



# Peri Urban Group of Rural Councils Economic Development Strategy (DRAFT)

**Acknowledgements:**

The Peri Urban Group of Rural Councils PUGRC) would like to thank Regional Councils Victoria (RCV) and the Victorian Planning Authority, whose generous financial support of the project has made the completion of this project possible.

The PUGRC would also like to thank the leadership and strategic direction that started and saw this project through to the end that was provided by our current Chair Cr Natasha Gayford (Macedon Ranges Shire Council) and the former-Chair who started the whole process Mayor David Edwards (Moorabool Shire Council).



The Peri Urban Group acknowledges the Traditional Owners of the land across the region.

We pay our respects to their leaders, past, present, and future.



## Letter from the Chair



## About the Author



Geoff Potts joined the Peri Urban Group of Rural Councils (PUGRC) in April 2018. Working for the six fast growing rural Councils that border Melbourne's growth boundary and the City of Geelong, Geoff has responsibility for advocacy, administration and promotion of the PUGRC's goals to key stakeholders.

Geoff brings a wealth of State and Federal Government experience to this role, having worked in the public sector and industry for the last 28 years.

His experience in the public sector includes being the Chief of Staff and Senior Policy Adviser to five NSW State Government Ministers with responsibilities across the portfolios of Roads, Finance, Police, Consumer Affairs, Women and the Arts.

Geoff is passionate about regional economic development, infrastructure, creative industries and STEM. He has a Bachelor of Arts in Sociology and Anthropology, an Honours Degree in the Sociology of Social Enterprises, and A Graduate Diploma in Sustainability. Geoff is currently studying for a Masters of Economics specializing in Regional Development.

## Table of Contents

Executive Summary .....	8
Chapter 1: Introduction.....	10
Who is the Peri Urban Group of Rural Councils (PUGRC)?.....	12
Where are people coming from when they move to the PUGRC .....	12
Why People are moving to the PUGRC .....	16
Amenity .....	16
Social Capital .....	18
Challenges .....	22
Covid-19 .....	22
Climate Change .....	23
Automation and Artificial Intelligence .....	24
PUGRC Priorities.....	25
Chapter 2: Theoretical Framework of the PUGRC Economic Development Strategy .....	27
Where to focus economic development – all economic development is not equal.....	27
Methodology.....	28
The UNSDG’s what are they and why do they matter to regional economic development? .....	28
Measuring the Importance of the UNSDG’s in the PUGRC context .....	28
Framework of PUGRC UNSDG Data .....	29
PUGRC Sustainable Equitable Economic Development (SEED) Model .....	29
PUGRC UNSDG Maslowian Hierarchy .....	30
Psychological Needs .....	31
Safety Needs .....	32
Esteem Needs.....	33
Economic (Self) Actualisation.....	33
The PUGRC Five Pillars of Economic Growth Model .....	35
Tolerance and Equality.....	36
Human Capital Development .....	37
Climate Change Action .....	37
Infrastructure .....	38
Opportunity.....	38
The PUGRC SEED Model Explained .....	39
Chapter 3: Analysis of UNSDG data in the SEED Model Context.....	41

TOLERANCE AND INEQUALITY.....	42
UNSDG 1 - No Poverty - Increase Poverty Reduction Payments to ACOSS Poverty Line Level.....	42
Action Item 1: UNSDG 1: End Poverty – Increase Poverty Reduction Payments to ACOSS Poverty Line Level .....	44
UNSDG 2: Zero Hunger – Direct Intervention .....	45
UNSDG 2: Zero Hunger – Direct Intervention .....	46
Action Item 1: UNSDG 1: End Poverty – Increase Poverty Reduction Payments to ACOSS Poverty Line Level (Iteration 2) .....	46
Action Item 2: UNSDG 2: Zero Hunger – Community Food Gardens Funding .....	46
Action Item 3: UNSDG 2: Zero Hunger -Community Food Network Funding.....	46
UNSDG 2: Zero Hunger – Agricultural Industry Development .....	46
Action Item 4: UNSDG 2: Zero Hunger – Agricultural Industry Development.....	49
UNSDG 5: Gender Equality - Women in Management.....	50
Action Item 5: UNSDG 5: Gender Equality - Women in Management. ....	50
UNSDG 10: Reducing Inequality – Socio-economic Inequality – Increase Poverty Reduction Payments to ACOSS Poverty Line level. ....	50
Action Item 1: UNSDG 10: Reducing Inequality – Increase Poverty Reduction Payments to ACOSS Poverty Line level. ....	53
UNSDG 10: Reducing Inequality – Institutional Inequality- Growth Assistance Pact.....	53
Action Item 6: UNSDG 10: Reducing Inequality - Growth Assistance Pact.....	56
UNSDG 16: Peace, Justice and Strong Institutions – Cultural Inequality. ....	56
Action Item 7: UNSDG 16: Peace, Justice and Strong Institutions – Cultural Inequality.....	58
HUMAN CAPITAL DEVELOPMENT .....	58
UNSDG 3: Good Health and Wellbeing - Multi-Disciplinary Medical and Emergency Centres. ....	64
Action Item 8: UNSDG 3: Good Health and Wellbeing - Multi-Disciplinary Medical and Emergency Centres.....	67
UNSDG 4: Quality Education - Multi-Institutional Co-studying Facilities in the PUGRC.....	67
Action Item 9: UNSDG 4: Quality Education - Multi-Institutional Co-studying Facilities .....	72
CLIMATE CHANGE ACTION .....	72
UNSDG 13: Climate Action – The Need For Low Carbon Public Transport Solutions.....	72
Action Item 10: UNSDG 13: Climate Action – The Need For Low Carbon Public Transport Solutions .....	77
UNSDG 13: Climate Action – Agriculture Climate Action Plan .....	77
Action Item 11: UNSDG 13: Climate Action – Agriculture Climate Action Plan.....	79
UNSDG 13: Climate Action – Mitigating Extreme Climate Change Impacts And Events.....	79
Action Item 12: UNSDG 13: Climate Action – Mitigating Extreme Climate Change Impacts And Events. ....	84
UNSDG 14: Life Below Water - Distinctive Areas And Landscapes To Include Coastal Waterways. ....	84
Action Item 13: UNSDG 14: Life Below Water - Distinctive Areas And Landscapes To Include Coastal Waterways. ....	86
UNSDG 15: Life on Land - Distinctive Areas and Landscapes – Distinctive Areas and Landscape Expansion. ....	87
Action Item 14: UNSDG 15: Life on Land - Distinctive Areas and Landscapes Expansion .....	89

INFRASTRUCTURE.....	90
Enabling Infrastructure.....	90
UNSDG 6: Clean Water and Sanitation - Water Recycling Facilities.....	90
Action Item 15: UNSDG 6: Clean Water and Sanitation – Water Recycling Facilities. ....	91
UNSDG 7: Affordable and Clean Energy - Community Energy Generation. ....	91
Action Item 16: UNSDG 7: Affordable and Clean Energy - Community Energy Generation. ....	93
UNSDG 9: Industry, Innovation and Infrastructure – Internet Connectivity. ....	93
Action Item 17: UNSDG 9: Industry, Innovation and Infrastructure – Internet Connectivity ....	94
UNSDG 9: Industry, Innovation and Infrastructure – Mobile Blackspots.....	94
Action item 18: UNSDG 9: Industry, Innovation and Infrastructure – Mobile Blackspots ....	95
UNSDG 9: Industry, Innovation, and Infrastructure – Road Infrastructure Funding.....	95
Action item 19: UNSDG 9: Industry, Innovation and Infrastructure – Road Infrastructure Funding ....	99
UNSDG 9: Industry, Innovation and Infrastructure - Extending Rail Infrastructure To Directly Service All Areas Of The PURGC, and UNSDG 11: Sustainable Cities and Communities - Extension Of Viable, Affordable, Frequent And Reliable Public Transport Within The PUGRC. ....	99
Action Item 20: UNSDG 9: Industry, Innovation and Infrastructure - Extending Rail Infrastructure To Directly Service All Areas Of The PURGC.....	102
Action Item 21: UNSDG 11: Sustainable Cities and Communities - Extension Of Viable, Affordable, Frequent And Reliable Public Transport Within The PUGRC.....	102
UNSDG 12 Responsible Consumption and Production - Circular Economy Development Package. ....	103
Action Item 22: UNSDG 12: Responsible Consumption and Production - Circular Economy Development Package ...	110
OPPORTUNITY .....	112
Industry Diversity .....	112
Comparative Advantage.....	113
UNSDG 9: Industry, Innovation and Infrastructure - Innovation Hub and Business Incubator.....	120
Action item 23: UNSDG 9: Industry, Innovation and Infrastructure - Innovation Hub and Business Incubator. ....	123
UNSDG 8: Decent Work and Economic Growth - Comparative/Absolute Advantage Development Group (CAADG).....	123
Action item 24: UNSDG 8: Decent Work and Economic Growth - Comparative/Absolute Advantage Development Group (CAADG).....	124
UNSDG 17: Partnerships for the Goals –\$20 Million p.a. PUGRC Growing Towns Fund.....	124
Growing Towns Fund Structure.....	128
Action Item 25: UNSDG 17: Partnerships for the Goals - \$20 Million p.a. PUGRC Growing Towns Fund .....	130
Chapter 4: Industry Specific Economic Development Packages. ....	131
Community Development .....	131
Psychological Needs Action Items – Climate Action (Community Development Activity).....	132
Psychological Needs – Infrastructure – (Community Development Activity) .....	132
Safety Needs – Human Capital development (Community Development Activity).....	132

Community Belonging – Infrastructure (Community Development Activity) .....	133
Community Belonging – Tolerance and Equity (Community Development Activity).....	134
Community Belonging – Opportunity (Community Development Activity).....	134
Self Esteem Needs - Tolerance and Inequality (Community Development Activity) .....	134
Economic Development .....	134
PUGRC SEED Model Pathway – New Economy Industry Development Package .....	134
SEED Model Pathway – Agricultural Industry Development Package.....	137
SEED Model Pathway – Retail Industry Development Package .....	139
SEED Model Pathway – Tourism Industry Development Package .....	141
SEED Model Pathway – Transportation Industry Development Package .....	143
SEED Model Pathway – Circular Economy Development (Recycling and Secondary industry Development) Package.....	145
Chapter 5: Conclusion .....	146



## EXECUTIVE SUMMARY

The Peri Urban Group of Rural Councils (PUGRC) Economic Development Strategy is first of its kind, new paradigm in economic development. Using the 17 United Nations Sustainable Development Goals (UNSDG) as a framework, we have put together 333 social, economic and environmental data sets defined by the Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development, to create a unique picture of our region. This exercise provides a window into the level of development for all 79 Local Government Areas within Victoria and gives us a comprehensive picture of how developed the PUGRC is against the rest of the state. This unique viewpoint has allowed us to develop a new economic development system that uses community development projects to build the community's socio-economic, environmental and sustainability capacity to deliver economic development outcomes across the region.

To make sense of all the information generated by the analysis of the 333 data sets within the 17 UNSDG categories we have created for the first time the PUGRC Sustainable and Equitable Economic Development (SEED) Model. This model provides a framework that allows policy makers to view the issues that are restricting our residents from being able to engage with our local, state and national economy in a meaningful way. It provides a means by which to identify those elements that people need to progress up the economic ladder to attain a measure of economic actualisation. At the same time it provided a framework for government to see what policy inputs it needs to provide to gain the required social, environmental and economic outputs to remove the obstacles to economic growth for the whole region of the PUGRC.

This data set viewed through the PUGRC SEED Model has enabled us to identify the key characteristics and changes within our region and project what are the critical issues and challenges we need to address to move forward into this challenging and exciting century. Our most immediate challenges are Covid-19, Climate Change and the changes that will arrive with the advent of widespread adoption of automation and artificial intelligence as part of the new economy.

To meet these challenges, we need to address a number of policies, service and infrastructure short comings that the region is currently suffering from. These policy short comings include institutional bias towards the PUGRC, in federal and state grant allocations. Also, the lack of recognition that growth in the PUGRC (which is second only to that of Interface councils) does not get the same policy attention as the Interface Councils receive at the State and Federal level.

In the area of services, the PUGRC suffers from high rates of suicide, traffic road deaths, and cancer, in-part because it lacks any substantive medical infrastructure and suffers from a low numbers of trained medical personnel in the region. Also, the educational services and infrastructure in the region is inadequate. We have no tertiary education institutions within the region, and limited primary, and secondary education options for our residents. This situation has resulted in declining levels of tertiary and trade training being undertaken by the regions youth and a significant drop out rate for students in the tertiary education sector.

A lack of infrastructure, such as a lack of adequate public transport, high levels of mobile phone blackspots, low water recycling rates and difficulty in providing the community infrastructure to deal with the high level of inward migration, is holding back the region from achieving its economic potential.

To address these issues the strategy has identified a total of 25 Action Items, of which 16 community development Action Items are common to each Industry Development Package, and the remainder of the Action Items are focused on propelling growth within the PUGRC. These Action Items address the eight key priorities of the PUGRC, and include: Growth, Size, Population, Health, Education, Utilities, Unique landscapes, and Funding.

The fundamental community Action Items required to address the major issues outlined above are the introduction of a Growing Towns Fund to fund growth focused infrastructure, a Multi-Institutional Co-studying Facilities, Multi-disciplinary Medical and Emergency Centres, Water Recycling, Community Energy Generation, and protection for our unique natural environment, amongst a number of other important initiatives.

Key to the economic development of the region is the focus on: new economy innovation and business entrepreneurship; building of circular economy businesses; transformatory development initiatives for the growth and protection of our Agricultural industry; and specific Covid-19 strategies to help save our Retail and Tourism industries that are suffering from the economic effects of the current pandemic.

These Action Items have been packaged into six industry development packages to deliver the economic development objectives of the region and include the following:

1. New Economy Industry Development Package
2. Agricultural Industry Development Package
3. Retail Industry Development Package
4. Tourism Industry Development Package
5. Transportation Industry Development Package
6. Circular Economy Development (Recycling and Secondary Industry Development) Package

By working towards the implementation of these six industry development packages, the PUGRC is confident of building the community development base upon which solid and sustainable economic development induced growth can occur within the region.

# (DRAFT)

# PUGRC

# ECONOMIC DEVELOPMENT

# STRATEGY

## CHAPTER 1: INTRODUCTION

The PUGRC Economic Development Strategy takes a new path in framing how Economic Development is delivered. It represents a paradigm shift away from a simple industry-focused, traditional Economic Development Strategy, towards one focused on broad based economic benefits. To facilitate this new paradigm of economic development we have used data gathered according to the Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development<sup>1</sup> a data framework for the 17 United Nations Sustainable Development Goals (UNSDG's) as a metric to benchmark the general level of development or "wellness" in PUGRC communities against the rest of Victoria. This approach has given us a unique view on where to focus our attention when creating our Economic Development Strategy, and has lead us to ask some fundamental questions about how we do Economic Development, its relationship to wider council functions, primarily community development, and also who is Economic Development for? This leads us to the first question we have asked?

Who is the economy for? It's a question that is a pretty good place to start when developing an economic development strategy and is an essential question an organisation should ask itself either consciously or unconsciously, when embarking on such an endeavour. Why? Because who you are developing the economy for determines how you develop it and what you focus on.

The original concept of the term 'economy' grappled with the idea that economy and its development applied to everyone. It was a concept that concerned the whole household, or the entire society, rather than just the business community. This is the very basis of how the UNSDG's frame our view of how the community experiences the economy, development, and growth. It is based on the concept of community wellness, of which industry development is an important part, but not the only one.

Many traditional regional development strategies and policies aim to develop the economy by focusing on business or industry development only. These strategies include:

- Developing a comparative or absolute advantage,
- Job importation to a region with single large projects,
- Looking at ways to enhance Gross Regional Product through production efficiency gains, economies of scale and cost reduction strategies, and
- Developing new industries such as tourism, mining, or expansion of the housing market

These are all valid methods however, they focus on just the business side of the equation. These strategies deliver for those members of the community that already have access to capital, have the required skills, and are able to either drive and/or

---

<sup>1</sup> [https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework\\_A.RES.71.313%20Annex.pdf](https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework_A.RES.71.313%20Annex.pdf)

take advantage of the opportunities that these strategies present. For everyone else in the community, these strategies have little actual or imagined impact in their day to day engagement with the economy.

The PUGRC is attempting to take a different approach to economic development. We aim to deliver a strategy that focuses on ensuring all boats rise in a rising tide – not just a few.

To do this we have taken the view that an economic development strategy must not only create actual opportunities, it must also create an environment that will support all in the community, so they can take advantage of economic opportunities offered.

We must ensure all boats, regardless of their disadvantage, distance from regional, state and national economic centres and markets or position in the economy and our society, are able to rise too with any economic rising tide. If we leave some behind, we are failing those that need the community's help the most.

To answer the question at the beginning of this section, who is the economy for, it is for everyone.

Economies exist to provide goods and services to people and to communities. They enable people to draw income from them so as to trade and meet their needs. Economies are not just constituted from a random selection of businesses and corporations. They are defined by the demands and opportunities that a community decides it needs. Businesses and corporations are the by-product of the demand for provision of goods and services and jobs/income, to the community, not the other way around. People are at the centre of an economic system, not business. If you listen to many traditional economists, you could be forgiven for thinking otherwise. It is a place where all can derive a living income and enough money to conduct a relatively comfortable life. The ability of all people to engage in the economy from an equity basis is called economic democracy. That means raising children, being able to attain an education, build a career or business and pay ones bills without living a hand-to-mouth existence.

This is not to say business is not important in economic analysis and economic development strategy development, it is! But we often forget why we are building an economy, and that is to serve the needs of all people that are members of that economy's society. This is therefore a statement of intellectual mechanics and intent. It is to signal that economic policy framed by the correct value framework can be an engine of human development, delivering equity and social justice, as well as economic growth.

Will this strategy deliver such a utopia? That is a long way off. But all journeys must begin sometime and somewhere and must have a destination.

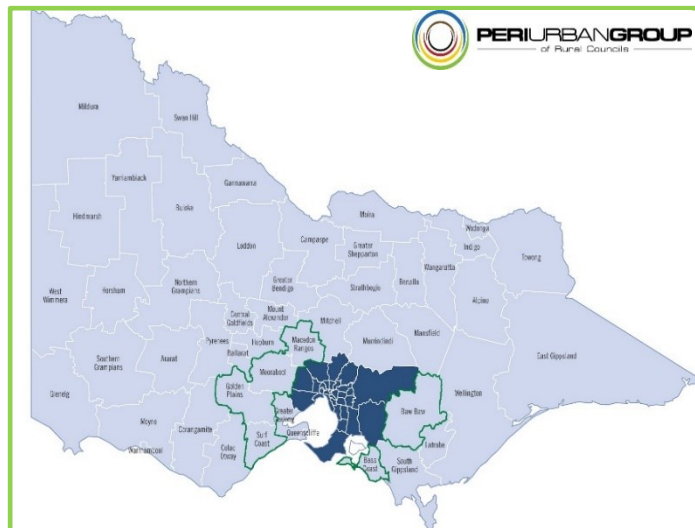
## WHO IS THE PERI URBAN GROUP OF RURAL COUNCILS (PUGRC)?

The PUGRC consists of six regional councils located on the rural peri urban rural fringe surrounding the outskirts of Melbourne.

The group consist of Bass Coast, Baw Baw, Golden Plains, Macedon Ranges, Moorabool and Surf Coast Shire Councils (Figure 1).

The PUGRC is the second fastest growing region in the State, behind the Interface Councils. The rapid level of growth in this region over the last ten years has left PUGRC Councils playing a significant amount of catch-up to provide the basic infrastructure such as roads, drainage, sporting facilities, community hubs, sewerage and other basic infrastructure that new arrivals to the region expect and demand. This pressure from a growing, vibrant and young community on PUGRC Councils is made all the more difficult with an historically small rate base within a rate capped environment, which has led to underinvestment in infrastructure, the community and the opportunities presented by the natural and economic environment.

Figure 1: PUGRC LGA's around Melbourne



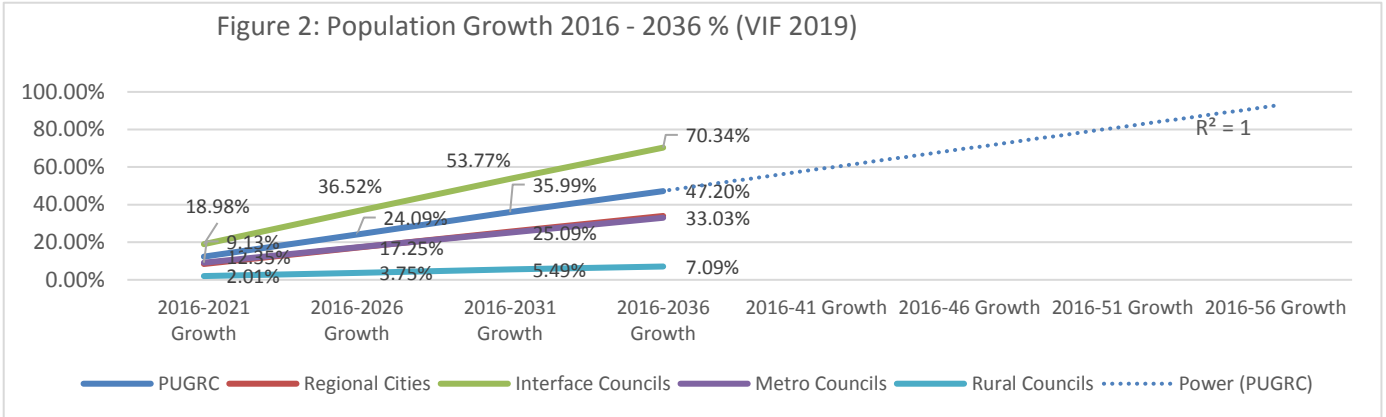
## WHERE ARE PEOPLE COMING FROM WHEN THEY MOVE TO THE PUGRC

The PUGRC region is the second fastest growing rural region in the State and is expected to grow by 47.20% or more than 100,000 people by 2036 (Figure 2). This extraordinary growth is being fuelled by centrifugal forces pushing people out of Melbourne metro areas, such as coming from areas where people feel less safe than they do in PUGRC LGA's; coming from areas that have higher rates of domestic violence; and higher crime rates. PUGRC inward migration is coming from areas with more disadvantage (lower SEIFA scores) and lower levels of inequality, than exist in the PUGRC. Interestingly, new inward migrants are coming from areas with less people that live under the ACOSS poverty line than in the PUGRC, but from areas that have more people accessing some form of poverty reduction financial support from the Federal Government. Inward migrants are also coming from areas with less food insecurity and higher tolerances for multiculturalism than exist in their new home communities in the PUGRC.

Educationally, inward migrants are coming from areas that have higher rates of Post-Graduate and Bachelor educated people, lower levels of Graduate Diploma/Graduate Certificate educated people and equal numbers of people with Advanced Diploma/Diploma educated people. They are also migrating into PUGRC areas with higher levels of Certificate Trained individuals.

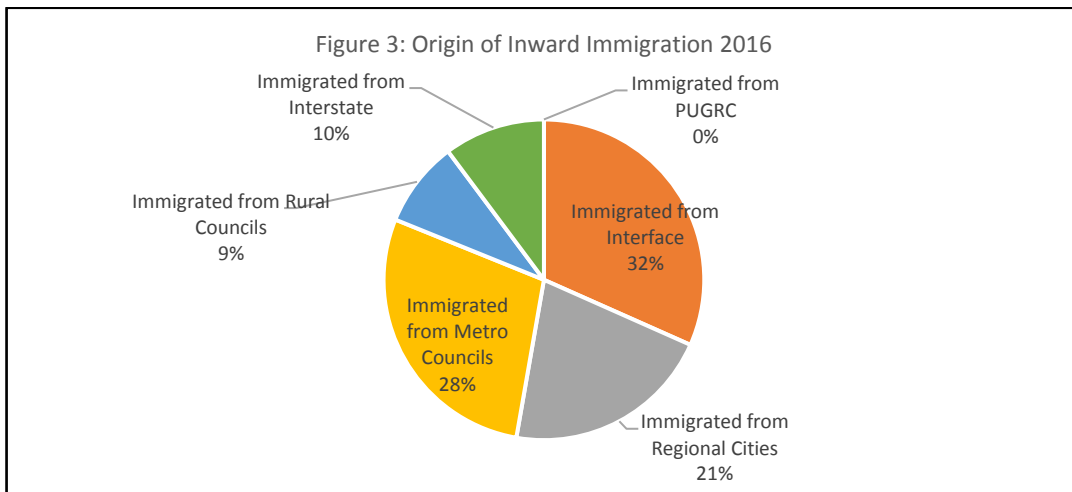
Economically, people migrating to the PUGRC are coming from areas that have higher levels of Industry diversity (lower Herfindahl index scores) and higher levels of business growth. New migrants are coming from areas that have higher numbers of people working in Accommodation and Food Services, Manufacturing, Retail, Administrative and Support Services, Financial and Insurance Services, Professional Scientific & Technical Services, Wholesale Trade and Information Media and Telecommunications. PUGRC residents are more likely to work in Education and Training, Electricity, Gas, Water & Waste Services, Mining, Transport, Postal and Warehousing, Agriculture, Forestry and Fishing, Arts and Recreation Services, and Rental, Hiring, Construction and Real Estate Services.

