Resilient Geelong:

Reasons for success and challenges for a post-COVID-19 future

Research paper prepared for the Committee for Geelong, October 2020

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We wish to acknowledge the Wadawurrung, Wurundjeri, Woi Wurrung, and Bunurong peoples of the Kulin nations, the traditional owners of the lands on which this research was conducted. We pay our respects to their Country and to their Elders: past, present and future.

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Overview

The City of Greater Geelong is a local government area located on Corio Bay, 75 kilometres south west from the Melbourne central business district. It is situated on the traditional lands of the Wadawurrung people. The City of Greater Geelong is Australia's first UNESCO Creative City of Design and Victoria's largest regional city, covering 1,248 square kilometres of urban centres, country and coast. Key natural features of the region include Corio Bay, the Bellarine Peninsula, the Barwon River, You Yangs Regional Park, wetlands, beautiful parklands and wildlife sanctuaries. As Victoria's second city, Greater Geelong's proximity to Melbourne, strong employment growth and affordable housing and lifestyle have seen the population grow to 258,000 people in 2019, with a current growth rate of 2.7 per cent.

The economy has transitioned from a traditional manufacturing base into a diversified and flourishing economy. Greater Geelong has survived and ultimately thrived despite plant closures and industry downturns, recessions, world wars and natural disasters such as the Millennium drought (2001-2009). Geelong's economic resilience – and its capacity to successfully transition to a sustainable base after an economic disruption – has led it to be recognised as one of the most resilient regions in Australia, on par with the metropolitan regions of Greater Sydney, Melbourne and Perth (Productivity Commission, 2017).

The current COVID-19 pandemic is a global health crisis with severe social and economic consequences. The pandemic has reminded the community of the fragility of some of our most basic human-made systems. The initial direct impact of the stringent health measures put in place to safeguard the community is expected to be significant, with a decline in the level of output to be between one-fifth to one-quarter in many economies, with consumer expenditure potentially dropping by around one-third (OECD, 2020c). This estimate only covers the initial direct impact in the sectors involved and does not take into account any additional indirect impacts. The consequences are far greater than anything experienced during the 2007-2009 Global Financial Crisis.

As communities and governments absorb the shock generated by the pandemic, we need to consider how Greater Geelong will overcome the crisis and begin the recovery. To date the community has rallied to address immediate concerns and has just begun to grapple with the longer-term issues the pandemic highlights. In the short term, this has meant identifying the people and activities most affected, assessing how measures to help them will impact others and adjusting to the difficult trade-offs between health, economic, social and other goals. In the longer term, an approach that reacts to the systemic origins and impacts of major shocks is needed if recovery is to be effective and sustained.

The Committee for Geelong commissioned this research to provide guidance to decision makers in the region as they work to temper the negative impacts of the COVID-19 pandemic and to distil and pursue opportunities arising from this fundamental shock to the Australian society, economy and settlement system.

This research paper adds to the public discussion of regional resilience, how and why Greater Geelong has apparently bounced back from major economic shocks in the past, and how these lessons might apply in a post-COVID-19 future. Moreover, these analyses will allow us to determine whether regional resilience will be confined to moving back to the normal, pre-crisis situation (adaptation), or whether these shocks are critical junctures leading to transformative resilience and to new paths emerging out of the crisis.

This research paper presents historical and comparative analysis and offers a set of recommendations for consideration in four parts:

> Part 1 examines the economic transformation and resilience of the Greater Geelong economy over time and reviews the diversified specialisation of key sectors including manufacturing, retail, health, education, tourism, public administration, professional and scientific services, construction, energy, and creative industries.

Part 2 considers the enablers that facilitate this resilience, in particular the role of population growth, government policy and community leadership.

Part 3 examines COVID-19 responses from governments and others around the world in the context of other shocks to regions, such as the Global Financial Crisis (2007 to 2009), as well as Australian initiatives and possibilities that are emerging from the current crisis. These include the rise of online working, the potential move of larger populations from metropolitan areas to the regions, creating a circular economy, progressing social inclusion and revitalising manufacturing.

Part 4 revisits the national and state economic trends, and considers Greater Geelong before and after COVID-19. Drawing on the preceding historical analysis and international exemplars, it then explores the implications for Greater Geelong and considers how the Committee for Geelong might collaborate and capitalise on emergent opportunities to ensure ongoing regional resilience.

1. Regional Resilience and Transformation of Geelong's Economic Structure

1.1. The Nature of Regional Resilience

Regional economic development is inevitably an uneven and unstable process. Instability comes from macro-level shocks (such as wars, natural disasters and financial crises) to multi-local shocks, for instance when an industry collapses, to local disruption if a major plant closes (Martin, 2018). The global COVID-19 pandemic has consisted of several sub-shocks, including the immediate economic recession caused by reduced mobility and a further contraction caused by declining demand and altered supply chains in different parts of the world. Regional resilience is a valuable way of thinking about impacts and implications of such shocks and disturbances, and how they may help us navigate the process of recovery.

In current times of crisis, the notion of resilience is often used to analyse the recovery processes of systems shock (Holling, 1973). Resilience is used in several academic disciplines, such as psychology, engineering, ecology and planning. The definitions of resilience are complex and multi-dimensional; interpreted in different ways between disciplines and across the literature. As a general concept, resilience refers to something positive: to be able to withstand hardships and disturbance, to recover from disaster and destruction, to regain one's original shape after deformation, to prepare for the unforeseen and to deal with risks in an appropriate way (Muller, 2020).

The study of regional resilience and the adaptive capacity of regional economies have gained momentum since the Global Financial Crisis (2007 to 2009). Over the last decade, regional resilience has become an element in regional research affecting planning, development and post-disaster reconstruction. It is part of a broader literature on resilience in human geography, which includes urban resilience (Fastenrath et al., 2019), social resilience and community resilience (Wilson, 2018). More recently, economic geographers have become interested in regional resilience and are addressing the question of why some regional economies are able to renew themselves while others fail to adjust, how to best manage regional crisis and how the risk of adjustment may be determined (Martin, 2018; Evenhuis, 2017; Lazzeroni, 2019; Bristow & Healy, 2020; Hassink & Gong, 2020; Martin & Sunley, 2020; Simonen et al., 2020).

Regional resilience – best described as the ability to anticipate, prepare for, respond to and recover from external disturbance – is based on three pillars: absorption, adaption and transformation (Goschin, 2019). This includes the capability to anticipate, prepare for and absorb the shock, the capability of the region to adapt (pre-shock, shock and after shock) and deliver a timely, effective, fair and reasonable response and the capability of the region to transform (Peng, 2017). Transformations involve novelty and innovation and do not take place in a vacuum. They make use of crises as windows of opportunity and recombine sources of experience and knowledge to navigate transitions from one landscape to another.

There are at least three approaches to regional resilience transformation. The engineering approach presumes the economy will return to some previous state of equilibrium, much like a piece of heated metal. The ecological literature defines resilience as the capacity of a region to move from one possible steady state path to another without changing its structure, identity or function (Evenhuis, 2017). In the case of Geelong however, such a definition does not capture the pattern of transformation and the survival of its regional economy from the 1960s through to 2020. What resonates more with the experience of Greater Geelong is captured by the evolutionary approach to resilience, which does not assume equilibrium but rather a dynamic process of constant renewal (Evenhuis, 2017). The evolutionary view highlights the ability to adapt over the short term following a shock and the development of new growth paths over the long term to create regional resilience (Cainelli et al., 2019).

Significant work has been undertaken to improve knowledge of the determinants of regional resilience (DiCaro, 2017). Most research shows regularities across time and space. The factors of regional competitiveness in ordinary times, innovativeness, quality and adaptive human capital, agglomeration or cluster economies are the main determinants a region's ability to resist or react constructively to crises. Using the European Union during the Global Financial Crisis as their case study, Cainelli et al., (2019) argue that the key determinant of regional resilience is industry structure. They suggest that technical relatedness has a positive effect, because skills, capabilities and technologies can be allocated rapidly across industries, thereby improving the capacity of a region to respond to an external shock. If local industries are connected via input-output relations, where a local production system is highly integrated vertically, then even a sector-specific shock can have a profound negative effect (Cainelli et al., 2019: 757–8). This is evidenced by the decline of automotive manufacturing in Geelong and the impact on related suppliers who retrenched staff or closed as Ford downsized from 2007, then ceased its production operation in 2016.

In a related observation Gosalin (2019) notes that a city or region with a robust, diversified economy and good governance will rebound more quickly than a city or region with a narrowly focussed economy. Goschin (2019) further emphasises that economic diversity is a key factor for resilience since it promotes higher flexibility and adaptability, helps disperse the risks and enables regions to cope more easily with economic distress. A diversified economic base, that is not over-reliant on a single industry, contains industries with different sensitivities to economic downturns, changes in export markets and shifts in terms of trade functions to spread risks to different types of activities. Diversification supports more rapid adjustment to the changing economic environment during a crisis and employment growth is higher in cities focusing on more sectors than in cities specialising in only one sector.

There is also a case to be made for smart specialisation. In the *Winning from Second - What Geelong can Learn from International Cities*, Correira and Denham (2016) observed that specialisation supported by innovation was integral to the increase in productivity and growth of second cities (or Gateway Cities as they are now known[1]). Smart specialisation increases the competitiveness of a city or regional economy because of capabilities in particular sectors, products or categories. Geelong's concentration of activities in advanced manufacturing and the social insurance sector could be seen as an example of this. Specialisation in high technologies (in terms of both employees and output) along with innovative capacity is seen as a positive asset of a region, allowing it to resist crises and recover in a post-recession period, facilitating resilience. The European Union subsequently argues that focusing attention on a limited number of priority economic activities allows regions to take advantage of the scale, scope and spillover effects from the specialist sector to gain further advantages (European Commission, 2012). Recent work by Andrew Beer confirms the advantages of specialisation for the resilience of mid-sized towns in Australia (those between 5,000 to 50,000 people) especially as they extend their economies into related areas during times of crisis (Beer et al., 2020).

Another concept also worth investigating is the notion of *diversified specialisation* (Gezici Korten et al., 2018). Several researchers highlight that diversification and specialisation are not exact opposites and that a region can be simultaneously diversified and specialised. Diversified regions might include several specialised clusters across different sectors (Duranton & Puga, 2000; Malizia & Ke, 1993; Nakamura & Paul, 2009; Farhauer & Kröll, 2012). These researchers argue there will always be a need for both diversified and specialised regions and that regions become more diversified with their related specialised sectors. They also show higher employment growth.

In a study of Australian metropolitan core and peripheral, regional and smaller centres during the Millennium Drought (2001 to 2009) and the Global Financial Crisis (2007 to 2009), Courvisanos et al. (2016) measured long term adaptability by the changes in industry structure over time, without a significant reduction in employment or income despite the shocks. They conclude that resilient industries comprised mining, finance, real estate, professional services and information

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[1] Australia's Gateway Cities include Geelong, Newcastle and Wollongong. See Committee for Geelong (2019) Australia's Gateway Cities: Gateways to Growth.

technology. They also identified manufacturing, agriculture, public administration and health as less resilient industries. This has not been the experience in Greater Geelong.

The Productivity Commission constructed a novel metric to analyse a complex set of indicators considered to influence the capacity of regions to be resilient (Productivity Commission, 2017). These factors include human, social, financial, physical, natural and other capital factors assessed over time. They concluded that a regions likely development path and realised economic outcomes (resilience) takes into account both its adaptive capacity as well as the circumstances, opportunities and prospects that it faces (**Figure 1**) (Sensier et.al., 2016):

- *Resilience outcomes* are observed and can be measured in terms of indicators such as economic growth, employment, incomes and population.

- *Adaptive capacity* is not directly observable but can have a material impact on realised outcomes. Adaptive capacity is influenced by many interacting factors, including natural attributes and connectivity to other regions and markets, only some of these factors can be observed and measured.

Figure 1: Economic Resilience
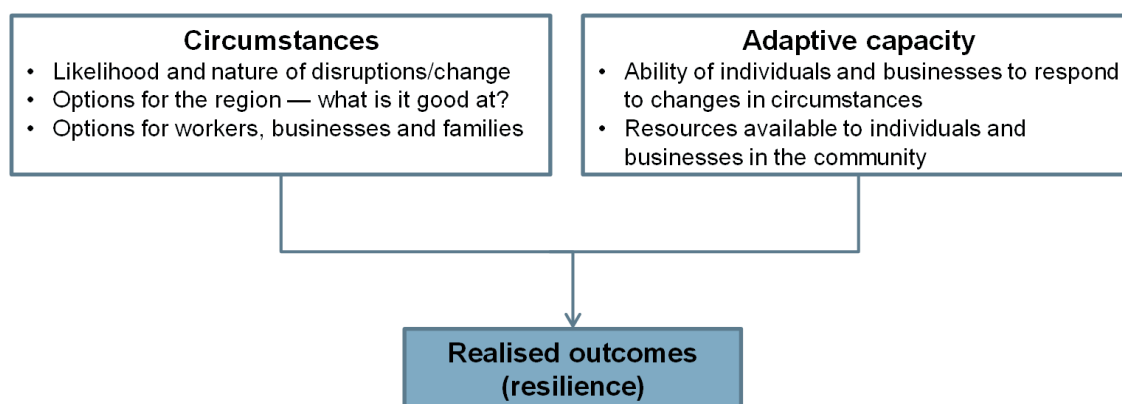
Source: Productivity Commission, 2017

Using the Productivity Commission index of adaptive capacity, Greater Geelong was assessed as one of the most resilient regions in Australia, having a high adaptive capacity to successfully transition to a sustainable base after an economic disruption. The position of Greater Geelong, placed fifth nationally, was on par with large metropolitan regions such as Greater Sydney, Greater Melbourne and Greater Perth (**Table 1**). While this acknowledgement is not a guarantee of resilience to disruptive events, it provides a useful summary of the complex set of factors considered to influence the capacity of the region to be resilient. These factors include the skills and education of the workforces, community cohesion, access to infrastructure and services, availability of natural resources, financial resources available to businesses and individuals as well as industry diversity.

While some factors that affect adaptive capacity are relevant for all regions (although their relative importance may vary from region to region), regional resilience is a place-sensitive, multi-layered and multi-scalar, and highly contingent process (Gong, 2020). Understanding place-specific consequences of economic shocks provides a foundation for understanding the factors that affect performance and the ability to withstand future disruptions. In addition, regional economies can enhance resistance to economic disruptions by creating an environment that helps to mitigate crisis-induced adversities, identify local characteristics that act as better shock absorbers and respond faster to economic hardships (Goschin, 2019).

It is therefore an open question as to what Greater Geelong specifically owes its resilience: a diversified economy, smart specialisation or a complex set of factors specific to the region. It is appropriate to look more closely at the broad economic history of Greater Geelong as well as the various sectors, industries and specific organisations that have weathered or contributed to the regions ability to withstand major economic shocks.

Table 1: Most Adaptive Regions in Australia

Ranking	Region	Region ID	State / Territory	Score	90 per cent confidence interval
1	Canberra Region	122	NSW-ACT	2.53	(0.17, 3.08)
2	Greater Melbourne	200	Vic	1.88	(-0.03, 2.18)
3	Greater Sydney	100	NSW-ACT	1.80	(-0.36, 2.26)
4	Greater Perth	500	WA	1.58	(-0.20, 1.93)
5	Greater Geelong	202	Vic	1.40	(0.43, 1.47)
6	Gold Coast	304	Qld	1.25	(-0.32, 1.65)
7	Goulburn - Southern Highlands	121	NSW-ACT	1.22	(0.57, 1.26)
8	Sunshine Coast	307	Qld	1.21	(0.25, 1.36)
9	Cooma	101	NSW-ACT	1.14	(0.65, 1.26)
10	Greater Brisbane	300	Qld	1.03	(-0.44, 1.43)

Source: Productivity Commission, 2017

1.2. Transformation of Geelong's Economic Structure

Similar to many other Western countries, Greater Geelong's economy has shifted over time from a manufacturing-orientated to a service-orientated economy.

For much of the twentieth century, Greater Geelong was a booming regional centre, boasting diverse industrial operations that included Ford Motor Company (Ford), Cresco fertilisers, Pilkington's glass, as well as a significant textile and clothing industry including Godfrey Hirst (Johnson, 2009a). Greater Geelong's textile industry was first established in the 1860s but expanded in the 1920s and 1930s, and during World War 2 production boomed across seven woollen mills to supply the war effort (Rice, 2009). The textile output was on a par with the centre of woollen and worsted cloth production in Bradford, Yorkshire (UK), earning Geelong the title of 'Bradford of Australia' (Rice, 2009). International Harvester, a manufacturer of agricultural machinery, opened its Geelong plant in 1939, and went on to employ over 2,500 people by 1966, out of a total of 4,500 Australia-wide (Noonan, 2017). This was followed by a third wave of manufacturing opportunity in the 1950s with the opening of the Shell Oil refinery and Alcoa aluminium smelter. The mid-century population growth, from 11,368 in 1921 to more than 120,000 by 1971, was primarily linked to this industrial sector strength.

The mid-20th century was a period of peak optimism for the Greater Geelong's manufacturing sector (Noonan, 2017). Roughly 30 per cent of Geelong workers were employed in manufacturing in 1933 (ABS, 1933), rising to 43 per cent in 1947, peaking at 46 per cent in the mid-1950s (ABS, 1947; ABS, 1954). On the back of a century of agricultural processing and forty years of protectionism, the region was an industrial powerhouse, especially in car and truck production, textiles and footwear, aluminium smelting and oil refining (Johnson, 1990). Many others were employed in related supply chains or allied industries such as warehousing, transport and professional services.

The 1970s oil shocks and a new wave of globalisation led to trade liberalisation (Fagan & Webber, 1999). The opening up of the Australian economy in the 1980s and 1990s, and the associated economic restructuring, significantly impacted manufacturing activity as the Australian dollar was floated internationally and domestic production was exposed to global competition (Beer, 2012; Beer & Clower, 2009; O'Neill & McGuirk, 2002). This culminated in waves of manufacturing job

losses in the textile, clothing and footwear industry and the closure of International Harvester in 1982. Another 1,500 jobs were lost when AeroSpace Technologies of Australia Aircraft Services, based at Avalon Airport, closed. By the 1990s Ford began its wind down and retrenched 850 local jobs (Johnson, 2012). The 1990 collapse of the Farrow Group of Building Societies (including the Pyramid Building Society, the Geelong Building Society and the Countrywide Building Society), with debts of $2 billion, left thousands of local depositors and shareholders out of pocket adding to the economic stress (Mills & Cannon, 2015).

In response, Geelong began a process of adapting and re-inventing itself, planning for a future in which it would be less economically-dependent on traditional manufacturing (Johnson, 2012). This led to a reorientation of the local economy with an emphasis on professional services, education and healthcare. After concerted local lobbying and a Victorian Government commitment to boost growth outside Melbourne, Deakin University was formally established in 1974 as the first regional Victorian university with a specific mandate to teach nationally using distance education. This was a significant development that boosted productivity and reshaped Greater Geelong. Improved road and rail transport links enabled Geelong to benefit from its proximity to Melbourne further supporting economic growth. Population growth coupled with public and private investment also supported the gradual transformation of the economic structure of Greater Geelong.

Avalon Airport was sold by the Federal Government to Linfox in 1997. Purchased in an environment of substantial job losses and costs in excess of revenues, Linfox grew the transport and logistics business, creating over 1,200 new jobs between 1997 and 2011 with 75 per cent of these workers being residents from Greater Geelong. A further 3,500 full-time equivalent jobs were created in the wider community including businesses supplying services to Avalon Airport's activities and the wage spending effect of Avalon Airport based employees (Avalon Airport, 2011).

Figure 2: Geelong Employment Additions and Losses, 1997-1998 to 2019-2020
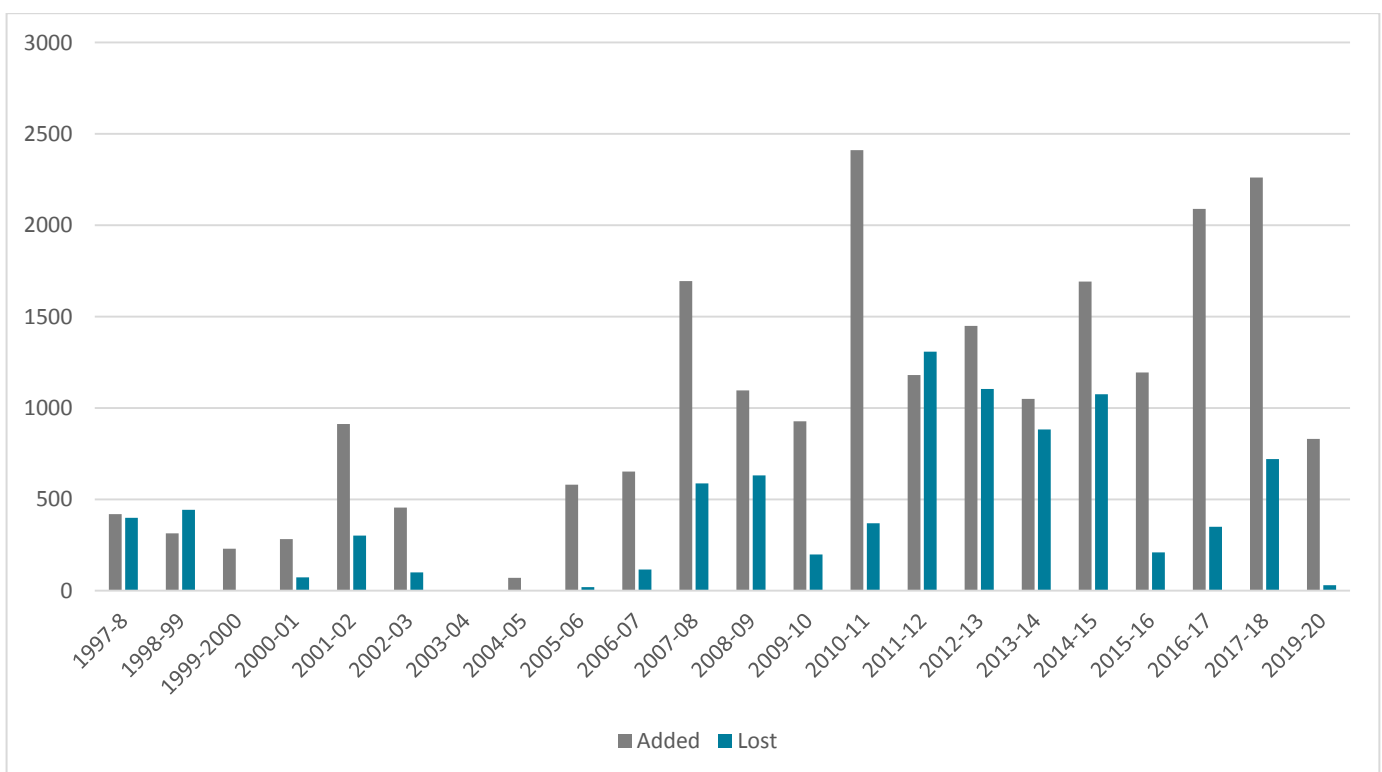
Source: City of Greater Geelong Regional Economic News Summaries and Committee for Geelong Research Working Group.

The Global Financial Crisis (2007 to 2009) had significant impact across all sectors of the Greater Geelong economy. By April 2009, over 1,000 local jobs had been lost as a direct result of the Global Financial Crisis (Commonwealth of Australia, 2009). Job losses in companies such as Ford, Shell, Godfrey Hirst and Alcoa had a substantial multiplier effect, impacting

additional businesses along the supply chain. Despite this, directly after the Global Financial Crisis, there was a significant rebound of employment growth (**Figure 2 and Appendix C**)[2] and the 2011 Census data highlighted that the region had grown considerably, with a 42 per cent larger population and a 67 per cent larger workforce than in 1971 (Correia & Denham, 2016). New non-manufacturing industries such as healthcare, education, professional, scientific and safety services and construction were all flourishing.

The transition of the economy from traditional manufacturing towards the services sector became increasingly obvious between 2011 and 2016:

- Boral Cement shed 100 jobs in 2013.
- Alcoa Point Henry smelter and rolling mill closed and shed 800 employees in 2014.
- Avalon Airport lost 300 jobs in 2014 when Qantas closed its heavy maintenance facility
- Ford announced it would no longer manufacture cars in Australia in 2013, leading to 600 direct job losses in October 2016.

The impact of these job losses were again felt across multiple supply chains. By some estimates, more than 10 per cent of Geelong's population was affected by the job losses. In pockets of Corio-Norlane, with a high reliance on traditional manufacturing jobs, the unemployment rate reached 21.7 per cent with particularly high youth unemployment (75 per cent) in 2015. But while the Greater Geelong experienced this wave of job losses in traditional manufacturing sectors, overall employment growth (21 per cent) between 2011 and 2016 was double that of population growth (11 per cent), due to increases in service sector employment (CoGG, 2018). By 2017, the overall unemployment rates within the region were broadly in-line with Victorian and national averages.

Recent changes in Greater Geelong's economic structure can be summarised in two graphs from the data firm *id.profile* (based on ABS information). **Figure 3** shows employment across the sectors compared to Melbourne and **Figure 4** shows an economy in transition highlighted by sector employment change in Greater Geelong over the decade.

Figure 3: Employment by Industry in the City of Greater Geelong, 2016
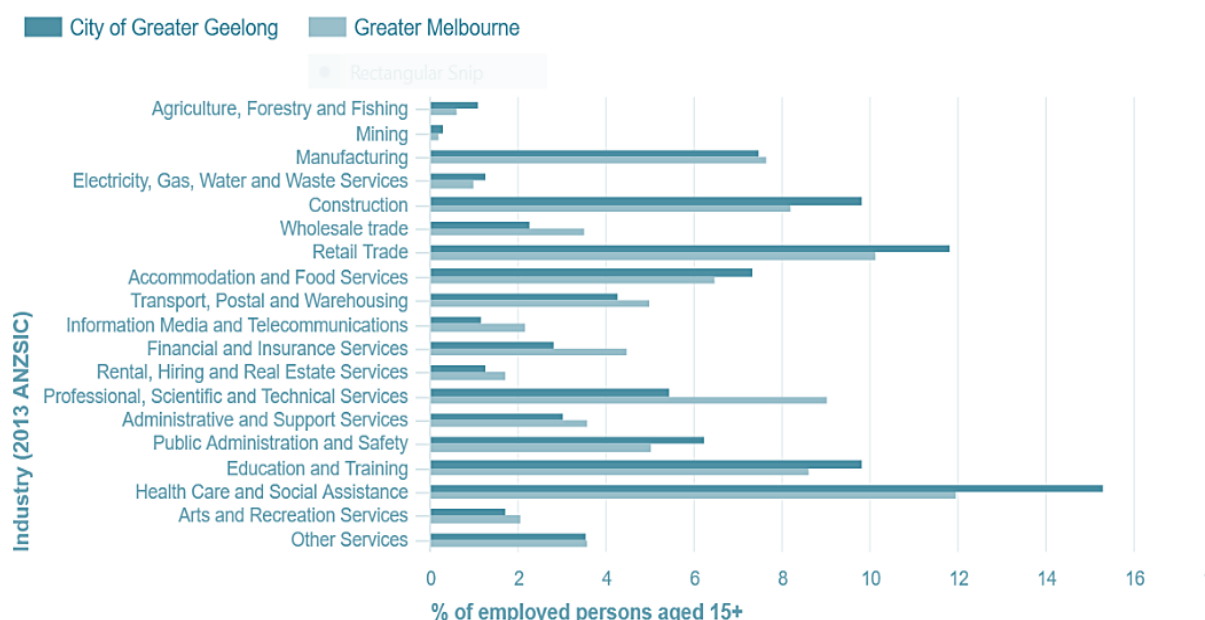
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data). Compiled and presented in profile.id by .id, the population experts.

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[2] Figure 2 shows more detailed data derived from a series of economic bulletins assembled by the City of Greater Geelong spanning 1997 to 2020 which recorded the entry and exit of employment from many firms and organisations (See Appendix C). Note: The data set is not comprehensive.

Figure 4: Employment Change in the City of Greater Geelong, 2006–2016
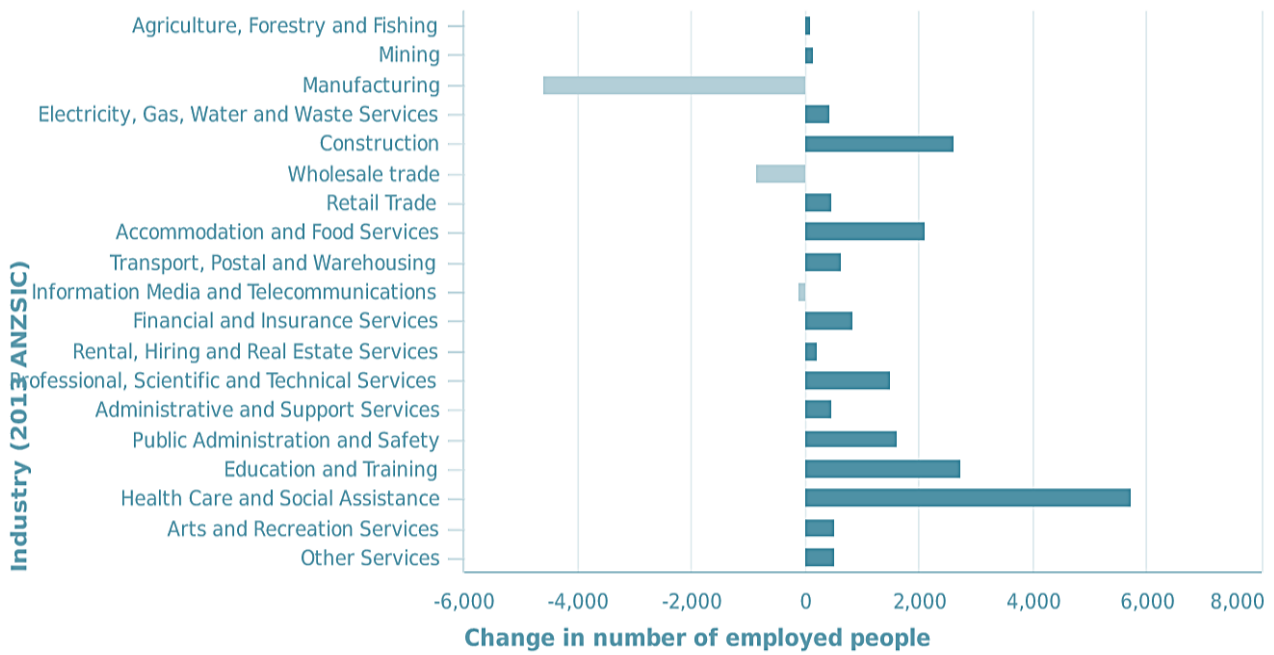
Source: Australian Bureau of Statistics, Census of Population and Housing, 2006 and 2016 (Usual residence data). Compiled and presented in profile.id by .id, the population experts.

Source: id.profile

Together the story in **Figures 3** and **4** and the historical overview show that despite significant economic disruptions, Greater Geelong has been able to avoid the economic decline experienced by comparable twentieth century industrial cities that have been dependent on major manufacturing sectors, such as Detroit and other so-called rust belt cities of the United States (Correia & Denham, 2016). Instead, Greater Geelong has continued to absorb, adapt and transform over the decades, even as industries typically considered central to its historical economy and identity have declined or prepared to close.

Through a process of economic diversification from mid-century, the economy shifted from a single industrial focus to a growing range of sectors and markets, encouraging positive growth and development. This, along with population growth, has acted as an economic shock absorber and helped to withstand serious economic setbacks and significant community loss. Smart specialisation, innovation and value chain development in key sectors has also built further regional resilience into the economic ecosystem.

1.3. Manufacturing Sector

Manufacturing is a diverse and dynamic sector that continues to play a significant role in Greater Geelong, with one-third of the top 25 businesses in the manufacturing sector. The 2016 Census records the manufacturing sector makes the greatest contribution to economic output in the region, which at $7.053 billion accounted for 22.45 per cent of total output (ABS, 2019a). Manufacturing also remains Greater Geelong's largest exporter, generating regional exports estimated at $4.143 billion. The sector remains the region's fifth largest employer with an estimated 8,085 jobs and 7,752 employees, paying approximately $607.187 million in wages and salaries in 2016 (ABS, 2019a). As a 'City of Makers and Innovators', Greater Geelong's competitive manufacturing strengths are shifting from traditional manufacturing to sector specialisations in advance manufacturing, agribusiness, transport, defence and space, textiles, cement and timber as well as industrial chemicals. The current workforce delivers engineering design solutions for purpose built composite materials, precision engineering, electromechanical systems, customised steel and fibreglass fabrication and heat transfer technology. The sector relies on having access to an existing and skilled workforce, a robust and responsive supply chain, industry-research collaborations, targeted government procurement opportunities and industry matched grant programs.

Defence and Space Manufacturing

Greater Geelong has become a centre of defence manufacturing leveraging expertise in advanced manufacturing and precision solutions. This sector specialisation is supported with engineering expertise, appropriate condition testing and proving facilities, access to markets, world leading defence research capabilities and a skilled workforce able to deliver complex defence and national security projects. Contributing to Victoria's $8 billion defence sector, a diverse and rich cluster of local businesses supply components into, and specialty manufacturing for, the supply chain for defence including Aerospace & Specialist Components (ASC), Aircraft Plastics, Air Radiators, Austeng, Bartlett Manufacturing, BOC, Bullex, Chemring, Duoguardable, Engineering Network Geelong, Green Hip Workwear, IXL Group, J Anderson &Co, Marand Precision Engineering, MHG Glass, Orrcon Steel, RPC Defence, Winchester and Wyett Manufacturing.

Greater Geelong has capabilities across the aerospace and aircraft manufacturing and repair services industry. A cluster of companies have played a key role in the global F-35 Joint Strike Fighter (JSF) Program, demonstrating the region's ability to provide cutting-edge military technology in global supply chains. In 2012, Marand Precision Engineering opened a new facility to supply the United States Joint Strike Fighter (JSF) Program at the former Ford Geelong plant generating 60 jobs (G21, 2012). With a potential $800 million export opportunity, this was the biggest JSF manufacturing contract won by an Australian firm and was a critical step for Marand to proceed with the establishment of its new aero-structures facility in the Geelong region, creating one of Australia's largest fabrication, machining and assembly workshops. By December 2016, Marand had received one third of the Australian contracts in the JSF Program and continues to grow market share.

High-tech carbon fibre composites manufacturer Quickstep Holdings undertook the design work for new advanced processes and technologies that helped increase the involvement of home-grown businesses in supplying the F-35 Lightning II JSF Program. In 2016-17 Quickstep completed over $5 million of capital investment and increased capacity for the manufacture of major composite parts for the program. These parts are shipped to Northrop Grumman under a contract valued at $700 million over the life of the program. Additionally, Quickstep announced the completion of qualification and initial production of the composite parts for the JSF Vertical Tail program. Under this $139 million contract, Quickstep is supplying vertical tail spars, skins and fairings to Marand for assembly and supply to BAE Systems in the UK. As well as making parts for the F-35, Quickstep makes wing flaps for the C-130 military transport aircraft and parts for Boeing Defence on its F/A-18 Super Hornet and F-15. In 2020 Quickstep purchased Boeing Defence Australia's aerospace maintenance, repair and overhaul capability at Tullamarine positioning Quickstep to grow its defence sustainment business and open up new opportunities in the high-value aftermarket with military, aerospace and other commercial operators.

Working closely with the Geelong Defence Alliance, the Victorian Government invested $5 million to establish a Defence Procurement Office on Deakin University's Waurn Ponds Campus in 2015. The location was selected to combine the strengths of Deakin's growing defence research with industry development, to better connect Geelong and Victoria-wide businesses with local and global defence supply chains, and support bids for multi-million-dollar contracts and jobs. After significant advocacy and lobbying across Greater Geelong, in August 2020 the Federal Government announced Hanwha Defence Australia (HDA) was chosen to build and maintain 30 self-propelled howitzers and 15 ammunition supply vehicles for the Australian Defence Force under a sole source smart buyer decision (Australian Government, 2020). HDA announced they would build a production facility in Geelong, with the first phase of the project expected to create up to 350 local jobs, with other jobs extending through the supply chain by 2022-2023. The project also provides significant opportunities in other areas such as transport and warehousing, as well as component manufacture and repair, future mid-life upgrades and harnessing of emerging technologies to enhance the protection, firepower and mobility of Australia's protected mobile fires capability (Geelong Advertiser, 2019a). HDA also expect the Geelong facility will be viewed as an alternative sustainment and supply chain base for the global K9 family of vehicles.

Chemring Australia, a subsidiary of the Chemring Group UK was established at Lara in the 1960s (originally as Pains Wessex). Chemring Australia manufactures countermeasures and pyrotechnics for the Australian armed forces, US Department of Defense and other nations. The company expanded its manufacturing facility and research and development centre, with 40 jobs being initially created. This was supported by a $1.8 million grant from the Geelong Investment and Innovation Fund (GIIF) delivering a significant boost to the Geelong economy during the Global Financial Crisis and securing jobs at its Lara site. In 2020, Chemring Australia secured the USD$107.5 million contract for the production and delivery of countermeasure flares for Australian, US and international F-35 operators (Australian Government, 2020). This successful growth in exports has led to a 70 per cent increase in its workforce, bringing staff numbers up to nearly 100 in the last 12 months.

Food Manufacturing

A clean environment, access to product from Victoria's rich western district, the pristine waters of Bass Strait, coupled with logistical infrastructure and accessibility to major markets has consolidated Greater Geelong's position as a food processing bowl for Victoria and a major supply chain contributor to national and international markets. This sector has been heavily influenced by the rise of advanced manufacturing, a thriving transport and logistics sector, farm inputs sector, agritourism sector and the research, education and services sector. These 'post farm-gate' sectors have helped create a unique local food manufacturing industry that is diverse, innovative and competitive.

Across the G21 region,[3] agribusiness (farming, processing and wholesaling) is now the fifth largest industry by value-added and the sixth largest industry by employment. The sector has an annual (direct and indirect) economic contribution of over $1.5 billion supporting more than 10,000 jobs across the supply chain (G21, 2018). Approximately 70 per cent of the jobs generated are beyond the farm-gate. Thus, agribusiness is dominated by businesses that support, manufacture or wholesale farm production (RMCG, 2017). Food manufacturing jobs have surpassed the number of food production jobs nationally and account for a significant proportion of the workforce in this sector. Food manufacturing employment across the G21 region is largely based in the urban areas of Greater Geelong and Colac with only a small amount of processing and wholesaling in Surf Coast and Golden Plains Shires. Compared to all LGAs across Australia, in 2016 Greater Geelong had the greatest food manufacturing job growth (350 jobs) based on local conditions, independent of national or industry employment trends (Achurch, 2019). Significant increases were in the occupations of bread manufacturing (160 jobs), beer manufacturing (75 jobs) and other food product manufacturing (57 jobs).

There are a number of unique local features in Greater Geelong that make it an ideal hub for food and beverage processing to support ongoing investment and employment growth in this sector:
- the scale of ready and available clean, green and safe agricultural and primary produce in the surrounding G21 region
- access to a highly skilled labour force
- agritourism advantages
- affordable land and infrastructure availability including easy proximity to markets via the Port of Geelong, Melbourne-Geelong road and Avalon Airport
- agriculture-focused and environmental educational facilities, including Marcus Oldham Agricultural College, the Gordon Institute of TAFE, Southern Farming Systems' research centre and Deakin University which has specialist expertise in Future Food including agricultural biotechnology, fishing and aquaculture, food futures, agribusiness, food manufacturing, bioresource and process innovation, nutrition, supply chain logistics, water management, food traceability and food safety.

In addition, advanced systems for ensuring food safety and quality throughout the supply chain, such as PrimeSafe and Dairy Food Safety Victoria, enable the production of high value, high quality food products. Identification tracking within

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[3] The G21 region encompasses five local government areas (LGAs) including Greater Geelong, Colac Otway, Golden Plains, Queenscliff and the Surf Coast.

horticulture and livestock ensures strict quality assurance across food processing plants and along the supply chain.

With access to high quality meat, poultry, seafood, dairy, barley, wine and olive oil from across the G21 region, Greater Geelong supports a large number of advanced food and beverage processors, including Australian Lamb Company, Bulla Dairy Foods, Golden Farms, MC Herd, Happy Hens, Barrett Burston Malting, Malteurop Geelong, Little Creatures Brewery, Meredith Dairy, AKD, Boundary Bend Olives, Challenge Meats, Farm Foods, Cheffresh and Irrewarra Sourdough. New and emerging businesses are investing in gourmet foods and beverages including aquaculture, craft beers, ciders, gin, coffee, tea blends, breads and other gourmet products for domestic and international markets.

The diversity of local manufactured food products and capabilities range from lightly processed commodities such as milk and meat, to highly transformed and value-added products, such as frozen meals, nutraceuticals and luxury items. This capability has in part been aided by government support for the transition from traditional manufacturing to advanced manufacturing. The Federal Government's Advanced Manufacturing Growth Fund (AMGF) supported six businesses from Greater Geelong to enhance their advanced manufacturing capacity in 2017. Lara-based Boundary Bend Olives Pty Ltd, a leading olive farm and producer of extra virgin olive oil employing over 100 people across their business, established an olive nutraceutical ingredient extraction facility with the $800,000 matched investment. The funding has allowed the olive oil producer to invest in capital upgrades and establish Boundary Bend Wellness, focusing exclusively on the extraction and supply of scientifically validated, high quality and fully traceable specialty ingredients for use in the nutraceutical, cosmeceutical, sports nutrition, food, beverage and pet food industries.

With significant opportunity to further expand food manufacturing employment in Greater Geelong, the Golden Plains Food Production Precinct has been strategically established 30km north of Geelong with 4,000 hectares of agricultural land for development. Golden Plains Shire Council, the Victorian and Federal Governments, as well as Barwon Water supported the development of the Food Production Precinct by funding an $11.78 million potable water supply to the area. The adjacent Colac-Otway Shire is a productive agricultural region producing more than three per cent of Victoria's annual agricultural output and employing approximately 2,300 workers with significant opportunities to support further jobs growth in food manufacturing of fresh produce in Greater Geelong.

The local seafood industry is also growing and includes wild-catch and aquaculture, seafood processing handling and bait and bait products. The region is well connected to the Melbourne wholesale and retail markets, particularly through the Melbourne Seafood Centre, the main wholesale retail marketplace for fresh seafood in the state. Aquaculture continues to grow to match consumer demand for a wide-range of products, including fish, scallops, squid as well as manufactured seafood products. The region is also home to a number of aquaculture pursuits including mussels, sea urchins and abalone, which are harvested for value-added products. This activity is complemented by a growing scientific, research and training infrastructure. Primary Industries Research Victoria (PIRVic) conducts research into Victoria's commercial and recreational fishing and aquaculture industries. It also carries out research to ensure Victoria's marine and freshwater fish resources and their natural habitats are managed sustainably.

Food manufacturing in Greater Geelong is connected to the visitor economy, with rural and coastal landscapes, wineries, harvest trails, farmers markets and small scale food producers contributing enormously to the attraction of the region for a large number of domestic and international visitors. The quality of food and beverage product for local consumption, or as farm gate or cellar door attractions, is cited by Tourism Victoria as an important element of visitor experience in the Geelong and Bellarine regions.

Transition from Automotive to Advanced Manufacturing

Automotive manufacturing was integral to Greater Geelong's growth in the 20th century. However, a new era for the automotive industry began with the 2013 and 2014 decisions by Ford, Toyota Australia (Toyota) and GM Holden (Holden) to cease Australian production and focus on imports as well as research and development, engineering services and design. While domestic car production volumes had been falling for many years, the cessation of automotive manufacturing significantly impacted both direct employees and local supply chains. Direct (approximately 5,000 in Victoria) and indirect job losses combined were estimated to be in excess of 40,000 nationally, with at least 160 separate auto components manufacturing companies affected (Productivity Commission, 2014). While this loss was heavily felt in Geelong, with the direct loss of 600 Ford manufacturing jobs and a significant impact on the local supply chain, Ford retained around 2,000 staff in Australia (mostly engineers and designers), including 750 full-time equivalent jobs based in Greater Geelong. In 2016 Ford opened its $50 million Asia Pacific Product Development Centre (APPDC) in Broadmeadows and upgraded its Research and Development Centre in Geelong as well as the 950-hectare Lara Proving Ground.

Overall, manufacturing production slowly declined from $1.6 billion in 2012 to a low of $1.2 billion in 2016 in Greater Geelong, the year of the Ford production cessation. But the next year it grew to $1.3 billion, then to $1.35 billion in 2018 (**Figure 5**). While production levels have not regained 2012 levels, the manufacturing industry in Greater Geelong did not end when automotive production ceased. The three year transition window (2013 to 2016) enabled an orderly wind-down of operations and allowed many companies within the supply chain to diversify and specialise in new areas such as advanced manufacturing supported by state-of-the-art engineering expertise.

Advanced manufacturing covers a broad set of enabling technologies, processes and practices that are used to develop high value-added products and services for the global market place. It includes a number of digital technologies collectively known as Industry 4.0 - additive manufacturing (3D printing), robotics and automation, advanced materials, artificial intelligence and machine learning, nanotechnologies and biotechnologies. Matching areas of industry need, advanced manufacturing expertise in Greater Geelong spans across a variety of sectors including automotive and autonomous vehicle innovations, transport equipment, infrastructure, aerospace, aviation and defence technologies, construction technologies, health innovation, food processing, agriculture, cleantech and energy solutions.

The Federal and Victorian Governments provided incentives to areas affected by the wind-down of automotive manufacturing to boost industry investment, particularly in such areas as increased research and development spending on early-stage innovative companies, and promoting the adoption of new approaches such as Industry 4.0 and the circular economy that disrupt traditional supply chains and ways of doing things (**See Section 2.2, Incentive and Investment Programs**). This was supported by the City of Greater Geelong with its 'Clever and Creative' vision and willingness to act on its environmental and sustainable ideals.

In addition to government incentives to boost industry investment, collaboration between industry and education institutions and government purchasing power directed toward buying local also facilitated sector transition and opportunity to develop new technologies, strategies and products (**See Section 2, Why is Geelong Resilient?**). The manufacturing industry ecosystem across Greater Geelong cooperated to support workers as well as support the innovation of organisations and supply chain industries. The Geelong Manufacturing Council, a not-for-profit organisation funded by industry partners, hosted forums and seminars with a diverse range of manufacturing companies encouraging networking and the sharing of ideas and knowledge to drive this. Retrenched workers were more formally supported by the Ford Transition Project (FTP), run by Automotive Skills Australia (ASA), and additional assistance was offered to supply chain workers. The Geelong Region Local Learning and Employment Network (GRLLEN), the Workforce Development Centre at the Gordon TAFE provided opportunities for retrenched workers to access a range of coordinated skills and re-training initiatives including skills recognition, courses and programs which were supported by employment and recruitment agencies. Through this process significant numbers of automotive workers were better prepared for redeployment to next generation advanced manufacturing industries.

