishing themselves as a business and employment hub for a small number of service-focused industries or sectors. Employees in these service-focused sectors travel frequently for work which generates commuting in both directions. In contrast, regions that relied mainly on manufacturing, agriculture and mining benefited little from the new connections.

The close proximity of stations to the existing town, collaboration with government to implement broader planning policies and the existence of catalyst job sectors have helped deliver positive growth.

Like Spain, France's experience shows the presence of high-end service sector jobs is key to driving development in regional centres.



# 4

## How can fast rail planning realise the right balance between city commuting & regional centre growth?

To realise the right balance, fast rail planning should consider the following four actions:

- Creating high end opportunities ahead of fast rail.
- Enabling city-living, regional working.
- Locating fast rail as part of a broader hub.
- Evolving project economic appraisal tools and techniques to find the right balance for regional centres.

### 4.1

#### Creating high-end opportunities ahead of fast rail

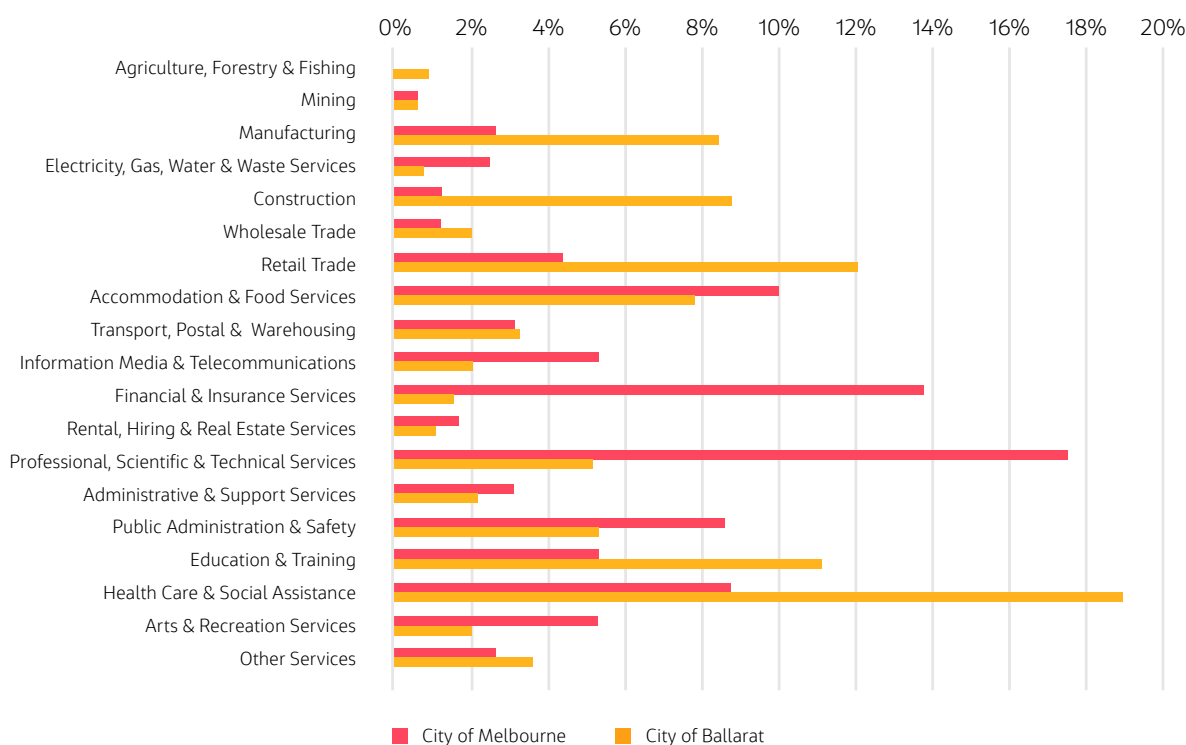
Fast rail planning should consider the need to **attract new businesses and new jobs**, particularly catalyst jobs, to regional areas. Catalyst jobs (higher wage and entrepreneurial jobs) located in regional centres could help mitigate the potential downsides fast rail connections pose to regional centres, namely becoming dormant feeder suburbs for capital cities and the hollowing out of local economies.

Historically, in regional centres there is a lag between growth in population and growth in jobs to satisfy the expanding population. In the absence of suitable jobs, regional workers often accept lower paid jobs for which they are over qualified.