Figure 2: Population Growth 2016 - 2036 % (VIF 2019)



(Data Source: VIF 2019)

People moving into the PUGRC come predominantly from the Interface Council Region (32%), Metro Council Region (28%) and from Regional Cities (21%) as can be seen in Figure 3. This table demonstrates the outward immigration push from more established areas (Metro Councils and Regional Cities), and the pressure from new developing areas such as the Interface region.



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

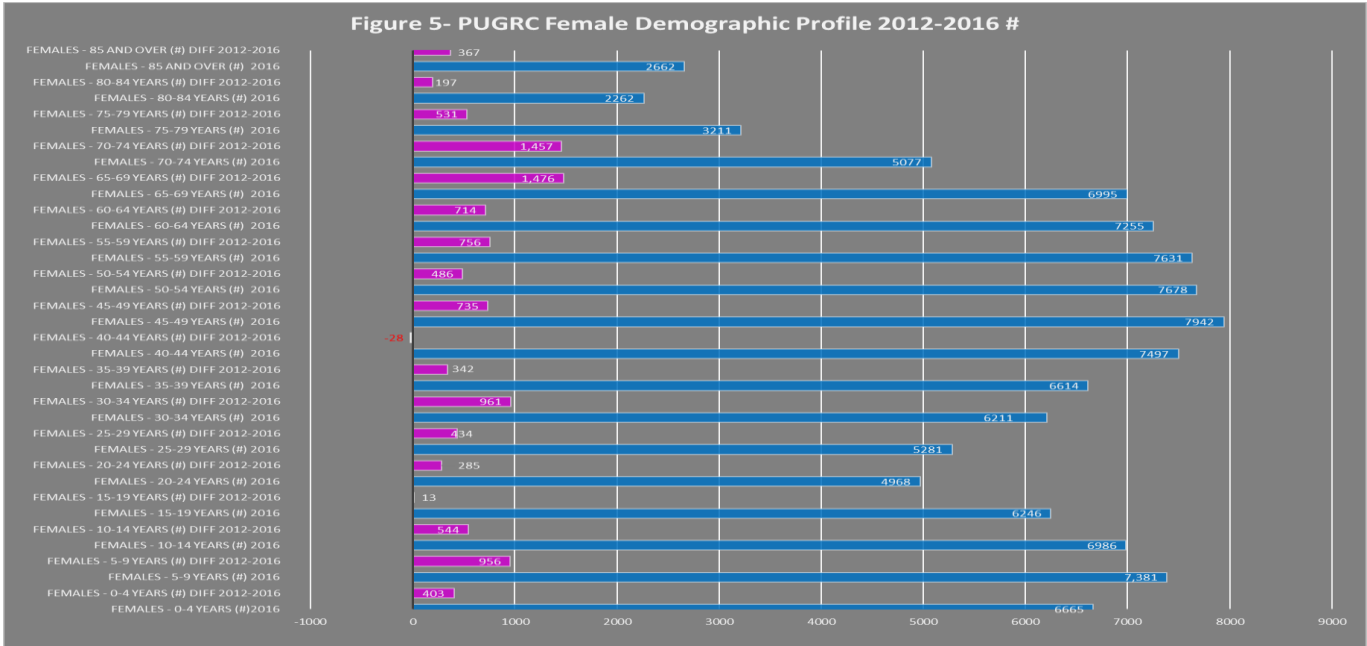
The ten largest sources of PUGRC migration are outlined in Figure 4 below. As can be seen here, eastward migration is originating predominantly in Interface councils such as Cardinia and Casey, into Baw Baw and Bass Coast. Westward and northward migration is predominantly originating from Wyndham, Melton, Brimbank and Hume, into Moorabool, Golden Plains and Macedon Ranges, with migration from Geelong fuelling growth in the Surf Coast.

Figure 4	Region – PUGRC 2016 (Top Ten Origin LGAs) 2016	In migration	Out migration	Net migration
1.	Greater Geelong (C)	4053	3875	178
2.	Cardinia (S)	2150	909	1241
3.	Melton (C)	2108	991	1117
4.	Wyndham (C)	2088	434	1654
5.	Casey (C)	1855	699	1156
6.	Ballarat (C)	1760	2475	-715
7.	Hume (C)	1416	1133	283
8.	Latrobe (C) (Vic.)	1277	953	324
9.	South Gippsland (S)	921	534	387
10.	Brimbank (C)	862	264	598
	Total Immigration Movement	38,889	27,950	11,029

Inwards migration towards Melbourne is occurring from Ballarat into the Western PUGRC Councils. Other inward migration is originating from Latrobe and Southern Gippsland into Baw Baw and Surf Coast.

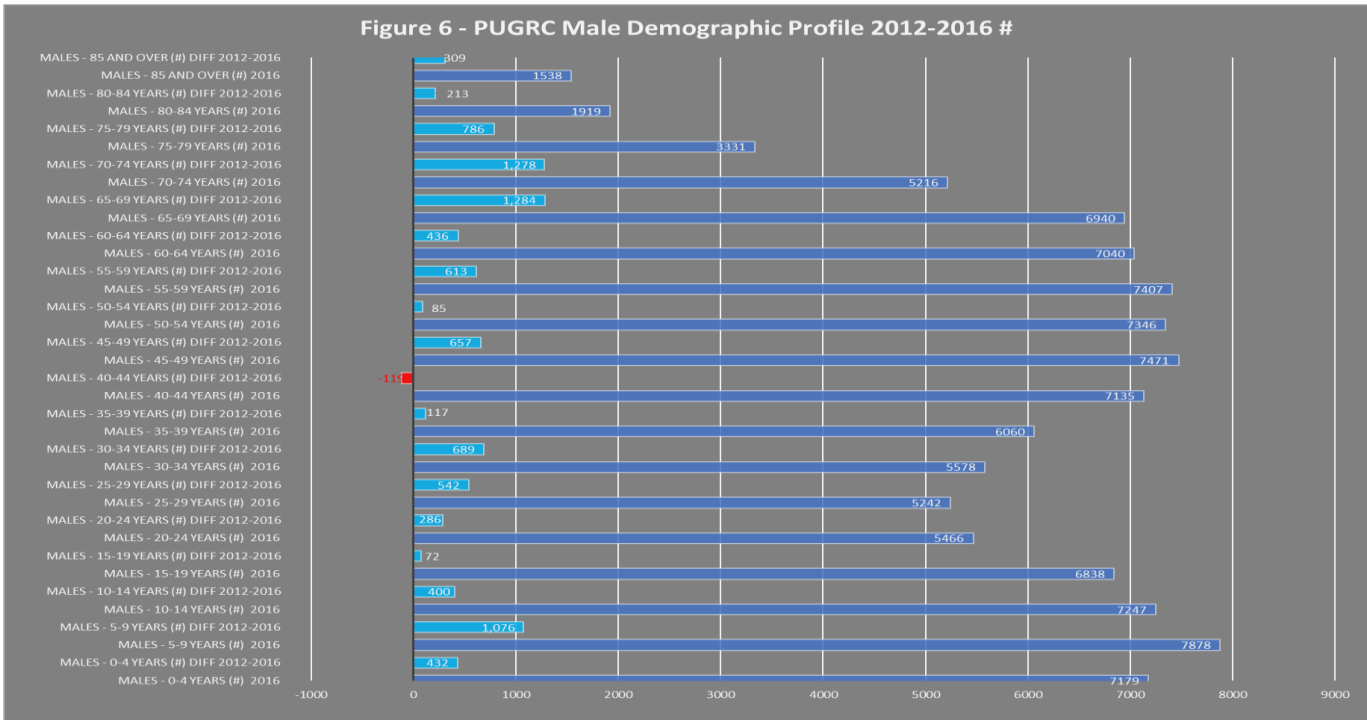
The population profile of the PUGRC is like many rural or regional areas, with growth in older people and a hollowing out of young people in their 20s. As can be seen Figure 5 below, the largest increases of the female population are in the 66-74-year-old age group which accounted for 2,933 new arrivals between 2012-16. The next largest cohorts to grow were the 30-34-year-old females (961) and the 5-9-year-old group (956). This would indicate two migration groups. The first retirees, the second young families.

Figure 5- PUGRC Female Demographic Profile 2012-2016 #



The largest increases in the male population was in the 66-74-year-old cohort which accounted for 2,562 new arrivals between 2012-16 (Chart 59). The next cohort to experience growth was the 5-9-year-old males group, who grew by 1,076 during the same period. Then the 75-79-year-old group expanded by 786, whilst the 30-34-year old group grew by 689. Like the female profile above, there are two distinct groups, retirees and young families migrating to the PUGRC.

Figure 6 - PUGRC Male Demographic Profile 2012-2016 #



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>



## WHY PEOPLE ARE MOVING TO THE PUGRC

Migration to the PUGRC is being driven predominantly by lower housing costs and the metropolitan incomes of young families and retirees. Part of the reason people are drawn to the area by low crime and a distinct perception that the region is safe. High rates of crime and higher levels of disadvantage in their origin LGA could be drivers to move. The relative inequality in the region is also not a deterrent to new migrants, indicating that new migrants might not be from a lower economic stratum. This will be seen in the relative high average income (third behind Metro and Interface council medians at \$45,602 in 2016, with an increase of 18.11% between 2011-16) and GRP per job being \$114,355.21, the second highest GRP/Job ratio in the State, indicating that jobs in the PUGRC (on average) are of higher productive value. There was a stable median house price for the region over the 2011-16 period (\$352,500 in 2016), and no substantive increases in prices. Only 42% of residents work in the region.

It would appear that the economic opportunities of the region (stable lower house prices) are not the only contributing factor in the decision to move there. Lifestyle and relative closeness to Melbourne and regional cities such as Ballarat, Geelong and Latrobe are also driving decisions to migrate.

The two key drivers of migration to the PUGRC are the attraction of amenity and social capital to new inward PUGRC migrants.

---

### AMENITY

Amenity is a strong migratory driver, given that population increase contributes approximately half of any Gross Regional Product (GRP) growth, amenity therefore should be considered a significant driver of population growth, and its economic growth effects. Those things that add to a region's amenity must be considered part of the area's competitive advantage, in terms of visitation, tourism and permanent residency. Infrastructure that enhances this amenity can be considered adding to, and aiding a region's comparative advantage, driving its economic growth.

Amenity can be defined as two important aspects according to Argent et al (2007): "The attractiveness or otherwise of the general environment which it is set; and b) more specifically, the qualities or facilities of the locale itself" (p.218).<sup>2</sup>

Argent et al (2007, p.218) goes on to say:

"Further, what constitutes amenity is strongly differentiated according to the time frame in which it is sought. In the most immediate circumstances, a bus shelter, public toilet or roadside emergency telephone can be important amenities distinguishing between otherwise similar places. On the diurnal scale, amenity issues affecting (for instance) choice of stop-off places on a journey include the availability and quality of overnight accommodation, eating places, barbeque facilities and swimming pools. On a weekly scale, the amenity offered to rural residents by competing country towns may be judged by the perceived quality of their sporting, entertainment, and shopping facilities, social clubs and the like. For a longer time period, the choice of a place for weekend getaways, longer breaks or annual holidays may be impacted by further amenity-related factors, such as weather, scenery, beach access, tourist attractions, the night life possibilities and so on. Perceptions of 'amenity' undoubtedly strongly influence both domestic and overseas tourism flows - which in turn play an important role in local rural economic development. Finally, for the choice of a permanent residence still further factors are likely to become relevant, including accessibility to larger urban areas, medical facilities, the perceived congeniality and safety of the social environment, along with possibility of pursuing favourite pastimes such as golf, fishing or skiing."

---

<sup>2</sup> Argent, N, Smailes, P, Griffin, T. "The Amenity Complex: Towards a Framework for Analysing and Predicting the Emergence of a Multifunctional Countryside in Australia." *Geographical Research* 45.3 (2007): 217-32. Web.

Argent et al's (2007) lengthy description of amenity is useful in outlining the impact of not only the natural environment's role in generating visitation, tourism and residential migration, but also the role standard council infrastructure, or the built environment plays in generating amenity.

Where this amenity is located is important for the following reason. Small infrastructure projects that traditionally fall within the purview of Council's responsibilities, in high growth regions such as the PUGRC, are actually important in developing amenity in these LGAs and it is in the interests of the State Government to support them. These types of projects significantly improve the amenity of Peri Urban rural regions, and importantly improve their ability to increase their Gross Regional Product (GRP) and wider sustainable economic growth.

Argent et al (2007) have been able to map amenity using a series of criteria including altitude, terrain, irrigation water resources, duration of white settlement, rainfall, remoteness, beach distance and mountain terrain, and employment in recreation and related services to define the causes of inward migration. Figure 7 of amenity below outlines how this index plays out on the ground in Victoria. As can be seen within the blue outlined areas signifying the PUGRC region, the map illustrates that the PUGRC has relatively high levels of amenity, positively contributing to high levels of inward migration.

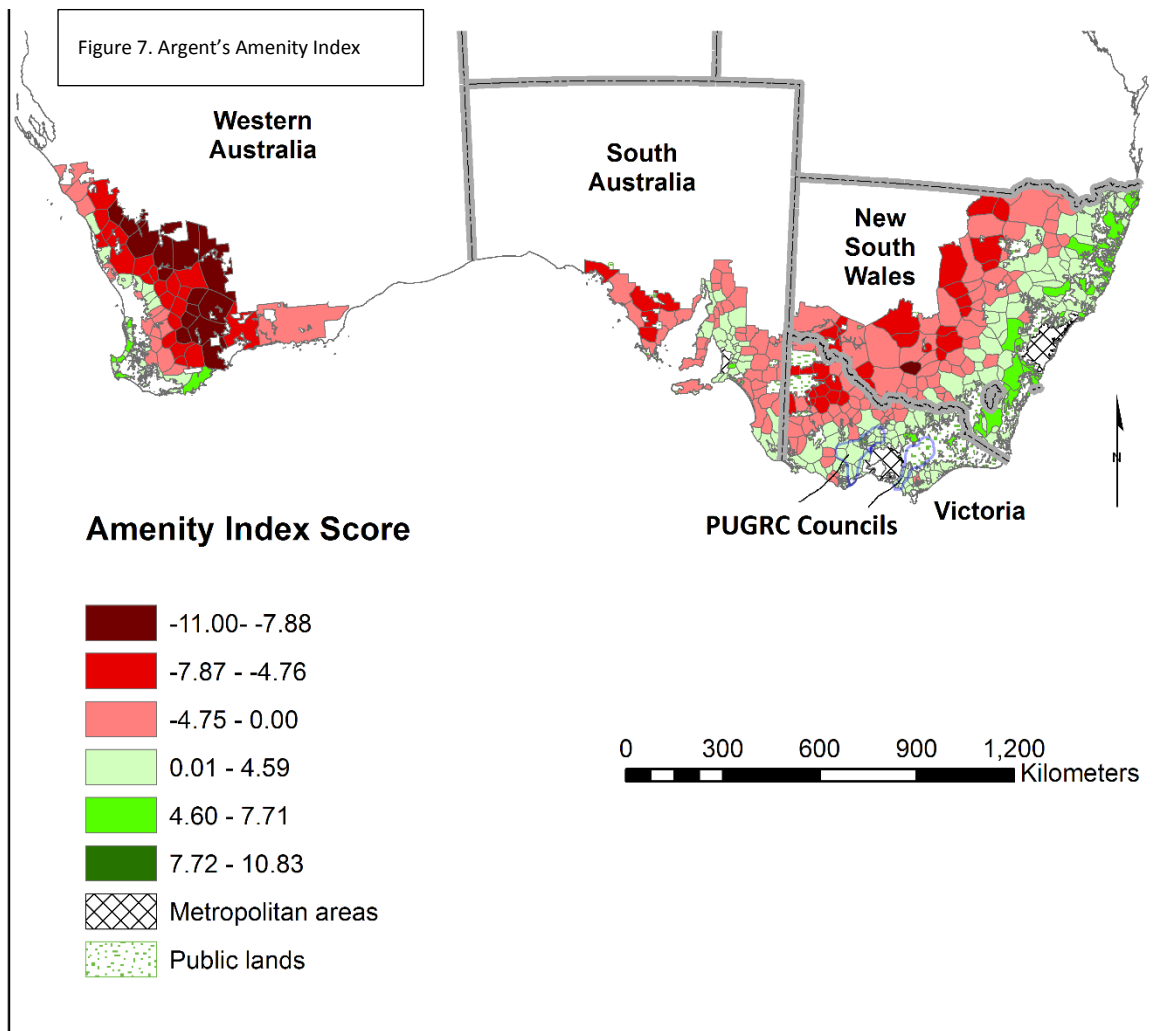


Figure 7: Argent's Spatial Distribution of the Amenity Index. Argent Et al. (2007)

As can be seen in Figure 7, the PUGRC region has significant levels of amenity attracting inward migration and being driven by increasingly well-educated people, as we will see later in the strategy.

---

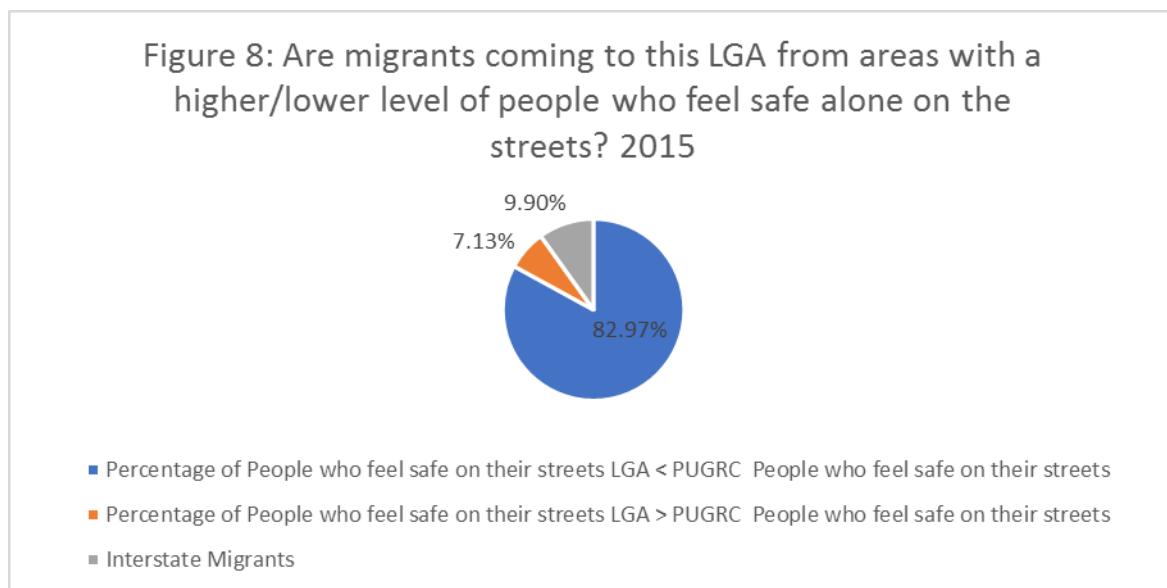
## SOCIAL CAPITAL

This section of the analysis of migration and demographics concentrates on the status of the social capital in the PUGRC region. Social Capital is about the value of social networks, bonding with people and bridging between diverse people, with norms of reciprocity. In essence, it's about the "goodwill available to individuals or groups". Social Capital is fundamentally about how people interact with each other.

The ability to participate in society in an unrestricted manner and the prevalence within our community to accept diversity are two key parts of a wider social capital metric. Communities that are safe and have high level of tolerance for significant minority groups within them, have higher levels of social coherence, and economic activity.

Richard Florida, arguably the expert on the Creative Economy notes that central to the success of creative industries in regions is the satisfying the need for a safe, tolerant, social, political and economic environment. These social and economic conditions are not only a pre-requisite for development of a creative economy, they are the pre-requisite for the development of any community and its economy.

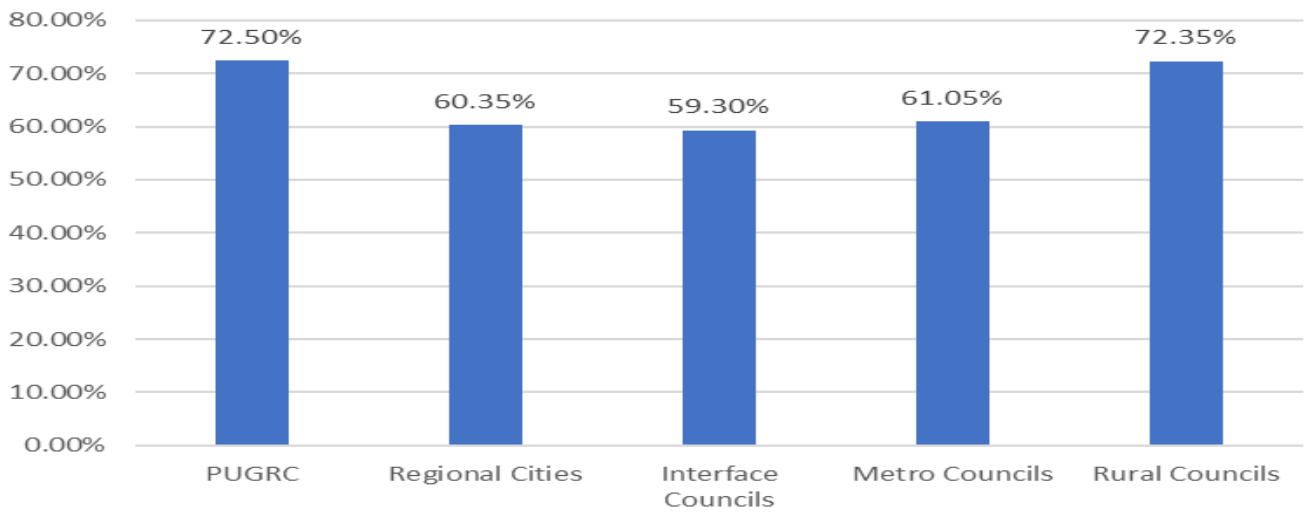
Chart 18 highlights that 82.97% of people migrating to the PUGRC are coming from areas where people feel less safe on the street at night alone. The PUGRC represents a safer environment for them to move to.



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

When taken across all regions in Victoria, the PUGRC is perceived as the safest region in Victoria, as seen in Figure 9 below.

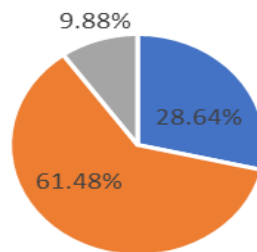
Figure 9: People who feel safe on streets alone (%) 2015



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

This perception is supported by the levels of family violence. Of people migrating to the PUGRC 61.48% come from areas with higher rates of family violence (Figure 10 below).