Figure 5: Manufacturing Production of key Automotive Regions ($ billions), 2012 -2018
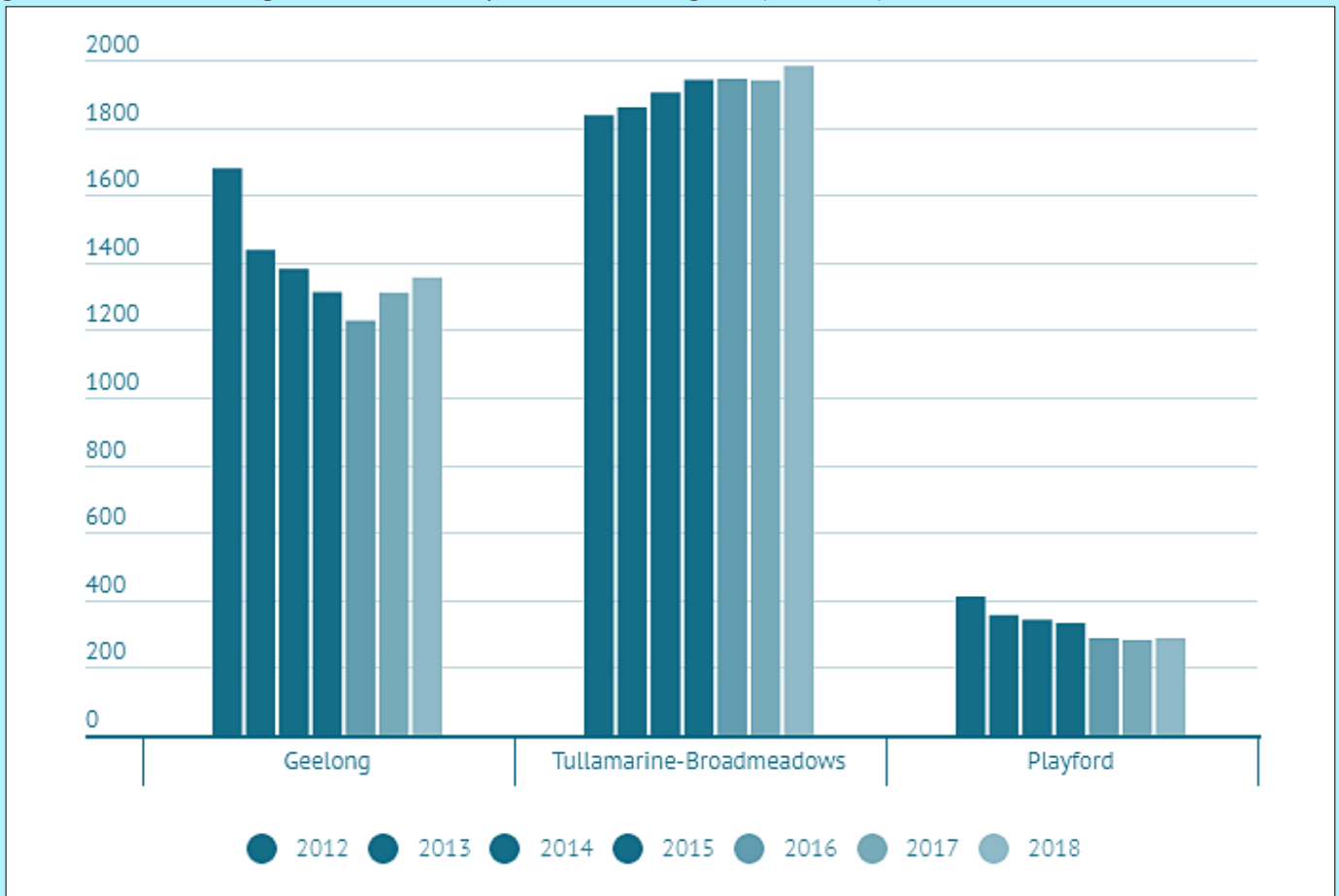
Another key part of the transition is Deakin University, which pioneered research and industry collaboration. The development of the Geelong Future Economy Precinct (Precinct) accelerated smart research and innovation in advanced manufacturing for local industries and supply chain firms to leverage. The multi-million dollar Precinct, based on the Deakin University Waurn Ponds Campus and covering over 540 hectares of land, capitalised on more than 15 years of investment in expertise and facilities. It attracted global research and innovation leaders working in the areas of:

- data analytics, pattern recognition and machine learning
- intelligent systems – including robotics, automation and haptics
- carbon fibre and composite materials
- additive manufacturing (3D printing)
- energy and sustainability
- nanotechnology
- cyber security
- virtual reality, augmented reality
- health, disability and ageing technologies
- high-value agricultural initiatives.

As one of the few universities in Australia with a research focus on manufacturing, Deakin established a number of integrated and specialised hubs in the Precinct, including the Australian Future Fibre Research and Innovation Centre (AFFRIC), Carbon Nexus, Centre for Advanced Design in Engineering Training (CADET), Deakin Energy Microgrid, an emerging food and sustainability precinct, the CSIRO Manufacturing hub, the Institute for Frontier Materials (IFM), the Institute for Intelligent Systems Research and Innovation (IISRI), and the new Applied Artificial Intelligence Institute (A^2I^2).

In 2017, in partnership with the Victorian Government, the advanced manufacturing accelerator, ManuFutures opened its doors. ManuFutures is a unique $13 million purpose-built, commercially operated, state-of-the-art innovation hub.

Since 2017 it has created 112 new skilled jobs across 15 enterprises, and supports another 100 jobs regionally, injecting more than $75 million annually into the local economy aiding the transition to high tech, smart manufacturing. It boosts commercial returns for its advanced manufacturing enterprise tenants by providing access to the research, knowledge and student-base of the University and an extensive range of business and export support, commercial partnerships, centralised corporate facilities and front of office functions to help them scale and find national and international markets.

In addition to the research capability and start-up accelerator, the Precinct is home to a number of commercial organisations who work closely with Deakin to create over 2,000 high-value knowledge economy jobs through industry partnerships and co-location. This includes skilled roles in advanced manufacturing in globally competitive companies, such as LeMond Composites, Conflux Technology, HEIQ Materials AG, Universal Motion Simulator, EcoKit, The Smart Think, Insight Engineering, Partington Advanced Engineering, 36T, FLAIM Systems Pty Ltd and Form Flow. As a successful spin out, Form Flow recently announced they had entered into an agreement with BlueScope Steel to commercialise their steel-bending technology and have subsequently relocated to North Geelong to significantly expand their production and business (Geelong Advertiser, 2020b).

The Precinct also became home to ASX listed manufacturers such as Carbon Revolution and QuickStep. Originally spun off from research undertaken at Deakin University, Carbon Revolution developed and commercialised the world's first mass produced carbon fibre car wheel. This world-leading technology offers an alternative to heavier aluminium wheels and delivers efficiency benefits for cars, translating into substantial emissions reductions and performance improvements. Founded in 2007, Carbon Revolution produces carbon fibre wheels as standard for the Ford Mustang and as an option for Ford GT, Ferrari 488 Pista, Ferrari SF90 Stradale (hybrid electric vehicle) and Renault Megane RS Trophy-R (Carbon Revolution, 2020). Carbon Revolution has been awarded eleven wheel programs with five global car makers for new cars (AFR, 2019). In November 2019, Carbon Revolution listed on the ASX with a share market capitalisation of more than $331.1 million (Carbon Revolution, 2019). A recruitment drive was put in place and the workforce grew to over 380 full-time equivalent personnel or 500 jobs (Carbon Revolution, 2019). Because of its emission reducing potential, government backed 'green' investment funds have significantly invested in Carbon Revolution. Carbon Revolution is an example of how collaboration between universities, industry and government can drive new, high-technology advanced manufacturing.

Lastly, the Australian dollar depreciation added significantly to Greater Geelong's competitiveness in advance manufacturing global supply chains and supported significant specialisation in emerging areas of light weight components, battery recharging and cooling and autonomous vehicle development that will provide substantial growth into the future, involving new markets as well as the former global automotive supply chain.

Figure 6: The Geelong Future Economy Precinct

1.4.   Retail Sector

Despite a turbulent decade for the retail sector globally, the retail industry has become one of Greater Geelong's largest employers, employing 12,262 people or 11.8 per cent of its workforce (ABS, 2019a). While national employment growth in this industry has been relatively subdued over the past five years (up by 3.0 per cent), Greater Geelong sector growth was primarily fuelled by a strong and expanding population, with internal migration the largest factor.

Fast Retail

Significant population growth in Greater Geelong, increasing from 201,495 people in 2006 to an estimated resident population of 258,934 people in 2016, has seen the rapid rise of fast retail (ABS, 2019a). Most residents in Greater Geelong have convenient access to a retail centre capable of meeting daily retail needs within a 20 minute drive from home (City of Greater Geelong, 2018). In 2018, supermarket and bottle shops dominated retail sales in this sector and employment in Woolworths and Coles supermarkets expanded to provide 800 and 500 full-time equivalent jobs respectively. The German discount supermarket chain Aldi launched a multi-million-dollar push into regional Victoria from 2002 and has been winning more market share. IGA has the smallest share of the market. Demand for new retail centres over recent years, has been strongest in growth areas including Armstrong Creek, Drysdale/Clifton Springs, Ocean Grove, Fyansford, Leopold and Lara (City of Greater Geelong, 2016). Expansion and redevelopment of existing centres is prioritised over the delivery of new centres to encourage a consolidation of services. There has also been high growth and demand for the expansion of restricted and large format retail, including hardware and building industry supplies. Businesses such as Bunning's, Fagg's Mitre 10 / Belmont Timber, Calco Trusses and Timber, Barwon Timber and Bartruss are significant employers.

Specialist and Cultural Retail

Slow and cultural retail, or specialist retail, includes owner operated shops, cafes and delis as well as surf shops in coastal towns and art/craft stalls. Meeting the demand for unique artisan products and delivering customer 'experiences', specialist retail has the strongest links to the local economy and potential to progress retail employment in Greater Geelong. These sectors are more likely to hire skilled, full-time employees on more reasonable wages and stock locally produced goods (CoGG, 2016). Pakington Street, Geelong West, has grown over time from a traditional High Street shopping strip serving the local community, into a thriving hub for retail, civic and community uses capturing niche trade from a broad area. Pakington Street effectively engages a visitor economy by hosting events such as Pako Festa, which is Greater Geelong's biggest celebration of cultural diversity. Much of Pakington Street's retail success stems from the focus on slow retailing with 'flagship' locally owned and operated cafés, clothing stores, bars, organic food stores and delis, which engage customers at a slower pace with a distinct personality. These retailers are successful in building relationships and depend on repeat sales from local customers.

Indigenous arts and craft are a strong sector, ripe for further specialisation. Wathaurong Glass was established in 1998 as a social venture to express Aboriginal art in glass, with products ranging from kitchen and bathroom splashbacks, shower screens, artistic platters and bowls to corporate gifts, awards and trophies. The business is 100 per cent Aboriginal operated and owned by the Wathaurong Aboriginal Co-operative Ltd which is an Aboriginal community control organisation structured to ensure the community of Wathaurong, and the broader community, are the beneficiaries of any profit. Wathaurong Glass provides training and employment opportunities for community members. Significant clientele include architectural firms, large corporate organisations and government departments. The Narana Aboriginal Cultural Centre is an award winning not-for-profit organisation which provides immersive, cultural experiences to build an understanding of Aboriginal histories and culture. Founded in the Geelong CBD in 1993 by Uncle Vince Ross, NAIDOC's Aboriginal elder of the year in 2006 and now a retired Minister of the Uniting Church, Narana moved to Charlemont in December 1996. The retail outlet consists of a range of handmade

indigenous items with all artwork licensed and designed by Aboriginal people, supporting Indigenous supply chains and investment back into communities.

Retail Chain Headquarters

Large retail chains such as Target have been part of the fabric and tradition of Geelong since 1925, when founders George Lindsay and Alex McKenzie opened a drapery store in Geelong. A pioneer of discount retailing, Lindsay's business methodology was 'half the profit, twice the turnover'. After acquiring the original store from Lindsay in 1957, Geoff Betts and John Wade grew the single store base in Geelong to a statewide multistore business. By 1968, the company had grown to 14 small stores around Victoria. Myer Emporium Ltd, recognising the potential for growth, bought the business and the company became Lindsay's Target Pty Ltd, which was later rebranded as Target Australia Pty Ltd in 1973. In 1996 Fosseys and Target merged, expanding Target's foot print in regional areas. At that time, Target employed over 20,000 staff nationally and 1,200 in the headquarters located in Geelong. In November 2007, Target was acquired by Wesfarmers. In 2013, the company cut 260 jobs at the Geelong headquarters following a restructure after 12 months of sales and profit under-performance. Another 100 staff lost their jobs in 2016. By 2018, Target's 92-year history in Geelong came to an end when its headquarters, then employing 900 people, relocated to Williams Landing in Melbourne's western suburbs. While some staff were offered new roles in other Wesfarmers businesses such as Kmart, up to 180 jobs were cut and over 700 jobs moved to Melbourne.

As one large retail chain downsized, another accelerated. Cotton On has become one of Australia's largest global retailers with over 1,500 stores in 18 countries employing 22,000 workers globally. Headquartered in Geelong, the Cotton On group employs 1,370 people in the office, retail and warehousing functions in Greater Geelong. The local team controls the steps of production from merchandise planning to establishing specifications, and production is outsourced to approximately 850 suppliers and factories globally. The Group has launched a number of brands including Cotton On, Cotton On Kids, Cotton On Body, Rubi, Typo and Factorie. In 2013, Cotton On acquired Australian female youth brand Supré.

In 2018, the Cotton On Group developed a 35,000 sqm $40 million automated distribution and fulfilment centre near Avalon Airport Industrial Precinct. The state-of-the-art facility, employing over 400 staff during peak periods, stocks over 60,000 product lines across the full suite of Cotton On brands and handles the Group's Australian e-commerce trade and supplies to about 690 stores nationally. The packaging system is one of two of its type in Australia, with only a handful in operation around the world. To meet growing demand for personalised products, the distribution centre established an additional team of 40 people working in a dedicated space for embroidery, embossing and sublimation, servicing over 1,000 online orders a day for personalised products including food, water bottles and clothing. The Cotton On Group has taken a 15-year lease on the Avalon site, which has the capacity for a future 10,000 sqm expansion.

Online Retail

Online retail has boomed over the previous decade and continues to outpace overall retail growth. In the five years following the Global Financial Crisis (2007 to 2009), e-commerce grew at 21 per cent, hitting peak growth in 2011 at 30 per cent. Australian's use of online shopping has also accelerated. Over the last decade, Australian consumers began buying discretionary items online, such as apparel and consumer electronics, but by late 2019 they were also shopping online for essential items, including groceries, pharmacy products and alcohol. Online retail growth significantly impacts sector employment. Online retailers operate more like wholesale distributors and the skillsets required by e-tailers are vastly different to in store retail. When instore retail employment stagnates or declines there is no local offset gain in non-store retail jobs.

The shift to online retail has disrupted the sector and opened significant opportunity for specialist retailers in Greater Geelong who leverage digital systems, good connectivity and data to engage with their target customer in local, national

and international markets. Stuck on You is an online retailer and leader in the customisation of products, creating personalised labels and products. Starting as a small online business in a Geelong garage, twenty years later Stuck on You employs 40 people and ships to 127 countries annually. With $8.3 million in sales in FY2019, the business was sold late last year to Canadian based CCL Industries but maintains a strong local presence.

1.5. Healthcare Sector

The healthcare and social assistance sector is the largest and fastest growing industry and, at an estimated $1.588 billion, the second largest value added contributor to Greater Geelong's economy. The sector is the region's largest employer supporting 17,668 jobs and 15,860 people or 15.3 per cent of people (ABS, 2019a). The sector paid $1.347 billion in wages and salaries, more than any other sector in Greater Geelong. A significant number of jobs were added over the past decade, with over 5,730 additional people employed by the sector between 2006 and 2016 (ABS, 2019a). This growth is expected to continue over the next five years, due in part to the ageing and growing population. The Geelong Advertiser reported in January 2020:

> "Healthcare and social assistance jobs in Geelong are projected to grow by 4,300 (or 19.8 per cent) over the five years to May 2024. This industry is projected to grow at a rate more than double that of total employment in the region (8.4 per cent)."

One of the sectors key specialisations has been the focus on developing a regional centre of excellence in medical and patient care. Over the last two decades the City has developed, and continues to develop, world-class medical services and facilities on par with, or exceeding, metropolitan standards. Central to this expansion has been the creation of Barwon Health and the strong interconnections between the public and private acute care services, as well as the primary and community care sectors. Effective partnerships between the public and private hospitals and Deakin University's research institutes have been vital to address the many health challenges facing the community. Together they have also developed a thriving culture for clinical trials and medical research that impacts health outcomes locally, nationally and globally.

Barwon Health

Barwon Health is one of Victoria's largest health services, formed in 1998 through an amalgamation of Geelong's five major health bodies to form a $155 million health service. The service comprises University Hospital Geelong, the Grace McKeller Centre, and the Corio, Geelong and Surf Coast Community Health Services (Torquay and Anglesea). With more than 7,100 staff (4,538 FTE), Barwon Health is Greater Geelong's largest employer, one of Australia's largest regional employers and a major education provider and clinical trainer through its relationships with Deakin University, The Gordon and a number of other educational centres and institutes. With a catchment area outside of the Greater Geelong area that extends through Barwon South West, Barwon Health cares for a population in excess of 500,000 (Barwon Health, 2020).

As part of an expansion program to meet population demand, Barwon Health opened its new facility at Barwon Health North in early 2020, providing local specialist, imaging and urgent care services. The State Government has committed to fund a new community hospital at Torquay, Barwon Health Surf Coast (expected construction will start in 2022 and Barwon Health Surf Coast will commence operating in 2024). An increased demand for Geelong maternity services was recognised in 2019 with a budget commitment of $160 million in State ($110 million) and Federal ($50 million) funding for a new dedicated women's and children's hospital to be established on the site of the former Geelong Private Hospital (Geelong Advertiser, 2019c). The facility will complement the $10 million paediatric emergency department in the University Hospital Geelong. Barwon Health are also developing new models of care including remote monitoring, telehealth and other interventions to increase the number of people who can be safely cared for at home. Barwon Health provides about 10 per cent of inpatient care to patients via home-based programs, including hospital in the home. In 2018-19 the telehealth service at Barwon Health supported 940 specialist appointments, saving members of the community 2,300 hours of travel (187,000 km). The mental health, alcohol and other drugs program at Barwon Health has developed a model to consolidate non bed-based services at four community hubs in central Geelong, Corio, Colac and

Torquay. These new facilities reduce unnecessary travel by the community to access services on the University Hospital Geelong site.

Private Health Services

In addition to the publicly-funded Barwon Health, there has been the entry and expansion of two major not-for-profit, private health service providers over the last decade. There has also been the closure of a corporate private health service provider. These private acute care services work closely with Barwon Health to service the G21 region.

St John of God Geelong Hospital is a division of St John of God Health Care, a Catholic not-for-profit healthcare group. An 80 bed facility, founded in 1965 by the Missionary Sisters of the Most Sacred Heart (MSC Sisters), was purchased by the Sisters of St John of God in 1977 and renamed St John of God Geelong Hospital in 1980. A series of redevelopments and refurbishments began in 2012, as part of a $100 million facility and service expansion project. By 2014 the total number of beds had increased to 250 with the addition of a six-storey specialist medical centre. The final stage of investment in new facilities and services was completed in 2017. At the beginning of 2018 St John of God had more than 1,000 staff and offered almost 300 beds.

Epworth HealthCare operates a private hospital complete with emergency services and the first neurosurgical service in the region adjoining Deakin University's Waurn Ponds Campus. Designed to service the growing southern suburbs of Armstrong Creek and the Surf Coast, the new $277 million teaching hospital, Epworth Geelong, opened in July 2015 with an initial 350 staff and 172 inpatient beds (Geelong Advertiser, 2016). In addition to private patients, the hospital supports the provision of services to public patients (approx. 7,000 public patient treatments per annum) through a novel 10-year agreement with Barwon Health to assist in the provision of chemotherapy, renal dialysis and elective surgical services. By 2018 Epworth Geelong employed more than 950 staff servicing more than 256 inpatient beds. In early 2020, the region's first private radiation oncology facility opened at the Epworth Geelong. The $2.8 million Icon Cancer Centre Geelong appointed eight Geelong residents to full-time positions and two doctors to operate the centre.

After the redevelopment of St John of God and the opening of the Epworth Geelong, Healthscope Corporate closed the Geelong Private Hospital in 2018 and 239 jobs were lost (ABC, 2018). In a statement to the ASX, Healthscope said it was no longer viable to continue operations at Geelong Private Hospital after a review of its 45 hospitals across the country. The company said the closure reflected a changed healthcare environment in Greater Geelong, which had significant new hospital infrastructure that had led to an oversupply. The hospital building was returned to the owner Barwon Health, and is being reviewed as a potential site for the new Geelong Women's and Children's Hospital (Geelong Advertiser, 2018b).

The expansion of the City's acute care health services has not only responded to the population growth but extended the reach of its health infrastructure across a much larger region, providing specialist and metropolitan level services for western Victoria. Despite the significant expansion of health services across the region, as population inflow and ageing continue, more growth will be needed to meet current and future needs.

Mutual Health Insurance

Concerned about the rising health costs of health, a group of workers from the Australian Cement Company developed the Cement Workers Hospital Benefits Scheme in 1927 – a health insurance scheme designed to protect workers and their families. The demand for broader public access to this health benefits scheme grew and a new 'open' scheme was formed at a public meeting called by the Mayor of Geelong in August 1934. During the next decade, demand for membership grew outside Geelong. The health insurance fund grew rapidly and a range of other local industrial based schemes gradually transferred their operations and membership to the fund. In 1958, the fund adopted the name of Geelong Medical and Hospital Benefits Association, commonly known as GMHBA. The mutual not-for-profit, health insurance and care company formally changed its name to GMHBA Limited in October 2000. GMHBA established Australia's first online

health fund, Frank health insurance, and acquired a niche online fund health.com.au for $46 million in 2015. They have subsequently acquired a variety of health and care services (eye care, dental, physio and primary care) in the Greater Geelong region. As a member-based organisation headquartered in Geelong, GMHBA has become one of Australia's leading regionally based health insurers covering nearly 370,000 Australians and, in 2018, employing over 284 people in Greater Geelong and 400 throughout the organisation. GMHBA complements the specialised range of health and social insurance service expertise in Greater Geelong (**See Section 1.8, Social Insurance Innovation Cluster**).

Medical Research and Clinical Trials Hub

Health and medical research generates evidence-based medical interventions that provide optimal health treatments to deliver high-quality care. Medical research encompasses a wide range of disciplines including clinical research, registries and social research. Greater Geelong is establishing its credentials as a medical research hub with Barwon Health's level of clinical trials at an all-time high, growing its reputation both nationally and internationally. Working closely with Deakin University, Barwon Health has steadily grown its medical research footprint in Victoria over the past decade. In the last 12 months alone, approximately 200 clinical trials, involving 700 participants were underway across Barwon Health's clinical trials team, which include cardiology, intensive care, anaesthetics, psychiatry, orthopaedics, infectious diseases, pharmacy, endocrinology, neurosciences, paediatrics, palliative care, emergency care and cancer services. The boost in the number of clinical trials run in the region has been supported by the Victorian Governments Clinical Trial Research Support Service launched last year at Barwon Health as well as Bendigo Health, Ballarat Health, North East Health Wangaratta and Goulburn Valley Health. This is expected to provide faster local access to new treatments and contribute more than $300 million annually to the Victorian economy.

The recent establishment of the Adrian Costa Clinical Trials Centre, a world class medical research and clinical trials centre, is a key part of Barwon Health's strategy to embed research excellence into every aspect of clinical care. A thriving clinical trials program is fundamental to the delivery of innovative and evidence-based care and attracting the best and brightest medical and health professionals to Greater Geelong. The centre will improve training opportunities, research capacity and consumer access to the best available treatments. The centre aims to become a hub for the region, a place where doctors, nurses, allied health teams and researchers collaborate to deliver improved outcomes.

Sustainable Health and Medical Workforce

Because the health and medical workforce is projected to grow at a rate more than double that of total employment in the region, the training and upskilling of workers within the sector is a key priority widely recognised by industry, training providers and government. Both Deakin University and The Gordon Institute of TAFE play pivotal roles in developing the health workforce for the region.

In April 2006 Deakin University, which had long offered highly ranked nursing courses, was funded by the Federal Government ($23 million over four years) to establish Victoria's first rural and regional medical school at the Waurn Ponds Campus. The Deakin University School of Medicine was operational by 2008, initially accommodating 120 new medical places for the year one cohort. By 2020 this had increased to 540 places across the four year post-graduate course. Barwon Health and Deakin University, with funding from the Victorian Government, collaborated to create a $20 million state-of-the-art medical research and training precinct at Geelong Hospital (now called University Hospital) which allowed the co-location of health services, research, education and training facilities to be built near the hospital in the Health Education and Research Building (HERB). The precinct provided better training for medical students, doctors, nurses and allied health professionals, and improved the links between Deakin, Barwon Health and research facilities. It also helped to develop a range of supporting medical services within the region. In 2016, a $10.1 million fit-out of the HERB building jointly funded by Barwon Health, Deakin and CSIRO enabled the Geelong Centre for Emerging Infectious Diseases (GCEID), the Barwon Infant Study (BIS) and Geelong Translational Research Against Cancer (GTRAC) and other functions to be

established. Deakin's Indigenous entry stream (IES) became operational in 2015 and currently has nine Indigenous students across the program. It is anticipated that two Indigenous students will graduate with the MD in 2020.

Significant expansion of health education at Deakin's Waurn Ponds Campus was undertaken in 2013 with the opening of the Deakin University Regional and Community Health Hub (REACH). This $53 million facility catered for 1,500 new students and 172 staff and allowed Deakin to expand the training of medical, allied health (occupational therapy, optometry, medical imaging, disability and social inclusion) students to address the shortage of these health professionals in Greater Geelong. In 2015 Epworth HealthCare and Deakin partnered to build a medical education precinct, with Deakin contributing $3 million to fund a simulation centre and lecture rooms to support clinical training and placements at the new hospital as well as a landscaped pedestrian access connecting the teaching and educational entrance of the hospital with the REACH building and the Deakin School of Medicine. This investment directly supported the establishment of purpose designed medical education programs for medical, nursing and allied health students.

While there are a large number of higher skilled jobs in health, such as doctors and nurses, there are also significant numbers of low skilled non-healthcare opportunities (including office staff, kitchen hands and commercial cleaners) who support the functions of hospitals and other health related establishments. This sector has a higher proportion of mature-age workers, and the ageing of the workforce is a critical factor likely to contribute to, or exacerbate, labor shortages in the coming decade as it continues to grow. The Gordon Institute of TAFE operates two critical courses *Growing the Health and Community Services Workforce* program and the *Future Health Skills* project to address this.

1.6. Education and Training Sector

Education and training is a significant industry sector as well as playing a pivotal role in the training and reskilling of the workforce for diverse industries across the region. The sector is the third largest employer in Greater Geelong, creating over 10,997 jobs and employing over 10,000 people. The sector has gained nearly 3,000 additional employees over the last decade. The sector is also Greater Geelong's third largest exporter generating regional exports estimated at $544.51 million (ABS, 2019a).

Regional resilience requires significant investment in the education and training of people within the community, particularly young people. Investment in education builds strong workforces to meet the needs of regional areas. Education outcomes influence employment, wellbeing, lifetime earnings for individuals, regional business growth and productivity, all key drivers of regional prosperity (RDA, 2017). Decades of international qualitative and quantitative research also demonstrate broader benefits for society such as increased community engagement, improved family and child health and well-being, reduced tax burden for public services, a cleaner environment and reduced crime. Even after controlling for increases in income, education still affects these social outcomes. Over time, educating students converts to measurable learning outcomes but also significant growth, innovation and productivity gains to justify the investment.

Education comprises early childhood education, primary and secondary schools, as well as tertiary institutions such as TAFE and universities. There are a large number of excellent early learning, primary and secondary schools within the Geelong region that have been funded, expanded, constructed and refurbished to cater for the overall population expansion. Collectively their scale and growth is significant, and provides employment for teachers, support staff and the building sector across Greater Geelong. They are, however, beyond the scope of this current paper. Focus has instead been directed to highlight tertiary education sector specialisation, as it is central to the development of regional resilience. Greater Geelong has the unique advantage of having The Gordon Institute of TAFE, Marcus Oldham College and Deakin University headquartered in the region. These institutions have developed a robust cooperative relationship as well as having strong ties with the local industry, government and community stakeholders.

The Gordon Institute of TAFE

Established in 1887, The Gordon was originally a mechanics institute and night school for tradespeople seeking technical training and to meet the local needs of the new industrial era. Today, The Gordon is one of the largest regional TAFEs in Victoria, operating as a public education and training organisation under Victorian Government legislation. The Gordon serves Greater Geelong and surrounding communities and more recently expanded operations into the Wyndham area of western Melbourne with several campuses offering a range of courses, apprenticeships and traineeships to western metropolitan communities. With more than 600 staff and approximately 60 per cent of students coming from the wider Geelong region, The Gordon is a significant employer and plays a key leadership role in assisting Greater Geelong's economic and social development working in close collaboration with secondary schools, universities, employers and the community to deliver relevant programs that meet the region's needs.

The Gordon offers more than 130 nationally accredited qualifications, 80 other accredited training products, a range of VCE and VCAL programs and almost 100 accredited and non-accredited specialist short courses. In 2019 The Gordon registered nearly 15,000 enrolments, equating to more than 13,500 students studying via a range of modes including on-campus, off-campus, full- and part-time, online and industry-based. In the same year more than 3,000 apprenticeships and traineeships Australia-wide were managed by The Gordon (The Gordon, 2019).

As an institute of technical and further education, a TAFE, The Gordon has been buffeted by major swings in State Government policy and funding over the last 30 years. In 2017 the State Government invested $128 million to establish 10 high-tech centres of learning across Victoria (Victorian Government, 2018). Hosted by The Gordon, the Geelong Tech School opened in 2018 establishing a leading-edge technology and discovery centre providing thousands of local secondary school students with the skills they need to 'flourish in the global economy'. Students remain at their regular schools and attend the Geelong Tech School for free industry-led programs designed to inspire their interest in STEM and develop skills including critical thinking, communication, collaborative working and technology use. Across 2019, over 6,100 students and teachers participated in programs exploring new and emerging technologies including computer applications, 3-D printers and laser cutting machines, virtual reality, robotics, design and electronics. The $10 million facility provides Geelong students, teachers and industry with access to state-of-the-art technology and learning spaces and provides essential educational support, training and course advice, study support, counselling and careers advice. In 2019, the Victorian Government committed over $23 million for capital works at The Gordon to transform the Culinary School into a world-class hospitality and cookery training centre, within what is fast becoming central Geelong's new education, arts and culture precinct (The Gordon, 2019).

Skilling the Bay (STB) is a unique regional initiative established to support the economic and workforce transition of Geelong from a reliance on declining traditional manufacturing to a more diverse, knowledge based economy. Led by The Gordon and delivered in partnership with Deakin University and the Victorian Government, STB brings together education providers, community organisations and industry to grow Geelong's future workforce and provide tangible outcomes for participants and stakeholders. Over its three stages of delivery since 2011, STB has delivered a number of integrated projects to improve education, employment and skills outcomes, and has fulfilled its aims to support people of all ages to participate in education and training, particularly the vulnerable and those experiencing disadvantage. STB has played a key role in its response to the skills challenges associated with a volatile local economy, and overall program success has been attributed to factors such as strong governance, operational efficiency, effective partnerships and broad stakeholder engagement and consultation (The Gordon, 2020).

Marcus Oldham College

Marcus Oldham is Australia's only independent agricultural and equine business management college for domestic and international students. Founded in 1962 and situated on a 200 hectare farm property at Waurn Ponds, the College offers higher education Bachelor Degrees, Diplomas and Post Graduate qualifications. Marcus Oldham College has an

international reputation for producing graduates capable of managing the most complex and the most productive farm business, agribusiness and equine operations. In May 2008, the College opened the Centre for the Study of Rural Australia on its campus. The Centre focuses on the intersection of agriculture and rural communities and aims to foster sustainable practices through community involvement.

Deakin University

Deakin University (Deakin) has a distinctive position within the Australian higher education sector as a leader in excellence for both education and research based on students' satisfaction and outcomes, and by external assessments of research quality. Deakin is now ranked among the top 1 per cent of universities worldwide and is included in the top 50 young universities in the world.[4] Formally established in 1974, Deakin was first a regional Victorian university with a specific mandate to teach nationally using distance education. Today it is the largest educator of domestic students nationally with an educational portfolio that blends campus and digital delivery into a supportive and personalised student experience.

Deakin has a large local footprint and two Greater Geelong campuses - one at the Geelong Waterfront and one at Waurn Ponds. The University is also a significant employer. In 2019 Deakin employed 10,188 staff (5,183 FTE) and supported over 64,000 students, of which over 14,000 were enrolled in Geelong Campuses (DU, 2020). A 2014 report by Deloitte Access Economics quantified Deakin's Greater Geelong Campuses were worth greater than $426 million annually to the local economy (Deloitte Access Economics, 2014). This is equivalent to 5.3 per cent of Gross Regional Product with 3,124 full time equivalent jobs created in Greater Geelong.

To encourage the development of a vibrant and energetic city, Deakin strategically invested in a range of developments in Geelong and on the Waurn Ponds Campus (Committee for Geelong, 2012). The Deakin acquisition of the Woolstores buildings on the Geelong waterfront in 1994, and their extensive refurbishment, saw the expansion of Campuses from the single Waurn Ponds site to a new second site with the Deakin Waterfront Campus opening in 1996. This included the opening of the 1,500 seat Great Hall (later renamed Costa Hall). The refurbishment of the historic T&G Building housing 33 students in modern studio apartments and the $50 million Brougham House development with capacity for 410 students was completed in 2018. At the Waurn Ponds Campus, the existing student accommodation for 790 residents was expanded to create a new 320-bed precinct to offer a contemporary, affordable, high-quality living experience. Deakin also established the Deakin Management Centre in 1993 providing a 60 bedroom conference and event centre. This was upgraded in 2016 and renamed Waurn Ponds Estate.

Deakin's major education and applied research programs in improving health and wellbeing, designing smarter technologies, building safe and secure communities, advancing society, culture and the economy and enabling a sustainable world all align strongly with high priority industries for Greater Geelong (See Section 1.3, Manufacturing). Deakin is also working closely with industry, government and the community on the development of medium and long term plans to support existing jobs and design the workforce of the future, increase education attainment levels, attract and retain industries and achieve a targeted level of sustainable development that supports population growth and protects the natural environment.

Deakin works hard to embed employability from the very beginning of all its courses, building relationships with local and international industry and professional organisations to ensure students have opportunities through international exchanges, internships and industry engagements. Deakin encourages students to become globally minded and to participate in overseas study, volunteering programs and the Deakin Global Citizenship Program. Through its 14 global offices in China, Europe, India, Indonesia, Latin America and Sri Lanka, Deakin is able to connect students and partners. The Deakin India Research Initiative (DIRI) is a $10 million research investment in India focussing on industries of the future: composite materials, food security, and biotech applications in pharmacology, food, agriculture and the

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[4] Shanghai Rankings Academic Ranking of World Universities 2019 and QS Top 50 Under 50 2019.

environment. In 2008, Deakin became the first Australian university to open an independent office in Beijing. Since then, Deakin has expanded its operations into the industrial heartland of China, with office locations opening in Wuhan and Chengdu. In Indonesia, Deakin has forged links with over 40 universities to support joint research programs and to foster the upskilling of Indonesian academics through Deakin PhD programs.

Deakin University is a significant player in the international student market with the majority of students coming from India, China, Sri Lanka, Vietnam and Pakistan. Geelong has a large international student presence and is an attractive location for overseas students offering a friendly and safe study environment.

1.7. Visitor Economy and Tourism Sector

The visitor economy is a significant driver of economic activity and employment for Greater Geelong. With a wide range of opportunities from the coast, food and wine, events and nature experiences, Greater Geelong is also the gateway to the major tourist destination of the Great Ocean Road. It attracts over 5.8 million visitors annually, significantly more than the Blue Mountains, the Australian Capital Territory, the Mornington Peninsula and the Great Barrier Reef. Geelong's proximity to Melbourne makes it an ideal short-break destination, with over half of all domestic visitors originating from the metropolitan Melbourne each year (Ruzzene, Cousens & Patsouris, 2018).

In 2018 visitor expenditure, estimated at $1.1 billion, generated substantial economic benefits for the region including an economic output of $2.2 billion and supported 11,264 jobs (Ruzzene, Cousens & Patsouris, 2018; ABS, 2019b).[5] Based on projected growth in visitation (7.5 million visitors) to the region by 2027, and corresponding growth in visitor expenditure ($1.7 billion), the economic output of tourism is expected to increase to $3.3 billion, inclusive of the flow-on indirect effects. Employment is also predicted to increase to 17,256 jobs by 2027, an increase of almost 6,000 jobs (53 per cent) (Ruzzene, Cousens & Patsouris, 2018). Greater Geelong is one of two national regions where local conditions contribute the most to tourism job generation (546 and 260 jobs respectively), independent of national and industry employment trends (Achurch, 2017).

International Visitors

International visitors are a significant and growing market for the region. The United Kingdom is the largest international visitor market to the region, representing 16 per cent of visitors, closely followed by New Zealand at 14 per cent and China at 13 per cent. The 53,000 international overnight visitors to Geelong and the Bellarine spent an average of 16.1 nights in the region in 2018, which is higher than many other regions, and spent a total of $98 million. On average, this equated to a spend of $115 per night and $1,854 per trip in the region. Alongside the Great Ocean Road, the City of Greater Geelong has the highest international visitor spend per night of Victoria's regions. International students are an important source of visitation for the region, particularly to Geelong with Deakin University Waterfront and Waurn Ponds Campuses. The City receives around 4,000 international students annually, predominately tertiary students. The economic activity generated per annum by a single secondary student is $32,155 and by a tertiary student is $41,675 (Ruzzene, Cousens & Patsouris, 2018). The expansion of Avalon Airport and the opening of the international terminal in 2018, including flights by AirAsia, provides international passengers with easier access and more affordable travel to Melbourne, Geelong and the Great Ocean Road, adding to the region's visitor economy, whilst providing easier and affordable access to international travel for people living in Geelong and many suburbs of Melbourne. This is also expected to increase visitors from China, India, Indonesia and Taiwan.

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[5] Tourism - an amalgam of activities across various industry sectors such as retail, accommodation, cafes and restaurants, cultural and recreational services. The tourism industry sector services the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited.

Day Trips and Business Travel

Visitation to central Geelong accounts for 53 per cent of total trips to the region. As the core commercial district for the region, the Geelong CBD also attracts the majority of the region's daytrip business travel market. Business events present a key strength with a number of venues which can host over 200 delegates at a time. The Geelong Cultural Precinct has developed into a key tourism product for the City of Greater Geelong and includes cultural assets such as the Geelong Gallery and Geelong Arts Centre (GAC). Other arts destinations include the Newtown artists precinct and the vintage precinct in North Geelong.

Key product strengths of Geelong are also centred on the revitalised foreshore precinct and the nature-based activities available at the foreshore parks and Western Beach. The $30 million infrastructure redevelopment by local and State Government has to date attracted more than $630 million of private investment and is at the forefront of urban waterfront redevelopments in Australia today. There has also been significant investment in waterfront bars and high-quality dining establishments, such as Wah Wah Gee, The Wharfshed, and the near-by two hat restaurant Igni. The vibrancy and patronage of venues has also benefitted from the inflow of white-collar jobs into the CBD, associated with WorkSafe, the Transport Accident Commission (TAC), National Disability Insurance Agency (NDIA), and Deakin's expanding Waterfront Campus.

Events

Greater Geelong has a strong track record of successfully delivering large scale events to generate profile, visitors and potential migrants. These include the Australian Avalon International Airshow (which contributed an estimated $28.9 million locally), the Cadel Evans Great Ocean Road Race ($11 million), Festival of Sails ($10.6 million), the Archibald Prize exhibition ($8 million), and the inaugural White Night event ($5.1 million) (CoGG Regional Economic News Summaries, 2019-2020). These events contributed an estimated $99.3 million of economic benefit to the region from a $1.8 million investment in 2018-2019. This figure was generated from 850,000 people participating in or watching 25 events across Geelong.

It is worth highlighting the two largest events in terms of contribution. The Australian International Airshow, the largest air show in the southern hemisphere, is a significant biennial event in the region attracting around 200,000 visitors, creating more than 2,000 jobs and boosting Victoria's economy by up to $150 million overall. In addition to attracting the global defence industry, it attracts large delegations from regional air forces. Avalon Airshow's business exposition shines an international spotlight on Victorian and local aviation, aerospace and defence capabilities, with more than 35,000 international delegates and 600 companies attending. Approximately $1.25 billion of aviation business was transacted or finalised at the 2015 Avalon Airshow (Geelong Advertiser, 2017).

The Cadel Evans Great Ocean Road Race (CEGORR), has become one of the country's premier cycling events, and both the men's and women's events are listed on the UCI World Tour calendar. This four-day international cycling event welcomes the world's greatest male and female cyclists and their teams to the Geelong, Bellarine and Surf Coast regions. The elite races which are broadcast around Australia and distributed globally to over 140 countries, are supported by two mass participation events, underpinned by significant community engagement. As long-time supporters of gender equality, the CEGORR awards equal prize money for both the elite men's and women's races and supports road safety, active living and health education in the Geelong community.

Agritourism and Adventure Tourism

Agritourism, otherwise known as food tourism, is becoming an increasingly important sector for the Greater Geelong economy, providing direct and indirect benefits to local agribusinesses. Food and wine experiences are being increasingly sought as consumers desire to better understand where their food comes from, learn how it is produced and experience

the ultimate in low food miles by enjoying produce where it is produced. Key agribusiness products prominent in the area include wine, craft beer and spirits, gourmet foods (cheese, olives, condiments and confectionary), meat and seafood. Agritourism activities are diverse and include direct shop front outlets with produce tastings, regional markets, farm and winery tours, cooking classes, food and wine festivals, farm stays, restaurants sourcing local produce, self-picking experiences and farm gate sales (**See Section 1.3, Food Manufacturing**). Some local examples include:

- Cycling VineTours, offering leisurely cycle tours through premier food and wine growing regions
- Mi Shells Seafood, eat locally caught seafood from the family boat at Queenscliff Harbour
- Taste Tours, run gourmet food, wine, beer/cider and adventure tours
- Mustang & Co, travel around the Bellarine and Geelong winery region with the top down in a 1966 Red Mustang Convertible
- Andy's Trails, Geelong's premium food and beverage day tours covering craft breweries, hidden wineries and award winning distilleries.

Greater Geelong is home to a wide variety of adventure or active tourism, utilising the natural landscapes and providing unique experiences such as snorkelling and diving on the Bellarine Peninsula, sightseeing boat tours, swimming with seals and dolphins, mountain biking in the national parks, sailing in Corio Bay, water skiing on the Barwon River and adventure flights, helicopter rides and skydiving opportunities.

1.8.   Public Administration and Safety Sector

Several factors have been critical to the revitalisation of both the Geelong central business district and the broader economy. Greater Geelong's growing specialisation in public administration is an important factor, especially in the categories of social insurance and correctional facilities. The public administration and safety sector is a significant employer in Greater Geelong providing 6,462 people with 5,623 jobs and in excess of $575 million in wages in 2016 (ABS, 2019a). Over 1,600 additional people gained employment in the sector over the last decade. In 2016, the sector supported an estimated annual output of $1.08 billion for the region (ABS, 2019a).

Social Insurance Innovation Cluster

The relocation of a number of Victorian and Federal government agencies to Greater Geelong, and the subsequent formation of a health and social insurance hub, was driven by a coordinated decentralisation policy approach to support economic diversification and the transition from an economy reliant on traditional manufacturing (**See Section 2.2, Decentralisation**).

The shift towards the establishment of the specialist health and social insurance hub began in December 2005 when the Victorian Government announced the relocation of the Transport Accident Commission (TAC) headquarters from Melbourne to Greater Geelong as part of the Government's $502 million Moving Forward statement and its commitment to growing regional economies. The TAC's Geelong headquarters opened in February 2009. The TAC's move to Geelong was the largest of any Government department or agency ever in Victoria and was completed on time and on budget. The TAC estimated that around 50 per cent of Melbourne staff were retained during the transition period. Between 2007 and 2017, the TAC recruited more than 200 employees from the Geelong region. At least 75 per cent of those recruited externally now live Greater Geelong. The TAC's relocation was estimated to have generated more than 850 jobs and $59 million per annum in benefit to Greater Geelong. There has also been over 200 local home purchased by TAC employees. In 2018 TAC had 921 employees.

In 2014 the National Disability Insurance Agency (NDIA) headquarters opened in the Geelong CBD. The headquarters generated around 450 direct jobs in total for Greater Geelong by 2019-20 and provided a $34 million boost to the local economy as the NDIS was fully rolled out. A new $120 million building was constructed to house the 560 staff responsible

for delivering the $22 billion National Disability Insurance Scheme (NDIS) to 460,000 Australians. During the same period, the Victorian Government relocated the WorkSafe headquarters and 700 workers to Geelong in 2017, providing a $50 million benefit to the area. This move cemented Geelong's reputation as a hub for personal injury and rehabilitation services and administration.

On the basis of this smart specialisation, Greater Geelong lobbied to accommodate further Federal Government insurance operations, including Comcare, from Canberra. Professional supply chain companies to the sector such as ICT, financial, legal and medical support and advice have also seen the advantages of establishing these headquarters in central Geelong. The Committee for Geelong, in its *Winning from Second* report argues that Geelong's quotient of workers in this sector is higher than elsewhere in regional Victoria and thus (Correia & Denham, 2016):

> "…although Geelong is not as intensely linked to the global financial and professional sectors as Melbourne, it is nonetheless supplying an important share of such higher order professional services…to the southwest of Victoria."

The relocation of government agencies continues to have significant positive impacts on Greater Geelong's ability to drive economic growth and create new highly skilled and sought after roles within the community.

Prison Precinct

The law and order agenda of various governments has seen growth in the number of people incarcerated in Victoria. As a result, existing prisons have had to be expanded and new ones built. Greater Geelong is home to the Lara Prison Precinct which includes Barwon Prison, Marngoneet Correctional Centre, Karreenga and the new Chisholm Road facility. The Precinct structure allows use of existing infrastructure such as road and public transport links and the proximity to local courts, bringing employment and adding another dimension of smart specialisation to the region.

Barwon Prison is the only Victorian maximum security prison located outside the Melbourne metropolitan area. Barwon was built to cater for demand due to the impending closures of HM Prison Geelong in 1991 and HM Prison Pentridge in 1997. Construction was completed in 1989 and the first prisoners were received in January 1990. In 2002 a $40 million expansion was announced. The new facility was built alongside the existing prison on Bacchus Marsh Road, near Lara. During construction 230 jobs were created, with the prison employing 200 staff once operational. In 2016 Barwon Prison was again expanded, with a $20 million state-of-the-art super maximum-security unit and a new 40-bed facility, creating more than 50 new jobs, including 42 permanent custodial staff. In 2019, a $1.8 billion Victorian Government investment in the Lara Prison Precinct will further expand Barwon's capacity to accommodate up to 640 prisoners by 2021.

The Victorian Government opened the Marngoneet Correctional Centre, an $80 million, 300-bed medium-security prison in the Precinct in 2005. This prison was expanded in 2013 (adding 40 employees), in 2014 (adding 24 more) and again in 2015 (another 120 jobs) contributing to further growth in public safety as a specialised sector. Karreenga, a new $100 million medium security facility, accommodating 300 protection prisoners and 151 staff opened in 2016 adjacent to the Marngoneet Prison.

A new maximum-security prison is currently being built in the Lara Prison Precinct. The prison, currently unnamed but referred to as Chisholm Road, will house up to 1,248 prisoners by 2022. The project is expected to deliver economic benefits worth $173 million to the Greater Geelong region, including more than 900 direct jobs and several hundred indirect jobs during the construction phase. 30,000 hours of work has been earmarked specifically for disadvantaged Victorians and $8.9 million worth of activities will be awarded to Victorians living with a disability. Aboriginal and Torres Strait Islander workers have also been allocated 120,000 hours of work on the project. Once operational, the prison will provide more than 650 ongoing jobs, including prison officers, psychologists, teachers, allied health professionals, administrators and maintenance staff.

1.9. Professional and Scientific Services Sector

Professional, scientific and technical services created 5,335 jobs, comprising 5.3 per cent of employment in Greater Geelong and generated an estimated annual output of over $1.4 billion in 2016 (ABS, 2019a). The sector paid an estimated $520.6 million in wages and salaries and gained 1,614 additional employees over the last decade. This is a large and diverse sector including scientists, accountants, advertising and marketing specialists, lawyers and solicitors, veterinarians, management and consultants, architects, photographers, engineers and computer system designers. This is a highly skilled workforce, with 84 per cent holding post-school qualifications. Professionals represent 58 per cent of this industry. Only 10 per cent of this workforce is aged 15 to 24 years old, reflecting the time it takes to attain the required qualifications. Whilst this sector represents a significant diversity of professions, the development of world leading biosecurity and data services are emerging as critical elements of Greater Geelong's smart specialisation in this sector.

Biosecurity and Infectious Disease

The CSIROs Australian Centre for Disease Preparedness (ACDP) (formerly the Australian Animal Health Laboratory (AAHL)) has become a vital part of Australia's biosecurity infrastructure. Officially opened in 1985, ACDP helps protect Australia's multi-billion-dollar livestock and aquaculture industries and the general public from emerging infectious disease threats (CSIRO, 2020). As one of only six global high-containment animal research centres, it is part of a global 'One Health' network, recognising that the health of people, animals and the environment are interconnected. ACDP works with international human and animal health organisations and its PC4 Zoonosis Suite is one of the most sophisticated high containment laboratories in the world, enabling collaborative research and response to the most lethal diseases, including COVID-19, Hendra virus, avian influenza and SARS. ACDP is unique for its capabilities to work with large animal species.

In 2015, a multidisciplinary collaboration between Deakin, Barwon Health and CSIRO's ACDP and the City of Greater Geelong saw the establishment of the Geelong Centre for Emerging Infectious Diseases (GCEID). The $10 million investment in the laboratories and research facilities are at the heart of GCEID's approach to infectious diseases and complement the work of ACDP to address the increasing health and economic threat of disease (including viruses) protecting population health, food safety and food security. The centre has been strongly supported by all levels of government and provides up to 30 ongoing jobs, creating additional opportunities through flow-on commercialisation of biotech innovations in the region. The GCEID benefits not only the local Geelong community in the form of jobs, but it builds on the biomedical expertise in the region, adds to Deakin University's and Barwon Health's world class offerings, and at a broader national and international level helps to protect the community and the economy.