**Figure 6:** Median weekly household income<sup>22</sup>

	2006	2011	2016	Change 2006-16
<b>Ballarat</b>	\$ 839	\$ 998	\$ 1,171	\$332
<b>Greater Melbourne</b>	\$ 1,079	\$ 1,333	\$ 1,542	\$463
<b>Toowoomba</b>	\$ 960	\$ 1,095	\$ 1,298	\$338
<b>Greater Brisbane</b>	\$ 1,111	\$ 1,388	\$ 1,562	\$451
<b>Wollongong</b>	\$ 903	\$ 1,164	\$ 1,413	\$510
<b>Greater Sydney</b>	\$ 1,154	\$ 1,447	\$ 1,750	\$596

**Figure 7:** Composition of the job market - Melbourne versus Ballarat<sup>23</sup>



This leads to regional under-employment, lower labour force participation rates, greater labour force gender imbalances and de-skilling.

The median household income in regional centres is historically well below that in metropolitan centre and it continues to fall further behind (Figure 6). If nothing is done to address the regional employment lag, the wage gap between city and regional employees will continue to grow.

For populations and economies to thrive, regional centres need catalyst jobs with high employment multiplier effects.

Catalyst jobs are typically white-collar jobs that are specialised and service a wide market. They have high employment multiplier effects because employees in white-collar jobs generally have a higher disposable income and consume more.

Right now, the composition of the jobs market varies greatly between city and regional areas (Figure 7). Jobs in regional centres are typically focused on regional industry support,

such as providing services to the agriculture sector and in sectors servicing the existing population, such as retail, schools, health and government services; or in sectors servicing future populations, such as construction.

These types of jobs have low multiplier effects.<sup>24</sup> For example, for every job directly created in the agricultural sector, there are an estimated 0.46 production induced effects jobs and 0.46 consumption induced effects jobs.<sup>25</sup>

In comparison, jobs in the professional, scientific, technical, financial and insurance sectors that have thrived in our capital cities have high employment multiplier effects, generating a lot of supporting activity. For example, for every job directly created in the finance sector, there are an estimated 0.5 production induced effect jobs and 1 consumption induced effects jobs.<sup>25</sup>

Fast rail planning needs to closely collaborate with the spheres of government responsible for regional development and industry attraction now, before fast rail arrives in town.

Industry attraction should target sectors with high multiplier effects, such as professional services and finance, while retaining important focus on existing sectors such as agriculture and services. Attracting these catalyst jobs to the region will help mitigate the regional employment lag, diversify and grow regional economies, and make them more resilient and less vulnerable to downturns.

## 4.2

### Enabling city living-regional working

To **attract people with the requisite skills and experience** to fulfil catalyst jobs in regional centres requires:

1. Convenient and competitive transport options to and from employment destinations.
2. Access to high quality, active and stimulating amenities at the employment location.
3. Addressing the perception that a regional job can be detrimental to your professional network.

#### Convenient & competitive transport options

Taking a regional job shouldn't have to be a major life-changing event. Faster, more convenient and more accessible connections from capital cities to regional centres for work would limit the disruption. In time, some people may move permanently to the regional centres, but it should not be a necessity.

Fast rail travel times between capital cities and regional centres need to be competitive, convenient and facilitate reverse commuting. This means operating services at convenient frequencies and providing convenient headways (frequencies).

Right now, many regional centres lack a fully functioning, connected rail network with convenient travel times. In some

cases, existing services are slow, infrequent and lack comfortable passenger amenity. For example, in Victoria, Ballarat-based employees can travel to Melbourne in around 90 minutes by train, but Melbourne-based employees cannot easily commute by rail to Ballarat. There are only two inbound services in the morning arriving at 7:44am or 9:14am, providing limited flexibility for inbound workers. In Queensland, employees commuting between Brisbane and the nearest regional inland centre, Toowoomba, can't directly connect by rail.

#### High quality, active and stimulating amenities

City origin stations require rapid, direct and multi-mode accessibility to ensure transfers and door-to-door commutes remain viable. At regional destination stations, places of employment need to be located relatively close to the station with safe and convenient walking paths available.

#### Addressing perceptions of potential loss of professional networks

Employees considering regional working need to be able to move in and out of regional job opportunities seamlessly, without severing professional connections. Taking a regional job needs to be part of a natural career evolution and not be perceived as hindering future career prospects.