Figure 10: Are migrants coming to this LGA from areas with a higher/lower level of Family Violence? 2015

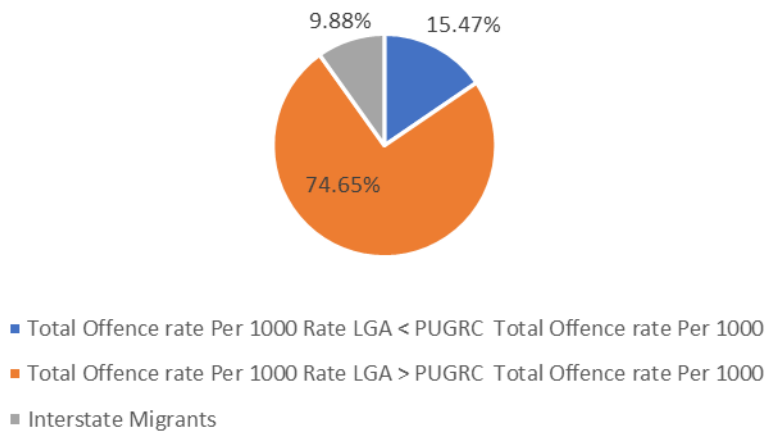


- Total Offence rate Per 1000 Rate LGA < PUGRC Total Offence rate Per 1000
- Total Offence rate Per 1000 Rate LGA > PUGRC Total Offence rate Per 1000
- Interstate Migrants

Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

In Figure 11, we see that 74.65% of migrants coming to the PUGRC arrive from areas with higher rates of total criminal offences.

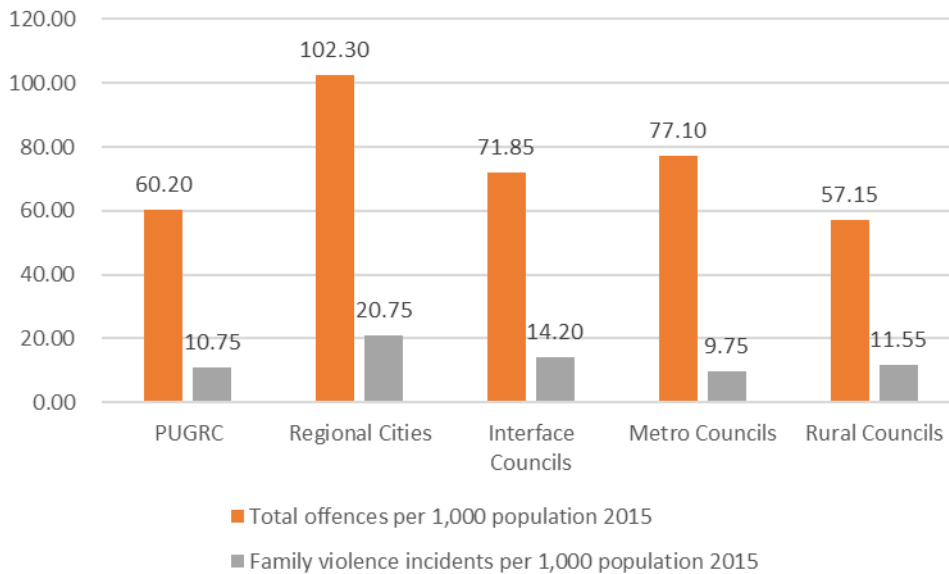
Figure 11: Are migrants coming to this LGA from areas with a higher/lower level of Total Offences? 2015



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

The only region that does not have a higher rate of offences per 1,000 head of population is the Rural Councils (57.15), all other regions have a higher rate of criminality. The remaining regions are between 11.65% (Interface Councils) and 42.1% (Regional Cities) higher than the PUGRC offence rate of 60.2 per 1,000, as seen in Figure 12.

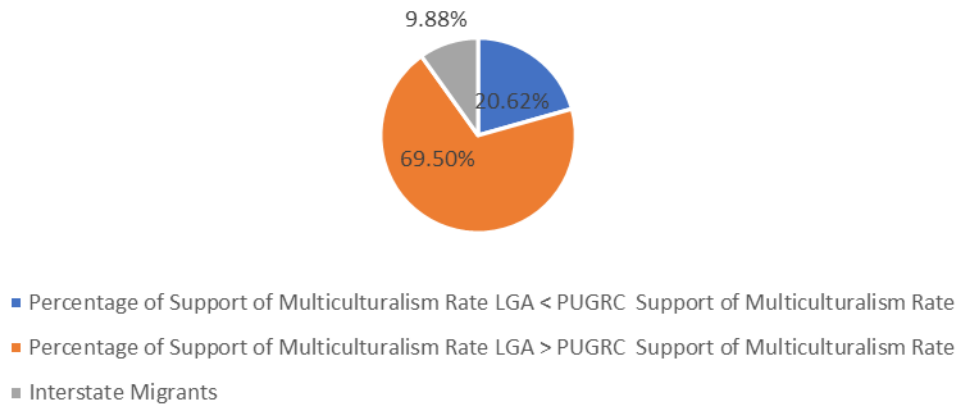
Figure 12: Offences per 1,000 population 2015



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

Whilst crime rates and perceptions of safety are at enviable levels within the PUGRC, our tolerance for multiculturalism is low. In Figure 13 we see 69.50% of people migrating to the PUGRC coming from areas that have a higher appreciation and tolerance of multiculturalism, this lower tolerance of multiculturalism is within a range close to that exhibited in Region Cities and Interface Councils.

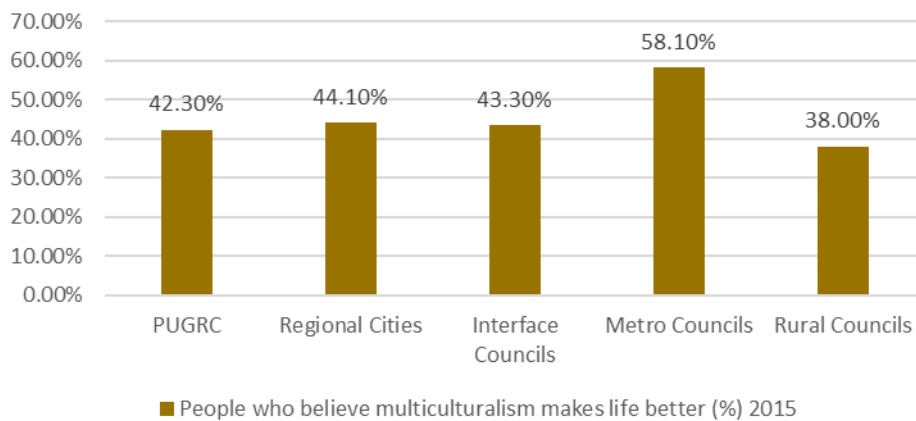
Figure 13: Are migrants coming to PUGRC from areas with a higher/lower level of support of Multiculturalism? 2016



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

The PUGRC is at the lower end of the mid-range of support for multiculturalism at 42.30%, with Interface Councils at 43.30% and Regional Cities at 44.10%. The only outlier is Metro Councils with median 58.10% support rate for multiculturalism. Rural Councils fair the worst with a multiculturalism support rate of 38.00% (Figure 14).

Figure 14: People who believe multiculturalism makes life better (%) 2015



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

The environment of safety and tolerance that exists in the PUGRC is highly conducive to the development of significant Social Capital. High levels of confidence in people's safety is a key area which is clearly drawing people to the region. Whilst work needs to be done on the levels of acceptance and support for multiculturalism, the PUGRC is experiencing similar levels of support to Regional Cities and the Interface Councils for this key factor in social cohesion.

## CHALLENGES

There are a number of short and long term challenges to the PUGRC region, most notably the current Covid-19 Pandemic, the impacts of a changing climate that burst into our consciousness at the beginning of this year in the form of the worst bush fire season Australia has ever experienced and the rise of new technologies such as automation and Artificial Intelligence which will reshape the way we work in the next 10 to 15 years.

---

### COVID-19

The immediate challenge to the PUGRC economy is the Covid-19 pandemic and its short- and long-term economic impacts. At the time of writing (28<sup>th</sup> April 2020), these future challenges have not fully formed. One thing is clear, restarting a national economy (and a global economy at the same time) will be a difficult and long-term challenge. The disruption to global supply chains, transport networks and stock levels of internationally manufactured goods will be felt for some time. International travel will be affected indefinitely, as will global business development will slow, influx of international capital for project focused business investment will in the short term be halted, with its medium to long term prognosis uncertain. The impacts on industries such as tourism, hospitality, retail and accommodation has been nothing short of devastating. In Agriculture, those relying on intensive production processes such as such as vegetable and fruit growing, which depend on a high input of seasonal labour, will be hard hit.

The major short to medium term challenges to PUGRC businesses is in the form of significantly reduced liquidity, reduction in access to capital for investment, bankruptcy and a general decent into recession. For the wider community, the policy decision to enact a shutdown, as the only viable means of halting this virus, has unfortunately resulted in significant displacement of labour from the economy. This has created a large drop in demand and the ability of the economy to supply many goods and services. This situation is expected to persist until either the population acquires a high level of immunity through exposure to the virus, the infection rate has been quashed to zero for a number of months and the virus extinguished from the population, or until a vaccine can be developed. It is only at this point that social distancing restrictions are likely to be relaxed, and people can engage in unrestricted economic activity again. When a zero-transmission rate has been achieved in Australia, global transmission of the virus may take between 12-24 months to be halted. This situation may persist for some time before any semblance of normality can return.

Once this virus has been overcome, a rapid resumption of normal economic activity is expected to be pursued by both the Federal and State Governments. This stimulus package could last up to two years and amount to hundreds of billions of dollars being spent to re-start the economy. The Australian Government's response to the aftermath of the Covid-19 pandemic is most likely to take the form of a significant Keynesian style stimulus package. Traditionally, these types of packages focus on infrastructure projects at local state and national levels. Such a package would be of great benefit to the PUGRC if State and Federal stimulus programs could be directed at much needed local infrastructure to meet the growth demands of an expanding population in the region in the next sixteen years.

An ideal and much hoped for option is if the Federal Government could seek to introduce programs that build resilience into our medical supply system, our food distribution system and key essential services through-out the nation. This could open new opportunities in medical supplies manufacturing, warehousing and vehicle parts production just to name a few. This type of program could provide a level of resiliency that this crisis has exposed in our ability to meet peak levels of demand caused by the crisis (i.e. panic buying) and by the move away from localised warehousing and adoption of just-in-time supply systems. Another contributing factor is the reliance of many of our industries, including our medical system, on international suppliers for basic supplies of essential commodities. Whilst, it is not being suggested here that the PUGRC would support a

disengagement with the global supply system, a measured reinvestment in manufacturing to meet the needs of local essential services, might be seen as a prudent policy initiative.

If the Federal Government deploys such a policy, the opportunities for PUGRC businesses to benefit could be significant. Given the PUGRC's proximity to Melbourne and major national transport hubs, the PUGRC is well placed to house such expanding manufacturing.<sup>3</sup>

The Covid Pandemic may change many of our lived experiences that we have taken for granted up until now. One of the major changes maybe how we work and where we work. With the advent of working from home for a large part of the community, this has become the new reality for many people who have not experienced it before. For these people, not having to commute to work every week means that they save between 10-30 hours a week in recovered travel time, which they can use with their families, for sport, cultural activities etc. with little loss in productivity, or as many are anecdotally reporting, higher productivity in their businesses.

The implication here is that after Covid, many people might make the decision to work locally within the PUGRC. Many more might make the decision to move to the PUGRC to take advantage of the amenity and social capital of the region to improve their lives. This may increase the pressure on inward migration, therefore increasing pressure on our roads, water and energy, and telecommunication infrastructure to name a few. The flip side of this may be increased demand for locally produced goods and services. With the disruption of the global economy for many months, if not years there will be opportunities for local businesses to fill the gaps left by a disrupted global supply chain.

On the other-hand is the major impact that Covid-19 could have on international migration patterns and our economy The severe reduction in migration driven growth that could occur as a result of the halting of international migration flows, could seriously reduce growth in the PUGRC over the next few years. The impact of this lack of migration fuelled growth could be for the region to turn to focusing on Human Capital Development, infrastructure streamlining, and increasing productivity through automation and the use of artificial intelligence. Without migration to drive growth, businesses in the region may have no other alternative than to focus on productivity growth as the only way to increase economic growth levels.

---

## CLIMATE CHANGE

Unmitigated climate change has the potential to severely impact on the PUGRC over the next 80 years if the world does not embrace significant carbon emission cuts to halt a 4°C global temperature rise. Issues such as sea level rise, coastal erosion, heat stress of our environment and our communities, extreme fire events, desertification and disruption of agriculture, lower rainfall and significant impacts on our economy could all disrupt our way of life if we ignore the science that outlines this threat. Reduction of CO2 emissions, mitigation and preparation should be one of the regions key focuses in the next few years to help our communities prepare for this change.

As agriculture is one of the PUGRC's biggest industries, the impact of climate change will be significant, and dealing with these changes will be an issue for the community in the future. The IPCC report of August 2019 reinforced the potential of climate change to disrupt food production and agriculture. At a 1°C increase in temperature there will be infrequent price spikes in food costs. Between a range of 1°C to 2°C degrees temperature increase, there will be period food shocks across all regions. Above a 4°C temperature increase there will be sustained food supply disruptions globally. The IPCC predicts with a high level of confidence that climate change will disrupt the stability of the food supply chain as extreme weather events impact the environment, increases in CO2 will also decrease the nutritional quality of crops. These changes to the environment caused by

---

<sup>3</sup> <https://hbr.org/2020/03/understanding-the-economic-shock-of-coronavirus>

<https://www.mckinsey.com/business-functions/risk/our-insights/covid-19-implications-for-business>



climate change will severely impact on the region's agricultural industry. A full account of the potential impacts of climate change on the PUGRC region is outlined below in the Climate Change Action section below.

Some of the actions we can take to ameliorate the impact of climate change could include adoption of low emissions transport, heat proofing of our homes, expansion of our sustainable energy generation capacity, building heat resilience into our energy systems, fostering low impact high intensity agriculture that is resilient to climate change, the expansion of low carbon transport systems including the expansion of public transport and EV and Hydrogen car infrastructure. In this way the PUGRC will be able to build industries and businesses based on a low carbon and high productivity economy and provide new economy jobs for our region.

---

## AUTOMATION AND ARTIFICIAL INTELLIGENCE

The other main long term challenges that the PUGRC is facing will be the eventual introduction of wide spread automation and artificial intelligence into the economy. The Centre for Economic Development Australia (CEDA) stated in 2015 that up to 40% of jobs in Australia could be affected by this industrial revolution in the next 10-15 years. The 2015 CEDA report on Australia's Future Workforce, said:

"The results show that 40 per cent of jobs in Australia have a high probability of being susceptible to computerisation and automation in the next 10 to 15 years. Jobs in administration and some services are particularly susceptible, as are regions that have historically associated with the mining industry. Jobs in the professions, in technical and creative industries, and in personal service areas (health for example) are least susceptible to automation. (P.58, Australia's future workforce? CEDA, June 2015)

This new economic environment will depend heavily on human skills that cannot be replicated by machine learning. A recent Deloitte Insights paper on the Future of Work, outlined the skills that will be critical for this new economy:

"The jobs of the future are expected to be more machine-powered and data-driven than in the past, but they will also likely require human skills in areas such as problem-solving, communications, listening, interpretation, and design. As machines take over repeatable tasks and the work people do become less routine, roles could be redefined in ways that marry technology with human skills and advanced expertise in interpretation and service. Techniques such as design thinking can help organisations define roles that incorporate the new types of capabilities, skills, activities, and practices needed to get the work done. <sup>4</sup>

Two areas that are crucial for communities to prosper in this new environment include developing skills needed in the new economy, as well as policy settings that support the building economically supportive infrastructure such as telecommunications links that are high speed, with the appropriate bandwidth and mobile networks that have broad and effective coverage. Also, the focus on developing an entrepreneurial environment and culture is needed to take advantage of the opportunities that this industrial revolution offers. The CEDA report stated:

"Productivity and employment growth into the future depend on the conditions for economy-wide diffusion of new products and processes. Policy settings need to focus on ensuring that our education systems support people to gain the skills needed for future industry demand and, in particular, support gaining higher level skills and specialised technical and creative skills and knowledge. It is also important that our infrastructure supports businesses, individuals and regions to harness technological change and global opportunities. Business conditions also need to

---

<sup>4</sup> P.3, What is the future of work? Rethinking work, workforces, and workplaces, Deloitte, 2019.

support entrepreneurial activity, and a more technological and global business environment. (P. 161, What is the future of work? Rethinking work, workforces, and workplaces, Deloitte, 2019).

What does this mean for the PUGRC? It means the policy focus must be on providing an effective pathway for those transitioning from the old economy to the new. Any policy that aims to meet that challenge must provide the enabling infrastructure such as telecommunications, health care, education and transport that enables communities to take advantage of regional economic opportunities presented to them. Finally, it means creating economic development structures that directly generate economic opportunity.

The development of creative hubs and innovation precincts focuses on locations in the inner city, with close proximity to likeminded businesses and entrepreneurs are the types of economic development infrastructure that facilitates entrepreneurial activity. The CEDA report questions this assumption and in fact raises the possibility that these types of communities can exist outside of the inner city:

“... much of the current thinking about innovation clusters and professional networking emphasises the importance of physical proximity, often in inner-city locations. But what if we all work remotely? Can innovation occur across geographical boundaries – beyond business precincts or hubs? What might the new patterns of business and collaboration be?

In examining creative industries in the outer-suburbs of Melbourne and Brisbane, Felton et al. found that networks could thrive outside the dense ‘proximity clusters’ of the inner city, and were often less spatially dense than accepted wisdom would recognise.” (P.93, Australia’s future workforce? CEDA, June 2015)

Why can’t we promote and facilitate innovation in regional areas? There is no reason we cannot.

This is the conclusion that we in the PUGRC have come to as well. We need a dynamic economic environment in which the businesses of the new economy can grow, and where possible integrate with existing old economy businesses to develop new products and services to service the needs of not only our local community, but also the needs of markets at the State, National and International levels.

The PUGRC faces some major global challenges in its medium to long term. Some of the localised challenges that the PUGRC faces is outlined below in the discussion of its current set of priorities.

## PUGRC PRIORITIES

In May 2019, the PUGRC identified a series of commonalities to focus on in the near future. These commonalities provide a framework for the Economic Development Strategy and guide the interpretation of the data and outcomes that are discussed in the following pages. These commonalities are outlined below:

- Growth
- Size
- Population
- Health
- Education
- Utilities
- Unique landscapes
- Funding

Let’s now examine each of these commonalities:

1. Growth: All members of the PUGRC are experiencing pressure from Melbourne's growth. Between 2016 and 2036, the PUGRC will grow by 49.7%, with the population rising from 215,393 to 317, 058 (VIF, 2019). The largest group moving into the region are tertiary educated people with high expectations of the utility and services Council can provide.
2. Size: The six Peri Urban Councils equate to 2/3 of Geelong, or double the size of Ballarat in population. This issue affects the ability of Councils to provide infrastructure and services to the same or similar standard of that experienced in metropolitan areas. This impacts on the ability of member councils to fund infrastructure with their current small rate base with a growth rate of 3.1% per year. The size factor also has an impact on funding (which will be discussed below).
3. Population: The PUGRC is like many rural regions, with a dispersed population, multiple towns and villages spread over a large area. Due to the proximity of the region to the Melbourne metropolitan area and several regional cities only 42% of the population have jobs within their LGA. Most must commute for work daily. This has obvious Economic Development Strategy implications. Generating more work and career opportunities within the region is of high importance for most residents. This will lead to lower living costs and more time with family for most residents.
4. Health: The PUGRC has the second lowest levels of health workers (9.46 per 1000 residents) of any region in Victoria; a life expectancy for Females is a year lower; and Males is two years lower than that experienced in Metro Council areas; the highest rate of suicide in the State; the second highest infant mortality rate in the state; and the second highest death rate from road accidents compared to any other region in the State. The lack of health infrastructure is a major inhibiting factor in the region's economic development. Improving health infrastructure is a key objective of the PUGRC.
5. Education: A lack of access to local Tertiary and Trade training facilities is leading to school leavers not embarking in tertiary education, engaging with TAFE training or undertaking an apprenticeship after graduating high school. There is an emerging realisation that education opportunities need to be brought to the PUGRC to address this issue.
6. Utilities: The cost of electricity, lack of full sewerage services and mobile blackspots coverage all make it hard to move into, work and build a business in the region. Attending to these issues are a high priority for the PUGRC.
7. Unique Landscapes: The PUGRC has a unique geography, which is diverse throughout the region. All Councils share distinctive, but large unrateable landscapes. These areas are being progressively protected. However, the economic benefit of these unique natural landscapes is that they draw significant tourism activity and migration to the region. Being on the doorstep of the Melbourne metro region also is highly significant for agriculture. The Peri Urban region of Melbourne produces 41% of Melbourne's food needs including 80% of its vegetables. The region is also highly vulnerable to climate change, such as extreme bush fires events and other natural disasters. Protecting this unique landscape is a high priority for the PUGRC and has significant economic and long-term ecological benefits.
8. Funding: The PUGRC suffers from a strong disparity in State and Federal funding between what the PUGRC receives and other regions within Victoria. The inability to raise funds through rate increases due to rate capping has significantly reduced the ability of the PUGRC to respond to the expectations of residents and the pressures of growth, with their own funding arrangements. Rate capping is now part of the status-quo, however, new funding sources need to be identified and negotiated with State and Federal Government so as to meet the needs to provide basic infrastructure to local communities. Not being able to source sufficient funding is acting as a brake on economic and community development within the PUGRC. In the context of this Economic Development Strategy, other funding sources for the group have been identified and are outlined within the proposed Action items.

This Economic Development Strategy has been framed with these commonalities in mind. The resultant focus areas and action items have been chosen to address these areas of common interest.

### WHERE TO FOCUS ECONOMIC DEVELOPMENT – ALL ECONOMIC DEVELOPMENT IS NOT EQUAL

A core question in developing any economic development strategy is: “at what part of the community is an economic development strategy directed at?” Is economic development simply business facilitation by another name? Business facilitation is often confused with economic development and focuses only on policies to help established businesses either to continue to operate in an ever increasingly competitive environment, or to somehow shield them from intra-regional competition. Such policies as requiring government only procure from local businesses is one example of this type of economic development strategy that many local governments adopt.

Who are the prime beneficiaries of this type of policy? From a superficial perspective you could simply say local businesses and their workers are the beneficiaries. However, this perspective makes the assumption that the benefits will be spread evenly throughout the community and the benefits will trickle down.

But how will low income earners in a community gain any benefit from this strategy, if they do not work within the businesses that are the focus of such policies? Aren't the only beneficiaries the owners of businesses that have procurement contracts with government entities? What if one of these companies outsources the work to an overseas contractor? How does a government entity ensure that this does not happen? Where is the local economic benefit accruing then? Also, what happens if this strategy is rolled back in the future and the market is opened to interregional competitors? The effects of this policy will be lost and may have actually weakened the local businesses operating in a protected marketplace.

This strategy also assumes that the economic benefits will trickle down. This is not always the case. If the objective is to spread the benefits of any economic development strategy across a community, a change of perspective needs to be adopted that not only looks at the business development and facilitation opportunities that exist for business, but how other community members can access the economic development opportunities such a strategy can deliver. So, we are not only looking at creating, enlivening or assisting new and established businesses, which of course our strategy will address. We are also looking at how members of the community can enter the economy and participate meaningfully with these new opportunities.

There are five economic enabling pillars that can create a broad-based economic development pathway. These pillars focus on residents' ability to access assistance, their levels of education and health, the stability of the local environment, and the economic enabling infrastructure around them. These five pillars all contribute to how successful any economic development strategy will be.

People who have lived under the poverty line for a number of years, may have suffered from food insecurity, significant social prejudice from being considered underprivileged, have a number of poverty induced health issues, and have no workplace skills or marketable skill sets or education and are usually exempt from the focus of traditional economic development strategies. In this case an economic development strategy that does not address the impact of long-term poverty, will never be of any benefit to these residents.

Likewise, a strategy that only focuses on enabling people in poverty, will neglect the economic opportunity that new skilled migrants bring to a region, and does nothing for existing businesses either.

Any new economic development strategy that aims to affect a broad base of the community, must take into consideration all of the community's needs when building its strategy. To do this we need to have a clear understanding of where our community sits on a number of social, environmental and economic metrics to be able to fully understand what is needed to maximise the economic opportunities of any region. The United Nations Sustainable Development Goals (UNSDG's) provides such a socio-economic and environmental framework to highlight what a community needs to move forward economically.