Data and Artificial Intelligence

The Federal Government established the National Data Acquisition Centre (NDAC), a specialist arm of the Australian Bureau of Statistics (ABS) in 2016, centralising the collection of Australia's official statistics. The centre employs up to 300 people, including 180 full-time and 120 part-time staff. The NDAC is responsible for the collection of data for all business and household surveys. Staff in Geelong manage the collection of information from 26,000 households a month and acquire data from 100,000 businesses a year. The NDAC is housed within Deakin's Waterfront Campus and their ongoing partnership offers a solid foundation on which to build both the knowledge, health and research economy of the region.

The Applied Artificial Intelligence Institute (A²I²) is a Deakin University based research institute focussed on implementing safe, effective uses of Artificial Intelligence (AI) and explores new frontiers in AI and machine learning. A²I² began operations in January 2019. The industry focussed Institute was formed by merging the capabilities of two groups; PRaDA (Pattern Recognition and Data Analytics) recognised internationally for its ground breaking work in machine learning and pattern recognition and DSTIL (Deakin Software and Technology Innovation Laboratory) which transformed complex ideas into user-friendly software systems, including mobile and web applications. The Institute

supports both research and the practical application of AI, providing a range of transformational benefits in diverse fields such as health (including mental health and dementia), manufacturing, finance, and defence. With proven strength in commercialising research and working in partnership with industry, A²I² supports the development of innovative human-in-the-loop solutions that will ultimately create jobs and drive economic growth for the region.

1.10. Transport Sector

Greater Geelong is a major Victorian transport hub for south east Australia and has strong links with Victoria's wider transport networks. The transport network consists of road, rail and bus lines, active transport including bicycle and walking infrastructure and, as a clear point of regional specialisation, Victoria's second largest port and airport.

In Greater Geelong the sector employed 4,424 people to undertake 3,672 jobs (3.65 per cent) in diverse professions such as transporting passengers via taxi, ride-share services and luxury car hire services; transporting passengers and freight by road, rail, water or air; postal, courier pick-up and delivery services and scenic and sightseeing transport (ABS, 2019a). A significant number of jobs were added over the past decade, with over 646 extra people employed by the sector between 2006 and 2016 (ABS, 2019a). As the tenth largest sector, it supports an estimated annual output of $1.139 billion, 3.63 per cent of total output, and accounted for over $255 million in wages and salaries. The sector favours small business operators with most businesses having under twenty employees. In 2019 small transport businesses were thriving in Greater Geelong. Over 350 of the 1,300 new businesses that opened were in the sector, representing a 28.3 spike for the year. This was largely due to an increase in ride sharing and parcel delivery contractors.

Geelong Port

The Port of Geelong, commercially operated by GeelongPort, is an economic linchpin for Greater Geelong as the largest bulk cargo port and regional port in Victoria. The Port has grown significantly over 150 years and has 15 berths across Corio Quay and Lascelles Wharf precincts. The major port customers include Viva Energy Australia, Midway Limited, Incitec Pivot Limited, Boral Limited and Terminals Pty Ltd. Primary cargo includes petroleum products, bitumen, Avgas, fertiliser, woodchips, phosphate rock, timber, steel and paper. A majority of shipping movements relate to the transfer of bulk liquids from the nearby Viva Energy refinery. The Port of Geelong manages approximately 25 per cent of Victoria's total trade, including 50 per cent of the state's fuel supply, with more than 600 vessel visits a year generating $7 billion for the economy and 1,800 jobs. Privatised in 1996, GeelongPort is owned by SAS Trustee Corporation (STC) and Brookfield's LINX Cargo Care Group, with 50 per cent ownership by each party at a unit trust and operator level.

GeelongPort has reached an agreement with TT-Line Company to relocate the Victorian port home of the Spirit of Tasmania vessels, from Station Pier in Port Melbourne to Corio Quay in 2022. A dedicated, large scale passenger and freight terminal is required to allow the Spirit of Tasmania to dock. The new 12-hectare facility will include a passenger vehicle marshalling area, passenger vehicle check-in, security facilities, public amenities, crew accommodation, a cafe, children's play area and a pet exercise area. The project is expected to generate up to 75 construction jobs over the two-year build program, whilst increasing tourism expenditure in the City by up to $174.1 million by 2029. It is an important investment that will increase freight and exports as well as jobs and tourism not only in Geelong, but also across Victoria more broadly.

GeelongPort expects significant additional growth during the next 15 years, further strengthening the port's economic importance to the region, state and nation. With trade expected to increase by 50 per cent by 2035 to 18 million tonnes of imports and exports, the Port will contribute significantly to infrastructure and the region's prosperity, generating 3,100 jobs and strengthening its position as a leading employer in Greater Geelong. The existing shipping channel depth restricts vessels to loaded drafts between 10.8 and 11.9 metres and maximum width of 45 beam. This does not allow access for fully-laden Panamax bulk carriers, a competitive disadvantage. Improving channel capacity will unlock supply chain

benefits to current users and improve the viability of future trade options, though this would involve a multi-million dollar investment.

While GeelongPort manages wharf and land-side infrastructure, the Victorian Regional Channels Authority (VRCA) is responsible for channel management and safe and efficient movement of shipping in port waters, providing direction and control of the movement of ships, and maintaining shipping channels and navigation aids in and around Geelong and Hastings.

Air Transport

Avalon Airport's geographic location between Melbourne and Geelong makes it both a capital city airport and an exceptionally well-equipped regional airport, servicing a large catchment in western Victoria and providing connections to significant tourism destinations such as Geelong, the Bellarine and the Great Ocean Road. The airport is privately owned and operates as a commercial venture. The Avalon Airport international terminal and other retail/commercial services are budgeted and accounted for through private investment.

Avalon has experienced strong domestic growth, with passenger numbers 66 per cent higher between 2014 and 2018. Jetstar has committed to operate from Avalon Airport, with an agreement that will see passenger services expand over coming years. As part of the agreement, Jetstar operates seven services per day and flies to three destinations. After being reclassified as a regional airport in 2016, Avalon Airport was able to further expand services and fly internationally. Air Asia signed a 10-year deal with Linfox Group and launched its first international services from Avalon Airport in December 2018, providing twice daily flights to Kuala Lumpur bringing 500,000 passengers in the first year. To accommodate this, Avalon constructed a new $50 million, 7,000 sqm terminal with Australian Border Force and Quarantine services. Since then, a second international destination has been established, with Citilink flying to Bali from January 2020. VietJet Air also announced they would begin flights from Avalon to Vietnam in the second half of 2020. As a consequence, the airport aims to further expand both its domestic and international passenger operations, which will provide significant economic benefits to the region and expand employment opportunities from the current base of 653 full-time equivalent staff. Avalon is also looking to expand freight operations focusing on high-value export trade. Air Asia is expected to carry 1,000 tonnes of freight annually. This is an enormous opportunity for the region's producers seeking to export into Asia.

Avalon Airport has additional expansion opportunities. To help diversify its operations and attract external investment, the Avalon Airport Master Plan was prepared by Avalon Airport Pty Ltd in September 2015. In 2016 the Victorian Government invested $1.5 million from the Regional Jobs and Infrastructure Fund to help develop a 40 hectare industrial and commercial jobs hub adjacent to the airport. In 2017 Linfox and the Cotton On Group invested $40million to create the bespoke 35,000 sqm distribution centre. By 2026, the entire project is estimated to create in excess of 750 direct jobs on site and up to 1,100 indirect jobs with the development of a new international terminal, airfreight terminals, improved utilisation of existing maintenance facilities and infrastructure, a residential hotel, recreational and sporting facilities as well as retail, warehousing and commercial facilities.

1.11. Energy, Water and Waste Sector

The electricity, gas, water and waste services sector is a relatively small employing industry. In Greater Geelong the sector grew over the last decade to employ 1,308 people in 1,316 jobs in 2016, representing 1.3 per cent of employment in region (ABS, 2019a). Employment in this sector is slightly higher than it was five years ago due to strong growth over the last two years. The sector contributes an estimated annual output of $1.1 billion (3.69 per cent) and is a significant exporter for the region, generating $333.8 million (4.16 per cent). It is the tenth largest value added contributor to Geelong's economy. In Greater Geelong the two largest employers in this sector are Barwon Water and Powercor, employing 313 and 207 FTE respectively in 2018. This is a sector focussed on transforming water and energy needs. Given

adequate investment, it is at the beginning of the transition process. Broadly, there is a significant opportunity to innovate water delivery and to develop a lower-carbon energy supply with natural gas, clean energy projects and development of cleanTech. It is emerging as a potential specialisation that could be transformative in practice.

Geelong Energy Hub

Viva Energy is one of Australia's leading energy companies with more than 110 years of operations in Australia. Viva refine, store and market specialty petroleum products across the country and are the sole supplier of Shell fuels and lubricants in Australia. In 2019, Viva supplied approximately a quarter of Australia's liquid fuel requirements to a national network of retail sites and directly to commercial
customers. They operate a nationwide fuel supply chain, including the strategically located Geelong Refinery, Lara LPG facility, Newport terminal, an extensive import, storage and distribution infrastructure network, including a presence at over 50 airports and airfields.

The Viva Energy's Geelong Refinery is Australia's second-largest refinery, and by the end of 2020, will by one of only three refineries remaining in Australia. It supplies over 50 per cent of Victoria's and 10 per cent of Australia's fuel, employing around 700 people. The refinery is one of the few in the Southern Hemisphere that produce avgas, which is used by piston engine planes. It produces bitumen, and solvents used in mining, paint and adhesives. It also provides feedstock for the Lyondell Basell polypropylene plant, which is located within the refinery. Viva Energy recently invested $1 billion in the business over five years and approved the construction of a new $50 million super crude tank. Geelong is also seen as an ideal site for additional crude and product storage and meets calls by the Federal Government to have oil reserves in Australia.

To support the transition to a lower carbon energy future, Viva Energy recently announced it aims to transform the Geelong Refinery into an Energy Hub to support the energy needs of Victoria and South East Australia. The Geelong Energy Hub is expected to support the energy transformation currently underway while helping to underpin the future viability of the Geelong Refinery, protect local jobs and generate new jobs and skills in Geelong. The 235-hectare development, now in its final design stage, is expected to increase the supply of natural gas and lead to initiatives such as hydrogen production and gas-powered electricity generation. The Liquefied Natural Gas (LNG) regasification terminal is at the centre of the Energy Hub providing a cost-effective method to bring additional gas to the market and meet an expected supply shortage from 2023. Viva supports natural gas as the transition fuel to provide base load power as coal generation declines, as well as provide firming capacity to support renewables as they come on-line. In addition to the LNG facility, the Geelong Energy Hub would include solar energy farm, hydrogen and alternative fuels manufacture and development of strategic oil storage to support fuel supply security.

Renewable Energy

Vestas, a global energy company and a leader in manufacturing wind turbines, established a renewable energy hub at the former Ford Geelong plant in 2019. The Vestas Renewable Energy Hub (VREH) is assembling 100 turbine hubs and 50 drive trains for the major wind farm developments at Berrybank, about 80km west of Geelong, and Dundonnell, near Mortlake (Geelong Advertiser, 2019b). The two wind farms are supported by the Victorian Renewable Energy Target Reverse Auction. The VREH includes a support centre and a specialist facility to house the largest turbine spare parts repository in Greater Geelong, making wind turbine assemblies in partnership with local manufacturers such as Marand Precision Engineering.

The VREH is also building a Service, Logistics and Training Centre in Grovedale that will service the growing turbine fleet across western Victoria and house major wind turbine components (Geelong Advertiser, 2020a). To support and expand the Victorian renewable energy sector, hundreds of local staff will be trained in wind turbine maintenance through a partnership with Federation University, while a research partnership with Deakin University's Carbon Nexus, through the

Wind Carbon Research Partnership, will assess the next generation of carbon fibre specifically for use in wind turbine blades. Vestas has also signed an agreement with GeelongPort to use its shipping facilities and 40,000 square metres of laydown area located at Corio Quay South. The Hub is expected to create 25 new local jobs in Geelong and inject up to $3.5 million into the local economy.

The Vestas investment follows construction of Acciona's $258 million Mt Gellibrand wind farm, fast-tracked in 2017 through an early Victorian Government tender designed to reboot renewables investment in Victoria. In 2018, 44 turbines came online with energy production at full 132 MW capacity. The construction workforce peaked at over 150 jobs, with approximately ten ongoing full-time equivalent positions. Mt Gellibrand is Acciona Energy's fourth wind farm in Australia, after Cathedral Rocks, Waubra and Gunning. Australia ranks fourth in the company's portfolio of wind assets after Spain, the USA and Mexico. In 2019, Viva Energy entered into a Power Purchasing Agreement (PPA) with the Acciona wind farm near Colac, which effectively supplies around a third of the Geelong Refinery's electricity needs.

Renewable energy company Neoen is installing a 300 megawatt Tesla battery at Moorabool, near Geelong. Its main role is to improve energy reliability in summer, feed power into the grid when it is unstable in order to stop blackouts and drive down electricity prices. The Victorian government has an $84 million contract with Neoen for the project. A review by consultancy firm Aurecon found a similar Tesla battery had saved South Australian consumers more than $150 million since it was built in 2017 (Aurecon, 2019).

Renewable Energy Education and Research

The current global energy system is undergoing rapid transformation, with a focus on using renewable energy to improve sustainability and economic growth of our communities. To meet this challenge, Deakin University established Deakin Energy in 2017. In partnership with AusNet Services and Mondo Power, Deakin have recently completed construction of a $23 million 7.25MW Renewable Energy Microgrid, including solar farm and battery storage system, located on the Geelong Waurn Ponds Campus. The Microgrid is an opportunity to undertake critical research and provide guidance and leadership to industry and communities for future energy system development. It delivers a broad range of benefits to Deakin, the energy industry and wider community including;

- **Sustainability:** supplying 60 per cent of the Waurn Pons Campus' energy needs, and assisting Deakin to achieve its aspiration to be carbon neutral by 2025.
- **Education:** supporting education and training of community and energy professionals
- **Research:** building Greater Geelong's research capacity through long-term research programs and partnerships.

The Renewable Energy Microgrid has been designed for the future with provision for emerging technologies including hydrogen, electric vehicle integration and demand management automation.

The Australian Research Council Training Centre in Future Energy Storage Technologies (storEnergy) was created with $4.4 million funding from the Australian Research Council (ARC), and a further $6.7 million from industry and Deakin University partners to train and skill the next generation of workers within the energy industry. Led by Alfred Deakin Professor Maria Forsyth, the storEnergy Training Centre aims to challenge existing thinking and expand Australia's capacity in energy storage and production. The centre is creating new knowledge and intellectual property in advanced energy materials, batteries and battery-control systems for integration into end user industries. Working with eleven organisations across government and industry and five Australian universities, researchers at the centre are facilitating small to medium-sized enterprises to take global leadership in advancing and producing new age energy storage technologies. By harnessing the expertise of researchers and industry partners, including CSIRO, DST Group and Cidetc, the storEnergy centre is delivering benefit to the Greater Geelong economy, the community and the environment.

Addressing Water Shortages

Addressing water shortages and maintaining water supply is integral to the current and continued economic, cultural, environmental and social wellbeing of Greater Geelong. The changing climate is having a direct impact on the region's water supply, and since 1997 there has been a marked reduction in the amount of water being captured in local reservoirs. Additionally, hotter weather and less rain is driving up demand for water in our region. Barwon Water, the region's water corporation, is increasingly focussed on the safe and environmentally responsible delivery of services.

Barwon Water has invested significantly to expand and diversify the portfolio of water sources contributing to Greater Geelong's water supply system. In addition to water efficiency measures, alternative water sources play an important role in contributing to secure water supplies. For example, rainwater, stormwater and recycled water form an important part of a 'portfolio' of resources, particularly in areas of new urban development. The Black Rock Water Reclamation Plant provides recycled water to Armstrong Creek. Recycled water delivered to the Viva Energy refinery in Corio from the Northern Water Plant also saves more than 5 per cent of Geelong's current water demand. Fit-for-purpose recycled water from local water reclamation plants is used for irrigating golf courses, tree plantations and horticultural and agricultural crops. Barwon Water are also investigating the potential for indirect potable reuse to fully utilise this resource in the longer term. Barwon Water has commenced an extensive community consultation, the *Water for our Future* program, in advance of investment to develop a shared community vision, principles and goals for the region's water future.

1.12. Creative Industries

Greater Geelong has a thriving creative industries sector that champions new ideas and innovative practices. Highly skilled creative practitioners are drawn to Geelong with its vibrant economy, unique lifestyle and diverse cultural attributes. Creative value-chains generate considerable economic wealth and are sources of growth and jobs, benefiting local communities, regions and states. They are critical to a shared sense of identity, culture and values, playing a key role in the strengthening of social cohesion.

It is difficult to access specific and accurate data on the size and value of the creative industries sector in Greater Geelong. This is because creative occupations are spread across many ANZSIC data categories including information media and telecommunications, education and training, manufacturing, professional, scientific and technical services, and arts and recreation services (Walker, 2018). In *Creative Industries Environmental Scan* (2018), Walker estimated the creative industries sectors in the G21 region contributed around $2.1 billion (5.9 per cent) annually to overall regional output, and employed 9,127 people in 2017 (7.3 per cent of the workforce), a 16.4 per cent increase from 2015 (Walker, 2018).[6] This has contributed $629,364 million (up from $88.419 million) to overall wages and salaries. In Greater Geelong there were approximately 2,000 creative businesses in 2016. These include publishing and internet publishing, computer systems design, motion picture and sound recording, arts, broadcasting, heritage, creative and performing arts, printing, library and information services.

The impact of job creation in this sector was also analysed by Walker (2018) using REMPLAN data to model the impact of the creation of ten, twenty and one hundred jobs in the information and communications technology sector as an example of the contribution that growth in the creative industries can make to the regional economy. For every ten jobs created in the creative sector, REMPLAN estimates that the demand for intermediate goods and services would rise by $1.890 million. The creation of ten additional jobs will result in a rise in wages and salaries, which leads to increased consumption, estimated at $1.326 million. The increase in purchases of goods and services is estimated to have a direct gain of an additional six jobs, whilst six extra jobs are expected to be created to service the increased consumption. The

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[6] 'Cultural and creative activity' includes the arts, media, heritage, design, fashion, and information technology sectors. We were unable to identify a comparative breakdown for the Greater Geelong Region.

total estimated value-added is $3.429 million. The total estimated value-added of 20 and 100 jobs created is $6.859 million and $34.293 million, respectively. The latter would also create 217 new jobs. Even a modest growth of ten jobs, then, can have a significant impact on the regional economy and labour market.

UNESCO Creative City of Design

Greater Geelong has a long and proud history as a creative city and a leader in design. On 31 October 2017 Geelong was designated a member of the UNESCO Creative Cities Network (UCCN). The City of Design designation is about using creativity and innovation to build more sustainable, resilient and inclusive communities. The UNESCO Creative Cities Network (UCCN) was created in 2004. The aim of the network is to make creativity an essential driver for sustainable urban renewal and development. Today, the network comprises of 246 global cities who have committed to placing creativity and cultural industries at the heart of their development plans at the local level and cooperating actively at the international level (**See Section 2.3, Community Leadership**). The UNESCO designation aligns with the City for Geelong's 30-year, community-led vision to be internationally recognised as a clever and creative city-region (CoGG, 2017):

> "By 2047, Greater Geelong will be internationally recognised as a clever and creative city-region that is forward looking, enterprising and adaptive, and cares for its people and environment."

Greater Geelong's unique creative heritage, natural assets, people strengths and design-driven future are showcased during Geelong Design Week. The annual event includes a range of workshops, exhibitions, performances, screenings and pop-up installations at venues across the City of Geelong.

Geelong Cultural Precinct

Greater Geelong's Cultural Precinct is an integral part of the Geelong community and major drawcard for the area. The Geelong Cultural Precinct, a hub for arts and culture activities and businesses, includes the Geelong Library and Heritage Centre, the Geelong Arts Centre, Geelong Gallery, Back-to-Back Theatre, Old Courthouse Building and Johnston Park. The Precinct is supported by a sophisticated arts and creative sector. The local creative leaders have the capability to create, manage and redevelop world-leading cultural services and venues, demonstrating experience and talent across the value chain.

Ensuring Geelong's iconic Cultural Precinct meets future growth demands, and features prominently in the Geelong landscape, is an important priority. A significant revitalisation of the Cultural Precinct began over a decade ago, funded by the three levels of government. The major overhaul of the 750-seat Playhouse Theatre in the Geelong Arts Centre was completed in 2010. The refurbishment of the Old Courthouse Building was completed in 2011 and the Geelong Library and Heritage Centre opened in late 2015. The Ryrie Street works for the Geelong Arts Centre was finished in late 2019, while the redevelopment of the western section of Little Malop Street will commence in 2020. Funding is still required to fully realise Stage 3 of the Arts Centre's Master Plan, to redevelop the Geelong Gallery and for work on the public realm.

By improving access to and participation in the arts, the redevelopment of the Geelong Culture Precinct and cultural assets aims to inject over $30 million to Gross Regional Product (GRP) annually and increase local output by more than $65 million annually (direct and indirect impacts). It is expected to create 390 local ongoing jobs after completion and support almost 700 jobs during construction. Because the Cultural Precinct is a unique and distinctive artistic facility it attracts a greater diversity of quality productions, creates a home for artists and draws in both domestic and international tourists. The upgraded Geelong Library and Heritage Centre provides compelling evidence of the positive impact the redevelopment is having on the Precinct. In both full financial years of operation (2016-17 and 2017-18) since opening in late 2015, the Geelong Library and Heritage Centre recorded half a million visitors (growth of about 209 per cent since the rebuild). Geelong Gallery also experienced increased visitation of around 35 per cent with the Library expansion, which reflects keen interest in the Gallery's new exhibition space and flow-on from increased

pedestrian traffic in the precinct. Growth in the creative arts sector does not only enhance the attraction of the region to tourists and provide jobs directly, but through its activities, the sector provides the high level attractions needed to attract, engage and hold the new professional service workforce the region is attracting.

In summary, usually a distinction is made between specialisation and diversification when characterising the sector structure of an economy. However, Greater Geelong is a model of diversified specialisation. It has a strong and diversified economy as well as specialising in many sectors. Several sectors profit from both, localisation advantages well as urbanisation. Their advantage lies in a diversified sector structure which fosters cross-sectoral spill overs and lessens the impact of sector-specific demand disruptions on the regional economy.

2. Why is Geelong Resilient?

Despite a history of economic shocks and major shifts in economic structure, in 2019 Greater Geelong was the fastest growing regional city: at 2.7 per cent, its population inflow was eclipsing that of Greater Melbourne which had the largest growth of all capital cities (id.profile, **Figure 7**). While there were national economic challenges, severe bushfires and low consumer confidence by the end of 2019, across Geelong there were numerous cranes on the skyline as waterfront apartment and hotel developments proceeded apace, the health sector was large and growing its specialist capacity and Deakin University had its best year ever. The diversified economy had key specialisations in each sector where there was strong and growing employment: health and social assistance, education, public administration and safety, professional, scientific and technical, retail and accommodation and food services, with construction helping it all happen. The question is, what was enabling this regional economic resilience?

There is no denying that Geelong's location, on a port, close to spectacular and well-regarded beaches, has been an advantage, as have its historical connections to the Western District agricultural region. The City of Greater Geelong's commitment to quality education, health services and civic institutions, such as the Art Gallery and the Geelong Arts Centre, has underpinned its more recent development. But many of these sectors and institutions are shared by other towns and cities across Australia, so explaining Greater Geelong's resilience goes beyond these historical and contextual elements.

Figure 7: Population Change in Numbers and Rate from 2007–2019

Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented by .id the population experts
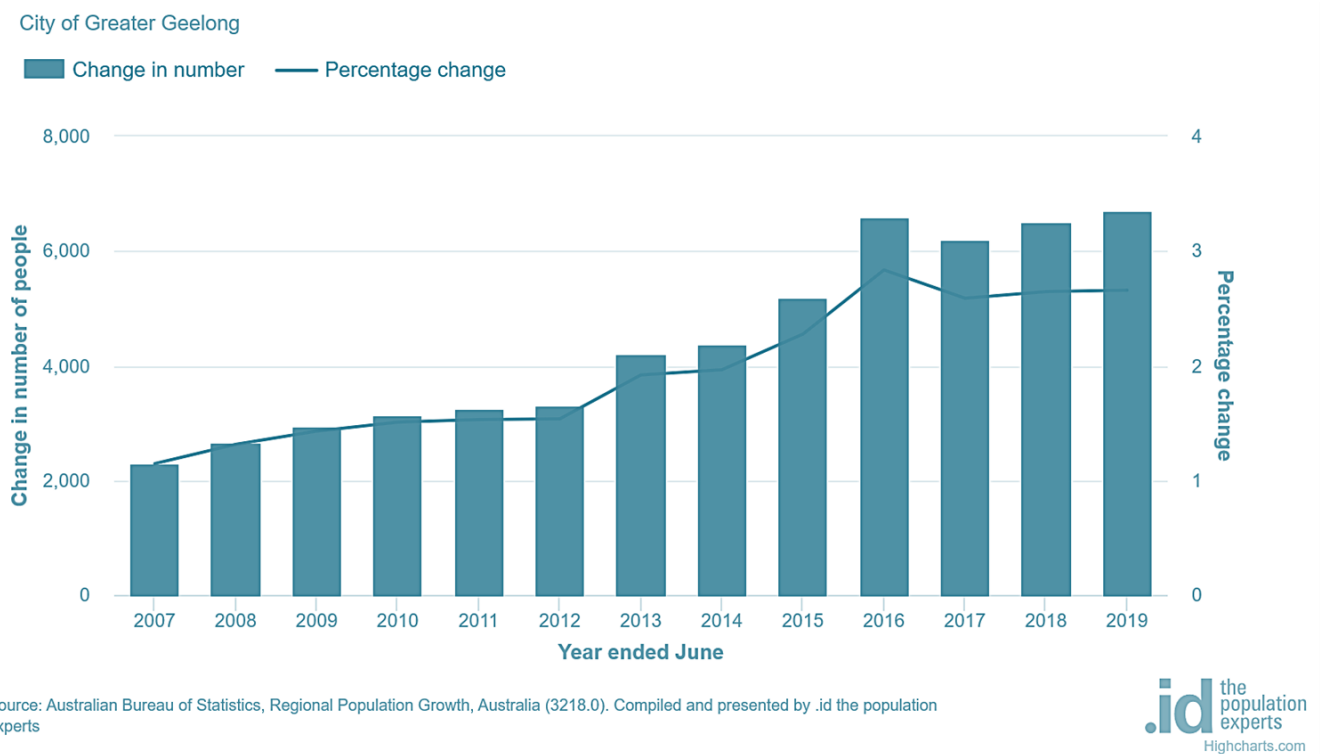
Source: Id.profile

Enablers of Resilience

Regional resilience not only reflects the pure economic characteristics of a region or its institutions, but also relies on the interplay of social-demographic and community factors. The economy cannot function without individuals working as a

community to achieve social outcomes. The better a region is able to collectively enhance economic, social-demographic and community resources, the more likely it will be to withstand adversity and bounce back in the shortest time possible (Rynne, 2015). After studying the Australian Bureau of Statistics (ABS) data, academic and grey literature, as well as details from the *City of Greater Geelong Regional Economic News Summaries*, it appears there are three key enablers for Greater Geelong's regional resilience:

- **Population growth:** With a population of over 258,000 people, the Greater Geelong is Victoria's largest regional centre and is growing at rate of 2.66 per cent, faster than both Victoria and Greater Melbourne. Geelong's population is changing, not just in size, but the demographic profile continues to shift and diversify.
- **Government policy:** In addition to critical road, rail and broadband connections, the policy directions that governments choose to take can impact regional resilience. Collaboration between the three tiers of government has been pivotal for Greater Geelong to absorb, adapt and transform, as well as mitigate some of the negative effects of economic disruptions. There are four areas of government intervention that have had significant impact on outcomes: inter-regional migration, decentralisation policies, incentives and investment as well as individual assistance for workers in need.
- **Community leadership:** Local organisations play an important role by collaboratively pursuing a shared vision, in systematic ways, often with government support. Major players include G21 – Geelong Region Alliance, the Committee for Geelong, the City of Greater Geelong Council, Geelong Manufacturing Council, The Gordon, Deakin University, the Geelong Football Club, Give Where You Live and Avalon Airport.

2.1.   Population Growth

The City of Geelong recorded a population of 201,495 in 2006 rising to an estimated resident population of 258,934 in 2019 (**Figure 8**) (profile.id, 2020).[7] Population growth has been concentrated most heavily in suburban Geelong, as well as Lara and Leopold and the Bellarine Peninsula.

Figure 8: Estimated Resident Population (ERP)
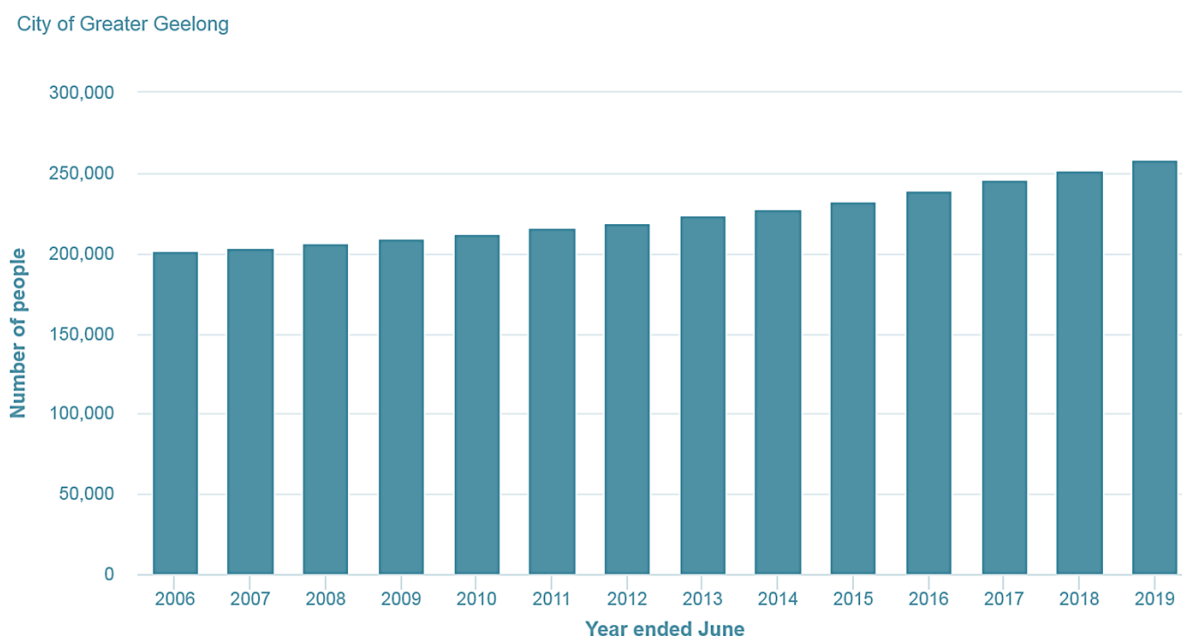
Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented by .id the population experts
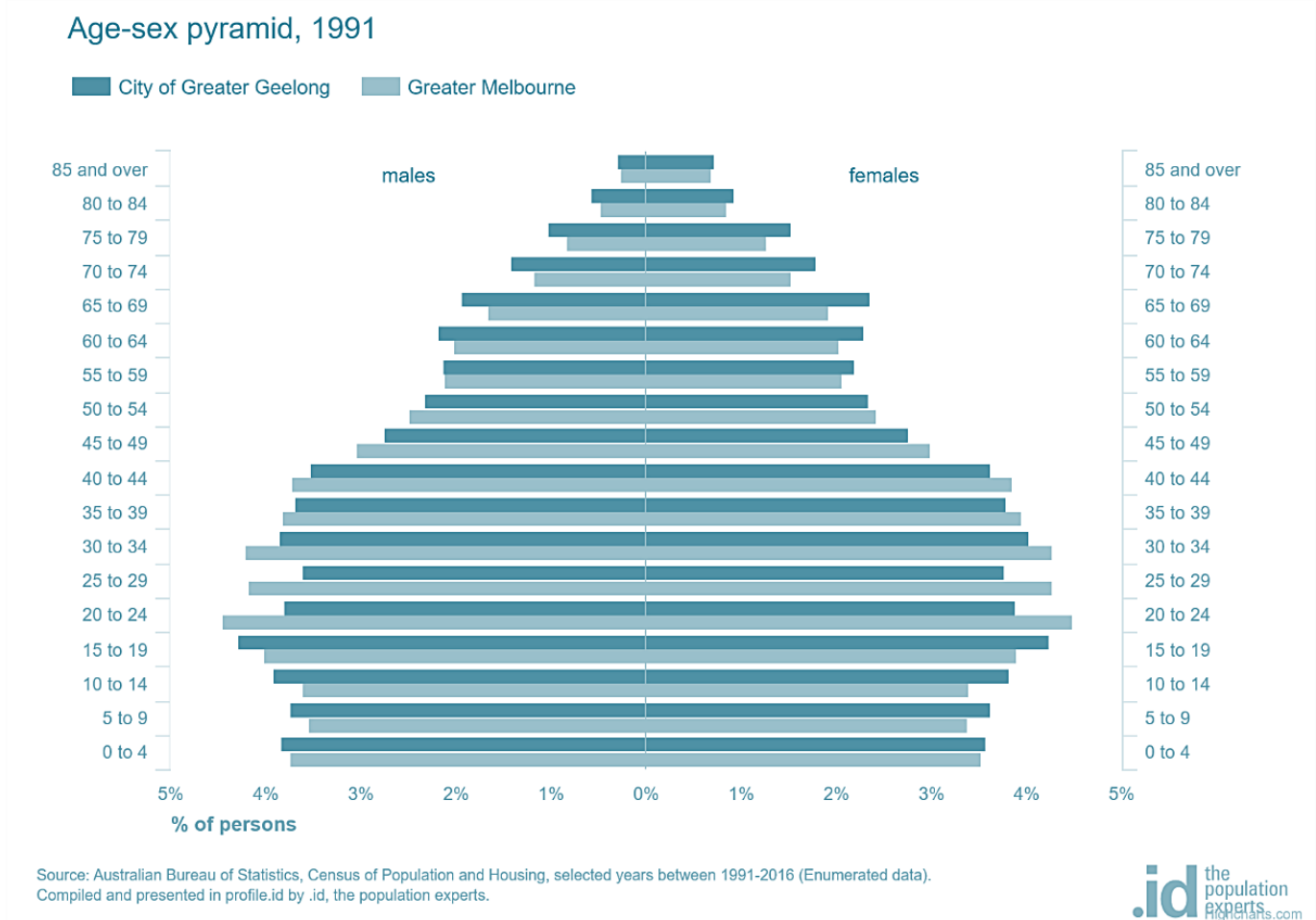
Source: id.profile

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[7] The population estimate for the City of Greater Geelong as of 30 June 2019 is 258,934. Since the previous year, the population has grown by 2.66 per cent. Population growth in Greater Melbourne was 2.29 per cent. https://profile.id.com.au/geelong/population-estimate

Greater Geelong had a relatively stable population for much of the 1980s, with a growth rate averaging 1.4 per cent per annum. However, the impact of the late 1980s crash and early 1990s recession saw the population growth rate plummet and even go negative (-0.1 per cent) in 1993-94. This drop didn't last long, over the next ten years this trend reversed and the population grew more rapidly than at any time over the last twenty five years. By 2013 the population was 223,357 and growing at a rate of 1.9 per cent. By 2016 the growth rate peaked at 2.8 per cent making the region one of the fastest growing regions in Victoria with stronger population growth than all other regional municipalities combined (ABS, 2019c). In 2019 the Greater Geelong's population was still growing at 2.66 per cent. Over the last five years in particular, population growth has reached an unprecedented level. The City's population in 2019 is growing at a rate higher than Victoria (2.07 per cent), Greater Melbourne (2.29 per cent), the G21 region (2.57 per cent) and regional Victoria (1.37 per cent), although this growth is still less than the fast growing municipalities in Melbourne's outer suburban growth areas. For future growth, the latest estimates project an annual growth of 2.5 per cent, resulting in an additional 152,600 people who will be calling the Greater Geelong home by 2036.

Geelong's population is changing, not just in size, but the demographic profile continues to shift and diversify (id.profile, **Figures 9 and 10**). At one end of the spectrum Greater Geelong has an ageing population with people aged over 65 years of age predicted to increase by 43.7 per cent by 2021 (Remplan, 2020). At the other end of the spectrum, birth rates have increased significantly over the past 10 years and the population of young children is expected to continue to grow. Changes in the age structure are important because a significant amount of service provision is age dependent. This presents demands and opportunities for particular forms of migration, infrastructure and development of growth areas. Culturally and linguistically diverse communities also continue to grow.
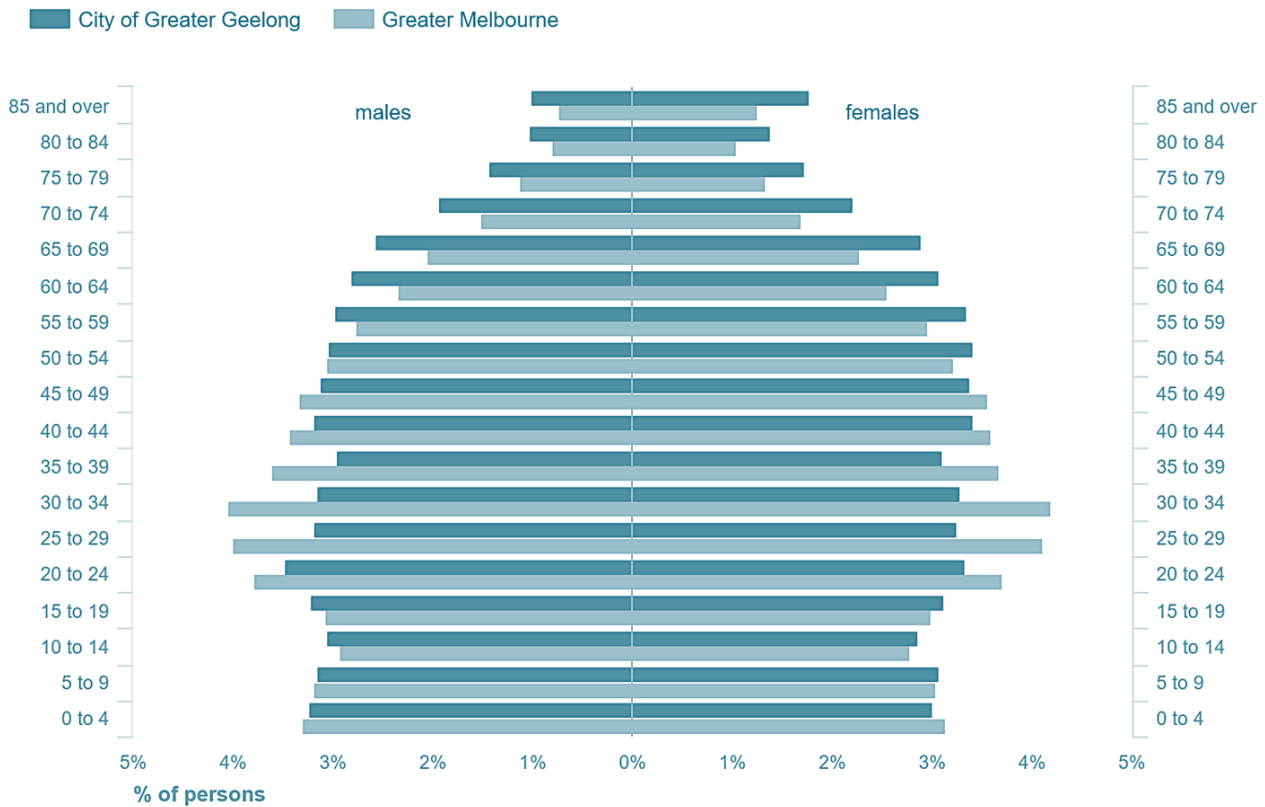
Figure 9: Population Structure of the City of Greater Geelong, 1991

Source: id.profile

Figure 10: Population Structure of the City of Greater Geelong, 2016

Age-sex pyramid, 2016

■ City of Greater Geelong ■ Greater Melbourne

Source: Australian Bureau of Statistics, Census of Population and Housing, selected years between 1991-2016 (Enumerated data).
Compiled and presented in profile.id by .id, the population experts.

Source: id.profile

Growth Areas

Greater Geelong's close proximity to Melbourne, combined with affordable housing and a high standard of living, makes the area an attractive residential development expansion zone (CoGG, 2015).

The Armstrong Creek Urban Growth Area is the largest contiguous growth area in Victoria, consisting of 2,500 hectares of developable land, and is one of the largest growth fronts in the country. Land sales commenced in late 2010, and in March 2012 Armstrong Creek and Charlemont officially became suburbs of Geelong. The Victorian Government has recognised the importance of the growth area in accommodating the unforseen levels of population growth in Victoria. As of 2019, the population of Armstrong Creek was around 15,000. With investment in hard and soft infrastructure projected to inject up to $10.5 billion into the regional economy (Compelling Economics, 2011), the Armstrong Creek Urban Growth Area is expected to accommodate 22,000 homes for 60,000 residents by 2030, providing up to 24,000 local jobs directly and another 25,000 indirectly.

Two additional growth areas are being delivered across the region to accommodate strong population growth. The Northern Geelong Growth Area, located in Lovely Banks, will accommodate 17,000 homes on 2,100 hectares to Geelong's north. It will include neighbourhood activity centres, private and public schools, improved transport and services infrastructure, and provisions for active transport. The Western Geelong Growth Area, located near Batesford, will accommodate another 23,000 homes on 3,200 hectares to Geelong's west. It offers similar infrastructure and strong connectivity to Geelong, Ballarat and Melbourne, with its proximity to the Midland Highway.

Combined, the Northern and Western Geelong Growth Area is the largest urban growth project in regional Victoria with the potential combined capacity to accommodate 110,000 residents, equivalent to the current size of Ballarat. The scale and long-term nature of the projects means there is opportunity to create diverse and vibrant new urban communities that will enhance Geelong's identity as well as support a rapidly growing population.

2.2. Government Policy

The policy directions that governments choose to take can be critical for enabling or disabling regional resilience. The local, Victorian and Federal Governments have worked closely with the community, in an often coordinated and bipartisan manner. These collaborations and partnership have been pivotal for Greater Geelong to absorb, adapt and transform, as well as mitigate some of the negative effects of economic disruptions. In addition to the necessary investment in efficient connectivity, road, rail and fast broadband links between Geelong and Melbourne, there are four areas of government policy that have had a significant impact on Greater Geelong outcomes:

- inter-regional migration
- decentralisation
- incentive and investment
- individual assistance.

Government policy in Greater Geelong has also been significantly influenced by the fact that the electorates at the State and Federal level have, over their history, been hard fought or become critical marginal seats.

Inter-Regional Migration

There are many factors that attract people to places. Education, employment, family, amenity and lifestyle all influence personal choices about where to live. In Greater Geelong, migration brings new residents with a wide range of skills and experience into the community. Government inter-regional migration policies have played an important role in the regional labour market, expanding the workforce, rejuvenating industries, and generating new businesses and jobs. Well planned and thoughtful regional development relies on the ability to meet the needs of employers seeking to fill positions with qualified people.

Over the five years from 2011-2016, close to 5,000 people per year migrated into Greater Geelong. During the previous 15 years (from 2001-2016) the figure was only 3,000 per annum. Of the people who moved into Greater Geelong each year from 2011-2016, over half were from various parts of Melbourne. The diseconomies of Melbourne, especially soaring house prices post the Global Financial Crisis, pushed metropolitan residents to consider Greater Geelong as an alternative. There was also in-migration from the regions around Geelong. A quarter of those were from the hinterland areas of Surf Coast and Colac-Otway and another quarter from the regional cities of Ballarat, Bendigo and Shepparton (Profile.id.com.au, 2018). This suggests both the existence of job opportunities, as well as the improved attractiveness of a city that has invested in its environment and creative economy: in waterfront renewal, in its key arts organisations, in its night-time economy and in cultural activity. In turn, these new residents gained employment in the expanding service sectors and commuted back to Melbourne as infrastructure investments brought Greater Geelong and Melbourne closer in terms of travel time, cost, reliability and convenience. Richard Florida (2001) would consider many of these new migrants members of the creative class, attracted to both the lifestyle and work opportunities in the service sector (health, education and community services) along with the arts themselves. These people also build homes, adding to demand for everything from new housing construction to retail, education, health and food.

The Victorian Government has supported inter-regional migration to Victorian regions with incentives including the doubling of the First Home Owner Grant for new homes valued up to $750,000, bonuses to reduce the costs of stamp duty and $10,000 attraction grants for workers. Because the key to regional development is not only population inflow but facilitating economic development and corporate investment, the relocation of businesses has been incentivised with

payroll tax exemptions and grants through the Regional Jobs Infrastructure Fund (RJIP) program, managed by Regional Development Victoria (RDV). For corporate organisations wishing to decentralise a range of financial incentive programs are available.

Decentralisation

Greater Geelong is a successful case study for the benefits of government decentralisation policy. After the well planned and successful relocations of the Traffic Accident Commission (TAC), National Disability Insurance Agency (NDIA) and WorkSafe Victoria, Greater Geelong has emerged as a national hub for health and social insurance organisations. By establishing a social insurance ecosystem these key organisations provide opportunities for increased specialisation excellence and synergistic collaborations across the sector, ensuring Greater Geelong becomes the global leader in the health and social insurance (RJIP, 2017).

Decentralisation policy refers to establishing or relocating public (and private) sector jobs and functions from metropolitan capital cities to regional or rural areas. As a strategy to support regional and rural towns, decentralisation seeks to create sustainable employment opportunities as part of a broader strategy to achieve more balanced growth and support economic diversification and prosperity in these areas. In announcing a renewal of the Federal Government's decentralisation policy, the then Minister for Regional Development, Senator the Hon Fiona Nash said (Nash, 2017):

> "Moving government functions to the regions means more people in our towns, more customers in our shops, more students in our schools, and more volunteers for the local fire brigade.
> … It's important for government to lead by example and invest in rural, regional, and remote Australia, creating long-term careers and breeding confidence in those communities…"

In addition to improving regional and rural access to government jobs, decentralisation policies ease pressure on capital cities and provide public servants with better access to affordable housing and other community and lifestyle benefits.

The economic impact of relocating the government agencies to Greater Geelong has been significant for both the area and the state. Firstly, the relocation has had significant and positive impacts on Greater Geelong's ability to drive economic growth and create new highly skilled and sought after roles within the community. The impact of these direct jobs combined with the flow on impacts and relocating family impacts have resulted in an estimated 1,871 ongoing jobs in the local economy (RDA, 2017). This represents a final employment multiplier of 3.0, meaning that for every direct job supported by the relocation, it is estimated that a further two jobs are supported in the broader local economy once flow on supply-chain and household consumption effects are taken into account (RDA, 2017).

Secondly, it has enabled a policy driven and coordinated approach to economic diversification. The relocations were bought about as policy interventions from both Victorian and Federal Governments to support Geelong as it continued to transition and diversify its economy from one that has been heavily reliant on traditional manufacturing to one that builds on the professional services sector. This will also see the gradual transition from its historically high-volume, low skilled manufacturing base and grow its professional and highly skilled workforce by approximately 2,700 individuals by 2022 (RDA, 2017).

Thirdly, these transitions provided a major boost to the local building industry's activities within both commercial and residential property construction. Greater Geelong and its surrounding suburbs have also benefited with direct private investment into infrastructure and new housing boosting Greater Geelong's property values and rental housing availability (RDA, 2017). More than 800 individuals were directly involved in the construction and fit-out activities for the new TAC building, with hundreds more being added to complete the new Worksafe and NDIA buildings in central Geelong. Each facility injecting around $50 million of revenue into the Greater Geelong economy and increasing local added-value (or Gross Regional Product) by over $20 million for the duration of construction (CoGG, 2018). Continued city growth has also

enabled both local and state governments to prioritise and fast track central Geelong activities and initiatives to enhance dining options, pedestrian access and the aesthetic look of many arterial roads and laneways.

Not only has the decentralisation policy created significant benefits for Greater Geelong, it has improved the function and effectiveness of the government agencies themselves (RDA, 2017). Both the TAC and WorkSafe report their moves as a 'transformational journey' that had a significant impact on both service delivery and their financial position, allowed each agency a platform to deliver an organisation-wide refresh of purpose, vision, mission and structure, as well as provide the opportunity to build state-of-the-art workplaces that are fit for purpose and sustainable (5 and 6 Green Star rated). Reflecting on the move, the TAC chief executive Joe Calafiore said (The Age, 2018):

> "...the agency's 2009-12 relocation to Geelong from Melbourne helped improve its finances and services, as well as assisting Geelong transition from its manufacturing base..."
> "Since relocating to Geelong, the TAC has achieved record client outcome scores, our highest ever level of staff satisfaction and continually strong balance sheets. Our experience shows that Geelong has everything a social insurance agency needs to be successful."

