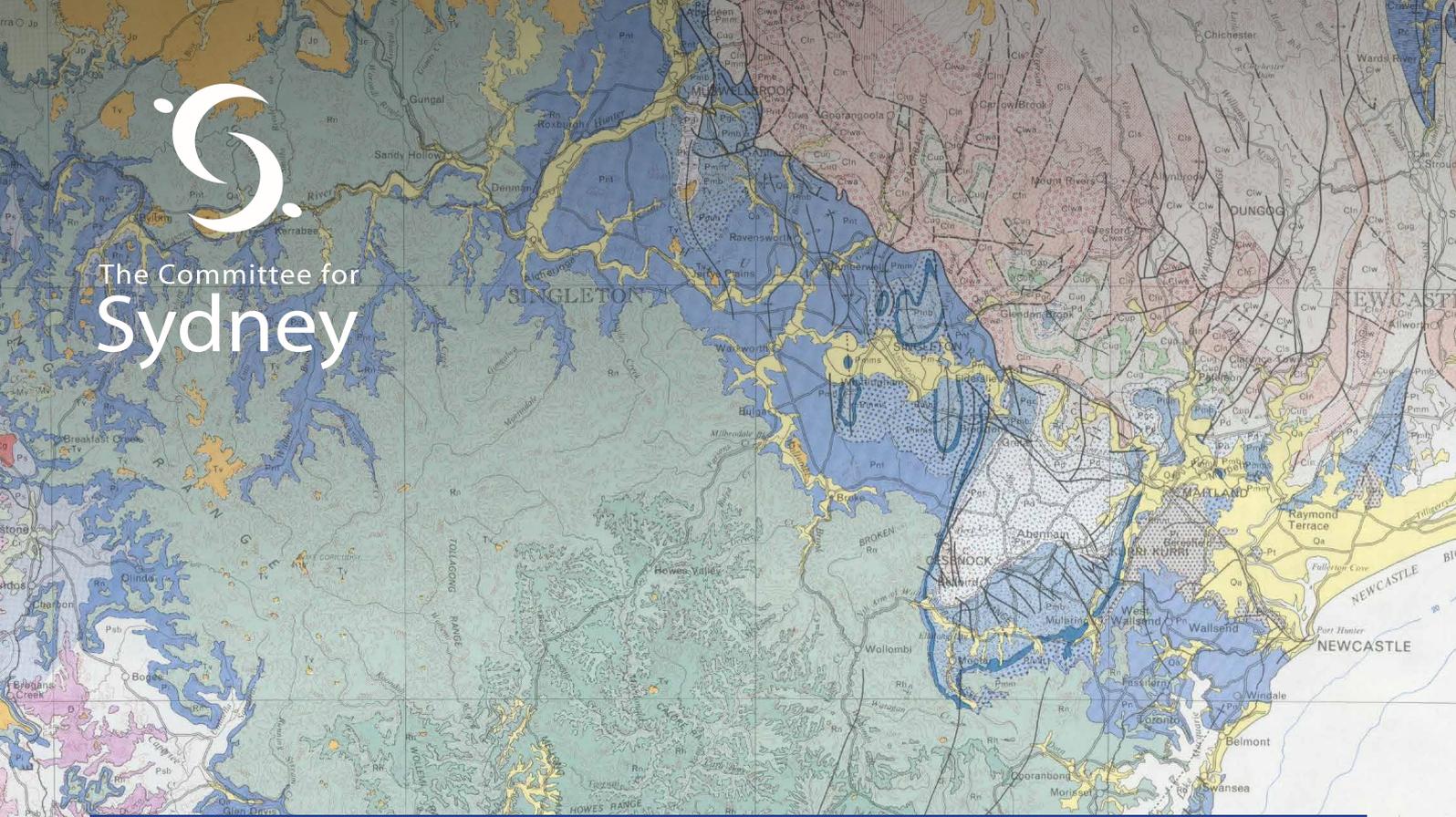


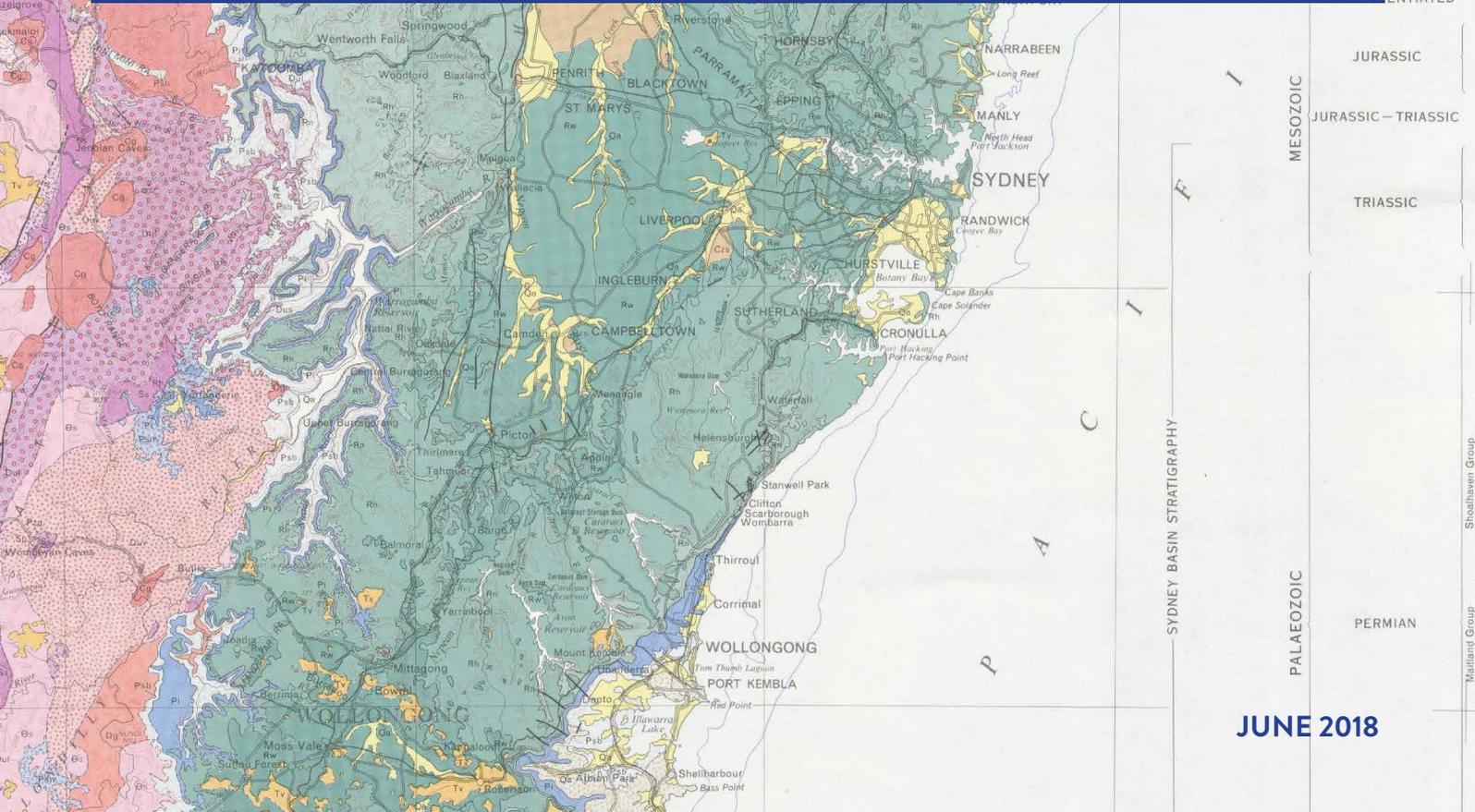


The Committee for
Sydney



THE SANDSTONE MEGA-REGION

UNITING NEWCASTLE – THE CENTRAL COAST
– SYDNEY – WOLLONGONG



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FOREWORD

The links between Newcastle, the Central Coast, Sydney and Wollongong are strong – but until now they've been viewed through a prism of separate cities with occasional interaction and somewhat separate economic trajectories.

As proud residents of Newcastle and Wollongong respectively, we felt that while the growth of Greater Sydney and the rise of the 'three cities model' was a fantastic step forward, we needed to think beyond Sydney if our region was to achieve long-term economic and social dynamism. As such, the Committee for Sydney has been investigating the potential of linking our region into a single entity – a 'mega-region', tied together like the sandstone basin our key centres sit on.

The 'Sandstone Mega-region' makes up over 70% of the NSW population and nearly 25% of the national population. Its prosperity is important for the state and country alike. As rates of urbanisation continue to rise, we must explore how our key economic centres can work better and more successfully together to improve the liveability and opportunities for all.

To progress our thinking, we established a small committee of our members to discuss the pros and cons and to commission some research to inform our deliberations. We examined some of the current economic and transport interactions which exist between the six cities and what opportunities (and problems) might arise from improved connectivity. We reached out to our partner organisations overseas to provide examples, both good and bad, of megalopolises internationally.

This paper presents a compelling vision for a single economic powerhouse, capable of competing on the global scale. We are delighted to present this significant discussion paper on the future of the 'Sandstone Mega-region'.



Mr Kyle Loades,
Former Chair, NRMA
Steering Committee Chair



Professor Paul Wellings CBE,
Vice-Chancellor, University
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Steering Committee
Deputy Chair

EXECUTIVE SUMMARY

This report is the culmination of a year of research and investigation into the potential impact of closer relationships between the cities of Newcastle, the Central Coast and Wollongong, and the three cities of Greater Sydney. Spurred by the evidence that mega-regions around the globe are delivering economic and social outcomes for their collective communities, the Committee embarked on a program of hearing from international experts and collating evidence on the existing and potential relationships between our six cities.

This is a critical area for consideration as all growing cities like Sydney extend beyond their formal boundaries. Leading global cities such as London, New York and Hong Kong couldn't function properly, or succeed to the extent that they do, were it not for close links with their neighbouring cities and centres. Our planners, urban thinkers, governments and citizens need to lift their eyes above the horizon and to consider the towns and cities that border our metropolis. Ultimately, we need to ask whether our emerging metropolis of three cities can be even more successful if it is reconceptualised as a mega-region of six cities.

