MELBOURNE - GEELONG FAST RAIL:

Keeping Melbourne liveable, transforming regional development

A strategy report for the City of Greater Geelong

2018

CITY OF GREATER
GEELONG

Disclaimer

This report has been prepared by Juturna P/L for the City of Greater Geelong. It has been designed to be read in conjunction with the *Geelong Fast Rail High-Level Technical Report* produced by RayLink P/L for the City of Greater Geelong.

The information in this report has been prepared by Juturna from open-source material and from stakeholder consultation. All reasonable attempts have been made to ensure the accuracy of the information contained in this report, but Juturna reserves absolute discretion in updating or amending this document.

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A STRATEGY REPORT FOR THE CITY OF GREATER GEELONG

JUTURNA P/L
2018

Contents

Executive summary

This strategy report outlines the economic, planning and finance merits as well as key beneficiaries of a Regional Fast Rail service between Melbourne - repeatedly voted the world's most liveable city, but facing major population growth frictions - and Geelong, Victoria's largest regional centre.

An accompanying high-level technical report explains how 160-200km/h Fast Rail can be achieved in optimised engineering terms - minimising community disruption and maximising existing infrastructure. It also verifies likely travel time impacts of fast rail to key destinations.

The main beneficiary of Melbourne-Geelong Fast Rail is most likely to be Melbourne itself: the project offers a transformative shift in how the World's Most Liveable City might retain this status while growing towards a much larger population than today.

Decades of economic observations of fast rail projects globally suggest that transformative changes in commuting speed can reshape Melbourne and Geelong's existing commuter choices, property values and planning and development assumptions quite dramatically. Fast Rail can reduce Melbourne's outer urban expansion rate - the infamous 'outer-suburban sprawl' - and would allow a much larger region around Geelong to come well within a one-hour door-to-door commute of Melbourne - a globally-accepted rule of thumb for acceptable commuting timeframes. It also presents robust value-capture financing opportunities to help pay for the project in a manner consistent with community interest.

Lack of dedicated regional express tracks into Southern Cross Station in central Melbourne is the principal reason that regional speeds cannot be increased to Geelong and other Victorian centres. Perhaps unconsciously, this has had a major impact on how Victoria approaches regional development policy. This is a longstanding infrastructure policy oversight which Victoria is better placed than anywhere else in Australia to resolve: Victoria's land mass is equivalent to the entire United Kingdom, yet its main regional centres all lie very close to Melbourne. Transformative fast rail connections to and from Melbourne and these nearby centres can take more of the State's growing population and economic development in a way that helps overcome a long-observed regional-capital economic and equity divide. In this context, Geelong is the pre-eminent candidate for Fast Rail, measured as a function of distance to Melbourne, population, economic diversity, supporting infrastructure, land value uplift potential as well as the volume and frequency of current rail services, which now represent almost half of all Victoria's country rail trips.

Building new dedicated regional rail lines into Melbourne is a significant infrastructure project, involving a tunnel. But such investment opens up powerful new economic possibilities impossible to secure under *status quo* rail speeds.

Many wider beneficiaries identified in this report increase the likelihood that the social benefits of implementing the project outweigh its costs and that the project is likely to be more compelling than many other Melbourne population and transport sustainability projects, such as more motorways, or other regional infrastructure investments.

This report does not seek to frame a cost for Melbourne-Geelong Fast Rail. At this point, costing debates are counter-productive: they tend to overwhelm and obscure the strategic question, which is 'how does Victoria wish to develop itself, in economic, equity and liveability terms?'. The report endeavours to establish a more informed and community-led debate on these matters.
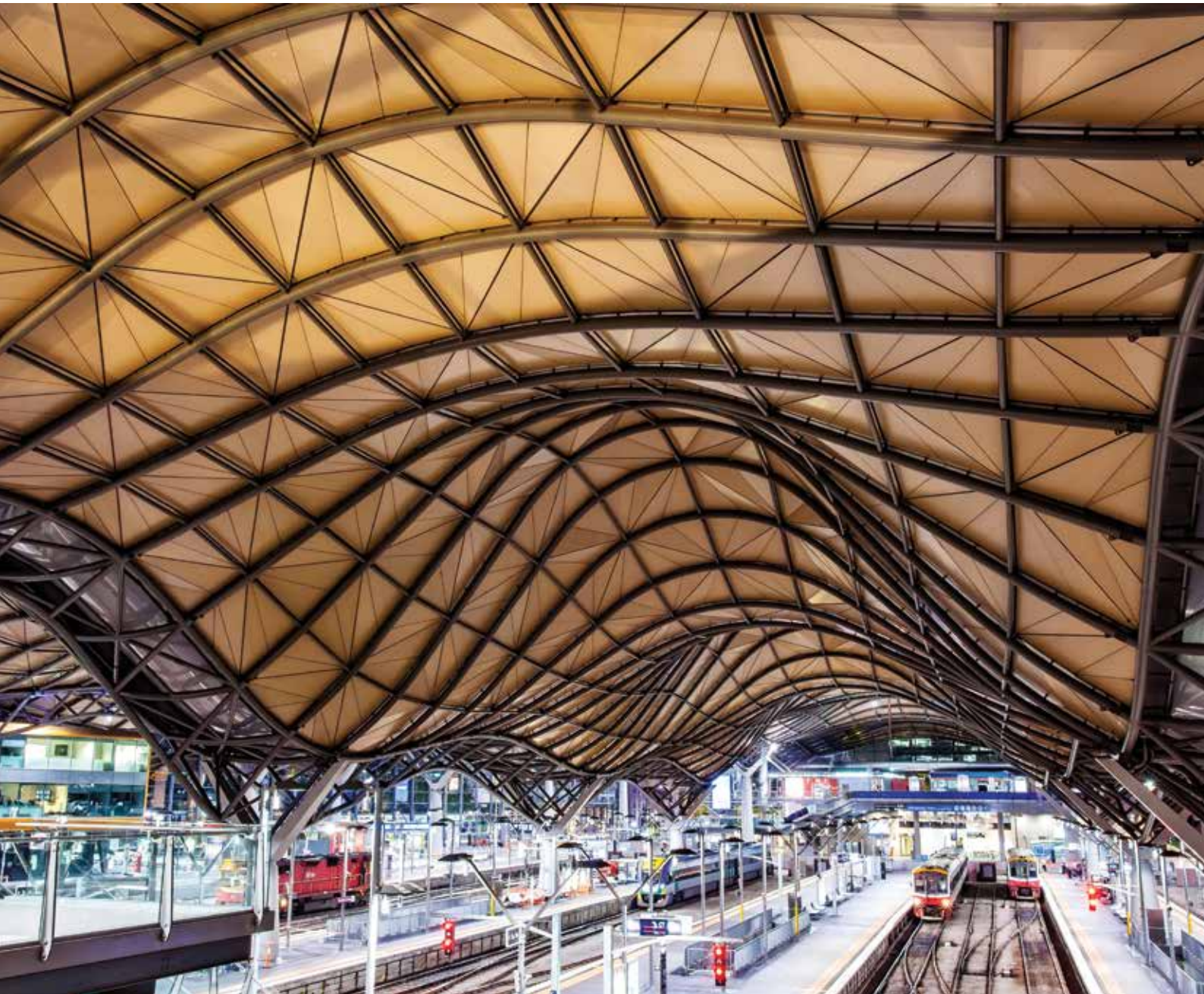
Impacts

- Melbourne (Southern Cross) express to Geelong - from c. 55 mins to 32 mins;

- Melbourne-Geelong 3-stop service *via* Corio, Nth Geelong Sunshine - 36 mins;

- Melbourne express to a new Avalon International Airport mainline station - c. 27 mins;

- Geelong to Sunshine (Melbourne Metro's future main transfer station) in c. 25 mins: creates Geelong - Parkville in c.40 mins or Geelong - South Yarra in less than an hour;

- Major modal shift away from c. 75-85 minute peak intercity car commuting on congested Princes Freeway (now carrying c. 48 million vehicle*s per y*ear);

- A new 7km Fast Regional Rail tunnel at Footscray opens major new capacity to Metro trains in Melbourne's West - helping futureproof suburban services for Melburnians;

- New Fast Regional Rail tunnel can also be used for subsequent expansion of Fast Rail to Winchelsea, Colac, etc. through to Warrnambool in Victoria's South-West;

- Optimal route selection: retro-fitting Fast Rail to current Regional Rail route creates wider beneficiaries, for loss of only 5 minutes compared to faster assessed alignments;

- Significant Melbourne - Geelong Fast Rail property value uplift potential:

- Geelong 3-bedroom house values at c. 35 minute Fast Rail commute to Melbourne CBD between c. $500,000 to $1,000,000 lower than a dozen reference Melbourne suburban house values offering average 40-minute rail commutes to Melbourne CBD.