Ensuring that our economy has these five pillars enables it to deliver for all the community. The strategy that follows aims to not only create opportunity, but to create the very environment in which opportunity can grow and flourish for all in our community. We aim to create an economy that provides for all.

## METHODOLOGY



### THE UNSDG'S WHAT ARE THEY AND WHY DO THEY MATTER TO REGIONAL ECONOMIC DEVELOPMENT?

The UNSDG's are a means by which to measure community wellness, and offer a broader methodology for framing how to make people's lives better. Economic development is traditionally framed in very narrow terms, using measures such as Gross Domestic (Regional) Product (GDP/GRP) as the defining statistic upon which success is measured. A higher GDP/GRP, the better and more successful an economic development strategy is. This then equate to things like more jobs, and higher average earnings as the main outcomes of such narrowly focused policies.

The problem with this perspective is that it ignores many variables that are important if the resulting prosperity is spread equitability across various groups, such as youth, women, mature residents, trade educated, and or the unemployed.

By measuring wellness across the seventeen categories as outlined in the UNSDG's, we gain a much more detailed view of the economic, social and environmental health of a community and are able to address many more issues economically that would not be addressed with a traditional neo-classical economic outlook.

### MEASURING THE IMPORTANCE OF THE UNSDG'S IN THE PUGRC CONTEXT

We have collated 352 data sets focusing on the 17 UNSDG's categories dictated by "Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development," (A/RES/71/313, E/CN.3/2018/2)<sup>5</sup>. This statistical framework allows the PUGRC to frame its performance within the Victorian economic, social and environmental context.

To assist with the analysis of this data, we have chosen to situate the PUGRC result between the overall Metro Melbourne results (a data set made up of all metropolitan Melbourne Local Government Areas)<sup>6</sup>, the Interface Council region<sup>7</sup>, Regional Cities<sup>8</sup> and Rural Councils Victoria members<sup>9</sup> (less PUGRC members). These organisational grouping of councils is discussed more fully below.

<sup>5</sup> <https://undocs.org/A/RES/68/261>

<sup>6</sup> [https://knowyourcouncil.vic.gov.au/\\_data/assets/pdf\\_file/0009/29439/DOC-15-313642-Victorian-Local-Government-Comparator-Groups-2015-FINAL.pdf](https://knowyourcouncil.vic.gov.au/_data/assets/pdf_file/0009/29439/DOC-15-313642-Victorian-Local-Government-Comparator-Groups-2015-FINAL.pdf) (P.2, in Table "Victorian Local Government Comparator Groups," Councils #1-22).

<sup>7</sup> <https://www.interfacecouncils.com.au/about>

<sup>8</sup> <http://www.regionalcitiesvictoria.com.au/>

<sup>9</sup> <http://ruralcouncilsvictoria.org.au/about/> (Less PUGRC Councils)

In this way we can situate the PURGC performance across the UNSDG’s with Metro Melbourne at one end of the spectrum and other regional areas at the other, as the high-low range of performance.

## FRAMEWORK OF PUGRC UNSDG DATA

The PUGRC UNSDG data is a set of 333 data categories covering social, environmental and economic data that builds a picture of the level of development within the PUGRC compared to four other regional categories. These categories include, PUGRC Councils, Metro Councils, Interface Councils, Regional Cities and Rural Councils. The specific make up of these groups is below.

The PUGRC group has 6 Councils within it and include: Bass Coast (S), Baw Baw (S), Golden Plains (S), Macedon Ranges (S), Moorabool (S) and Surf Coast (S)

The Metro Council group has 22 Councils, and includes: Banyule (C), Bayside (C), Boroondara (C), Brimbank (C), Darebin (C), Frankston (C), Glen Eira (C), Greater Dandenong (C), Hobsons Bay (C), Kingston (C), Knox (C), Manningham (C), Maribyrnong (C), Melbourne (C), Maroondah (C), Monash (C), Moonee Valley (C), Moreland (C), Port Phillip (C), Stonnington (C), Whitehorse (C), and Yarra (C).

The Interface Councils grouping has 10 Councils, and they are: Cardinia (S), Casey (C), Hume (C), Melton (C), Mitchell (S), Mornington Peninsula (S), Nillumbik (S), Whittlesea (C), Wyndham (C), and Yarra Ranges (S).

Regional Cities group accounts for 10 Councils, which are: Ballarat (C), Greater Bendigo (C), Greater Geelong (C), Greater Shepparton (C), Horsham (RC), Latrobe (C), Mildura (RC), Wangaratta (RC), Warrnambool (C), and Wodonga (RC).

The Rural Council grouping has 31 Councils, and they are: Alpine (S), Ararat (RC), Benalla (RC), Buloke (S), Campaspe (S), Central Goldfields (S), Colac-Otway (S), Corangamite (S), East Gippsland (S), Gannawarra (S), Glenelg (S), Hepburn (S), Hindmarsh (S), Indigo (S), Loddon (S), Mansfield (S), Moira (S), Mount Alexander (S), Moyne (S), Murrindindi (S), Northern Grampians (S), Pyrenees (S), Queenscliffe (B), South Gippsland (S), Southern Grampians (S), Strathbogie (S), Swan Hill (RC), Towong (S), Wellington (S), West Wimmera (S), and Yarriambiack (S).

The UNSDG data set follows the guidance for data accumulation as stated above, outlined in the Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development and is organised into the 17 UNSDG categories.



## PUGRC SUSTAINABLE EQUITABLE ECONOMIC DEVELOPMENT (SEED) MODEL

The PUGRC Sustainable Equitable Economic Development (SEED) Model is a framework designed by the PUGRC as a framework to categorise the UNSDG data into hierarchical and relatable categories that can be used to build critical pathways to economic and community development. Understanding the interrelationships between the various UNSDG's and how they build systemic support for individuals and communities to be able to reach their economic goals is the purpose of this matrix system.

The PUGRC SEED model uses two interrelated frameworks to map critical pathways to development, which have been created here for the first time in this strategy. These two interrelated frameworks are, the PUGRC UNSDG Maslowian Hierarchy and the PUGRC Five Pillars of Development framework. These schemata frame the UNSDGs within a series of categorisations which plot the UNSDG's relative importance when developing a development pathway to an end goal within the Model.

In this way we see for example the relationship between effective and equitable poverty reduction measures and the building and maintaining of a viable local retail industry. Or the relationship between the need for climate action and a sustainable agricultural industry.

The PUGRC SEED provides a pathway for understanding at a government level what individuals and communities need to take themselves from their status quo and progress to a level of effective Economic Actualisation whereby they can access economic opportunities within their community.

We discuss at the end of this section how the model works and why we have two separate frameworks working within the PUGRC SEED Model. So how do these two frameworks create the PUGRC SEED Model?

#### PUGRC UNSDG MASLOWIAN HIERARCHY

When analysing the data in the categories of the UNSDG's, it becomes obvious that they form a series of self-reinforcing layers that promote general community and environmental wellness, but also lay the groundwork for sustainable economic growth and development. This pattern in the UNSDG's creates a critical pathway for residents to achieve a level of economic achievement through programs that would address the various economic development choke points identified in the UNSDG Analysis. It is in this way that the Maslowian Hierarchy of needs provides a simple framework to understand how the UNSDG's can be used to build a community and economic development growth support structure.

Maslow's hierarchy of needs is a motivational psychological theory structured as a five-tier model of human needs, depicted as a series of hierarchical levels within a pyramid. Needs lower down in the hierarchy must be satisfied to some degree before individuals can attend to needs higher up.

This framework outlines how community member needs must be fulfilled for them to meaningfully engage in the economy. A more focused the policy effort can lift community members through this hierarchy, bringing them closer to economic actualisation and self-sufficiency. This UNSDG Maslowian Hierarchy therefore acts as a critical pathway for communities to pursue specific economic development goals through a broad-based community development effort. In this way community development programs ultimately provide solid foundations for sustainable, high value-add economic development and growth.

The five levels of the PUGRC Maslowian Hierarchy from the bottom up are: Psychological needs, Safety needs, Community Belonging needs, Esteem needs and Economic Self-actualisation. An expanded explanation is discussed below, and Figure 15 summarises these definitions in diagrammatical form.



The five levels of the PUGRC Maslowian Hierarchy from the bottom up are:

## PSYCHOLOGICAL NEEDS

Psychological needs include the physiological and biological requirements for human survival, e.g. air, food, water, shelter, clothing, warmth, energy and sleep and an environment within which to meet these needs. These are the very basic of needs. Having access to food, shelter and clean water, affordable energy and a stable and safe environment in a modern western country comes, at its most basic level in the form of a fair social welfare system, and workable legislative frameworks that protect individual rights and the environment.

The UNSDG's that relate to this Maslowian Psychological level are:

- No Poverty,
- Zero Hunger,
- 6. Clean water and Sanitation,
- 7. Affordable and Clean, Energy,
- 13. Climate Action,
- 14. Life Below Water and
- 15. Life on Land.

These UNSDG's fall generally within the policy divisions of Community Development by providing basic access to food, water housing and energy and Environmental Protection, in the form of planning for climate change adaption and mitigation, through regulating the use of the environment. The responsibility of these policy areas is shared between, Local, State and Federal Jurisdictions.

For the majority of people in the PUGRC these needs have been satisfied, they enjoy food security, clean water, can afford energy and enjoy a high standard of housing. For a small minority this is not the case, and these people are trapped at this level, not being able to progress towards any meaningful achievement of personal or economic self-actualisation. In the



PUGRC we have 11,000 people (before Covid-19) who are food insecure, and 26% of people living below the ACOSS poverty line and 31% of residents receiving some form of poverty reduction financial support from the Federal Government. Likewise, with the impacts of climate change being felt, for example with the recent bush fire catastrophe, a safe and benign environment is not something PURGC community members can take for granted any more. For many people the impacts on their livelihoods from these types of extreme climate induced events will shape their appetite for future migration to and investment in the region.

---

## SAFETY NEEDS

Safety, the needs for security and safety are salient for all communities. People want order, predictability and control over their lives. These needs are fulfilled by the family and society through the police, schools, business and medical care. The types of security that is important for community members include, emotional security, financial security (e.g. employment), law and order, freedom from fear, social stability, property, health and wellbeing (e.g. safety from accidents and injury).

The UNSDG's that relate to this Maslowian Safety level are:

- 3. Good Health and Wellbeing,
- 4. Quality Education,
- Decent Work and Economic Growth (referring to the legal frameworks for employment), and
- 16. Peace, Justice and Strong Institutions.

These UNSDG's fall within the policy division of Community Development and focus on law and order, and legal structures required to operate an economy. Additionally, they focus on the provision of adequate Health Care and Education, including the infrastructure for those services. The creation and maintenance of safety focused legal structures are the responsibility of the State and Federal Government. The provision of adequate Health and Education services and infrastructure is the responsibility of the State Government.

Victoria enjoys a well-developed legal system to provide the framework for an economy to operate fairly within it. Without this safety focused legal structures or the physical health and educational infrastructure to house these services, economic development can only progress at a slower pace. As we will see below, the lack of adequate health and educational infrastructure within the PUGRC is having an adverse effect on the economic prospects of the region.

Community belonging is the third UNSDG Maslowian level after Psychological and Safety needs have been fulfilled. This third level of human needs is social and primarily involves experiences of belonging to a community. The need for interpersonal relationships motivates behaviour. Examples include friendship, intimacy, trust, acceptance by affiliating with part of a group (family, friends, work, location-based community).

The UNSDG's that relate to the Community Belonging level are:

- 11. Sustainable Cities and Communities,
- 12. Responsible Consumption and Production, and
- 17. Partnerships for the Goals.

These UNSDG's fall within the policy division of Community Development and focus on urban and rural planning activities, roads and traffic infrastructure, place making, recycling and waste management and circular sustainable economy development. Building Partnerships for the Goals is about building relationship with State and Federal Government to influence policy structures and decisions as well as access funding for infrastructure projects that facilitate community and economic development activities. The provision of adequate Community Belonging policy and projects are the responsibility of Local and State Government.

These issues define the type of urban and town environments most PUGRC citizens live in, by building support infrastructure for urban living. Policy in this area helps develop urban and environmental amenity which as we will see below is a significant driver in attracting inwards migration and tourism visitation to the region. The relationship building element of this level speaks to the need to develop productive relationships with State and Federal Government, to ensure beneficial policy is developed for the region, and to facilitate funding of key infrastructure works within the PUGRC.

---

## ESTEEM NEEDS

Esteem, which is classified into two categories, esteem for oneself (dignity, achievement, mastery, independence) and the desire for respect from others.

The UNSDG's that relate to this Maslowian Esteem level are:

- 5. Gender Equity, and
- 10. Reduced Inequalities.

These UNSDG's fall within the policy division of Community Development and focus on discrimination legislation and social policy designed to alleviate social inequality. The provision of effective Gender Equity and Inequality reduction policy frameworks are the responsibility of State and Federal Government.

Ensuring tolerance within a community attracts highly creative residents to a region, that participate within the economy. This creative class, which are often well paid and high value individuals present a human capital dividend in terms of higher per capita and per job GRP to any region that can attract them. Increasing things such a tolerance of multiculturalism for example increases tolerance of minority groups across a community and pays economic dividends for the rest of the local economy.

---

## ECONOMIC (SELF) ACTUALISATION

Self-actualization focuses on individual and communities seeking personal growth and peak experiences. Maslow (1943) describes this level as the desire to accomplish everything that one can, to become the most that one can be. Individuals may perceive or focus on this need very specifically. For example, one individual may have the strong desire to achieve a goal economically, by establishing and building a business, creatively, through innovating a product or service, or building a level of wealth to provide for one's family.

The UNSDG's that relate to this Maslowian Self-actualization (we call it economic actualisation later in the strategy) level are:

- 9. Industry, Innovation and Infrastructure, and
- 8. Decent Work and Economic Growth.

These UNSDG's fall within the policy division of Economic Development and focus on industry and innovation development, infrastructure and economic growth. The provision of these economic development focused policies and programs are the responsibility of Local, State and Federal Governments.

This level of the PUGRC UNSDG Maslowian Hierarchy looks at the mixture and trends in economic activity such as which types of businesses are thriving and which ones are declining, comparative and absolute advantage, how much innovation is occurring, and which industries are dominant, defining much of the economic opportunity that can be realised regionally. As we will see below, many traditional industries are declining, whilst new economy industries and those that can adapt to this new economic environment have begun to thrive in the PUGRC.

The PUGRC UNSDG Maslowian Hierarchy essentially creates a development pathway for residents of the PUGRC to ascend to economic engagement or actualisation. Passing through the five levels to a point where they can achieve a level of economic integration with the local, state and national economy. What the PUGRC UNSDG Maslowian Hierarchy also helps us understand is the symbiotic relationship between traditional community development programs and economic development programs.

How would this model work in practice? In the Creating 4<sup>th</sup> Industrial Revolution Jobs example below we can see how progressing through the five levels of the PUGRC UNSDG Maslowian Hierarchy allows us to achieve an economic development goal (Figure 16 below). We start with addressing the need for a stable natural environment mitigated against climate change, which provides a safe foundation for investment in the region. Mitigation could include extreme heat protected homes and workplaces, bushfire protected energy and water utilities, and transport infrastructure. These mitigation strategies would address the Maslowian Psychological needs of an investor, who sees the risk in investing in a region that is going to experience a minimum of 13 days a year above 35° C by 2030. This increase in hot summer days obviously has an impact on the risk of bush fire in a region that has 5.71% of its land protected (State Forests) and 70.85% is used for agriculture.

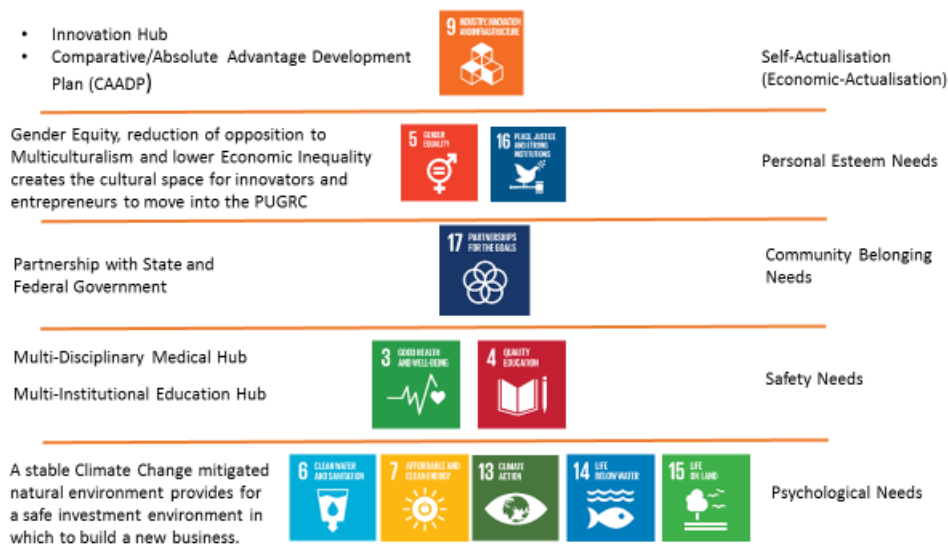
Having access to adequate educational and health facilities make the choice of remaining in or migrating to the PUGRC an easier choice for potential new economy entrepreneurs. This would address the Maslowian Safety needs of young families looking for a place to settle in to raise a family.

Likewise building partnerships with State and Federal Government to assist in the funding of the Innovation Hub is a precondition in the critical pathway to realising this project. Partnerships with higher levels of Government relies on the servicing of the need for belonging to the same community.

Addressing gender equity, reducing the level of opposition to multiculturalism, and lowering socio/economic inequality creates a local culture that accepts and encourages innovators and new economy to move to the PUGRC. Increasing tolerance and reducing inequality addresses the need for creating and maintaining high levels of personal esteem. If innovators and entrepreneurs moving to the region believe they will be welcome, they are more likely to choose our region than somewhere else. In this way more creative, innovative, and entrepreneurial migrants will view our region as a place to invest and make a life form themselves.

As these lower level needs are addressed (with varying levels of success) we arrive at the level of self-actualisation (economic-actualisation) for the individual or company, whereby they can achieve their economic (businesses and career) goals.

Figure 16: New Economy Industry Development – SEED Model Pathway



When these Maslowian needs are met or at least addressed in some substantive manner, not only does it create a pathway to developing initiatives such as innovation hubs, it lays the ground for these projects to be much more successful. The PUGRC UNSDG Maslowian Model enables for a wholistic approach recognising the interconnections between these various elements that enables for the realisation of economic actualised goal. In this case the creation of an innovation hub. These interconnectivities as we see in this this example include: supporting social and environmental systems, social and economic infrastructure, the importance of community relationships, at the local, state, national and even international levels, the need for a supportive and tolerant culture, that leads to the successful development of an important piece of economic development infrastructure.

There is a second element to the PUGRC SEED Model that creates a secondary, but equally important element and that is the PUGRC Five Pillars of Economic Growth.

### THE PUGRC FIVE PILLARS OF ECONOMIC GROWTH MODEL

The PUGRC Five Pillars of Economic Growth are aimed at developing an economic environment in which all residents can realise the opportunities presented by living in the PUGRC. The PUGRC Five Pillars model allows us to focus on key economic, social, and environmental policy enabling areas. These Five Pillars represent five key areas government is familiar with and provide the pathways residents and businesses can use to achieve economic actualisation outlined in the PUGRC UNSDG Maslowian Hierarchy model. These PUGRC Five Pillars of Economic Growth are:

1. Tolerance and Equality (Economic and social access to the economy),
2. Human Capital Development (Education, Health etc.),
3. Climate Change Action,
4. Infrastructure, and
5. Opportunity.

The PUGRC Five Pillars model takes the five levels of the PUGRC UNSDG Maslowian Model and reframes it around recognised economic development building blocks. In much the same way that the PUGRC UNSDG Maslowian Model creates a ground up approach to identify pathways to economic actualisation, the Five Pillars model focuses on how individuals access the economy economically and socially, how Human Capital Development, Climate Change Action, Infrastructure development, and the creation of Opportunity can be redefined as departmental responsibilities, as a series of physical policy building blocks to deliver a firm economic development foundation for regional growth. This simplifies the frames of reference for government, categorising the data generated by the UNSDG categories into recognisable bureaucratic silos. Therefore, framing departmental responsibilities in the terms of the needs of the individual resident and regional business, as outlined in the PUGRC Maslowian Hierarchy framework.

Taking into consideration all the implications and characteristics of the above Five Pillars, we can see that they build a level of certainty into the foundation for future economic development and growth.

Figure 17 below outlines how the PUGRC Five Pillars of Economic Development relate to each other.

Figure 17: PUGRC Five Pillars of Economic Development



## TOLERANCE AND EQUALITY

The strategy that is proposed here, challenges the concept that inequality is a positive economic force and takes the position that poverty, economic and social marginalisation aren't a lack of character; but a lack of access to education, credit and opportunity, and if not addressed create a drag on economic growth.

Inequality is widely thought to have long term negative consequents for economic growth.<sup>10</sup> Tolerance and equality facilitate economic and social access enabling all members of a community to engage in economic activity. It takes into consideration levels of tolerance to all forms of diversity, such as race, ethnicity, gender and sexual preference.

<sup>10</sup> P. 120-121, Kennedy, Tom & Smyth, Russell & Valadkhani, Abbas & Chen, George, 2017. "Does income inequality hinder economic growth? New evidence using Australian taxation statistics," *Economic Modelling*, Elsevier, vol. 65(C), pages 119-128.

In this strategy we have taken the concept slightly further. The other important factors creating tolerance is also ensuring a place for those at the lower end of the socio-economic spectrum, who are often forgotten in debates about the future of the economy and work. The point needs to be made that whilst it is vitally important to foster a tolerant culture within a local community to drive economic development, we must not leave anyone behind if we are to spread the benefits of any economic development in the PUGRC region.

Addressing these issues increases not only the available talent pool to satisfy the labour requirements of local industry through increasing physical access to the market, it also increases the size of the market for local goods and services. This type of policy can significantly increase the viability of local businesses if all the residents of a region are economically engaged.

---

## HUMAN CAPITAL DEVELOPMENT

Impediments to improving an individual's human capital such as physical access to relevant education and training, adequate health, childcare and aged care services can also slow or halt a region's goal of improving economic development. For example, if people can't access education and training, because it does not exist within their region, and the cost of moving to gain an education is too high, then they are prevented from engaging in the type of quality economic activity that will lead to higher wages and productivity and ultimately increased regional economic growth. Human Capital is what is produced when education and training is invested in, to increase the skill levels of individuals that are directly relevant to the needs of the market.

Health Care and access to a living income are facilitators of Human Capital. Being able to maintain a level of good health enables all community members to be physically capable of engaging in some form of Human Capital development if required.<sup>11</sup> Health care must have two qualities for it to be relevant to economic development. It must be affordable. Within the Medicare system with access to bulk billing and the State funded hospital system in Australia, most people have access to affordable health care. Secondly, there must be actual local access to health and medical services. Many regional areas have poor access to medical services. This is caused by a lack of medically trained people living in the region, as in the PUGRC. The outcome is comparatively poor community health within a region. If people are not able to attain a certain level of health, their ability to improve their Human Capital can be severely impaired, therefore reducing the future economic viability of a region.

Poverty is another impediment to the development of Human Capital. When an individual does not have enough money to meet their daily, weekly or monthly needs, such as having access to affordable housing, paying for utilities or feeding themselves regularly, it severely impacts on their ability to improve their Human Capital, build skills that the economy wants to buy. They are prevented from improving their economic, social and personal situation. Having access to a living income, such as welfare that is at the poverty line, not below it, is a significant factor in their ability to improve their Human Capital to actively engage in the economy.

Without access to, quality and appropriate health care, a living income, people are not able to engage in education to improve their levels of Human Capital, economic development cannot take place at an optimum level. In this way we see how providing tolerance and equity enables Human Capital development.

---

## CLIMATE CHANGE ACTION

---

<sup>11</sup> Achdut, N. "The differential role of human capital and health in explaining welfare exit-route and labour outcomes", *International Journal of Social Welfare*, July 2016, Vol.25(3), pp.235-246

Being able to live in a stable natural environment is an important social and economic factor in human settlement. Knowing that the environment will not turn against you in an unpredictable way ensures investment flows and stable economic activity. Understanding the changes that climate change will bring to our surroundings in the near future means that mitigation measures need to be put in place to not only protect life and property, but reduce the risk to current and future economic activity.