Currently, there is little integration between the six cities, with most people living and working within their respective city. This finding is particularly strong outside Greater Sydney, where there is a high level of containment and the vast majority of people seek employment locally. These findings reflect the fact that there is limited connectivity within and between the regional cities and Greater Sydney. Using existing private and public transport routes, neither Wollongong nor Central Coast commuters can access significant parts of Sydney within an hour, and Newcastle remains relatively isolated.

To improve integration between the six cities and create a successful mega-region, evidence suggests that a network of one-hour or less heavy rail connections between cities is needed, along with a coherent economic strategy that promotes complementary roles for each of the centres. With these in place, mega-regions can benefit from common housing and labour markets. Chiefly, integration enables greater housing choice and accessibility to jobs, as well as agglomeration economies in which people and firms cluster together.

Using 'off the shelf' fast rail technology, there are great opportunities to improve connectivity between the six cities of the mega-region, as well as orientate Sydney towards its geographical centre of Parramatta. Even a moderately fast rail network that reaches speeds of 200 km/h could connect Newcastle, the Central Coast and Wollongong with Sydney in 60 minutes or less. Along with broader city-shaping benefits, economic modelling indicates that such a scenario would improve housing affordability, accessibility to jobs, and regional employment throughout the mega-region.

The Committee strongly recommends the development of a plan for fast-connectivity throughout the proposed Sandstone Mega-region. Achieving this long-term goal includes a number of steps, some immediate and some longer term including:

- NSW Government to investigate fast rail and a 70-minute connection between Sydney and Newcastle.
- Identify opportunities to harmonise regional plans.
- Review existing governance arrangements.
- Identify and protect required infrastructure corridors.
- NSW Government to develop an integrated economic strategy for the mega-region.
- Federal and State Governments to fund fast connectivity across the mega-region.

INTRODUCTION



Source: Australian Census 2016 by Statistical Areas Level 4
*Excluding Central Coast

The Committee for Sydney is committed to ensuring Sydney lives up to the promise it makes to its citizens. We work to ensure it is the best possible city it can be. We celebrate and champion our city's successes and work on addressing its failings. In recent years we've been trying to benchmark what a truly successful Sydney might look like. In our discussions with thought leaders and analysis of other global cities, a common finding has emerged. All successful, growing cities extend beyond their formal boundaries and are supported by other cities. That is, behind every great city there is a network of other great cities.

For instance, when we look at the statistical and jurisdictional city of Los Angeles we see a city of just three million people; much smaller than us. Yet it functions as a twelve million-person, megalopolis. When we look at San Francisco we ask: how are they able to churn out IT start ups in their thousands? On closer inspection we realise they've partnered with the neighbour, San Jose, to develop Silicon Valley. When we look at London, we query how they can draw talent and resources from across England and now even from Paris to feed their financial powerhouse. Similarly, we find that Hong Kong is really the gateway for an increasingly integrated mega-region of more than 40 million people. All these cities are playing a bigger role in the world than their actual size would suggest.

These cities couldn't function properly, or succeed to the extent that they do, were it not for close links with their neighbouring regional centres. Many leading cities of today are best understood as mega-regions that bring together once separate settlements into an amalgamated 'functional city', where flows of people, capital, goods and ideas extend beyond the boundaries drawn on a map.

Like our competitors, Sydney does not sit alone. We too are surrounded by neighbouring cities. Cities full of talent and creativity. Cities with great universities and wonderful environments. The Committee asks, what if we too could become a global mega-region of over ten million, without the need to cram such a population into Greater Sydney? Could we become a global incubator of start-ups and creativity to rival Silicon Valley? Can we match London by borrowing from the talent pool of our near neighbours? Is there a shortcut to joining the top table?

This paper seeks to start a discussion about how we could capitalise on the strengths of all our cities; the three Cities of Sydney outlined in the Greater Sydney Commission's Region Plan, as well as the cities of Newcastle, Wollongong and the Central Coast. It looks at some of the possibilities and opportunities, as well as the investments we would need to make to exploit them.

WHY LOOK BEYOND SYDNEY?

THE CASE FOR GROWTH

Sydney is experiencing growing pains. As our population continues its trajectory towards a city of eight million people, things are starting to go bump. Traffic is bad and getting worse, housing affordability is worsening, and our natural environment and bio-diversity are under threat. Many of our city's citizens are questioning whether the growth is worth it, and worry are we killing the city we all love so much.

The Committee shares their concerns, but not their prognosis. The Committee does not advocate growth for growth's sake. We advocate for growth because we see it as a means to address many of our existing social, economic and environmental problems, including sustaining the revenue required for much needed infrastructure. We advocate for planning and investment to support population growth because, whether you like it or not, growth is going to continue. Our economy is urbanising and so are our citizens. The creative talent and innovation being unleashed in cities like Sydney is not going to evaporate anytime soon, and this is attracting more and more people to our metropolis. We need to plan for it. It's not realistic to suggest that we manage our urban problems with population controls.

In planning for the future, there is much to be optimistic about in Sydney. We now have an integrated land use and transport plan that sets out a polycentric structure for a metropolis of three cities, which will gradually see the city shift west towards its geographical centre – Parramatta. Three cities which seek to provide homes, services and employment for their citizens and with an aspiration of doing so within a 30-minute radius. The Committee supports this preferred structure for Greater Sydney and we will continue to advocate for all tiers of government to implement the plans. With the plans now in place, we are also calling for all of us to continue the deep thinking Sydney needs to ensure that our metropolis grows in a way that supports our citizens and makes real their aspirations for their neighbourhoods, suburbs and towns.

Our planners, urban thinkers, governments and citizens need to lift their eyes above the horizon and to consider the towns and cities that border our metropolis. As the influence of Sydney continues to spread, we should consider the impact that it is having on the neighbouring cities of Newcastle, Wollongong and the Central Coast. Ultimately, we need to ask whether our emerging metropolis of three cities can be even more successful if it is reconceptualised as a mega-region of six cities.





WHY THE 'SANDSTONE' MEGA-REGION?

There is a lot that binds the east coast region extending from Newcastle through to Wollongong. Right underneath our feet, our cities share the same sandstone foundations that make up the Sydney Basin. Blessed with a temperate climate, on the shore of the Pacific Ocean, many have flocked to cities of the Sydney Basin to set up shop and make a home.

The Triassic sandstone that makes up the basin has been an important resource for shaping the region's built environment. Well known for its durable quality, the sandstone can be seen today in many iconic buildings across Newcastle, the Central Coast, Sydney and Wollongong.

WHAT ASSETS WOULD THE SANDSTONE MEGA-REGION HAVE?

Mega-regions present an opportunity to leverage assets from across city borders, opening access to ideas, capital, people, and infrastructure. In mega-regions like the Pearl River Delta of South-East China this has been a key ingredient of growth – see case study on page 14.

The proposed Sandstone Mega-region is abundant with natural, built and human resources. The region is fortunate to have three major trade ports that act as gateways to the world. The Port of Newcastle is one of the world's leading coal export ports and Port Kembla is the country's biggest vehicle import centre, and the key grain export port for Southern and South Western NSW producers. In the centre, there is Sydney's Port Botany, NSW's largest container port, which contributes \$3.2 billion to Gross State Product.¹ These ports are complemented by an established freight rail network that connects Newcastle through to Wollongong and out to the Blue Mountains. The six cities are also serviced by the 1,588 km-long passenger rail network of NSW and three, soon to be four, passenger service airports; Newcastle Airport and the Illawarra Regional Airport, Sydney's Kingsford Smith Airport, and in 2026, the Western Sydney Airport at Badgerys Creek.

1 Transport for NSW, NSW Port Network <https://www.transport.nsw.gov.au/operations/logistics-network/nsw-port-network>

Within the region, there are eight universities and several specialised research organisations. Of the eight universities, six are ranked among QS's top 250 universities worldwide, and two are within the top 50 universities.² The Australian Nuclear Science and Technology Organisation (ANSTO), a world leader in nuclear medicine and home to Australia's only nuclear reactor, is located in Southern Sydney. In addition, there are seven CSIRO laboratories throughout the region, including the CSIRO Energy Centre in Newcastle.

Of NSW's 3.6 million strong labour force, over 75% live in the Sandstone Mega-region.³ While the majority of that labour force is located in Greater Sydney (2.4 million), the Newcastle/Lake Macquarie region and Illawarra region have the next largest labour forces outside the Greater Sydney area, with labour forces of 173,000 and 137,000 respectively. Similarly, nearly 70% of houses in NSW are located in the mega-region, with 2.1 million in Greater Sydney, 154,000 in Newcastle and Lake Macquarie, and 120,000 in the Illawarra.⁴

2 Quacquarelli Symonds (QS) World University Rankings, 2018 <https://www.topuniversities.com/university-rankings/world-university-rankings/2018>

3 Australian Bureau of Statistics, 2016 Census of Population and Housing - Employment, ABS: Canberra

4 Australian Bureau of Statistics, 2016 Census of Population and Housing - Dwellings, ABS: Canberra

Finally, between Newcastle and Wollongong there is a rich mix of cultural and natural assets. NSW is renowned for its cultural diversity with over 100 different ancestry groups and 80 languages spoken in the state. This vibrant mix of people favourably positions the mega-region in the global economy with the ability to provide a large, diverse, well-educated and multilingual workforce. The mega-region is also complete with hundreds of museums, galleries, libraries and arts venues. With 14 sporting stadiums, Newcastle, the Central Coast, Sydney and Wollongong are all destinations for professional sporting events. Last, but certainly not least, there are 60 national parks throughout the region, with 43 in Greater Sydney and surrounds, 11 in Newcastle and the Lake Macquarie area, and six in the Illawarra.

HOW HAS THE COMMITTEE FOR SYDNEY EXAMINED THE MEGA-REGION?

This report is the culmination of a year of research and investigation into the potential impact of closer relationships between Newcastle, the Central Coast, Sydney and Wollongong. Spurred by the evidence that mega-regions around the globe are delivering economic and social outcomes for the collective communities, the Committee embarked on a program of hearing from international experts and collating evidence on the existing and potential relationships between our cities.