Surrounding the agencies, a health and social insurance ecosystem has developed to better support the existing and emerging areas of sector specialisation (CoGG, 2018). This is serving three clear purposes, including:

- **increased efficiencies** by strengthening collaborations and partnerships, procurement opportunities, information sharing, identifying prospects, addressing challenges and promoting local competitive advantages
- **development of social insurance excellence** through strong linkages between business, industry, entrepreneurs and research and education institutions to effect real change and thought leadership in areas such as digital transformation
- **expansion of social insurance** activities including professional and business support activities, service suppliers and other allied support.

As a result, this is a growing industry cluster, attracting new associated business and investment and improving upstream/downstream opportunities for both services and suppliers.

These benefits, however, would not have been realised without the collaboration and investment of the three levels of government, working closely with Greater Geelong advocacy groups and industry to ensure decentralisation success. Other success factors for integration included the alignment between the agencies with local skills, Greater Geelong's size and service offerings, the amenity and affordability of the area, proximity to Melbourne, career opportunities for employees, opportunities for partners and spouses, access to quality schools and higher education opportunities and workforce development along with the existing workforce capacity in the region (Commonwealth of Australia, 2018).

Incentive and Investment

Governments have provided critical financial assistance directed at building infrastructure, incentivising industries to create or preserve jobs and supporting community projects to boost economic activity. This has generally occurred where industries have faced structural adjustment as a result of changing government policy or market conditions, and where these industries have had strong connections, such as automotive manufacturing (Daley & Lancy, 2011).

The Australian automotive industry had a long history of Federal government support. As tariff assistance to the automotive industry declined after 1984, a series of industry-specific budgetary measures were implemented to help the industry adjust. In 2013 the Federal Government decision to reduce the annual subsidy from the Automotive Transformation Scheme (ATS) had significant impact on the automotive industry across Australia. Under pressure from an overvalued Australian dollar, Ford, Holden and Toyota all announced they would cease production in Australia, with the last scheduled to close by the end of 2017. The Government decision was reinforced by the Productivity Commission who

considered that ongoing industry specific assistance to the automotive manufacturing industry was not warranted (Productivity Commission, 2014a; Productivity Commission, 2014b).

As a consequence, both the Federal and Victorian Governments provided industry incentives and direct investment to areas affected by the wind-down of automotive manufacturing. The Federal Government's policy response was represented by the Commonwealth Growth Fund, which was comprised of different schemes designed to assist the transition for auto workers, subsidise product and market diversification by auto components manufacturers and stimulate innovation-based economic activities, primarily outside the auto industry, in Victoria and South Australia. When combined with tariff assistance, the Federal Government financial support to the industry through the 2013-17 transition period exceeded $2.5 billion, although this is dwarfed by the value of the operating industry value add of $15 billion for the four years from 2013-14 to 2016-17. The Victorian Government was centrally involved in the Federal Government's response and, in December 2015 they announced an additional transitional policy, known as *Towards Future Industries: Victoria's Automotive Transition Plan*. This included a range of transitional programs that supported supply-chain firms to plan, re-invest and develop new capabilities and markets. Largely, these measures were timely, targeted to the affected firms, and strategic, by stimulating a change in firm behaviour rather than subsidising ongoing activities (**See Appendix D**).

While the validity and usefulness of regional adjustment funds is not universally accepted, analysis on the impact of government incentive investment showed around 75 per cent of the former automotive supply chain were still in business in early 2018 (Australian Government DIIS, 2020). The analysis made clear that diversification for firms in the automotive supply chain was a major and difficult undertaking and took many years. Those that could adopt diversification strategies such as applying existing capabilities to new markets fared best. Multinational companies had different outcomes to Australian-owned firms. Despite the local managers of multinationals diversifying early on (with support from government), once the closure announcements were made, the vast majority were advised by their parent companies to cease their Australian operations. Australian-owned firms generally had a higher level of diversification and this led to better sales and employment outcomes post-transition. The data also indicate that those who received transition assistance performed better in terms of diversification, accessing new export markets and in providing employment.

Geelong Innovation and Investment Fund (GIIF)

The first targeted investment program, the GIIF, was rolled out in 2007 in response to Ford's plan to close its Geelong engine plant. The $24 million fund was created at the Federal level to assist industries in the region and compensate for the impending closure. In June 2007, the first $3.3 million was allocated to Geelong-based projects, which aimed to create 193 full time jobs across the region. Companies awarded funding included Mako Craft Pty Ltd (80 new jobs), Air Radiators (44 jobs), Challenge Meats (45 jobs), and Modern Olives (24 jobs). This was followed by a second round of successful GIIF applicants, with $21 million worth of investment and 326 expected new jobs from projects at RPC Technologies, Dulhunty Power Ltd, Backwell Group, Geelong Galvanizing, Geelong Glass and Aluminium, Insulpak, Express Promotions, ASCO Fertilizers, All Areas Replace a Glass, Quality Australian Farmed Rabbit, and Loxley Trading. Farm Foods, located in Breakwater, also received GIIF funding of $150,000, with the promise to create an additional 20 jobs. By 2010-11 the region saw a total of 24 new investments as part of the program. Whilst Ford production levels significantly declined over the period, the end of automotive manufacturing was five years in the making and the decision to close the plant was held off until 2013. Having the time to diversify was beneficial for the industry to aid the transition of manufacturing in Greater Geelong.

Geelong Regional Innovation and Investment Fund (GRIIF)

The GRIIF was a competitive, merit-based grants program influenced by the GIIF program. The GRIIF's purpose was to support innovative as well as job creation projects that strengthen and diversify targeted regional economies and the employment base. Originally a $24.5 million program launched in 2014, the GRIIF was a tripartite funding agreement between the Federal and Victorian Governments and Ford. Alcoa later committed $5 million to the GRIIF to help support job creation for the 800 people who lost their jobs after the Point Henry smelter closure.

The GRIIF was a comprehensive package including support for retrenched workers, grants for diversification of the supply chain and the investment in higher value-add non-automotive manufacturing. These interventions had a positive effect in providing confidence and building resilience, with over 830 new manufacturing jobs created in Greater Geelong (**Table 2**). Over 350 jobs were located in the most depressed northern parts of Geelong, notably for the expansion of the Cotton On clothing import head office, with a taxpayer subsidy of $3.4 million and company expenditure of $8.72 million. Support was also given to existing engineering and agricultural processing firms to expand (Australian Government, 2016). Eight Geelong firms shared in $11.2 million in the third and final round of GRIIF. Local Geelong business Cytomatrix and HeiQ Materials AG received a $1.26 million grant to fund a new manufacturing facility to expand their production of short polymer fibres.

Table 2: Geelong Regional Innovation and Investment Fund (GRIIF) Outcomes

Organisation	Project Description	Grant (000) (Ex GST)	Total Expected Investment (000) (Ex GST)	Expected new jobs (by 2017)
Round 1				
Carbon Revolution	New facility to manufacture carbon fibre wheels for auto industry	5,000	23,827	108
Pickering Joinery	Expansion of custom timber/door manufacturing facility	230	560	8
Accensi	New agricultural chemical manufacturing plant	1,600	18,800	45
Round 2				
Australian Lamb	Expansion of lamb/mutton processing, exports	3,250	21,827	125
Farm Foods	Sausage hamburger products for export	525	1,050	27
Organic Dairy Farmers	Cream/cheese processing at new facility	600	1,200	23
Cotton On Clothing	Expansion of head office for global operation	3,400	8,725	300
Quickstep Operations	New carbon fibre composites centre for global auto industry	1,767	5,065	30
Ridley Agri-products	New animal feedmill servicing poultry/pig industries	800	20,000+	20
Round 3				
Phoenix Fabrication & Welding	Expanded manufacturing facility	159	319	7
Air Radiators	Manufacture industrial aluminium heat exchangers	1,543	3,086	30
Associated Kiln Driers	Upgrade sawmill/drymill technology	3,500	26,716	20
Caronlab Australia	Wax beading machine and cosmetic cream line	225	505	8
The Edge Glass (Aust)	New CNC vertical machine	630	1,400	16
Jeff Sykes & Associates	Manufacture rowing equipment	135	326	11
Irrewarra Estate	Natural food manufacturing	385	926	20
M.C. Herd	Semi-automated meat cutting room	3,000	6,000	40
		26,749	**140,332**	**838**

Source: Australian Government, GRIIF project funded, business.gov.au website.

Growth Funds

The GRIIF program was supported by a series of ATS growth funds supplied by the Victorian, South Australian and Federal Governments to deliver new jobs, investment and economic growth in South Australia and Victoria (Commonwealth of Australia, 2014). Rolled out over five years (2014 -2019), this included the $155 million Growth Fund, the $20 million Automotive Diversification Program (ADP), the $35.8 million Next Generation Manufacturing Investment Program to support investment in high-value manufacturing and the subsequent $100 million Advanced Manufacturing Fund announced in May 2017. As part of the Advanced Manufacturing Growth Fund (AMGF) allocations, six businesses from the Geelong region were supported to transition from traditional to advanced manufacturing of higher value products (**Table 3**). By 2020 the matched funding leveraged local company investment of over $56 million and provided up to a third of the project cost to manufacturers for capital upgrades to make their businesses more competitive through innovative processes and equipment.

Table 3: Geelong Region Recipients of the Advanced Manufacturing Growth Fund (Round 1 & 2)

Organisation	Project Description	Grant (000) (Ex GST)	Total Expected Investment (000) (Ex GST)
Air-Radiators Pty Ltd	Finnovation: the next generation of heavy duty radiators	$1,848	$5,545
BNNT Technology Limited	Build the world's first commercial scale boron nitride nanotube plant	$1,400	$4,339
Boundary Bend Olives Pty Ltd	Olive nutraceutical ingredient extraction facility	$812	$2,436
Carbon Revolution Operations Pty Ltd	Development of high-volume moulding process for carbon fibre wheel manufacture	$2,500	$8,411
Carbon Revolution Operations Pty Ltd	Automated rim layup project	$946	$2,838
Flat Glass Industries Pty Ltd	Developing advanced architectural glass manufacturing capabilities	$2,500	$7,574
LeMond Composites Pty Ltd	Design and build of Australia's first industrial carbon fibre line	$2,500	$24,954

Source: Australian Government, AMGF grant recipients, business.gov.au website.

Regional Jobs, Infrastructure and Community Project Funding

Government regional programs have also helped the construction of necessary infrastructure to maintain local services, improve liveability and support economic growth. The main funding programs have comprised of the Federal Government's Building Better Regions Fund (BBRF) and the Regional Jobs and Investment Package (RIJP). The State Government programs included Victorian Regional Growth Fund (RGF), Regional Jobs and Infrastructure Fund (RJIF) and other infrastructure investment.

The Building Better Regions Fund (BBRF)

The BBRF program allocated $841.6 million of matched funding for regional areas. The funding was available through two investment streams, infrastructure (new or upgrade) and community development activities. Significant City of Greater Geelong infrastructure grant recipients include Cottage by the Sea ($1.5 million), Kids Plus Foundation Purpose built facility at Deakin University's Waurn Ponds Campus ($1.47 million), the Queenscliff Cultural Hub ($1.45 million) and King Lloyd Reserve Lighting ($269,000).

Regional Jobs and Investment Package (RIJP)

The RJIP is a competitive Federal Government grants program set up to encourage investment in capital projects outside manufacturing to support new business opportunities in ten regions across five states. The program originated from a 2016 election commitment to establish a $200 million program to deliver regional jobs and growth, with the expectation of leveraging a further $200 million or more in matched funding. In total, 233 projects were awarded $220.5 million in grant funding across the 10 regions. Greater Geelong was selected as one of the ten pilot regions to receive $20 million to tap into its potential for growth, economic diversity and the opportunity to pursue export markets. This allocation was divided between 21 local businesses. Significant funding was awarded to LeMond Composites ($5 million), development of the CORA Village, COESR Pty Ltd ($3.2 Million), Conservation Ecology Centre ($2 million), Royal Geelong Yacht Club ($2 million), Flat Glass Industries ($1.9 million), Conflux Technology ($1.02 million).

Victorian Regional Growth Fund (RGF) / Regional Jobs and Infrastructure Fund (RJIF)

Over the past 20 years, the Victorian Government has established a funding program that invests to grow jobs, build infrastructure and strengthen communities throughout rural and regional Victoria (**Table 4**).

Table 4: Major regional development initiatives 1999 -2015

Name of initiative	Year started	Year ended	Amount allocated ($ million)
Regional Infrastructure Development Fund (RIDF)	1999	2011	871
Provincial Victoria Growth Fund (PVGF)	2005	2011	100
Regional Growth Fund (RGF)	2011	2015	570
Regional Jobs and Infrastructure Fund (RJIF)	2015	N/A	500

Source: Victorian Auditor-General's Office based on information provided by RDV

Over 1,800 projects were funded under these initiatives. While much of the funding allocation is listed as commercial-in-confidence, there was significant investment in a number of large infrastructure projects and businesses in Greater Geelong. The Victorian Auditor General noted the funding program was complex and was unclear about the number of direct jobs created across the funding programs by the time of audit (VAGO, 2015). Some of these large projects, however, will realise their return on investment over many years. Some of the significant Greater Geelong infrastructure projects that were awarded include (incomplete list):

- Geelong Arts Centre — $30 million
- Barwon Water's Ryrie Street headquarters — $25 million
- Geelong Library and Heritage Centre — $15 million
- Geelong Regional Innovation and Investment Fund Expansion (GRIIF) — $7.5 million
- Victorian Defence Procurement Office in Geelong — $5 million
- Central Geelong Revitalisation Project — $3 million
- ManuFutures Manufacturing Hub — $3 million
- St Mary's School — $3 million
- Epworth Geelong Private Hospital — $2.85 million
- Deakin University student accommodation T&G building — $ 850,000
- Karingal Expansion of Kommercial Factory, North Geelong — $ 650,000

Stadium Redevelopment

The Geelong Football Club is the only regional Victorian based Australian Football League team. GMHBA Stadium (Kardinia Park) is a key asset for the community hosting eight AFL season fixtures, central to the economy and culture of Geelong

and the State. The decade long five-stage redevelopment of the stadium, overseen initially by the City for Greater Geelong and from 2016 by the Kardinia Park Stadium Trust, has ensured it remains Australia's best regional stadium as well as a sporting precinct of international quality. In addition, the redevelopment has seen improved amenities, facilities and technology to allow better utilisation by the community on non-major event days as well as host tenants including Geelong Football Club, Barwon Sports Academy, Football Federation of Victoria, Basketball Victoria Country, Geelong Cricket Club, Cricket Victoria, Tennis Victoria and the Kardinia Park Trust administration. Stage 4 of the redevelopment involved $91 million, of which $75 million came from the Victorian Government, $6 million from the City of Greater Geelong, $6 million from the Geelong Football Club and $4 million from the AFL. In April 2017, the Victorian Government announced an investment of $3.9 million to fund the planning and design stage for Stage 5 of the redevelopment and made a further commitment of $102 million to complete the redevelopment, bringing the capacity of the stadium to 40,000. The completion of the stadium redevelopment allows an increased number of major events to be held in Geelong, further strengthening the local economy.

Individual Assistance

The impact of economic disruptions due to the cessation of Ford manufacturing operations placed a disproportionate burden on many people throughout Geelong, especially in the northern Geelong suburbs of Corio-Norlane. Retrenched workers included blue collar, production and white collar administrative workers. They were predominantly male with the supply chain having a greater proportion of females. Around 15 to 32 per cent of workers were from a culturally and linguistically diverse background. Workers were typically mature age, with supply chain workers generally younger and therefore less likely to retire. While the range of assistance to workers was broadly accessible across the different programs, the different profile of workers required a flexible and tailored approach for individuals (Australian Government, 2019).

In 2014-2015 the Federal Government's national Automotive Industry Structural Adjustment Program ($15 million) and the industry co-funded Skills Training Program ($30 million) was designed to up-skill automotive employees while still working and provide intensive employment services to employees made redundant from eligible manufacturing firms in the automotive manufacturing industry (employees made redundant would not normally be entitled to this type of employment service due to income support waiting periods and their recent work experience). Job seekers also received additional assistance such as employment subsidies, equipment and training through the Employment Pathway Fund. Retrenched Ford workers were also supported by the Ford Transition Project (FTP), run by Automotive Skills Australia (ASA), and additional assistance was offered to supply chain workers.

A Federal government report reviewing the employment transition scheme for workers in the industry found (Australian Government, 2019):
- Employment rate for Ford, Toyota and Holden workers at 12 months averaged at 84 per cent
- Employment rate of supply chain workers at 12 months averaged at 79 per cent
- Across Ford, Toyota and Holden workers, on average 59 per cent were in full-time employment at the 12-month stage, another 34 per cent were working in casual roles, and a further 5 per cent working part-time
- Around 47 per cent of the supply chain were in full-time roles, 42 per cent in casual roles, and 7 per cent in part-time positions
- Workers had a high level of satisfaction with their new salary at 12 months (86 per cent for Ford, Toyota and Holden workers and 84 per cent for supply chain workers)
- At 12 months, 15 per cent were studying, retired or taking a break
- The health and wellbeing of the workers were generally at or better than the national average as measured by the ABS National Health Survey (2017-18).

While the Federal Government report focusses on many positives, it is obscuring the tough reality for many who have transitioned from steady employment to a more precarious job market. Approximately half of the retrenched workers found full-time employment, the other half were in part-time, casual, or contract employment 12 months after the

production closures. It is worth noting there is no breakdown by region or company and all figures are generalised across the sector.

2.3. Community Leadership

In trying to understand why Greater Geelong has seen large inflows of both people and government resources, the important role of local leadership and advocacy organisations has to be acknowledged. Despite its marginal seat status in both Victorian and Federal elections, or maybe because of this, Greater Geelong has at times mobilised a powerful and united voice to create priority lists and effectively lobby for their realisation in the centres of Victorian and Federal power. Many have worked hard to foster a culture of collaboration between the leadership of public, private and non-profit sectors to create a greater sense of community, shared priorities, and close government, business and community relationships, to position Greater Geelong to mobilise regional development efforts. These assets are defined as a kind of institutional memory and permanence by Bailey et al. (2008) and are central to the construction and nurturing of adaptive capacity in a region. When harnessed, the community-wide collaboration has enabled a collective willingness to commit to key projects, developed strong and focused advocacy as well as helped to garner and pool resources over the long-term.

The move towards regional governance, first seen with the Geelong Regional Commission (GRC), and more recently in the activities of the City of Greater Geelong (CoGG), G21-Geelong Region Alliance, and the Committee for Geelong, has supported focus on medium to long-term initiatives to benefit the region and have been able to mobilise a powerful and united voice to create priority lists and effectively lobby for their realisation with the Victorian and Federal Governments. A McKinsey Report (1994) on the fate of regional Australia in the mid-1990s noted the importance of local and united leadership in securing positive futures for those places beyond the country's metropolitan growth engines and the recent history of Greater Geelong confirms this.

Key Advocacy Groups

The creation of the City of Greater Geelong in 1993 was the product of state driven local government amalgamations and allowed the unification of a number of small and disparate municipalities into a much larger and more effective organisation. The establishment of the G21-Geelong Region Alliance (in 2001-2002) across five local government areas by a mix of official, private and community organisations has also been a critical development, driving concerted lobbying across its eight Pillars or action groups. These include Economic Development, Arts, Heritage and Culture, Education and Training, Environment, Health and Wellbeing, Sport and Recreation, Transport, Planning and Services.

As a vehicle to mobilise the voice of business, the Committee for Geelong was established in 2001 as a non-profit, independent and unaligned member-based organisation that exists to actively advocate for a better future for Geelong. Its vision is to provide strategic leadership and influence or leverage the economic potential of the region via advocacy for economic prosperity and innovation, support for regional infrastructure development and community leadership and advocacy on key issues (Correia & Denham 2016).

The Geelong Manufacturing Council (GMC) is a non-political, not-for-profit organisation funded by industry partners who wish to promote the Geelong region as a dynamic and innovative manufacturing centre of the future. Geelong Manufacturing Council hosts regular industry seminars and forums around important industry issues to shape the future of manufacturing in the region.

The Geelong Chamber of Commerce is the 'voice' for Geelong's business community. It works to drive business growth, reducing barriers, advancing Geelong's future by supporting and nurturing businesses in the Geelong region. As Geelong's premier business representative body, the Chamber advocates on behalf of all forms of business - micro, small, medium and large - ensuring industries have a say on the issues that impact upon the economic viability of business and the region as a whole.

Tourism Greater Geelong and The Bellarine (TGGB) is the peak industry body charged with tourism development and promotion throughout the region. TGGB represents more than 400 members from all aspects of the tourism industry throughout the region. As the official regional tourism organisation, their main goal is to help Geelong and The Bellarine grow into a globally-recognised destination delivering world-standard visitor experiences.

Local Initiatives

As a result of successful local lobbying, Greater Geelong's community's leadership, including private, public and advocacy stakeholders have directly lobbied Spring Street and Canberra for high-value and critical projects to build regional resilience. These advocacy efforts have included:

- In 2014, G21-Geelong Region Alliance, City of Greater Geelong Council, Committee for Geelong and Geelong Football Club travelled to Canberra to push Geelong's funding needs, including plans for a Yarra Street Pier, the Land 400 project, renovation of the Geelong Arts Centre and stage four of GMHBA Stadium (Kardinia Park) redevelopment.
- The lobbying effort for a share of LAND 400[8] and other defence contracts accelerated from 2014. Bids were overseen by a steering committee comprising Enterprise Geelong, Geelong Chamber of Commerce, Geelong Manufacturing Council, G21-Geelong Region Alliance, Deakin University, Committee for Geelong, Regional Development Victoria (Geelong Office) and Avalon Airport. The Geelong Defence Alliance strongly supported Hanwha Defence Australia's bid to develop a local presence.
- In 2018, the City of Greater Geelong Council led a delegation to Canberra to present a case for relocating the headquarters of Comcare to the City for Greater Geelong to join the growing social insurance innovation hub. The delegation included leaders from G21-Geelong Region Alliance, Geelong Chamber of Commerce, the Committee for Geelong, and TAC chief executive Joe Calafiore.
- In 2020, the Committee for Geelong, G21-Geelong Region Alliance, the Geelong Manufacturing Council, Tourism Greater Geelong and the Bellarine, the Geelong Chamber of Commerce and the City of Greater Geelong Council – declared themselves a COVID-19 Recovery Collective and presented a list of priority projects for the region to State and Federal Governments. While many had already been agreed to, such as the 2019 City Deal and duplication of the Geelong-Waurn Ponds railway line, others were new and highly localised, including support for Deakin University, local procurement and timely payment on government invoices.

Three recent examples of the united leadership and advocacy efforts delivered, include the winning of the UNESCO City of Design bid (2017), the Gateway Cities Alliance (2019), the Geelong City Deal (2019) and have supported the Give Where You Live Foundation and G21 – Geelong Region Alliance's GROW.

UNESCO Creative City of Design

geelongcityofdesign.com.au

The leadership of Greater Geelong led a successful bid to become a UNESCO Creative City of Design. The 2017 application involving Geelong's major governance and lobbying organisations, along with Deakin University, covered Geelong's Indigenous heritage, textiles and wool production, surf culture, auto design and manufacture, through to advanced manufacturing and virtual reality. The outcome was announced in November 2017 (City of Greater Geelong and Creative Geelong, November 2017):

> "Geelong has been designated a UNESCO 'Creative City of Design'. As Australia's first (and only) City of Design, Geelong is now a member of the UNESCO Creative City Network. Design remains a driver of the Geelong economic and creative sectors, with Ford Motor Company committing its resources to the Geelong based Hi-Tech Design, Innovation and Research Centre. Deakin University's Carbon Nexus and the Australian Future Fibres Research Innovation Centre, providing world leading materials based around applied design. Key projects featured

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[8] LAND 400, managed by the Department of Defence, is a project initiated to supply the Australian Army with updated infantry vehicles and estimated to have a total acquisition cost of between $14 and $20 billion.

in the application include the Geelong Library and Heritage Centre, the Geelong Performing Arts Centre redevelopment and cultural precinct and the Mountain to Mouth contemporary songline, as well as the world-class design education facilities such as Deakin University's virtual reality cave and Centre for Advanced Design in Engineering Training building. It's believed that Geelong's admission into the network would create international business opportunities and local jobs."

Gateway Cities Alliance

gatewaycitiesalliance.com.au

The Gateway Cities Alliance is an example of the strategic collaborative approach to advocacy that has supported Greater Geelong's long term economic and social growth. Following the *Australia's Gateways to Growth* report published by the Committee for Geelong in 2019, the councils of Geelong, Wollongong and Newcastle and the Committee for Geelong formed the Gateway Cities Alliance.

The Gateway Cities Alliance works to provide a collaborative and collective approach to ease population pressures facing Sydney and Melbourne and sustainably grow Geelong, Newcastle and Wollongong. The shared and unique characteristics and strategic assets of these Gateway Cities are deployed to maximise national economic growth, regional resilience and job creation for Australia's long-term settlement strategy. As a consequence, the Alliance has positioned itself as an advocacy group with the Federal Government to recognise the important role the three cities contribute as economic drivers to their extended regions, but also as cities complementing (as well as potentially easing the growth pressures on) their respective capital cities, for which they need particular policy attention and resourcing (Committee for Geelong, 2019).

The City of Greater Geelong, the City of Newcastle, Wollongong City Council and the Committee for Geelong along with key partners from Deakin University, University of Wollongong and University of Newcastle, have met as the Alliance several times during the pandemic to establish priorities. These priorities include: transport infrastructure, development of ports and supply chains, infrastructure for the future of work, migration and population planning; and medical research, including opportunities for regional health agencies and universities.

The Geelong City Deal

infrastructure.gov.au/cities/city-deals/geelong

City Deals represent the type of arrangement that rural and regional communities have been advocating as fundamental to drive regional development across Australia. That is, a partnership approach that is strategic, long term, place-based and supported by key stakeholders to drive economic and social development in cities across Australia. The program was introduced in 2016 by the Turnbull Government, and offers a bespoke model of infrastructure funding and delivery by bringing together the three levels of government, the community and private sector. The program aims to align planning, investment and governance to drive, among other things, economic growth, employment, affordable housing, urban renewal and environmental sustainability. It aims to "secure the future prosperity and liveability of Australia's cities". As a bespoke model, the program's funding is tailored to suit local circumstances, objectives and opportunities.

The Geelong City Deal, agreed in March 2019, is a 10-year plan to revitalise Greater Geelong and boost the potential of the Great Ocean Road visitor economy. The Victorian and Federal Governments, the City of Greater Geelong Council and additional private sector co-investment, committed over $370 million for 33 projects in the region to strengthen Geelong's economic diversification, visitor economy and city centre. The bid was created through the collective and collaborative effort of the G21-Geelong Region Alliance, the Committee for Geelong, Regional Development Victoria, Department of Premier and Cabinet, the Commonwealth Government, local government and key stakeholders and the Regional Partnerships. The City Deal is a major boost to regional growth and will enhance the visitor experience along the Great Ocean Road and in Geelong. Commitments include:

- $171.2 million for a Geelong Convention and Exhibition Centre
- $27.85 million for the Revitalising Central Geelong Action Plan
- $16 million for the Geelong Safe Harbour Project
- $108.15 million for the Shipwreck Coast Master Plan
- $27.5 million for Great Ocean Road Infrastructure projects
- $7.6 million for the Geelong Future Economy Precinct (based at Deakin University) and
- $10 million for the Queenscliff Ferry Terminal.

Adopting a strategic approach to matched funding criteria to demonstrate investment benefit has been important to maximising the community benefit from government funding opportunities. These investment measures have been an integral part of the expanding, diversifying, branding and resourcing of the Greater Geelong vision and aligning active partners with local, state and national policy goals. In addition to Geelong, the Federal Government has entered into five other City Deals with Townsville, Launceston, Hobart, Western Sydney and Darwin.

G21 GROW

grow.g21.com.au

The Geelong Region Opportunity for Work (GROW) is a significant joint regional initiative from Give Where You Live Foundation and G21 – Geelong Region Alliance. GROW is designed to meet the challenge of disadvantage and declining manufacturing employment, while also addressing the ongoing issue of social and spatial polarisation in the across the G21 region. Supported with Victorian Government funding of $1 million in 2017, this local initiative is based on the theory of collective impact: it argues that significant numbers of jobs could be created locally if escape spending was minimised and local businesses agreed to source their employees and inputs from the region. Businesses and key organisations signed a compact pledging to pursue these goals. The GROW figures for 2018 showed that 112 jobs were created for disadvantaged jobseekers. A further 20 job pathways, such as traineeships and internships, were created by GROW compact signatories, making a total of 247 jobs and 39 pathways over three years up to 2019.

2.4.   Summary of Findings (Parts 1 and 2)

Regions are complex, multi-faceted and continually changing. Regional resilience – best described as the ability to anticipate, prepare for, respond to and recover from external disturbance – is based on three pillars: absorption, adaption and transformation.

Greater Geelong has been identified by the Productivity Commission as one of the most resilient regions in Australia, having a high adaptive capacity to successfully transition to a sustainable base after an economic disruption. Greater Geelong was assessed as being on par with metropolitan regions such as Greater Sydney, Greater Melbourne and Greater Perth.

In the face of an economic disruption, many believe a city or region with a robust, diversified economy and good governance will rebound more quickly than one with a narrowly focussed economy. Others suggest there is a case to be made for smart specialisation and by focusing attention on a limited number of priority economic activities, regions are able to take advantage of the scale, scope and spillover effects from the specialist sector to gain further advantages. However, because diversification and specialisation are not exact opposites, diversified regions might include several specialised clusters across different sectors – *diversified specialisation*. This is the pattern that emerges when you look at the key sectors and major employers in Greater Geelong.

Greater Geelong's economy has been shifting over time from a manufacturing-orientated to a service-orientated economy. Between 2009 and 2019 there were significant increases in employment in health and social assistance,

retail, construction, education and training and public administration and safety. Throughout this period, Geelong has shown remarkable resilience in being able to transform its economic structure.

Economic resilience not only reflects the pure economic characteristics of a city or region, but also relies on the interplay of social-demographic and community factors. To explain Greater Geelong's resilience, three enablers are identified: population growth, government policy, community leadership.

2.5.   Preliminary Recommendations (Parts 1 and 2)

To facilitate further regional resilience, the following actions are recommended:
- Support existing diversified specialisation i.e. a number of specialisations across a range of sectors and their supply chains.
- To ensure ongoing population growth, boost the attractiveness of Greater Geelong to migrants from Melbourne and surrounding areas.
- Utilise the united voice possible through the agreement and lobbying effectiveness of key local organisations to build on the City Deal, the Gateway Cities Alliance and the UNESCO Creative City of Design designation.
- Address disadvantage, including low high school completion rates and unemployment in the region via dedicated procurement, innovative education pathways and training programs and social housing.

3. International Responses to COVID-19: Ideas and Exemplars for Geelong

3.1. Global Trends

In May 2020, thematic researchers at the Bank of America Merrill Lynch assessed the global environment and identified five major themes that may dominate coming decades, with COVID-19 permanently disrupting the world's economies and accelerating macro-trends (Israel, 2020). These were:

1. **Geopolitics and globalisation**: The tectonic shifts in supply chains from globalisation toward localisation will accelerate, with countries bringing more manufacturing onshore. There will also be greater cooperation on climate change, sustainability and social issues.

2. **Digital transformation acceleration**: An increasing shift to online services, combined with the need for tracking data to avert future health crises, will result in new combinations of digital infrastructure, data analytics, cloud computing power, cybersecurity and bandwidth technologies. This will also increase capabilities for remote learning, ecommerce and development of moonshot technologies.

3. **Big government**: In an effort to protect citizens and restore economic and living conditions, there is likely to be an expansion of government services and a rise in support of public safety over individual privacy. Governments might also influence businesses focused primarily on shareholder returns to improve worker benefits and serve the needs of other stakeholders - including a greater emphasis on solving climate change and other environmental challenges.

4. **Focus on health**: The importance of healthcare and the critical role it plays in national security and economic growth will be amplified. There will be a global push for more efficient health systems that focus on value-based outcomes, preventive care, reduced waste and greater use of technology.

5. **New consumer**: The traditional consumer segment will diminish, increasing the addressable markets for technology products such as streaming, social media, eCommerce, etc. This will be led by Gen Z (born between 1996 and 2012) who are uniquely prepared for the online era of interactions. However, this generation – alongside Millennials (born between 1981 to 1996) – is also the most exposed to reduced earning potential over the long term. There are significant concerns that COVID-19 could result in a slowdown or reversal of the decades-long march to pull billions out of poverty as a 20 per cent fall in income could push over half a billion people into poverty.

Unlike a natural disaster, the pandemic is not damaging infrastructure and the threat is a lingering one. Injecting funds into construction will not provide work for most of the people who have been impacted, who have lost their jobs in restaurants, hotels, retail, travel and the arts. Recovery depends crucially on expectations. In cases where the shock was significant and fear has continued, recovery has been slower. Households and businesses are more reluctant to invest. Without assurances that we have 'solved COVID-19' with a vaccine or effective control, a full recovery is going to be impossible (Noy, 2020).

The impacts of the pandemic have been unevenly registered across a wide range of metrics (Baldwin and di Mauro, 2020):

- geographically: spread from First to Third World and larger versus small cities
- socioeconomic status: as it spread from everyone to the poor
- ethnic and racial groups: associated with poverty and access to healthcare
- gender: higher mortality rates for men than women, women are experiencing more of the job losses and burdens of home-based work and schooling
- age: with those over 65 more vulnerable
- occupation: with health workers more at risk but also major job losses in hospitality and the arts.

The first countries impacted were China followed by the US, Japan, Germany, France, Britain and Italy that combined comprise 60 per cent of world demand and supply and 65 per cent of world manufacturing, along with 41 per cent of world manufactured exports. But then the pandemic moved and responses varied. The economic sectors that were the hardest hit remained constant: international travel and tourism, entertainment, creative arts and high-touch personal service activities, all of which created a supply shock as shutdowns spread. This was then was converted into a demand shock, as people stopped spending, hoarded some items and remained indoors with a confidence shock (Florida, 2020). But there have also been some pluses (Baldwin and di Mauro, 2020):

- boost in home-based working
- boost in payment for and use of tele-health
- drop in pollution levels and fossil fuel use
- increased role and active interventions of the nation state
- increased confidence in and acceptance of expert advice.

To research this section, the grey literature, academic databases, media articles and expert commentary were scanned to gain an overview of city-level and regional responses to COVID-19.[9] The focus was on measures to protect local economies and community resilience, beyond simply containing the virus. While examples from major cities are included, searches were also guided by themes relevant to regional cities in general, or Geelong in particular:

- the rise of remote working
- a potential population shift from major cities to regions
- reviving High Streets
- increased active transportation (as opposed to car or public transport)
- a high price placed on quality open space and recreation networks close to homes
- revitalising local manufacturing
- the circular and green economy.

The analysis is organised into thematic sections, with key projections, data, and trends provided for context. Each section also identifies potential opportunities for Greater Geelong.

At this point, governments around the world are still grappling with the unfolding crisis. Many of the responses profiled below are thus immediate or short-term interventions, rolled out swiftly to support communities and local businesses impacted during the first phase of the pandemic. But these early responses provide a snapshot of front-line measures to shore up local economies, and so form part of the picture in building longer-term resilience. They also offer lessons in future-proofing cities: for decades scientists and public health experts have been warning of a global pandemic (Garrett, 1994; Levin et al., 2007), yet the world was largely unprepared for the current crisis. The health risk posed by COVID-19 will force businesses, community services, and cultural organisations to make both interim and longer-term changes to the way they operate. COVID-19 looks set to persist until an effective vaccine is widely available and in coming years outbreaks of other new viruses will remain a real and ongoing threat (Medina, 2018). To build more resilient cities and regions, we need to anticipate and plan for both ongoing risks and future shocks.

At the regional level, longer-term recovery strategies are yet to be articulated in any detail. However, in developing these strategies, city leaders are using transnational networks to pool knowledge and share early responses with a global community of peers. Intergovernmental organisations and policy-shapers are weighing in, making recommendations and proposing broad-brush frameworks. Key themes and ideas arising from these exchanges are also summarised.

The nature, scale and context of the COVID-19 pandemic presents a unique set of challenges, and recovery strategies need to be tailored closely to both local conditions and the dynamics of the current crisis. Governance structures and funding models vary widely across jurisdictions, as does the local impact and trajectory of the virus itself. While past disasters and

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[9] Research sources were limited to English-language publications. For an indicative list of search terms, see Appendix B.

financial shocks can reveal useful insights, direct comparison is not always instructive. Rapid technological change, evolving labour markets and the impacts of globalisation limit the relevance of some historical models. The damage caused by a global pandemic is not identical to that wrought by natural disasters such as earthquakes, hurricanes or tsunamis. Nor do other pandemics provide neatly replicable models (Dvorak, 2020). The COVID-19 global recession also differs from both the 2007–2009 Global Financial Crisis and the 'business cycle' recessions of the 1980s and 1990s, and so requires different policy responses (Holden, 2020; van Barneveld et al., 2020).

The strategies and models profiled below are not intended as readymade blueprints, but as starting points for locally tailored responses. They are ideas for consideration, inspiration and possible adaptation.

3.2. Local Business, Employment and Work

Estimates of Australia-wide job losses due to COVID-19 range from 14-25 per cent, with low-income workers twice as likely to be affected (Coates et al., 2020). One-third of Australians experienced a decline in income and savings due to COVID-19 over two weeks in April–May (McKinsey, 2020). A recent Organisation for Economic Coordination and Development (OECD) report argues that strong, ongoing fiscal stimulus measures will be key to Australia's economic recovery. The OECD advises that the Federal Government should continue to support the economy into 2021 by extending stimulus payments, increasing infrastructure spending, providing loan guarantees for businesses, and investing in education for reskilling and upskilling.

The COVID-19 crisis has both highlighted and amplified existing inequalities and governments around the world are being compelled to consider how social equity can be built into recovery strategies (Sumner et al., 2020; United Nations, 2020). Workers disproportionately affected by COVID-19 job losses include people in insecure, casual or self-employed work, young, female, and migrant workers and staff in the hospitality, retail, arts, tourism and recreation sectors (van Barneveld, 2020; Dimov et al., 2020).

Protecting Jobs, Supporting Businesses and Sustaining High Streets

As the COVID-19 crisis unfolds, cities around the world are rolling out measures to sustain local businesses and workers. While most of these responses are short-term or stop-gap measures, they are providing a lifeline for the people and companies affected. They are also crucial to building the resilience of regional economies: recent research by Swiss-based Adecco Group found that countries that respond swiftly with economic support and help workers stay employed increase their odds of economic recovery (Clift & Court, 2020; Adecco, 2020; Klift, 2020).

Examples of quick-fire responses include emergency grants for small and medium enterprises, low- or zero-interest micro-loans (often in partnership with financial institutions), tax forgiveness or deferrals, municipal rent waivers, rental support payments, moratoriums on commercial evictions, payroll support, guidance on applying for financial assistance and centralised online portals and telephone hotlines linking businesses to advice and financial support. City councils are also running hotlines to connect low-income, self-employed, or recently laid-off workers to social services, local job boards and state-based or national financial support programs. A number of Local Government Areas (LGAs), including the City of Greater Geelong, are running programs to rapidly retrain and redeploy Council staff stood down due to facility closures (Zubecki, 2020; San Diego News, 2020; Parilla & Dinkins,2020; C40 Knowledge Hub, 2020; OECD, 2020c; Geelong Advertiser, 2020f).

With most face-to-face trade suspended, councils are helping local businesses move their operations online, streamline their digital processes, navigate teleworking technologies and boost their online presence. Some are launching campaigns to encourage residents to 'shop local', including Geelong, promoting local businesses via social media and revising their own procurement policies to prioritise local suppliers, expedite payments, or pay for goods and services in advance (Eurocities, 2020a). Others are encouraging larger local businesses to include smaller locals in their supply chains (C40

Knowledge Hub, 2020). And some are funding new online content by arts practitioners, with the dual aim of supporting local creators and lifting community spirits (Famalicão City Council, 2020; Maribyrnong City Council, 2020).

While these immediate measures provide vital protection for local economies, COVID-19 looks set to cause both rapid labour reallocations and lasting shifts in the broader employment landscape. Regional recovery strategies will need to match skill supply with demand. To avoid the skill mismatches that held some local economies back during the Global Financial Crisis recovery, the OECD argues that subnational governments need to provide more flexible forms of skills development, including wider access to e-learning focused on workers' needs (especially disadvantaged workers), while also working closely with local businesses to encourage workforce innovation and better human resources management practices (OECD, 2020c).

Digital Main Street Program: Toronto, Canada

To support struggling local businesses during COVID-19, Toronto has expanded its Digital Main Street Program. Launched in 2016 and supported by Google, Mastercard, Shopify and Microsoft, the program provides free tools, resources and virtual assistance to help small businesses, not-for-profits and creative/culture organisations digitise their operations. Local entities can get free advice and help to build or revamp their websites, boost social media engagement, and expand ecommerce capacity. As part of this program, the ShopHERE initiative helps small independent businesses and artists swiftly establish, launch and run online stores. Eligible businesses get a customised online Shopify store built, with free training, tools, and one-on-one help from a 'Digital Service Squad' of volunteer web developers, business students and corporate partners. New online shops can be up and running within days (City of Toronto, 2020; Digital Main Street, 2020).

Local Marketplace: Vila Nova de Famalicão, Portugal

To offset the economic blow of COVID-19, the municipality of Vila Nova de Famalicão (pop. 140,000), Portugal, is developing a marketplace for local commerce, along with a campaign to encourage consumption of local products. Working with regional cooperatives, companies, distributors, restaurants and supermarkets, the municipal government is also supporting local distribution and shortened supply chains. Helplines have been set up to advise local companies on national support programs and connect workers with a local employment exchange. Council also worked with local research centre CITEVE (Technological Centre for the Textile Industry), which certifies surgical masks and visors, to help companies in the region swiftly convert to produce essential Personal Protective Equipment (PPE) (Cities for Global Health, 2020; Fonseca, 2020).

Pay it Forward: London, UK

'Pay it Forward' is a City of London initiative to help local independent shops, restaurants, cafés, bars and creatives stay solvent and maintain cashflow during the ongoing pandemic. Based on a crowdfunding model, it offers a free online platform enabling customers to advance-purchase goods and services from local businesses in the form of vouchers, which can be redeemed once the business is back on its feet. Businesses set up a free 'campaign' or 'project' page on the 'Pay it Forward' website, then nominate a funding target and offering. The platform is being used by pubs, clubs, restaurants, retailers, cultural organisations and wellness businesses, as well as organisations offering financial relief to artists and musicians hit by the lockdowns. Users can search by location, business sector, or project type (Mayor of London, 2020).

Re-Engaging Unemployed Workers: Trento, Italy

The Italian province of Trento (pop. 1,230,000) is re-engaging workers excluded from the labour market by COVID-19 shutdowns to distribute essential goods and oversee hygiene measures in local communities. Specific tasks include sanitising surfaces and objects in grocery shops, overseeing the safe inflow and outflow of customers, and preparing deliveries from online orders. The project is part of the 'Progettone' policy, which aims to engage unemployed people in socially useful work (OECD, 2020d).

Librarians as Community Connectors: Washington, USA

With public libraries closed, the City of Spokane (pop. 220,000), Washington, has redeployed 20 library staff to support the local community. Librarians are staffing a new regional Financial Helpline, advising local residents and businesses on COVID-19 assistance. As knowledge gatherers and community connectors, librarians were ideally qualified to help locals navigate the complex web of emerging support programs. Working remotely, they research assistance programs, answer inbound calls, and connect callers with local, regional, state and federal resources. Other library staff have been redeployed to extend the library's digital offerings during lockdown, with a new online book club, a virtual story time for kids, expanded streaming services, and a YouTube channel with book reviews, cooking and knitting demos. The program has helped prevent job losses, harnessed local skills, supported community wellbeing, and provided vital practical support to residents and businesses. Staff also noted a 100 per cent increase in the number of teenagers using library memberships to access a live-tutoring platform (Shanks, 2020; Hval, 2020).

Boosting Public Procurement (various locations)

To support urban and regional economies during the crisis, governments are revising procurement policies, cutting red tape, and expediting payments to local suppliers. The City of Copenhagen is paying supplier invoices in advance to improve company liquidity. Milan is also paying invoices in advance, while simplifying payment processes. Barcelona issued a mayoral decree to ensure the continuity of public contracts and the liquidity of providers, particularly SMEs. Paris assigned a network of thirty local companies to produce two million reusable masks, based on national technical specifications (OECD, 2020b). In Australia, the Western Australian Government has changed procurement regulations and reduced red tape to make it easier for government agencies to buy goods and services from local suppliers (Government of WA, 2020a). An approach that encouraged all levels of government to 'buy local' would offer a much-needed boost to local businesses, regional economies, and Australian industry (Green, 2020b).

Keeping High Streets Alive

Urbanist Richard Florida argues that High Streets form the beating heart of regional towns and cities. Vibrant High Streets create jobs, power local economies and lend places their unique character. COVID-19 has put small High Street businesses in jeopardy, with some US projections suggesting that up to 75 per cent will be wiped out (Florida & Pedigo, 2020). Ensuring High Street survival is crucial to economic recovery, argues Florida: "The loss of our Main Street businesses would be irreparable, and not just for the people whose livelihoods depend on them, but for cities and communities as a whole. Places that have protected their Main Streets will have a decisive competitive advantage as we return to normalcy."

To protect High Streets, Florida suggests a set of actions for local governments (Florida & Pedigo, 2020):
- recruit a small-business task force of government, philanthropic and private-sector leaders to design innovative loan programs, with a minimum two-year horizon
- set up a central online hub for businesses and entrepreneurs, and actively target them to ensure they are aware of local, state, and federal support programs
- launch a 'made in…' campaign to encourage residents to buy local
- recruit a working group of local medical professionals to develop leading-edge health and safety protocols for small business owners, including personal care services (beauty salons, hairdressers, etc.)
- deploy a 'business technical resource team' to help businesses trade safely, survive future lockdowns, and comply with health and safety guidelines, including social distancing, design modifications, sanitation, health checks, and protective gear for front-line staff partner with local 'anchor institutions'[10] and larger businesses to prioritise local firms in supply chains.

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[10] Anchor institutions are large, established, typically non-profit organisations that have a major stake in a city and are unlikely to leave, such as hospitals, local councils, and universities. The term can also encompass cultural institutions, sports teams, churches, or libraries (Ehlenz, 2018: 75).

Opportunities for Geelong
- GROW (Geelong Region Opportunity for Work) already exists to support local employment of disadvantaged job seekers and promote local procurement. This initiative is even more necessary in the context of COVID-19. As well as being connected to existing employers, these workers could be directed to assisting with hygiene measures or delivering essential goods.
- In addition, workers displaced by the virus need to be able to access more flexible, online upskilling programs tailored to the needs of local employers. A mechanism is therefore needed to speedily establish those needs and to engage schools, The Gordon, Deakin University and local private providers in delivering relevant, online, and affordable programs.
- Support is also needed for High Streets and the CBD to move online (if not already), to encourage buying local and via Pay It Forward-type initiatives, along with click-and-collect services. The idea of a 10-15 minute neighbourhood can build on local High Streets by encouraging decentred business location, co-working spaces, active transport and shop- local practices.
- The unemployed could also be actively used via the Council to address the new needs of a community under pandemic siege with, for example, public cleaning programs and new greening initiatives

Remote Working: Challenges and Opportunities

There are signs that COVID-19 may prompt a lasting shift to toward remote work (Hern, 2020; Hopkins, 2020; Florida & Pedigo, 2020; Ryerson CBI & ULI Toronto, 2020c). In early May, demographer Bernard Salt estimated that during the pandemic Australia's work-from-home rates had risen from around five per cent of the workforce to around 30 to 35 per cent. Once restrictions ease and people return to work, Salt predicts that up to 15 per cent of Australian workers may continue working from home on a regular basis (Colquhoun, 2020). However, the OECD notes that not all jobs, businesses or regions are equally suited and or equipped for remote work and that this option remains inaccessible to many workers due to pre-existing inequalities, the nature of the work itself requiring direct person to person contact or the digital divide (OECD, 2020b).

Some local governments are supporting the switch to remote work by giving businesses access to free telework training, software and subsidised equipment and collaborating with local tech companies to expand the support services available to both workers and employers (C40 Knowledge Hub, 2020). The initial shift online involved employees taking a crash course in learning-by-doing, but if more employees do continue working remotely, upskilling will be an ongoing requirement (Agrawal et al., 2020).