The recent extreme bushfire event Australia experienced during the summer of 2019-20 illustrates the impact the effects of advancing can have on our natural and urban environments. This highly disruptive event has exposed the deficiencies in our preparedness for these dramatic climate change impacts, and the need to start to put in place significant mitigation measures to address the threat, this new normal poses.

The need for climate change action has already been made above in the section on challenges facing the PUGRC, and for brevity's sake will not be repeated here. It is sufficient to say a stable and climate change mitigated natural environment is essential to reduce the risk to investment, for investment flows to continue into the PUGRC and for long term economic growth to continue.

---

## INFRASTRUCTURE

Good quality roads, access to public transport, fast rail, high speed broadband, educational and health facilities, sewerage and drainage for all settlements, water recycling and sustainable clean energy generation are all the types of infrastructure projects that enable economies to grow if provided, or retard growth if not available.

The concept of infrastructure in the Five Pillars model, is the traditional physical economic infrastructure that an economy needs to operate efficiently such as adequate roads, rail and air linkages, connecting regional areas to metropolitan markets and state, national and global markets. These infrastructure assets are fundamental to the operation of a modern economy. Turning regional areas into more than just spokes servicing the agricultural needs of major metropolitan markets, requires more than just traditional infrastructure. Information technology infrastructure enables new economy businesses to physically establish themselves away from major metropolitan centres. Having IT connectivity opens up the possibilities of economic development in regional areas, moving these economies from just being places where food and minerals are produced, to the possibility that they become the regions where future innovation occurs.

To be able to achieve this, internet speeds and bandwidth needs to be delivered to the PURGC at a standard of which is experienced in the centre of Melbourne. Likewise, mobile phone coverage needs to be vastly improved and made reliable across the entirety of the region so as not to disadvantage businesses of all kinds operating in this region. One expected outcome of the Covid-19 pandemic experience will be the realisation that our current broadband telecommunication infrastructure is inadequate in servicing an economy that has to operate in a fragmented fashion.

Agriculture would benefit significantly if mobile black spots were eliminated across the PUGRC, as they would be able to introduce the Internet of Things (IoT) stock monitoring devices, as well as a range of environmental sensing technology that could provide them with data on such areas as soil moisture levels, rain fall and temperature, all of which could be used to facilitate better management decisions leading to higher agricultural yield outcomes.

---

## OPPORTUNITY

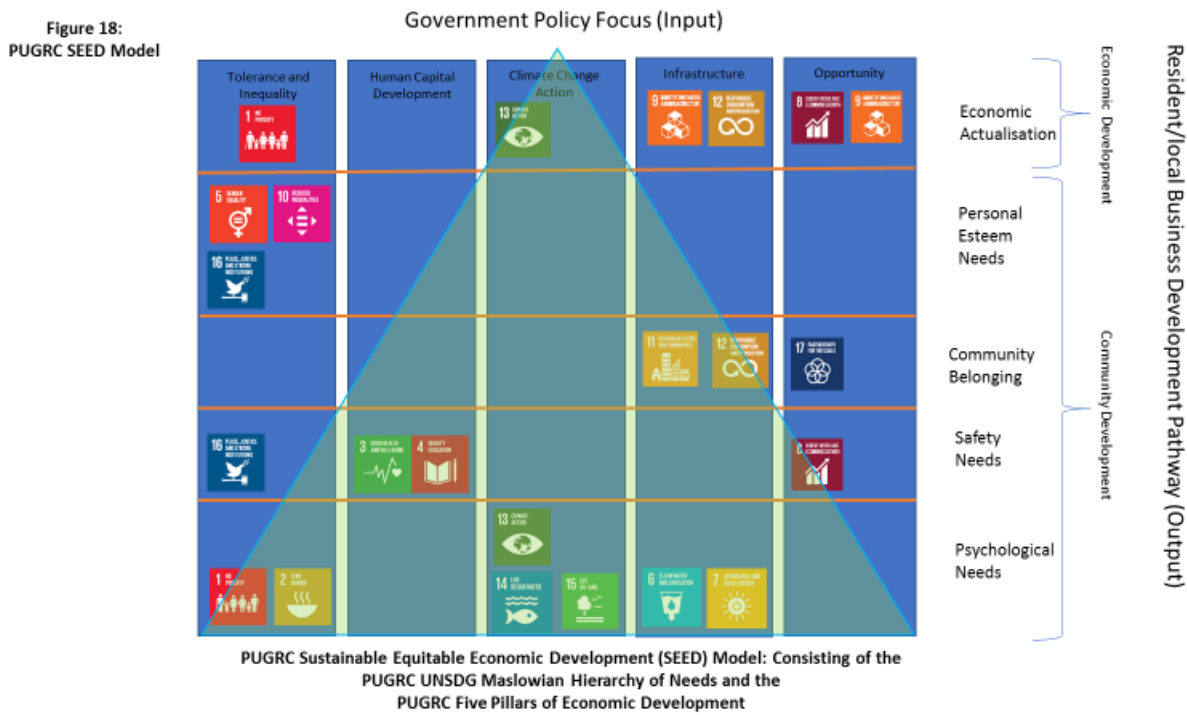
Creating economic opportunity takes many forms for example, supporting existing industries such as agriculture, retail, construction and tourism, but also creating platforms for the development of new economy businesses and fostering the growth of emerging creative industry businesses.

Opportunity is often overlooked in economic development strategies. Opportunity breeds economic activity and is born from a structured approach to providing a place where people can come and test and develop ideas, build prototypes, start a business, get advice, organise partners and build markets.

Opportunity is about building comparative or absolute advantage in a specific industry, but this effort must be nurtured. Many new (and established) entrepreneurs often struggle in creating a new (or maintaining an existing) business successfully. Having a place to go to where they can incubate a business, in an environment that is supportive, has reduced operating costs, provides good advice, enhances critical networks, facilitates investment and access to capital, is a place that would speed up the creation of new businesses and increase their chances of survival.

**THE PUGRC SEED MODEL EXPLAINED**

Combining the PUGRC Maslowian Hierarchy of UNSDG’s with the PUGRC Five Pillars of Economic Development Framework allows for a top down view for government policy makers so they can map critical pathways to economic engagement for the most disadvantaged residents and the most advantaged, so both can achieve their economic goals within the economy. The PUGRC SEED Model gives us a theoretical structure in which we can navigate critical input/output pathways for these two groups and everyone in between. At the same time as mapping a whole of government critical pathway the public service can work with in standard portfolio silos, it also outlines logical bridges between each element of the model. Figure 18 below is the PUGRC SEED Model.



The PUGRC SEED Model answers the question, what does the individual resident need and how does government deliver it to them? It demonstrates the relationship between, community development in the form of social policy, health and education policy, environmental policy, infrastructure delivery and economic development policy, at the same time bringing an understanding of how that will impact on the ground with residents and businesses for the purposes of developing the economy. For example, NewStart not only feeds those in need, it provides revenue for local businesses, therefore it meets the psychological needs (food, clothing and housing) of the underprivileged and also provides economic opportunities for those businesses providing retail services and housing in the rental market. This interlinking between what an individual or community needs with what government can or should provide, creates critical pathways for residents/businesses to achieve economic actualisation and meaningfully engagement with the economy in their local area.



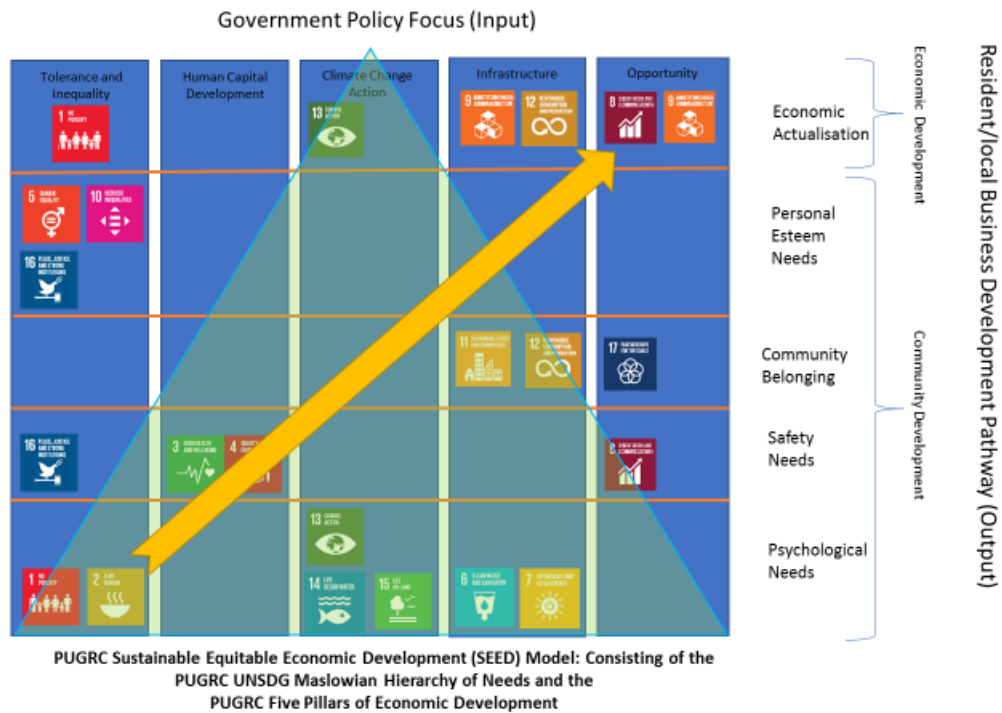
If we look at the SEED Model as a matrix, with individual community members inhabiting various levels of the PUGRC UNSDG Maslowian Hierarchy, we can see how each of the Action Items discussed below helps build community and economic capability to assist those climbing the Hierarchy to progress from the lower left hand corner to the upper right hand corner of the PUGRC SEED Model matrix.

For example, someone who is food insecure (bottom left hand corner - Psychological Need – Tolerance and Inequality box) can progress to the Economic Actualization – Opportunity box only if their food, water, housing, clothing, climate change stability and energy needs are met. Secondly, they need to be protected legally within their economic employment/business contracts and have their personal safety ensured through the justice system. Thirdly, if they live in a well organised and well serviced urban environment, and their local government relationship is positive and residents are effectively engaging with government, they have the frameworks to protect their interests and have a their local council addressing their needs. Fourthly, if they live in an area where the community respects people's differences, they can live and thrive in this supportive social environment. Creative and talented people are more likely to move to these areas, to enrich the economic landscape. Finally, they reach the level of economic actualisation where their needs at the various levels below have been met and they are able to take advantage of the opportunity offered to them in the region. The progression we see here is a systematic building of capability within the individual and the community to the point where they can engage with the opportunity offered by the region and its economy in an unimpeded manner.

The role of government in providing the environment in which an individual or community can make these progressive journey is critical. It is only government that can provided the infrastructure, services, legal and policy frameworks that make this journey possible. For example the individual/community can only make that journey if the government provides financial welfare assistance, so they can purchase food clothing and housing etc. They also need a stable climate to live in, so the state can ensure that climate change is going to have a minimal impact on their lives in the future through carbon reduction and mitigation policies, so they might build a business or invest in the region. If the government provides for health and education infrastructure the individual can stay healthy and get an education. Being healthy and having an education leads to residents being able to get a job.

As the government moves its policy focus from the left to the right of the PUGRC Five Pillars, it provides the infrastructure, health education and welfare systems and policy frameworks, that protect the physical and natural environment individuals inhabit, to better themselves to a point whereby they can meaningfully engage in the economy. This progression is highlighted in Figure 19 below.

Figure 19:  
PUGRC SEED Model  
– SEED Critical  
Pathway



If we use only one of either the two frameworks (either the PUGRC UNSDG Maslowian Hierarchy framework or the PURGC Five Pillars of Economic Development), we don't get the same clearly defined economic development pathways needed to plot our economic development. By using only one of these frameworks we identify just what we need to do (Government policy input) not its effect (socio/economic output), or visa versa. In effect we are unable to easily and simply see the input/output nexus needed to create critical economic development pathways. For example, a simpler model will not illustrate for us that by focusing on social policy that changes attitudes towards women and multicultural groups, these policy efforts could lead to higher rates of creative and innovation migration to the region. As we will see below this increase in the regions human capital pool can lead to an 1.3% increase in growth for every 1% in human capital. To use both the PUGRC UNSDG Maslowian Hierarchy framework or the PURGC Five Pillars of Economic Development, we are able to simply identify these relationships between input and output in the creation of economic development critical pathways.

### CHAPTER 3: ANALYSIS OF UNSDG DATA IN THE SEED MODEL CONTEXT

In the following section we use SEED to explain how we can build economic development within the PUGRC. To do this, this Strategy uses the data outlined in the UNSDG Analysis Study and the Migration Study (Additional documents in this series) to explain why the PUGRC has decided to focus on 25 Economic and Community Development Action Items to drive its Economic Development Strategy. These Action Items cover the 17 UNSDG's addressing the main issues highlighted within each UNSDG, focusing on how they can be addressed from an economic development perspective.

The Action Items have also been designed to meet the economic development needs of the PUGRC. They have been selected at a high conceptual level to ensure they have the greatest economic development impact across the entire six councils of the PUGRC. These 25 Action Items have also been designed to address the sustainability and equality issues highlighted in the UNSDG analysis study. Finally, they have been chosen for their ability to build development pathways for individuals, communities, businesses, and industries. These action items have also been kept to a minimum and broken into economic Development and Community Development categories to ensure that many of them can be realised in the next few years.

The Action Items were developed in collaboration with the six member councils of the PUGRC through a series of workshops, submissions and a Action Item survey over the last two years.



**UNSDG 1 - No Poverty - INCREASE POVERTY REDUCTION PAYMENTS TO ACROSS POVERTY LINE LEVEL**

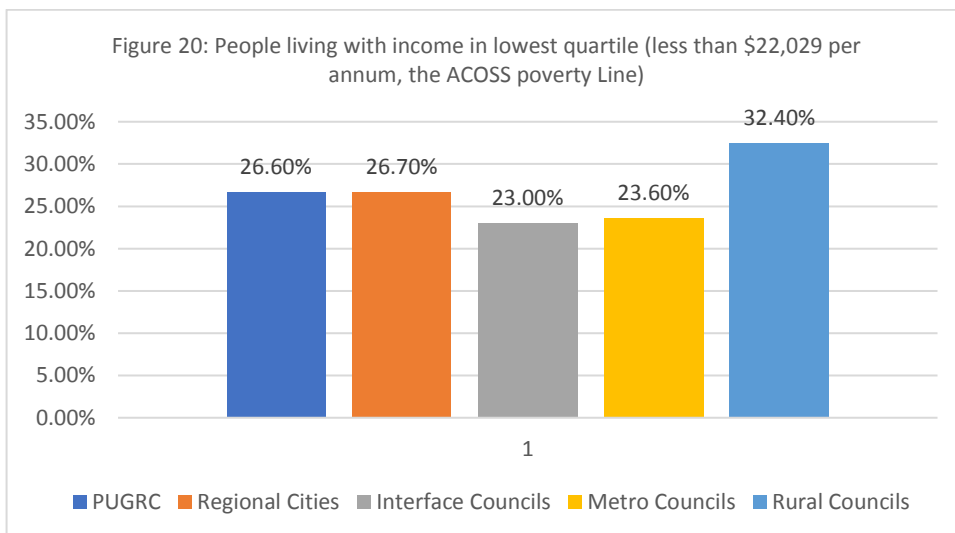
High levels of poverty in a developed economy acts as a drag on economic growth. Poverty stops people from engaging in training and education so they can develop their human capital (economically relevant skill sets used to engage in paid employment or build a business), which prevents them from being able to secure an income and receive a living wage. It also shrinks the market for goods and services within a regional economy. With large numbers of people existing on a subsistence income, unable to retrain and educate themselves, gain jobs or start businesses within regional areas, ensures that local businesses are unable to grow as they have such a relatively small market base from which to support themselves.

Currently 26% of the PUGRC population lives under the ACROSS poverty line (Figure 20). This is a mid-range result, being better than the poverty levels in Regional Cities and Rural Council areas, but below the results of Metro Melbourne and Interface Councils. Having 26% of the population living below the ACROSS poverty line is an undesirable situation in a developed economy.

This impacts on people in various ways. In the same ACROSS survey as above, NewStart and Youth Allowance recipients were asked what actions they took to save money? The responses are below:

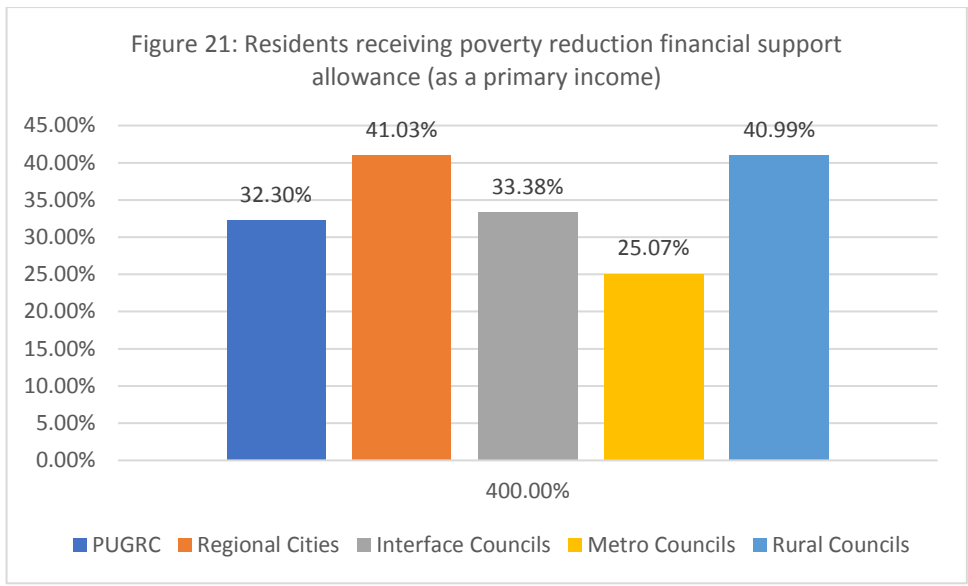
- 66% don't use heating in winter
- 64% don't use cooling in summer
- 63% don't eat meat
- 54% don't buy fresh produce
- 68% only buy second-hand clothes

Apart from the obvious deprivation these people are living in, in pure economic terms this is consumption/expenditure that is not occurring in regional economies where this community lives. So local butchers, green grocers (or supermarkets) are not receiving revenue from this part of the community. Local energy providers are missing out on selling electricity and gas, and local retail clothing stores are cannot make sales because this part of our community are not able to buy new clothing.



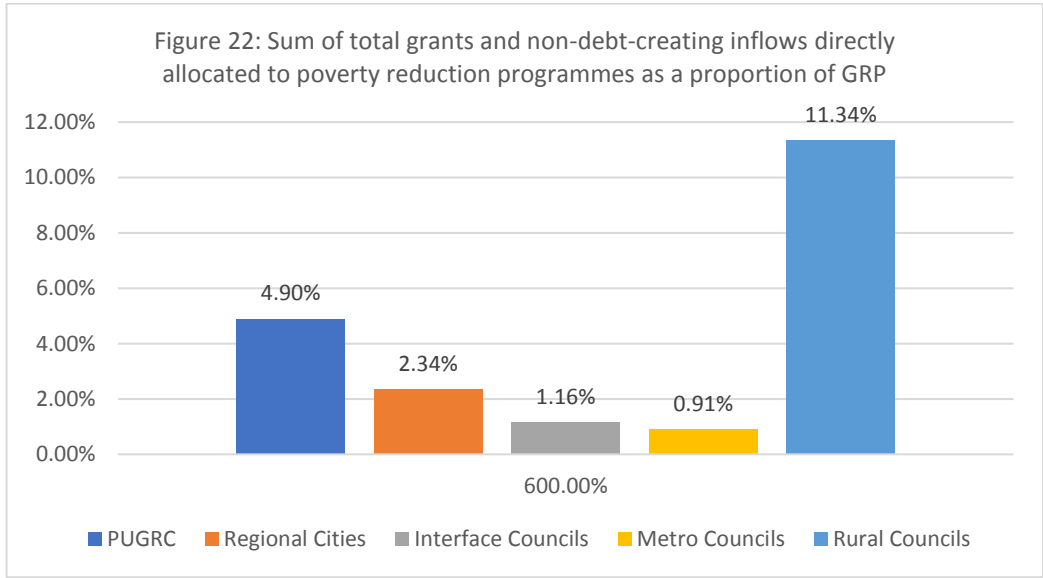
Source: ABS Estimates of Personal Income for Small Areas, 2011-16. Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

It is estimated that the total percentage of the population receiving some form of state based financial support for the PUGRC is 32.30%. This is the second lowest regional percentage recorded in this category. Only the Metro Melbourne Councils recorded a lower level of state-based support as can be seen in Figure 21 below.



Source: Estimate based on DSS Payment Demographic Data March 2018

People below the poverty line and on state-based poverty reduction support make up a third of the population, and therefore are a significant group within the economic base of the PUGRC. However, it is important to note this group is an essential part of improving the economic prospects of the PUGRC. By reducing the level of poverty experienced by those that are dependent on state poverty reduction support, not only significantly improves the lived experience of those in this situation, but also has a direct economic benefit to the local economy. As can be seen in the graph below, the PUGRC economy is made up of approximately 5% of its GRP from state-based poverty reduction. If this could somehow be increased there would be a net benefit to the whole region.



Source: Estimate based on DSS Payment Demographic Data March 2018

People on unemployment benefits find themselves in a situation with no options. They often have low skill levels, but within the region the low skilled jobs they would traditionally undertake are shrinking, as we will see below. If they do have any skills, there is often a skill asymmetry between what they can offer the economy and what businesses are looking for. Under the conditions of NewStart the unemployed can only study part-time, therefore restricting their ability to quickly develop new skills and their own Human Capital, so they can adapt to the new demands of the economy. It is also difficult to transition across from NewStart to the Youth Allowance or to Austudy. They have no access to durable production assets by which they can create a micro business and income for themselves, and even if they did are forbidden from using it in any substantive way under the conditions of either NewStart or the Youth Allowance. They also find it difficult to access finance to fund any possible pathway out of poverty for themselves. Even if they get a job through a subsidised employment program that gives them three months of subsidised employment with an employer, employment usually ends when the subsidy runs out. As employers use this form of subsidy to reduce their overall wage costs, never intending to give people full time employment. This plunges the NewStart recipient back into unemployment. These conditions confine the unemployed into perpetual circle of poverty. The only way out is if they are lucky enough to secure a long term low skilled job. It's a very narrow pathway back to economic self-sufficiency for these residents.

This situation not only impoverishes those on government income support, with the social, physical, and economic disadvantage that poverty creates. It also impoverishes the local economy. Not being able to consume at socially acceptable levels restricts growth by reducing the size of the potential market for many local businesses.

Studies by Coveney and O'Dwyer<sup>12</sup>, and Hiller, Et al,<sup>13</sup> outline how far people on welfare travel to buy groceries. In both studies, (the former Australian and the later a US study) show that welfare recipients almost exclusively purchase all their consumables from within a 1-2km radius of where they live. The economic beneficiaries of welfare recipient consumer spending are exclusively local businesses. Whereas, as incomes increase progressively widens into higher level economies, the spending habits of, working, middle and professional class residents push spending into suburban, metropolitan, national and eventually global economies.

We estimate that total state poverty reduction support equals approximately \$1 billion per year injected directly in to the PUGRC economy from Federal Government welfare transfers. We have estimated that if Federal Government Income Support poverty reduction transfers (payments) were increased to match the ACOSS poverty line (approximately \$22,000 per annum), an estimated additional \$763 million would be injected directly into the PUGRC economy each year. Given that people on state-based poverty reduction support payments, almost exclusively spend their income in the local economy on food staples, energy, accommodation and transport, this would be a significant stimulus to the PUGRC economy. This increase in income would increase the level of consumption within the PUGRC and just this activity alone could expand the size of the PUGRC retail market substantially. In effect this would be a bubble-up economic stimulus policy.