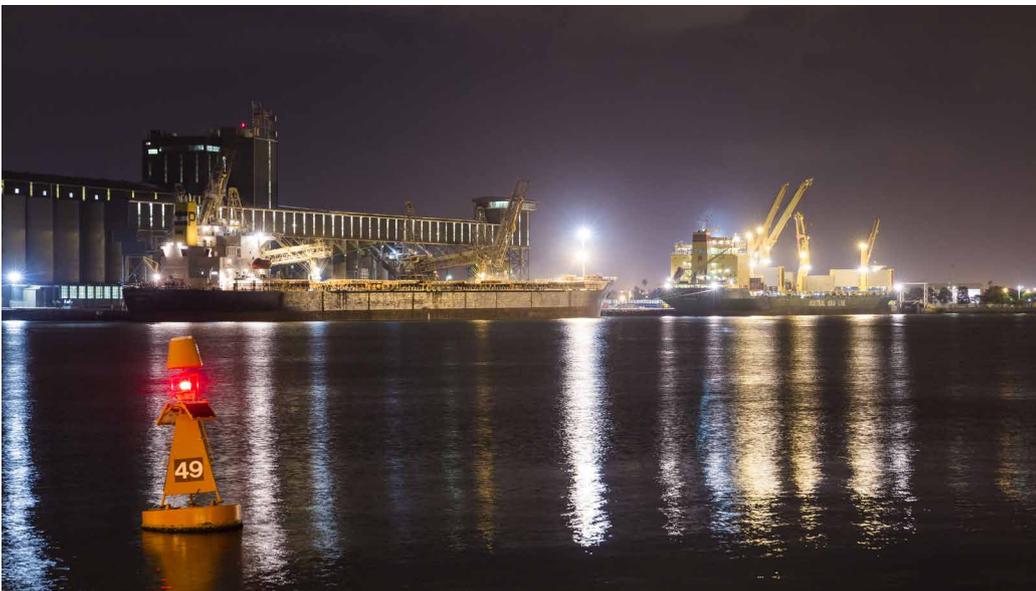
This represents a summary of our internal debate. It is based on some research contributed by our members

and a preliminary analysis of some of the infrastructure interventions and priorities which could make this mega-region a success. But the committee also looked outside our membership for advice. We reached out to colleagues overseas and sought advice and guidance from partners in the Illawarra and Hunter, including companies, councils and academic institutions.

We formed a taskforce made up of representatives of key organisations across Sydney, the Illawarra, the Central Coast and the Hunter to identify the respective strengths of the regions, and heard from experts including:

- Greg Clark, CEO of The Business of Cities, on global mega-regions,
- Tom Wright, CEO of the Regional Plan Association New York, on the New York/New Jersey/Connecticut mega-region,
- Todd Litman, ED of the Victoria Transport Policy Institute, on multi-modal public transport planning in Canada,
- Professor Mark Tewdwr-Jones, Director of Newcastle City Futures at Newcastle University (UK), on UK transport planning,
- Bill Price, Director at WSP, on rail decking and Transit Oriented Development,
- Professor Andrew McNaughton, Strategic Technical Adviser at HS2, on high-speed rail.

The contributions from these authors as well as those of local specialists has already fed into our advocacy and published papers. They have also assisted with the development of this paper.



THE CURRENT STATE OF PLAY: HOW OUR CITIES INTERACT



Before we look at how to better integrate the six cities it is worth looking at the current state of play and look at how much, if any, integration is already taking place. To do this we asked the UNSW City Futures Research Centre to look at the data and see what trends are emerging.¹

COMMUTING — HOW DO PEOPLE MOVE AROUND THE REGION?

Most people currently work within their respective city, though people in Sydney's Western City are most likely to travel to either the Central or Eastern City. There is a high level of containment outside the Sydney cities with the vast majority finding employment locally. In short there is not yet much integration outside of the three Sydney cities.

Sydney Eastern City

The Eastern City, our traditional CBD, takes the lion's share of jobs — and commuters: 317,883 commuters travel into the Eastern City each day, although this is dwarfed by the 642,118 people that live in the Eastern City and commute within the region. Very few of these people come from outside Sydney, with only 30,000 of these coming from the north or south.

The Eastern City is also the only location with a mode share for rail over 25%, with 44% of people who live outside the Eastern City commuting in by train. This is reflective of our hub-and-spoke rail network that prioritises getting into the Eastern City from the other five areas. Disappointingly, the rail mode share of people who live within the Eastern City and commute within the region is only 23%.

Sydney Central City

The Central City, based around Parramatta, has the region's second largest workforce — and is a car-centric city. Half a million people work there, with 80% arriving by car. Where people do arrive by rail, they come from across Sydney's three cities, with only 15,000 journeys to the Central City from the north and south combined.

While the Central City has 100,000 people commuting in from the Eastern City, 200,000 head the other way into the Eastern City every morning, meaning a significant eastward jobs-drain.

Sydney Western City

Sydney's Western City has more room to grow in delivering local jobs — especially connected by public transport. It has 316,272 people working in the region, with 76% of these workers commuting internally. The share of people working in the Western City and commuting via train is extremely low — less than 4% mode share.

Wollongong

Wollongong's ties to Sydney have grown significantly, but not sustainably over the past five years. There has been a doubling in work car trips from 10,000 to over 21,000 over the past five years, reflecting the lack of public transit connectivity to job markets other than to the Eastern City.

While the Central Coast has typically been considered the typical 'commuter town' servicing Sydney, commuter patterns in Wollongong are strikingly similar, with 10,000 people commuting into Wollongong against 25,000 that leave to work elsewhere.

Central Coast

The Central Coast continues its role as a commuter town to the Central and Eastern Cities, losing a third of its workers every morning. While other areas see greater proportions of their workers leave their district, the Central Coast sees very low flows of workers commuting inwards – only Wollongong has such significant patterns of workers leaving each day.

Internally the Central Coast is almost completely car dependent. With a significant, out-of-centre, retail offering, the town centres of Gosford and Wyong have little in the way of local public transport travel.

Newcastle

Newcastle's distance from Sydney and the long train journey mean there is very little commuting each way – with only the Central Coast having a significant commuter relationship (with between 4,000 and 5,000 travelling each way). Newcastle draws in commuters primarily from the broader Hunter Region, with 17,470 people coming into Newcastle from the west and north.

Overall, the six cities are all heavily dependent on the car for transport. *Public transit is taking some of the strain in the three Sydney cities*, mainly the Eastern and Central cities but outside the metropolitan area, transit use is limited. In these areas, the car has taken up almost all the strain. Represented by mode share, car travel accounts for over 90% of internal journey to work trips in the Western City, Newcastle, the Hunter, Central Coast and Wollongong. In the Central City, this falls to 80%, with train travel taking a 9% share, active transport (walking and cycling) a 6% share and bus trips a 5% share. In the Eastern City – despite strong growth in public transit use over the last five years – the car still accounts for 51% of journey-to-work trips.

In short, *the car remains king* – and in many places is increasingly so. Apart from Wollongong, large increases in work trips by car within each region occurred between 2011 and 2016. While much of this reflects increases in population and employment growth, it highlights the challenge faced in meeting Greater Sydney Commission targets for living within a 30-minute city. Even in the Eastern City, where public transport – both train and bus – has seen excellent growth in patronage, there were still 20,000 more journey-to-work trips made by car in 2016 compared to 2011.

TABLE 1: NUMBER OF JOURNEY-TO-WORK TRIPS BETWEEN CITIES - ALL MODES

| Origin | Destination | | | | | |
|---------------------|---------------|------------------|---------------------|---------------------|---------------------|-------------------|
| | Central Coast | Newcastle Region | Sydney Central City | Sydney Eastern City | Sydney Western City | Wollongong Region |
| Central Coast | 75,256 | 4,995 | 6,715 | 16,213 | 1,525 | 405 |
| Newcastle Region | 4,376 | 103,159 | 1,668 | 2,275 | 534 | 248 |
| Sydney Central City | 983 | 783 | 266,420 | 206,357 | 48,072 | 2,483 |
| Sydney Eastern City | 1,493 | 914 | 100,757 | 642,118 | 19,301 | 3,653 |
| Sydney Western City | 734 | 688 | 126,381 | 78,578 | 240,925 | 3,243 |
| Wollongong Region | 208 | 398 | 6,671 | 13,360 | 5,915 | 70,358 |
| Total | 83,050 | 110,937 | 508,612 | 958,901 | 316,272 | 80,390 |

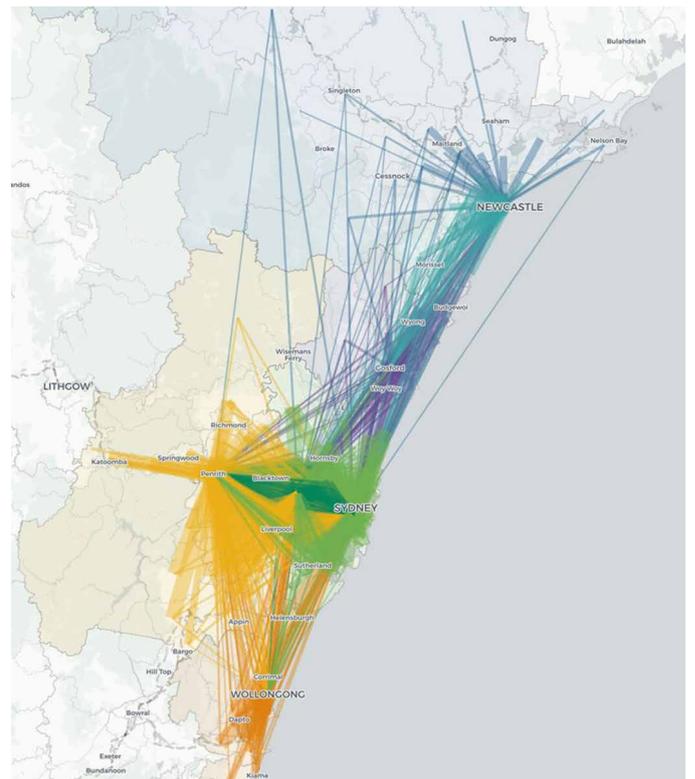
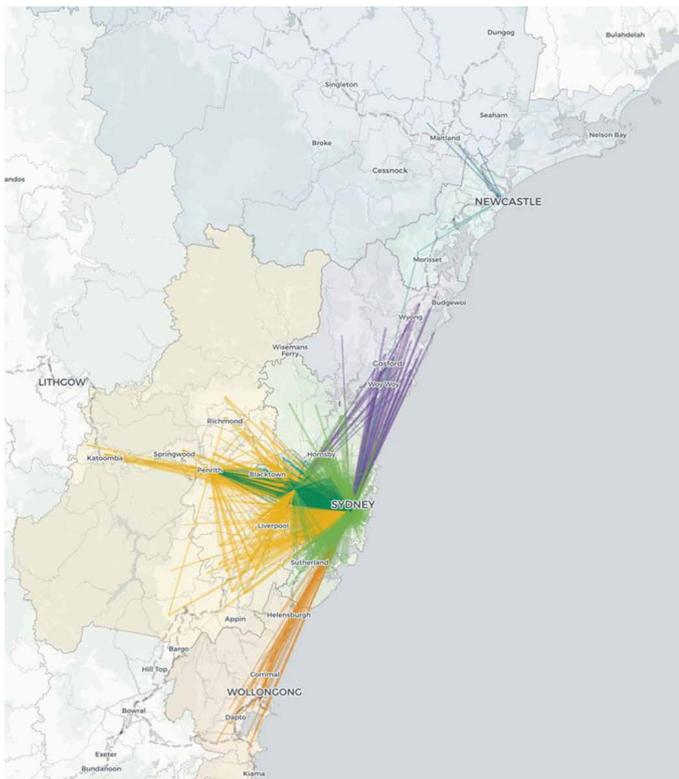
TABLE 2: PROPORTION OF JOURNEY-TO-WORK TRIPS MADE BY RAIL