- Major socio-economic value for addressing unemployment challenges facing the post-industrial northern suburbs of Geelong in particular.
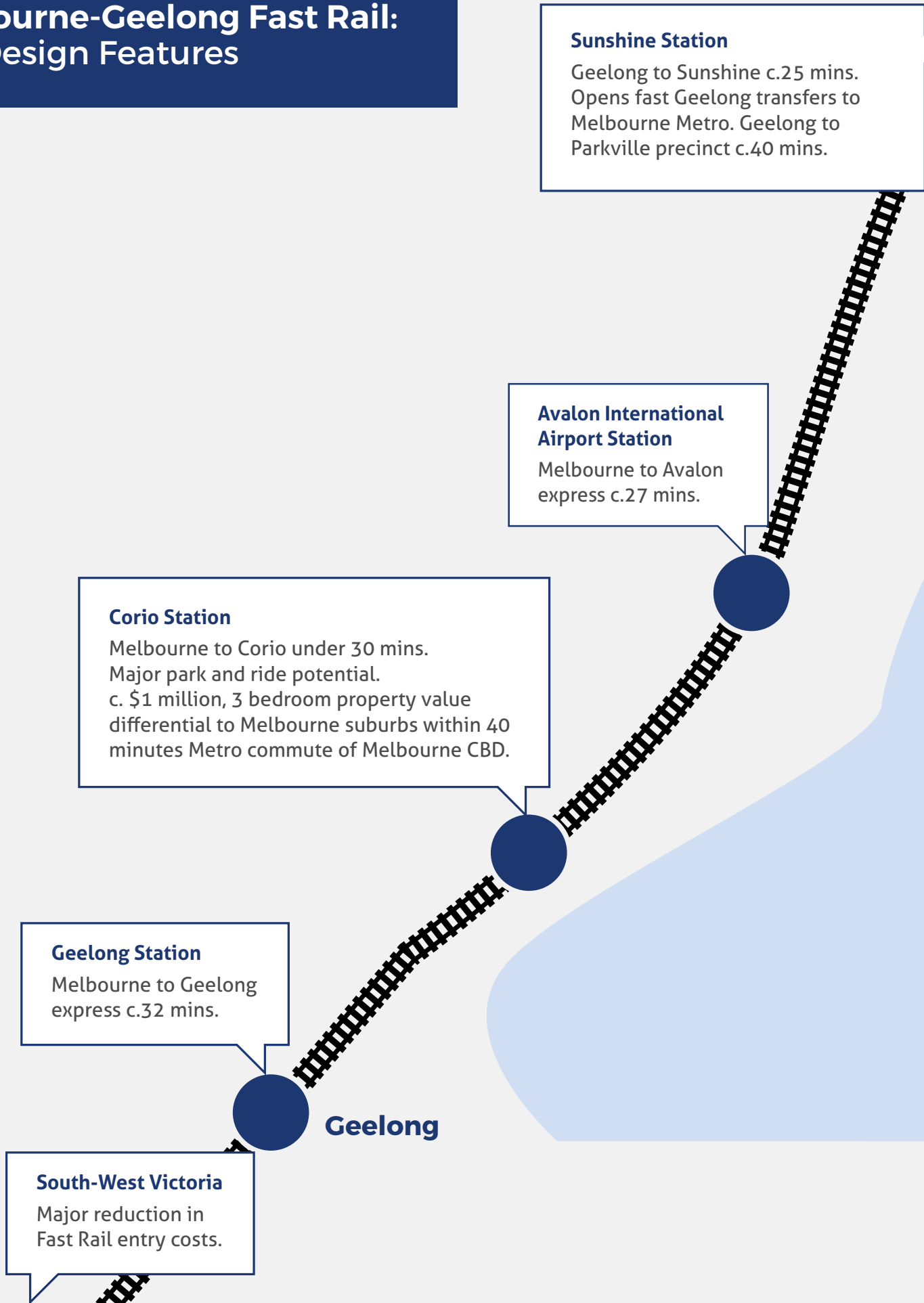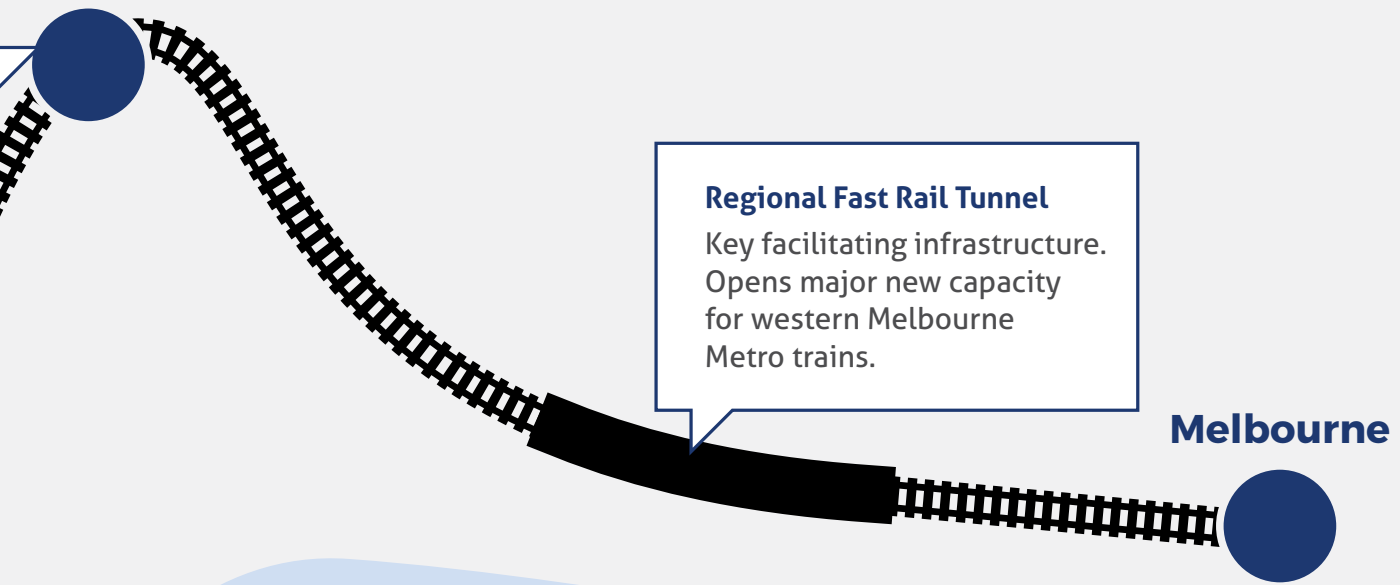
About this commission

The City of Greater Geelong commissioned both this strategy report and its partner high-level technical design report as catalyst for smart action on Fast Rail: above all it sought broad consensus on a durable, strategic project, to encourage non-politicised solutions at lowest cost. It also sought a report to bind affected communities, policy makers and potential market investors and constructors to a highly-credible and commonly understood vision.

Traditionally, major Australian infrastructure projects have been 'originated' and designed by heavily-centralised State and Commonwealth government processes. While they might be consulted extensively at a later stage, affected communities, prospective investors and unfettered design thinking are often 'left out' of this early strategy and design work. This leaves such projects open to politicisation and sometimes rejection by affected communities; these risks can in turn make such projects less attractive to investors and builders. Taken together, this approach can lead to projects that are much costlier and more complex than necessary and can become particularly expensive for market bidders.

This report and the accompanying technical report seek to reduce these risks with an approach that binds affected communities into an early, transparent understanding of the potential of the project.

Melbourne-Geelong Fast Rail: Key Design Features

Sunshine Station

Geelong to Sunshine c.25 mins. Opens fast Geelong transfers to Melbourne Metro. Geelong to Parkville precinct c.40 mins.

Avalon International Airport Station

Melbourne to Avalon express c.27 mins.

Corio Station

Melbourne to Corio under 30 mins. Major park and ride potential.
c. $1 million, 3 bedroom property value differential to Melbourne suburbs within 40 minutes Metro commute of Melbourne CBD.

Geelong Station

Melbourne to Geelong express c.32 mins.

Geelong

South-West Victoria

Major reduction in Fast Rail entry costs.

Regional Fast Rail Tunnel
Key facilitating infrastructure.
Opens major new capacity
for western Melbourne
Metro trains.

Melbourne

PORT PHILLIP BAY

NB Station placements not to scale.

Methodology

The City of Greater Geelong wanted to ensure that a credible body of initial strategy and technical work would position the project as a ready candidate for State and Federal government consideration, in particular for the Commonwealth's National Rail Program. Accordingly, the methodology and report structure has taken into account the published eligibility criteria for this program[1].

More broadly, the report sought to be clear about the risks of inaction and identifying wider beneficiaries, to help maximise an alliance of common interest. Accordingly, work was designed to meet three strategic goals as follows:

Table 1. Three goals for Melbourne - Geelong Fast Rail:

Goal	Work program
'Help Melbourne to help itself' *Present a superior planning and infrastructure alternative to reduce expansion pressure on Melbourne and preserve 'liveability' as the population swells.*	*Commission a clear and comprehensive strategic understanding in the community and across politics about what fast commuter rail is in the Melbourne-Geelong context and how it stands to benefit Melbourne in particular in planning and economic terms.*
'Set the infrastructure foundations for regional prosperity' *'Shrink distance' between Geelong and Melbourne, promote migration to Geelong and the region.*	*Allow Geelong to reimagine its economy and community assuming a 35-minute fast rail commute to and from Melbourne; place Melburnians and tourists within a short rail commute to Geelong as an alternative place to live; provide a short CBD commute to a competitive second international airport for Melbourne and Victoria at Avalon.*
'Present a credible technical solution' *Make a credible technical solution publicly available for scrutiny'.*	*Commission leading rail technical design and operational advice on how Melbourne-Geelong Fast Rail can be achieved, what it will look like and who stands to benefit, so as to establish a common understanding and lowest-cost solution between governments, communities, investors and builders.*

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1   Department of Infrastructure and Regional Development National Rail *Program - Program Criteria (2017)* http://investment.infrastructure.gov.au/files/national_rail_program/National_Rail_Program_Criteria.pdf

Placing early emphasis on a smart strategy - not on cost

The client was anxious to ensure that the strategy and technical outcomes must lead to least-cost solutions, capable of being implemented as rapidly as possible; the concern comes in the context of an Australian major infrastructure project environment which is well known for producing major cost blowouts and project designs which often expand and alter far beyond original project objectives[2].

Accordingly, this strategy report does not focus on cost for the project.

At this point, costings can be counterproductive, in that they overwhelm strategic considerations. Governments are often 'captured' by early cost estimate announcements. When an indicative cost for a project is presented in the media, this can quickly become an assumed 'base-level' tendering cost, which experience suggests is often inflated much further still by the time the project is actually delivered.

A credible high-level unit costing of different engineering construction solutions has been estimated in the accompanying high-level technical report; they reflect official contemporary unit costs of construction in the Melbourne market, but in line with the views of the Productivity Commission on how public infrastructure costs can be reduced, there is great value in placing more attention to how the project might be conceived, designed, tendered and financed to ensure community value for money[3].

2   Grattan Institute *Cost overruns in transport infrastructure* (2016) https://grattan.edu.au/wp-content/uploads/2016/10/878-Cost-overruns-on-transport-infrastructure.pdf. See also
3   Productivity Commission *Inquiry into Public Infrastructure* No. 71 (2014) https://www.pc.gov.au/inquiries/completed/infrastructure/report

Evidence base: fast commuter rail's transformative effects

The basic economic objective of fast rail is to redefine the shape of cities and economies and the existing relationship between accessibility and land values[4], because fast rail disrupts how we value land and think of distance. For this report, top running speeds of between 160 and 200 kilometres *per* hour are envisaged.

Leading transport economists have argued that the forces that drive the formation and size of cities are a) agglomeration economies generated by a dense web of activities and b) the trade-off between commuting and housing costs[5]. Over many decades, Melbourne's city and suburbs have developed their land values and populations in a settled hierarchy that is heavily influenced by well-understood transport networks and their relative time and distance factors - the travelling speed of transport solutions such as trams, metro trains and cars has not shifted much in decades, or where it has shifted, it has sometimes become slower due to congestion.