To address these issues the PURGC proposes the following actions:

#### **ACTION ITEM 1: UNSDG 1: END POVERTY – INCREASE POVERTY REDUCTION PAYMENTS TO ACOSS POVERTY LINE LEVEL**

---

Work with the Federal Government to maintain the current Covid-19 increase in state-based poverty reduction income support (NewStart, Austudy, Abstudy and the Youth Allowance) to a minimum equal to the ACOSS poverty line, to become a permanent increase in these payments.

---

<sup>12</sup> Coveney, J and O'Dwyer, L (2007), "Effects of Mobility and Location on Food Access", *Health and Place*, 15 (2009) 45-55,

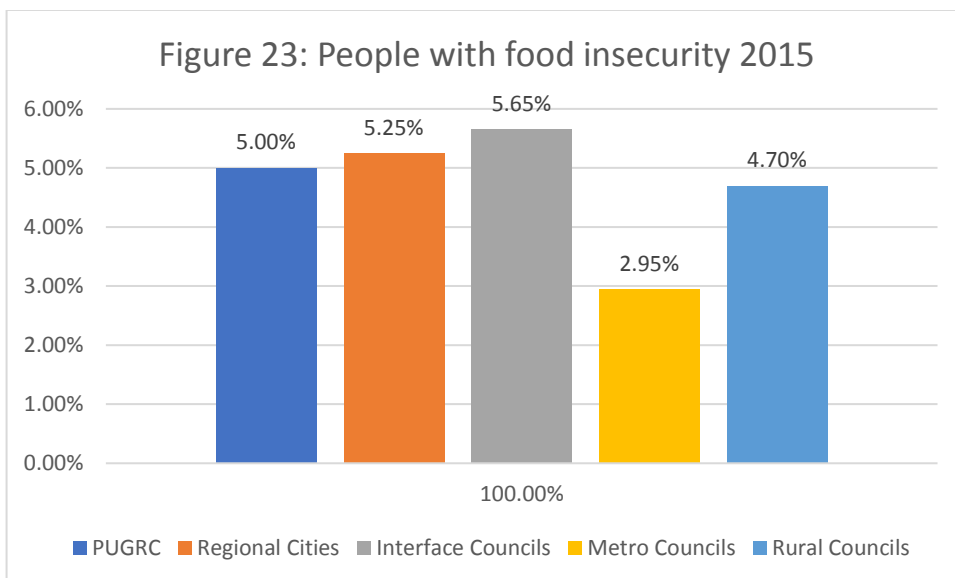
<sup>13</sup> Hiller, A; Cannuscio, C; Karpyn, A; McLaughlin, J; Chilton, M and Glanz, K. "How far Do Low-Income parents Travel to Shop for Food? Empirical Evidence from Two Urban Neighbourhoods" (2013) *Urban Geography*, 32:5

---

## UNSDG 2: ZERO HUNGER – DIRECT INTERVENTION

When parts of our community suffer from food insecurity, its impacts are felt across our region. There are the direct effects of food insecurity, such as the health impacts of a regular lack of food such as increased illness due to weakened immune systems, impacts on growth in children and ultimately the effects of malnutrition. This results in people not being able to present to work or make it difficult to look for work if they are constantly hungry.

As can be seen in Figure 23 below, the PUGRC has a mid-range result when it comes to regional food insecurity within Victoria, with 5% of people suffering from food insecurity. This equates to some eleven thousand (11,000) people suffering food insecurity within the PUGRC. This is the smallest total number of food insecure people within a region in Victoria.



Source: Department of Health and Human Services (2018). 2015 Local Government Area Profiles. Original data from Victorian Population Health Survey, Department of Health and Human Services.

The total numbers of food insecure people in other Victorian regions is as follows: Regional Cities: 47,562, Interface Councils: 92,777, Metro Councils: 102,159, Rural Councils: 22,922. In total there are approximately 270,000 people who are food insecure within Victoria.

As a result the lack of consumption that is not being undertaken by people with food insecurity issues, impacts on local businesses, as we saw above. The Australian Bureau of Statistics estimates that Australian households spent \$1,425 per week on goods and services (12 months to June 2016)<sup>14</sup>. It is estimated that low economic resource households expend \$160 a week on food and non-alcoholic beverages.<sup>15</sup> As seen above in the ACOSS survey, many NewStart and Youth Allowance recipients are spending nowhere to this amount on food every week. For an average household, the weekly expenditure on food is as

---

<sup>14</sup> <https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6530.0Main%20Features32015-16>

<sup>15</sup> <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6530.02015-16?OpenDocument> (Data set: Income, Expenditure, and Low Economic Resource Households (Released 26/07/2018))

high as \$236.97 a week.<sup>16</sup> If we consider that a household consists of four people and 11,000 people in the PUGRC are food insecure we can estimate the impact on the economy of tolerating food insecure within our community. We find that local businesses are unable to sell (at a minimum) \$846,670 per week or \$44,598,840 worth of food each year to those in need, because food insecure residents lack adequate purchasing power.

To address these issues the PURGC proposes the following actions:

---

## UNSDG 2: ZERO HUNGER – DIRECT INTERVENTION

### ACTION ITEM 1: UNSDG 1: END POVERTY – INCREASE POVERTY REDUCTION PAYMENTS TO ACROSS POVERTY LINE LEVEL (ITERATION 2)

---

Work with the Federal Government to maintain the current Covid-19 increase in state-based poverty reduction income support (NewStart, Austudy, Abstudy and the Youth Allowance) to a minimum equal to the ACOSS poverty line, to become a permanent increase in these payments.

### ACTION ITEM 2: UNSDG 2: ZERO HUNGER – COMMUNITY FOOD GARDENS FUNDING

---

Work with State and Federal government for funding assistance to establish community food gardens.

### ACTION ITEM 3: UNSDG 2: ZERO HUNGER -COMMUNITY FOOD NETWORK FUNDING

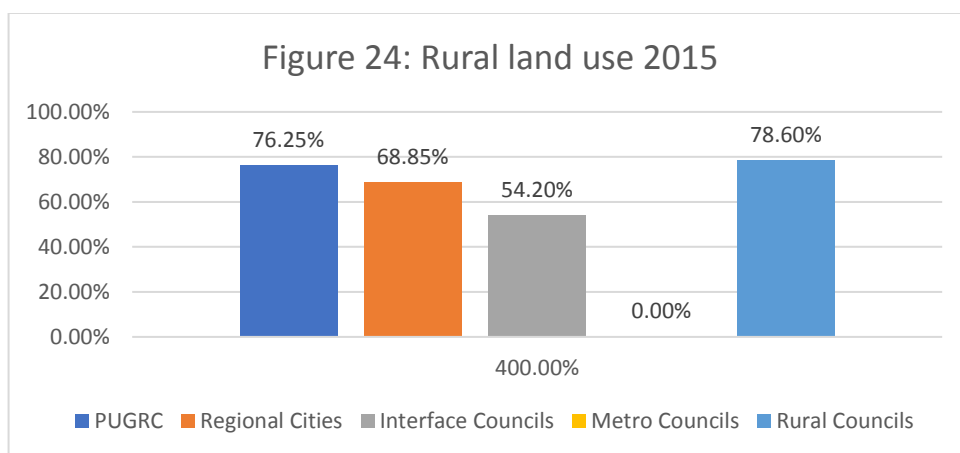
---

Work with State and Federal government for funding assistance to establish community food networks for the provision of food to the food insecure.

---

## UNSDG 2: ZERO HUNGER – AGRICULTURAL INDUSTRY DEVELOPMENT

The PUGRC has one advantage when looking at ways in which to address food insecurity, it has one of the highest levels of agricultural land, at 76.25% of total land (Figure 24 below). It is a significant contributor to Melbourne’s food bowl, and a major agricultural producing region.



Source: <https://www.data.vic.gov.au/data/dataset/2015-local-government-area-profiles/resource/315d57c4-9666-43c3-bf26-6ae55ce0b5ed>

<sup>16</sup> <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6530.02015-16?OpenDocument> (Data set: Household expenditure, 1984 to 2015-16 (Released 29/09/2017))

Melbourne's Peri-Urban region is the most important food producing region in Victoria. It produces 41% of Melbourne's food needs and over 80% of its vegetables. With the rapid population growth Melbourne is experiencing this importance could diminish markedly. The Peri Urban region share of the Melbourne food bowl could drop from 41% to 18% by 2066.<sup>17</sup>

Other threats to food production in the Peri Urban region could be climate change. The FoodPrint II report released in August 2019 stated:

"Between 2007 and 2009, at the height of the Millennium Drought, the price of fresh vegetables in Australia increased by 33% and the price of fresh fruit by 43%."<sup>18</sup>

The full potential impact from climate change on Agriculture will be discussed later when we look at UNSDG 13 Climate Change. However, FoodPrint II outlines five key pillars that aim to maintain a vibrant and sustainable foodbowl in the Peri - Urban region in the face of this growing issue. These include<sup>19</sup>:

- Farmland protection - Farmland should be permanently protected on Melbourne's fringe by maintaining Melbourne's Urban Growth Boundary, mapping agricultural land and introducing a new food production 'zone' that strengthens farmland protection
- Farm viability - Farm viability should be promoted by investing in infrastructure that enables small-medium scale farmers to gain greater control of supply chains, ensuring that peri-urban producers are able to access relevant funding streams and applying differential government 'farm rates' to all actively farmed land
- Water access - Water reuse should be increased by adopting an integrated water management approach to managing water assets in farming areas, developing integrated assessment frameworks to cost delivery of recycled water and investigating options for greater reuse of storm water
- Nutrient recycling - Nutrient recycling on farm should be promoted by preventing contamination of organic waste streams, collaborating with farmers to develop 'fit for purpose' compost products and establishing a ... Nutrient Recycling Network
- Sustainable farming - A diverse range of sustainable farming approaches should be promoted to increase the resilience of the city's food system, including regenerative and agroecological approaches, sustainable intensification and closed-environment agriculture

The issues of water recycling and nutrient recycling will be discussed at length in sections UNSDG 6: Clean water and sanitation and UNSDG 12: Responsible Consumption and Production later in the strategy. The protection of agricultural land and ensuring the viability of farm businesses are two areas that members of the PUGRC can assist local farming communities, will be discussed below.

The protection of agricultural land is a complex issue. There are issues of succession planning in farming businesses. There is the right of farmers to sell their land for market value, upon retirement. There is the issue of competing uses for farming land close to urban encroachment. There is also right to farm issues just to name a few of the complexities. Central to this issue is what farming land is strategically important to Agriculture in the Peri-Urban region. The State Government has started

---

<sup>17</sup> P.6 Roadmap For A Resilient And Sustainable Melbourne foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor's Charitable Foundation and University of Melbourne

<sup>18</sup> P.13, Roadmap For A Resilient And Sustainable Melbourne foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor's Charitable Foundation and University of Melbourne

<sup>19</sup> P.3 Roadmap For A Resilient And Sustainable Melbourne Foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor's Charitable Foundation and University of Melbourne



engaging with this issue with their recent strategic Agricultural Land Review by DEWLP. This project for the first time is attempting to map strategic agricultural lands in the Peri Urban region, with the view of reviewing planning frameworks for supporting agriculture in the region. It is hoped that whilst this review is much needed, the State Government commences an in-depth strategic analysis of how to ensure the viability of future agriculture and deliver a detailed plan of how the government intends to protect and preserve agriculture in our region, whilst addressing many of the hard questions surrounding this issue.

Introducing sustainable farming approaches to the PUGRC such as regenerative and agroecological, sustainable intensification and closed-environment agriculture, could increase the diversity of farming practices in the region, and generate renewed vigour into this industry. The Foodprint II Melbourne Report outlines what these varying methodologies are:

#### Regenerative agriculture <sup>20</sup>–

- Produces food while actively regenerating ecosystems
- Combines cropping, animals and trees to build soil, cycle nutrients, sequester carbon and improve biodiversity
- Builds soils through continuous ground cover, perennial plants, crop rotation and rotational grazing Produces diverse nutritious foods, along with other useful products (like timber and energy)
- City organic and food waste becomes compost and biofertilizers which build soils
- Rainfall is stored in soils, groundwater and vegetation to build reservoirs for drought
- City stormwater is treated and stored, then used on farm

Agroecological agriculture – Agroecological techniques can improve the resilience of farming systems by:

- increasing diversification through poly-cropping,
- agroforestry,
- integrated crop and livestock systems.
- This resilience can reduce the risks of pests and diseases and the costs of seeds.
- The management of soil fertility through rotations, cover crops and manuring can increase soil water retention or drainage, offer a better response to droughts and floods, reduce the need for irrigation, and help avoid land degradation.
- Soil quality is improved with higher levels of organic matter, which helps mitigate climate change by sequestering carbon in the soil. <sup>21</sup>

#### Sustainable Intensification (SI) in Agriculture

focuses itself on how to increase the yields of arable crops, and intensive animal husbandry practices in the face of resource scarcity and environmental challenges. Specifically SI focuses on: <sup>22</sup>

- The need to increase production.

---

<sup>20</sup> P.64 Roadmap For A Resilient And Sustainable Melbourne Foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor's Charitable Foundation and University of Melbourne

<sup>21</sup> <https://www.agrilinks.org/post/agroecological-farming-key-sustainable-future> (Accessed 15/08/2019)

<sup>22</sup> T. Garnett, M. C. Appleby, A. Balmford, I. J. Bateman, T. G. Benton, P. Bloomer, B. Burlingame, M. Dawkins, L. Dolan, D. Fraser, M. Herrero, I. Hoffmann, P. Smith, P. K. Thornton, C. Toulmin, S. J. Vermeulen, H. C. J. Godfray "Sustainable Intensification in Agriculture: Premises and Policies" Science 05 Jul 2013 : 33-34

- Increased production must be met through higher yields on available land due to the need to restrict the agricultural footprint for environmental reasons.
- Environmental sustainability is a cornerstone principle in SI agriculture as much as raising productivity is, in delivering Food Security.
- SI does not specify what agricultural techniques to deploy to achieve its aims. It favours a diverse approaches—conventional, “hightech,” agro-ecological, or organic—should all be tested and assessed, taking biome, biosphere and socio-political contexts into account.

#### Protected closed-loop agriculture <sup>23</sup>–

- Continuous year-round production of fresh foods for the city
- Crops are protected from extreme weather conditions
- Renewable energy from solar or wind powers climate-controlled greenhouses
- A high level of control enables efficient use of natural resources and maximises yields
- Liquid fertilisers use nutrients from city waste (like phosphorous and nitrogen) to replace synthetic fertilisers
- Recycled wastewater from the city is circulated in a closed system for efficient crop irrigation

The introduction of sustainable farming practices should form the basis for an Agri-Development package to be delivered to agricultural businesses in the Peri-Urban region. Sustainably intensified closed loop farming businesses are one type of business that could find a home in the PUGRC. This type of agriculture, such as intensive animal husbandry is already present in the PUGRC. The PUGRC due to its closeness to major urban markets is in a strategic position to develop other similar businesses such as industrial hot houses, which are sustainable, intense closed loop systems, in areas that do not have strategic agricultural land. This would increase the total productivity of the industry in the region, and grow alongside the ever-increasing demand from Melbourne, Geelong, Ballarat, and LaTrobe.

Agriculture in the PUGRC will have significant demands placed on its productive resources either to produce more food, or in competition with other competing land uses. To ensure this vital industry survives and prospers in the future in the PUGRC, we must protect this asset, ensure our farming businesses have the right environment to thrive in the future. This is a complex task. To achieve this aim we will have to work with the State and Federal Government’s to create an Agri-Development package that addresses the issues of planning, farm succession, and the introduction of new sustainable high yield farming methods into the region.

To address these issues the PURGC proposes the following actions:

#### **ACTION ITEM 4: UNSDG 2: ZERO HUNGER – AGRICULTURAL INDUSTRY DEVELOPMENT**

Work with State and Federal Government to partner with the PUGRC to develop an Agri-Development package for the PUGRC based on the FoodPrint II pillars of sustainable agriculture, Farmland protection, Farm viability, Water access, Nutrient and Sustainable farming in the PUGRC. This program will focus on the development of the following forms of New Sustainable Agriculture in the region:

- Regenerative agriculture
- Agroecological agriculture
- Sustainable Intensification in Agriculture

---

<sup>23</sup> P.64 Roadmap For A Resilient And Sustainable Melbourne Foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor’s Charitable Foundation and University of Melbourne

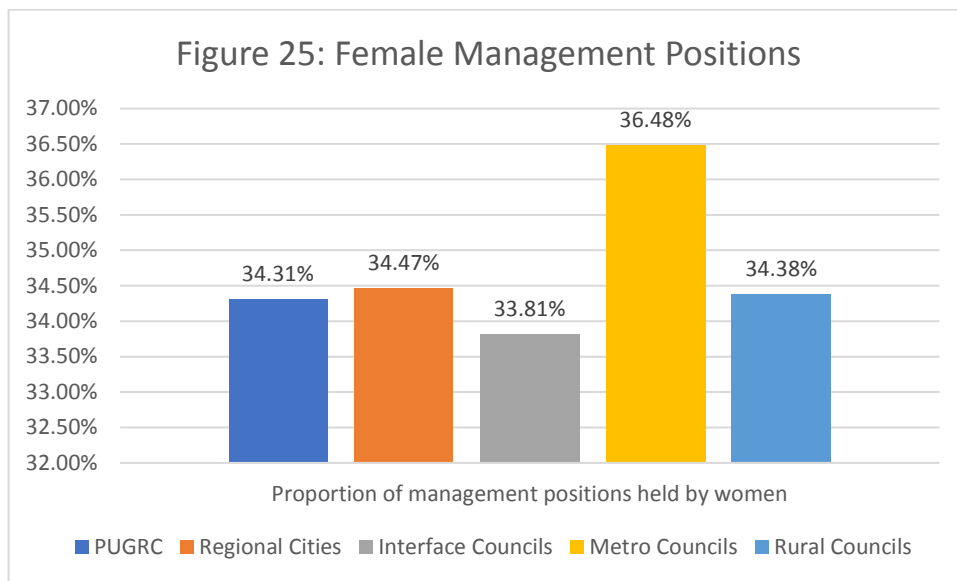
- Protected closed-loop agriculture

---

## UNSDG 5: GENDER EQUALITY - WOMEN IN MANAGEMENT

Women in the PUGRC are disadvantaged compared to women in other regions in Victoria in their inclusion in the economic life, with low levels of women in management positions.

When it comes to women in management positions the PUGRC is at the same approximate level as almost all other regions (34% band). To give this context, men occupy 65% of all management positions in the PUGRC. Only in the Metro Council region are the statistics better, but only by 2% (Figure 25).



Source: Dataset: Regional Statistics by LGA 2017

To address these issues the PURGC proposes the following actions:

### ACTION ITEM 5: UNSDG 5: GENDER EQUALITY - WOMEN IN MANAGEMENT.

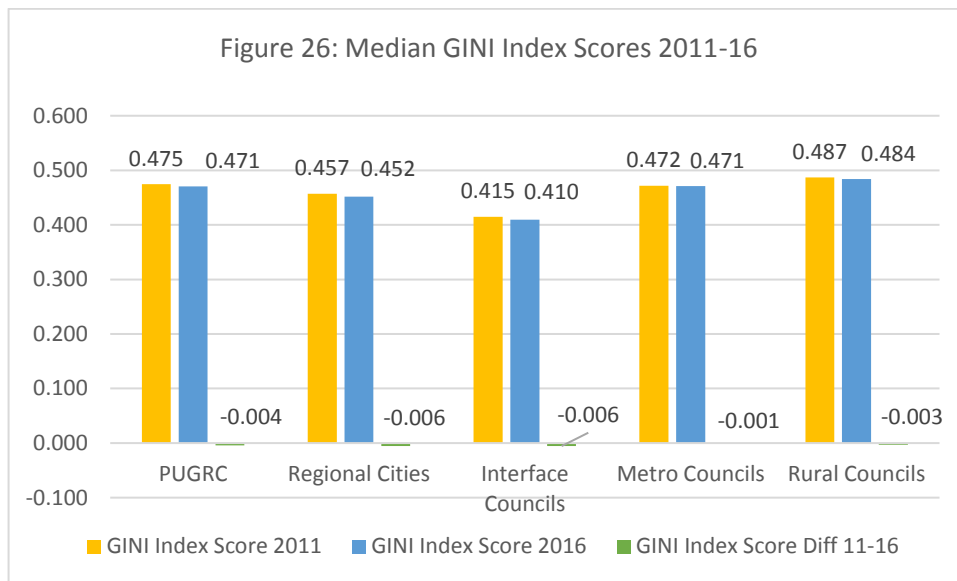
Develop with the State Government a program for the promotion of women to management positions in business throughout the PUGRC.

---

## UNSDG 10: REDUCING INEQUALITY – SOCIO-ECONOMIC INEQUALITY – INCREASE POVERTY REDUCTION PAYMENTS TO ACROSS POVERTY LINE LEVEL.

The PUGRC suffers both from income inequality and the resulting disadvantage that this creates. In The following discussion we will look at two inequality metrics, the GINI Index of income inequality and the SEIFA Score index which rates advantage/disadvantage across several criteria and see that the PUGRC region is on the pathway to a disadvantaged future.

The GINI index is a measure of income inequality. Scores for inequality in the GINI Index range from zero whereby everyone in a community has the same income (total equality) and moving to a score of one where one person has all the income (total inequality), each LGA in Victoria has been measured and assessed along this continuum. This metric measures the inequality between various socio-economic strata's within a community. A higher GINI score indicates higher levels of inequality. The PUGRC is the second most unequal region in Victoria and shares this position with Metro Councils, with a median GINI score of 0.471. This is, however, lower than the inequality experienced in Rural Council region, which has a median GINI score of 0.484. Between 2011-16 inequality declined by -0.004 points in the PUGRC (Figure 26). Using Kennedy Et al, calculation for the impact of inequality on the economy, if we had been able to reduce our levels of inequality from 0.471 to 0.424 between 2011 -18, GRP would have been \$200 million higher than what it was in 2018.



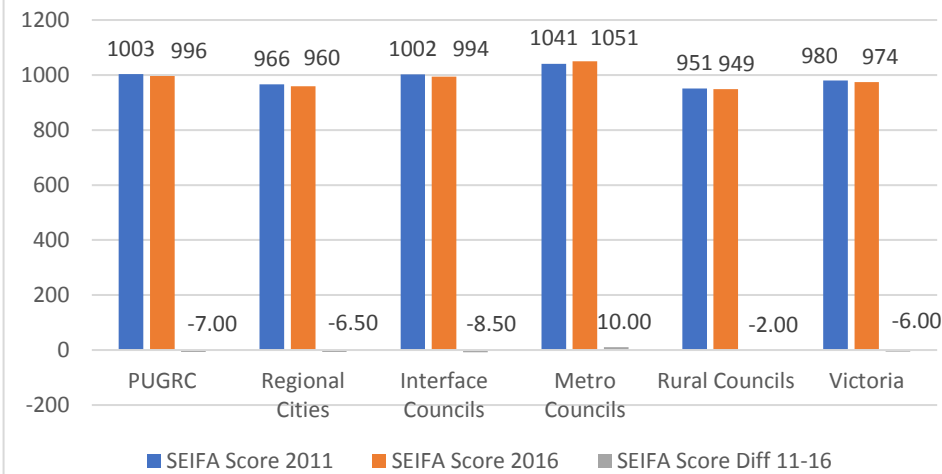
Source: Dataset: Regional Statistics by LGA 2017

It is noteworthy that the PUGRC has the same level of income inequality as Metro Councils, but is lower than the income inequality experienced in the Rural Council region. To give these scores some context, in 2016 Australia had a national GINI score of 0.33, Norway had a GINI score of 0.262, the USA had a GINI score of 0.391, Turkey had a GINI score of 0.404, and Costa Rica had a GINI score of 0.484.<sup>24</sup>

The PUGRC is one of the most advantaged regions in Victoria, having a SEIFA score of 996, compared to Metro Councils which had a SEIFA score of 1051 in 2016 (Figure 27). However, this level of advantage is slipping significantly. Between 2011-16 the PUGRC dropped -7.00 SEIFA points, increasing its disadvantage by the second largest amount of all regions in Victoria over the period. If this degradation in advantage continues at the same rate the PUGRC will be considered a disadvantaged region by 2036 with a projected median SEIFA score of 961, losing 35 SEIFA points over the period.