Personal interaction will remain a key part of business. Our experience during COVID-19 has shown that digital engagement while working from home/remote locations can only partly replace face-to-face engagement. To attract catalyst jobs, government and industry/peak bodies will need to strengthen professional networks in the regional cities and centres to support career development and future job opportunities for employees. For example, Consult Australia's FutureNet initiative delivers industry networking and professional development events for young professionals and has local committees in a number of regional cities and centres.<sup>26</sup>



### 4.3

## Locating fast rail stations as part of a broader hub

To make regional centres attractive to businesses that will bring catalyst jobs, fast rail planning should **consider transport integration as part of a broader employment precinct.**

A key take-out from the international case studies is integrating the design, development and delivery of the regional stations with wider economic development policies and programs. Globally, regional centres have thrived where fast rail stations are accessible to the surrounding community and form part of a broader hub which offered a range of high-amenity land uses and evolved into an economic centre over time.

Regional stations should be located centrally and surrounded by developable land. The land itself should be planned to cater for a high-amenity, multi-purpose precinct that include offices, retail, residential, hotel and possible conference facilities. Importantly, the development should be funded by a mix of public and private investment to incentivise commercial returns and maximise success.

The end-to-end journey is also important. Fast rail stations located within walking distance of regional precincts with a high level of amenity will be essential to facilitating job creation and demand for reverse commuting. For example, in Ballarat, Toowoomba and Wollongong, which are already home to high-end, service focused jobs in the education sector, regional

stations could be located in close proximity to existing major regional university campuses, such as Federation University Australia, University of Southern Queensland and University of Wollongong respectively.

### 4.4

## Evolving project economic appraisal tools and techniques to find the right balance for regional centres

To fully unlock economic potential in regional centres, fast rail projects need to carefully consider catering for reverse commuters. While this would enhance the total economic uplift in the region, it would not necessarily enhance the economic viability of the project itself. In fact, by any traditional measure, costs would be higher. Reverse commuting would require more upfront capital for infrastructure and rolling stock, and operating expenditure and maintenance costs would also be higher.

However, the economic appraisal of fast rail investments is highly likely to be enhanced if we **assess the full value of the regional benefits delivered** (Figure 8). For example, this can be done by incorporating the direct and indirect economic development benefits of growing high end employment, supported in part by reverse commuting, into the value equation.

In Australia, we've been slow to advance appraisal techniques to capture these impacts. Infrastructure Australia encourages project



teams to report on wider economic benefits, but there are currently no guidelines on how to do this in an appropriate and consistent manner. Moving forward, we must be able to demonstrate the total value of investment beyond the narrow focus of user benefits.

Our thinking must also move beyond traditional economic appraisals so that we can begin to capture the social value created by this type of investment. Social value measures the positive impact of projects on regions, communities and individuals that cannot be defined by conventional economic measures; for example, the confidence people gain when securing a catalyst style job or more secure employment, or being able to live close to family and friends.

There are a growing number of tools and techniques designed to help projects define and measure the broader social value of their investments.

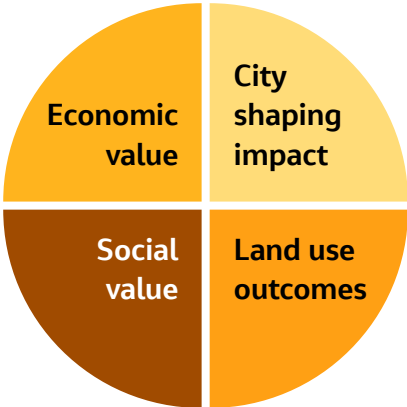
Our recent paper, *Before and Beyond the Build: A Blueprint for Generating Social Value through Infrastructure Investments*, explored this topic in detail.

If we're expanding our appraisal of infrastructure investments to demonstrate the total value of fast rail and the economic uplift that reverse commuting could provide to regional centres, we must be prepared to invest in the data, tools and methodologies needed to forecast and capture wider impacts.

One such tool is a model that forecasts the expected change in land use resulting from new transport infrastructure. Land Use and Transport Interaction (LUTI) models date back to the 1960's. Various models exist and even more are in development, but there is currently no uniformly accepted approach. Now is the time for them to become mainstream and transparent.

Transport project appraisal has been successful in the past in developing national approaches so that all projects can be assessed on a level playing field. This approach needs to be maintained for LUTI development and application. The transport infrastructure sector must decide what it wants to see in a LUTI model to make sure it includes the right metrics and is effective in capturing the regional impacts of fast rail.

**Figure 8:** Assessing full value



# 5

## Conclusion

Connecting regional centres to capital cities with fast rail could be a game changer for regional economies.