A significant shift towards remote working would bring changes for workplace culture, home life, and community connections. One potential upside is that a more scattered workforce could help revitalise local High Streets (De Poloni, 2020; Ryerson CBI & ULI Toronto, 2020e). While the benefits of working from home include greater job satisfaction and lower staff turnover, absenteeism and stress, there can be drawbacks too: research has found that extended periods of home-based work can inhibit knowledge sharing, disrupt life-work balance and make employees feel socially and professionally isolated (Sander, 2020).

Co-working Spaces
Before the pandemic, co-working spaces offered welcome respite and resources for freelancers, entrepreneurs and small-business owners. While lockdowns and social distancing have put many of these facilities in jeopardy, they will play a

valuable role in post-COVID-19 economic recovery, argues Dane Stangler, Director of Policy Innovation at the US-based Progressive Policy Institute (PPI).

Stangler cites three reasons: firstly, we'll see a rise in teleworking, and all those employees need to work somewhere. Large corporations will want to 'de-densify' their offices, and remote workers will get tired of their kitchen tables. Secondly, for local councils, co-working spaces serve as vital conduits to connect peripheral and hard-to-reach businesses with resources, funding and emergency relief payments. Thirdly, co-working spaces are local economic engines in their own right. They not only help create jobs, generate capital, and boost the commercial rental sector, they also function as vital community hubs, strengthening social networks and building resilience through 'local connectedness' (Stangler, 2020; Startup Genome, 2019).

The upshot is that vibrant, well-equipped, affordable co-working facilities can help offset the downsides of remote working, while also strengthening local economies, building social capital and fostering community resilience. "If you are a mayor or philanthropic foundation or chamber of commerce," writes Stangler, "you should turn to your local co-working spaces to see (a) how they can help you support the local economy, and (b) how you can support them in continuing to fulfil their vital role." If regional cities want to attract and retain remote workers, supporting dynamic co-working spaces could be one worthwhile option.

The Exchange: Dubbo, NSW

Located in the regional City of Dubbo (pop. 40,000), The Exchange is a co-working space that doubles as a business and community hub. Local Jillian Kilby renovated the abandoned post office and re-opened it as a co-working space called The Exchange in December 2019, just before the pandemic hit. Described as a social impact organisation and a start-up helping start-ups, The Exchange has over 170 signed-up members, along with casual users of the space. People can rent hot-desks, private offices or meeting rooms, with high-speed wi-fi, refreshments, stationary, video-conferencing equipment, and communal facilities included. Users include government workers, small business owners, and freelancers with clients based locally, nationally and overseas. Members get access to an online forum (including job postings), regular skill-building and networking events, a members' directory, online workshops, a physical business address and mail-handling service, plus extra options such as car-share, airport transfers, and event hosting. The Exchange actively promotes regional businesses, runs free workshops in local towns, and offers a 14-week business innovation training program in partnership with The Scale Institute at Charles Sturt University. The physical space closed briefly during lockdown, and all workshops and business resources were moved online. Members continued to log in, including interstate users. With its active online programs and strong membership base, a co-working space designed for local workers ended up meeting a wider need (Purtill, 2020; Exchange, 2020).

Opportunities for Geelong

- The City of Greater Geelong currently has several co-working spaces. Their offerings range from basic hot-desk rental and meeting room hire, to workshops, networking events, rehearsal and exhibition spaces, event management, professional development, and business coaching. Building the capacity of these existing facilities to foster local networks, share knowledge, and expand their range of offerings could help build a stronger local economy and more resilient workforce. They could also potentially partner with employers and online education experts to co-deliver training and upskilling for remote employees across the region.
- Co-working spaces could be better integrated into existing and new neighbourhood centres, broadening their role beyond retail and service centres to employment hubs as part of a 10-15 minute neighbourhood policy
- There is also the opportunity to better support working from home, with technology and training, which in turn could facilitate further in-migration from Melbourne in the aftermath of COVID-19.

The Urban Exodus: A Shift to Regional Cities?

While it is too soon to gauge COVID-19s likely effects on internal migration (Ross, 2020), there is speculation that a shift to remote working could encourage more Australians to live outside major cities (Hopkins, 2020; Purtill, 2020). Demographer Simon Kuestenmacher argues that regional cities stand to benefit economically in the wake of COVID-19, "especially satellite cities in the orbit of the large capitals." The working-from-home trend, increased scope for regional manufacturing, and renewed concerns over high-density living could all serve to attract workers and investment to regional areas, says Kuestenmacher, director of research at Melbourne-based consultancy The Demographics Group (Kuestenmacher, 2020).

To revitalise regional economies after COVID-19, Kuestenmacher argues that regional cities should lobby state governments to (Difabrizio, 2020; Kuestenmacher, 2020):
- fund infrastructure projects to improve regional connectivity, including road and rail upgrades
- work closely with the local property industry to ensure an adequate supply of land and affordable housing
- devise strategies to attract workers and industry by promoting their city as a desirable and affordable location.

To attract would-be residents, "You need to actually paint a vivid picture of … 'You live in a house that is 50 per cent larger than it is in Melbourne, your commute is half as long and now your kids can actually take the bike to school.'" (Difabrizio, 2020).

While the regional visa scheme may lure some migrants away from capital cities, Kuestenmacher expects the numbers to be small, and border closures have stalled migration intakes. For regional cities keen to attract more workers, he says, millennials present a much bigger opportunity. This sizeable cohort has largely been locked out of the property market to date, but is now at the life stage of starting families and seeking bigger houses (Kuestenmacher, 2020). If regional cities want to become a destination for internal migration, argues regional and urban planner Bette O'Brien, they need to invest in their local areas and do more to attract younger, working demographics (Ross, 2020).

Kuestenmacher predicts that jobs growth will shift away from knowledge work and towards local manufacturing; this presents an opportunity for regional cities, which boast the drawcard of cheaper industrial land and housing (Kuestenmacher, 2020). While Geelong is well placed to benefit, the claim that local manufacturing will expand at the expense of knowledge work must be treated with caution. As outlined below, the manufacturing sector and the knowledge economy are increasingly intertwined (see Local Manufacturing section).

Tulsa Remote: Oklahoma, USA

Launched in November 2018, Tulsa Remote is a US-based program designed to encourage mobile workers to move to the City of Tulsa, Oklahoma. After a competitive application process, successful candidates qualify for US $10,000 paid in instalments over one year, along with subsidised rent, revamped cultural amenities, and a ready-made social infrastructure. The privately funded model seeks to bolster the local economy by attracting workers, rather than businesses, with variations being trialled in Vermont, Alabama and Topeka, Kansas.

The selection panel seeks candidates who will make a positive impact, be an intentional participant in the community, and hopefully stay on. In 2019, more than 10,000 people applied, 100 were selected, and 70 accepted. Including partners and family members, Tulsa gained 115 new residents. The Remoters, as they're known, are actively included in social activities and community networks, with regular outings, a newsletter, group texts, and a social media group where handpicked locals are invited to share tips and recommendations to help the new arrivals settle in. Co-working spaces are also key to the program, with participants given a free one-year membership to a local co-working facility (Holder, 2020; Kramer, 2020).

Tulsa (pop. 403,000) is a former oil boomtown hit hard by the 1982 recession, the US energy sector downturn of 2014 and 2015, and a brain drain of highly educated and working-age residents. It also has high rates of segregation and concentrated poverty, and a legacy of racial violence. Funded by a wealthy Tulsa-based philanthropy organisation, the George Kaiser Family Foundation, Tulsa Remote is part of city leaders' efforts to rejuvenate the City's economy and reputation. The broader strategy includes the massive $465 million Gathering Place riverfront park, an upgraded Oklahoma convention centre, and a revitalised arts district.

"Projects like this have a multiplier effect, even if the workers aren't employed by Tulsa-based companies", says Pamela Loprest, a senior fellow and labour economist at the Urban Institute. "They'll create other jobs and [draw] other people into that area". In November 2019, applications opened for the second phase of Tulsa Remote. By January this year, 5,000 people had applied, the first had begun, arriving, and ten had bought homes. This year's intake will be between 250 and 500 people (Holder, 2020).

Opportunities for Geelong:
- The City of Greater Geelong already attracts significant numbers of migrants from Melbourne, but COVID-19 presents a further opportunity to boost this flow and promote the advantages, safety and affordability of the region, especially for millennials and those currently renting in the middle to outer ring of Melbourne's suburbs. Any boost in migration will present challenges for the delivery of quality and timely services but also employment opportunities.
- The use of free apps and local networks to help new arrivals become part of the community could be a fruitful approach. Setting up a buddy system, whereby select locals are paired with new residents, could help foster community ties and industry-related connections.
- Co-working spaces play a key role in the Tulsa Remote program. These facilities can help in attracting and retaining remote workers, building community, and supporting local businesses. There is potential to create partnerships with larger businesses through sponsorship, events and workshops, or cultural programming to help transform co-working spaces into attractive, dynamic community hubs across the region.
- A well-designed campaign to attract workers, visitors, and perhaps businesses to the region presents one option. A project of this type could be delivered in collaboration with Traditional Owners, neighbouring municipalities, regional tourism bodies, and the local chamber of commerce. The Lille Metropole agency, profiled in the following section, might provide a useful model.
- Companies will be looking to decentralise and diversify. A number of large companies are now considering moving away from the CBDs and closer to employees' homes. More businesses will establish hub or satellite offices in different locations to allow employees to work closer to home, with affordable land, skilled workforce, secure parking and transport links to the CBD and metropolis for meetings. This presents real opportunities for Geelong and its suburban hubs as business locations.

Tourism

Tourism has taken a particularly heavy blow from COVID-19. International tourism ground to an abrupt halt, and regional tourism has remained marginal across Australia. At the time of writing, with fluctuating lockdowns and community transmission in Victoria, there is no clear indication of when regional tourism will open up. Both host destinations and visitors may well remain wary for some time. With Australia's borders likely to remain closed until mid-2021 or later, attracting domestic travellers will be crucial if regional tourism is to survive (Johnson, 2020).

Geelong also has particular opportunities as a consequence of Avalon Airport being an international airport in a regional location, which may well facilitate travel bubbles into the region from offshore and from around Australia.

Health Charter to Reassure Tourists: Lille Metropole, France

Working in partnership with the Institut Pasteur de Lille, French business development agency Hello Lille has developed a Health Charter to ensure the safety of Lille Metropole as a tourist destination. The Charter has been signed by 200 major stakeholders from the local culture and tourism industry. Signatories display their commitment to the charter by placing a specific logo on their facades and marketing materials.

This Charter is based on 10 key commitments, including compliance with barrier gestures, social distancing, cleaning and disinfection of premises, steps to take in the event of heat waves, and ongoing safety protocols during re-opening. A downloadable kit is available on the project website (Eurocities, 2020b). The Hello Lille agency provides free expert advice and assistance to businesses and entrepreneurs wanting to relocate to the Lille Metropole region (pop. 232,000) and actively seeks to attract workers to move there, particularly from nearby Paris. The agency is funded by the Local Government and Chamber of Commerce (Lilles Agency, n.d.).

Internal Tourism and Multicultural Programming: Vilnius, Lithuania

As part of its €1 million economic recovery strategy (Vilnius Plan 4×3), the City of Vilnius (pop. 580,000) is running a summer program to attract Lithuanian visitors to the capital while international borders remain closed. The Council worked with local communities, tour and event organisers, restaurants, hotels and artists to stage a rolling program of events. Every second weekend, visitors can experience a rotating showcase of culture from seven countries, including Italy, India, Japan, France, Spain, Germany and the USA. The aim is to support local business, culture and tourism, while celebrating multiculturalism and bringing the Lithuanian capital to life. Visitors and locals sample traditional cuisine from each culture, listen to outdoor concerts, attend exhibitions and performances, watch fashion parades and children's shows, and enjoy educational and cultural activities. Hotels and eateries are offering discounted rates (Vilnius City Council, 2020).

Opportunities for Geelong:
- Thanks to its location, Greater Geelong functions as a gateway city for the natural attractions of the Bellarine Peninsula, the Otways and the Great Ocean Road. It also is close to Avalon Airport, one of the few regional airports in Australia that can operate as a national *and* international gateway.
- Tourism is a major industry, with the related sectors of accommodation and food services, and arts and recreation services hard hit by the pandemic. Re-opening the region to local and national tourists in the short-term is vital, and the idea of travel bubble with a health charter, developed in collaboration with the tourism authority and Barwon Health, could be important initiatives to allay both fears and genuine risk for travellers.
- Tourism offerings can also be diversified, for example celebrating and recognising rich Indigenous cultural heritage, while expanding creative art and wine trails, with diversified offerings and sub-markets for the region including the business and convention market across a range of market segments and age groups.

Local Manufacturing: Poised for a Resurgence?

Disruptions to global supply chains during the pandemic have highlighted Australia's need to be more self-sufficient. This presents an opportunity for domestic manufacturing to play an important role in the nation's economic recovery (Green, 2020a; Duke, 2020). COVID-19 is already accelerating the emergent trend of reshoring, with Japan, France, Germany and

the US all moving jobs back onshore to reduce supply-chain vulnerabilities. Automation is another trend being fast-tracked by the pandemic, but one that may bring job losses in some sectors (Knight, 2020).

Manufacturing-sector expert Professor Roy Green argues that Australia's economic recovery strategy must embrace technological change and innovation, while also tackling climate change and social inequality (Green, 2020a) (**See Sections 3.3 Public Space, Transport and Urban Planning, 3.4 Green Recovery and the Circular Economy, 3.6. Social Inclusion, Health and Community Wellbeing**). Australia's industrial sector is poised for major transformation, Green underlines the value of smart specialisation, in its simplest definition, a regional policy framework for innovation-driven growth (OECD, 2013: 11), in shaping competitive advantage. He advises that Australia should nurture our niche markets and "create[s] clusters of small manufacturing industries we can develop" (Green, 2020b). Lithium in Western Australia presents a good case study. The establishment of a new $135m battery research centre operating out of Curtin University aims to position Western Australia as a hub for battery minerals and a manufacturing centre for lithium batteries operating at the cutting edge of the global lithium industry (Sas, 2020).

The uptake of Industry 4.0 – the unfolding fourth industrial revolution, or the digitisation of production processes – will be integral to creating a resilient manufacturing sector in a post-COVID-19 world (Belton, 2020; Seric & Winkler, 2020). In a 2018 report, Australia's Advanced Manufacturing Growth Centre (AMGC) frames Industry 4.0 as a way to reshore some production to Australia and bring jobs back to regional areas, including Geelong (AMCG, 2018: 10). Geelong is well-placed to help stage a revival in regional manufacturing, argues Lyn George, Chair of the Geelong Manufacturing Council and co-director of local engineering company Austeng. George describes the City as big enough to be home to a diverse range of manufacturing companies, yet small enough to foster a healthy ecosystem built on networking, knowledge exchange and cooperation. Deakin University's research strengths and industry connections are another advantage (George, 2020).

There are implications for local labour markets. Also known as advanced manufacturing, Industry 4.0 production relies on robotics, automated production, artificial intelligence, machine learning, 3D printing, smart factories and microcomputer networks. These technologies require a workforce that is skilled, innovative, creative, and engaged in ongoing learning and knowledge development (Shamim et al., 2016). Key workforce skills for Industry 4.0 include digital literacy, critical thinking and intelligent data analytics. There will be a need for high-quality education and training, including regular reskilling and upskilling, with short-form qualifications (micro-credentials) one widely canvassed option (Price Waterhouse Coopers, 2019: 21–22; 31). It should also be noted that widespread adoption of automation may lead to structural job losses and fewer positions for low-skilled workers (OECD, 2020d).

Collaboration for Rapid Innovation: Surgical Mask Fabric, Geelong | Tullamarine, VIC

When COVID-19 caused urgent global shortages in Personal Protective Equipment (PPE), Tullamarine-based manufacturer Textor Technologies was one of several Australian companies that rapidly switched its production focus to help meet the shortfall (Knaus, 2020). Backed by State and Federal Government funding, Textor, which normally makes fabrics for nappies, sanitary pads and baby wipes, worked with long-time collaborator CSIRO to produce a special filtration fabric for surgical-grade face masks. Adapting the existing machines, Textor used the CSIRO's pilot scale facility, located at Deakin University's Waurn Ponds Campus, to develop and manufacture the complex non-woven fabric. The CSIRO will test the performance of the material before it goes on to Australian Standards accreditation testing. If successful, Textor may produce the material at commercial scale (Green, 2020c).

Crowdsourced 3D Printing of Medical PPE: Brisbane, QLD

As the technology comes of age, 3D printing (also known as additive manufacturing) is likely to reconfigure supply chains, fostering the growth of on-demand, made-to-order and agile manufacturing models (Cunnane, 2020). During COVID-19, 3D printers were used to produce essential medical supplies, including nasal swabs, face shields, face masks, ventilators and respirators. US car manufacturers are amongst the companies that adapted their production to help produce these vital supplies during the current crisis (Banker, 2020). Brisbane-based company 3D One Australia, which specialises in 3D design and manufacturing, initiated a crowdsourcing project encouraging anyone with an unused 3D printer to help

manufacture parts for essential PPE equipment, including TGA-approved face shields. The company collaborated with Open Manufacturing Alliance to run the project (Hinchliffe, 2020).

Forward Procurement for Innovation: United Kingdom | Geelong, VIC

Developed in the UK, Forward Procurement for Innovation uses the public sector's buying power to encourage innovation and bring sustainable solutions to market. The process involves a government purchaser making a forward commitment to buy a product that responds to an identified need, but which is not yet available on the market. This commitment can be up to three years in the future, allowing time for research and development investment to bear fruit.

In 2017 the City of Greater Geelong pioneered the use of Forward Procurement for Innovation in Australia. The Council was spending approximately $500,000 annually on inspecting, maintaining and replacing its 160-odd pedestrian bridges. Working with local industry group Cleantech Innovations Geelong, the Council put out an Australia-wide competitive tender for a maintenance-free pedestrian bridge. The winning submission came from a consortium of Geelong-based manufacturers including Austeng, Rocla and Deakin University's Carbon Nexus. Using partly recycled materials, the group developed a fibre-reinforced geopolymer, a robust new eco building product. The first two bridges to be replaced are timber structures spanning Cowies Creek in Deppler Park (Seagull Paddock). In 2019 the Council began its second Forward Procurement for Innovation initiative, that applies circular economy principles to road infrastructure products (City of Greater Geelong, 2018; City of Greater Geelong, n.d.; George, 2020).

Opportunities for Geelong:
- Greater Geelong has examples of university–industry–government new technology collaborations with the Geelong Future Economy Precinct, which can and should be expanded.
- Geelong also has a long history in manufacturing, backed by a powerful skills and training base, along with a number of examples of emergent advanced manufacturing, including in green industry and the defence sector. These examples need to be further supported with research and development initiatives, government procurement incentives, and policies to support new era training and skills development.

Regional Connectivity

Consultancy firm SGS Economics and Planning argues that creating a coordinated economic corridor stretching from Geelong to the Sunshine Coast could boost GDP and help Australia recover from the post-COVID-19 economic slump. A recent SGS report, commissioned by the Committee for Melbourne, proposes the creation of an Australian Eastern Seaboard Megaregion (AESM) – an integrated chain of collaborating cities and associated hinterlands that would enable labour and capital to move cheaply within its bounds (SGS, 2020b). The idea stems from urban economist Richard Florida's influential studies of megaregions, and their potential as economic powerhouses (Florida et al., 2008).

The proposed AESM would encompass the state capitals of Melbourne, Canberra, Sydney and Brisbane, the regional Victorian cities of Geelong, Ballarat, Bendigo, Shepparton and Wodonga, a dozen or so regional cities across NSW and Southern Queensland and a swathe of rural and remote hinterlands (see map below). This region has a population of almost 10 million, and an area of around 627,000 square kilometres, comparable to megaregions overseas (SGS, 2020b: 44). In 2017–2018 its GDP was $1.262 trillion, or 69.6 per cent of Australia's total GDP (SGS, 2020b: 46).

The SGS report takes a big-picture approach and does not outline specific advantages or considerations for Geelong. Nor does it make direct reference to COVID-19; the claim that an AESM could aid Australia's post-COVID-19 recovery was made on the consultancy's website in late May, two months after the report's release (SGS, 2020a). The authors argue

that creating an AESM could boost national productivity and economic growth and increase economic participation, efficiency, innovation, specialisation, liveability and tourism across the megaregion. Other cited benefits include job creation, regional activation, reduced inequality, improved housing affordability, better population dispersion and reduced urban congestion and increased competitiveness in international markets (particularly around Industry 4.0).

Creating this megaregion would be a major long-term undertaking, requiring a range of collaborative initiatives and policy changes, including joint campaigns to attract investment and tourism, an upgraded and integrated transport system (high-speed rail, freight, standardised rail gauges and harmonised ticketing), data and technology sharing, amalgamating certain government functions, aligning laws and regulations, aligning skills/qualifications and education systems and creating new satellite cities between larger urban centres (SGS, 2020b: 9).

Proposed Australian Eastern Seaboard Megaregion

Source: Screenshot, SGS, March 2020: 8

3.3. Public Space, Transport and Urban Planning

COVID-19 is spurring city leaders to re-imagine public life. Many are framing the crisis as an opportunity to make cities more sustainable, resilient, inclusive and smarter (OECD, 2020b: 37; Ryerson CBI & ULI Toronto, 2020a & 2020f). The pandemic will also prompt governments to rethink density management, including how essential services might be decentralised (Klaus, 2020; Ryerson CBI & ULI Toronto, 2020b). In the short term, cities are exploring how public spaces can be safely reconfigured to enable social distancing (OECD, 2020b). While flattening the curve is the immediate priority, some emergent projects involve reconfiguring the urban landscape, tweaking planning laws, and/or building significant new infrastructure. Some of these changes will be permanent, paving the way for more pedestrian-friendly and less polluted future cities.

Parks and Open Spaces

Lockdowns and physical distancing have emphasised the need for equitable public access to green space, with some urban parks reporting greatly increased usage (Tanaka & Taylor-Hotchberg, 2020). Public health experts note that if physical distancing is observed, outdoor activities are generally safer than indoor ones for the foreseeable future, and parks can provide a safer alternative venue for fitness classes, shared meals, and meet-ups (Makary, 2020). Green space and nature experiences offer well-documented benefits for health, wellbeing, and happiness (Mitchell & Popham, 2008; Taylor & Kuo, 2009; Chang et al., 2020). Research has also found that nature-based approaches to post-disaster recovery, such as tree planting, improving parks, creating open spaces, restoring urban rivers and protecting ecosystems, can enhance urban resilience (Mabon, 2019).

Speaking at a recent webinar series on COVID-19 and the future of cities, Canadian urban planners and epidemiologists urged city leaders to view urban parks and green space as core infrastructure and living laboratories, and to conceive of these assets as essential to public health (Wall, 2020; Ryerson CBI & ULI Toronto, 2020f). Many initiatives currently being rolled out to make cities more walkable and cycle-friendly have the added benefit of increasing access to green space (see Active Transportation). Below is a selection of initiatives focused on green space and urban parks.

Greening the City: Melbourne, Australia

In response to COVID-19, the City of Melbourne is launching its biggest-ever revegetation project, with 150,000 new trees and shrubs set to be planted around the city. One aim is to support biodiversity and create habitat for birds, mammals, reptiles, frogs and insects. The project will also increase shade, reduce the urban heat island effect, improve the connectivity of green space, and generate 64 jobs for people who would otherwise be unemployed due to COVID-19. Plantings include 1000 semi-advanced trees, 3000 tube stock trees, 30,000 shrubs, and around 116,000 tube stocks of native grasses and wildflowers. This includes indigenous species such as River Red Gum, Golden Wattle, Coastal Banksia and Yarra Gum, native wildflowers such as Tufted Bluebells and Blushing Bindweed, and grasses such as Kangaroo Grass and Common Wallaby Grass.

The project is creating 24,000 square metres of understorey habitat, boosting the City's understorey vegetation by six per cent. Planting locations include the Maribyrnong River bike path, the historic Hotham Walk Avenue in Fitzroy Gardens, the Royal Park Golf Course, and nature reserves such as the Inner Circle Railway Corridor, Dynon Road corridor, Lorimer Street and Oak Street. Funded through the Working for Victoria initiative, the project is a partnership between City of Melbourne, CityWide, and the Victorian Government (SmartCitiesWorld, 2020).

Nourishing Landscapes: Nantes, France

The City of Nantes (pop. 303,000), France, is transforming green spaces, greenhouses, shared gardens and unoccupied green areas of municipal land into vegetable gardens to feed the City's vulnerable residents, many of whom are unemployed due to COVID-19. Around 50 plots, totalling around 25,000 square metres, are being planted with tomatoes, courgettes, beets and corn to be harvested in mid-July. Potatoes, squash and dried beans will be planted for harvesting in October. The gardens are being created and tended by local residents, volunteers, and young farmers from around the district.

The City hopes to produce around 25 tons of vegetables, to be delivered to 1,000 low-income households in difficulty via the Food Bank, charities and neighbourhood associations. The Nourishing Landscapes project was conceived after food aid charities reported being unable to keep up with demand, with growing numbers of families experiencing poverty and food insecurity due to COVID-19. There is also an educational aspect, with participants learning about fresh food cultivation, seasonal produce and cooking. The project is a partnership between the City of Nantes, Service of Green Spaces and the Environment (SEVE) and the Communal Centre of Social Action (CCAS) (Eurocities, 2020; TheMayor.eu, 2020b).

Connecting with Nature: Pittsburgh, USA

The Pittsburgh Parks Conservancy, a not-for-profit organisation overseeing the care and upgrade of the City of Pittsburgh's extensive parks system, are running programs to encourage people to connect with nature and use the City's green spaces safely during COVID-19. Park use rose 83 per cent during this period. The organisation also began online learning programs for environmental education, with forestry and horticultural staff teaching adults and children how to landscape their backyard, care for houseplants, start apartment gardens, explore their neighbourhood habitat, and try out mindfulness activities and forest bathing at mapped spots in the parks. There are also educational resources designed for teachers to use with their students (Tanaka & Taylor-Hochberg, 2020).

Outdoor Gyms and Park Educators: Florence, Italy

As Florence emerges from lockdown, the local government is running free sports training and exercise programs in parks, open to all ages and led by certified instructors from sports associations. Participants must register to limit group sizes and ensure safe distancing (Eurocities, 2020a). To welcome families back to the City's green spaces, the government of Florence has also launched a family support project, called Pollicino.Zero, placing educators and volunteers in eight city parks and gardens. Staff are available to answer parents' questions and suggest creative outdoor activities to do with their children (Eurocities, 2020b).

Planning Code Tweaks for Green Infrastructure: NSW | Australia | Toronto

Some jurisdictions have revised their local planning codes and systems in response to COVID-19. The New South Wales Government has made a number of changes to its planning regulations, including new measures enabling retailers, home-based industries and businesses to operate 24 hours a day, permitting the use of temporary structures for health service facilities and workers' accommodation, and expanding the use of food trucks and commercial kitchens to prepare and serve takeaway meals (Camenzuli & Davis, 2020).

Other tailored planning code changes could support sustainable recovery strategies. For example, the OECD suggests that local governments modify building approval criteria so that new developments do not encroach on public space (OCED, 2020b). Adjusting codes to enable the expansion of green infrastructure is another option. In June a group of Australian industry, government and university experts released a roadmap outlining strategies to fast-track the uptake of green roofs, walls and façades in urban space. The authors argue that this form of green infrastructure should be part of governments' COVID-19 recovery strategies, calling for it to be embedded in planning regulations and building codes (Bathgate et al., 2020). In Toronto, a 2009 bylaw making green spaces mandatory on larger new buildings created an estimated 1,600-plus jobs during construction, and 25 further maintenance jobs annually (Norman, 2020).

Civilian Conservation Corps: USA, 1930s

In 1933, as part of his New Deal to help lift the USA out of the Great Depression, President Franklin D. Roosevelt established the Civilian Conservation Corps (CCC). The Federally funded work relief program encouraged single unemployed men aged 18–25 to enlist in work programs to improve America's public lands, forests, and parks. Participants enrolled voluntarily for a minimum of six months and received meals, group lodgings, monthly pay, and supplemental basic and vocational education. Many participants completed their high school education while serving, some took on leadership advancement positions with increased pay, and an estimated 57,000 illiterate men learned to read and write in CCC camps. The program was extended to men aged 17–28, WWI veterans, skilled foresters and craftsmen, and around 88,000 Native Americans living on reservations.

Considered to be one of Roosevelt's most successful New Deal programs, the CCC provided employment for almost three million young men, who planted three billion trees in more than 800 parks nationwide. Under the guidance of the US Forest Service, the National Park Service and the Departments of the Interior and Agriculture, CCC employees also fought forest fires, cleared and maintained access roads, re-seeded grazing lands, controlled soil erosion, restored historic structures, installed waterlines, improved beaches and built wildlife refuges, fish-rearing facilities, water-storage basins,

fire lookout towers, and animal shelters. To encourage citizens to enjoy America's natural wonders, they also built bridges, walking trails, and campground facilities. The army provided transportation for the cadets. The nine-year project was a US$3 billion investment that helped to shape America's enduring system of national and state parks (History.com, 2018; Living New Deal, n.d.).

Active Transportation

Facing widespread anxiety about the safety of crowded public transport, a number of cities are launching strategies to prioritise walking and cycling. By improving urban walkability and expanding active transportation options, these projects also promote safe social distancing, reduce the risks of new viral outbreaks and help tackle urban congestion and pollution by reducing reliance on cars.

Toronto is creating quiet streets, reserving major streets for active transportation and is expanding its cycling network. The city is also developing ActiveTO, a program providing more space for walkers and cyclists and allowing better physical distancing for transit riders. Vancouver has banned cars indefinitely from Stanley Park, a major tourist attraction, to create more space for pedestrians (Wall, 2020). Paris has expanded roads for cycling and is adding new cycling lanes along Metro subway lines and there are plans to build fully protected bike lanes from the urban core to the suburbs, widen footpaths, plant more greenery, and convert lanes and parking spots into pedestrian-friendly walkways (Harrouk, 2020b). Brighton and Hove, UK, has closed part of its main seafront road to vehicle traffic, reserving it for pedestrians and cyclists from 8am to 8pm daily. Across Berlin, temporary bicycle lanes are being installed to reduce reliance on public transport and help commuters travel safely.

New active transportation and urban walkability projects are also underway in Bogota, Budapest, Brussels, and Mexico City. Sustainable transportation scholar Tabitha Combs, from the University of North Carolina, is compiling a live public database of worldwide transportation responses to COVID-19 (Combs, 2020).

Streets as Shared Places: Sydney, NSW
The New South Wales Government has committed $15 million to transform Sydney's streets, improve urban walkability, and provide more public spaces for social distancing. Under the Streets as Shared Spaces program, individual Councils can apply for $100,000 grants for immediate temporary projects, such as widening footpaths and cycle lanes, and up to $1 million for medium-term pilot projects, such as installing extra crossing points, widening kerbs and trialling lower speed limits. Further funds have been committed to three trial pedestrianisation projects: extending the George Street car-free zone in Sydney's CBD (in partnership with the City of Sydney), creating new pedestrian-only boulevard around Railway Street in the Liverpool City Centre, with temporary street furniture and trees to slow vehicle traffic (with Liverpool City Council) and the trial of a temporary people's loop in heritage-listed Parramatta Park, with reduced vehicle access to promote walking and cycling (NSW Government, 2020).

Open Streets: Milan, Italy
The City of Milan is transforming 35 kilometres of streets to expand cycling and pedestrian space. The Strade Aperte (Open Streets) plan seeks to prioritise active transportation, reduce congestion and pollution, increase public safety, support businesses that rely on foot traffic, and stimulate the retail and cultural economies. Due to be completed by the Northern Hemisphere summer, the rapid revamp includes new low-cost temporary cycle lanes, 30 kilometre per hour speed limits, designated pedestrian and cyclist priority streets, and wider footpaths. Work has begun on the city's main shopping thoroughfare, Corso Buenos Aires, with a new cycle lane and expanded pavements being built along the eight-kilometre stretch (Harrouk, 2020a; Hills, 2020). A low-traffic neighbourhood will also be created on the historic Lazzaretto site (Laker, 2020).

The redesign also extends into the broader Lombardy province, the region hardest hit by Italy's COVID-19 crisis (Harrouk, 2020a). Milan's metro transport system is also being retrofitted for physical distancing, with mandatory vacant spaces marked in subway trains and stations (Broom, 2020).

Tactical Urbanism

Tactical urbanism is a grassroots approach to neighbourhood-building that uses short-term, low-cost and scalable public space interventions to catalyse long-term change (SPC & Co-Design Studio, 2014: 7). Led by both users and experts, tactical urbanism projects can range from bottom-up, citizen-led, guerrilla interventions, to more top-down, municipally funded initiatives. Examples include pop-up parks, neighbourhood gardens, wayfinding stencils, co-trading hubs, open space-making, little libraries, urban games and neighbourhood-building street parties.

Also known as DIY urbanism, urban acupuncture, or planning-by-doing, this flexible model illustrates how residents can modify or co-design urban space in collaboration with government and the private sector. For local councils and communities, it can provide a tool for post-disaster rebuilding, a testing ground or place-holder for urban regeneration projects, a creative strategy to strengthen ties to place, a way to create positive emotions and experiences, and a strategy to extend public engagement, social capital, grassroots innovation, shared responsibility and local empowerment (SPC & Co-Design Studio, 2014: 8; Wesener, 2015).

Transitional City: Rebuilding Christchurch, NZ

Christchurch provides a case study of how tactical urbanism can be used to creatively transform post-disaster cities. After the devastating 2010–2011 earthquakes, Christchurch City Council drew on tactical urbanism to rebuild community, support local businesses and reactivate city spaces. In the wake of the disaster, council staff noticed grassroots community projects spontaneously springing up. The Transitional City program was designed to respond to and harness this existing community momentum. It provided funding and technical assistance, brokered access to vacant privately-owned sites, and negotiated leases and public liability insurance. Planning regulations were relaxed, with new rules to incentivise the use of private property to support public space objectives (Brand & Nicholson, 2016).

The Transitional City program resulted in a rolling roster of temporary public space improvements and installations. Collectively, these projects helped expand and revitalise the City's public spaces, making them greener, more flexible, more vibrant, more inclusive, and more expressive of collective identities. From 2010 to 2014 there were 325 community events; 100 vacant sites activated 450 times with 150 creative projects, 70 new business establishments, 25 new business models, products and services established from pop-up spaces and an influx of artists, entrepreneurs and visitors into the city. For every ratepayer dollar spent, there was a three to one return on investment (Schroeder, 2014; Brand & Nicholson, 2016). Specific projects included:

- **Greening the Rubble**: a volunteer community project to transform disused city sites into temporary parks and colourful gardens. The aim was to lift community spirits and bring life to otherwise stagnant or deteriorating areas, or vacant sites earmarked for future development. Its sustainable approach is based on recycled materials and biodiversity principles. Partners include the NZ Institute of Landscape Architects, Lincoln University, Canterbury University, and Christchurch City Council.
- **The Pallet Pavilion:** 80 volunteers and 40 businesses co-created a new outdoor event space on the site of the former Crowne Plaza Hotel. Built on private land using recycled and salvaged materials, including over 3,000 pallets and wreckage from nearby buildings, the project sought to attract people back to the City over summer. A crowd-funding campaign raised $80,000 in 29 days to extend the pavilion for a second season. The project was developed by Gap Filler, an urban regeneration initiative that temporarily activates vacant sites.
- **Dance-O-Mat:** created in response to the lack of local dance venues post-disaster, Dance-O-Mat was a communal open-air dancefloor installation developed in collaboration with Christchurch's dance community. A converted washing machine is linked to speakers set around an outdoor dance floor, complete with lights and mirror balls.

People connect their phone or music device, insert $2, and start dancing. The installation was popular with pedestrians, local dance troupes and dance schools, with salsa, flamenco, swing, ceroc, belly dancers, and break dancers using the space. In 2014 Dance-O-Mat spread to four other city locations.

- **Re:START shipping container mall:** provided a temporary retail centre for Christchurch businesses, and successfully attracted locals and tourists back to the city centre (Brand & Nicholson, 2016: 170).

Opportunities for Geelong:
- COVID-19 will generate a need for low-cost, innovative, socially inclusive projects that promote community resilience, lift morale, and reconnect residents with the region's public spaces. Tactical urbanism offers one model for delivering such projects. With its reputation for innovation, its strong arts and culture scene, and its status as a UNESCO Creative City of Design, Greater Geelong has the potential to become a world-leader in tactical urbanism.
- Geelong has previously staged tactical urbanism projects, but there is significant scope to revisit this model and adapt it locally in a post-COVID-19 context. Past initiatives include the 2013 Better Block project, which saw neighbourhood street parties held in Little Malop Street and Norlane (with Innate Ecology, Geelong Better Block and Two and Five Inc.) (SPC & Co-Design Studio, 2014: 18), the Malop Street Lab, the City in a Park program and the 2015 Active Streets creative cycling and walking event (with CoDesign Studio). There is scope to activate currently unused industrial and retail spaces, further building on the model of Renew Newcastle but also to ensure more open air community arts activity.
- Greater Geelong has a number of major art projects and festivals, such as Mountain to Mouth, Geelong After Dark and Pako Festa, which will need to be rethought and reanimated into a COVID-19 safe format.
- A significant opportunity exists to deliver a more coordinated on-road cycling network through the inner suburbs of Geelong whilst car transportation and road usage remains lower than usual levels. Realising on-road bike lanes down High Street Belmont, Moorabool Street and Gheringhap Street would deliver a core north-south cycling route.
- Greening Greater Geelong is already occurring with the award winning Malop Street Green Spine. However, there are other opportunities, especially in the new suburban developments being built at Armstrong Creek and being planned for the Northern and Western Growth Areas to ensure that these areas are rich in green canopies and designed for water retention/recycling and on site waste reduction i.e. to build sustainable suburbs

3.4. Green Recovery and Sustainability

Around the world, there is a strong appetite for COVID-19 recovery strategies based on green and circular economy models. Governments are exploring how to help cities become more resilient, circular, smarter, and better connected with rural areas (OECD, 2020b; Ryerson CBI & ULI Toronto, 2020d). Advocates for a green recovery include the International Monetary Fund, the World Bank, the OECD, the European Commission, energy giants BP and Shell, and the Korean, Canadian, German, French, Pakistani and Portuguese governments, among others (Morton, 2020b; OECD, 2020b). In June 2020 the World Economic Forum launched its Great Reset initiative, a commitment to "jointly and urgently rebuild the foundations of our economic and social system for a fairer, more sustainable and more resilient future", with a focus on human dignity, social justice and meaningful employment (World Economic Forum, 2020). The European Commission has also vehemently rejected a business as usual approach, pledging to create a more circular, sustainable, and inclusive future, and committing €15 billion annually to support the transition to a circular economy (Piccard & Timmermans, 2020; Cole, 2020).

The Global Mayors COVID-19 Recovery Task Force, a global coalition of city leaders, agrees climate action is central to economic recovery. In a recent joint statement outlining principles for building a better, more sustainable, more resilient and fairer society out of the COVID-19 crisis, they argue: "Climate action can help accelerate economic recovery and enhance social equity, through the use of new technologies and the creation of new industries and new jobs" (C40 Cities, 2020). Australian advocates for a green recovery include the Australian Industry Group, The Business Council, the Property Council, the Smart Energy Council, Clean Energy Council, the Australian Energy Council, the ACTU, the Australian Manufacturing Workers Union, the Australian Council of Social Service, the Brotherhood of St Laurence and the Australian Conservation Foundation, among others. A recent Australian report by Ernst and Young found that a renewables-led economic recovery will create almost three times as many jobs as a fossil-fuel-led recovery (Slezak, 2020).

Despite these promising signs, research by analyst firm Bloomberg New Energy Finance suggests that most government stimulus funding will serve to prop up the fossil fuel industry, making the international COVID-19 response even less green than the 2008 response to the Global Financial Crisis (Harvey, 2020). Australia's National COVID-19 Coordination Commission (NCCC) has drawn criticism for prioritising fossil fuel projects and gas in its recommendations (Morton, 2020a). In a detailed analysis for Forbes, development economist Nishan Degnarain warns against a return-to-normal approach that uses GDP as a yardstick for post-COVID-19 recovery. Degnarain documents a number of emerging responses that have increased environmental risks and argues that lowering environmental standards and bailing out polluting industries may accelerate negative second-order effects (Degnarain, 2020a; 2020b).

The OECD cites the UN's Sustainable Development Goals (SDGs) and the Paris Agreement as key guides for all levels of governments seeking to pursue a new sustainable development paradigm, to help them prioritise investments and resources in the recovery stage (OECD, 2020b: 36). Recommended strategies include (OECD, 2020b):
- reducing congestion and pollution by discouraging use of private cars and improving active and green transport
- revising planning rules to prioritise climate-resilient and low-carbon urban infrastructure, including green buildings and streets
- planting trees and actively creating new green spaces, including pocket parks and rooftops
- producing and buying renewable energy
- encouraging sustainable consumption and production, promoting the circular economy, rethinking short-mile logistics and reducing and recycling waste
- mainstreaming climate-friendly approaches via stimulus packages and investments (e.g. conditional subsidies, preferential loans and fiscal incentives for green investment projects and business practices)
- engaging communities to promote green commuting
- protecting the socioeconomic wellbeing of vulnerable groups.

A growing body of evidence shows that pursuing low-carbon and climate-resilient growth is a sound strategy to unlock lasting economic and social benefits. In the aftermath of the Global Financial Crisis, the American Recovery and Reinvestment Act (2009) was a federal statute designed to save existing jobs and create new ones as soon as possible. It included US$90 billion for strategic clean energy investments to promote the uptake of low-carbon technologies and attracted $100 billion in private investment capital. The Act supported around 900,000 clean energy jobs in the US between 2009 and 2015, while driving innovation and accelerating clean manufacturing (Mountford, 2020; White House, 2016). In 2010 alone, it lowered unemployment by an estimated 1.8 per cent and raised GDP by up to four per cent (Lew & Porcari, 2017).

The World Bank argues that green stimulus projects should be assessed on three levels (Hallegatte & Hammer, 2020):
- **short-term benefits**, including stimulus and job creation, supply chains, timelines, and the fit with local skills
- **medium-term benefits**, including any private investment leveraged, and the number of permanent jobs created after construction ends

- **long-term benefits**, including progress towards sustainability goals, decarbonisation, protecting local ecosystems and biodiversity, cutting pollution, reducing climate change vulnerabilities, and improving education and health outcomes.

The Post-Pandemic Circular Economy

Circular economy models aim to eliminate waste and minimise resource use. But as researchers note, not all circular economies are created equal. The Energy from Waste (EfW) model, which involves burning waste to generate electricity, has been dismissed as wasteful, unsustainable, and short-sighted effectively a pseudo circular economy (Velenturf & Purnell, 2020). A recycling-based circular economy has benefits, but is limited by consumer uptake, product design, and the amount of recyclable materials in the product.

A third model, a sustainable circular economy, requires changing both consumption and production practices. The products are designed to last, and or be reused, repaired and re-manufactured, people and businesses buy less, consume more responsibly, and lease, mend or re-purpose things. Instead of GDP growth, this model aims for multi-dimensional progress – strengthening the environment, human wellbeing, and economic prosperity for current and future generations (Velenturf & Purnell, 2020).

Circular economy finance expert Jen Rae sets out some considerations for the post-pandemic circular economy. Opportunities include (Raes, 2020):

- waste reduction due to reshoring and shorter supply chains
- a shift to locally integrated economies, such as the 'farm to fork' model
- an increase in product-as-service models and
- more inclusive outcomes from efforts to build back better, with the caveat that developing countries should not be left behind.

Challenges include disruptions to waste management during the pandemic, and a decline in the sharing economy due to a fear of second-hand.

Retrofitting Buildings

One proposed strategy for a green recovery is retrofitting buildings to make them more energy efficient. This approach would support the green agenda, create jobs, aid economic recovery and promote healthier living, while also future-proofing buildings from climate hazards and other risks, such as fire (OECD, 2020d). One option is to install solar panels on social housing, but this could be extended to other publicly owned infrastructure such as schools, libraries, and community centres. A scheme that installed solar panels on all of Australia's social housing dwellings would reduce power bills for low-income households, while potentially creating around 5,000 jobs, helping to lower national emissions, upgrading a public asset, and adding an estimated 1,600MW to Australia's rooftop solar capacity (Parkinson et al., 2020).

Clean Energy Investment: The Caribbean

Over the past 30 years, the Caribbean economy has become heavily reliant on tourism. The region is vulnerable to natural disasters and climate change, having survived 10 major hurricanes over the past 15 years, five of which struck in the past three years. But these previous shocks were localised and did not damage the entire region. COVID-19 is different. Tourism has collapsed, taking the regional economy with it. The Caribbean now urgently needs a sustainable and resilient foundation on which to rebuild its economy.

The Caribbean may be an ideal testing ground for the world's first renewable energy economy (Gumbs et al., 2020). The Caribbean has high electricity prices, an unstable and fossil-fuel based supply system that is vulnerable to natural hazards, as well as a wealth of untapped natural renewable energy resources. Because clean energy technologies are comparatively robust in the face of natural disasters, with sufficient capital investment, the region seems well-suited to a post-COVID-19 recovery strategy based on renewable energy.

Million Jobs Plan: Beyond Zero Emissions, Australia

Climate change think tank Beyond Zero Emissions (BZE) has recently launched the Million Jobs Plan that it claims could make Australia a renewable energy superpower by expanding clean manufacturing, shifting mining and transport to clean power and fixing Australia's broken recycling system. The plan identified seven key sectors where strategic investment over five years would create the most jobs and impact: energy, construction, manufacturing, transport, recycling, land use and training.

Launched on 29 June 2020, the plan was developed by BZE researchers in collaboration with communities across Australia, and an advisory committee made up of experts in economics, business, technology, and climate science. Advisors include former UN climate secretary Christiana Figueres, economics Professor Ross Garnaut, manufacturing expert Professor Roy Green and former Australian Prime Minister Malcolm Turnbull. The website notes that under the scheme, "jobs will be distributed around Australia, including in cities and regions already under pressure from the closure of traditional heavy industry and manufacturing, historical droughts and fires, and high unemployment." BZE also provides tools and resources for councils seeking to become a Zero Carbon Community (Morton, 2020a; Beyond Zero Emissions, 2020). They have a project focused on Diversifying the Hunter, this initiative is one that fits well with Geelong's future trajectory and Gateway City collaboration.

The Donut Model: Amsterdam, Netherlands

The City of Amsterdam has adopted the doughnut model to guide its COVID-19 economic recovery. Developed by British economist Kate Raworth, from Oxford University's Environmental Change Institute, the model rejects growth-based economics in favour of socially inclusive and sustainable approaches. As outlined in Raworth's influential book *Doughnut Economics* (2017), the central premise is that the goal of economic activity should be about meeting the core needs of all parties, but within the means of the planet.

The inner ring of the donut sets out the minimum conditions for leading a good life. Derived from the UN's SDGs, they include food and clean water, adequate housing, sanitation, energy, education, healthcare, gender equality, income and political voice. The outer ring represents ecological limits defined by earth-system scientists: the boundaries humans should not cross if we want to avoid damaging the climate, soils, oceans, ozone layer, freshwater supplies and biodiversity. The middle represents areas where both people's and planet's needs are being met. The initiatives include ensuring building materials are recycled and bio-based and encouraging the Port of Amsterdam to consider moving beyond fossil fuel dependence (Boffey, 2020; Raworth, 2017).

Opportunities for Geelong:
- There are more than 160 Council-owned buildings in the City of Greater Geelong (George, 2020). Some new structures such as the WorkSafe building are models of high-level green design. This model should be mandatory for all new Council buildings and incentivised across the City for new private construction.
- Geelong was famously a leader in the take up of kerbside recycling. The City of Greater Geelong, in collaboration with Deakin University, could progress the circular economy in the region on this foundation. Renewable energy could also be generated as part of a green manufacturing reboot. Deakin already has a microgrid and is developing new energy technologies, especially batteries that can be further grown in as part of the Geelong Future Economy Precinct.
- With a challenge offered by providing sufficient portable water for new population and industry growth, there is scope to progress water recycling and storm water harvesting in the region.
- On the basis of localised initiatives and Deakin University's research foundation, the City of Greater Geelong could become another site for the Beyond Zero Emissions project, connecting with the existing initiative in the Hunter Region (City of Newcastle being a Gateway City Alliance member).

3.5. Affordable Housing, Social Housing and Homelessness

The pandemic has underlined the urgent need to tackle social inequalities, with inadequate housing and high concentrations of urban poverty leading to higher death tolls in some cities (OECD, 2020b). Many governments, Australia's included, have placed moratoriums on rental evictions during the crisis, while some cities have banned foreclosures on homes (Parilla & Dinkins, 2020). However, rising unemployment figures will continue to increase the number of households experiencing housing stress. Forecasters predict that Australia's high levels of household debt, a legacy of the housing bubble, could inhibit consumer spending, trigger a housing market downturn and exacerbate the economic slow-down (Derwin, 2020; Wright, 2020; OECD, 2020b).