In contrast, 'a decrease in transport costs modifies the spatial distribution of economic activity over the medium to long term'[6]. Spatial economics - related to the interplay of land, distance and location - has renewed interest in how major changes in the speed of transport can have very disruptive and positive effects on urban planning assumptions, on migration patterns and on land values. Fast Rail offers a mechanism for achieving widely held planning ambitions: it could deliver on objectives for more balanced city-region growth, such as Royal Melbourne Institute of Technology's *Melbourne at 8 Million*[7].

4   D. Hensher, Z.Li, C. Mulley The Impact of *High Speed Rail on Land and Property Values: a review of market monitoring evidence from eight countries* Institute of Transport and Logistics Studies University of Sydney (2012) https://ara.net.au/sites/default/files/Impact-High-Speed-Rail-Land-Property-Values-FINAL-Feb2012.pdf

5   S. Proost and J-F. Thisse *Skilled Cities, Regional Disparities and Efficient Transport: The State of the Art and a Research Agenda* Discussion Paper No. 10790 August 2015 Centre for Economic Policy Research London (2015) http://ec.europa.eu/regional_policy/sources/policy/analysis/proost_thisse.pdf

6   M. Lafourcade and J-F. Thisse *New Economic Geography: The Role of Transport Costs in Handbook of Transport Economics* A.De Palma, R. Lindsey, E. Quinet and R. Vickermann (eds) 2011 https://econpapers.repec.org/bookchap/elgeebook/12679.htm

7   M. Buxton, J. Hurley, K. Phelan *Melbourne at 8 Million: Matching Land Supply to Dwelling Demand* Centre for Urban Research RMIT (2015) http://cur.org.au/cms/wp-content/uploads/2016/03/melbourne-at-8-million-report.pdf

A practical, least-cost fast rail approach

'Fast rail' most often conjures images of bullet trains, such as the Japanese Shinkansen or French TGV. History suggests that fast rail discussions in Australia can tend to be dismissed out of hand because of (understandable) concern whether the version of fast rail proposed is the most relevant to the problem at hand: almost all fast rail proposals in Australia to date have been greenfield construction proposal, linking State capitals - ie new lines entirely, with all of the patronage and density risk that this entails in a country of only 24 million people. They mostly assume bullet train speeds and intercontinental networks. Regional Fast Rail is something more conservative - and more practical.

Broadly speaking:

- **Very Fast Rail** (train speeds c. 250-350km/h and up) is most often used to link entire continents or regions and large population centres that are far apart, such as Beijing - Shanghai (1,300kms) or Paris - Lyon (465kms). Such railways often compete with air travel as well as road travel. This form of rail requires track electrification and usually dedicated new very fast track builds, complete segregation from other rail and roads and correspondingly high maintenance and safety management costs. In line with well understood economic density functions of viable railways, such services usually cover very large population bases for their viability.

- **Regional Fast Rail** (train speeds c. 160-200km/h) is often employed over shorter distances - and at *significantly lower cost than very fast rail* - to link existing commuter regions large and small to capital cities or to create a network of close-linked cities and regions with commuter potential, producing agglomeration benefits for the economy. It can usually be achieved at least partially by making targeted upgrades to the existing track and signal systems and by putting in place new dedicated regional track at the Melbourne CBD end of the journey. Where regional lines are not already electrified - such as Geelong - solutions can be provided with conventional powered stock, in anticipation of later retrofitting of overhead electrification infrastructure.

Regional Fast Rail is Victoria's *optimal* rail solution, not just its *lowest-cost* solution

The accompanying technical report commissioned by the City of Greater Geelong confirms that a c. 35-minute Melbourne-Geelong commute - or an even shorter 30-minute commute to a major new Corio 'park and ride' centre in the north of Geelong - should not be viewed as 'second best', because even an extremely expensive investment in French or Japanese-style bullet trains between Melbourne-Geelong would yield very little additional commuter benefit in travel minutes saved, for orders of magnitude increases in project costs.

# Settlement path: Melbourne towards 10 million... but how liveable?

The key beneficiary of Melbourne-Geelong Fast Rail is likely to be Melbourne itself: the project offers a transformative shift in how the World's Most Liveable City can remain liveable while growing towards a much larger population than today. Geelong is the first, best regional partner for this project and Fast Rail stands to reshape this independent region's approach to economic growth and population planning on its own terms.

Melbourne represents almost 20 per cent of the national economy and closer to 30 per cent of national economic growth[8]. Its high population concentration drives a large and successful 'agglomeration economy': as the Grattan Institute has noted, 'economic activity is concentrating in CBDs and inner suburbs because highly knowledge-intensive firms need highly-skilled workers, and locating in the city gives firms access to more of them'[9].

The speed of Melbourne's growth has outpaced official government planning

In 2002, the Victorian State Government's official planning vision forecast Melbourne to pass 5 million inhabitants by 2030. Today, forecasts suggest 5 million will be exceeded by mid-2018[10] - 12 years earlier than expected by government planners just over four electoral cycles ago. Various estimates now anticipate Melbourne to house between 8 and 10 million people by mid-century. In the decade to 2016, Melbourne welcomed almost one million additional people to become the fastest growing capital in Australia:

Table 2: Australian population change by capital city, by year 2005-16
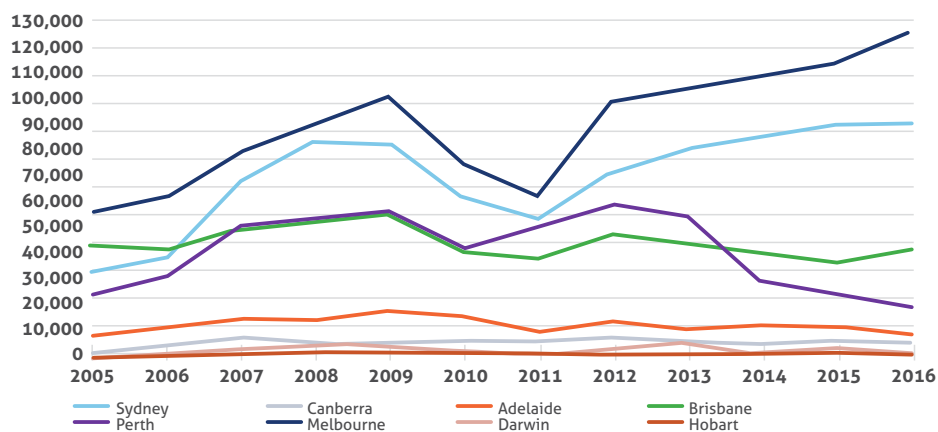
Source: Macrobusiness analysis (www.macrobusiness.com.au) employing ABS data

8   SGS Economics and Planning *Economic Performance of Australia's Cities and Regions 2016-17* http://www.sgsep.com.au/application/files/8415/1236/7941/Economic_Performance_of_Australias_Cities_and_Regions_2016-17_Compressed.pdf

9   J-F. Kelly, P. Donegan *Mapping Australia's Economy: Cities as engines of prosperity* Grattan Institute (2014) https://grattan.edu.au/report/mapping-australias-economy-cities-as-engines-of-prosperity/

10   Population Australia data http://www.population.net.au/melbourne-population/

Melbourne's big city growth 'frictions' are well understood

Economists have proposed that a city's size and distribution is a result of three things: *efficiencies, amenities* and *frictions.* The challenge for Melbourne is to maintain these three aspects in an acceptable balance as its population heads to 8-10 million[11].

Such challenges are common worldwide: for example, a resident of Greater Paris can expect to lose the equivalent of four weeks *per* year in commuting to and from work[12] - but solutions are not easy: it has been described as a 'fundamental transport law' that it is impossible for cities to 'build their way' out of congestion through more investment in more complex motorways, which induce more motorists to use these assets and themselves soon become congested[13]. A further looming risk is that tolled motorways threaten a negative economic and political impact when multiple discrete motorway tolls start to create motorist 'toll fatigue'[14].

Infrastructure Victoria suggested recently that time spent in traffic congestion during peak hour Melbourne commuting is set to worsen considerably across the next decade and the greatest congestion growth is forecast occur in Melbourne's outer suburbs. These are also the very suburbs for which regional fast rail offers the most opportunity, in terms of slowing outer suburban growth and increased road congestion by offering superior commuter migration opportunities:

Table 3. Hours travelled on Melbourne roads at or above 70% capacity during morning peak, by broad regions of Melbourne
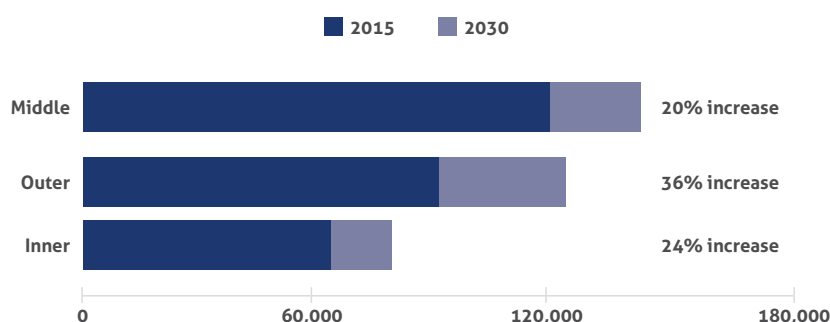
Source: KPMG Arup research commissioned by Infrastructure Victoria as part of its *Five-Year Focus: Immediate Actions to Tackle Congestion* **report April 2018. Note that a 70% of capacity figure has been employed to define a 'congested' road network for this study.**

11   K. Desmet and E. Rossi Hansberg Urban accounting and welfare in American Economic Review (2013) 103 2296-327 https://www.princeton.edu/~erossi/UAW.pdf
12   S. Proost and J-F. Thisse *Skilled Cities, Regional Disparities and Efficient Transport: The State of the Art and a Research Agenda* Discussion Paper No. 10790 August 2015 Centre for Economic Policy Research London (2015) http://ec.europa.eu/regional_policy/sources/policy/analysis/proost_thisse.pdf
13   G. Duranton and M. Turner *Fundamental Law of Road Congestion: Evidence from US cities* American Economic Review 101 2616-52 (2011) https://www.aeaweb.org/articles?id=10.1257/aer.101.6.2616
14   D. Hensher, C. Ho and W. Lu *How much is too much for tolled road users?: toll saturation and the implications for car commuting value of travel time savings* Working paper Institute of Transport and Logistics Studies University of Sydney (2016) http://sydney.edu.au/business/__data/assets/pdf_file/0004/258853/ITLS-WP-16-03.pdf

Responses to date: successful density increases have softened the blow…

To date, Melbourne has slowed its suburban sprawl by a successful densification program. Good planning, much community effort and changes in demographics helped to address the sharply declining Melbourne inner urban housing density trend of the 1980s and 1990s. In parallel, sophisticated planning regimes have increased density around transport hubs, so as to limit socially and economically-isolated outer suburban sprawl and the congestion it implies. The inner city of Melbourne, for example, once relatively quiet, is now the most densely-populated area in Australia[15].