| Origin | Destination | | | | | |
|---------------------|---------------|------------------|---------------------|---------------------|---------------------|-------------------|
| | Central Coast | Newcastle Region | Sydney Central City | Sydney Eastern City | Sydney Western City | Wollongong Region |
| Central Coast | 1% | 4% | 24% | 45% | 8% | 12% |
| Newcastle Region | 4% | 1% | 8% | 23% | 1% | 2% |
| Sydney Central City | 12% | 7% | 9% | 44% | 7% | 9% |
| Sydney Eastern City | 11% | 10% | 18% | 23% | 8% | 10% |
| Sydney Western City | 5% | 3% | 13% | 50% | 2% | 4% |
| Wollongong Region | 0% | 1% | 5% | 30% | 1% | 1% |

RAIL AND CAR COMMUTING PATTERNS ACROSS THE REGION

Rail journeys

Car journeys



Source: UNSW City Futures Research Centre, derived from Australian Census 2016 JTW data, obtained November 2017

Each line on this map represents at least one work journey made from a local area (SA2 area) to a destination in one of the region’s six cities. The map on left depicts journeys using a primary mode of rail, and the map on the right depicts journeys using primarily cars. The thickness of each line is indicative of the number of journeys made. The lines are colour-coded by the city-region in which the journey to work began: light green represents journeys from Eastern Sydney; dark green for Central Sydney; yellow for Western Sydney, orange for Wollongong; purple for the Central Coast; light blue for Newcastle; and dark blue for the Hunter region.

EMPLOYMENT – WHAT INDUSTRIES DO PEOPLE WORK IN?

In terms of employment each of the six cities has experienced some jobs growth, however knowledge jobs are consolidating the existing Eastern City advantage, with some good gains also for the Central City, especially around Parramatta. The six cities have a very unbalanced structure with a mismatch between where people work and where they live. The Committee has worked very hard over recent years to highlight and address these imbalances through our papers *Adding to the Dividend/Ending the Divide* and *The Geography of Time*. Building better connections can potentially spread knowledge-intensive jobs throughout the region as knowledge workers currently face longer commutes when working outside the Eastern City.

Both Newcastle and Wollongong's top industries for jobs are within the education, health (hospitals) and hospitality (cafés, restaurants, takeaway) sectors. The Universities of Newcastle and Wollongong have a large impact on this. The effect of Port Kembla, Bluescope Steelworks and the metals industry in Wollongong is also seen in the top results.

While the Central Coast and Wollongong lose knowledge workers to Sydney each day (33% and 27% respectively), 93% of Newcastle's knowledge-intensive workers work in Newcastle or the Hunter Region.

All six cities have large internationally recognised university campuses. With Australia adopting a population-based model of health funding, each city has a sizeable number of people employed in health, and health related industries, and each has at least one large teaching hospital. *Health and education jobs are growing strongly across the Six Cities*, including almost 10,000 in the Western City. But beyond health and education the respective cities have very different economic bases.

HOW FAR CAN PEOPLE COMMUTE IN 30 OR 60 MINUTES?

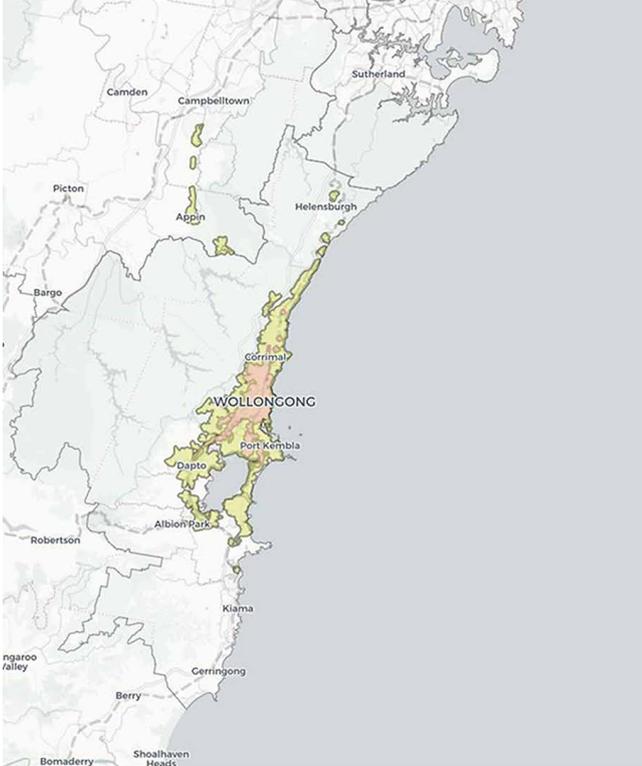
The amount of time it takes to commute from our homes to our workplaces impacts quality of life and imposes constraints on the job opportunities that are available to us. While people are generally happy to allow for a travel budget of 30 minutes one-way, pushing up to 60 minutes, they are less willing to travel regularly for more than an hour to get to a job or other point of interest. Using public transport connectivity as the key mode for linking the mega-region, how far are we from a network of cities linked within 30 or 60 minutes?

Examining the visualisations on page 11, created for the Committee by UNSW City Futures Research Centre, it's apparent that neither Wollongong nor the Central Coast are able to access significant parts of Sydney within an hour, and Newcastle remains relatively isolated. Residents of Wollongong cannot reach much further than Helensburgh or Rosemeadow, while Central Coast commuters can access the centres of Epping and Gordon, but the jobs centres of Macquarie Park and Chatswood lie just outside one hour. The only areas accessible to Newcastle commuters within an hour are in the Hunter region, extending down to Awaba in the south and Raymond Terrace and Williamstown in the north.

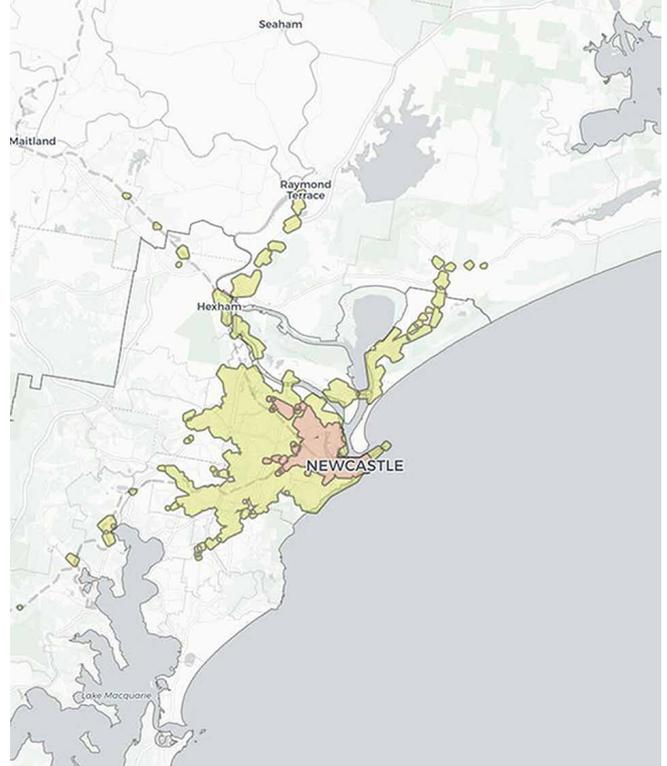
The amount of time it takes to commute from our homes to our workplaces impacts quality of life and imposes constraints on the job opportunities that are available to us.

30 MINUTE AND 60 MINUTE COMMUTING REGIONS

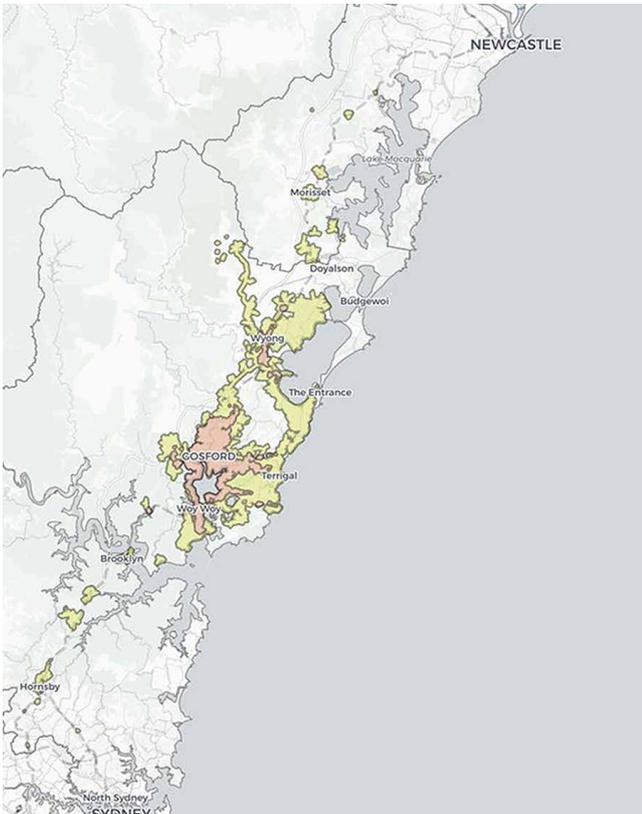
Wollongong



Newcastle



Central Coast



Source: UNSW City Futures Research Centre, derived from Australian Census 2016 JTW data, obtained November 2017

The coloured geographies on this map represent commuting regions within 30 and 60 minutes of the central business district of each city. Red areas represent commuting regions that are accessible within 30 minutes by public transport, yellow areas represent commuting regions that are accessible within 60 minutes by public transport.