During the first wave of COVID-19 the governments of New York, Toronto, Montreal, California, London, Bristol, Bilbao, Paris and other cities around the world temporarily housed vulnerable homeless populations in vacant hotel rooms, gymnasiums or community halls (OECD, 2020b: 22–23). Across Australia, 7,000 rough sleepers were temporarily placed in hotels and pop-up accommodation. While this emergency measure has saved lives and helped curb infection rates, experts warn that this is no substitute for permanent secure housing and long-term solutions are urgently required. They point to Australia's steep pre-pandemic rise in homelessness, the significant population of hidden homeless, soaring unemployment, high rates of rental stress and household debt, a severe national shortage of social housing, and the volatile boom-bust cycle of residential construction as factors that must not be ignored in shaping economic recovery strategies (Pawson & Mares, 2020). COVID-19 has also put food charities and homelessness services under enormous pressure (Tuffield, 2020), and people living in overcrowded or marginal housing remain disproportionately vulnerable, which has wider repercussions for community health (Gurran et al., 2020).

In Australia there has been a strong push for governments to rapidly expand and upgrade social and affordable housing as part of the recovery effort (Gurran et al., 2020; Pawson & Mares 2020; Justice Connect, 2020; Michael, 2020). Advocates argue that a large-scale investment in social housing would create jobs, stimulate the economy, support the construction industry, reduce the significant social and economic impacts of homelessness, and promote long-term social wellbeing. A new report by several peak housing bodies found that investing in a four-year social housing construction program of 30,000 new homes would create up to 18,000 full-time equivalent jobs per year. The proposed Social Housing Acceleration and Renovation Program (SHARP) calls for Federal Government investment, backed by State and Territory Government contributions, to fund the rapid construction of 30,000 new units and eco-renovate thousands of existing properties over a four-year period (CHIA, 2020).

Organisations voicing support for large-scale social housing investment as part of Australia's recovery strategy include Master Builders Australia, the Australian Institute of Architects, the Australian Council of Social Service, the Centre for Social Impact, the Planning Institute of Australia, Women's Community Shelters, Pro Bono Australia, the construction union (CFMEU) and housing advocates such as National Shelter, Homelessness Australia, the Council to Homeless Persons, the Australian Alliance to End Homelessness, and the Community Housing Industry Association (Mares, 2020; AIA, 2020). The OECD also recommends that Federal Government support should be directed to "improving resilience and social and physical infrastructure, including strengthening the social safety net and investing in energy efficiency and social housing" (OECD, 2020b: 139). Several social housing investment programs have been adopted as a part of a suite of government stimulus and recovery responses to COVID-19 and the Global Financial Crisis.

Rental Payment Suspensions for Vulnerable Households: Portugal, Spain

Portugal's parliament approved the temporary suspension of rents for vulnerable households and at-risk small firms during the coronavirus outbreak. The City Council of Sintra has temporarily suspended rental payments for 1,700 social housing families and 70 tenants of non-profit organisations, including sports and cultural associations. The City of Lisbon has also temporarily suspended rent payments for 24,000 social housing families. Critics have pointed out that these measures will likely backfire as eligible residents and businesses will continue to accrue unpaid rent and will be required to

repay it in full at a later date. This will result in increased debt and worsen the country's housing crisis (Demony & Waldersee, 2020).

Neighbourhood Stabilisation Program: Various Cities, USA

The US government's Neighbourhood Stabilization Program (NSP) provides grants to states, local governments (city councils, counties) and certain other organisations to buy foreclosed, abandoned or blighted homes in low-income neighbourhoods at below appraised value. Acquired homes are then renovated or redeveloped into affordable housing. The program aims to stablise neighbourhoods, reduce urban blight, prevent nearby properties from dropping in value, offset the economic impact of the housing market downturn, and increase the supply of long-term affordable housing. Grantees use NSP funds to help local homebuyers purchase homes at subsidised cost. NSP housing is reserved for low- and moderate-income individuals or families only.[11] The program specifically targets lower-income areas and suburbs with high foreclosure and vacancy rates. Mapping tools are used to identify target suburbs.

One obvious advantage of this acquisition model is that rehabilitating existing homes is both cheaper and faster than building new ones. Federal NSP funds were allocated in three rounds after the Global Financial Crisis, but the program is still running locally across the USA (Hud.Gov, 2020). Rules for homebuyers vary by grantee/jurisdiction. For example in Lee County, Florida (pop. 740,000), eligible homebuyers must attend homebuyer education classes, be cleared to obtain a mortgage from a lending institution and occupy the property as their primary residence. Lee County provides down payment assistance, closing costs and a second mortgage, which takes the form of a zero-interest forgivable loan. This loan covers the difference between the purchase price and what the bank will lend the buyer and is written off after 15 years provided the homeowner occupies the property continuously. NSP subsidies are income-tested and down-payment contributions start from as low as $500 (Lee County, 2020).

US housing policy and planning experts argue that the NSP model provides one strategy to increase affordable housing during the COVID-19 recovery, albeit with some caveats. Housing stress and vacancies may be more geographically dispersed during the current crisis, so the NSP's funding allocation model may not be directly transferable. But the model could be adapted to increase affordable housing stock more broadly across municipalities, including within high-opportunity neighbourhoods, areas with higher income, education and job figures. To avoid conflict between multiple program goals, clear strategies and priorities must be set: for example, while the model has potential to support local construction jobs, properties that require extensive revamps have a higher per-unit cost, meaning fewer units are acquired.

To work in situ, the model must be tailored to local needs, resources and market conditions. Considerations include community priorities, partner organisations, the feasibility of community land trusts or limited equity cooperatives, scope to leverage private or philanthropic investment, how mixed-income models might support long-term affordability, and whether councils will manage the properties long-term or transfer ownership to housing providers (Ellen et al., 2020).

New Social Housing Investment: Victoria | NSW | WA | SA | Australia-wide

The Victorian Government has committed $500 million to social housing as part of its COVID-19 recovery strategy. The funding is allocated to the upgrade of 23,000 properties and 168 new social housing units (Mares, 2020). The New South Wales Government has committed $36 million to provide permanent homes for rough sleepers, under its new Together Home program. Around half of the funds will be used to buy new homes, the remainder is earmarked for wraparound services including mental health, drug and alcohol treatment, and connecting to the NDIS (Koziol, 2020).
The Western Australian Government has announced a $444 million Social Housing Economic Recovery Package (SHERP). The funding will result in 250 new dwellings, refurbishment of 1,500 existing public housing units and supported

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[11] NSP funds can be used to assist households earning up to 120 per cent of the median area income, but some properties are set aside for households on 50 per cent or less of the median area income. NSP funds cannot be used to acquire homes from current owners.

accommodation (refuges, residential group homes for children in care, and supported disability accommodation), as well as maintenance for 3,800 regional social housing properties, including housing for remote Aboriginal communities and regional government workers. Refurbishments will aim to improve liveability, sustainability and appropriateness for residents' needs, and new builds will be constructed to Liveable Housing Australia's silver standard or higher to support people with disability. SHERP will support an estimated 1,700 jobs, many located in regional areas (Government of Western Australia, 2020b). The South Australian Government has called for expressions of interest from organisations who can deliver reductions in homelessness across the state.

National Housing Scheme: Post-War Australia

Australian housing researcher, Peter Mares, points to a major post-war housing initiative as a model for tackling the COVID-19 housing crisis. In 1943, a year-long government inquiry warned that Australia faced a shortage of 300,000 dwellings. The resulting Commonwealth-State Housing Agreement saw the Federal Government advance long-term loans to the States to build rental housing for low-income Australians. Over the following 25 years, about one out of six new houses in Australia was built by the Government.

This policy milestone was informed by an influential book called *Housing the Australian Nation* (1942), written by two prominent social reformers, F.W. Barnett and Walter Burt. Their argument hinged on a simple premise: "It is part of the birthright of every citizen to enjoy decent shelter." The authors demonstrated how a shortage of affordable, stable rental accommodation both undermined and overwhelmed other aspects of our social system, such as access to education and healthcare. They argued that Australia needed a National Housing Scheme which became reality after World War 2. In the post-war decades, public sector agencies built more than 15,000 dwellings annually (Mares, 2020). Today that figure has shrunk to 4,000 units annually, which barely covers the number sold or demolished.

Large-scale social housing initiatives are not cheap, notes Mares. "But unless we invest in social housing, we are going to spend a lot of money anyway; we're just going to spend in different, less effective ways as we condemn a proportion of the population to housing insecurity and rental stress." Australia does not currently have a national housing scheme or strategy.

Opportunities for Geelong

- The recently commissioned and endorsed Social Housing Policy for the City of Greater Geelong has now been initiated, with a target of 100 new units to be built over 2020. This is a major positive step, but the need, in the order of 7,000 units per annum, is far greater than the commitment. There is an opportunity to extend this initial commitment as part of a post-COVID-19 employment and social justice package and to build more social housing in collaboration with private developers as they open up land in Armstrong Creek and the Northern and Western Growth Areas.
- Samaritan House Geelong in partnership with Formflow and Deakin University, has developed a prototype, prefabricated, one-bedroom unit called Prefab21. These independent living units are being established in the suburb of Moolap as transitional accommodation for men who experience homelessness. This model could be expanded to partially address the shortfall in social housing in the City of Greater Geelong.

3.6. Health and Social Inclusion

COVID-19 has brought existing socioeconomic inequalities into sharp focus. The United Nations (UN) and the International Monetary Fund (IMF) predict the pandemic will increase inequality around the world, with an additional eight per cent of

the global population expected to fall into poverty (Sumner et al., 2020). Groups who are more vulnerable to the health and socio-economic impacts of COVID-19 include people living in poverty, low-income households, people in insecure or casual work, female and migrant workers, the elderly, youth, Indigenous peoples, refugees, ethnic minorities, people experiencing homelessness, people with disabilities or chronic illness, those with pre-existing health conditions and people who are digitally excluded (van Barneveld et al., 2020; OECD, 2020b: 34; United Nations, 2020; Kabir et al., 2020). There has also been a reported spike in family and domestic violence during Australia's lockdown periods (AAP, 2020; Mills, 2020).

While the pandemic has exposed glaring vulnerabilities in the health sector, it has also increased the uptake of new models for delivering non-urgent medical care. COVID-19 triggered a 14 per cent increase in Australians' use of telemedicine, with 15 per cent of people keen to continue using this mode of service delivery once the crisis is over (McKinsey, 2020). However, telemedicine is likely to remain out of reach for digitally excluded Australians, including many older people (Thomas et al., 2016) and concerns have also been raised over a worrying drop in GP visits, medical tests, and scheduled health check-ups during the pandemic (Tsirtsakis, 2020).

Mental health and social inclusion are also likely to present significant and ongoing public health concerns. In a new book, *Together Apart*: *The Psychology of COVID-19*, social psychologists warn that for many vulnerable groups the pandemic has led to increased social isolation, which carries health risks and lowers psychological resilience. The pandemic is also likely to increase rates of post-traumatic stress disorder (PTSD), collective trauma, inter-group conflict, prejudice and discrimination (Bentley, 2020; Crimston & Selvanathan, 2020; Cruwys, 2020; Haslam, 2020; Muldoon, 2020). Building social cohesion, resilience, connection, solidarity, and a sense of collective belonging will be vital if communities are to recover from this crisis.

To rebuild more inclusive, equitable and resilient cities, the OECD argues that recovery strategies must be designed to meet the needs of vulnerable community members. Governments need to (OECD, 2020b):
- actively consult communities about what services they require and provide efficient responses for disadvantaged groups, including elderly and homeless individuals
- ensure that vulnerable groups, including migrants and low-wage workers, are targeted with customised, flexible and relevant employment programs that respond to the new needs of local labour markets
- improve housing quantity, quality and affordability; promote equitable access to quality education, including online learning, especially for low-income youth
- foster collaboration between universities, businesses, all levels of governments and civil society.

All Right? Wellbeing Campaign: Christchurch, NZ
After the 2010–2011 Christchurch earthquakes, protecting residents' mental wellbeing became an urgent priority for local government. Launched in February 2013, the All Right? campaign was designed to support the psychosocial recovery of people across the Canterbury region after the quakes. The first iteration used hoardings and flags in public spaces to convey messages about mental health, self-care, and the importance of seeking support from family and friends. The program was informed by disaster recovery research and developed in response to a briefing paper written by New Zealand's Chief Science Advisor on the likely psychosocial effects of the quakes and strategies for mitigating them. Post-disaster research suggests that people go through four stages of recovery: the Heroic Phase, Honeymoon Phase, Disillusionment Phase and Reconstruction Phase. All Right? was launched during the disillusionment phase, when people begin to grasp how long recovery will take and start feeling frustrated, tired, overwhelmed, and a sense of grief. All Right? became an ongoing wellbeing and mental health program run by the Canterbury District Health Board and the Mental Health Foundation of New Zealand. The program runs social media campaigns, publishes research, and provides free online resources for kids and adults, including apps, games and parenting courses. A recent evaluation found that 77 per cent of respondents said All Right? messages made them more aware of looking after their wellbeing, and 47 per cent took action as a result (All Right? n.d.; Brand & Nicholson, 2016).

Lift Up Lou and Hack-A-Thon: Louisville, Kentucky, USA

Lift Up Lou was launched by the City of Louisville (pop. 600,000) in partnership with local organisations to promote health and wellness and keep residents' spirits up during COVID-19. The project connects with Greater Louisville area residents via its website, Facebook, Twitter, and Instagram accounts. It promotes a range of activities for wellbeing and provides tools and guides for bird spotting, plant identification, nature walks, family outings, free exercise classes, library resources, educational content, local eateries, online arts performances, historic archives, and virtual tours of local museums.
The Lift Up Lou initiative includes the Louisville Arts Network, which offers micro-commissions to local artists to create visual, performing, or written artworks that are shared with the public through daily social media posts and Facebook Live performances. As part of Lift Up Lou, local tech enthusiasts, entrepreneurs and creative problem solvers are invited to participate in a virtual Hack-A-Thon to address challenges faced by local organisations due to COVID-19. Any local organisation can submit a problem. Residents then work in teams to develop solutions over three to five days, then present them via a live Facebook event.

The Hack-A-Thon aims to lift spirits, improve community cohesion, foster innovation, and solve local problems. It is sponsored by Microsoft's Future of Work Initiative and Humana and run in partnership with Louisville Metro Government, and Louisville Entrepreneurship Acceleration Partnership (LEAP) (Lift Up Lou, 2020; Louisville Arts Network, 2020; Hack-A-Thon, 2020).

Fighting Stress Together: Beşiktaş, Turkey

Beşiktaş Municipality (pop. 186,000) in Turkey has launched a new anti-stress campaign to help people cope and adjust as COVID-19 restrictions are lifted. A secondary aim is to minimise the long-term damage of the pandemic on the local community. The municipal government has established an anti-stress committee, with psychologists from the local Beşiktaş Public Health Digital Management Centre. Residents will be able meet by appointment with clinical psychologists, either online, in person, or at events held in public parks. Stress-relief activities such as yoga will also be held in parks and other public places, and musicians will perform at various public locations around the district (Eurocities, 2020b).

Behavioural Health Impact Fund: San Diego, USA

Working in partnership, the City and County of San Diego have announced a joint US$25 million Behavioural Health Impact Fund to provide new infrastructure for mental health and substance abuse treatment. The one-off funding aims to help tackle an expected rise in depression, anxiety and drug overdoses due to stress and uncertainty around the COVID-19. Funds will be used for capital investment, enabling support services to buy, expand or renovate a facility to increase their capacity to serve people experiencing mental illness and substance abuse issues. With local motels struggling during the crisis, the funding may present an opportunity for service providers to buy the buildings and upgrade them to create new service facilities for clients (Ruth & Sauer, 2020; Huard, 2020; Clark, 2020).

Opportunities for Geelong
- There are areas of the City of Greater Geelong, such as Corio-Norlane and Whittington that have long been known to be multiply disadvantaged. These areas are receiving the highest levels of extra COVID-19 income support. Organisations such as Northern Futures and GROW recruit and support into training and then employment in locally expanding industries – such as construction, public administration and social assistance. In the process they also deliver wrap around services to not only address unemployment but also mental health and other social issues, providing a model for emulation across the region.

3.7. Arts, Culture and Creative Industries

COVID-19 dealt a major blow to the Australian arts and cultural sector. The first wave of COVID-19 caused event cancellations across the sector, placing many arts organisations in financial peril and leaving workers without income. Many of these organisations did not qualify for the Federal Government JobKeeper scheme, due to the uneven cash flow typical of an industry that derives income from box office takings, grants, sponsorship and or philanthropy. ABS figures showed 53 per cent of small arts and recreation businesses closed by early April. By comparison, 31 per cent of accommodation and food services closed in the same period (Boland, 2020). Arts sector workers are most often freelancers or employed in casual, precarious and short-term positions. Most do not qualify for JobSeeker payments (Boland, 2020).

While the Australian arts sector and workers have received little government support, elsewhere other governments are implementing programs to help ease the impact on the sector and individual workers (UNESCO, 2020b). Measures include direct grants to support arts practitioners and organisations, commissioning of new creative works, curating of online performances, funding for new digital platforms, compensating arts workers for cancelled events and reimbursing venues for operational losses, providing income support and granting rent waivers. UNESCO is compiling a live database of city-based and regional responses (UNESCO, 2020b).

Creative ecosystems are an important ingredient for vibrant, diverse cities. To protect local creative economies, urban scholar Richard Florida recommends governments establish a creative economy team to:
- assess the impact of COVID-19
- provide technical advice to smaller galleries, independent theatres and music venues on how to re-open safely
- convene philanthropic bodies, private donors, and large-scale 'anchor institutions' to explore funding avenues
- create a micro-funding mechanism to support small-scale community arts-based initiatives.

This type of funding also creates community returns. Arts and culture play a valuable role in post-disaster recovery programs. Research shows that taking part in meaningful creative activities supports wellbeing, strengthens social ties, builds community, and promotes resilience in the wake of a disaster (Maidment, et al., 2015; Huss et al., 2016). Arts-based community projects have been successfully used as a tool for civic engagement, community-building, social inclusion and healing in the wake of prior major shocks to regions, including civil wars and natural disasters (Cohen-Cruz, 2009; Ephrat et al., 2016; Maidment et al., 2015; Gussak, 2002).

Yarra Valley Writers Festival: Victoria, Australia

While a slew of writers' festivals around Australia were being cancelled due to COVID-19, the Yarra Valley Writers Festival moved online in May 2020. Events included a full day of live-streamed talks, panel sessions, a free online book club and a series of free one-hour discussions with authors. Most events were ticketed and authors were paid for their appearances. Guest speakers included Tony Birch, Charlotte Wood, Christos Tsiolkas, Michael Veitch, Hannie Rayson and Emma Viskic. Attendance was strong, with 2,500 views of the sessions and highlights were shared via social media. The festival was supported by Yarra Ranges Council, who provided technical support to move the program online (YVWF, 2020; AFR, 2020).

San Diego Arts + Culture Challenge: San Diego, USA

The San Diego arts and culture sector generates around $1.1 billion annually and supports 35,914 full-time equivalent jobs (City News Service, 2020; Varga, 2020). The City of San Diego (pop. 1.4 million) launched a new private-public partnership to support local artists and creative sector organisations during COVID-19. The program aimed to stabilise the creative sector and lessen financial losses. $1.25 million in seed funding was secured from government, philanthropic organisations and private donors. The money raised is being used to purchase existing works, commission new works and provide grants for creative sector workers who have lost income due to the pandemic. Acquired and commissioned works will be installed in public spaces once lockdowns are eased. Critics have pointed out that as part of its COVID-19 response the City of San

Diego has made a 50 per cent cut in next year's round of arts and culture grants, with $5.8 million slashed from the grants budget.

Online Revival for Craft and Culture: Areguá, Paraguay

The City of Areguá (pop. 70,000), Paraguay, has launched a six-month program to revitalise the region's socio-cultural and economic activity through virtual media and intercity cooperation. Plans include a month-long online arts festival, featuring:

- music, dance, and circus performances by local practitioners and cultural groups
- a livestream showcasing locally made handicrafts and interviews with artisans from around the region
- the creation of a book, produced in consultation with community members, featuring ancestral food made with local produce.

The program seeks to create spaces of cultural visibility to help revive the creative economy and showcase the city's rich culture. The City is also undertaking community consultations to gather knowledge on good cultural practices that can help prevent the spread of COVID-19 and provides advice on bio-security measures for artisans trading with the public. As part of UNESCO's Creative Cities Network (Crafts and Folk Art), Areguá has committed to placing culture at the centre of its development strategies (UNESCO, 2020a).

Art Without a Roof: Vilnius, Lithuania

To enliven their city and support local artists affected by COVID-19 lockdowns, the government of Vilnius (pop. 580,000) is transforming the city into an open-air art gallery. The Art Without a Roof project will see 100 artists exhibit their work on 100 outdoor advertising billboards in the centre and Old Town district. A map will be published to help people find the public artworks. An online gallery is also being constructed to display and promote the work of artists not featured on the outdoor billboards. Participation is free and all the artworks will be available for purchase. The outdoor exhibition opened in July 2020, and ran for three weeks (TheMayor.eu, 2020a).

Arts-Led Urban Renewal: Renew Geelong | Renew Newcastle | Renew Australia

Renew Geelong was a social enterprise that enabled creative enterprises and projects to take out free, 30-day rolling tenancies in vacant city buildings. Creative tenants paid a nominal fee for public and product liability insurance. Launched in October 2018 and funded by the City of Greater Geelong and Creative Victoria, the program supported 76 artists and creative groups over its 18-month lifespan. Local partners included Market Square, Up Property, Batman Investments, Maxwell Collins and David Hamilton Property Group. Key sites include Market Square, Belcher Arcade, and Little Malop Street (Aliento, 2018). Renew Geelong was discontinued in May 2020, while this report was being compiled (Van Estrop, 2020). However, the program's Facebook page remains active as of late June 2020.

The model was based on Renew Newcastle, a seminal project that gave artists and creatives free temporary leases for vacant commercial spaces in Newcastle's CBD. Launched in 2009, Renew Newcastle spawned 200 projects over nine years, harnessing local creativity to revitalise the ailing post-industrial city (*ABC Regional News*, 2017; Kerrigan & Hutchinson 2016). An independent study by the Centre of Full Employment and Equity (CofFEE) found that for every dollar invested, Renew Newcastle returned $14.40, and overall added $3 million to the economy (Flanagan & Mitchell, 2016).

The success of this nimble, grassroots model inspired a raft of empty space revitalisation schemes around Australia and overseas. Founder Marcus Westbury details the model in his book *Creating Cities* (Westbury, 2015). In 2013 Westbury founded Renew Australia, a national social enterprise which consults to the private and public sectors on how the model can be adapted successfully for local contexts. Renew Australia oversaw the Renew Geelong project.

3.8. Summary of Findings (Part 3)

As key sectors internationally and nationally are reeling from the impact of COVID-19, especially retail, accommodation and food services, the arts and tourism, there are also new initiatives and trends emerging around home-based work, online education and retail, streaming of services, urban renewal, localisation and reshoring of manufacturing.

From the analysis presented in Part 3, a second set of preliminary recommendations emerges. These recommendations build on the examples of co-working spaces, such as The Exchange, Dubbo and Tulsa Remote in the US, along with the Health Charter developed in Lille, France. They also draw on ideas and arguments around the reshoring of advanced manufacturing, the move towards the circular and green economy, revitalising the creative industries and town planning initiatives for urban greening, active transport, tactical urbanism and social housing.

3.9. Preliminary Recommendations (Part 3)

- Provide better connections between displaced workers and relevant on-line retraining and reskilling programs, perhaps modelled on Skilling the Bay, with local tertiary education providers.
- Capitalise on the COVID-19-generated attraction of non-metropolitan areas to boost the in-migration of people and businesses via targeted marketing campaigns backed by welcome, integration and incentive packages.
- Build on the trends for more home-based work, commuting, localisation and flexible working hours: create more local co-working spaces, especially in existing High Streets, to boost retail and offer low cost spaces for collaboration, employment and innovation.
- Boost on shore manufacturing via a suite of policy interventions to support research and development, University-Industry-Government collaborations (modelled on ManuFutures, Innovation Hubs) and incentives (well serviced and connected land, payroll tax exemptions, research and development concessions, government procurement) for the further development of the circular economy, green energy, advanced and green manufacturing.
- Explore the possibility of the Greater Geelong becoming a site for the Beyond Zero Emissions project.
- Tourism to be boosted through a local and national campaign developed in collaboration with Barwon Health. Built around a health charter, it will include a set of packaged, safe products across a range of high end as well as more popular offerings (walks, cultural activities, eco-experiences, food-wine-accommodation packages) for Greater Geelong.

- To both support the arts and cultural industries and High Streets, activate a vacant spaces type program like Renew Geelong in empty retail and other spaces.
- As new areas are developed in Armstrong Creek and in the North and Western Growth Areas, take the opportunity to build in active transport (especially a cycling network), 10-15 minute neighbourhoods (with employment, education, health, recreation and other services all located in localised, walkable hubs or High Streets) and green, sustainable. neighbourhoods. The principles of a 10-15 minute sustainable neighbourhood can also inform other urban planning decisions for existing areas of Geelong.
- Boost social housing construction and renovation across the region, to support the construction industry, boost social inclusion and meet the shortfall of affordable housing. Expand the Samaritan House Geelong model of transitional housing to partially meet the shortfall. Implement and accelerate the City of Greater Geelong Social Housing Policy.

4. Impacts of COVID-19 on Geelong

4.1. National and State Economic Trends

During the Global Financial Crisis (2007 to 2009) the Australian economy contracted by 0.5 per cent. During the first half of the year 2020, the COVID-19 pandemic led to the most severe contraction in global and domestic economic activity in decades (RBA, August 2020). By the June quarter 2020 the Australian economy had contracted 7.0 per cent. It was the second consecutive quarterly contraction and the sharpest on record, entering Australia into the first recession in 30 years. The unemployment rate increased to a two-decade high in July 2020 and business confidence nosedived in the same month as consumer confidence deteriorated in the July to August period.

In Australia, 40 per cent of GDP and 70 per cent of employment is derived from services and this is the area that is being hit the hardest. In particular, the economic sectors and industries most impacted by COVID-19 are (Coates, 2020):

- hospitality (cafes, restaurants, hotels, and clubs)
- tourism and accommodation
- retail
- education (especially those parts exposed to the cessation of international students)
- arts
- high-touch industries (gyms, personal trainers, beauty, therapists, tattooists).

Unemployment was at 5.1 per cent at the beginning of 2020, by August it was 7.5 per cent. When adjusted for the significant decline in labour force participation, the figure is much higher at 10.0 per cent. While the unemployment rate fell slightly in the September quarter to 6.8 per cent, it is expected to rise again over 7.0 per cent, while the effective rate, once the government JobKeeper payments are removed along with those wishing to work who cannot, is estimated to be well over 14 per cent.

Younger Australians and women are the hardest hit, due to a higher proportion being employed in occupations and industries most affected by the lockdowns and social distancing measures (Coates et al., 2020). While it is estimated that up to 38.6 per cent of jobs and 39.7 per cent of hours worked can be done from home (Coates et al., 2020), this still leaves 60 per cent of jobs that need to be done in person.

In 2019 Australia was not in great economic shape. While there had been over 20 years of uninterrupted economic growth, this had slowed considerably and there was rising unemployment, stagnant wage growth, and interest rates at close to zero. Consumer confidence was down and retail spending slumped to a 28-year low nationally in 2019. Nationwide over 160 popular Australian chain stores were earmarked for closure in late 2019, including Dimmy's, Bardot, EB Games, JeansWest and Curious Planet (National Geographic) that shut stores in Geelong.

The COVID-19 epidemic therefore hit an already-vulnerable economy. As Australia began implementing COVID-19 social distancing rules and stay at home restrictions, the national borders closed on 20 March 2020. Over the March quarter 2020 GDP fell 0.3 per cent. Incomes rose by 6.2 per cent, but only as a result of government payments related to COVID-19 and bushfires, along with an 11.0 per cent increase in insurance payouts as a result of bushfires and hailstorm claims. But rather than spend this additional income, Australians saved. COVID-19 affected consumer spending with some sectors experiencing a lift as people stocked up on food, cleaning products, and of course toilet paper, along with communications, home furnishings, education and household equipment. Other sectors saw dramatic falls, led by transport, hotels, cafes and restaurants (down 9.2 per cent), along with falls in the purchase of clothing, footwear and vehicles (both their purchase and operation) (Martin, 2020). While a range of indicators suggest consumption will increase nationally in the September quarter, following an extremely weak June quarter, the global recession is reducing export

demand for Australian goods and services and disrupting supply chains that businesses depend on. The International Monetary Fund (IMF) and Organisation for Economic Cooperation and Development (OECD) expect a deep global recession in 2020, forecasting world output to decline by between 4.9 per cent and 7.6 per cent.

In Victoria, COVID-19 Stage 3 Stay at Home restrictions were in place from 30 March to 12 May and resumed for metropolitan Melbourne and Mitchell Shire from 9 July to 2 August. After this date restrictions escalated to Stage 4 and a curfew was put in place between the hours of 8pm until 5am. Victoria's regional areas, on Stage 2 restrictions from 13 May, resumed Stage 3 restrictions from 5 August. While the second lockdown was necessary to protect the health and safety of the community, this limited activity across a range of consumer service sectors and is expected to cost between $10 – 12 billion (Federal Treasury estimates, 2020).

Victorian Government modelling shows that real Gross State Product (GSP) may fall by 5.25 per cent in calendar year 2020 and, in the September quarter, Victoria's unemployment rate is expected to rise to 9 per cent with job losses peaking at around 200,000.

As the Victorian Government introduces measures to limit the economic damage from COVID-19 to support jobs and businesses, deliver frontline health response and provide extra education, transport and social support, taxation revenue and GST grants are expected to be around $2.5 billion lower than the 2019-20 Budget Update forecast in 2019-20, and around $6 billion lower in 2020-21.

4.2. Before COVID-19: Geelong in 2019

In 2019 the City of Greater Geelong's economy and society reflected a mix of optimism and pessimism: concerted economic progress, but also relatively high unemployment and long-term social challenges with below average Year 12 completion rates and pockets of social disadvantage. The region therefore entered the COVID-19 period in a state of ambivalence, with mixed prospects.

In August 2019 Geelong had an unemployment rate of 5.6 per cent, significantly higher than both Victoria (at 4.6 per cent and Australia (at 5.1 per cent) (Skilling the Bay Advisory Group, 2020). In addition, building on long-term socio-spatial patterns, the City also had significant areas of disadvantage. In Corio-Norlane unemployment was 21.6 per cent and in Whittington it stood at 18.0 per cent (Skilling the Bay Advisory Group, 2020). These areas have long been on the national lists of localities suffering from high levels of poverty, unemployment, domestic violence, drug use and low levels of education. Thus in 2019 more than 35,000 people in Greater Geelong lived at or below the poverty line, equal to 10 per cent of the population.

As well as long-term pockets of disadvantage, Geelong has a low educational participation rate and falls below the state average in the higher educational qualifications that will be needed in the new, high-technology economy of the future. Between 1988 and 2018 the share of employment in occupations requiring a bachelor's degree or higher increased from 23 to 32 per cent. Against this growing demand, Year 12 completion rates in the Geelong region increased from 39.9 per cent in 2006 to 50.6 per cent in 2016, but remained well below the Victorian average of 59.4 per cent (Skilling the Bay Advisory Group, 2020). At a time when the need for higher-level training is becoming more acute, the number of young people completing Year 12 and going on tertiary education is too low, especially for a region that aspires to become a centre of advanced manufacturing, research, and high-level service provision and employment.

But there were also some major positives for Greater Geelong in 2019, including the:
- opening of the $120 million NDIA headquarters
- opening of the Barwon Health North facility at Norlane
- commencement of construction of the new GMHBA Health Insurance head office

- opening of the $20 million Baptcare 100-bed aged care facility in North Geelong
- approval of the 15-storey Miramar apartments on the Geelong Waterfront
- appointment of Vestas and Marand Precision Engineering a to assemble wind turbines in the old Ford factory
- three levels of government committing to the $370 million City Deal package over 10 years.

There were also government announcements to duplicate the Geelong–Waurn Ponds rail line, a budget commitment to invest in the Women's and Children's Hospital and expand the Lara Prison Precinct. The Little Creatures Brewery complex and Farm Foods both announced they would expand, with 10 and 14 jobs respectively.

In summary, those sectors and sites of the Greater Geelong economy that had already shown their robustness – health, manufacturing, tourism, and residential construction, continued to progress, along with government funding of new infrastructure projects. However, there were some concerning signals in relation to unemployment, ongoing social disadvantage and a mismatch between the expanding service and manufacturing sectors, and the proportion of local students going on to higher education. The catastrophic Victorian and New South Wales bushfires, while not directly affecting Greater Geelong, also had considerable community impact.

4.3. After COVID-19: Geelong in 2020

Employment Losses

Nationally and locally, the industries most impacted by the virus and subsequent lockdowns are retail, hospitality, tourism and accommodation, education (especially those parts exposed to the cessation of international students), arts and high-touch personal service industries including gyms, personal trainers, beauty, therapists, tattooists (Coates, 2020). **Table 5** shows Geelong's employment figures in the key sectors for 2016.

Table 5: Employment in Vulnerable Sectors in Geelong, 2016

Sector	Persons	Men	Women
Retail	10,256	4258	5997
Accommodation and Food	6234	2644	3595
Education and Training	8164	2634	5536
Arts and Recreation Services	1408	781	618

Source: ABS Census 2016 (ABS, 2019)

Collectively these four sectors make over 26,000 local jobs highly vulnerable to the impact of COVID-19. The pandemic wiped out more than 10,000 jobs in Geelong and the Surf Coast in the five-week period to 18 April (Geelong Advertiser, 2020e). A recent *SGS Economics* report predicts that Geelong will lose 7.5 to 10 per cent of its GDP in the 2019-2020 financial year (Geelong Advertiser, 2020c). As of early May, about 130 Geelong businesses had been forced to close due to COVID-19 restrictions (Van Estrop, 2020), with almost a third of the City's financial losses in the retail sector (Geelong Advertiser, 2020c).[12] Hospitality and tourism (and therefore accommodation and food, plus arts and recreational services) were also hit hard, with some businesses losing more than 50 per cent of their employees, although many businesses qualified for the JobKeeper subsidy, enabling them to keep paying staff (Van Estrop & Tippet 2020). In the first three months of 2020, at least 30 Geelong businesses filed for bankruptcy, including companies in the construction, transport and logistics and health sectors (Geelong Advertiser, 2020g).

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[12] The report came out a month after the announcement of the Federal government's JobKeeper (wage subsidy) and JobSeeker (income support) schemes in late March, and a month after the HomeBuilder package was announced.

But other sectors are also affected. Viva Energy, for example, scaled back production at the Geelong Refinery due to a drop in demand for fuel and the company is reviewing planned maintenance work, which was slated to cost up to $140 million and employ 700 contractors (Geelong Advertiser, 2020d). Indeed at one point, Viva suggested that it may close its Geelong operations, prompting the Federal Government to introduce a fuel security package which included a payment for each litre of fuel produced, hopefully to secure the operation in the region (Sukkar, 2020). The proposed closure of the Australian Taxation Office's (ATO) Geelong office, announced in May 2020, would have resulted in 120 job losses (CPSU, 2020). A concerted local campaign led by the Committee for Geelong, the Community and Public Sector Union and G21 Regional Alliance ensured that this decision was reversed in August 2020.

Losses by Locality

Those parts of the region that are heavily reliant on tourism have been the hardest hit. Lorne–Anglesea was most impacted, shedding more than one in 10 jobs (11.75 per cent) and losing $1 out of every $10 earned in wages, leaving 267 residents jobless and around $1.4 million out of pocket (Van Estrop &Tippet, 2020). But the effect was also felt across the region, as **Table 6** indicates.

Table 6: Jobs and Wages Lost, Geelong Region, 14 March to 18 April 2020

Area	Jobs Lost (%)	$ Wages Lost (%)
Lorne–Anglesea	267 (11.75)	1,382,193 (10.4)
Point Lonsdale–Queenscliffe	146 (9.74)	876,107 (9.52)
Winchlesea	256 (9.15)	1,524,729 (8.86)
Portarlington	212 (8.94)	1,372,946 (9.15)
Newcomb–Moolap	531 (8.92)	3,418,006 (9.46)
Geelong	556 (8.82)	3,570,477 (9.23)
Belmont	571 (8.8)	3,556,832 (9.01)
Clifton Springs	497 (8.72)	3,243,159 (9.17)
Grovedale	958 (8.72)	6,162,399 (9.15)
North Geelong–Bell Park	530 (8.67)	3,414,453 (9.02)
Corio–Norlane	763 (8.64)	4,897,124 (9.02)
Ocean Grove–Barwon Heads	942 (8.59)	6,197,515 (8.97)
Leopold	497 (8.51)	3,338,518 (9.12)
Geelong West–Hamlyn Heights	819 (8.43)	5,414,929 (8.94)
Highton	889 (8.36)	5,795,362 (8.87)
Lara	694 (8.32)	4,710,039 (8.85)
Newtown	405 (8.27)	2,645,064 (8.64)
Torquay	764 (8.16)	5,031,233 (9.00)
Bannockburn	243 (8.03)	1,647,875 (8.56)
Total	10,147	68,200,956

Source: ATO Payroll data, via Van Estrop & Tippet 2020

Using data provided to the Australian Tax Office, *Australian Development Strategies* analysed job losses and wage loss across Geelong by suburbs. The table shows all areas have been impacted, with the extent of the damage linked to the sectors where employment was decimated. However, it can also be presumed that as time goes on, the patterns of social polarisation might reassert themselves across the City for example, between Newtown and Corio-Norlane.

Local Responses

In response to the challenges presented by COVID-19, as a health threat but also with the changing official restrictions on business and movement, local enterprises have pivoted to ensure survival, while organisations such as the City of Greater Geelong have moved decisively to offer assistance.

When the COVID-19 pandemic first emerged in March 2020, it exposed the lack of Personal Protective Equipment (PPE) stockpiles but also the limited capacity to manufacture it locally and the vulnerability of supply chains. Textor worked with long-time collaborator CSIRO to produce a special filtration fabric for surgical-grade face masks and adapted the existing machines at CSIRO's pilot scale facility, located at Deakin University's Waurn Ponds Campus, to develop and manufacture the complex non-woven fabric. So too did Care Essentials while Brown Uniforms pivoted to supplying scrubs to healthcare workers.

In addition to manufacturing vital equipment, Geelong organisations adapted to working remotely if possible or reorganised workplaces to ensure that they could operate in a COVID-19 safe way. The move by many service sector operations to work from home either full-time or part-time suggests that the future of work in these organisations could well be very different after the restrictions end, with more flexible workplace options available. As a result the need for centralised large scale offices or campuses may well have reduced. The possibility of decanting such operations to suburban hubs opens the option of these becoming more than retail centres but also raises questions on the aim to activate the Geelong CBD with large office and apartment complexes.

In addition to pivoting to produce much needed health equipment and altering the location and nature of work, many local organisations and businesses embraced the opportunities offered by on-line delivery and profiling. Thus many arts organisations but also entertainment venues such as The Piano Bar moved totally online, as did Provenance Wines and Runway, extending their reach nationally and even globally, increasing their turnover in the process (Geelong Chamber of Commerce Webinars, May 2020).

The City of Greater Geelong also introduced a range of supports, which included payments for international students, commercial rent relief, grants to community groups, free parking in the CBD, fee waivers and sectoral payments into the tourism, arts and cultural sectors, totalling $17 million over six tranches of assistance (to September 2020). The Committee for Geelong, along with other organisations such as the Geelong Manufacturing Council, organised regular events for members, to keep them informed, offer advice and networking opportunities. They combined with G21, Geelong Bellarine Tourism and the Geelong Chamber of Commerce to form the Geelong COVID-19 Recovery Collective, to ensure a united political voice in developing and promoting initiatives agreed locally.

Greater Geelong escaped the worst of Melbourne's second wave. Greater Geelong reported active cases of COVID-19 by May 2020 but was COVID-free by October and remained under Stage 3 rather than progress to metropolitan Stage 4 restrictions.

Population Movements into the Region

Realestate.com.au monitors levels of interest and sales across the nation and is therefore a sensitive register of the Australian and regional property market. For the period May 2017–2020, strong house price growth was recorded in regional areas, with Geelong one of the highest at 18 per cent, especially the suburb of Newtown (with Launceston / North

East Tasmania the highest at 30 per cent, Hobart at 29 per cent, Ballarat at 28 per cent, LaTrobe / Gippsland at 25 per cent, and Bendigo at 17 per cent) (Conisbee, 2020).

After COVID-19 hit, there was a further surge in demand, with enquiries about regional Victoria increasing by 22 per cent as people rejected cramped and crowded apartments in Melbourne, and different work patterns reduced the need to be close to workplaces. According to the *Real Estate Institute*, in 2020 Geelong ranked second in the frequency of areas viewed in website searches for domestic property in Victoria (after Mornington). Australia's most in-demand regional suburbs in the six months to May 2020 were (Conisbee, 2020):

1. Bangalow (NSW North coast, adjacent to Byron Bay)
2. Thirrourl (NSW South coast, close to Wollongong and within commuting distance to Sydney)
3. Woomona (NSW South Coast, close to Wollongong and commuting distance to Sydney)
4. **Geelong West**
5. **Belmont**
6. **Jan Juc**

Id.community considered the impact of COVID-19 on population growth in Greater Geelong and noted that there were indeed many negatives, associated with the collapse in international migration and the fall in the birth rate. But the same investigation also noted that the region could well benefit from intrastate migration. Further, Geelong's economy had been impacted negatively but to a lesser extent than the metropolis as a result of its diverse economic base, high functioning CBD and viable rail, port and airport infrastructure, all of which meant that it retained population. Finally the investigation noted the importance of ongoing local amenity in its attractiveness but also the need to address resident vulnerability, especially in those areas of profound disadvantage. The attractions remained access to affordable good housing, lifestyle (especially open space and the natural environment) and quality health education, transport, sport and cultural infrastructure (id community, 2020).

In addition, the Real Estate Institute of New South Wales is expecting regional areas to do well in the long-term as a result of COVID-19, because people have realised they (Ross, 2020):

- can work from home effectively
- want to get out of large, densely populated communities
- appreciate simpler lifestyles
- are seeking a sanctuary, a safety retreat from the COVID-19 pandemic.

Because town-led campaigns to attract residents tend to highlight the same things, including good schools, health services, and environmental or lifestyle assets, and small financial incentive packages don't work to attract people to areas, an opportunity exists to market regional centres to suburban families and individuals who are feeling the social, economic, health, and environmental costs of living in a post-COVID-19 world (Horton, 2020b).

4.4. Looking Ahead

Looking at Greater Geelong in 2020, some changes can be anticipated, and other positive developments can be progressed with concrete actions. The COVID-19 effect, for example, has made home-based work more popular, acceptable and feasible, while for some people the idea of living in a large, dense city has become less attractive. Many of those who fear the contagion effect of density are likely to value the space, apparent safety and high-level health services available in a large regional centre but also smaller centres, accessible and well set up for all needs.

In summary, looking ahead there will be short-term challenges for the hospitality, retail, accommodation, personal care and education sectors. These and other sectors and employees will be supported by Federal Government JobKeeper and JobSeeker programs, but as these are rolled back, the challenges will grow. Longer term, there will (or can) be changes in:

- how we work: more telecommuting and online work practices
- how we shop: more online retailing and use of delivery services, but also more local shopping
- how we live: more localisation and engagement with neighbours, neighbourhood shops, services and open spaces
- how we learn: different ways of learning and accessing education and training (online)
- how we get around: more walking and cycling for pleasure, exercise, commuting, and slow travel
- how we access health services: more tele-health and remote monitoring services used
- how we stay safe: perhaps less privacy, in return for safety
- how we travel: less international travel and proportionally more local tourism
- who we trust: more trust in experts and governments (although this is not universal: researchers note that conspiracy theories have flourished during the COVID-19 crisis) (Hornsey, 2020)
- how our supply chains function: a move to bring manufacturing home.

There will be a need to support the hardest hit sectors with plans already in train to open hospitality in COVID-Safe ways, to pursue travel bubbles with other regions, states and ultimately safe countries (perhaps via Avalon Airport if Melbourne remains a hot spot) but also to erect solid foundations in key sectors of the Geelong economy as part of a *diversified specialisation* strategy that further builds on expertise across a number of key sectors.

Final Recommendations

The historical, international and localised analysis set out in Parts 1, 2 and 3 of this report generated two sets of preliminary recommendations.

Building from this analysis, a final set of recommendations emerges, with a focus on employment and work, urban design and social inclusion initiatives for Greater Geelong. These capitalise on the many existing strengths and innovations in Geelong and involve both supporting smart and *diversified specialisation* in key sectors, including advanced manufacturing, public administration and safety, health and tourism. These suggestions, focusing on the economy, locational issues and social inclusion, are built on the major post-COVID-19 trends of:

- a different, greener, digital economy, where those in school and displaced need to be trained, reskilled and upskilled
- localisation of life
- decentralisation of people and activities from major cities and CBDs
- on line/digital ways of being
- quest for health and safety as well as social inclusion.

1. Provide better connections between displaced workers, especially the young and women, with tailored online retraining and reskilling programs, perhaps modelled on Skilling the Bay, in partnership with local tertiary education providers and employers.

2. Boost onshore manufacturing via a suite of policy interventions to support research and development, university – industry–government collaborations (modelled on ManuFutures, Innovation Hubs) and incentives (well serviced and connected land, payroll tax exemptions, research and development concessions, government procurement and grants) for the further development of the circular economy, and green and advanced manufacturing.

3. Capitalise on the COVID-19-generated attraction of non-metropolitan areas to boost the regional in-migration of people and businesses via targeted marketing campaigns that emphasise lifestyle, affordability and services backed by welcome, integration and incentive packages.

4. Seize the opportunity to build a better, greener economy for the future, explore the possibility of Geelong becoming a site for the Beyond Zero Emissions Million Jobs project.

5. Build on the strong health and medical research sectors in the region: Deakin University, Barwon Health, CSIRO, Australian Centre for Disease Preparedness and bid for a National Centre for Disease Control.

6. Drive tourism through a local and national campaign developed in collaboration with Barwon Health. Built around Avalon Airport and a health charter, including a set of packaged, COVID-19-safe products for Greater Geelong including walks, cultural activities, Indigenous-related experiences, food-wine-accommodation packages.

7. Support the creative industries and High Streets, reactivate Renew Geelong in vacant retail and other spaces.

8. Accelerate social housing construction and renovation across the region, to support the construction industry, progress social inclusion and meet the shortfall of affordable housing. Expand existing local models of transitional housing to partially meet the shortfall. Implement and fast-track the City of Greater Geelong Social Housing Policy.

9. Build on the trends for more home-based work, commuting, localisation and flexible working hours: create more local co-working spaces, especially in existing High Streets, to boost retail and offer low-cost spaces for collaboration, employment and innovation. Support existing co-working spaces to extend their capacity.

10. Improve the commute between Geelong and Melbourne with further upgrades in infrastructure and intra-regional connections to the main transit routes.

11. Deliver active transportation, greener and more sustainable environments and 10-15 minute neighbourhoods (with employment, education, health, recreation and other services all located in localised, walkable and active transportation hubs or High Streets) in Armstrong Creek and the Northern and Western Growth Areas.

12. To further differentiate Greater Geelong form Melbourne and its aim to create 20 minute neighbourhoods, adopt the principles of a 10-15 minute neighbourhood to inform other urban planning decisions for existing areas of Geelong to ensure a more connected and sustainable city.

13. Support the development of satellite GovHubs to grow employment in designated local centres, perhaps focusing on a number of non-CBD district centres into which company and government operations can be decentralised.

14. Better address socio-spatial disadvantage by boosting not only social housing quantity, but also its existing quality, while revisiting neighbourhood renewal and extending the GROW, Skilling the Bay and Northern Futures model for engaging, training and securing employment for long-term unemployed and disadvantaged residents.

15. Maintain a united political front for effective lobbying in Melbourne and Canberra and progress these recommendations through a broad-based post COVID-19 recovery group.

References

AAP (Australian Associated Press) (2020). 'Alarming but not unexpected: increase in domestic violence in NSW during COVID-19 crisis.' The Guardian, 4 June, https://www.theguardian.com/society/2020/jun/04/alarming-but-not-unexpected-increase-in-domestic-violence-in-nsw-during-covid-19-crisis

ABC News (2018). 'Geelong and Cotham private hospitals to close, hundreds of jobs to go'. 22 May, https://www.abc.net.au/news/2018-05-22/healthscope-geelong-private-hospital-cotham-private-to-close/9786568

ABC Regional News (2017). 'Renew Newcastle project bundled into a box to inspire artists: the story of Newcastle's urban renewal project Renew Newcastle has been squeezed into road cases and is set to roll out to Australian cities and towns.' 6 December, https://search-proquest-com.ezproxy.lib.rmit.edu.au/docview/2122228147/4A7B909A37E04529PQ/5?accountid=13552

ABS (Australian Bureau of Statistics) (2019a). 'ABS 2016 Census Place of Work Employment (Scaled)', ABS 2016 / 2017 National Input Output Tables, and ABS June 2019 Gross State Product.