Table 4: Melbourne population density change by 5km concentric ring distances from CBD 1981-2011
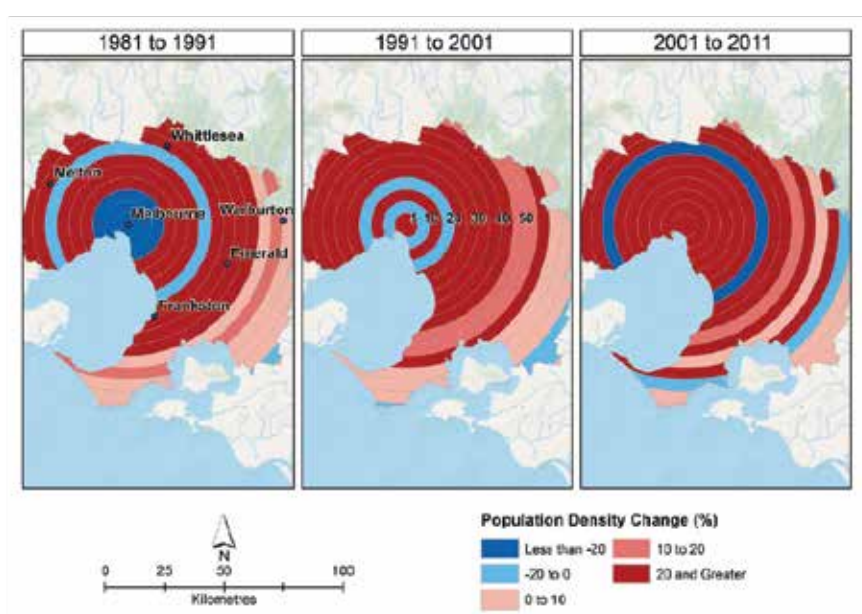
Source: Neil T. Coffee, Jarrod Lange & Emma Baker (2016) *Visualising 30 Years of Population Density Change in Australia's Major Capital Cities*, Australian Geographer, 47:4, 511-525

These efforts have in part allowed new growth plans in 2018 to remain accommodated within Melbourne's existing (2012) Urban Growth Boundary. Yet as the table above also reveals, the unprecedented growth being experienced also requires many new housing developments on the outer fringes of Greater Melbourne and this boundary was extended successively in the decades prior to 2012.

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15   See ABS 2016 population density assessment http://www. abs.gov.au/ausstats/abs@.nsf/Latestproducts/3218.0Main%20 Features752016?opendocument&tabname=Summary&prodno=3218.0&issue=2016&num=&view=

...but market demand remains strong in outer Melbourne suburbs

Notwithstanding Melbourne's inner suburban and CBD densification, retail prices, which are a very good indicator of demand for different types of property, show that growth demand is strongest in the outer suburbs. Even setting aside the last five years of intensive Melbourne growth, research commissioned by Infrastructure Australia reveals a longer-term pattern: residential land value growth for the previous two decades was strongest in suburbs over 30 kilometres from the city - marginally stronger than even central Melbourne property value uplift:

Table 5: Melbourne residential property: long-term average annual capital growth rates (%) 1993-2012 by proximity to CBD
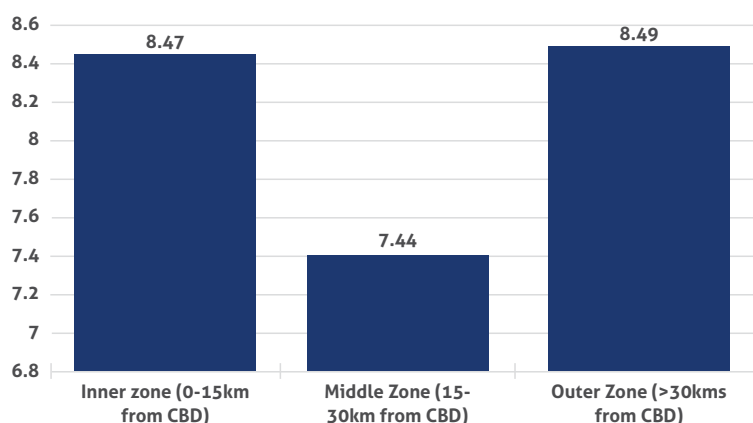
Source: Urbis for Infrastructure Australia *Review of Historical Land Growth Rates for East Coast Capital Cities* (2013), reporting average, non-weighted figures

Case study: Tarneit corridor: Australia's fastest growing region

Outer western Melbourne's Tarneit - between Geelong and the Melbourne CBD - is the best example of Melbourne's outer suburban growth and how rail shapes development options:

The Tarneit region in Melbourne's west is on the Geelong Regional Rail line and many of its residents use the Geelong-Melbourne service to access the city; Tarneit holds the title of the largest-growing area in Australia in the decade to 2016, with almost 29,000 new residents -this is comparable in size to an entire regional city the size of Warrnambool being added north of Werribee in under a decade.[16] Other suburbs nearby house slightly less people, but have also grown at staggering rates: Point Cook South grew from a rural 300 people to over 15,000 in the same decade, while nearby Truganina grew by 700 *per* cent also across this decade.

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16   See the ABS July 2017 update: http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3218.0Media%20Rel ease12016?opendocument&tabname=Summary&prodno=3218.0&issue=2016&num=& view=

As the figure below reveals, 17 new outer suburbs planned to provide 100,000 new housing lots for Melbourne were announced by the Victorian government in 2017 and some are located in and around this outer western Geelong rail corridor region:

Fig 1: Victorian Planning Authority Map showing new housing suburbs 2018:
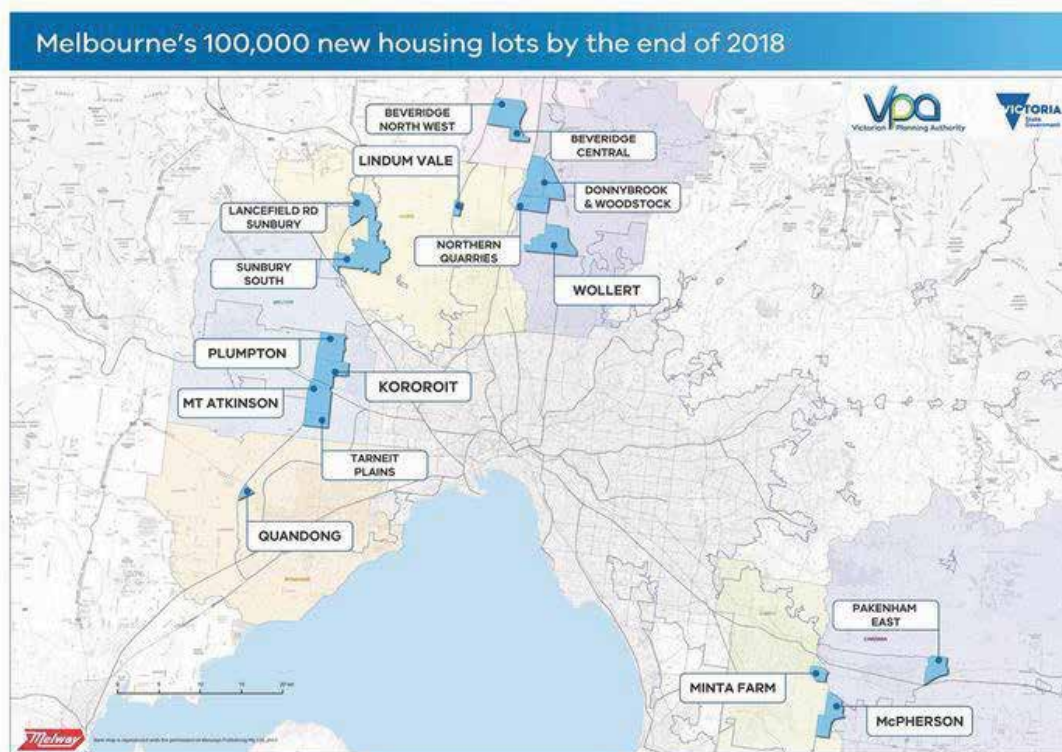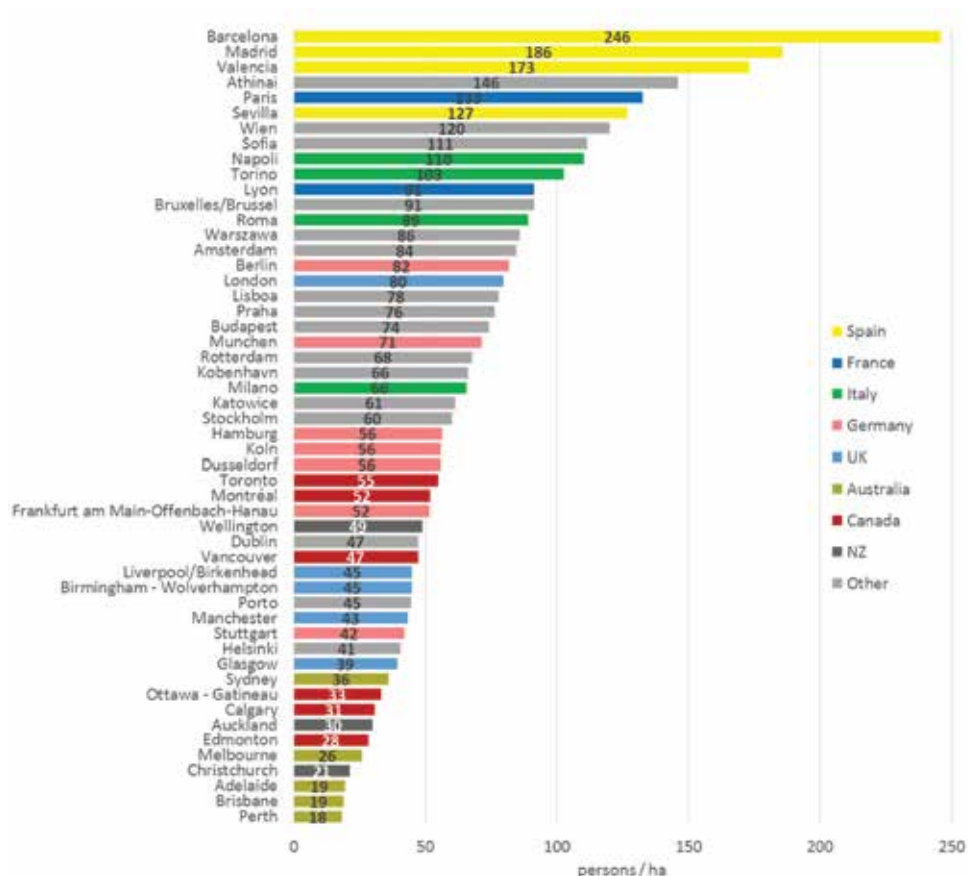

Source: www.chartingtransport.com

On this basis, even allowing for more significant densification levels by historical Australian standards, given Melbourne's planning aspirations to become a city of 8-10 million by mid-century, on current planning it appears inevitable that outer suburban boundaries will continue to be more heavily developed. This has expensive implications for the provision of facilitating economic and social infrastructure to these more remote locations in Melbourne: this is consistent with Infrastructure Victoria forecasts suggesting peak Melbourne congestion will worsen considerably within the decade, with the greatest pressure in the city's outer suburbs[17].