WHY A MEGA-REGION?

THE BENEFITS OF MEGA-REGIONS

All successful, growing cities have impacts beyond their formal boundaries. They can shape and affect economic development in towns and smaller cities far outside their formal city limits. They can also just simply grow beyond or spill over from, their historic, political or administrative boundaries, as population increases and connectivity improves. Indeed, many cities are now conurbations in which, over time, a multiplicity of once separate settlements have become amalgamated, whether or not boundaries drawn on a map, or indeed governance, reflect it.

We have seen this time and time again across the world. In London we have seen this process take place over centuries, firstly as an expansion within what is now termed Greater London, with once separate town or village centres being absorbed and their economic functions reshaped by the needs of the broader London market. Secondly, as transport links improved and London's need for labour increased, more and more existing settlements outside London have been drawn into its economic orbit. Indeed, some new settlements were created and are being created now, to effectively serve and benefit from it. Today, more people who work in London come from its commuter hinterland than live inside its borders. For many their journey to key employment centres in the centre of London can take less time than it takes for Londoners to get to work. The same is true of most of our main competitors.

SUCCESSFUL MEGA-REGIONS HAVE TWO FUNDAMENTAL CATALYSTS

Our initial engagement with experts has loomed large in our thinking and research. Specifically, our work with Greg Clark, CEO of the Business of Cities, framed our work by drawing on the experience of other mega-regions around the world. All of these regions, including the Randstad, the Pearl River Delta and the Tri-State Area, have a couple of commonalities. Indeed, these are no mere correlations – without these components, these areas wouldn't function as mega-regions.

The first of these commonalities is **a network of 1-hour or less heavy rail connections between centres**. Put simply, travel times longer than this make the region functioning as a single economic entity impossible. As we've explored in other papers, people generally have a travel budget of less than two hours for a commute. Anything greater and people start to look elsewhere for employment, education and socialising. Similarly, other modes of transport won't work – roads get congested during peak times and lack the reliability of rail. Similarly, the economics of agglomeration require the concentration of people into a relatively confined town centre. You can't achieve this with everyone driving. Only high capacity and fast heavy rail can bridge the distance to link separate cities. This simple fact has informed much of the research we have conducted.

The second commonality that successful mega-regions share is a **coherent economic strategy** with complementary, rather than competitive, roles for each of the centres. This is vital to take periphery cities from simply 'dormitory' towns and turn them into complementary nodes in the network. Such a strategy would change the relationship between Sydney and its smaller neighbours significantly – we would see workers commuting in both directions, as compared to our current one-way flows.

These two commonalities are not required straight away, nor at the same time. Indeed, 1-hour rail must come first. For the first few years following the creation of this rail, it's likely that any associated investment in an economic strategy will not change the pre-existing type of economic activity – although it catalyses significant growth in this investment. Essentially, at first, fast rail connections will intensify the existing flows of workers out of periphery cities into the core. This makes intuitive sense – if you're able to live in Newcastle but still work in Sydney, it's likely that you will choose to access the more specialised and deeper employment market in Sydney. However, our research shows that between 3-7 years after the initial transport linking, these flows will begin to reverse, and all centres start to experience growth in local jobs. It is at this point that a strong economic strategy must come into play – making sure that these jobs are additive, rather than replacing pre-existing jobs and produce value that can offer opportunities across the mega-region.

BORROWED SCALE: PUNCHING ABOVE OUR WEIGHT

The Committee believes that there is a shortcut to achieving the sort of economic weight we need to compete in a globalised and integrated world without pushing everyone to live in Greater Sydney. With careful planning and some strategic investments, we can have our cake and eat it too. The key is to integrate the six cities of the Sandstone Mega-region while maintaining their separate and unique identities. Indeed, permanent geographic features including the Royal National Park, Broken Bay and Lake Macquarie ensure physical breaks will continue between the cities along the coast. This is not a Sydney takeover of our neighbours, but a region-wide collaboration. The aim is to enable each of the cities access to a talented labour pool of ten million people. That ten million people can access a much wider range of housing options as well as places to work. That industries and companies can have a choice of town centres to locate their businesses in.

The economics of agglomeration require the concentration of people into a relatively confined town centre. You can't achieve this with everyone driving. Only high capacity and fast heavy rail can bridge the distance to link separate cities.



CASE STUDY – THE PEARL RIVER DELTA

Fast Rail Connections in the Pearl River Delta



The Pearl River Delta (PRD) is a region in South-East China, adjacent to the global city of Hong Kong, where some of the world's most innovative companies like Huawei and ZTE are based. At the heart of the PRD are the cities of Shenzhen, Guangzhou, Dongguan and Foshan, which have been at the forefront of China's economic development for nearly 40 years. The PRD, once described as the 'factory floor' of the world, is now referred to as the 'Silicon Delta'. It has GDP of more than \$1.2 trillion and has been growing at an average of 12% a year for the past decade.⁵

An important part of this growth has been connectivity between the cities of the region. Each year 80 million people pass through the Luohu Port land border crossing between Shenzhen and Hong Kong, making it one of the busiest land crossings in the world. The connections between Shenzhen and Hong Kong have been vital for the region's success. Hong Kong has been an important finance and knowledge hub for the mainland cities. PRD companies have been able to access funding through Hong Kong by listing on its stock exchange or by obtaining funding from private equity firms.

Hong Kong is also home to several tertiary education institutions, including four universities ranked within QS's top 50 universities worldwide.⁶ Thousands of mainland Chinese attend Hong Kong's universities every year before entering the workforce or setting up businesses in the PRD. Many others tap into Hong Kong's research assets, gain important entrepreneurial and employment experience, which they later deploy in the mainland.

Regional activity in the PRD is supported by an extensive fast rail network (see map above). The network is currently being extended from the mainland to Hong Kong and is expected to begin running in late 2018. The new rail link will cut trips from Hong Kong to Shenzhen to 15 minutes, and Hong Kong to Guangzhou to 50 minutes.

5 The Economist, 2017, *What China Can Learn from the Pearl River Delta*, <https://www.economist.com/news/special-report/21720072-pearl-river-delta-chinas-most-dynamic-open-and-innovative-region-says-vijay>

6 Quacquarelli Symonds (QS) World University Rankings, 2018 <https://www.topuniversities.com/university-rankings/world-university-rankings/2018>

WHY A COMMON HOUSING MARKET? HOUSING CHOICE

As Sydney has swelled and sprawled over the past 200 years, absorbing its neighbouring towns and cities across the Cumberland Plain, it had both good and adverse consequences. One of the better consequences was it greatly increased the city's availability of housing and choice of housing.

A similar process happened in the 1970s and 80s when the Central Coast became better connected to Sydney with electrification of the trains and the new M1 Motorway. People seeking to downsize in retirement suddenly had access to affordable housing near a beach. Similarly, young families were provided with a cheaper housing option but still within a little over an hour from the employment centres of Sydney.

Integrating our housing market provided greater choice as well as supply and significantly improved affordability. Problems however, quickly arose when the new residential settlements weren't supported by a local economic development strategy so residents could have the option of working in their own region. Nor was there an infrastructure plan to ensure the new communities could remain mobile and connected. As Sydney sprawled west, the old Hume and Great Western Highways became congested. Travel times slowed to a crawl and repeated freeway upgrades haven't reduced travel times. A similar fate befell the Central Coast. The millions spent on the M1 haven't slowed demand or sped up travel times. Rail too has become crowded and slower. The steam trains of 1918 could make the trip from Gosford to Central or Liverpool to Town Hall faster than the modern Waratah trains in 2018.

Housing is again at record levels of unaffordability in all our six cities. There are many reasons for this and the Committee has written and advocated extensively on both the causes of, and practical solutions for, this crisis. One of the leading causes is a mismatch between our existing housing stock, its location and the needs and preferences of citizens. This mismatch sees some people living in housing that is either too big or too small for their needs. It sees some living too far from where they need to work or access services.

By integrating the six cities' housing markets we open a range of new choices for our citizens. A deeper and wider housing market should help us allocate our resources better and this should improve both supply and reduce prices over time and across all the six cities. To examine this, the Committee commissioned SGS Economics &

Planning to investigate the impact of better connectivity across the region on housing – and while the findings are detailed on page 21, the headline impact of linking the mega-region is approximately a \$75 billion improvement to housing affordability.

Perhaps more importantly, the wider and deeper housing market will allow us to better plan for where new housing should be located and the housing typology most needed. Not everyone needs to be housed in an apartment next to train lines leading to the Eastern City. That's old thinking, and it didn't work. As the new Greater Sydney Region Plan seeks to show, a 30-minute city doesn't mean access to the Sydney CBD in a short commute. It means access to all the things we need in as short a commute as possible: childcare, schools, hospitals and jobs. These need not be the preserve of the old Eastern Sydney. Not all roads (and rail) need to lead to the CBD. A Mega-region of six cities would help address our affordability crisis, however we need to ensure that we don't make the same mistakes we made in the 1960s and 1980s. Housing integration needs to go hand-in-hand with economic and employment integration as well as carefully planned supportive infrastructure.

WHY AN INTEGRATED LABOUR MARKET? AGGLOMERATION ECONOMICS

In 2017, Australia took the title of having experienced the longest continuous period of economic growth in modern world history; a staggering 25 years of growth and counting. This is a great achievement for a relatively small country on the far corner of the globe. However, the benefits of this growth have not been fairly shared across all communities. For example, in the last decade over 50% of all new jobs generated in Australia were located within just two kilometres of the CBDs of Sydney and Melbourne – places where only a small proportion of our population live.⁷ This growth is great for the inner-city but not so good for those living far from the centre: those 10–30 kilometres from the CBD, or those in rural and regional Australia. Much of the angst our communities feel stems from the frustration that arises from having to commute for so long on crowded transport corridors or the pain of housing stress as we compete for homes near the centre. Worse still, many feel that the fruits of the economic boom are now the preserve of a globalised and cosmopolitan inner-city elite.