<sup>24</sup> <https://stats.oecd.org/index.aspx?queryid=66670>

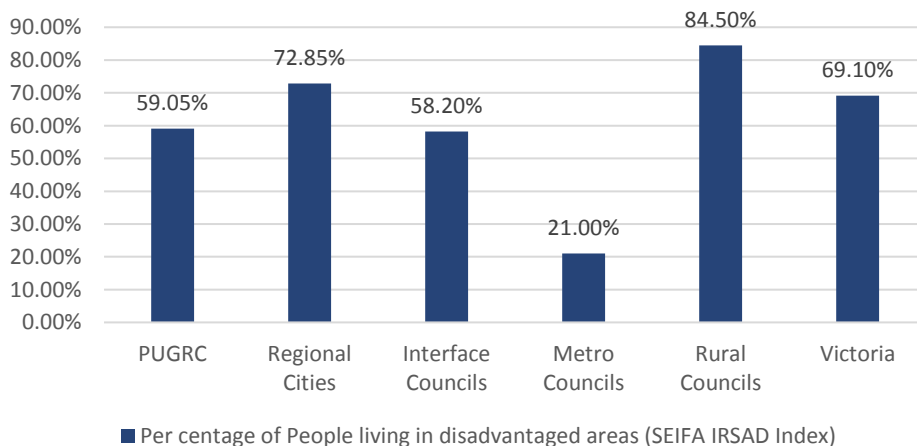
Figure 27: SEIFA Score 2011-16



Source: Dataset: Regional Statistics by LGA 2017

In the PUGRC 59% of people living are living in disadvantaged areas. This is the third highest result of any region, with 58% of Interface Councils and only 21% of Metro Council residents living in less disadvantaged areas (Figure 28). Given that approximately 73% of Regional Cities and 84 % of Rural Council residents live in disadvantaged areas, it is a clear illustration of the city country divide. Whilst the PUGRC is considered a rural and regional area, its population pattern of disadvantage mirrors that of the Interface Councils more closely than it does of its Regional Cities and Rural Council neighbours. This could be attributed to the fact that the PUGRC is under the similar economic, development and migratory pressures as that being experienced in the Interface Council region.

Figure 28: Percentage of People Living Disadvantaged areas (Low SEIFA Score) 2016



Source: Dataset: Regional Statistics by LGA 2017

Inequality has several negative impacts on economic development, such as for those from lower socio-economic groups are usually precluded from gaining access to credit with reasonable interest rates and contract conditions that will allow them to invest in a business activity that could provide them with a way out of poverty. Secondly, those most impacted by inequality are unable quickly or easily increase their human capital to engage in productive economic activity.

We also saw above in UNSDG 1 No Poverty and UNSDG 2 No Hunger, how people on welfare restrict their spending to meet their circumstances. We saw in these two examples how they retarded the marketplace and reduced economic opportunity not only for those on welfare, but the retail businesses that support they community. When these people are unable to overcome their inequality and increase their purchasing power, it drags down the growth rates of regional economies. This is also the main conclusion of Kennedy Et al, that inequality is a major drag on economic growth. According to Kennedy Et al, for every 10% increase in inequality there is a 2.76% growth penalty.<sup>25</sup> In current GRP terms a 10% increase in inequality over the period between 2011 -2018 would have reduced the PUGRC's growth rate from 14.52% to 11.76%, or from 2% to 1.7% p.a. growth over the period. Let us have a look at what that means in actual dollars terms to the economy.

In 2011, the combined PUGRC GRP was \$7,304,819,048.59. By 2018 it had increased to \$8,365,136,583.46.<sup>26</sup> The GRP growth between 2011-18 was \$1,060,317,534.88. If inequality had increased by 10% during this period, the inequality penalty would have been \$201,547,961 between 2011-18, or \$28,792,565 per year.

We have already seen above how increasing NewStart and the Youth Allowance would inject approximately \$763 million directly into the PUGRC economy. This would reduce the level of income inequality in the PUGRC, injecting much needed capital into local retail businesses and increase GRP per annum. This projected economic benefit through the reduction of inequality would be in addition to increasing NewStart and the Youth allowance, with this policy driving a lowering of inequality and a subsequent increase in GRP. By adopting both these policies, it would bring the total economic benefit to the region to \$791,792,565 per year, if a 10% decrease in inequality could be achieved by increasing NewStart etc.

To address these issues the PURGC proposes the following actions:

#### **ACTION ITEM 1: UNSDG 10: REDUCING INEQUALITY – INCREASE POVERTY REDUCTION PAYMENTS TO ACOSS POVERTY LINE LEVEL.**

---

Adopt the UNSDG 1: End Poverty action item: Work with the Federal Government to maintain the current Covid-19 increase in state-based poverty reduction income support (NewStart, Austudy, Abstudy and the Youth Allowance) to a minimum equal to the ACOSS poverty line, to become a permanent increase in these payments.

---

#### **UNSDG 10: REDUCING INEQUALITY – INSTITUTIONAL INEQUALITY- GROWTH ASSISTANCE PACT.**

How Government treats an area in regard to operational and capital grants and other financial support such as economic development funding has a large impact on the economic vibrancy of a region. Later we discuss the operational and capital grants system administered by the Victorian Grants Commission in UNSDG 17: Partnerships for the Goals, in our discussion about the need for a Growing Towns Fund. In this section we discuss the institutional inequality the PUGRC has suffered under the previous administration of Regional Development Victoria's administration of the Regional Jobs and Investment Fund (2015-2018).

The difference between the various parts of the rural and regional groupings and how government sees these regions is outlined in Graphs 86-89 and Table 2 below. In the May 2019 Victorian Auditor General's Office (VAGO) report into the

---

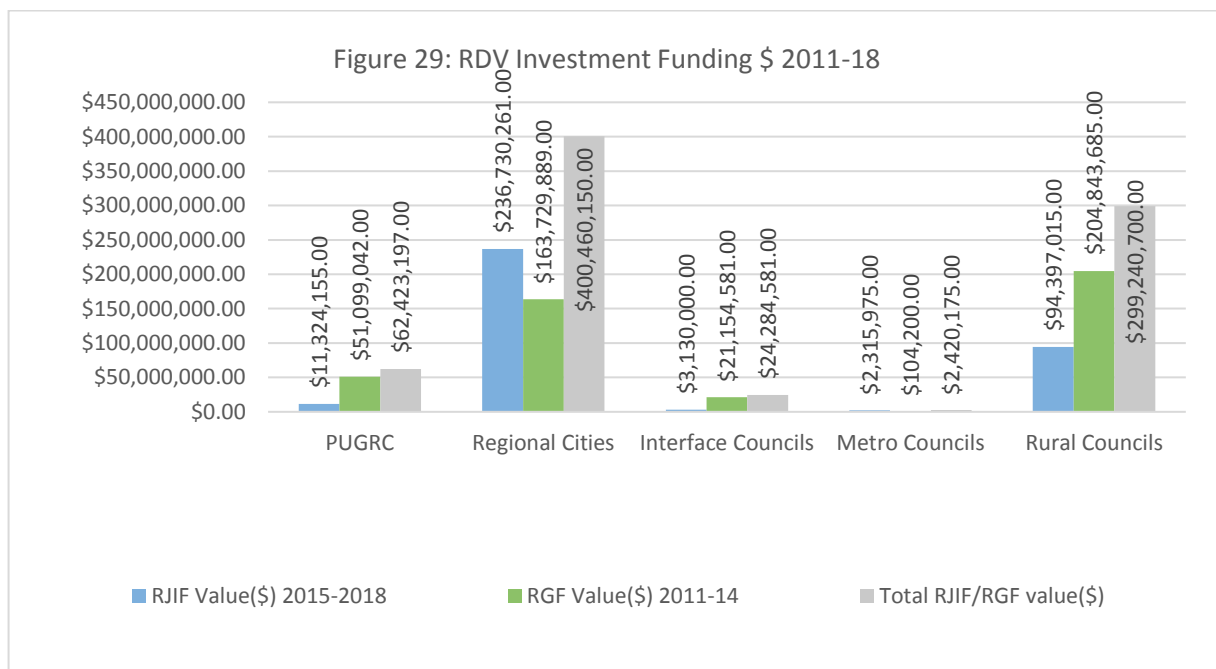
<sup>25</sup> P.123, Kennedy, Tom & Smyth, Russell & Valadkhani, Abbas & Chen, George, 2017. "Does income inequality hinder economic growth? New evidence using Australian taxation statistics," Economic Modelling, Elsevier, vol. 65(C), pages 119-128.

<sup>26</sup> NEIR figures 2019.

administration of Regional Development Victoria (RDV) investment funds, the Regional Growth Fund (2011-14) or the Regional Jobs and Investment Fund (2015-18) and outlined how a significant proportion of regional development funding was diverted from the PUGRC and Rural Councils, to Regional Cities during the 2014-2018 period.<sup>27</sup>

This diversion of investment funding had a significant impact on many PUGRC projects not being able to reach realisation over the last four years because the State Government favoured Regional Cities over all other rural regions in the state. However, this does not tell the complete story. The engagement of RDV regions with local PUGRC members was patchy, with RDV regional divisions in the south west of the state engaging and supporting a local PUGRC council very effectively, whilst PUGRC Councils further north in a separate RDV regional division receiving very limited support during this period.

Figure 29 outlines how much RDV investment funding the PUGRC received under the two schemes. In total, the PUGRC received over \$62 million in investment from RDV, under the RGF and RJIF. In the same period Rural Councils received approximately \$300 million from RDV in 2011-14 from the two funds. Regional Cities were the big winners in RDV funding, increasing their funding from \$163,729,889 in 2011-14 to \$236,730,267 in 2015-18, (a 31% increase in funding between the two periods) receiving a total of \$400 million, most of which was (2015-2018) under the Regional Jobs and Investment Fund (2015-2018) period.

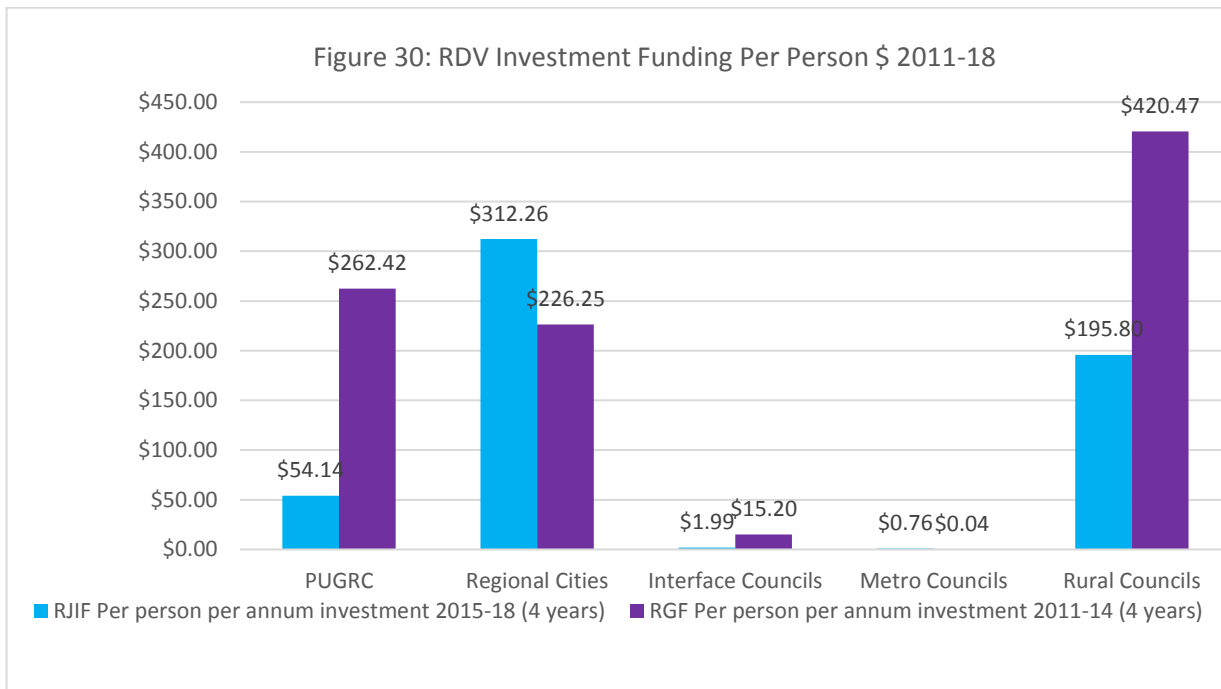


Source: Outcomes of Investing in Regional Victoria: Independent assurance report to Parliament, 2018-19:17, Victorian Auditor-General's Office VAGO. May 2019

In per person terms these are significant drops in investment in the PUGRC. Under the RGF the PUGRC received \$262 per person, and under the RJIF funding dropped to \$54 per person. During the same period, Regional Cities RDV investment went from \$226 per person under the RGF to \$312 per person under the RJIF. This is a significant investment in Regional Cities and at the expense of investment in the PUGRC (Figure 30). This disparity in funding demonstrates regional inequality at an

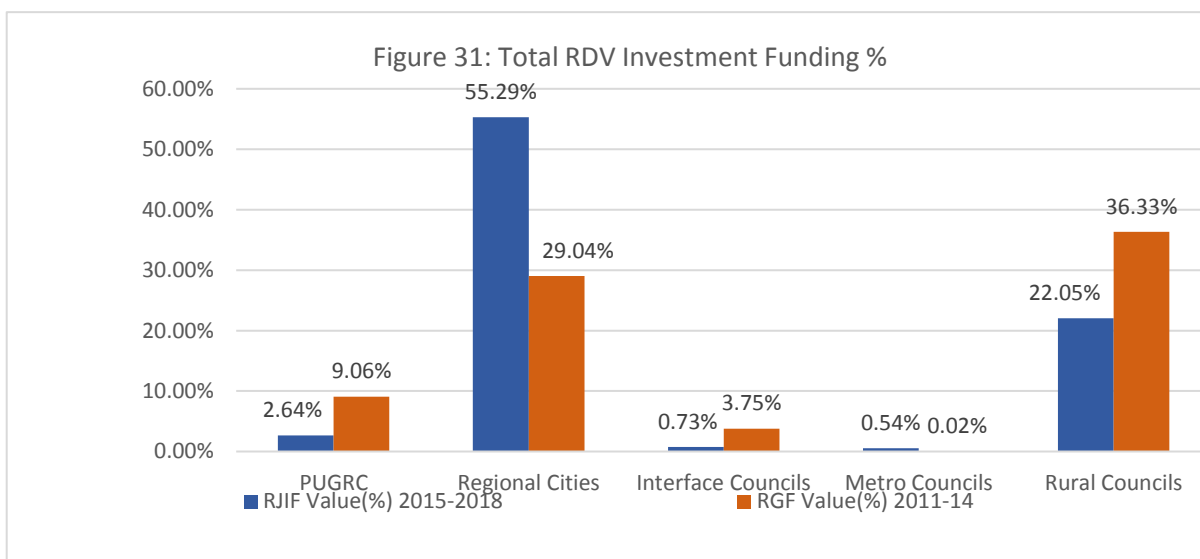
<sup>27</sup> Outcomes of Investing in Regional Victoria: Independent assurance report to Parliament, 2018-19:17, Victorian Auditor-General's Office VAGO. May 2019

institutional level. When policy discriminates against regions, it is disadvantaged communities that suffer the most from the diversion of economic investment.



Source: Outcomes of Investing in Regional Victoria: Independent assurance report to Parliament, 2018-19:17, Victorian Auditor-General's Office VAGO. May 2019 and VIF data.

Figure 31 outlines how this situation manifested itself in the proportional distribution of RDV funding. During the operation of the RDV RGF fund the PUGRC went from receiving approximately 9% of all funding in 2011-14, to just over 2% during the 2015-18 period under its successor the RJIF.



Source: Outcomes of Investing in Regional Victoria: Independent assurance report to Parliament, 2018-19:17, Victorian Auditor-General's Office VAGO. May 2019



The true disparity of RDV funding to the PUGRC can be seen when we compare the proportion of the rural/regional population with the overall amount RDV invested in to the PURGC between 2011-18, under both funding schemes. Rural Councils and Regional Cities received a proportional amount of investment according to their rural and regional populations.

The PUGRC represents approximately 15% of the rural and regional population. It received only 8% of available investment funding from RDV during this period. Regional Cities and Rural Councils received proportionally the same amount of funding commensurate to their proportion of the rural/regional population. The PUGRC received half that amount during the report period 2011-18(Figure 32).

Figure 32: Population v RDV Funding	Percentage of Rural and Regional Population	Percentage of RDV Investment 2011-18
PUGRC	14.73%	7.91%
Regional Cities	52.63%	50.77%
Interface Councils	0.00%	3.08%
Metro Councils	0.00%	0.31%
Rural Councils	32.64%	37.93%

Source: Outcomes of Investing in Regional Victoria: Independent assurance report to Parliament, 2018-19:17, Victorian Auditor-General's Office VAGO. May 2019 and VIF data.

This form of institutional inequality of investment can make it very difficult for regions to thrive. Ensuring this form of policy bias is removed is important in demolishing the structural inequalities that exist towards the PUGRC.

To address these issues the PURGC proposes the following action:

#### **ACTION ITEM 6: UNSDG 10: REDUCING INEQUALITY - GROWTH ASSISTANCE PACT.**

Work with State and Federal Government to ensure that high growth regional areas are treated equally to those more prosperous regions in the allocation of government funding in the form of a Growth Assistance Pact. This will bind State and Federal agencies to addressing the needs of the PUGRC, with high growth and relative high levels of inequality.

---

#### **UNSDG 16: PEACE, JUSTICE AND STRONG INSTITUTIONS – CULTURAL INEQUALITY.**

Another indicator of inequality is how our communities view other cultures. Our attitudes towards multiculturalism can be a proxy for how we view people from differing cultures and backgrounds.

Much research has been completed that looks at the connection between tolerance and economic development. Possibly the most famous researchers in this field are Richard Florida and Gary Gates. Das Et al summarised eloquently Florida and Gate's thoughts on the economic importance of tolerance:

“...that areas with higher levels of tolerance (in regards to ethnic and social diversity) are able to attract more creative and talented people. They theorize that this class of creative people is drawn to more engaging, intellectual, open-

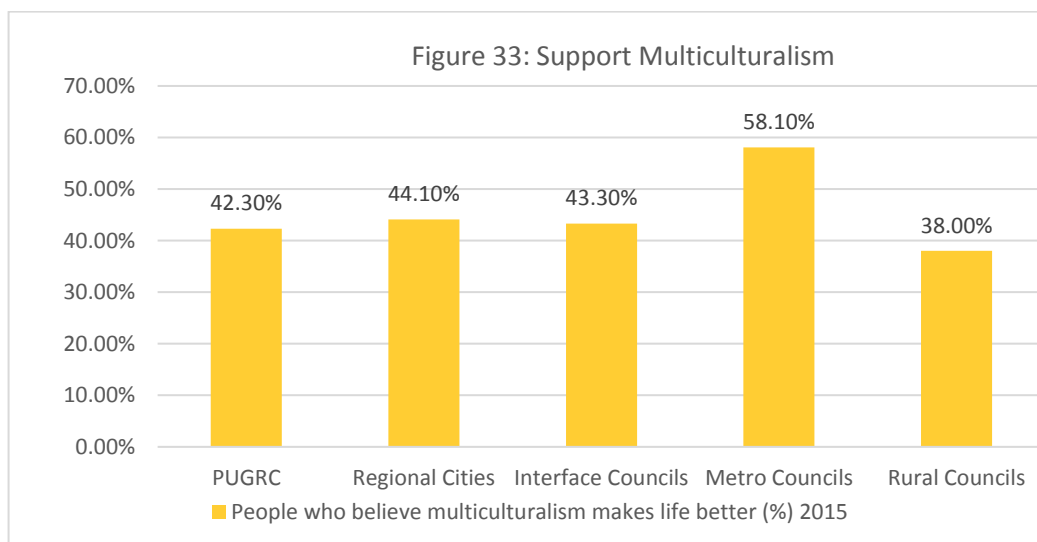
minded, and free-thinking areas or regions that are “. . . ideal for nurturing creativity and innovation . . .” Further, they find empirical evidence to support their theory.”<sup>28</sup>

These creative people are often highly educated, with either graduate or post graduate qualifications, or have significant trade qualifications with a lifetime of experience. Having both tertiary and trade qualified people in a community enables the possibility of highly innovative collaborations to occur. Creativity does not just happen in an artist’s studio, a writer’s den or in the design workshop of a fashion designer. It also happens in the garages, workshops and engineering design offices of many businesses throughout the PUGRC. Ensuring these two types of creatives can work together is essential to generate real, sustainable, long lasting and highly paid economic development.

Communities and economies thrive when people feel safe, live in a tolerant and inclusive social environments, enjoy peaceful neighbourhoods and have strong institutions dedicated to serving the entire public.

People of any community engage with the regular aspects of economic life when they feel they are tolerated and not being judged by other members of the community for their race or diversity. Environments that are tolerant are also economically vibrant. In this section we use a measure of how people feel about multiculturalism as a proxy for community levels of tolerance.

As can be seen in Figure 33 below, Metro Councils have the highest support for Multiculturalism. The next highest level of regional support for multiculturalism is in Regional Cities. This may be caused by the co-location in these centres of Universities and other higher education institutions. Interface Councils and the PUGRC have respectively a 43% and 42% rate support for multiculturalism. Rural Councils have the lowest levels of support for multiculturalism at 38%. The Metro Council region’s level of tolerance of multiculturalism is the highest of any other region, with 58.10% believing that multiculturalism made life better.



Source: Department of Health and Human Services (2018). 2015 Local Government Area Profiles. Original data from Victorian Population Health Survey, Department of Health and Human Services.

<sup>28</sup> Das, J., DiRienzo, C., & Tiemann, T. (2008). A global tolerance index. *Competitiveness Review*, 18(3), 192-205. doi:<http://dx.doi.org.ezproxy.une.edu.au/10.1108/10595420810905975>

Support for Multiculturalism can be a proxy for our tolerance and attitudes towards the inequality of culture. Tolerance of other cultures has a direct economic impact as it effects the type of people that migrate to our region. Low levels of acceptance of Multiculturalism leads to low levels of tolerance of people from not only other cultures, but people of other types of diversity as well. People that migrate with globally significant skill sets, such as creative, STEAM or technical skills that will engender innovation and entrepreneurial activity, representing a significant economic opportunity. If host communities want high levels of economic growth It is incumbent on them to welcome these new community members, if they are going to benefit from this injection of new skills and creativity into the economy.

Richard Florida's Tolerance Index is the basis of understanding the economic impact of tolerance. It measures a community's level of acceptance of groups that are racially, ethnically and sexuality diverse. Florida's theory is that communities which embrace tolerance, benefit from high levels of inward migration from creative communities. These communities bring with them high levels of creative innovation and economic development. For a region to be economically competitive, it must be tolerant of diversity and accepting of difference.

To address these issues the PURGC proposes the following actions:

#### ACTION ITEM 7: UNSDG 16: PEACE, JUSTICE AND STRONG INSTITUTIONS – CULTURAL INEQUALITY

Work with Government to provide a PUGRC fund for the hosting of Multicultural festivals and diversity focuses cultural events to be held in the PUGRC region. This Action Item aims to address the level of acceptance of Multiculturalism through public engagement of the general public and minority groups, to demonstrate that the PUGRC region is a tolerant and accepting place to visit, live and build a business.



#### HUMAN CAPITAL DEVELOPMENT

The basis of Human Capital Development is the provision of good health and access to high quality education so that individuals can earn a comfortable living wage.<sup>29</sup> Adam Smith, the father of modern economics believed that economic activity was fuelled not by workers as a collective mass but by their human capital.<sup>30</sup> In Smith's own words he said:

“Fourth, of the acquired and useful abilities of all the inhabitants and members of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise that of the society to which he belongs. The improved dexterity of a workman may be considered in the same light as a machine or instrument of trade which facilitates and abridges labour, and which, though it costs a certain expense, repays that expense with a profit.”<sup>31</sup>

Ensuring that everyone can gain relevant and marketable skills and education ensures two things. It increases individual's ability to engage with the local economy, increasing equity of access to the economy in the process. It also increases the range of potential businesses that can exist in a region. Having a wide skill base in a region enables the possibility of businesses establishing themselves who are part of the ever-expanding new economy.