17   See Figure 6 in Infrastructure Victoria's *Five-Year Focus: Immediate Actions to Tackle Congestion* report (2018) http://infrastructurevictoria.com.au/sites/default/files/images/Five-year%20focus%20-%20Immediate%20 actions%20to%20tackle%20congestion%20-%20April%202018.pdf

Observations: Melbourne is a relatively low-density city - partly by preference.

Despite densification successes, Melbourne remains a low-density city by world standards in terms of population densities[18]: Melbourne has a land area similar to Paris, but a population-weighted density more than five times lower than the French capital[19]:

Table 6: Population-weighted density data of world cities using kilometre grid data 2010-13

Source: www.chartingtransport.com

This is in part a function of past Melbourne planning practice and densification efforts off a low-density base, but it could also simply suggest something more innate about how many Melburnians want to live, in spatial terms, all other things held equal. If this is the case, the challenge for city planners is to find transformative effects for managing the distance and growth frictions which now attend on Melbourne. Regional Fast Rail offers a necessarily transformative solution which *status quo* transport infrastructure responses cannot.

18   See a useful comparison of population-weighted global city densities at https://chartingtransport. com/2015/11/26/comparing-the-densities-of-australian-and-european-cities/#jp-carousel-2781
19   Land areas quoted from *Demographia World Urban Areas* 14th Annual Edition April 2018 http://www. demographia.com/db-worldua.pdf population weighted figures for both cities from the www.chartingtransport.com 2015 comparative analysis (Ibid).

Critical infrastructure omission: no dedicated regional rail tracks into Melbourne

Over the decades, successive planning and development decisions in inner Melbourne have removed dedicated express regional rail tracks options from the city. This slows down regional rail services dramatically, because when regional trains approach or depart Melbourne, the journey must be 'pathed' around the shared and congested electrified metropolitan rail network: in simple terms, the last (or first) ten kilometres of the journey to (or from) Southern Cross station in Melbourne's CBD is the slowest part of the journey, where most economic value is lost.

Lack of dedicated regional tracks to access Southern Cross Station is the principal reason that speeds cannot be increased to Geelong and other regional Victorian centres.

With the benefit of hindsight it is perhaps understandable that city planners dismissed this need for regional rail alignment protection: Melbourne's unprecedented population growth of today is a long way from the picture just over 30 years ago, at which time the city's population levels had almost stalled across the preceding decade, and net migration to the city was almost completely cancelled out by internal migration away from Melbourne to other places[20]. At the same time (1986), the transformative power of fast regional rail remained in its infancy globally and planning had turned away substantially from 'slow rail' towards cars as the priority future commuter technology.

Perhaps unconsciously, over the ensuing decades the lack of dedicated regional alignments into and out of Melbourne has impacted how Victoria thinks about the potential for regional development. Building new dedicated regional tracks is a significant infrastructure project, involving substantial tunnels. But such investments are truly strategic for the city - they open up powerful new planning and growth possibilities for Melbourne which are impossible to secure under *status quo* rail planning and investment arrangements.

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20   Australian Bureau of Statistics *Population Growth and Distribution in Australia* (1986) http://www.ausstats.abs. gov.au/ausstats/free.nsf/0/067602C860EA21A0CA2574CF001B021A/$File/25040_1986_Population_Growth_and_ Distribution_in_Australia.pdf

Settlement path: Geelong - capable of greater productive growth with a faster transport connection

Situated 75 kilometres to the south-west of the Melbourne CBD, City of Greater Geelong houses around a quarter of a million people. It is Victoria's largest regional city and its wider region represents a c. $15 billion dollar regional economy, the most diversified outside of Melbourne. Geelong is home to a large seaport, and international airport, three major teaching hospitals and Deakin University, ranked in the top 50 young universities worldwide by the Times Higher Education rankings. Deakin University is the largest payroll provider in Greater Geelong, emphasising the city's shift to a knowledge economy, away from its legacy manufacturing sector. An updated manufacturing theme in Geelong remains, however, with (among other things) leading research in robotics and advanced materials emanating from Deakin and its market partners, such as *Carbon Revolution* - the world's leading provider of carbon fibre wheel technology to global auto manufacturers.

Notwithstanding the gains, some parts of Geelong remain relatively disadvantaged economically and socially - in large part the effect of a transition away from the legacy manufacturing industries which played a dominant role in the economy until relatively recently. The northern suburbs of Geelong where much of this industry was located represent a concentration of this disadvantage.

Latent capacity

In principle, Geelong appears to have ample land area, population densities and basic infrastructure to accommodate a higher population in a manner that maintains liveability, but between 1981 and 2015, Geelong's population grew at only a modest average of 1.1 *per* cent, with a somewhat stronger 1.7 *per* cent average experienced between 2011 and 2016. Geelong's size relative to Melbourne has also increased only modestly in recent decades: its population in 1986 equated to 4.8% of Greater Melbourne's; by 2016 this figure had increased to just 6.2%[21].

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21 Analysis of ABS census data

Analysis - a smart connection, but also a critical means of structural adjustment

Status quo travel speeds between Geelong and the nearby State capital have done much to affect how Geelong's settlement has progressed. Geelong's enduring small size despite its close proximity to Melbourne suggests that economic development strategies have been content to focus largely on Melbourne alone for planning and growth purposes, rather than including regional centres like Geelong, led by transformative rail speeds.

Given the structural adjustment which Geelong is already performing, fast rail connectivity to the major employment market in Victoria offers a particularly valuable opportunity to the enduring pockets of disadvantage in the Geelong community.

It is noteworthy that post-industrial suburbs such as Norlane and Corio would be some of the largest beneficiaries of a fast rail, with c. 30 minute commuting to Melbourne a viable service for these areas.

For its part, Geelong's own current settlement strategy process considers a population growth forecast of between the historic trend and an upper band of between 2 and 2.5% as an aspirational growth target[22]. However, it is unclear how these growth rates would be achieved given the commuter transport connectivity challenges between Geelong and Melbourne, which are discussed below.

Overall, the Geelong community may be prepared for stronger growth. Geelong may be equipped to play a larger role in the population and civic planning of the State, provided that the high quality of life on offer in Geelong, its emerging economic growth opportunities and its identity as a separate and distinct labour market to Melbourne can be preserved.

These planning and growth paths for Melbourne and Geelong act as foundations for a mutually-beneficial Fast Rail partnership between the cities.

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22   See the City of Greater Geelong settlement strategy research and reference documents available at https://www.geelongaustralia.com.au/strategicplanning/article/item/8d41f825eb9923d.aspx

Geelong is a robust first candidate for Fast Rail connection

Beyond existing passenger volumes and service frequency, Geelong is the best-placed Victorian regional city to respond to the following key questions:

- How many people in the capital could in theory take advantage of a much faster regional commute and associated property swap arbitrage from city to region?

- How many new capital city commuters in the region would consider shifting from private vehicle commutes to the new fast rail service?

- What is the distance between the two cities and the capital cost of fast rail provision relative to alternative fast regional rail candidates or other projects?

In other world examples, a regional fast rail 'sweet spot' appears to lie between 60 and 90 minutes from the capital city. This has been the observed case in both Spanish and French regional fast rail[23]. A simple examination of distance to Melbourne and combined Melbourne/regional populations reveals that, other things held equal, Geelong represents by far the strongest first candidate for fast rail:

Table 7. 2017 Melbourne and regional city commuter density analysis (higher score is better)

Melbourne (population 2017)	4,730,000		
VIC regional centre (pop. 2017)	Ballarat (108,000)	Bendigo (117,000)	Geelong (247,000)
Regional rail distance from capital	123kms	153 kms	85 kms
Commuter density score (combined capital + regional populations/distance)	**39.3**	**32**	**59**

Source: ABS population estimates based on 2016 census updated to 2017. Quoted distances are GPO to GPO *via* country rail lines.

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23 Olivier, G, Ying, J, Bullock R, Runze Y, and Nanyan Z 2014 *Regional Economic Impact of High Speed Rail in China* Report for the World Bank and PR China ACS 9734 http://www.worldbank.org/content/dam/Worldbank/document/EAP/China/high_speed-rail-%20in-china-en.pdf

Context: today's significant Melbourne-Geelong rail pressures

Regional Rail Phase One - initial success has created major new pressures

There has been a rail connection between Geelong and Melbourne since 1857. For many decades, this journey took in the order of one hour to complete and followed a reasonably direct route to and from the Spencer Street/Southern Cross station terminus via Werribee.
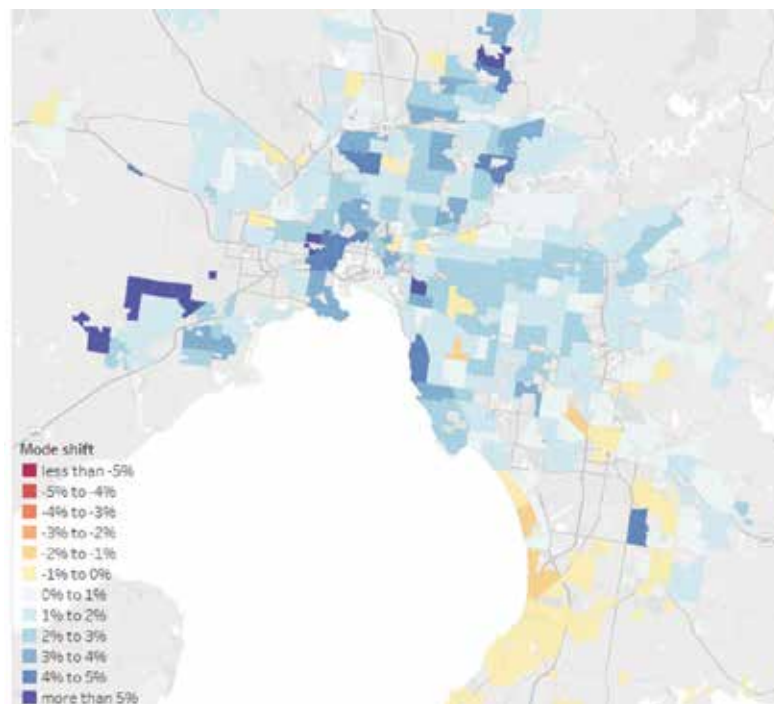
In more recent times, planning objectives for outer-western Melbourne drove construction of the *Regional Rail Link*. As early as 2010, official State planning documents confirm that the Regional Rail line was viewed as a means by which the Geelong rail service could be harnessed to provide readymade commuter services to the greenfield outer western suburbs around Tarneit[24].