⁷ Grattan Institute, 2016, 'Productivity and Geography', *Presentation to Productivity Commission Conference, Canberra, 12 December*, <https://grattan.edu.au/wp-content/uploads/2017/01/Productivity-and-geography-Productivity-Commission-Dec-2016.pdf>

The Committee believes that this is both unacceptable and undesirable. The solution is not to stop jobs growth but to ensure the benefits are more evenly shared. The Committee believes a properly planned mega-region of six cities could have the ingredients to create far more jobs in outer metropolitan town and regional centres, spreading the benefits of growth and relieving pressure on the inner-city. We can't just order companies to relocate to the regional cities, and our attempts to move government agencies around has proven a dismal failure. We need to be smarter than that. The trick is to ensure that the drivers of growth, those ingredients which are generating all the jobs, are not the sole preserve of the inner-city. Luckily for us, other places in the metropolis already have some of these key attributes. Especially Newcastle, Parramatta and Wollongong but also, increasingly, places like Liverpool and Penrith.

The Committee has written previously about the economic forces that are shaping our society and our city. In particular, what we have called 'The Great Inversion'. This is where there has been a rediscovery of inner-city living and what have been called 'walkable precincts' by the aspirational millennials or downsizing baby-boomers; that there are long-term demographic, cultural and economic trends at work globally, and these are being reflected in Sydney. We are seeing smaller family sizes with both parents working and time-hungry people preferring amenity and location over scale of home and long commutes; that the future being embraced enthusiastically in the modern urban market is that of smaller homes, shared spaces and 'bigger lifestyles'. There is thus a greatly strengthened demand to live in certain city districts usually within ten kilometres of a CBD which are mixed-use, walkable to jobs and services, well connected by public transport and with a diversity of housing stock and tenures.

These key ingredients are what has led to major employment growth in the inner cities of Sydney and Melbourne. But they can also be replicated elsewhere. In recent years places like Parramatta have shown what is possible. It has been able to capitalise on improved transport connectivity and local amenity and has started

attracting the jobs its local population both need and want. It's managing to reach a critical effective jobs density which should fuel even greater jobs growth. The early movers are being joined by other companies and universities. SGS Economics to: SGS Economics & Planning estimate that over the next few years it is likely that Parramatta will grow jobs at much faster rate than Sydney CBD. Parramatta is not alone. Increased population density, combined with universities seeking to relocate into town centres, is driving the agglomeration economics starting to fuel jobs growth in Wollongong, Newcastle and Liverpool. Combined with our population-led health funding model, our local hospitals are providing a greater range of services. Twenty years ago, you would need to go to the Eastern City of Sydney to get a world class education or to access specialist healthcare. Not anymore. These public-sector clusters of talent are being followed by private sector companies seeking access to the talented workforce.

WHAT IS EFFECTIVE JOB DENSITY AND WHY IS IT IMPORTANT?

Effective Job Density (EJD) is a measure of how many jobs are accessible to a person within a set time (typically 30 minutes). It is a commonly used proxy measure of the agglomeration economy and how 'connected' a person is to the benefits of the city, as people who live in areas of higher EJD can access more jobs and the consequent benefits of agglomeration.

As Australia continues its shift to a knowledge intensive economy, more and more jobs will cluster in city centres to reap the benefits of being nearby to other firms; namely, sharing ideas and minimising the cost of moving people across space. It is therefore important that urban dwellers can easily and quickly access city centres and connect to neighbouring city centres. EJD can be enhanced both by increasing the number of homes in places that already have high public transport connectivity and by improving connectivity to areas that are lower density.

CASE STUDY – THE RANDSTAD

Rail Travel Times the Randstad



The Randstad region is the metropolitan area comprising of the Netherlands' four largest cities: Amsterdam, Rotterdam, Utrecht and the Hague. With a population of 7.5 million people, and a GDP of €288 billion, the Randstad has become one of the largest metropolitan regions in Europe. It's well known polycentric character has emerged out of decades of rail investment to improve connectivity in the region, and development policies that have prioritised the urban cores of the cities.

Today the Randstad is an advanced urban economy that specialises in logistics, horticulture and financial services, and has one of the largest start-up ecosystems in Europe. The region is home to the Port of Rotterdam, the largest seaport in Europe, and Amsterdam Airport Schiphol. The introduction of fast rail was an important investment for promoting the credentials of the region as a global economic centre, with the fourth largest economy in Europe.⁸ Fast rail reduced travel times between

Amsterdam and the main airport to below 15 minutes and brought Rotterdam within a 36-minute commute, while other cities all connect within a 45-minute journey.

Amsterdam's fast rise to Global City status has benefited from being less than an hour away from the diversity and talent base of the Hague, Rotterdam and Utrecht. Importantly, this hasn't occurred at the expense of the other cities. The region boasts one of the lowest unemployment rates in all OECD countries, with a concerted effort made to disperse city functions and urban investment between the cities over the last 60 years.⁹

⁸ Randstad Region, 2017, *Randstad Monitor 2017: Randstad Region in Europe*, <http://www.randstadregion.eu/uploads/2017/10/randstad-monitor-2017-brochure-1.pdf>

⁹ Clark, G., and Moonen, T., 2017, *International Case Studies of Connected Cities: Advice to the Greater Sydney Commission*, https://gsc-public-1.s3.amazonaws.com/s3fs-public/international_case_studies_of_connected_cities_-_clark_moonen_-_october_2017.pdf



WHAT IS POSSIBLE? CONNECTING THE REGION BY FAST RAIL

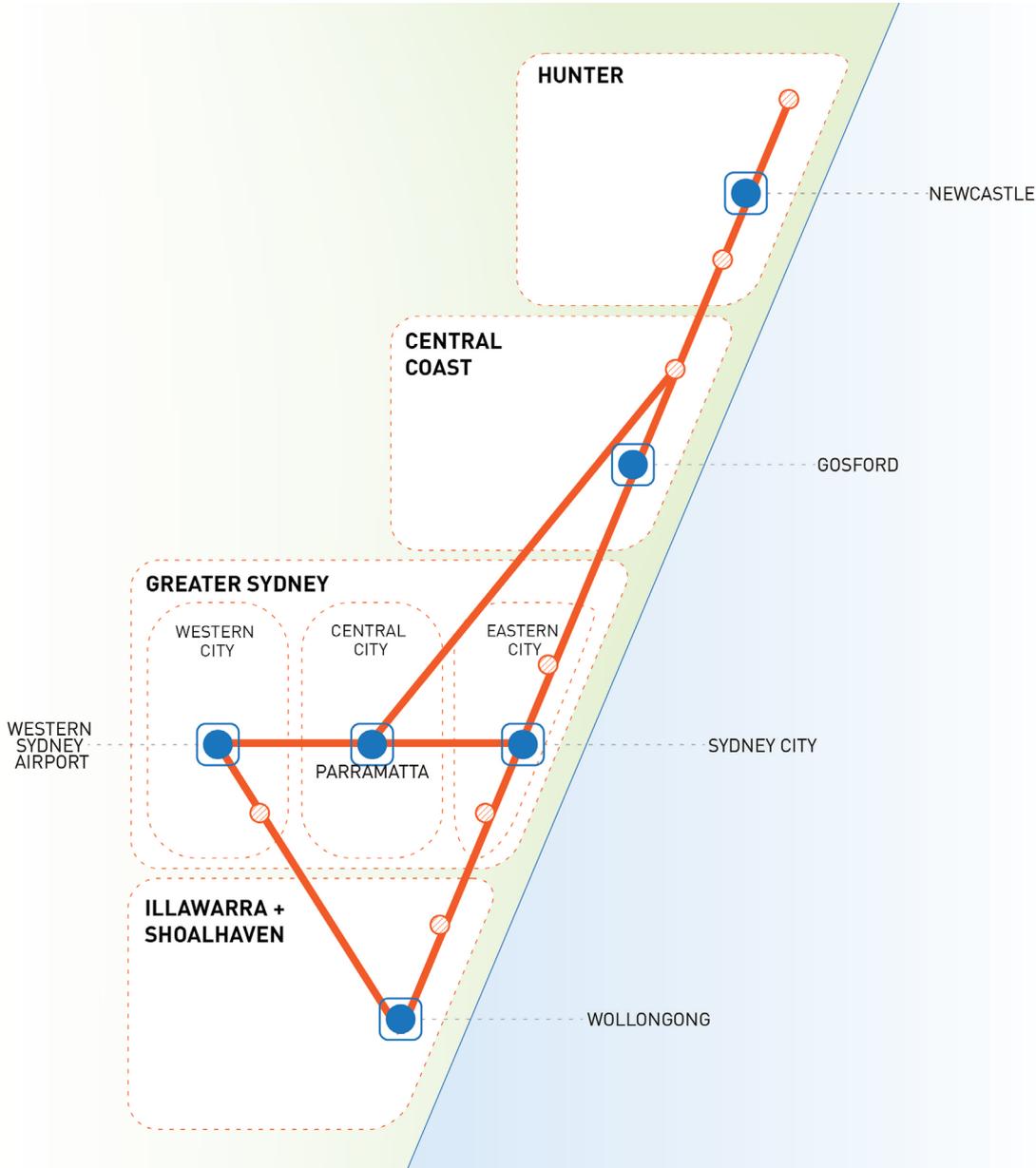
As Sydney's Eastern City grew, it connected with its hinterland through an evolving and expanding network of transport links. First trams and ferries and then trains spread out from the CBD, bringing workers to jobs in the metropolis. These were eventually supplemented with a road network of first highways and bridges and then freeways and tunnels, all working to bring more and more people into the confines of the burgeoning CBD. The result of over two centuries of effort is a grossly unbalanced metropolis with all roads and rail leading to the Eastern City. Even if you want to get somewhere else, more often than not, you must pass through the CBD to get to your destination.

The Committee has always championed a fast train from Sydney CBD to Parramatta as the very top priority in our infrastructure wish list. We do this not because we want to bring even more people into the CBD. On the contrary, we support it because we want to ensure we are supporting the growing agglomeration of jobs in the Greater Parramatta region. But we also support this link because we see it is the beginning of an inter-city rail network joining the Eastern and Central Cities of Sydney with the emerging Western Parkland City of Penrith, Liverpool, Campbelltown and the Aerotropolis at Badgerys Creek.