To truly thrive, regional centres must strike the balance between being a commuter settlement and a vibrant place to live and work in their own right. To achieve this, fast rail planning should consider how improved rail connections can facilitate strong, resilient and thriving regional centres.

To facilitate this, we've identified four key planning considerations for fast rail projects:

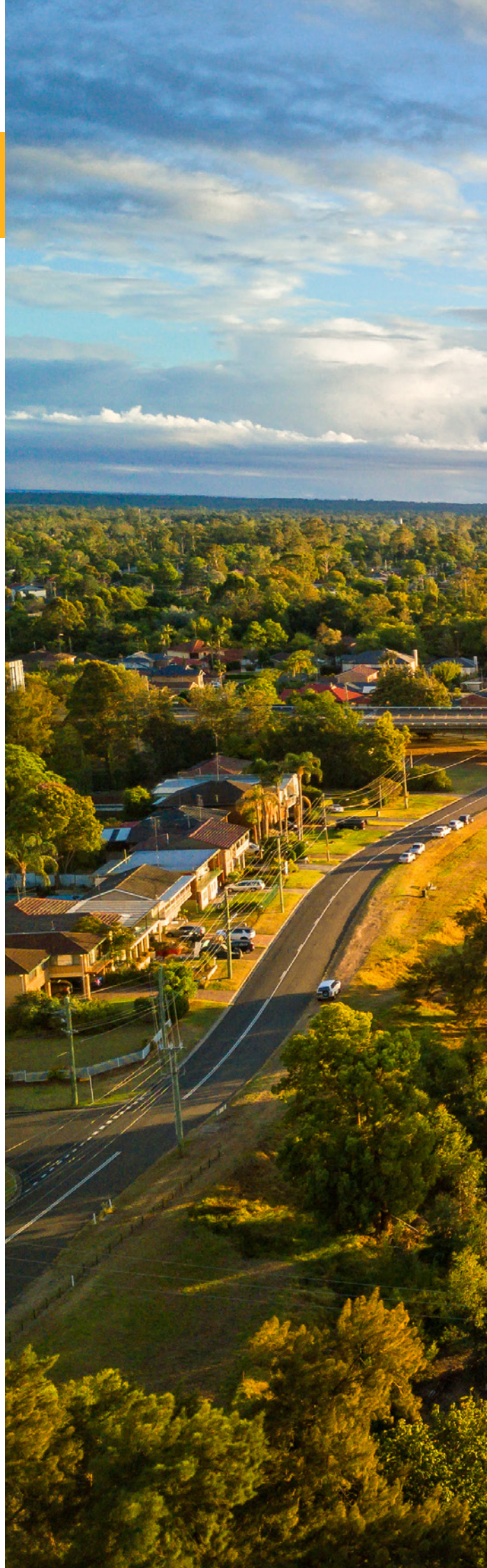
- 1.** Attracting high-end, catalyst jobs, with higher multiplier effects will reduce the employment lag and drive economic development in regional centres. Fast rail planning should collaborate with all levels of government to ensure the right policies and initiatives are in place to attract new industries and businesses to regional centres now, before fast rail arrives.
- 2.** Taking a regional job needs to be normalised as part of a natural career progression, not a major life changing event for employees. Fast rail connections should consider catering for both regional and city-living employees and facilitate commuting in both directions.
- 3.** Location will influence the potential value of new station precincts to regional economies. Fast rail planning should consider transport integration as part of a broader employment precinct. Station precincts are best located close to existing regional employment precincts and/or be surrounded by developable land. Surrounding land should be planned for a range of high-amenity uses to encourage new regional economic hubs to build up over time.
- 4.** Project economic appraisal tools and techniques must capture the full value of new fast rail connections to regional centres. Fast rail planning should recognise the city-shaping impacts of major transport projects, the broader 'value' generated from these projects — including the social value generated — and invest in the data, tools and methodologies needed to forecast and capture wider impacts, such as the LUTI model.

# Where to next

There are of course other major challenges and opportunities for fast rail in Australia.

Each corridor will be a major program of work that requires careful thought on design, procurement approach and risk management through delivery.

One challenge that we have been thinking about is the engineering design and alignment of fast rail routes and how we can overcome topographical and geological challenges to provide straighter and flatter alignments so that fast rail can operate at optimal speeds between regional centres and capital cities. Straighter, flatter alignments present significant configuration challenges to optimise cost and benefit from city centre access. These challenges will be explored in a subsequent technical discussion paper.



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