Completed in 2015, Phase One of the Regional Rail Project redirected the Geelong-Melbourne rail alignment away from Werribee and Melbourne's inner-west and towards the north west of the city, so as to free up capacity for Metropolitan Melbourne electrified trains on existing western lines. It also allowed for upgrades to the existing Geelong line to allow for higher speed running in some sections, using the modern VLocity trains, which were designed for an operating speed of c. 160km/h.

Measured by outer-Melbourne growth objectives, Regional Rail has been a success, with significant patronage of the Geelong service by the Tarneit community: the fastest growing region in Australia between 2006 and 2016. The outer-western suburbs in this region also represent the highest broad area of modal shift from cars to commuter rail in all of Melbourne:

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24   See Victorian Department of Planning *Developing Melbourne's Newest Sustainable Communities (2010)* the relevant chapter online at https://www.planning.vic.gov.au/__data/assets/pdf_file/0023/19193/Part-3-Chapters-9-and-10-Assessment-of-Transport-Corridors-pages-79-to-86.pdf

Table 8: Journey to work mode shift to train 2011-2016

Mode shift
- less than -5%
- -5% to -4%
- -4% to -3%
- -3% to -2%
- -2% to -1%
- -1% to 0%
- 0% to 1%
- 1% to 2%
- 2% to 3%
- 3% to 4%
- 4% to 5%
- more than 5%

Source: www.chartingtransport.com

In these senses, the Regional Rail has benefited Melbourne Metro (especially the Werribee line, as the above table suggests) as well as serving the new growth corridor of Tarneit/Wyndham Vale. But this has come at the expense of emerging capacity and service challenges. As matters stand, Phase One Regional Rail arrangements have created serious overcrowding on the Geelong line and a brake on further outer western station expansion for Melbourne planners.

Overcrowding on the Geelong line

Geelong service trains are now substantially full for peak commuter periods across most of the journey, with the influx of outer western Melbourne users adding to these challenges. Over the past five years Geelong line growth has outstripped all other regional rail growth:

The Victorian Auditor-General's office noted this phenomenon in its recent regional rail services report[25]. The following graphs show how peak Geelong trains are between 20% and 30% overcrowded due to the Regional Rail effect of servicing outer western suburban commuter stations:

Table 9. Geelong line average passenger loads between stations, inbound morning peak to Southern Cross station March 2017
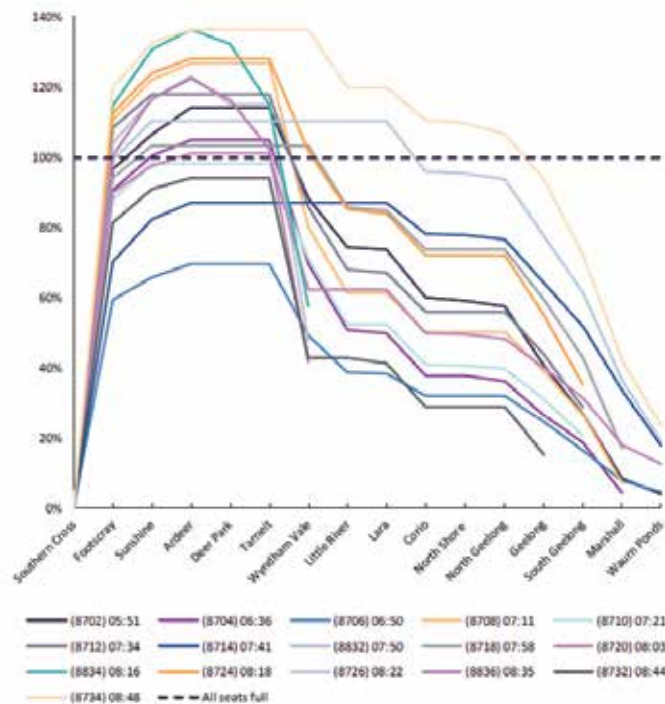
Note: 2016–17 data is from July 2016 to March 2017.
Note: Services have different stopping patterns. Services that run express between stations show the train load of the most recent stop for each of the stations bypassed. Morning peak services include all trains arriving at Southern Cross before 9 am. The train load is shown as the number of seats filled as the train departs from the station. Each line represents a train service, with the train number shown in brackets and the arrival time at Southern Cross.
Source: VAGO, based on V/Line data.

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25   Victorian Auditor General Report on *VLine Passenger Services* Report 2017-18: 1 (2017) https://www.audit.vic. gov.au/sites/default/files/2017-08/20170809-VLine-Passenger-Services.pdf

Table 10. Geelong line average passenger loads between stations, outbound evening peak from Southern Cross station March 2017
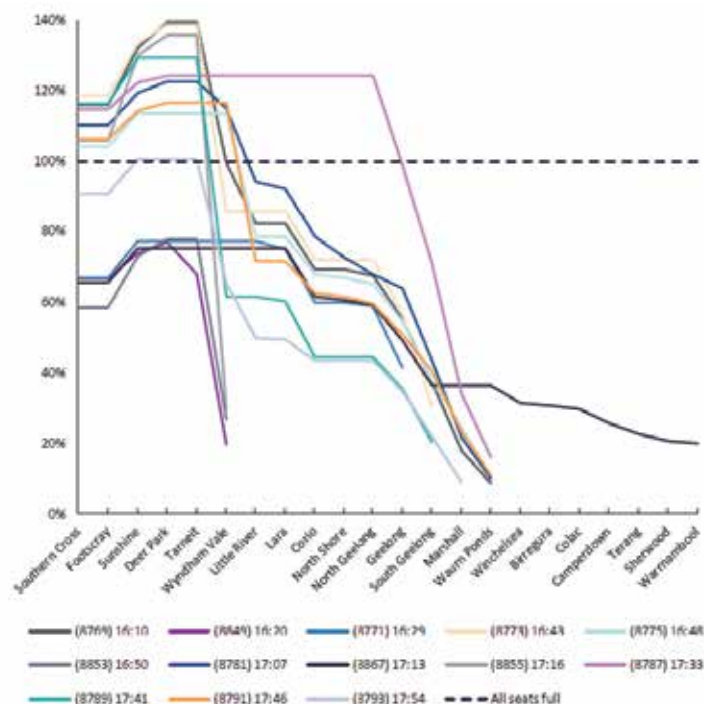

Note: 2016–17 data is July 2016 to March 2017.

Note: Services have different stopping patterns. Services that run express between stations show the train load of the most recent stop for each of the stations bypassed. Evening peak services include all trains departing from Southern Cross between 4 pm and 6 pm. Each line represents a train service, with the train number shown in brackets and the departure time from Southern Cross.

Source: VAGO, based on V/Line data.

More planned new outer-west stations to exacerbate commuter pressures

The wider Wyndham region has been forecast to grow its population by a further 97 *per* cent in the next 19 years to 2037[26].

Tarneit is scheduled for more growth still: original Melbourne planning policy for Regional Rail was for two stations - Wyndham Vale and Tarneit - to be followed by two more Tarneit stations and a further station at Truganina, to the east of Tarneit[27]. Subsequent planning objectives are understood a possible total of five more stations between Geelong and Melbourne, adding to an already overcrowded network and further increasing commuting time.

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26   See id services Small Area Forecast analysis of Melbourne suburbs 2017-37 at https://blog.id.com.au/2017/population-forecasting/the-rise-and-rise-of-marvellous-melbourne-population-patterns-and-trends-in-victoria/

27   The relevant section of Victorian Planning's *Delivering Melbourne's Newest Sustainable Communities* document (2008) can be found here: https://www.planning.vic.gov.au/__data/assets/pdf_file/0023/19193/Part-3-Chapters-9-and-10-Assessment-of-Transport-Corridors-pages-79-to-86.pdf

Economic case

Economic justifications for Melbourne - Geelong Fast Rail need to be communicated clearly and publicly to encourage debate and action. In simple economic terms, funds should flow to a Melbourne-Geelong Fast Rail project if its net social benefits are expected to be higher than other competing projects. Specifically, the case for Fast Rail investment depends strongly on the following factors[28]:

- **Expected travel time gains**

- **Strength of existing rail volumes and frequency**

- **Impact on modal shift from car commuting and externality benefits**

- **Willingness to pay**

- **Wider project benefits and beneficiaries**

There are also at least three strategic objectives for the project:

- **Assist development of Melbourne's second international airport at Avalon;**

- **Better link Geelong and region to the new Melbourne Metro service;**

- **Bring a wider population within a one-hour commute of Melbourne**

The following pages offer an opening discussion about the project's claims against these criteria and wider issues related to these matters.

28   The author employs (and modifies) a helpful taxonomy advanced by G. de Rus T*he Economic Effects of High-Speed Rail Investment* Discussion Paper No 2008-18 revised International Transport Forum Joint Transport Research Centre (2008) https://www.itf-oecd.org/sites/default/files/docs/dp200816.pdf

Expected travel time gains

For Melbourne-Geelong Fast Rail to be truly transformative for planning and amenity purposes, time gains need to be material: the greater the time saving, the greater the challenge to the existing equilibrium of land values and commuting patterns.

The results vary depending on which Fast Rail alignment is chosen, but the following summary results table shows the Regional Rail alignment times, which are the slowest of the three detailed routes modelled in the accompanying technical report, but which has the advantage of presenting far greater benefits to wider users than the other two more direct alignments.

Modelling results

The high-level technical report which accompanies this strategy report undertook professional simulations of a Fast Rail service, using both the current VLocity fleet - capable of 160km/h running speeds - as well as an assumed new fleet with 20% more power and capable of 200km/h running speeds and equipped with supplementary power source to avoid diesel emissions in tunnels.