In our submission to the Greater Sydney Commission's Region Plan we argued strongly that if Sydney is to be reconceptualised as a metropolis of three cities, the three cities need to have a high-speed and high-capacity transport link. We argued that it is important to be able to travel from the new airport to Parramatta and the CBD in not much more than 30 minutes; that the construct of a metropolis of three cities needs to be held together and supported by an east-west 'spine' of rapid rail.

For the same reason we see the need to develop and extend a similar inter-city network of fast trains to support the concept of a mega-region of six cities. This would mean a network of new trains linking Newcastle and the Central Coast to Parramatta and then on to the Western Parkland City and the older Eastern City. With existing technology, it is reasonable that such a train link could make this trip in less than an hour and half. An even shorter trip is feasible from Wollongong. Importantly, this network doesn't need to be centred on the Eastern City. Indeed, there are good reasons for it not to be.

A conceptual map of fast rail links across the mega-region



Source: Cox Architecture

The Committee worked with Arup to develop a simple analysis of what would be possible in terms of travel times between the cities of the region. This analysis is predicated on a few assumptions:

- Times are predicated on 'off the shelf' fast rail trains capable of running at 200 km/h. Note, this is a conservative speed given East Coast High-Speed Rail assumed 350 km/h and current projects like HS2 in the UK will operate at up to 400 km/h.

- Newcastle travel times have been based on Broadmeadow as the terminus station. Times into the Newcastle town centre would be slightly longer.
- This simple analysis would require deeper research (outside the scope of this paper) to understand the difficulty associated with key aspects of delivery, including how new rail alignments would interact with national parks and rivers in the region.

Taking these assumptions into consideration, we suggest new alignments should bring significant speed improvements.

TABLE 3: COMPARISON OF CURRENT RAIL JOURNEY TIMES WITH FAST RAIL TECHNOLOGY AT 200KM/H

| CONNECTION | CURRENT SPEED | NEW SPEED |
|--|---------------|------------|
| Newcastle to Gosford | 66 minutes | 35 minutes |
| Gosford to Sydney | 80 minutes | 40 minutes |
| Newcastle direct to Parramatta (missing the Central Coast) | 153 minutes | 60 minutes |
| Wollongong to Sydney CBD | 85 minutes | 60 minutes |
| Wollongong to Liverpool via Campbelltown | 124 minutes | 60 minutes |

These connections would mean cities of the Sandstone Mega-region were within an hour of other cities. The entire region could be crossed in 2 hours and 15 minutes. While this is a basic assessment of speeds and doesn't consider the costs of delivering such a network or fast regional rail, it demonstrates the potential of such a network to bring the region together.

SWIRL AND CONNECTING WOLLONGONG TO WESTERN SYDNEY

In research produced in collaboration with the Illawarra Business Chamber, the SMART Infrastructure Facility at the University of Wollongong argued for a rail link from Wollongong via Port Kembla to South-West Sydney utilising the partially constructed Maldon to Dombarton line. Linking South-West Sydney and the Illawarra

has enormous potential in two respects: bringing the economies of these two growth areas into a single conurbation with a shared labour market and linking the freight hubs of Western Sydney Airport and Port Kembla.

The Maldon to Dombarton line is available for upgrade to take passenger and freight



Source: Illawarra Business Chamber/SMART Infrastructure Facility, University of Wollongong

WHAT IMPACT WOULD FAST CONNECTIVITY HAVE ON HOUSING AND JOBS?

Fast connectivity will enable access to a wider and deeper housing market, and in turn, allow better planning for the location and typology of new housing. A mega-region of six cities can help to address the housing affordability crisis of our cities, particularly in Sydney. However, we need to ensure this isn't at the expense of surrounding peri-urban and regional areas. Any strategy for integration needs to be coupled with a region-wide economic strategy, in which regional areas benefit from improved employment opportunities.

SGS Economics & Planning were commissioned to explore this issue. Looking at a scenario in which improvements were made to train services along the Newcastle-Gosford-Sydney-Wollongong corridor, they drew out potential impacts on residential development, housing costs and local jobs.

The scenario was based on the following improvements to train services within the corridor:

- The current Wollongong to Sydney Central Station rail journey is reduced from 90 minutes to 60 minutes, limiting stops at Waterfall, Sutherland and Sydenham.
- The current Newcastle to Central Station rail journey is reduced from 150-180 minutes to 70 minutes.
- Both of the above are implemented by the early 2020s.

Overall, the study found that there would be a significant increase to the amount of residential land that would have access to knowledge intensive jobs. The rail improvements would make the LGAs of Newcastle, the Central Coast and Wollongong more attractive places to live. Hornsby and Sutherland would also gain increased accessibility to the Sydney CBD and hence would also see an increase in the level of housing demand.

The increased accessibility of Newcastle, Gosford and Wollongong would also flow into their hinterland LGAs (e.g. Port Stephens, Shoalhaven). People living in these areas may not use the rail service daily but would on an irregular basis, and hence still value the improved access that it would provide.

Within 15 years of the rail service improvements, over 40,500 dwellings would be added to locations outside of metropolitan Sydney (see Table 4 on page 22). In some cases, the additional dwellings would come from trading one seaside location for another (e.g. Manly for Newcastle). There would also be moves driven more by affordability, for example from the South West Growth Area to suburban Wollongong.

FEDERAL FUNDING FOR FASTER RAIL

As we developed this paper, an opportunity to advocate for this project presented itself in late 2017 through an offer from the Federal Government to fund business cases for faster rail connections between cities. While the Committee cannot claim expertise in conducting business cases, we put in a submission advocating for the evaluation of better linkages across the mega-region.

We were delighted to hear that funding was announced for Transport for NSW to develop a business case for reducing the travel time from Newcastle to Sydney to 2 hours. This is a vital step in bringing the region closer together. The Committee of course will continue to push to reduce this time even more – to an hour from Newcastle to Parramatta or 70 minutes from Newcastle to the Sydney CBD.

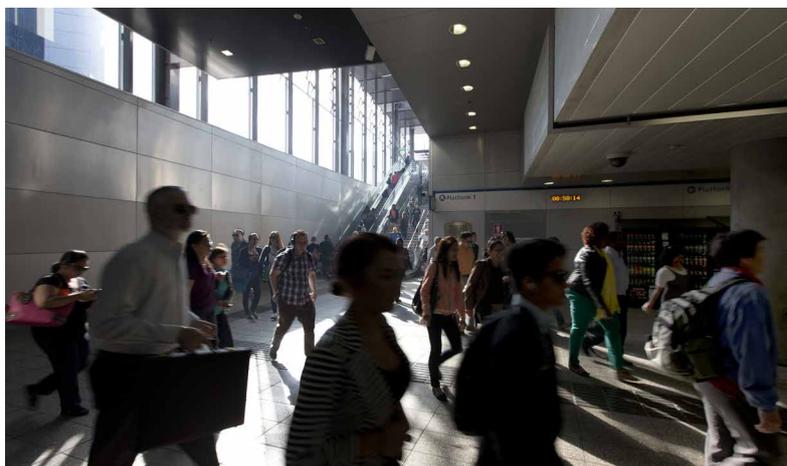




TABLE 4 ADDITIONAL DWELLINGS IN IMPROVED RAIL SCENARIO²

| Local Government Area | Additional dwellings in 2026 | Additional dwellings in 2036 |
|-----------------------|------------------------------|------------------------------|
| Wollongong | 2,000 | 10,000 |
| Gosford | 2,000 | 9,000 |
| Newcastle | 2,000 | 8,000 |
| Hornsby | 1,500 | 6,000 |
| Sutherland Shire | 1,250 | 3,000 |
| Wyong | 740 | 1,185 |
| Cessnock | 150 | 650 |
| Lake Macquarie | 390 | 600 |
| Maitland | 350 | 560 |
| Port Stephens | 300 | 500 |
| Shellharbour | 290 | 450 |
| Shoalhaven | 225 | 350 |
| Wingecarribee | 90 | 150 |
| Kiama | 25 | 75 |
| Total | 11,310 | 40,520 |

Source: SGS Economics & Planning

With a shift in housing demand towards Newcastle, Gosford and Wollongong, the study found that there would be reduced housing price increases in Greater Sydney. By 2036, the median property price in Greater Sydney would rise by \$40,500 less than expected because of the improved rail access, resulting in demand shifting to Newcastle, Gosford and Wollongong. Considering there are 1.85 million dwellings in Greater Sydney, this results in over \$75 billion of housing affordability improvements for Sydney.

While many of the people moving due to improved rail access would continue to work in Sydney, some new residents would switch to local jobs and help generate increased local economic activity. Businesses would also gain agglomeration benefits from the improved access to Sydney. By 2036, there could be an additional 4,725 local jobs in Wollongong, 3,875 in Gosford and 3,225 in Newcastle because of improved rail access to Sydney.

INFRASTRUCTURE APPRAISAL – MAKING FAST RAIL STACK UP

The business case for improved rail transport between Newcastle, the Central Coast, Sydney, and Wollongong should be considered in its mega-regional context, including the whole spectrum of ‘cost benefits’. This includes consideration of how fast rail impacts land value uplifts, regional benefits of more affordable housing being available to a much larger pool of high value workers and reducing the strain on infrastructure in populous city centres. Consideration should also be given to discount rates used to assess the feasibility of long-term projects. Recent Grattan Institute research proposes a lower discount rate be applied to transport infrastructure projects.¹⁰

Furthermore, a fast rail network could be phased – evaluating the impact of each section to assess the rest of the network. Analysis shows that more ambitious transport transformations such as fast rail between Melbourne and Sydney hold significant risks that can be assessed on much smaller pieces of work such as Sydney to Wollongong – a useful process to reducing the uncertainty associated with major national projects.

PLANNING AND GOVERNANCE

One of the key lessons Sydney has learnt over the past few years is the need for governance at a metropolitan level that allows the city to think coherently about its growth and change. The Committee has been, and remains, a strong supporter of the Greater Sydney Commission in delivering a rebalanced Sydney.

But this does not mean that all planning must end at the edge of the city – and much of this paper has been devoted to extending our thinking of our cities to take in the broader region. This does not mean doing away with the Greater Sydney Commission or extending its remit to include Newcastle or the Illawarra. But it does mean harmonisation between the various plans covering Wollongong, the Central Coast and Newcastle and the Greater Sydney Region Plan. We already have internal structures within the

Department of Planning and Environment and Transport for NSW to encourage this – along with the robust Regional Development Australia network, but we should consider whether formal harmonisation be part of any new plans for these areas.