ABS (Australian Bureau of Statistics) (2019b).' ABS 2016 Census Place of Work Employment (Scaled)', ABS 2016 / 2017 National Input Output Tables, ABS June 2019 Gross State Product, ABS 2018 / 2019 Tourism Satellite Account, and TRA 2018 Greater Geelong (C) Local Government Area Tourism Profile.

ABS (Australian Bureau of Statistics) (1954).'Census of the Commonwealth of Australia, 1954', ABS Canberra.

ABS (Australian Bureau of Statistics) (1947).'Census of the Commonwealth of Australia, 1947', ABS Canberra.

ABS (Australian Bureau of Statistics) (1933).'Census of the Commonwealth of Australia, 1933', ABS Canberra.

Achurch, H. (2019). 'Regional Growth Prospects: Strategic Investment in Food Processing, Tourism, Advanced Manufacturing and Creative Industries'. Canberra, The Regional Australia Institute.

Adecco (2020). 'Comparing Government economic responses to COVID-19: short-time work and size of stimulus package matter most.' [Press Release] Zürich, Switzerland, 3 June, https://press.adeccogroup.com/news/comparing-government-economic-responses-to-covid-19-short-time-work-and-size-of-stimulus-package-matter-most-3cb2-2cb12.html

AFR (Australian Financial Review) (2020). 'The show goes on(line) at Yarra Valley Writers Festival.' 2 May, https://www.afr.com/life-and-luxury/arts-and-culture/the-show-goes-on-line-at-yarra-valley-writers-festival-20200417-p54kwm

Agrawal, S., A. De Smet, S. Lacroix & A. Reich (2020). 'To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now.' McKinsey & Company, 7 May, https://www.mckinsey.com/business-functions/organization/our-insights/to-emerge-stronger-from-the-covid-19-crisis-companies-should-start-reskilling-their-workforces-now#

AIA (Australian Institute of Architects) (2020). 'Affordable housing in post COVID-19 recovery.' Letter to Prime Minister and NSW Premier, AIA, 7 April, https://www.architecture.com.au/wp-content/uploads/7Apr2020_FedPM_NSW-Premier_stimulus-funding.pdf (Accessed August 2020)

Aliento, W. (2018). 'Renew Geelong off to a vibrant start.' The Fifth Estate, https://www.thefifthestate.com.au/innovation/commercial/renew-geelong-vibrant-start-creative-businesses/ (Accessed March 2020)

All Right? (n.d.). 'About All Right? Canterbury', Accessed from New Zealand https://www.allright.org.nz/about (Accessed March 2020)

Aurecon (2019). 'Battery energy storage's role in a sustainable energy future.' Accessed at https://www.aurecongroup.com/markets/energy/hornsdale-power-reserve-impact-study (Accessed September 2020)

AusIndustry (2013). GRIIF Fact Sheet, AusIndustry. G21, http://www.g21.com.au/sites/default/files/resources/GRIIF_FactSheet.pdf (Accessed at September 2020)

AFR (Australian Financial Review) (2019). 'Carbon Revolution takes a spin with Japan giant Mitsui'. 9 September, https://www.afr.com/companies/transport/carbon-revolution-takes-a-spin-with-japan-giant-mitsui-20190904-p52o1h

Australian Government, Department of Defence (2020). 'Request for Tender release for Protected Mobile Fires.' 3 September, https://www.minister.defence.gov.au/minister/lreynolds/media-releases/request-tender-release-protected-mobile-fires (Accessed June 2020)

Australian Government, Department of Industry Innovation and Science (DIIS) (2020). 'Australian Automotive Industry: Transition following the end of Australian motor vehicle production.' Accessed at https://www.industry.gov.au/sites/default/files/2020-01/australian-automotive-industry-transition-following-the-end-of-australian-motor-vehicle-production.pdf (Accessed July 2020)

Australian Government (2020). 'Chemring Australia wins contract to supply global F-35 fleet.' 24 June, https://www.business.gov.au/CDIC/News-for-defence-industry/Chemring-Australia-wins-contract-to-supply-global-F35-fleet (Accessed 15 July 2020)

Australian Government (2016). 'The Geelong Region Innovation and Investment Fund (GRIIF).' https://www.business.gov.au/assistance/geelong-region-innovation-and-investment-fund/griif-projects-supported (Accessed 27 November 2016)

Australian Government (2016). 'Defence White Paper.' https://www.defence.gov.au/whitepaper/docs/2016-defence-white-paper.pdf (Accessed 15 July 2020)

Australian Government, Department of Defence (2020). 'Request for Tender release for Protected Mobile Fires.' 3 September, https://www.minister.defence.gov.au/minister/lreynolds/media-releases/request-tender-release-protected-mobile-fires

Australian Government (2014). 'New manufacturing jobs and investment in Geelong.' 4 March, https://www.minister.industry.gov.au/ministers/macfarlane/media-releases/new-manufacturing-jobs-and-investment-geelong

Avalon Airport (2011). 'Productivity Commission. Inquiry into the Economic Regulation of Airport Services'. Accessed at https://www.pc.gov.au/inquiries/completed/airport-regulation/submissions (Accessed 15 May 2020)

Bailey, D., Chaplain, C., Mahdon, M., Fauth, R. (2008). 'Life After Longbridge: Three Years On: Pathways to Reemployment in a Restructuring Economy'. Birmingham Business School and the Work Foundation, London.

Baldwin, R. & di Mauro, B. (2020). 'Introduction.' In: Economics in the time of COVID-19. London: Centre for Economic Policy Research.

Banker, S. (2020). 'COVID-19 and 3D printing.' Forbes, 14 April, https://www.forbes.com/sites/stevebanker/2020/04/13/covid-19-and-3d-printing/#2bebe99c3f7a (Accessed July 2020)

Barwon Health (2020). 'Barwon Health North officially opened by Minister for Health'. 17 February, https://www.barwonhealth.org.au/news/item/barwon-health-north-officially-opened-by-minister-for-health (Accessed 15 July 2020)

Barwon Health (2019). 'Statement of Priorities'. 5 December, https://www.barwonhealth.org.au/images/documents/Statement_of_Priorities_2019-2020.pdf (Accessed 15 July 2020)

Barwon Health (2017). 'New surgery hub official opening. November, https://www.barwonhealth.org.au/news/item/new-surgery-hub-official-opening (Accessed 15 July 2020)

Bathgate R., N. Williams, L. Sargent, K. Lee, J. Rayner, M. Ritchie, J. Bush, K. Williams, K. Johnson, G. Hall, N. Pelleri, S. Wilkinson & C. Martin (2020). 'Roadmap for Green Roofs, Walls and Facades in Australia's Urban Landscapes 2020-2030'. University of Melbourne, University of NSW and Horticultural Innovation. Melbourne, Australia, June, https://cpb-ap-se2.wpmucdn.com/blogs.unimelb.edu.au/dist/c/359/files/2020/06/Roadmap-for-Green-Roofs-Walls-and-Facades-Report.pdf (Accessed 15 July 2020)

Baum, S. & Mitchell, W. (2020). 'Employment Vulnerability Index 3.0, Third Edition – Research Report 2020-01. Centre of Full Employment and Equity (CofFEE)', University of Newcastle, 26 April, http://www.fullemployment.net/evi.php (Accessed March 2020)

BCAR (2018). 'The economic value of cultural and creative activity.' Bureau of Communications and Arts Research (BCAR), Australian Government, 19 October, https://www.communications.gov.au/departmental-news/economic-value-cultural-and-creative-activity

Beer, A., Akshay, V., Rainnie, A., Veitch, W., and Clower, T. (2020). 'The impacts of specialisation and diversification on Australia's mid-sized towns'. Canberra: The Regional Australia Institute.

Beer, A. (2015). 'Regions and structural adjustment in Australia.' Local Economy, 30: 1, 121– 140.

Beer, A 2012, 'The Economic Geography of Australia and Its Analysis: From Industrial to Post-Industrial Regions', Geographical Research, vol. 50(3): 269-81.

Beer, A. & T. Clower (2009). 'Specialisation and growth: evidence from Australian regional cities.' Urban Studies, 46(2): 369–389.

Belton, K. (2020). 'COVID-19 makes the case for resilient manufacturing'. Industry Week, 20 April, https://www.industryweek.com/the-economy/public-policy/article/21129255/covid19-makes-the-case-for-resilient-manufacturing (Accessed September 2020)

Bentley, S. (2020). 'Social Isolation'. Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam, & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-content/uploads/Together-Apart-Complete-ms.pdf (Accessed September 2020)

Beyond Zero Emissions (2020). 'Million Jobs Plan.' https://bze.org.au/the-million-jobs-plan/ (Accessed September 2020)

Boffey, D. (2020). 'Amsterdam to embrace "doughnut" model to mend post-coronavirus economy.' The Guardian, 8 April, https://guardianbookshop.com/doughnut-economics-9781847941398.html (Accessed September 2020)

Boland, M. (2020). 'Coronavirus has shut down Australia's arts industry but artists say the Government has ignored them.' ABC News Online, 8 April, https://www.abc.net.au/news/2020-04-08/arts-sector-say-need-emergency-funding-to-survive-shutdown/12130398 (Accessed September 2020)

Brand, D. & H. Nicholson (2016). 'Public space and recovery: learning from post-earthquake Christchurch.' Journal of Urban Design, 21(2): 159–76.

Bristow, G. & Healy, A. (2020), Introduction to the Handbook on Regional Economic Resilience. In: G. Bristow & A. Healy, eds., Handbook on Regional Economic Resilience, 1– 8. Cheltenham: Edward Elgar.

Broom, D. (2020). 'How the COVID-19 crisis inspired this major Italian city to transform its polluted streets – for good.' 24 April, World Economic Forum, https://www.weforum.org/agenda/2020/04/milan-covid-19-coronavirus-lockdown-reducing-car-use/

Bourne, K (2018). 'Public Procurement and Regional Development: Briefing Note'. Canberra, The Regional Australia Institute.

C2R (2020). 'Cities for a Resilient Recovery.' Resilient Cities Network, www.resilientcitiesnetwork.org/recovery

C40 Cities (2020). 'No return to business as usual: Mayors pledge on COVID-19 economic recovery' [Media Release], London, 7 May.

C40 Cities (2018). 'Municipality-Led Circular Economy Case Studies'. C40 Cities & Climate-KIC Circular Cities Project, https://c40-production-images.s3.amazonaws.com/researches/images/75_CE_case_studies_interactive.original.pdf?1554823891

C40 Knowledge Hub (2020). 'Mitigating the economic impact of COVID-19', https://www.c40knowledgehub.org/s/article/Mitigating-the-economic-impact-of-COVID-19?language=en_US

Cainelli, G., Ganau, R., & Modica, M., (2019). 'Industrial relatedness and regional resilience in the European Union.' Papers in Regional Science, 98, 755-778.

Camenzuli, L. & K. Davis (2020). 'Australia: How the planning system can help boost a COVID-19 economic recovery in NSW.' Corrs Chambers Westgarth, 12 April, https://www.mondaq.com/australia/construction-planning/916452/how-the-planning-system-can-help-boost-a-covid-19-economic-recovery-in-nsw (Accessed September 2020)

Carbon Revolution (2020). 'Half Yearly Results'. 20 February, https://investors.carbonrev.com/DownloadFile.axd?file=/Report/ComNews/20200220/02204324.pdf (Accessed 15 July 2020)

Carbon Revolution (2019). 'Prospectus'. 28 November, https://investors.carbonrev.com/DownloadFile.axd?file=/Report/ComNews/20191128/02179435.pdf (Accessed 15 July 2020)

Carbon Revolution (2019). 'Business Update'. 3 December, https://investors.carbonrev.com/DownloadFile.axd?file=/Report/ComNews/20191203/02181111.pdf (Accessed 15 July 2020)

Chang, C., G. Jia Yi Cheng, T. Nghiem, X. Song, R. Ying Oh, D. Richards & L. Carrasco (2020). 'Social media, nature, and life satisfaction: global evidence of the biophilia hypothesis.' Scientific Reports, 10:1, DOI: 10.1038/s41598-020-60902-w

CHIA (2020). Social Housing Acceleration and Renovation Program (SHARP). Community Housing Industry Association (CHIA), Homelessness Australia, National Shelter & Everybody's Home, May, https://www.communityhousing.com.au/wp-content/uploads/2020/05/SHARP-Program.pdf

Cities for Global Health (2020). 'Vila Nova de Famalicão', Municipal reaction plan for COVID-19: Social and Economic Intervention, https://www.citiesforglobalhealth.org/initiative/municipal-reaction-plan-covid-19-social-and-economic-intervention

City by the Bay (1987). 'City by the Bay: Foreshore Tourist Precinct Project'. Prepared by R.T. Jebb and Assoc. for the Geelong Regional Commission.

City News Service (2020). 'Mayor creates public-private partnership to provide funding for arts organisations affected by COVID-19.' Fox 5, 16 April, https://fox5sandiego.com/news/watch-live-mayor-faulconer-to-announce-funding-for-arts-organizations-affected-by-covid-19/

City of Toronto (2020). 'Digital support for business', COVID-19: Business & Sector Resources, https://www.toronto.ca/home/covid-19/covid-19-economic-support-recovery-for-businesses/covid-19-business-sector-resources/

Clark, C. (2020). 'San Diego city and county partner on $25M behavioural health impact fund for service providers.' San Diego Union-Tribune, 8 April, https://www.sandiegouniontribune.com/news/politics/story/2020-04-08/city-county-partner-for-25-million-fund-to-support-community-service-providers-focused-on-behavioral-health

Coates, B., Cowgill, M., Chen, T., and Mackey, W. (2020). Shutdown: estimating the COVID-19 employment shock. Grattan Institute. Accessed at https://grattan.edu.au/wp-content/uploads/2020/04/Shutdown-estimating-the-COVID-19-employment-shock-Grattan-Institute.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (2000). 'Waterfront Geelong: The future is here. Geelong: City of Greater Geelong'. *City of Greater Geelong Retail Strategy 2020-2036* Adopted August 2020. https://www.geelongaustralia.com.au/common/public/documents/amendments/8d6bdad8461219c-AMENDMENTC393-RetailStrategy2016_36_FINAL_AUG2020foradoption.PDF (Accessed September 2020)

CoGG (City of Greater Geelong) (2019).'Regional Economic News Summaries', Accessed from the CoGG and at https://www.geelongaustralia.com.au/business/documents/item/8d1068bafa96d4c.aspx (Accessed March 2020)

CoGG (City of Greater Geelong) (2018). 'Settlement Strategy'. Accessed at https://www.geelongaustralia.com.au/common/public/documents/amendments/8d6f0bcb1cec127-C395-SettlementStrategyOctober2018.PDF (Accessed August 2020)

CoGG (City of Greater Geelong) (2018). 'Sustainable procurement limited case study: age defying bridges', https://www.geelongaustralia.com.au/common/public/documents/8d67a19b282a523-cleantechinnovationsgeelong-casestudy-procurementforinnovationingeelongd18-510634.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (2018). 'G21 Agribusiness Economic Profile'. Accessed at https://www.geelongaustralia.com.au/common/Public/Documents/8d6934967a71f7a-1.g21agribusinesseconomicprofilenovember2018-g21agribusinessstrategy-issuespaperupdatefinald19-50412.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (2018).'Greater Geelong: The Ideal Home for Comcare'. Accessed at https://www.geelongaustralia.com.au/ct/documents/item/8d6198b8c1b4336.aspx (Accessed August 2020)

CoGG (City of Greater Geelong) & SGS Economics and Planning (2018). City of Greater Geelong Retail Strategy 2016-2036, November 2018, accessed at https://www.sgsep.com.au/assets/main/SGS-Economics-and-Planning-Greater-Geelong-Retail-Analysis-LowRes.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (2017). 'Greater Geelong A Clever and Creative Future.' July 2017. Accessed at https://www.geelongaustralia.com.au/common/Public/Documents/8d4d2ad3b2b24c1-Greater%20Geelong%20-%20A%20Clever%20and%20Creative%20Future%20Report.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (2015). 'Integrated Comprehensive Transport Plan, 2015.' https://www.geelongaustralia.com.au/common/Public/Documents/8d2e39e49715770-Integrated%20Comprehensive%20Transport%20Plan%202015.pdf (Accessed August 2020)

CoGG (City of Greater Geelong) (n.d.). 'Procurement for innovation.' Future-Proofing Geelong, https://www.geelongaustralia.com.au/fpg/industry/documents/item/8d67a19b282a523.aspx

Cohen-Cruz, J. (2009). 'HOME, New Orleans: University/neighborhood arts collaborations.' In Civic Engagement in the Wake of Katrina. Eds A. Koritz & G.J. Sanchez. Ann Arbor: University of Michigan Press.

Colquhoun, S. (2020). 'How COVID-19 will change your commute.' RACV, 11 May, https://www.racv.com.au/royalauto/moving/news-information/commuting-post-covid19-victoria.html

Cole, R. (2020). 'Experts call for circular economy to boost COVID-19 recovery.' Resource, 4 June, https://resource.co/article/experts-call-circular-economy-boost-covid-19-recovery

Combs, T. (2020). 'Local actions affecting walking and cycling during social distancing.' [Spreadsheet resource],https://docs.google.com/spreadsheets/d/1c6OmxkUwNjoajYaRgqEjc14PtyGtushhQY7wNaZdjKk/edit#gid=724539482

Committee for Geelong (2019) 'Australia's Gateway Cities: Gateways to Growth Geelong.' Geelong, Committee for Geelong. Accessed at https://committeeforgeelong.com.au/wp-content/uploads/2019/11/Australias-Gateway-Cities-Report-and-Appendices.pdf (Accessed July 2020)

Committee for Geelong (2012). 'A Revitalisation Plan for Central Geelong.' Geelong, Committee for Geelong. Leaders for Geelong project (2012-2014). Accessed at https://committeeforgeelong.com.au/wp-content/uploads/2019/08/GREEN-1.pdf (Accessed July 2020)

Commonwealth of Australia (2018). 'Regions at the Ready: Investing in Australia's Future. House of Representatives Select Committee on

Regional Development and Decentralisation', Canberra. Accessed at https://parlinfo.aph.gov.au/parlInfo/download/committees/reportrep/024136/toc_pdf/RegionsattheReadyInvestinginAustralia'sFuture.pdf;fileType=application%2Fpdf (Accessed August 2020)

Commonwealth of Australia (2014). 'Automotive industry package. Budget Review 2014-15.' Research Paper Series 2013-14, May 2014, Canberra. Accessed at https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/3221329/upload_binary/3221329.pdf;fileType=application/pdf (Accessed September 2020)

Commonwealth of Australia (2009). 'The Global Financial Crisis and regional Australia'. Canberra: House of Representatives Standing Committee on Infrastructure, Transport, Regional Development & Local Government.

Compelling Economics (2011). 'Armstrong Creek Economic Impact Analysis'. Bendigo: Compelling Economics.

Conisbee, N. (2020). 'The state of the regional property market.' RealEstate.com, Regional Australia Institute Webinar, 24 June.

Correia, J. & Denham, T. (2016). Winning from second: What Geelong can learn from international second cities. Geelong: Committee for Geelong.

Courvisanos, J., Ameeta,J. & Mardaneh, K. (2016). 'Economic resilience of regions under crisis: Towards an evolutionary approach.' Cambridge Journal of Regions, Economy and Society, 3: 27–43.

CPSU (2020). Govt to cut Geelong tax jobs. [Media release], Community and Public Sector Union, 27 May, https://www.cpsu.org.au/content/govt-cut-geelong-tax-jobs

Cranston, M. (2020). 'Treasury sees a faster economic recovery.' Financial Review, 9 June, https://www.afr.com/policy/economy/treasury-revises-down-expected-jobless-rate-to-8pc-20200609-p550se

Crimston, C. & Selvanathan, H. (2020). 'Polarisation.' In: Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam, & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-content/uploads/Together-Apart-Complete-ms.pdf

CSIRO (2020). 'Australian Centre for Disease Preparedness (formerly Australian Animal Health Laboratory)'. https://www.csiro.au/en/Research/Facilities/ACDP (Accessed 15 July 2020)

Culture2030 (2020). 'Ensuring culture fulfills its potential in responding to the COVID-19 Pandemic', Culture2030 Goal Campaign, statement published in Barcelona, Brazzaville, Brussels, Buenos Aires, Montreal, Paris and The Hague, 20 April, http://www.agenda21culture.net/sites/default/files/en_culture2030goal_declaration_culture_and_covid19.pdf

Cunnane, C. (2020). '3D printing and the supply chain.' Logistics Viewpoints, 26 February, https://logisticsviewpoints.com/2020/02/26/3d-printing-supply-chain/

Daley, J., & Lancy, A. 2011, 'Investing in Regions: Making a Difference', May, Grattan Institute, Melbourne.

Degnarain, N. (2020a). 'Not back but forward: what the post-COVID-19 economic recovery models are getting wrong.' Forbes, 22 April, https://www.forbes.com/sites/nishandegnarain/2020/04/22/not-back-but-forward-what-the-post-covid-19-economic-recovery-models-are-getting-wrong/#5d1c44b17abb

Degnarain, N. (2020b). 'Ten areas where COVID-19 responses have increased environmental risks.' Forbes, 16 April, https://www.forbes.com/sites/nishandegnarain/2020/04/16/ten-areas-where-covid-19-responses-are-leading-to-environmental-setbacks/#3fa4fdf14252 (Accessed 15 July 2020)

Deloitte Access Economics (2014). Economic contribution of Deakin University's Geelong Waurn Ponds and Waterfront campuses. Melbourne: Deloitte Economics.

Demony, C. & V. Waldersee (2020). 'Portugal suspends rents, worries surface over post-pandemic housing crisis.' Reuters, 3 April, https://www.reuters.com/article/us-health-coronavirus-portugal-rents/portugal-suspends-rents-worries-surface-over-post-pandemic-housing-crisis-idUSKBN21K31L (Accessed 15 July 2020)

De Poloni, G. (2020). 'How coronavirus could forever change the look and feel of Australia's cities and suburbs.' ABC News Online, 11 April, https://www.abc.net.au/news/2020-04-11/how-coronavirus-could-forever-change-our-cities-and-suburbs/12137122 (Accessed 15 July 2020)

Derwin, J. (2020). 'Australia's economic recovery could outpace the rest of the world, the OECD forecasts — if the government doesn't blow it.' Business Insider, 11 June, https://www.businessinsider.com.au/australian-economic-recovery-covid19-oecd-forecasts-jobkeeper-2020-6 (Accessed 15 July 2020)

Di Caro, P., Fratesi, U. (2018.) Regional determinants of economic resilience. Ann Reg Sci, 60: 235–240

Difabrizio, M. (2020). 'Mildura attraction grows post-coronavirus, demographer says.' Sunraysia Daily, https://www.sunraysiadaily.com.au/business/1154021/mildura-looks-a-likely-demographic-winner-in-virus-hit-world (Accessed September 2020)

Digital Main Street (2020). City of Toronto, https://digitalmainstreet.ca/toronto/ (Accessed September 2020)

Dimov, S., T. King, M. Shields & A. Kavanagh (2020). 'The young Australians hit hard during COVID-19.' Pursuit, the University of Melbourne, https://pursuit.unimelb.edu.au/articles/the-young-australians-hit-hard-during-covid-19 (Accessed September 2020)

Duke, M. (2020). 'Coronavirus triggers Australian self-sufficiency push.' Sydney Morning Herald, 12 April. Available at: https://www.smh.com.au/politics/federal/coronavirus-triggers-australian-self-sufficiency-push-20200412-p54j5q.html (Accessed September 2020)

Duranton, G., Puga, D. (2001) 'Nursery cities: urban diversity, process innovation, and the life cycle of products.' American Economic Review, 91.5, 1454-1477.

Ehlenz, M. (2018). 'Defining university anchor institution strategies: comparing theory to practice.' Planning Theory & Practice, 19:1, 74–92, DOI: 10.1080/14649357.2017.1406980 (Accessed September 2020)

Ellen, I., P. Goddard, E. Graves, K. O'Regan & J. Schuetz (2020). 'Strategies for increasing affordable housing amid the COVID-19 economic crisis.' Brookings Institute, Washington DC, 8 June, https://www.brookings.edu/research/strategies-for-increasing-affordable-housing-amid-the-covid-19-economic-crisis/ (Accessed September 2020)

Ephrat, H., R. Kaufman, A. Avgar & E. Shuker (2016). 'Arts as a vehicle for community building and post-disaster development.' Disasters, 40:2, 284–303

Epworth Geelong (2016).'Prime Minister formally opens Epworth Geelong'. 15 November https://www.epworthgeelong.org.au/2016/11/15/prime-minister-formally-opens-epworth-geelong/ (Accessed August 2020)

Eurocities (2020a). 'Economy and jobs.' Live updates COVID-19, https://covidnews.eurocities.eu/category/covidnews/economy-and-jobs/ (Accessed 15 July 2020)

Eurocities (2020b). 'Exit and recovery.' Live updates COVID-19, https://covidnews.eurocities.eu/category/covidnews/exit-recovery/ (Accessed 15 July 2020)

Exchange, The (n.d.). https://www.yourexchange.co/ (Accessed 15 July 2020)

Evenhuis, E. (2017). 'New directions in researching regional economic resilience and adaption.' Geography Compass, 11: 1–15.

Fagan, R. & Webber,M. (1999). Global restructuring: The Australian experience. Sydney: Oxford University Press.

Famalicão City Council (2020). 'Vila Nova de Famalicão: making spend matter & resourceful cities.' Public Health: Municipality Plan – COVID-19, https://www.cm-vnfamalicao.pt/municipality-plan-covid-19 (Accessed 15 July 2020)

Farhauer, O., Kröll, A. (2012) 'Diversified specialisation—going one step beyond regional economics' specialization-diversification concept", Jahrbuch Für Regionalwissenschaft, 32(1):63-84.

Fastenrath, S., L. Coenen & K. Davidson (2019), Urban Resilience in Action: The Resilient Melbourne Strategy as Transformative Urban Innovation Policy? Sustainability, 11: 1– 10.

Flanagan, M., & Mitchell, W. (2016). An Economic Evaluation of the Renew Newcastle Project. Newcastle: Centre of Full Employment and Equity, University of Newcastle.

Florida, R. (2020). 'The corona virus class divide in cities.' City Lab, 7 April.

Florida, R. (2001). The rise of the creative class. New York: Basic Books. Florida, R. & S. Pedigo (2020). 'Getting urban economies back up and running after COVID-19: a ten-point action plan for economic developers (or economic development organizations)'. RestoreYourEconomy.org, https://restoreyoureconomy.org/index.php?submenu=TenPointPreparednessPlan&src=gendocs&ref=Getting%20Urban%20Economies%20Back%20Up%20and%20Running%20after%20Covid-19&category=Main

Florida, R., T. Gulden & C. Mellander (2008). The rise of the mega-region, Cambridge Journal of Regions, Economy and Society, 1 (3): 459–476, https://doi.org/10.1093/cjres/rsn018

Fonseca, J. (2020). 'Citeve has already issued 2559 certificates. More than half are masks.' Eco News, 26 June, https://eco.sapo.pt/2020/06/26/citeve-ja-emitiu-2-559-certificados-mais-de-metade-sao-mascaras/?fbclid=IwAR2D8Y4PRdZHUaqjVX7AGr_zYojpzd8pzprTpMQTkanekJuVx77ClNr1QYQ (Accessed August 2020)

Future Fibres (2016). 'Re-Inventing the Wheel'. June 8 https://futurefibreshub.com.au/re-inventing-the-wheel/ (Accessed 15 July 2020)

G21 (2012). 'Marand To Open Aero-Structures Plant In Geelong.' 27 August. https://www.g21.com.au/news/marand-open-aero-structures-plant-geelong (Accessed 15 July 2020)

Garrett, L. (1994). The Coming Plague: Newly Emerging Disease in a World Out of Balance. New York: Penguin Books.

Geelong Advertiser (2020a). 'Premier opens Vestas Renewable Energy Hub at former Ford Geelong factory.' 26 September, https://www.geelongadvertiser.com.au/news/geelong/hanwha-defence-says-howitzer-production-in-geelong-could-start-in-202425/news-story/aecf5f45f00a4b0a7ef7cf296b8c5c3c

Geelong Advertiser (2020b). 'Geelong company FormFlow secures deal with BlueScope over steel-bending technology.' 20 July, https://www.geelongadvertiser.com.au/news/geelong-company-formflow-secures-deal-with-bluescope-over-steelbending-technology/news-story/ef6b09187f482d2b3fa32b6cb4778a58

Geelong Advertiser (2020c). 'Virus an economic blow.' 5 May (Accessed 15 July 2020)

Geelong Advertiser (2020d). 'Viva review key to future.' 9 May (Accessed 15 July 2020)

Geelong Advertiser (2020e). '10,000 have lost their jobs.' 14 May (Accessed 15 July 2020)

Geelong Advertiser (2020f). 'As some doors close, others open for council workforce.' 14 May (Accessed 15 July 2020)

Geelong Advertiser (2020g). 'Pandemic business blow sees 30 go bust.' 14 May (Accessed 15 July 2020)

Geelong Advertiser (2020i). 'Region's first private radiation oncology facility opens at Epworth Geelong.' 16 January, https://www.geelongadvertiser.com.au/news/geelong/regions-first-private-radiation-oncology-facility-opens-at-epworth-geelong/news-story/06d68b6cb6d249f3403626cda6ed1e7f (Accessed 15 July 2020)

Geelong Advertiser (2019a). 'Hanwha Defence says howitzer production in Geelong could start in 2024-25.' 3 August, https://www.geelongadvertiser.com.au/news/geelong/premier-opens-vestas-renewable-energy-hub-at-former-ford-geelong-factory/news-story/ff5522893030e49956ffe72d1b7e79d2 (Accessed 15 July 2020)

Geelong Advertiser (2019b). 'Marand Precision Engineering secures agreement to continue operations at Geelong's former Ford factory' 15 February, https://www.geelongadvertiser.com.au/news/geelong/marand-precision-engineering-secures-agreement-to-continue-operations-at-geelongs-former-ford-factory/news-story/2d25abfe48a7eb0844aef8fd2129dbbd (Accessed 15 July 2020)

Geelong Advertiser (2018a). 'Deakin University Waurn Ponds to host $18m Anam Cara hospice with $5m federal funding.' 23August, https://www.geelongadvertiser.com.au/news/geelong/deakin-university-waurn-ponds-to-host-18m-anam-cara-hospice-with-5m-federal-funding/news-story/f39228b600978f64236bf61bbc2bca90

Geelong Advertiser (2018b). 'Barwon Health weighs up Geelong Private Hospital site's future after closure announcement.' 22 May, https://www.geelongadvertiser.com.au/news/geelong/barwon-health-weighs-up-geelong-private-hospital-sites-future-after-closure-annoucnement/news-story/02fada8b6f7ddb87fd39d334c36df65a (Accessed 15 July 2020)

Geelong Advertiser (2017). 'Avalon Airshow 2017: How to spend $100m'. 1 March, https://www.geelongadvertiser.com.au/news/geelong/avalon-airshow-2017-how-to-spend-100m/news-story/450e0f8efb03def54256d533db6c87ae (Accessed 15 July 2020)

Geelong Advertiser (2016). 'Preview of Geelong's brand new $277 million Epworth hospital, complete with VIP rooms.' 5 March, https://www.geelongadvertiser.com.au/news/geelong/preview-of-geelongs-brand-new-277-million-epworth-hospital-complete-with-vip-rooms/news-story/d442b5e1d6b92baa92182688d52d086c (Accessed 15 July 2020)

Geelong Advertiser (2014a). 'Name change to reflect Geelong Hospital's links to Deakin University.' 27 May, https://www.geelongadvertiser.com.au/news/geelong/name-change-to-reflect-geelong-hospitals-links-to-deakin-university/news-story/23e6f2e3275a618ba2f503b4ba83df60 (Accessed 15 July 2020)

Geelong Advertiser (2014b). 'Gordon Tafe budget cuts hurt Geelong, teachers say.' 15 September, https://www.geelongadvertiser.com.au/news/geelong/gordon-tafe-budget-cuts-hurt-geelong-teachers-say/news-story/54b76d8f0d932249ef12b5131658153e (Accessed 15 July 2020)

Geelong Advertiser (2013). 'Truck supplier blames fading mining boom for redundancies.' 22 August, http://sit.geelongadvertiser.com.au/article/2013/08/22/371275_news_pf.html (Accessed 15 July 2020)

Geelong Chamber of Commerce (2020) Webinars on "Transitioning Back to an Open Geelong" (15/5) and "Delivering Innovation" (23/5).

Geelong Manufacturing Council (2019). Annual Report 2018-2019. https://www.geelongmanufacturingcouncil.com.au/wp-content/uploads/pdf/2019-GMC-Annual-Report-Final.pdf (Accessed July 2020)

George, L. (2020). 'A new deal plan for manufacturing – how Geelong can show the way.' @AuManufacturing, 8 May, https://www.aumanufacturing.com.au/a-new-deal-plan-for-manufacturing-how-geelong-can-show-the-way-by-lyn-george (Accessed September 2020)

Gezici Korten, F., Elburz, Z.(2018) 'Megaron'. 13(4): 623-635

Gong, H., Hassink.R, Tan, J. et.al. (2020). 'Regional Resilience in Times of a Pandemic Crisis: The Case of COVID-19 in China'. Journal of Economic and Social Geography, 111(3): 497-512

Goschin, Z. (2019). 'Specialisation vs. diversification: which one better upholds regional resilience to economic crises?' Journal of Social and Economic Statistics, 8:2, 11–21.

Government of Western Australia (2020a). 'Procurement changes to help boost local businesses during COVID-19.' [Media release] 27 May, https://www.mediastatements.wa.gov.au/Pages/McGowan/2020/05/Procurement-changes-to-help-boost-local-businesses-during-COVID-19.aspx (Accessed 15 July 2020)

Government of WA (2020b). 'Social Housing Economic Recovery Package (SHERP).' Department of Communities, Government of Western Australia, 7 June, https://www.communities.wa.gov.au/projects/social-housing-economic-recovery-package-sherp/ (Accessed 15 July 2020)

Green, R. (2020a). 'A new deal for manufacturing – five building blocks for a new plan.' @AuManufacturing, https://www.aumanufacturing.com.au/a-new-deal-for-manufacturing-five-building-blocks-for-a-new-plan-by-roy-green (Accessed 15 July 2020)

Green, R. (2020b). 'Roy Green on a new manufacturing regime.' InnovationAus, 14 April, https://www.innovationaus.com/roy-green-on-a-new-manufacturing-regime/ (Accessed 15 July 2020)

Green, A. (2020c). 'Supporting Aussie manufacturing of COVID-19 face masks.' CSIROscope, 23 April, https://blog.csiro.au/covid-19-face-mask-manufacturing/ (Accessed 15 July 2020)

Gumbs, D., J. Fletcher & J. Locke (2020). 'Coronavirus: the caribbean is the first domino to fall, but there is hope.' New Energy, 9 April, http://newenergyevents.com/coronavirus-the-caribbean-is-the-first-domino-to-fall-but-there-is-hope/ (Accessed 15 July 2020)

Gurran, N., P. Phibbs & T. Lea (2020). 'Homelessness and overcrowding expose us all to coronavirus. Here's what we can do to stop the spread.' The Conversation, 24 March, https://theconversation.com/homelessness-and-overcrowding-expose-us-all-to-coronavirus-heres-what-we-can-do-to-stop-the-spread-134378

Gussak, D. (2002). 'Art therapists as bridge builders for peace.' Journal of Cultural Research in Art Education, 1920, 94–105

Hack-A-Thon (2020). LouisvilleKY.gov, Government of Louisville, https://louisvilleky.gov/government/lift-lou/hack-a-thon (Accessed 15 July 2020)

Hallegatte & Hammer (2020). 'Thinking ahead: For a sustainable recovery from COVID-19 (Coronavirus).' World Bank blogs Development and a Changing Climate, 30 March, https://blogs.worldbank.org/climatechange/thinking-ahead-sustainable-recovery-covid-19-coronavirus (Accessed 15 July 2020)

Harrouk, C. (2020a). 'People to reclaim streets in Milan in post COVID-19 vision of the city.' ArchDaily, 23 April, https://www.archdaily.com/938202/people-to-reclaim-streets-in-milan-in-post-covid-19-vision-of-the-city/ (Accessed 15 July 2020)

Harrouk, C. (2020b). 'Paris plans to maintain anti-pollution and anti-congestion measures post COVID-19 lockdown.' ArchDaily, 25 May, https://www.archdaily.com/938870/paris-plans-to-maintain-anti-pollution-and-anti-congestion-measures-post-covid-19-lockdown (Accessed 15 July 2020)

Harvey, F. (2020). 'COVID-19 relief for fossil fuel industries risks green recovery plans.' The Guardian, 6 June, https://www.theguardian.com/environment/2020/jun/06/covid-19-relief-for-fossil-fuel-industries-risks-green-recovery-plans (Accessed 15 July 2020)

Hassink, R. & Gong, H. (2020). 'Regional Resilience'. In: A. Kobayashi, M. Boyle, N. Castree, F. Collins, J. Crampton, S. Leeuw, E. Ho, I. Luginah, B. Maharaj & J. Tyner, eds., 'International Encyclopedia of Human Geography', 351– 355. Oxford: Elsevier.

Haslam, C. (2020). 'Ageing and connectedness.' In: Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-content/uploads/Together-Apart-Complete-ms.pdf

Hello Lille (2020). 'La Charte Sanitaire COVID-19: la destination Lille s'engage.' City of Lille, https://hellolille.eu/charte-sanitaire-covid-19-la-destination-lille-sengage/ (Accessed 15 July 2020)

Hern, A. (2020). 'COVID-19 could cause permanent shift towards home working.' The Guardian UK, 13 March, https://amp-theguardian-com.cdn.ampproject.org/c/s/amp.theguardian.com/technology/2020/mar/13/covid-19-could-cause-permanent-shift-towards-home-working (Accessed 15 July 2020)

Hills, J.S. (2020). 'Heavily polluted Milan announces plan to limit cars in wake of Covid-19 lockdown.' The Driven, 24 April, https://thedriven.io/2020/04/24/heavily-polluted-milan-announces-plan-to-limit-cars-in-wake-of-covid-19-lockdown/ (Accessed 15 July 2020)

Hinchliffe, J. (2020). 'Crowdsourcing 3D printers set to create essential PPE for Australian hospitals.' ABC Radio Brisbane Online, 3 April, https://www.abc.net.au/news/2020-04-03/callout-for-3d-printers-to-help-create-medical-supplies/12115074 (Accessed 15 July 2020)

History.com (2018). 'Civilian Conservation Corps.' Updated 17 October, https://www.history.com/topics/great-depression/civilian-conservation-corps (Accessed 15 July 2020)

Holden, R. (2020). 'Vital Signs: COVID-19 recession is different – and we need more stimulus to deal with it.' The Conversation, 19 June,

https://theconversation.com/vital-signs-covid-19-recession-is-different-and-we-need-more-stimulus-to-deal-with-it-141037 (Accessed 15 July 2020)

Holder, S. (2020). 'The great Tulsa remote worker experiment.' Bloomberg CityLab, 29 February, https://www.bloomberg.com/news/features/2020-02-28/the-great-tulsa-remote-worker-experiment (Accessed 15 July 2020)

Holling, C.S. (1973). Resilience and stability of ecological systems. Annual Review of Ecology and Systematics, 4: 1–23.

Hopkins, A. (2020). 'If more of us work from home after coronavirus we'll need to rethink city planning.' The Conversation, https://theconversation.com/if-more-of-us-work-from-home-after-coronavirus-well-need-to-rethink-city-planning-136261 (Accessed 15 July 2020)

Hornsey, M. (2020). 'Conspiracy Theories.' In: Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-content/uploads/Together-Apart-Complete-ms.pdf (Accessed 15 July 2020)

Horton, K. (2020a). The Big Reveal. The Regional Australia Institute webinar, 24 June, Canberra

Horton, K. (2020b). The Big Movers. The Regional Australia Institute webinar, Canberra

Hospital Management (2014). 'Australia's redeveloped St John of God Geelong Hospital officially opened'. 13 August, https://www.hospitalmanagement.net/news/newsaustralias-redeveloped-st-john-of-god-geelong-hospital-officially-opened-4343996/

Huard, C. (2020). 'San Diego County Supervisors OK $25M For Behavioural Health Fund.' Times of San Diego, 7 April, https://timesofsandiego.com/politics/2020/04/07/san-diego-county-supervisors-ok-25m-for-behavioral-health-fund/

Hud.Gov (2020). Neighborhood Stabilization Program Grants, US Department of Housing and Urban Development, I9 May, https://www.hud.gov/program_offices/comm_planning/neighborhoodspg (Accessed 15 July 2020)

Huo, Y.J. (2020). 'Prejudice and discrimination.' In: Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-content/uploads/Together-Apart-Complete-ms.pdf (Accessed September 2020)

Huss, E., R. Kaufman, A. Avgar & E. Shuker (2016). 'Arts as a vehicle for community building and post-disaster development.' Disasters, 40:2, 284–303, https://onlinelibrary-wiley-com.ezproxy.lib.rmit.edu.au/doi/pdfdirect/10.1111/disa.12143 (Accessed 15 July 2020)

Hval, C. (2020). 'Spokane city and county libraries engage their digital side during COVID-19 pandemic.' Spokesman-Review, 16 April, https://www.spokesman.com/stories/2020/apr/16/spokane-city-and-county-libraries-engage-their-dig/ (Accessed 15 July 2020)

Id.community (2020). 'City of Greater Geelong Impact of COVID-19 on population growth.' Accessed at https://forecast.id.com.au/geelong/forecast-covid19-impact (Accessed 29 September 2020).

Israel, H., Kalns-Timans, L., Tran, F., Das, P., Briggs, M. (2020). 'Covid-19 Investment Implications Series: The World After Covid Primer.' Thematic Investing, BofA Global Research, accessed at 2 June 2020, https://www.bofaml.com/content/dam/boamlimages/documents/articles/ID20_0467/the_world_after_covid.pdf (Accessed October 2020)

Johnson, E. (2020). 'Morrison signals Australian borders may be closed until mid-2021.' Bloomberg, 26 June, https://www.bloomberg.com/news/articles/2020-06-26/morrison-signals-australian-borders-may-be-closed-until-mid-2021 (Accessed 15 July 2020)

Johnson, L.C (2009a) 'Valuing Arts and Culture in the Community', Asia Pacific Journal of Arts and Cultural Management, 6(2), 471-487.

Johnson, L.C. (2012) 'Building pathways to a brighter future'. Deakin University.

Johnson, L.C. (1992). 'The Australian textile industry: A feminist geography'. Unpublished PhD thesis. Monash University, Melbourne.

Johnson, L.C. (1990). 'New patriarchal economies in the Australian textile industry.' Antipode, 22:1, 1–32.

Justice Connect (2020). 'Fairer responses to homelessness for all Australians.' Submission to the Parliamentary Inquiry into homelessness in Australia. June, https://justiceconnect.org.au/wp-content/uploads/2020/06/Submission_to_the_Federal_Inquiry_into_Homelessness_in_Australia_June_2020.pdf

Kabir, M., M.S. Afzal, A. Khan & H. Ahmed (2020). 'COVID-19 pandemic and economic cost: impact on forcibly displaced people.' Travel Medicine and Infectious Diseases, 35, May–June.

Kerrigan, S. & Hutchinson, S. (2016). 'Regional creative industries: transforming the steel city into a creative city in Newcastle, Australia.' Creative Industries Journal, 9(2): 116–129

Kilpatrick, S. 2013. 'Why don't we know where we are going?' Griffith Review 39

Klaus, I. (2020). 'Pandemics are also an urban planning problem.' CityLab, 6 March, https://www.citylab.com/design/2020/03/coronavirus-urban-planning-global-cities-infectious-disease/607603/

Klift, K. (2020). 'How are companies responding to the coronavirus crisis?' World Economic Forum, 23 March, https://www.weforum.org/agenda/2020/03/how-are-companies-responding-to-the-coronavirus-crisis-d15bed6137/ (Accessed 15 July 2020)

Knaus, C. (2020). 'Manufacturing face shields within days: how Australian industry is pivoting to fight coronavirus.' The Guardian, 5 April, https://www.theguardian.com/world/2020/apr/05/manufacturing-face-shields-mat-bowtell-3d-printing-australia-fight-coronavirus (Accessed 15 July 2020)

Knight, W. (2020). 'The pandemic is propelling a new wave of automation.' Wired, 12 June, https://www.wired.com/story/pandemic-propelling-new-wave-automation/ (Accessed 15 July 2020)

Koziol, M. (2020). 'NSW launches $36 million program to get rough sleepers into homes.' The Sydney Morning Herald, 8 June, https://www.smh.com.au/politics/nsw/nsw-launches-36-million-program-to-get-rough-sleepers-into-homes-20200607-p5507y.html (Accessed 15 July 2020)

KPMG (2020). Australian Retail Outlook® 2020. Accessed at https://assets.kpmg/content/dam/kpmg/au/pdf/2020/australian-retail-outlook-2020.pdf

Kramer, J. (2020). 'Is Tulsa a remote possibility for workers?' American Prospect, 9 January, https://prospect.org/labor/is-tulsa-a-remote-possibility-for-workers/ (Accessed 15 July 2020)

Kuestenmacher, S. (2020). 'Regions will be the winners after the coronavirus lockdown.' The Australian, 18 April, https://www.theaustralian.com.au/inquirer/regions-will-be-the-winners-after-the-coronavirus-lockdown/news-story/9c9ddffb12bafd663655b764e698f248 (Accessed 15 July 2020)

Laker, L. (2020). 'Milan announces ambitious scheme to reduce car use after lockdown.' The Guardian, 21 April https://www.theguardian.com/world/2020/apr/21/milan-seeks-to-prevent-post-crisis-return-of-traffic-pollution (Accessed 15 July 2020)

Lazzeroni, M. (2019). 'Industrial Decline and Resilience in Small Towns: Evidence from Three European Case Studies'. Tijdschrift voor Economische en Sociale Geografie 111: 182– 195.

Lee County (2020). 'Neighborhood Stabilization Program.' Department of Human & Veteran Services, Lee County Government, Florida, https://www.leegov.com/dhs/housing/nsp

Levin, P.J., E.N. Gebbie & K. Quereshi (2007). 'Can the health-care system meet the challenge of pandemic flu? Planning, ethical, and workforce considerations.' Public Health Reports, 122(5): 573–578.

Lew, S. & J. Porcari (2017). 'Eight years later: what the recovery act taught us about investing in transportation.' Brookings Institute, 22 Feb, https://www.brookings.edu/blog/the-avenue/2017/02/22/eight-years-later-what-the-recovery-act-taught-us/

Lift Up Lou (2020). LouisvilleKY.gov, Government of Louisville, https://louisvilleky.gov/government/lift-lou (Accessed 15 July 2020)

Lilles Agency (2020). 'About Us.' http://en.lillesagency.com/about-us/our-approach/ (Accessed 15 July 2020)

Living New Deal (n.d.). 'Civilian Conservation Corps (CCC), 1933'. https://livingnewdeal.org/glossary/civilian-conservation-corps-ccc-1933/ (Accessed 15 July 2020)

Louisville Arts Network (2020). LouisvilleKY.gov, Government of Louisville, https://louisvilleartsnetwork.org/home (Accessed 15 July 2020)

Mabon, L. (2019). 'Enhancing post-disaster resilience by "building back greener": evaluating the contribution of nature-based solutions to recovery planning in Futaba County, Fukushima Prefecture, Japan.' Landscape and Urban Planning, 187: 105–118, https://doi.org/10.1016/j.landurbplan.2019.03.013

Maidment, J., R. Tudor, A. Campbell & K. Whittaker (2015). 'Use of domestic craft for meaning-making post-disaster.' Kōtuitui: New Zealand Journal of Social Sciences Online, 10(2): 144–152

Makary, M. (2020). 'How to reopen America safely.' New York Times, 14 May, https://www.nytimes.com/2020/05/14/opinion/reopen-america-coronavirus-lockdown.html (Accessed 15 July 2020)

Malizia, E.E., Ke, S. (1993) 'The influence of economic diversity on unemployment and stability.'Journal of Regional Science, 33 (2):221-235

Mares, P. (2020). 'Can Australia build its way out of the coronavirus economic slump, with public housing the priority?' ABC Radio Online, 29 May, https://www.abc.net.au/news/2020-05-29/public-housing-crisis-economic-recovery-from-coronavirus/12268274 (Accessed 15 July 2020)

Mares, P. (2018). 'No Place Like Home: Repairing Australia's Housing Crisis'. Melbourne: Text Publishing.