Table 11: Fast Rail transit times - Melbourne -Geelong (*via* Regional Rail alignment)

Train and service type	160km/h stopper	160km/h express	200km/h express
Southern Cross depart (min:sec)	00:00	00:00	00:00
Sunshine depart	07:48		
Corio depart	31:57		
North Geelong depart	38:35		
Geelong arrive	43:16	36:16	32:38

Source: Professional modelling and simulation from *Geelong Fast Rail High Level Technical* Report (2018)

NB: 'Stopper' denotes a simulated train stopping at three key stations, being Sunshine, Corio, North Geelong. Express denotes no interim stops.

Strength of existing rail volumes and service frequency

Volume and frequency of service are key success factors for Fast Rail: greater passenger numbers and services represent higher density transport and this density increases the likelihood that transformation of travel times will result in significant economic gains.

The presence of an existing rail service with known volumes acts to 'de-risk' fast rail projects, as demand elasticities can be examined with reference to long historical data sets. This is a much more reliable basis for future forecasting than trying to forecast demand for a completely new 'greenfield' transport project, such as a new toll road or tunnel.

As indicated above, Geelong is the busiest regional rail line in Victoria - in 2016 it represented close to half of the total VLine country rail trips made by passenger numbers[29]. Passenger levels now total roughly 800,000 people *per* month. 2017 schedules provide for trains every 12 minutes during peak[30] and added a further 74 new weekly services. New additional rolling stock is planned for the line as part of a significant expansion of services in recent years[31]. But even with capacity increases, over the past five years, Geelong line growth has outstripped all other regional rail growth:

Table 12. VLine peak regional passenger growth 2012-2017
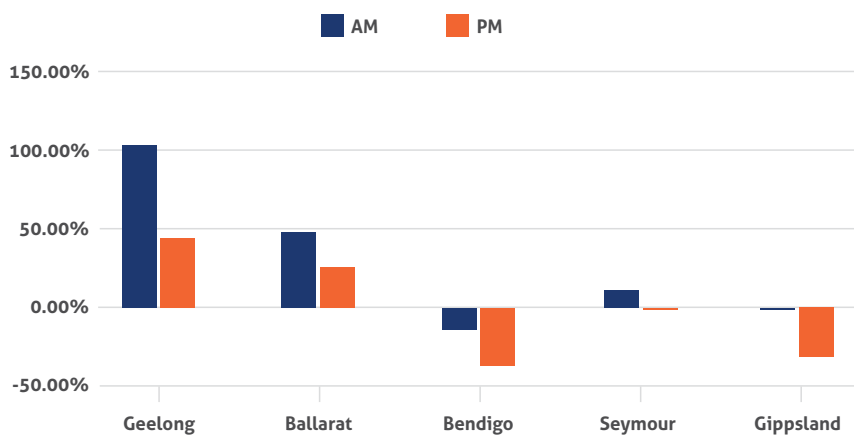
Source: https://www.danielbowen.com/2017/04/11/vline-peak-patronage-growth/. The author uses official VLine capacity reports as the data set. PM growth times are depressed relative to AM peaks due to VLine defining PM peak as a shorter band of time than AM peak; this results in many PM commuters not being captured in the analysis. AM peak times are therefore a more representative guide to actual growth levels.

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29   Ministerial statements suggest the line accounted for 44% of total VLine passengers in 2017 http://www.abc.net.au/news/2017-12-05/vline-trains-at-capacity-on-peak-hour-in-regional-victoria/9209942
30   http://www.railfutures.org.au/wp-content/uploads/2017/05/170204-Geelong-Line-Brochure-generic-v2.pdf
31   See Vline media release for June 2017 https://corporate.vline.com.au/News-Alerts/Media-Releases/Geelong-line-patronage-continues-to-rise

# Modal shift from car commuting and externality benefits

A growing commuter task, in both directions

In the past decade, there has been a 33% increase in City of Greater Geelong residents commuting to Melbourne for work, while there has been an over 50% increase in Melbourne-based workers commuting to Geelong[32]. In the past two decades, the Princes Freeway between Geelong and Melbourne has been upgraded significantly, but numbers now using this road are leading to significant peak congestion and uncertain commuter travel times in peak, where even minor breakdowns and accidents create large tailbacks.

46 million journeys per year on the route Geelong and Melbourne

Vicroads annual daily traffic count data reveals that each year, almost 23 million vehicles are using the Princes Freeway at Lara, on the outskirts of Geelong - this represents growth of almost 30% in the past decade. Unprecedented housing growth in Melbourne's outer-west, which itself has been fuelled by the Regional Rail program (see above), impacts heavily on the commute with a very strong vehicle numbers joining the Princes Freeway at or near Laverton. This increases traffic volumes to c.46 million journeys *per* year (ie once the Geelong traffic merges with outer Melbourne traffic at Laverton, around 20 kilometres west of Melbourne's CBD); this makes the freeway comparable to parts of Melbourne's Eastern Freeway at this point. The following table shows one-way traffic totals and offers two road comparators from other parts of Melbourne:

Table 13. Vicroads average daily traffic (one-way) on Princes Freeway - and a comparison
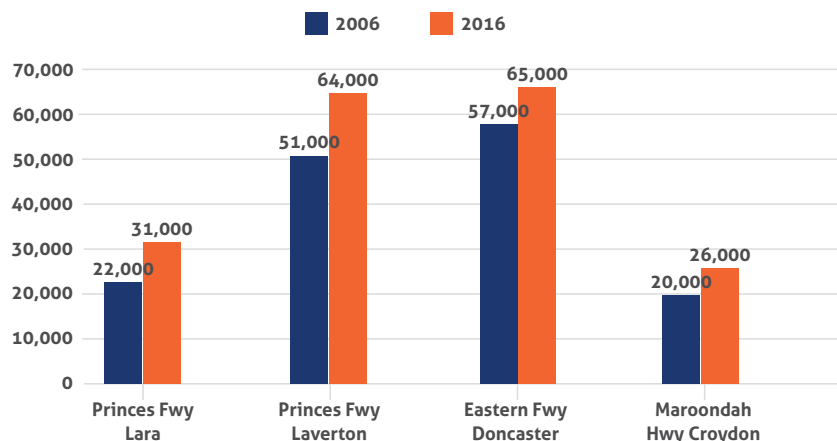
Source: VicRoads annual average daily traffic count data at relevant AADT count sites (2018) available online at https://www.vicroads.vic.gov.au/traffic-and-road-use/road-network-and-performance/road-use-and-performance

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32   Analysis of ABS census statistics 2006-16

Modal shift prospects

The current respective share of car and train use for commuting between the two cities reflects an equilibrium which is conditioned by many factors, most prominently:

- **Relative cost;**

- **Accessibility for onwards travel (ie to place(s) of work);**

- **Speed and reliability;**

- **Safety and amenity;**

In this context, a transformative half-hour reduction in rail travel time represents a significant shift in equilibrium between the two modes: 'shorter travel times and an increased level of service (a higher frequency and also improved travelling conditions) lead to changes in the modal share on the route and the generation of new demand'[33]. Assuming that fast rail fare prices are competitive with motoring costs and that capacity, amenity and access issues (such as longer train consists, wi-fi-enabled coaches and secure and sufficient station car parking and local transport connectivity) was well managed, it might be assumed that modal shift to Melbourne-Geelong Fast Rail would be significant.

Net externality dividends

While rail produces its own emissions in construction and operation and is not free from safety incidents, generally these costs are thought to be lower than for the equivalent passenger movement by cars. The transformative scale of the time saving on offer from a c. 35 minute rail commute, the associated benefits for Melbourne Metro capacity in Western Melbourne and the likely ensuing demand for modal shift foreshadows large externality dividends from the project.

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33   M. Givoni *Development and Impact of the Modern High-Speed Train: A Review* Transport Reviews Vol 26 No 5., 593-611 (2006) https://www.tandfonline.com/doi/abs/10.1080/01441640600589319

NDERS STREE

ANDRINGHAM
LINE
LATFORM

WILLIAMSTOWN
LINE
PLATFORM

ALTONA
LINE
PLATFORM

Willingness to pay

The willingness of Geelong or Melbourne commuters to pay for a fast rail service will in part be a function of all of the factors discussed previously: the current levels of overcrowding on the existing service; the travel time of more than one hour; the relative attractiveness of road travel.

The funding structure of the new fast rail service and in particular the prospect of betterment levies or similar for benefitting communities as a supplement to government funding contributions and fares may help greatly to shape project attractiveness to governments.

How government balance sheet limitations and user-pays affect project prospects

As the next section explains, Melbourne-Geelong Fast Rail is likely to be a multi-billion dollar project. If there are no financial contributions to this project from either the users (in the form of higher ticket prices) or from the communities that benefit (perhaps in the form of a betterment levy or similar property rate increase) then the full cost of the project will fall to the State government's balance sheet to fund (with possible assistance from the Commonwealth). While this may be possible, it is more likely that this disadvantages the chances for Fast Rail, given the many competing calls on government spending.

At least some some user-pays contributions should help prioritise Fast Rail

In an environment where at any one time State and Commonwealth governments are considering many competing major transport infrastructure projects, increases in user fees and localised betterment levies or similar are ways to reduce the cost of the project to the State and the Commonwealth and therefore make the project more attractive to governments as a smaller funding prospect. User and community funding lines are also a means of improving State and Commonwealth government confidence in the community's real appetite for the projects.

In short, Melbourne-Geelong Fast Rail is more likely to eventuate sooner if user contributions and betterment levies are considered.

This report proposes that the best if not the only sensible starting point for such discussions is at the local level, with the affected communities, before projects are developed.

What value might be generated? An initial examination

What is clear from the assembled economic literature on fast rail in other parts of the world is that by disrupting the spatial assumptions around housing and businesses, it can encourage higher migration to the new centre due to the much lower land values that are on offer in that newly-attractive commuter location. Importantly, economists suggest that the migration effect is heavily

dependent on choice of route. Ideally, the route is an existing well-patronised one that has prospects for strong growth and density; it is also important that fast rail is complemented by wider redevelopment and growth strategies for the regional city hosting the connection[34].