Similarly, following from the success of the Greater Sydney Commission, is it time to think about aligning State Government investment in regional cities through a coordinating body? Perhaps we need a Greater Wollongong Commission to articulate long-term goals for the region as it transitions away from manufacturing and adopts a narrative to complement the knowledge jobs offer of its larger neighbour to the north.

INFRASTRUCTURE AUSTRALIA PRIORITY LIST

In March 2018, Infrastructure Australia released an updated Infrastructure Priority List which included line upgrades between Sydney and Wollongong and Sydney and Newcastle as a Priority Initiative.¹¹ They note:

Slow regional passenger rail speeds along the Newcastle-Sydney and Wollongong-Sydney rail lines result in lengthy travel times that are generally longer than car travel... This service level reduces accessibility to the Sydney employment market from the Wollongong and Newcastle regions, which have above average unemployment. It also limits opportunities to develop greater economic synergies between the three cities, which would benefit productivity. Uncompetitive rail services also add to road congestion on key roads linking the three cities.

¹⁰ Grattan Institute, 2018, Unfreezing Discount Rates: Transport Infrastructure for Tomorrow, <https://grattan.edu.au/wp-content/uploads/2018/02/900-unfreezing-discount-rates.pdf>

¹¹ Infrastructure Australia 2018, Infrastructure Priority List, http://infrastructureaustralia.gov.au/projects/infrastructure-priority-list.aspx#anc_ip1

RECOMMENDATIONS AND NEXT STEPS

The key recommendation of our work in the Sandstone Mega-region is for the development of a plan for connectivity throughout the Sandstone Mega-region by fast rail.

Achieving this long-term goal requires a number of steps, some immediate, some longer term. It also requires more research – this report seeks only to spark a conversation, not to answer all the questions this opportunity presents:

Immediate Actions

- **NSW Government to investigate fast rail between Sydney and Newcastle**

In March 2018 the Federal Government announced funding for Transport for NSW to develop the business case for faster rail connections between Sydney and Newcastle, which could reduce travel time from 3 hours to 2 hours. The NSW Government should, as part of this process, prepare an additional business case that investigates a 70-minute connection between Sydney and Newcastle.

- **Identify opportunities to harmonise regional plans**

Each of the six cities should ensure that their respective land-use strategies and district plans are cognisant of each other and mindful of their impacts beyond their boundaries. Each of the six cities' strategies and plans should be aligned to eventually deliver a mega-region of six cities.

Medium Term

- **Review existing governance arrangements**

Consideration of an inter-city governance arrangement to ensure there is alignment between each of the six cities' plans and strategies. This could include a Congress of Urban Mayors, joint meetings between the Greater Sydney Commission and counterparts in the Illawarra, Central Coast and Hunter Regions and/or re-establishing a Minister for Urban Affairs.

- **Commission further research**

Areas for further research include:

- *Robust costing: investigation of the costs of linking each of the cities by fast rail.*
- *How fast is fast enough? Examining the speed required to link these cities effectively – and what can be achieved using the existing network.*
- *Which city should be linked first? Considering the phasing of each link and how it interacts with other major projects such as Western Sydney Airport.*



- **Develop the business case for other fast rail links in the mega-region**

Beyond the existing NSW Government business case for Newcastle to Sydney, other key routes between the six cities include Sydney to Wollongong and Campbelltown to Wollongong. A business case should be developed for fast rail connectivity along these important inter-city routes.

- **Corridor Protection**

Following the identification of alignments and the completion of business cases for each of these links, infrastructure corridors need to be identified and reserved to protect necessary land.

- **NSW Government to develop an economic strategy for the mega-region**

An economic strategy is vital for ensuring employment opportunities are dispersed throughout the region, and business and industry connections support growth.

Long Term

- **Federal and State Government to fund fast connectivity of the mega-region**

Fast rail will require funding from both Federal and State Government. Improved connectivity between the six cities of the Sandstone Mega-region is of national significance as the region makes up 25% of the Australian population, and 75% of the NSW's labour force.

THE NUW ALLIANCE

Established in 2017, the NUW alliance is a partnership between the University of Newcastle, the University of Wollongong, and the University of New South Wales. The Alliance aims to harness the combined power of the three institutions' multidisciplinary research, education expertise and innovative thinking to enhance the equality of opportunity and prosperity in NSW.

This collaboration is the first grouping of its kind in Australia and is modelled on similar regionally-based research alliances in the United Kingdom and USA. In collaboration with the Committee, the NUW Alliance will be exploring opportunities for advancing the interests of the mega-region.

CONCLUSION



If we are to achieve the benefits of a global mega-region of ten million people, we will need more than investment in fast inter-city rail. We will need to undertake the deep thinking and planning such a mega-region would need. As the Greater Sydney Commission continually reminds us, we need to integrate transport and land use if we are to make successful places. The Commission has already started this thinking and for the first time we have included in our metropolitan strategy a reference to our near neighbours to our north and south. But much more thinking and discussion will need to be done over the next few years if we are going to move towards integrating our respective cities into a mega-region. This paper seeks to start this discussion.

In a similar vein, we need to think about how this mega-region should be governed. Is an even Greater Sydney Commission an option? Is there a role for a State Minister for Urban Affairs or Cities? Fortunately, the three cities outside Sydney already have better governance structures in place. Unlike Sydney's cities, which are administered by a patchwork of 31 councils as well as a plethora of government agencies, the other cities are made up of fewer councils and as a result can coordinate and work more collaboratively together. This gives Greater Newcastle, Greater Wollongong and the Central Coast a strong foundation to advocate for their respective cities, and a powerful voice should they ever need a seat at the table of an inter-city governance model.

Each of the cities in the Sandstone mega-region has great potential and all of them have an opportunity to get better as they grow. By improving the connections between the cities we can make it more likely that each will achieve its potential and more likely that they will thrive and compete at a global level, while maintaining their unique characteristics and enviable liveability.

We all know Sydney is already a remarkable city. One in which you can swim at the most incredible beaches, see world class performances in iconic venues, and live in incredible multicultural communities. To turn Sydney into a city in which you could easily head to a park, café or performance on the Central Coast, Newcastle or Wollongong, or live the quiet coastal lifestyle and enjoy an easy commute to work would take Sydney to the next level.

CONTRIBUTORS

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- Arup
- SGS Economics & Planning
- UNSW City Futures Research Centre
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- Philip Graus
- Sean Macken
- David Thorp

ENDNOTES & IMAGE CREDITS

¹ UNSW CITY FUTURES RESEARCH CENTRE METHODS

This analysis is based upon ABS Census data from 2011 and 2016. Seven large regions were identified to capture movement across the broader Sydney region. Sydney's metropolitan area was disaggregated into three regions reflecting the indicative geographies of the Three Cities identified in the recently released Greater Sydney Region Plan:

- The Hunter
- Newcastle (including Lake Macquarie)
- Central Coast (Gosford and Wyong)
- Eastern City (Eastern Harbour City in the GSRP)
- Central City (Central River City in the GSRP)
- Western City (Western Parkland City in the GSRP)
- Wollongong (including Shellharbour)

Origins for trip data are calculated at the Statistical Area 2 (SA2) level. Destinations are all areas aggregated to one of the seven large regions above. Custom census-based categories were then specified and collated through ABS Table builder. Travel mode was aggregated by primary mode and cut according to motor vehicle, train, bus and active transport trips. Employment based trips were cut according to the four job groups adopted in the GSRP:

- Knowledge intensive
- Population serving
- Industrial
- Health and Education

This was transformed into spatially linked origin-destination pairs and presented using Carto, offering filterable visual dashboards enabling users to select preferred variables and geographies. Comparisons between 2011 and 2016 data were derived through basic spreadsheet analysis.

² SGS ECONOMICS & PLANNING RESEARCH ASSUMPTIONS

Residential property prices

- It has been assumed that the median residential property prices observed in 2016 will grow in line with the long-term average of 6.5% across the Newcastle-Gosford-Greater Sydney-Wollongong region for the next 30 years.
- This property price projection has been created for each local government area in the region. This allows a weighted-average (based on the number on the dwellings) properties price to be calculated for Greater Sydney, Newcastle, Gosford and Wollongong.
- The application of consistent growth rate across the whole region means that the current premium for well-located properties will remain into the future.
- This is important, as if overall growth is higher or lower than 6.5% the relativities between more expensive and more affordable in Newcastle-Gosford-Greater Sydney-Wollongong region will remain.

Dwelling Growth

- The 2016 version of the Department of Planning and Environment (DPE) projections of future household growth have been used to establish the base case distribution and number of dwellings.
- The number of dwellings in each local government area is used to weight the median residential property price to calculate a median price for Greater Sydney and Newcastle, Gosford and Wollongong.
- Under the various train service improvement scenarios, the increase in the number of dwellings in the impacted local government areas are based on three main factors:
 - Increase dwelling densities to match (in broad terms) existing areas which currently have the level of accessibility expected under the train service improvement scenario.
 - Capacity for new housing to be supplied in the local government area.
 - The role of the local government area in the broader housing submarket. That is, what other local government areas are likely to be competing for future dwelling development.
- The housing submarket analysis is also used to allocate where the new dwellings will be drawn from. In some cases, housing moves from more expensive locations along existing rail corridors. Or, dwelling growth switches for an equally affordable location to the local government area which now has improved rail access.
- A key assumption here is that the future supply of new dwellings is fixed to the DPE totals for Newcastle-Gosford-Greater Sydney-Wollongong region.

IMAGE CREDITS

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Page 4: Image courtesy of City of Parramatta Council

Page 5, left: '19th Biennale of Sydney', image courtesy of Destination NSW

Page 5, right: 'Newcastle City Hall', image courtesy of Newcastle Tourism

Page 6: 'The Hunter River, Newcastle', image courtesy of Destination NSW

Page 7: 'Pelican Feeding, the Entrance', image courtesy of Destination NSW

Page 12: 'Hunter River, Newcastle', image courtesy of Destination NSW

Page 13: 'Rip Bridge at Daleys Point, Central Coast', image courtesy of Destination NSW

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Page 22: 'Illawarra aerial', image courtesy of Destination NSW

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Sydney

“I commend the
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role they are playing
in intellectual thought
leadership for Sydney.”

THE HON. GLADYS BEREJIKLIAN MP
PREMIER OF NSW

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