Maribyrnong City Council (2020). 'Together Apart Rapid Relief Fund.' https://www.maribyrnong.vic.gov.au/arts-and-culture/Creative-resources/Together-Apart-Rapid-Relief-Fund (Accessed 15 July 2020)

Martin, P. (2020). 'The economy in 7 graphs: How a tightening of wallets pushed Australia into recession.' The Conversation, 6 June (Accessed 15 July 2020)

Martin, R., & Sunley, P. (2020). 'Regional Economic Resilience: Evolution and Evaluation'. In: G. Bristow & A. Healy, eds., 'Handbook on Regional Economic Resilience'. 10– 35. Cheltenham: Edward Elgar.

Martin, R.L. (2018). 'Shocking Aspects of Regional Development: Towards an Economic Geography of Resilience'. In: G. Clark, M. Gertler, M. P. Feldman & D. Wójcik, eds., The New Oxford Handbook of Economic Geography, 839– 864. Oxford: Oxford University Press.

Mayor of London (2020). 'Pay it Forward.' https://payitforward.london.gov.uk/ (Accessed 15 July 2020)

Medina, R. (2018). '1918 influenza virus: 100 years on, are we prepared against the next influenza pandemic?' National Review of Microbiology, 16: 61–62, https://doi.org/10.1038/nrmicro.2017.174 (Accessed 15 July 2020)

McKinsey & Company (2020). 'Survey: Australian consumer sentiment during the coronavirus crisis.' 15 May, https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/survey-australian-consumer-sentiment-during-the-coronavirus-crisis (Accessed 15 July 2020)

McKinsey & Company (1994). 'Lead Local, Compete Global'. Sydney: McKinsey and Co.

Michael, L. (2020). 'How social housing investment could help save Australia's construction industry.' Pro Bono Australia, 3 June, https://probonoaustralia.com.au/news/2020/06/how-social-housing-investment-could-help-save-australias-construction-industry/ (Accessed 15 July 2020)

Mills, T. (2020). 'New reports of family violence spike in COVID-19 lockdown, study finds.' The Age, 8 June, https://www.theage.com.au/national/victoria/new-reports-of-family-violence-spike-in-covid-19-lockdown-study-finds-20200607-p55096.html (Accessed 15 July 2020)

Mills, N. & Cannon, A. (2015). 'Pyramid chief's latest venture owes $500,000', Geelong Advertiser, February 21, 2015 (Accessed 15 July 2020)

Mitchell, R., & F. Popham (2008). 'Effect of exposure to natural environment on health inequalities: an observational population study.' Lancet. 372(9650): 1655–1660

Morton, A. (2020a). 'Gas "completely dominated" discussion about Covid-19 recovery, commission adviser says.' The Guardian, 13 Jun, https://www.theguardian.com/australia-news/2020/jun/13/gas-completely-dominated-discussion-about-covid-19-recovery-commission-adviser-says (Accessed September 2020)

Morton, A. (2020b). 'Seizing the moment: how Australia can build a green economy from the COVID-19 wreckage.' The Guardian, 14 May, https://www.theguardian.com/australia-news/2020/may/14/seizing-the-moment-how-australia-can-build-a-green-economy-from-the-covid-19-wreckage (Accessed September 2020)

Mountford, H. (2020). 'Responding to coronavirus: low-carbon investments can help economies recover.' World Resources Institute, 12 March, https://www.wri.org/blog/2020/03/coronavirus-economy-low-carbon-investments (Accessed 15 July 2020)

Muldoon, O. (2020). 'Collective Trauma.' In: Together Apart: The Psychology of COVID-19. Eds J. Jetten, S. Reicher, S. Haslam & T. Cruwys. Sage, https://www.socialsciencespace.com/wp-

content/uploads/Together-Apart-Complete-ms.pdf (Accessed 15 July 2020)

Muller, B. (2010). 'Introduction. Urban regional resilience: How do cities and regions deal with change?' German Annual of Spatial Research and Policy, 1–13

Nakamura, R., Paul, C.J. (2009) 'Measuring agglomeration'. In: Capello R, Nijkamp P, (ed). 'Handbook of regional growth and development theories' (pp. 305-328). Cheltenham: Edward Elgar.

Senator the Hon. Fiona Nash (2018) [Media Release], 'Coalition begins decentralisation process', April 2017, http://minister.infrastructure.gov.au/nash/releases/2017/April/fn054_2017.aspx (Accessed September 2020)

New Climate Institute (2018). Climate Opportunity: More Jobs; Better Health; Liveable Cities. New Climate Institute, C40 Cities & The Global Covenant of Mayors for Climate & Energy, https://c40-production-images.s3.amazonaws.com/researches/images/71_ClimateOpportunity_Full_online_%283%29.original.pdf?1536323452

Noonan, M (2017). 'Geelong: A De-Industrialising City'. Geelong Region Local Learning and Employment Network. Accessed at https://theredtoolbox.org/index.php/insights-blog/geelong-a-de-industrialising-city-1 (Accessed July 2020)

Norman, B. (2001). 'Managing urban growth in the Geelong region 1965-2005', researchgate.net (Accessed August 2020)

Norman, F. (2020). 'Greener cities could be a key component of our COVID-19 recovery.' UNSW Sydney Newsroom, 5 June, https://newsroom.unsw.edu.au/news/art-architecture-design/greener-cities-could-be-key-component-our-covid-19-recovery (Accessed 15 July 2020)

Noy, I. (2020). 'Past pandemics show how coronavirus budgets can drive faster economic recovery.' The Conversation, 9 May.

NSW Government (2020). '$15 million to transform our streets and public spaces for social distancing.' 8 May, https://www.nsw.gov.au/news/15-million-to-transform-our-streets-and-public-spaces-for-social-distancing

O'Neill, P & McGuirk, P. (2002). 'Prosperity along Australia's eastern seaboard: Sydney and the geopolitics of urban and economic change', Australian Geographer, 33(3): 241-61

OECD (2020a), 'OECD Economic Outlook, Volume 2020 Issue 1: Preliminary version', OECD Publishing, Paris, https://doi.org/10.1787/0d1d1e2e-en.

OECD (2020b). 'Cities policy responses.' Tackling Coronavirus (COVID-19), OECD Publishing, Paris, updated 13 May, https://read.oecd-ilibrary.org/view/?ref=126_126769-yen45847kf&title=Coronavirus-COVID-19-Cities-Policy-Responses (Accessed 15 July 2020)

OECD (2020c), 'OECD Policy Responses to Coronavirus (COVID-19), A systemic resilience approach to dealing with COVID-19 and future shocks'. OECD Publishing, Paris, updated 28 April, http://www.oecd.org/coronavirus/policy-responses/a-systemic-resilience-approach-to-dealing-with-covid-19-and-future-shocks-36a5bdfb/ (Accessed August 2020)

OECD (2020d). 'From pandemic to recovery: Local employment and economic development.' OECD Policy Responses to Coronavirus (COVID-19), OECD Publishing, Paris, updated 27 April, http://www.oecd.org/coronavirus/policy-responses/from-pandemic-to-recovery-local-employment-and-economic-development-879d2913/#back-endnotea0z50 (Accessed 15 July 2020)

OECD (2013). 'Innovation-driven growth in regions: the role of smart specialisation'. OECD Publishing, Paris, https://www.oecd.org/sti/inno/smart-specialisation.pdf (Accessed August 2020)

Parilla, J. & R. Dinkins (2020). 'Cities and states are on the front lines of the economic battle against COVID-19', Brookings Institute, 19 March, https://www.brookings.edu/blog/the-avenue/2020/03/20/cities-and-states-are-on-the-front-lines-of-the-economic-battle-against-covid-19/ (Accessed 15 July 2020)

Parkinson, G., S. Vorrath & M. Mazengarb (2020). '10 key mega renewables projects and ideas to lead COVID-19 recovery.' Renew Economy, 8 May, https://reneweconomy.com.au/10-key-mega-renewables-projects-and-ideas-to-lead-covid-19-recovery-35610/ (Accessed 15 July 2020)

Pawson, H. & Mares, P. (2020). 'Coronavirus lays bare 5 big housing system flaws to be fixed.' The Conversation, 12 May, https://theconversation.com/coronavirus-lays-bare-5-big-housing-system-flaws-to-be-fixed-137162 (Accessed 15 July 2020)

Peng, C., Minhang.Y, Chaolin, G. et.al. (2017). A review of the theory and practice of regional resilience. Sustainable Cities and Society, 29: 86–96

Piccard, B. & F. Timmermans (2020). 'Which world do we want after COVID-19?', Euractiv, 16 June, https://www.euractiv.com/section/energy-environment/opinion/which-world-do-we-want-after-covid-19/ (Accessed 15 July 2020)

PricewaterhouseCoopers Consulting (2019). Transforming Australian manufacturing: preparing businesses and workplaces for Industry 4.0. Report for Swinburne University of Technology, 16 May, https://www.pwc.com.au/education/industry-proposal-13may2019.pdf (Accessed September 2020)

Productivity Commission (2017). ' Transitioning Regional Economies', Study Report, 15 December, Canberra. Accessed at https://www.pc.gov.au/inquiries/completed/transitioning-regions/report on August 2020 (Accessed September 2020)

Productivity Commission (2014). 'Australia's Automotive Manufacturing Industry', Inquiry Report. No 70, 31 March, Canberra. Accessed at https://www.pc.gov.au/inquiries/completed/automotive/report/automotive.pdf (Accessed September 2020)

Profile.id.com.au (2018). 'Geelong industry sector of employment' https://profile.id.com.au/geelong (Accessed September 2020)

Purtill, J. (2020). 'More people will live in the country and work from home after COVID, experts say.' Triple J Hack, ABC Australia, https://www.abc.net.au/triplej/programs/hack/coronavirus-covid-19-moving-to-the-country-working-from-home/12274084 (Accessed 15 July 2020)

Raes, J. (2020). 'After the pandemic, what are the opportunities and challenges for the circular economy?' United Nations Environment Programme Finance Initiative (UNEP FI), 3 June, https://www.unepfi.org/news/circular-economy/blog-after-the-pandemic-what-are-the-opportunities-and-challenges-for-the-circular-economy/ (Accessed 15 July 2020)

Raworth, K. (2017). Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. Cornerstone (Accessed 15 July 2020)

RBA (2020). 'Statement on Monetary Policy, Economic Outlook – August 2020'. https://www.rba.gov.au/publications/smp/2020/aug/economic-outlook.html (Accessed 10 September 2020)

RDA (2017). 'Regional Development Australia Barwon South West submission to the Independent review into regional, rural and remote education.' August, https://www.rdv.vic.gov.au/__data/assets/pdf_file/0006/1870233/RDA-BSW-Submission-Independent-review-into-regional,-rural-and-remote-education.pdf (Accessed August 2020)

RDA (2017). 'Regional Development Australia Barwon South West submission to the Inquiry into regional development and decentralisation.' September 2017. Accessed at https://www.rdv.vic.gov.au/__data/assets/pdf_file/0006/1870233/RDA-BSW-Submission-Independent-review-into-regional,-rural-and-remote-education.pdf (Accessed 15 July 2020)

Reece, N. (2020). 'Crisis an opportunity to reset and reimagine.' The Age, 26 April.

Reimagining the Civic Commons (2020). 'Initiative Overview', https://civiccommons.us/app/uploads/2018/01/RCC_Initiative_Overview_2020_Pages.pdf

Renew Australia (n.d.). 'Renewing Spaces', https://www.renewaustralia.org/project/renew-geelong

Renew Geelong (2018). 'Renew Projects: Renew Geelong.' Renew Australia, https://www.renewaustralia.org/project/renew-geelong

Remplan (2020). https://www.remplan.com.au/area-profiles/ (Accessed at September 2020)

Ross, H. (2020). 'Post-COVID-19 wave of regional migration predicted as people seek simpler life, get back to basics', ABC News Online, 10 May, https://www.abc.net.au/news/2020-05-10/post-covid-19-pandemic-simpler-life-migration/12229082

Rice, J. (2009). 'The Mill of Mystery: A History of the Valley Worsted Mills Ltd', Geelong, Histec Publications, Melbourne.
RMCG (2017). 'Sustainable Agribusiness Strategy for the G21 Region 2017-2022'. Accessed at https://www.g21.com.au/sites/default/files/resources/final_sustainable_agribusiness_strategy_for_the_g21_region_2017-2022_280717.pdf (Accessed 15 July 2020)

Ruth, B. & Sauer,M. (2020). 'County approves $25m fund for behavioural health infrastructure, anticipates increased need amid COVID-19 pandemic.' KPBS, 7 April, https://www.kpbs.org/news/2020/apr/07/county-approves-25m-fund-behavioral-health-infrast/ (Accessed 15 July 2020)

Ruzzene, M., Cousens, D., & Patsouris, A. (2018). 'Greater Geelong and the Bellarine Tourism Development Plan'. Tourism Greater Geelong and Bellarine. Accessed at https://www.tourismgeelongbellarine.com.au/wp-content/uploads/2019/07/Geelong-and-the-Bellarine-Tourism-Development-Plan_compressed.pdf (Accessed September 2020)

Ryerson CBI & ULI Toronto (2020a). 'What does the future hold for cities? Series recap', Future of Cities Online Discussion Series. https://www.citybuildinginstitute.ca/2020/05/11/what-does-the-future-hold-for-cities-series-recap/ (Accessed 15 July 2020)

Ryerson CBI & ULI Toronto (2020b). 'Future of Density', Future of Cities: Online Discussion Series [webinar], 8 April,

https://www.youtube.com/watch?v=rSfyZtwZ2SI&feature=youtu.be (Accessed 15 July 2020)

Ryerson CBI & ULI Toronto (2020c). 'Future of 9 to 5', Future of Cities: Online Discussion Series [webinar], 15 April, https://www.youtube.com/watch?v=gqw9E46PPzE&feature=youtu.be (Accessed 15 July 2020)

Ryerson CBI & ULI Toronto (2020d). 'Future of climate and city building', Future of Cities: Online Discussion Series [webinar], 22 April, https://www.youtube.com/watch?v=9DihGQVss4s&feature=youtu.be (Accessed 15 July 2020)

Ryerson CBI & ULI Toronto (2020e). 'Future of main streets', Future of Cities: Online Discussion Series [webinar], 29 April, https://www.youtube.com/watch?v=zJ3aqUkfjZk&feature=youtu.be (Accessed 15 July 2020)

Ryerson CBI & ULI Toronto (2020f). 'Future of public space', Future of Cities: Online Discussion Series [webinar], 6 May, https://www.youtube.com/watch?v=oouIV2cuhn0&feature=youtu.be (Accessed 15 July 2020)

Rynne, B. (2015) 'Australian Regional Capacity Index (ARCI) – October 2019.' KPMG Economics and Tax Centre. Accessed at https://assets.kpmg/content/dam/kpmg/au/pdf/2019/australian-regional-capacity-index-october-2019.pdf (Accessed August 2020)

San Diego News (2020). 'City of San Diego announces $4 million relief package for local businesses due to coronavirus.' City News Service, 19 March, https://www.10news.com/news/local-news/san-diego-news/city-of-san-diego-announces-4-million-relief-package-for-local-businesses-due-to-coronavirus (Accessed 15 July 2020)

Sas, N. (2020). 'Australia's manufacturing pivot in a post-coronavirus world as COVID-19 creates "new era" for the economy.' ABC News, 19 April, https://www.abc.net.au/news/2020-04-19/scott-morrison-government-coronavirus-covid19-manufacturing/12153568 (Accessed 15 July 2020)

SCRGSP (Steering Committee for the Review of Government Service Provision) (2014).'Report on Government Services 2014, vol. B, Child care, education and training'. Canberra: Productivity Commission (Accessed August 2020)

Seric, A. & D. Winkler (2020). 'COVID-19 could spur automation and reverse globalisation – to some extent.' VOX Policy Portal, Centre for Economic Policy Research, 28 April, https://voxeu.org/article/covid-19-could-spur-automation-and-reverse-globalisation-some-extent (Accessed 15 July 2020)

Sensier, M., Bristow, G., & Healy, A. (2016). Measuring Regional Economic Resilience across Europe: Operationalising a Complex Concept. Spatial Economic Analysis, 11:128– 151

SGS Economics and Planning (2020a). 'New report: East coast mega-region would boost national growth and improve liveability', May, Accessed at https://www.sgsep.com.au/publications/insights/new-report-east-coast-mega-region-would-boost-national-growth-and-improve-liveability (Accessed August 2020)

SGS Economics and Planning (2020b). 'Reimagining Australia's South-East. Report prepared for the City of Melbourne', March, Accessed at https://www.sgsep.com.au/assets/main/SGS-Economics-and-Planning_Reimagining-Australias-South-East.pdf (Accessed August 2020)

Shamim, S. Cang, H. Yu and Y. Li (2016). 'Management approaches for Industry 4.0: A human resource management perspective.' [Conference proceedings] 2016 IEEE Congress on Evolutionary

Computation (CEC), Vancouver, BC, 5309–5316, DOI: 10.1109/CEC.2016.7748365. (Accessed August 2020)

Shanks, A. (2020). 'Confused about how to access COVID-19 relief resources? Team of Spokane librarians can help.' Spokesman-Review, 10 April, https://www.spokesman.com/stories/2020/apr/10/confused-about-how-to-access-covid-19-relief-resou/ (Accessed 15 July 2020)

Simmie, J. & Martin, R. (2010). 'The economic resilience of regions: Towards an evolutionary approach.' Cambridge Journal of Regions, Economy and Society, 3: 27–43.

Simonen, J., Herala, J., & Svento., R. (2020). Creative Destruction and Creative Resilience: Restructuring of the Nokia Dominated High-tech Sector in the Oulu region. Regional Science Policy & Practice

Skilling the Bay Advisory Group (2020). Geelong Education and Workforce Profile 2011–2021, Skilling the Bay, Geelong. Accessed at https://www.thegordon.edu.au/stb/about/geelong-education-and-workforce (Accessed August 2020)

Slezak, M. (2020). 'More jobs in renewable-led COVID-19 economic recovery, EY report finds.' ABC News Online, 7 June, https://www.abc.net.au/news/2020-06-07/renewable-led-covid-19-recovery-will-create-more-jobs-ey-report/12322104 (Accessed 15 July 2020)

SmartCitiesWorld (2020). 'Melbourne launches largest ever revegetation project to green the city.' 8 June, https://www.smartcitiesworld.net/news/news/melbourne-launches-largest-ever-revegetation-project-to-green-the-city-5343 (Accessed 15 July 2020)

SPC & Co-Design Studio (2014). Tactical urbanism volume 4: Australian and New Zealand. Street Plans Collaborative (SPC) & Co-Design Studio, https://issuu.com/codesignstudio/docs/tacticalurbanismvol4_141020

Stangler, D. (2020). 'Here are three reasons COVID-19 makes coworking spaces even more important.' Forbes, https://www.forbes.com/sites/danestangler/2020/04/03/here-are-three-reasons-covid-19-makes-coworking-spaces-even-more-important/#103574a933ac (Accessed 15 July 2020)

Startup Genome (2019). 'Can culture be counted? why local connectedness matters for your startup.' https://startupgenome.com/blog/can-culture-be-counted-why-local-connectedness-matters-for-your-startup (Accessed 15 July 2020)

Sukkar, Hon. Michael (2020) Geelong Business Round Table. September 23, 2020.

Sung, H. (2016). The Influence and Role of Arts on Community Well-being. [PhD Dissertation, Arizona State University, https://repository.asu.edu/attachments/170292/content/Sung_asu_0010E_15684.pdf

Tanaka A. & A. Taylor-Hochberg (2020). 'How will the COVID-19 crisis shape the future of urban parks?' HR&A Advisors, 7 May, https://medium.com/hr-a-advisors/how-will-the-covid-19-crisis-shape-the-future-of-urban-parks-d4f43cc8afa8

Taylor, A.F. & F.E. Kuo (2009). 'Children with attention deficits concentrate better after walk in the park.' Journal of Attention Disorders, 12:5, 402–409

The Age (2020). 'Free TAFE enrolments almost double in first year, 118 per cent surge in female students'. 25 May, https://www.theage.com.au/national/victoria/free-tafe-enrolments-almost-double-in-first-year-118-per-cent-surge-in-female-students-20200525-p54w7v.html (Accessed 15 July 2020)

The Age (2019). 'Government commits $11.7m to help TAFEs deal with stampede for places'. 6 August, https://www.theage.com.au/national/victoria/government-commits-11-7m-to-help-tafes-deal-with-stampede-for-places-20190806-p52eaf.html (Accessed 15 July 2020)

The Age (2018). 'Comcare resists Geelong bid as city pushes for public service jobs places'. 21June, https://www.smh.com.au/politics/federal/comcare-resists-geelong-bid-as-city-pushes-for-public-service-jobs-20180620-p4zmmb.html (Accessed 15 July 2020)

The Australian (2013). 'Agony of bankruptcy under job creation fund'. 8 June, https://www.theaustralian.com.au/national-affairs/agony-of-bankruptcy-under-job-creation-fund/news-story/6105743fe28cf5a3da1d7fae4391c14f (Accessed 15 July 2020)

TheMayor.eu (2020a). 'Vilnius downtown becomes open-air art gallery.' European Portal for Cities and Citizens, 16 June, https://www.themayor.eu/en/vilnius-downtown-becomes-open-air-art-gallery (Accessed 15 July 2020)

TheMayor.eu (2020b). 'Municipal vegetable gardens help struggling families in Nantes.' European Portal for Cities and Citizens, 19 June, https://www.themayor.eu/en/municipal-vegetable-gardens-help-struggling-families-in-nantes (Accessed 15 July 2020)

Thomas, J., J. Barraket, S. Ewing, T. MacDonald, M. Mundell & J. Tucker (2016). Measuring Australia's Digital Divide: The Australian Digital Inclusion Index 2016, Swinburne University of Technology, Melbourne, for Telstra, (Accessed 15 July 2020)

TGGB (Tourism Greater Geelong and The Bellarine) (2019) Annual Report. Geelong: TGGB

Tsirtsakis, A. (2020). 'Pandemic results in nearly 100,000 fewer GP visits, MBS data reveals.' News GP, 25 May, https://www1.racgp.org.au/newsgp/clinical/pandemic-results-in-nearly-100-000-fewer-gp-visits (Accessed 15 July 2020)

Tuffield, R. (2020). 'COVID-19 putting food charities and the homeless under extreme pressure.' ABC Online Shepparton, 21 March, https://www.abc.net.au/news/2020-03-21/homelessness-charities-hard-hit-by-covid-19-pandemic/12071758 (Accessed 15 July 2020)

UNESCO (2020a). 'Cities' response to COVID-19.' Creative Cities Network, United Nations Educational, Scientific and Cultural Organisation, https://en.unesco.org/creative-cities/content/cities-response-covid-19 (Accessed 15 July 2020)

UNESCO (2020b). 'Diversity of cultural expressions.' COVID-19 Response, United Nations Educational, Scientific and Cultural Organisation, https://en.unesco.org/creativity/covid-19 (Accessed April 2020)

United Nations (2020). 'Everyone included: social impact of COVID-19.' Department of Economic and Social Affairs, Social Inclusion, United Nations, https://www.un.org/development/desa/dspd/everyone-included-covid-19.html (Accessed April 2020)

Van Barneveld, K., M. Quinlan, P. Kriesler, A. Junor, F. Baum, A. Chowdhury, A. Rainnie et al. (2020). 'The COVID-19 pandemic: lessons on building more equal and sustainable societies.' The Economic and Labour Relations Review, 31:2, 133–157

Van Estrop, C. (2020). 'Plug pulled on Renew.' Geelong Advertiser, 2 May.

Van Estrop, C. & H. Tippet (2020). '10,000 have lost their jobs.' Geelong Advertiser, 14 May.

Varga, G. (2020). 'San Diego Arts + Culture Challenge Fund launching with $1.25 million to aid coronavirus-challenged nonprofits.' San Diego Union-Tribune, 16 April, https://www.sandiegouniontribune.com/entertainment/story/2020-04-16/san-diego-arts-culture-challenge-fund-launching-to-give-aid-to-coronavirus-challenged-nonprofits

Velenturf, A. & P. Purnell (2020). 'What a sustainable circular economy would look like.' The Conversation, 6 May, https://theconversation.com/what-a-sustainable-circular-economy-would-look-like-133808

Victorian Auditor-General (2015). 'Regional Growth Fund: Outcomes and Learnings.' Victorian Auditor-General's Report, September 2015, 2015-16:7. PP No 91, Session 2014–15. Accessed at https://www.audit.vic.gov.au/sites/default/files/20150916-Regional-growth.pdf (Accessed September 2020)

Victorian Government (2019). 'Skills First.' 11 October, https://www.education.vic.gov.au/training/providers/funding/Pages/skillsfirst.aspx?Redirect=1 (Accessed 15 July 2020)

Victorian Government (2018). 'Establishing Tech Schools.' [Media release], 24 October, https://www.education.vic.gov.au/about/programs/learningdev/techschools/Pages/techschoolsestablish.aspx (Accessed 15 July 2020)

Victorian Government (2018). 'Barwon Invest in Victorian agriculture and food', August 2018, accessed from https://agriculture.vic.gov.au/__data/assets/pdf_file/0007/554146/barwon-report.pdf (Accessed 15 July 2020)

Victorian Government (2017). 'More Agri Jobs Come To Geelong.' [Media release], 6 February, https://www.premier.vic.gov.au/more-agri-jobs-come-to-geelong/ (Accessed 15 July 2020)

Vilnius City Council (2020). 'Vilnius will welcome vacationers this summer: the capital will turn into many different countries.' https://vilnius.lt/en/2020/05/29/vilnius-will-welcome-vacationers-this-summer-the-capital-will-turn-into-many-different-countries/ (Accessed 15 July 2020)

Viva Energy (2014). 'Vitol completes acquisition of Shell's Australian Downstream business; Launches Viva Energy Australia.' [Media Release] 13 August, https://www.vivaenergy.com.au/about-us/media-centre/news/2014/launch-viva-energy-australia (Accessed October 2020)

Walker, J (2018). 'Creative Industries Environmental Scan 2018'. Accessed from http://creativegeelong.com.au/CreativeGeelong_Enviroscan.pdf (Accessed 20 September 2020)

Wall, D. (2020). 'Greenspaces are essential, infrastructure experts stress.' Daily Commercial News, 93:97, 1–2

Warralily (2020). 'Cheers to a community 10 years in the making.' [Media Release] 16 Jul, https://warralily.com.au/news/latest-news (Accessed August 2020)

Wesener, A. (2015). 'Temporary urbanism and urban sustainability after a natural disaster: transitional community-initiated open spaces in Christchurch, New Zealand.' Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 8:4, 406–422

Westbury, M. (2015). 'Creating Cities'. Melbourne, Australia: Niche Publishing.

What Works Cities (2020). 'COVID-19: local government response and resource bank', https://medium.com/@WhatWorksCities/covid-19-local-government-response-and-resource-bank-df47e38791ba (Accessed 15 July 2020)

White House (2016). 'Fact sheet: the recovery act made the largest single investment in clean energy in history, driving the deployment of clean energy, promoting energy efficiency, and supporting manufacturing.' Office of the Press Secretary, President Barack Obama, 25 February, https://obamawhitehouse.archives.gov/the-press-office/2016/02/25/fact-sheet-recovery-act-made-largest-single-investment-clean-energy (Accessed 15 July 2020)

Wilson, G. (2020). 'The Federal Government is being called on to help tackle Australia's rough sleeping crisis, which could deliver savings of around $26 million.' SBS Insight, updated 8 June, https://www.sbs.com.au/news/insight/covid-19-gave-these-homeless-people-housing-here-s-how-they-could-keep-it (Accessed 15 July 2020)

Wilson, GA.,Hu,Z.,Rahman, S.(2018) 'Community resilience in rural China: The case of Hu Village, Sichuan.' Province.' Journal of Rural Studies, 60, 130-140 (Accessed 15 July 2020)

World Economic Forum (2020). 'The Great Reset.' https://www.weforum.org/great-reset/about (Accessed 15 July 2020)

Wynd, I. (1971). Geelong: the pivot. Melbourne: Cyprus Books.

YVWF (Yarra Valley Writers Festival) (2020). https://www.yarravalleywritersfestival.com/ (Accessed 15 July 2020)

Zubecki (2020). 'Local elected officials mull ways to jump-start economy following COVID-19 devastation.' The Wire: Colorado Springs Indy, 20 March, https://www.csindy.com/TheWire/archives/2020/03/20/local-elected-officials-mull-ways-to-jump-start-economic-devastation-caused-by-covid-19 (Accessed 15 July 2020)

Appendix A: Resources and Tools

In compiling this report we identified a number of public resources to assist city leaders in designing, monitoring, and evaluating COVID-19 recovery strategies. Select examples are below.

Cities for a Resilient Recovery (C2R) initiative

The Cities for a Resilient Recovery (C2R) initiative is a new participatory platform open to all cities around the world to help them plan for a "sustained resilient recovery" from COVID-19. Launched in May 2020, this global coalition aims to support cities to protect vulnerable residents and strengthen the resilience of their urban systems. Key partners include The World Bank, The Rockefeller Foundation, and the University of Manchester.

The C2R initiative is run by the Global Resilient Cities Network (GRCN), a group of 98 cities focused on "urban resilience action". The network has been operating for six years, and aims to protect vulnerable urban communities from climate change and other physical, social and economic challenges. Formerly known as the 100 Resilient Cities Network, the rebranded GRCN operates through a community of appointed "Chief Resilience Officers" from cities around the world, including Melbourne, which is represented by Chief Resilience Officer Toby Kent (US Newswire, 2020). Members exchange knowledge, identify crisis response strategies, and formulate resilience plans to "future-proof" their systems. The focus is on "real-time knowledge exchange, holistic urban resilience thinking, data-driven and systems thinking approaches, and broad partnerships" (C2R 2020). Collaborators include Cities4Health (Bloomberg Philanthropies), Cities for Global Health (Metropolis), UCLG and UN-Habitat, and C40's Mayoral Taskforce for Recovery (see below).

GRCN priority themes include:

- Waste management and Covid-19: strengthening urban sanitation systems, protecting workers, and advancing the circular economy (partners: The Circulate Initiative and Ocean Conservancy).
- Urban finance: strengthening local SME ecosystems and local economies impacted by COVID-19
- Climate resilience and COVID-19: protecting vulnerable communities from climate and health threats

While Geelong is not a GRCN member, non-member cities can still participate in the C2R initiative: it is open to all local authorities across the globe. For non-member cities, C2R participation occurs through the City's senior leadership. The project offers a number of free online tools and public resources, including weekly knowledge-sharing webinars ('Coronavirus Speaker Series: Sharing Knowledge to Respond with Resilience'), weekly briefings on international responses to Covid-19 ('The Manchester Briefing on Covid-19'), and a 'Recovery Resilience Toolkit' (C2R 2020).

Global Mayors COVID-19 Recovery Taskforce

The Global Mayors COVID-19 Recovery Taskforce is a coalition of city leaders established to coordinate sustainable approaches to urban recovery during and after the pandemic. Also known as the C40's Mayoral Taskforce for Recovery, the alliance is convened by C40, a global network of 96 cities committed to addressing climate change. The Taskforce seeks to rebuild cities and economies "in a way that improves public health, reduces inequality and addresses the climate crisis... Our goal is to build a better, more sustainable, more resilient and fairer society out of the recovery from the COVID-19 crisis." (C40 Cities 2020).

Taskforce membership appears to be restricted to capital cities, with the Lord Mayors of Melbourne and Sydney being the sole two Australian members. However, the C40 also convenes a number of thematic networks to help cities replicate, improve and accelerate climate action and urban sustainability. The C40 peer-to-peer networks enable city practitioners to engage with technical experts, showcase their climate action projects, share knowledge and models, and collaborate with other cities around inclusive climate action. The research arm of C40 also offers a number of free online resources, including measurement and planning tools, a case studies library, a guide for transitioning to circular economies (C40 Cities 2018), and research on urban job creation through climate action (New Climate Institute 2018).

What Works Cities: COVID-19 Local Government Response and Resource Bank

This website provides a curated list of city-specific examples, resources, and commentary that may offer helpful insights to local governments dealing with COVID-19 and its aftermath. Content is organised into five sections: (1) Data tools and resources developed by cities; (2) Resources for local government; (3) Local actions (organised by policy decision); (4) Op-eds and commentary specific to local government; and (5) COVID-19 guidelines and updates (What Works Cities 2020).

Regional Australia Council 2031

In response to Covid-19, the Regional Australia Institute has set up a new initiative to encourage investment, development and prosperity in regional Australia. Launched on 4 May, the Regional Australia Council 2031 (RAC2031) will partner with corporates to "promote the opportunities that exist to live, work and invest in regional Australia". Founding corporate members include Commonwealth Bank, Telstra, Bendigo Bank, NBN and KPMG. Strategy will be informed by the RAI's research into population, jobs and liveability in regional Australia. See:
http://www.regionalaustralia.org.au/home/regional-australia-council-2031/

Regional Jobs Fund

The Victorian Government's Regional Jobs Fund (RJF) provides financial assistance to businesses seeking to develop and expand operations in regional Victoria. The RJF program will consider projects that result in the retention and creation of new jobs; development of business innovation and productivity; and the provision of utilities and infrastructure. At the time of writing, the RJF website does not contain any specific updates in relation to COVID-19. See:
https://www.rdv.vic.gov.au/grants-and-programs/regional-jobs-fund

Employment Vulnerability Index

First conceived at the outset of the 2008–2009 GFC, the Employment Vulnerability Index (EVI) is designed to measure labour market vulnerability across Australia (Baum & Mitchell, 2009). The index uses ABS Census of Population and Housing data to rank Australian suburbs and localities by relative risk of job losses. Authored by Economics Professors Bill Mitchell and Scott Baum, the report is published by the Centre of Full Employment and Equity (CofFEE, University of Newcastle). It uses the ABS Statistical Area Level 2 (SA2) as its basis of spatial analysis, which broadly equates to residential suburbs.[13]

The latest edition (EVI 3.0) identifies regions where job losses are most likely during the COVID-19 economic slowdown. Released in April 2020, the report includes a 'heat map' tool for Australia, along with an online tool that generates job loss vulnerability stats for specific cities and suburbs ('communities') within those cities.

In planning Geelong's recovery from the COVID-19 downturn, the EVI could provide a useful tool for mapping areas of specific need and designing localised interventions. The table below shows rankings for Geelong's highest-risk suburbs, revealing Corio–Norlane and Newcombe–Moolap as the City's two most vulnerable communities for job losses; these suburbs comprise two of Victoria's four 'high risk' areas. More detailed demographic data for each suburb (education level, household income, and labour force participation, relative to Victorian and Australia as a whole) can be viewed via the 'Community Profile' links in the right column.

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[13] The EVI 3.0 calculates aggregate scores for all SA2s that make up the ABS's 101 Significant Urban Areas (SUAs) – areas with "significant towns and cities of 10,000 people or more".

CofFEE Employment Vulnerability Index - Version 3.0
EVI for Geelong communities

You can explore each community further by clicking on the profile link in the right-hand column of the table.

The EVI divides regions into four job loss vulnerability categories depending on its EVI score:

EVI Risk Category

Red Alert - High Risk		more than 1 standard deviation above mean
Amber Alert - Medium High Risk		less than 1 standard deviation above mean
Medium Low Risk		less than 1 standard deviation below mean
Low Risk		more than 1 standard deviation below mean

Community	Main City	EVI score	Category	Community Profile
Corio - Norlane	Geelong	1.51092		View Profile
Newcomb - Moolap	Geelong	1.32715		View Profile
Torquay	Geelong	0.16818		View Profile
Point Lonsdale - Queenscliff	Geelong	0.06112		View Profile
Ocean Grove - Barwon Heads	Geelong	0.06655		View Profile
Clifton Springs	Geelong	0.54485		View Profile
North Geelong - Bell Park	Geelong	0.83977		View Profile
Leopold	Geelong	0.68064		View Profile
Lara	Geelong	0.33590		View Profile
Highton	Geelong	0.26328		View Profile
Grovedale	Geelong	0.58205		View Profile
Geelong West - Hamlyn Heights	Geelong	0.11366		View Profile
Belmont	Geelong	0.48587		View Profile
Geelong	Geelong	-0.04360		View Profile
Newtown (Vic.)	Geelong	-0.23430		View Profile

Source: screenshot, EVI Tables by City with Detailed Statistical Profiles, Geelong
http://www.fullemployment.net/evi/3.0/evi_3.0.php?SUA_Name_2016=Geelong&order=1

Appendix B: Search Terms

The following is an indicative list of the search terms used in researching Part 3 of this report.

- COVID-19 (or) pandemic (or) coronavirus
- (AND) economic recovery (or) revival (or) reboot
    - + cities (or) urban
    - + regional cities
    - + regional economies
    - + regional Australia
    - + Geelong
    - + local government (or) city councils
    - + employment (or) work (or) jobs (or) skills (or) training
    - + local business (or) high streets (or) retail
    - + infrastructure (or) construction
    - + industry (or) manufacturing (or) Industry 4.0
    - + innovation (or) specialisation
    - + supply chains (or) value chains
    - + reshoring
    - + circular economy
    - + sustainability (or) sustainable
    - + environment (or) climate change
    - + green recovery
    - + resilience
    - + social inclusion (or) social equity
    - + tourism (or) travel
    - + migration (or) internal migration (or) urban exodus
    - + public space (or) green space
    - + transport (or) active transportation (or) commuting
    - + tactical urbanism
    - + urban planning (or) urban density
    - + art (or) culture (or) design (or) creative industries
    - + health (or) telehealth
    - + housing (or) affordable housing (or) homelessness
    - + disaster (or) GFC (or) recession (or) SARS (or) Spanish Flu (or) earthquake (or) Christchurch (or) tsunami (or) Hurricane Katrina

Appendix C: Geelong Sectoral and Organisational Employment Changes

This table is derived from the CoGG data set *Regional Economic News Summaries* and its limitations need to be acknowledged: its basis in press releases and items from key regional newspapers generates a real bias. These sources tend to emphasise the positive, forward-looking, good news stories of both planned and actual investments, rather than detailing negative stories of closedowns or employment loss. The data set is *not* comprehensive, but the data and related stories still give a vital insight into the mood and activities across the region, allowing the derivation of general patterns and giving invaluable details of company and organisational activity not available elsewhere.

Table 7: Geelong Sectoral and Organisational Employment Changes, 1997–1998 to 2019–2020

Economic Sector	No. of Companies	Companies: 1997–1998 to 2006–2007	Companies: 2007–2008 to 2019–2020
Manufacturing Gains	+58	Austrim Nylex: 60 (2000–2001) Ford: 130 (2000–2001); 100 (2005–2006) Axiom Energy: 20 (2006–2007)	Chemring Australia: 116 (2008–2010) Air Radiators: 44 (2007–2008) Mako Craft: 40 (2008–2009) Turi Foods: 66 (2009–2010) Ford: 50 (2009–2010) Alcoa: 40 (2010–2011) D-Lite Source: 200 (2012–2013) Backwell IXL: 90 (2012–2013) QuickStep: 30 (2014–2015); 15 (2015– 2016) RPC Technologies (pipes): 112 (2009–2011) Ridley Corp: 20 (2015–2016); 25 (2016–2017) Carbon Revolution: 20 (2012–2013); 90 (2013–2014); 60 (2016–2017); 130 (2018-2019); 80 (2019 -2020). Total of 380 EFT by 2020 Marand Precision Engineering: 300 (2010– 2011 at Moorabbin); 60 (2012–2013); 20 (2019–2020)
Losses	-42	Winchester: 25 (1997–1998) Shell Refinery: 140 (1997–1998) Geelong Cement: 110 (1998–1999) Bekaert BHP Steel: 21 (2000–2001) Continental Ace Conveyor: 40 (1997–1998) Coghlan Russell Engineering: 50 (2006–2007)	Veridian Glass: 60 (2008–2009)s Notley Engineering: 13 (2008–2009) Turi Foods: 10 (2009–2010) Ford: 600 (2010-16 Across Geelong and Melbourne); 220 (2012–2013) Henderson Auto: 37 (2007–2008) Alcoa: 56 (2007–2008); 60 (2011–2012); 70 (2012–2013). Total loss of 800 with closure Blue Circle Cement: 10 (2009–2010) Shell/Viva: 2 (2009–2010); 22 (2011–2012) One Steel: 19 (2008–2009) Bekaert Steel Cord: 74 (2007–2008) Air Radiators: 30 (2008–2009); 27 (2012–2013), 37 (2020) Goodman Fielder: 44 (2007–2008) Carbon Revolution: 180 casual staff (2020)
Textiles, Clothing & Footwear Gains	0		
Losses	-14	Candy Footwear: 35 (1997–1998); 100 (2003) Huyck: 45 (1997–2008) Burrrowes: 40 (2000–2001) Kinnears Ropeworks: 70 (1998–1999) Geelong Leather: 35 (2006–2007) Clyde Wool Scouring: 16 (2006–2007)	Brintons: 100 (2007–2008) Godfrey Hirst: 15 (2013); 36 (2014) Huyck-Wagner: 150 (2008–2009) Melba Industries: 120 (2008–2009)
Accommodation & Food	+14	Beach House: 30 (1997–1998) KFC: 20 (1999–2000)	CBD Hotel: 36 (2010–2011) Royal Mail Hotel: 6 (2010–2011)

Gains			Deakin Waterfront Kitchen: 15 (2012–2013) McDonalds: 160 (2012 – 2013); 80 (2014–2015) Deakin Waurn Ponds Estate: 17 (2015–2016)
Losses	-2		Hungry Jacks – 59 (2012-13) Bark Hut Café – 12 (2012-13)
Retail Gains	+27	Safeway: 100 (2000–2001) Bi Lo: 30 (2000–2001) BP Fuel and Shop: 80 (2000–2001) Bunnings: 300 (2002–2003) Spotlight: 70 (2004–2005) Trans-Pacific Holdings Homemaker Centre: 180 (2002–2003)	Westfield: 800 (2007–2008) Aldi: 180 (2010–2011) Woolworths: 110 (2014–2015) Bunnings: 80 (2011–2012) Coles: 180 (2012–2013); 120 (2014–2015) Waurn Ponds Shopping Centre: 500 (2012–2013) Ocean Grove Shopping Centre: 400 (2018–2019)
Losses	-6		Mercury Brands: 14 (2009–2010) Quicksilver: 20 (2011–2012)
Public Administration & Safety Gains	+11	Barwon Prison: 200 (2002–2003)	Barwon Prison: 60 (2012–2013) Child Support Agency: 180 (2007–2008) TAC: 650 (2008–2009); 215 [new] and 300 [relocated] (2010–2011) NDIA 80 + 45 (2012-13); 450 (2019-2020) WorkSafe 155 (2016-17); 550 (2017-18) Marngoneet/Lara Prison: 40 (2012–2013); 120 (2014–2015); 42 (2016–2017) NDIS Disability services: 80 + 45 (2012–2013)
Losses	-4	ATO: 50 (2000–2001)	TAC: 70 (2012–2013)
Education Gains	+4	Deakin University: 1000 (2004–2005)	Deakin University: 400 (2007–2008); 172 (2010–2011); 187 (2012–2013) Brace Education: 12 (2012–2013)
Losses	-2		The Gordon – 104 (2012-13) AGB Training – 30 (2019-20)
Health Gains	+10	Geelong Private Hospital: 90 (1997–1998)	Geelong Private Hospital: 700 (2015–2016); 80 (2018–2019) Epworth Geelong: 350 (2010–2011); 350 (2016-17); 130 (2017-18); 8 (2019-20) By 2018 = 950 staff St John of God: 100 (2011–2012); 130 (2014-15); 770 (2017-18). By 2020 = 1 000 staff Barwon Health: 26 (2009–2010) From 1998-2020 staffing gone from 3 300-7 100. Karingal Disability: 70 (2012–2013)
Losses	-2		Medicare Local: 85 (2012–2013) Geelong Private Hospital: 239 (2018-19)
Scientific & Technical Gains	+4		Auto Research Centre: 25 (2007–2008) Australian Future Fibres Research and Innovation: 491 (2009–2010) Sports Technologies: 100 (2012–2013) Geelong Centre for Emerging Infectious Diseases: 30 (2015) ABS National Data Acquisition Centre:300 (2015–2016) 180 FT and 12 PT
Losses	-5	CSIRO Wool Research: 28 (1998–1999)	CSIRO: 25 (2007–2008); 15 (2009–2010); 20 (2012–2013) Queenscliff Discovery Centre: 15 (2012–2013) Animal Health Laboratory/Australian Centre for Disease Preparedness: 8 (2014–2015)
Construction		*(These are examples only. There has been no attempt to list all construction projects or their workforces, as they often overlap and come from outside the region.)*	TAC: 230 (2007–2008) Powercorp: 30 (2007–2008) Barwon Prison: 160 (2013-14) Belmont Super Clinic: 150 (2009–2010) Epworth Hospital: 900–1000 (2012–2013)

			Westfield: 1300 (2007–2008)
			Hamlan Homes: 80 (2012–2013)
			Terminals: 300 (2012–2013)
			Waurn Ponds Shopping Centre: 200 (2013-14)
			Kingston Village: 150 (2018–2019)
			Armstrong Creek: 1600 (2012–2013)
			Coles Torquay: 300 (2013-14)
Other Gains	+25	Cotton On: 40 (2005–2006) Tasco Sawmill: 12 (1997–1998) Raytheon Systems: 120 (1998–1999) Anco Seed and Turf: 30 (1997-1998) Cormoran Communications: 20 (1997–1998) SNF Floerger: 30 (1998–1990); 35 (2002–2003) Telstra Credit Management Centre: 112 (2000–2001) Bartlett Enterprises/Steggles: 120 (2000–2001); 40 (2002–2003) Salesforce: 500 (2005–2006) Qantas Heavy Aircraft Maintenance: 900 (1998–1999); 70 (2005–2006)	Cotton On: 300 (2010–2011); 84 (2015–2016) Challenge Meats: 45 (2007–2008) Modern Olives: 24 (2007–2008) Barwon Water: 540 (2010–2015) Ambaco Seafood: 22 (2009–2010) Leisurelink: 20 (2009–2010) Sky Software: 80 (2012–2013) Energy Australia Call Centre: 300 (2012–2013) Dialog IT: 200 (2017–2018) Cross Laminated Offsite Solutions: 25 (2018–2019) Tiger Air: 30 (2010–2011) Avalon International Terminal: 100 (2018–2019) Tango Energy: 87 by 2021 Imagine Intelligent materials: 54 (2018–19)
Other Losses	-19	Telstra: 40 (1998–1999) Aerospace Technologies: 19 (1997–1998) Dahlhaus Windows: 30 (1997–1998) Fort Queenscliffe: 200 (1998–1999) Pura Milk: 12 (2000–2001) Target Head Office: 200 (2000–2001)	Tasco Sawmills: 25 (2011–2012) Tesltra: 100 (2008–2009) Austin Group: 40 (2007–2008) Sands Print Group: 60 (2007–2008) Chartwell Enterprises: 40 (2007–2008) Steggles: 25 (2008–2009) Incitec-Pivot: 80 (2008–2009); 13 (2009–2010) Target Head Office: 130–180 (2015–2016) Salesforce: 163–232 (2010–2011) Linen Care: 8 (2010–2011) Qantas: 113 (2011–2012); 260 (2013); 53 (2012–2013) Forstaff Aviation: 246 (2012–2013)

Data source: Regional Economic News Summaries and Committee for Geelong Research Working Group.

Appendix D: The Main Automotive Government Programs

The closure of the Ford, Holden and Toyota car manufacturing plants and the flow on to the supply chain companies, in Australia in 2016 and 2017 was one of the most significant structural adjustments seen in Australia's manufacturing sector.

The Australian, Victorian and South Australian Governments, together with the car manufacturers Ford, Toyota and Holden, offered around $380 million worth of support for workers and the automotive supply chain, as well as government programs to assist supply chain companies to diversify.

The main Federal Government programs were:

- Growth Fund comprising:
  - Automotive Industry Structural Adjustment Programme
  - Skills and Training Initiative (delivered by Holden through Transition Centres and Toyota through the DRIVE program)
  - Next Generation Manufacturing Investment Programme
  - Automotive Diversification Programme

- Ford Transition Program through Auto Skills Australia
- Automotive Transformation Scheme
- Innovation and Investment Funds

State Government programs were:

- Victorian Automotive Supply Chain Training Initiative
- Victorian Automotive Supply Chain Transition Program
- Victorian Local Industry Fund for Transition Program
- South Australian Automotive Workers in Transition Program
- SA Automotive Supplier Diversification Program
- SA Government Beyond Auto wellbeing and resilience counselling support

In addition to government programs, Ford, Holden and Toyota each provided additional resources to support their workers. This included assistance to redeploy to new roles within the companies.

While the support offered for workers varied they included a combination of:

- Information on existing support services available and how to access them
- Career advice and local labour market information including jobs in growth areas
- Skills recognition and training support including financial assistance with training costs
- Resume, application, interview and job search assistance and job fairs
- Health and wellbeing support, including financial counselling
- The continuation of some services and support measures post closure

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