Major property price differences assist value capture potential, in the community interest

The current and expected patronage of the Melbourne-Geelong rail line, together with the wider regenerative strategies in place for Geelong and the inherent relative property value differences suggest criteria are in place to make a healthy migration effect possible:

Tabl 14. Comparative sample of Melbourne 40-minute rail commuter suburbs and Geelong 35-minute Fast Rail suburb land values as at 2018

Suburb	Time to commute to CBD in morning peak	Transfer between PT vehicles required?	Median 3-bedroom house price (2018)
Bentleigh	35 mins	Yes	$1,365,000
Brunswick	33 mins	No	$1,280,000
Coburg	45 mins	No	$1,027,500
Glen Waverley	38 mins	No	$1,361,500
Heidelberg	41 mins	Yes	$1,196,000
Ivanhoe	42 mins	No	$1,400,000
Nunawading	38 mins	No	$981,000
Oakleigh	50 mins	Yes	$1,215,000
Parkdale	38 mins	No	$1,200,000
Average	**40 mins**		**$1,225,111**
Geelong	65 mins (35 w. Fastrail)	No	$750,000
Corio	60 mins (30 w. Fastrail)	No	$315,000

Sources: *Public Transport Victoria online Journey Planner and REIV online quarterly suburban sales statistics 2018.*

Notes **(1)** *Transit time assessment was made from the station chosen by the PTV search engine as best reflecting the suburb in the search - eg Glenroy Station for Glenroy, Keilor Plains Station for St Albans; journeys are assumed to terminate at Flinders Street Station in central Melbourne. (2) The PTV search engines present several alternative commutes; in all cases the first and most direct/lowest commute time was chosen.*

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34   See the conclusions of D. Hensher, Z.Li, C. Mulley *The Impact of High Speed Rail on Land and Property Values: a review of market monitoring evidence from eight countries* Institute of Transport and Logistics Studies University of Sydney (2012) https://ara.net.au/sites/default/files/Impact-High-Speed-Rail-Land-Property-Values-FINAL-Feb2012.pdf

- There is a **$475,000 median price differential between Geelong housing and the listed housing within an average 40-minute suburban commute of Melbourne's CBD.**

- This increases to a **$915,000 median price differential for Corio in Geelong's northern suburbs, which as the technical report indicates could become a central park and ride centre with c. 30 minute commute time to Melbourne's Southern Cross station.**

To what extent could suburb prices respond to transport gains?

There are many other factors that contribute to these Melbourne suburban house prices beyond transport - concrete factors such as proximity to health, education, leisure, arts and environment factors play their roles, as well as more abstract drivers such as prestige. However, in Geelong's case, many of these other factors could be considered cancelled out to a considerable degree, given the high quality of such factors nominally on offer in Geelong, which has three large and modern teaching hospitals, high-quality schools and Australia's leading regional university, as well as wider lifestyle attractions and low population densities. In Geelong's case, the house price is a function of its own (smaller) labour market, but probably reflects to a considerable degree the current travel time equilibrium from Melbourne.

Conclusion

An approximately 35-minute, wi-fi-enabled commuter journey between Melbourne - Geelong and Avalon International Airport and Melbourne with no transfers presents a far superior CBD accessibility level to that which many far more expensive Melbourne suburbs can ever offer. Noting the wider determinants of existing equilibrium prices in different suburbs, there appears to be substantial 'headroom' in relative Geelong-Melbourne median prices *vis-à-vis* to enable significant value uplift for the project.

Value capture in context

The Melbourne-Geelong property value differential combined with transformative fast commutes bodes well for the potential mechanisms by which a Melbourne-Geelong Fast Rail could be financed, in a manner that the community might support. Value capture as a part-source of financing is a rightly contentious area: if used well, it can draw on reliable uplift in the value of property, for example, to fund necessary new infrastructure that makes a meaningful impact on a community. Melbourne Geelong Fast Rail has a *priori* claims to offering such value, such that a betterment levy or similar may be an equitable part of the mix of funding for Fast Rail, alongside fare price increases and State and Commonwealth grant allocations.

Equally, the matter of how this mix is assembled needs sensitivity and some degree of confidence about the value of gains on offer. The United States experience with Tax Increment Finance is in some cases a cautionary lesson of the dangers of applying betterment levies or taxes on project investments which in reality cannot be easily captured, or which ultimately do not realise

their expected benefits for the community who are part-paying for them[35]. On face value, this does not appear to be the case in this project, as the value uplift potential is large and the project is genuinely transformative for the community: put simply, if the mechanism is well constructed, the inherent value suggests there should be more benefit than cost to the community as a result of this user pays contribution to overall funding.

In summary and in line with observed economic analysis of other regional fast rail projects[36], the primary gains are redistributive rather than generative - that is, in the first instance they change the migration patterns of commuters and their families by transforming the hierarchy of land values between city and regional centre.

35   G. K Ingram and Y. Hung Hong, (eds) *Value Capture and Land Policies Proceedings of the 2011 Land Policy Conference* Lincoln Institute of Land Policy (2012) https://www.lincolninst.edu/sites/default/files/pubfiles/value-capture-and-land-policies-chp.pdf
36   J. Murakami and R. Cervero *California High Speed Rail Development: Environmental and Other Effects of Developing a High Speed Rail System in California: A Prospective Vision* 2010-2050 Symposium Paper No CEPP004 (2010) https://gspp.berkeley.edu/assets/uploads/page/HSR10_Murakami_Cervero.pdf

Wider project benefits and beneficiaries

As outlined above, the leveraged project structuring proposed for Melbourne-Geelong Fast Rail ensures that a much wider population is positioned to benefit in economic and social terms from the project.

Key beneficiaries:

- Existing Melbourne or Geelong rail commuters;

- Melbourne commuters migrating to Geelong region to access superior commuting (i.e. existing property market arbitrage or new entry into the market);

- Melbourne or Geelong car commuters substituting to Fast Rail;

- Car commuters enjoying reduced congestion growth rates on the Princes Freeway;

- Wider Geelong region residents accessing newly-available fast commute times;

- Melbourne Metro suburban train capacity for western Melbourne Metro commuters (ie no Geelong-Warrnambool service line sharing with Metro trains is required on the outer-west Melbourne Regional Rail tracks, once Fast Rail is operational); and

- South-West Victorian regional residents proximate to the Warrnambool rail line, which will have significantly lower-cost access to future Fast Rail connectivity.

Facilitate a second competitive international airport for Melbourne

Avalon International Airport between Geelong and Melbourne acts as Melbourne's second domestic airport, but in infrastructure terms it is fully-capable of hosting international flights. Current developments at the airport forecast the first offshore international carrier (AirAsia) to begin services in 2019[37].

The accompanying high-level technical design makes provision for an Avalon airport station on the main Geelong-Melbourne line - this is the least-cost solution for providing fast rail access to Avalon airport to and from the Melbourne central business district.

Estimated fast rail transit times under 30 minutes from Melbourne CBD

Previous Victorian Governments have already secured planning and path protection for a rail connection between Melbourne and Avalon airport, but the presence of Melbourne - Geelong Fast Rail will greatly accelerate the amenity and competitiveness of Avalon as a major international airport for Victoria.

In turn, this establishes a healthy competitive dynamic with the transport and services arrangements at Melbourne's current international airport at Tullamarine; market competition is the most reliable mechanism for securing better outcomes for Victorian consumers and international and interstate visitors.

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37   See Avalon Airport Corporation press release February 2018 https://www.avalonairport.com.au/media-releases/news/airasia-and-avalon-airport-to-commence-international-flights

Better link Geelong and region to the new Melbourne Metro service

The new Melbourne Metro service will see a rail tunnel under Melbourne linking suburban Metro services from the south and east across to the north and west. This increases capacity for the Metro[38] but also creates new stations in Melbourne and northern Melbourne, such as into the Parkville precinct of universities and hospitals.

Part of the objective for Melbourne-Geelong Fast Rail should be to ensure that any such project brings the Geelong region closer to taking advantage of this new functionality.

By retrofitting Fast Rail to the existing Regional Rail route, fast Geelong services can stop at Sunshine station, which in future is likely to become the key Metro transfer station at the northern end of the Melbourne Metro project.

This alignment would ensure that Geelong commuters could access Sunshine Station in well under 30 minutes. This in turn ensures that Geelong commuters could access all points along the new Melbourne Metro with a single transfer to a Metro service at Sunshine station. Depending upon Melbourne Metro journey times, this could place Geelong to Parkville precinct commuting within c. 45 minutes, or Geelong - South Yarra in perhaps one hour. The Sunshine Fast Rail alignment also opens up fast onwards Metro journeys to south and eastern Melbourne as well as potential fast rail transfers from Geelong to a new Melbourne Airport rail line. All of these opportunities reinforce the economic value of shrinking distance by Fast Rail and underpin the value capture potential of the project.

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38   http://metrotunnel.vic.gov.au/

Bring a wider regional population within a one-hour commute of Melbourne

Melbourne-Geelong Fast Rail offers a means of disrupting the assumed commuter patterns and land values between Melbourne and its regional centres, starting with Geelong.

For now, the c. 65 minute train journey to and from Melbourne limits commuting and capital city interaction to those within relatively close commuting proximity to train stations, or those who, for whatever reasons, are prepared to make a longer commute, perhaps closer to two hours door-to-door than one hour, such as the Bellarine Peninsula, parts of Golden Plains Shire to the north and west of Geelong or the Surf Coast.

Melbourne-Geelong Fast Rail greatly expands the potential for existing commuters to reduce their travel times dramatically, but it also offers an opportunity to wider Geelong regional areas which are not realistic for regular train travel at 65-minutes plus commuting time to and from the train station.

Is Fast Rail a 'silver bullet' for regional growth?

In line with settled economic opinion on observed regional effects of fast rail around the world, Melbourne - Geelong Fast Rail is not advanced as a cure-all for either Melbourne sustainable growth or for Geelong regional growth.

Some observed examples of high speed rail operations elsewhere suggest high speed rail-driven job growth has been the highest in central urban areas and the effect on regions is more mixed. Even where such regional centre growth does occur, some studies have found that it is debatable whether the growth was due to the improved rail service arriving or whether it was in fact the anticipated growth in the region and its latent comparative advantages that attracted the high speed rail[39].

On this basis, Melbourne is likely to enjoy the most reliable gains from high-speed rail[40].

At the same time, economic assessments of other projects point to certain success factors for regional cities hosting fast rail: in Japan, regional centres with strong information transfer sectors (banking, real estate, finance services) with a university and with access to a motorway connection to the capital as well as fast rail made more of fast rail's opportunities than other regional centres[41]. This bodes well for Geelong, which is already well-advanced on a successful transition away from its legacy manufacturing base and which already possesses these wider pre-conditions.

Overall, if a consensus of economic literature around regional fast rail effects can be attempted, it is that Fast Rail is likely to consolidate gains underway in the Geelong and surrounding economy already rather than transform the economy by itself[42].

It is therefore prudent not to view Fast Rail as a 'silver bullet' for development in isolation to the city's wider economic growth and structural transition efforts[43]. It is also important to recognise the coordinating and supporting infrastructure at train stations, parking areas and connecting public transport and the wider regional transition to modern knowledge economy that will make Melbourne-Geelong Fast Rail work to its full potential.

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