---

<sup>29</sup> <http://hdr.undp.org/en/content/human-development-index-hdi>

<sup>30</sup> P.28, The Value of People, OECD Insights: Human Capital, <https://www.oecd.org/insights/37967294.pdf>

<sup>31</sup> Adam Smith, Wealth of Nations, 2nd Ed, London, Strahan and Cadell, 1778

If we take the view that GRP growth is driven by two fundamental forces, population growth or migration and productivity increases, Human Capital Development is the driving force behind increasing productivity of an economy, and therefore by itself is a major economic driver. Kennedy Et al highlights the importance of Human Capital Development, noting that for every 1% increase in human capital, increases growth by 1.3%.<sup>32</sup> This is an important driver of economic development and should form the basis of any economic development strategy.

The CEDA report outlines why Human Capital Development is essential for future economic growth:

“In future, everyone will need to be a technology generalist and a few technology specialists. Everyone will need to be creative and agile with the application of technology to problems and be able, at some level, to ‘architect, design and analyse’. This will be true of all productive jobs that will not themselves be hollowed out by information technology.<sup>33</sup>

To have these types of skills already will enable a regional economy to thrive in the period of transition we are about to enter with the beginning of a new industrial revolution.

There are two areas that impact heavily on the comparative advantage of the region: Human Capital Development and location-based amenity enhancement. Central to the concepts of Human Capital Development and Amenity are the migration patterns being experienced in the PUGRC. The PUGRC councils have experienced a significant influx of tertiary educated people. This represents a major economic advantage for the PUGRC.

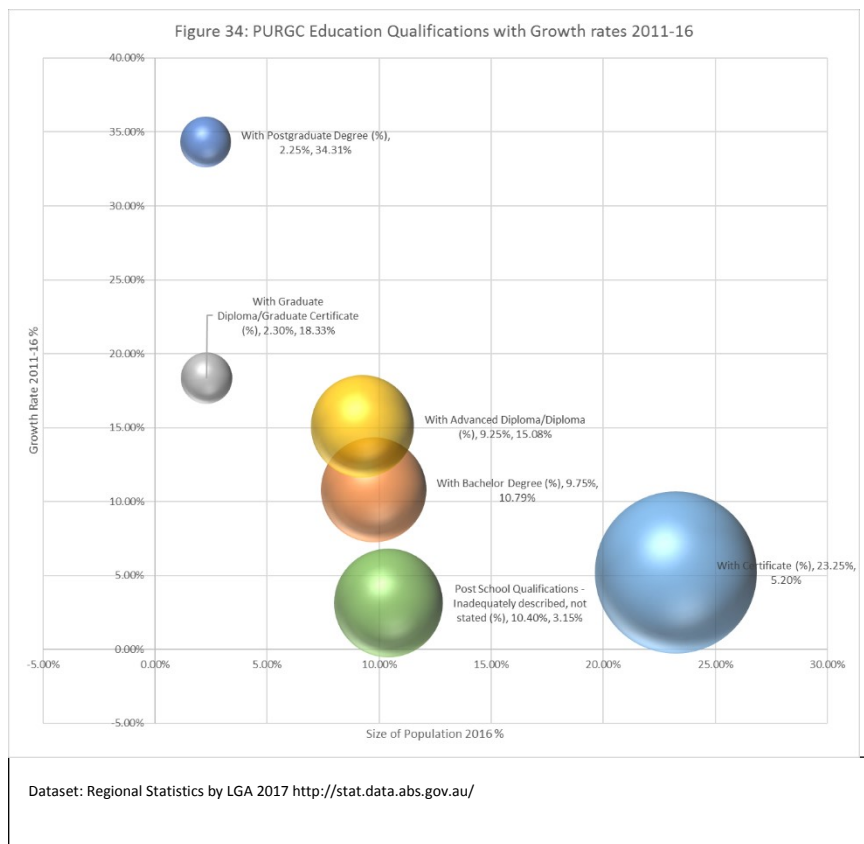
Those with a bachelor’s degree increased in the PUGRC between 2011-16 by 10.79% to reach 9.75% of the population. Those with a graduate diploma or graduate certificate increased by 18.33% to reach 2.30% of the population. Those with a post graduate degree increased by 34.31% to reach 2.25% of the population.

---

<sup>32</sup> P.123, Kennedy, Tom & Smyth, Russell & Valadkhani, Abbas & Chen, George, 2017. "Does income inequality hinder economic growth? New evidence using Australian taxation statistics," *Economic Modelling*, Elsevier, vol. 65(C), pages 119-128.

<sup>33</sup> P.238, Australia’s future workforce? CEDA, June 2015

Whilst this tertiary educated group is still overshadowed by those with a certificate (23.25%) or a diploma/advanced diploma qualification (9.25%), their growth rates are far higher than of any other group in the region (Figure 34).



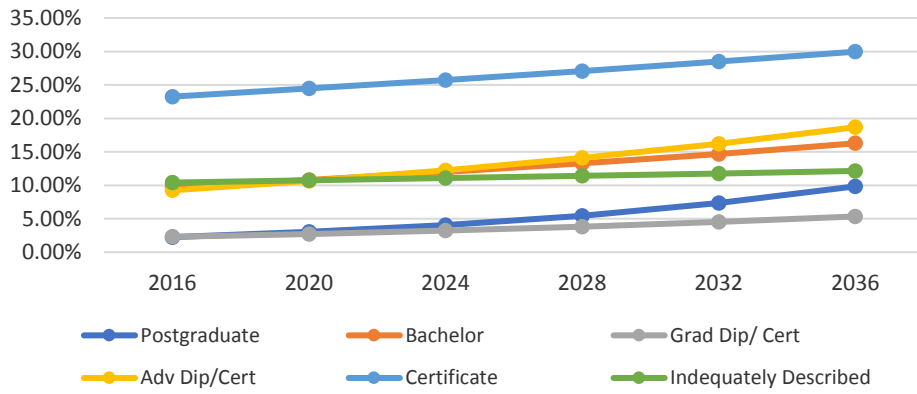
If the levels of growth that the PUGRC experienced during the 2011-16 period continued until 2036, the educational character of the region would change dramatically with tertiary educated residents (Bachelor, Grad Dip/Cert and Post Graduate qualified) making up approximately 31.45% of the population, compared with 14.30% in 2016. This will represent a 120% increase in tertiary educated people in the PUGRC. In contrast, people holding Advanced Diplomas and Certificates will increase as a proportion of the population from 9.25% to 18.67% of the population, an increase of 102% between 2016-36. People with certificates will increase from 23.25% to 29.96% of the population, an increase of 29% between 2016-36 (Chart 7).

The significance of the growth in the tertiary educated group migrating to the PUGRC, is that this group has high levels of human capital and represents a key resource in the region's future economic growth.

The reason tertiary educated people are migrating to the PUGRC region is because of the Amenity the region provides to community members. This key economic driver will be discussed below.

As we saw above, there are increasingly large numbers of well-educated people migrating to the PUGRC region. This migration is being driven by the natural and built environment amenity, creating a level of attractiveness drawing people to migrating to the region. This situation creates a pooling of human capital in the PUGRC that requires maintenance and nurturing to ensure future economic growth. The implications of this important economic driver are directly related to current need for educational infrastructure being identified as an enabling factor to build Human Capital Development pathways, as a means of increasing the level of economic development in the region (Figure 36).

Figure 36: Education Type Projections 2016-2036



Dataset: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

Argent et al (2013) has mapped the relationship between amenity and creative industries people moving into the PUGRC region (Figure 37 below)<sup>34</sup>.

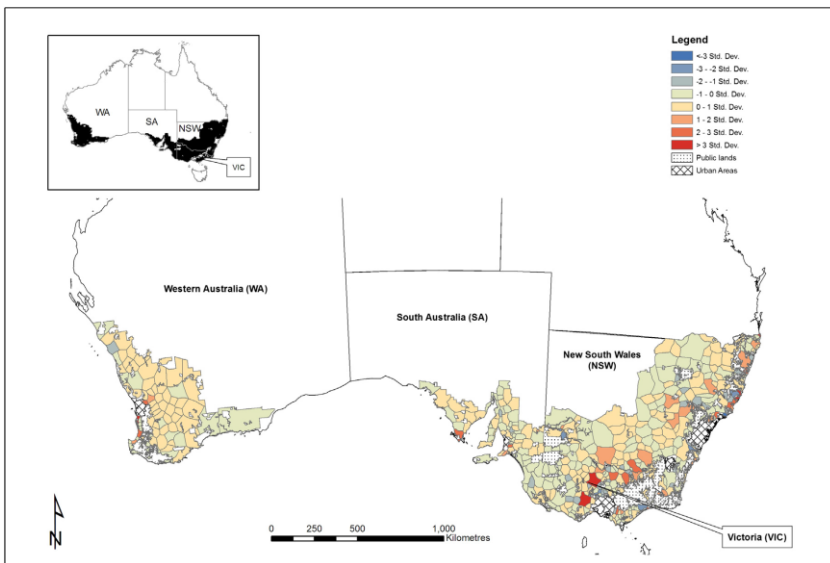


Figure 37. Residuals from linear regression of creativity/amenity model on rural business numbers, 2009, south-eastern and -western Australia. Argent Et al. (2013)

<sup>34</sup> Argent, N, Tonts, M, Jones, R and Holmes, J. "A Creativity-led rural renaissance? Amenity-led migration, the creative turn and the uneven development of rural Australia.", *Applied Geography*, 44 (2013) 88-98,

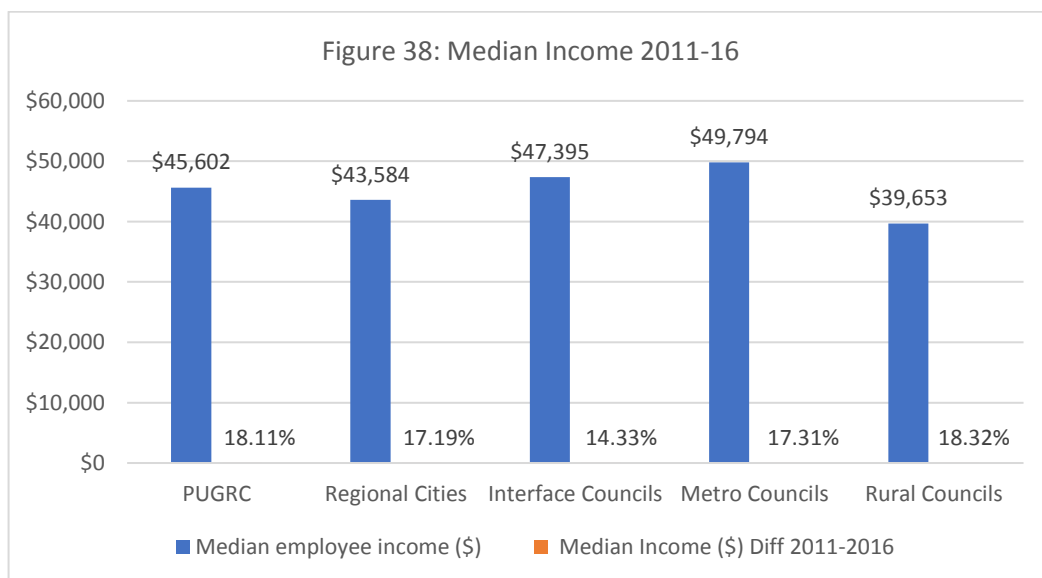
Argent et al takes a broad view of who are part of the creative class when they state: “As Hoyman and Faricy (2009) point out, there are arguably two strata of the creative class: the supercreative class, which incorporates occupations such as computer scientists, academics, architects, artists; and, the creative professionals, including managers, accountants and lawyers”<sup>35</sup> It could also be accurate to include tradespeople in this second category as well.

This wide definition of the creative class mirrors the growth in service-related industries which we see in Figure 38 below where the industries experiencing high growth may have significant numbers of creative workers within them. Such people usually work in marketing, graphic design, communications, law, accounting, as well as traditional creative industries such as software development, film and radio production, multi-media, theatre, designers (industrial, interior, construction, food and clothing), architects and related tradespeople in construction and manufacturing.

The creative industry group provides a high value add to the businesses they are a part of. Having growing numbers of this group within a region provides extended opportunities for economic growth because of their contribution to productivity and value adding.

What we see in Figure 37 is that the PUGRC is a focal point for creative migration in regional Victoria. With heavy concentrations of levels of creative inward migration occurring, as creative people migrate to the Surf Coast (0-1 to 1-2 Std Dev), Golden Plains (> 3 Std Dev), Moorabool (> 3 Std Dev), Macedon Ranges (> 3 Std Dev), Baw Baw (2-3 Std Dev) and Bas Coast (1-2 Std Dev). The difference between the levels of creatives being attracted to the western side of the PUGRC compared to the eastern side of the region could come down to the fact that there is better public transport infrastructure in the western PUGRC which allows for easy commuting to Melbourne for work, and no fast rail connection to Baw Baw and Surf Coast, with no rail connection at all to Bass Coast.

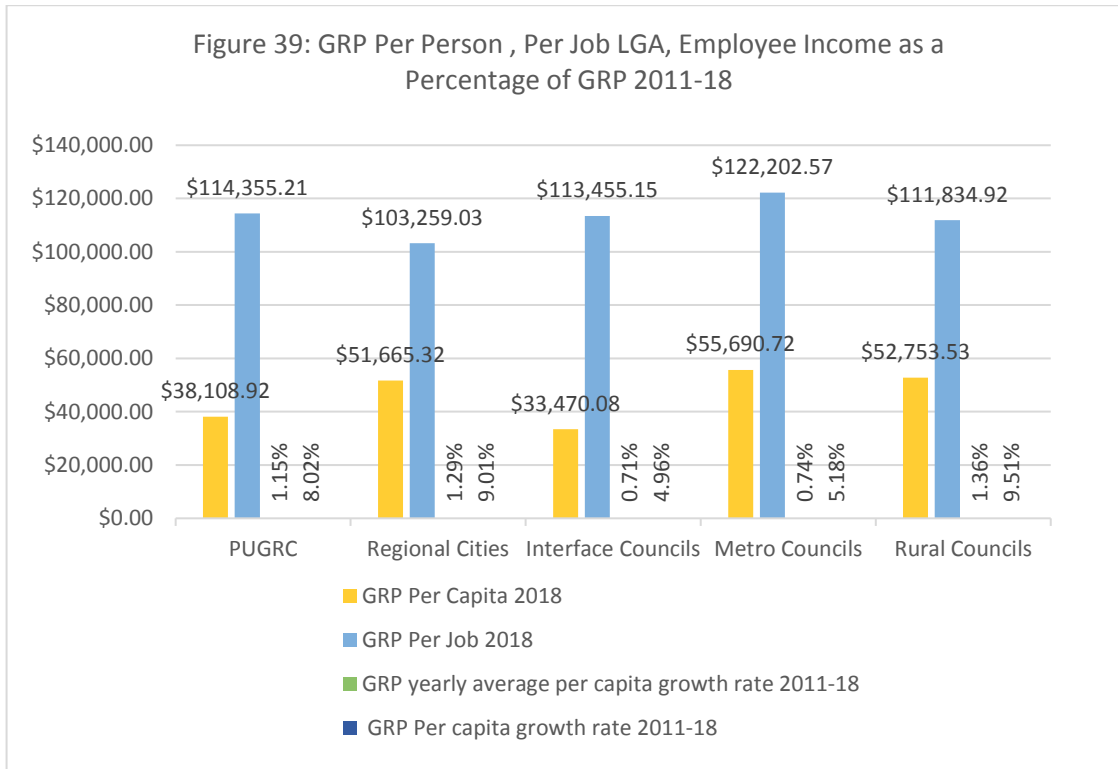
Argent et al (2013) make the point that while unlike their US counterparts, high levels of creatives in regional Australian settings is not translating into higher numbers of business formations. Migrating creatives possibly contribute to these regions having one of the highest median regional incomes in Victoria (Figure 38). However, this is not the only indicator of the impact of creatives on a regional economy. Median regional income and GRP per job, can also indicate the possible economic impact of inward migration of creatives. The PUGRC region has the highest median income of any Victorian rural region, at \$45,602, with the second highest median income growth rate of any region in Victoria.



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

<sup>35</sup> Argent, N, Tonts, M, Jones, R and Holmes, J. “A Creativity-led rural renaissance? Amenity-led migration, the creative turn and the uneven development of rural Australia.”, *Applied Geography*, 44 (2013) 88-98,

Another indicator of the possible productivity of this creative population is GRP per job, and this is borne out in the data discussed below demonstrating that the regional GRP per job is the second most productive region in the Victorian economy, other than Melbourne (Figure 39 below).

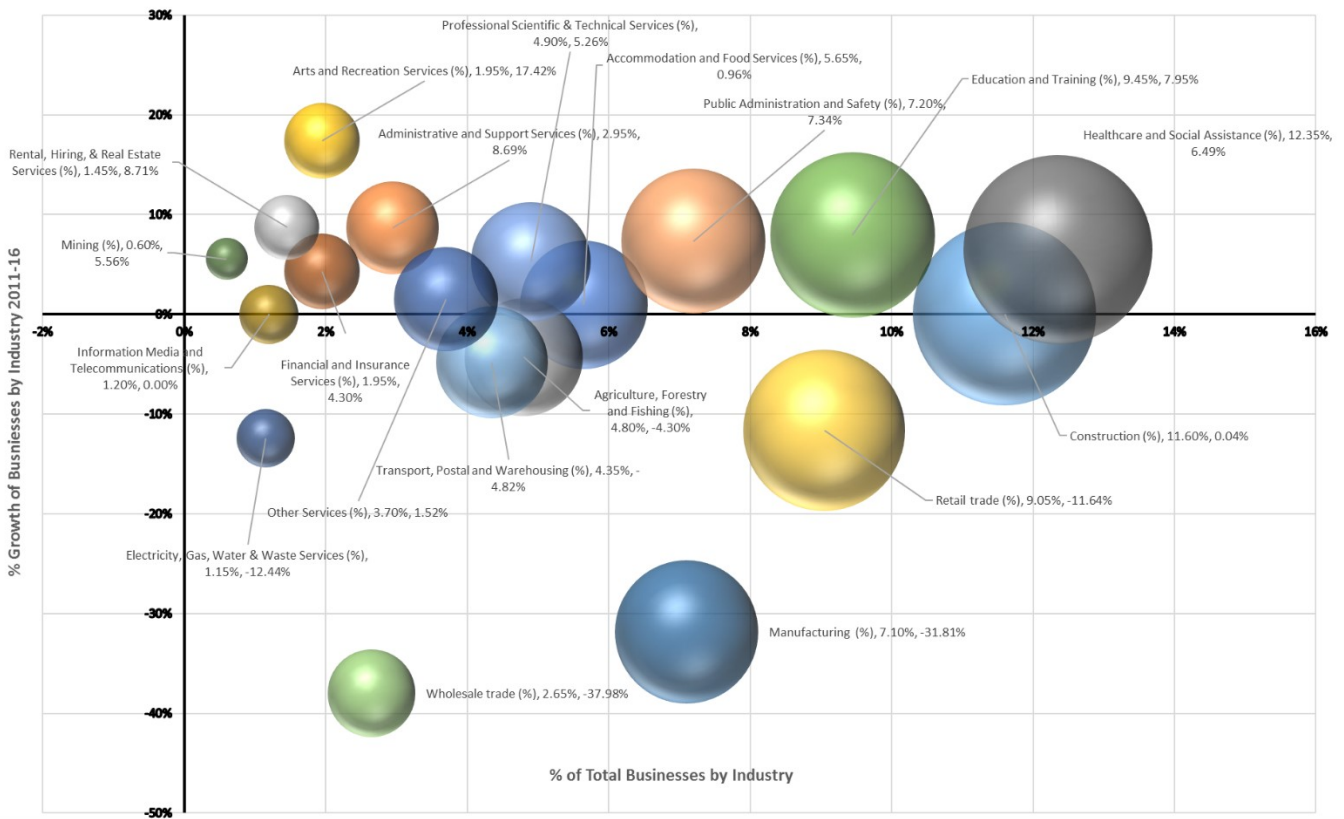


Source: Total employment numbers (Including part time and full-time workers) NIEIR (December 2018), Market Prices, Headline GRP with Indirect Taxes RDV

Figure 40 reflects the industry growth rates between 2011-16 in the Arts and Recreation Services (+17.42%), Rental, Hiring, and Real Estate Services (+8.71%), Administrative and Support Services (+8.69%), Education and Training (+7.95%), Public Administration and Safety (+7.34%), Health Care and Social Assistance (+6.49%), Mining (+5.56%), Professional Scientific & Technical Services (+5.56%), Financial and Insurance Services (+4.30%) and Accommodation and Food Services (+0.96%). This represents a significant increase in professional (creative) businesses throughout the region. Traditional businesses have declined over the same period, such as Wholesale Trade (-37.98%), Manufacturing (-31.81%), Electricity, Gas, Water and Waste Services (-12.44%), Retail Trade (-11.64%), Transport, Postal and Warehousing (-4.82%), and Agriculture, Forestry and Fishing (-4.30%).



Figure 40: PUGRC Industry Growth Rate by Total Businesses (%) 2011-16



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

These healthy growth rates in service-related professional and creatively focused industries at the expense of more traditional industry sectors, is being driven at some part, by a high-level influx of tertiary educated human capital that is enriching the region.

What then are the economic mechanics of how Human Capital development impacts on economic growth and what are the infrastructure requirements to make this happen? As Kennedy Et al (2017) highlights the fact that for every 1% increase in human capital it increases economic growth by 1.3%.<sup>36</sup> and the level of tertiary educated migration continues to grow at the rate experienced between 2011-2016 until 2036, there will be an estimated 45% increase in the size of the PUGRC economy.

How is this growing pool of human capital to be fostered and encouraged? Human capital can only thrive if there is access to educational facilities and adequate health care within a region. The following discussion outlines the issues and solutions to delivering a Human Capital development framework within the PUGRC. We next look at how Human Capital can be developed in the PUGRC.

---

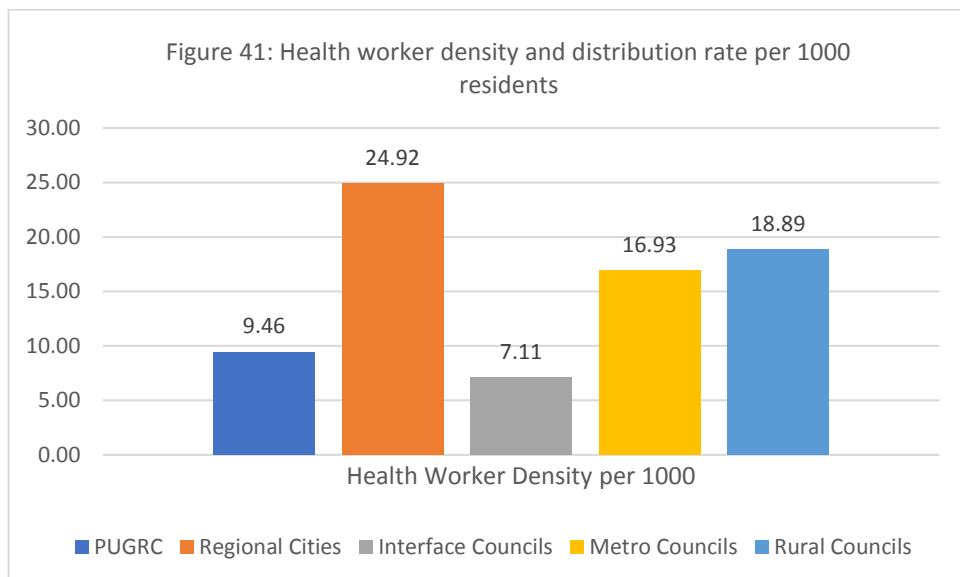
**UNSDG 3: GOOD HEALTH AND WELLBEING - MULTI-DISCIPLINARY MEDICAL AND EMERGENCY CENTRES.**

---

<sup>36</sup> Kennedy, T, Smyth, R, Valadkhani, A, Chen, G: "Does income inequality hinder economic growth? New evidence using Australian taxation statistics." Economic Modelling, 2017, Vol.65, p.119(10)

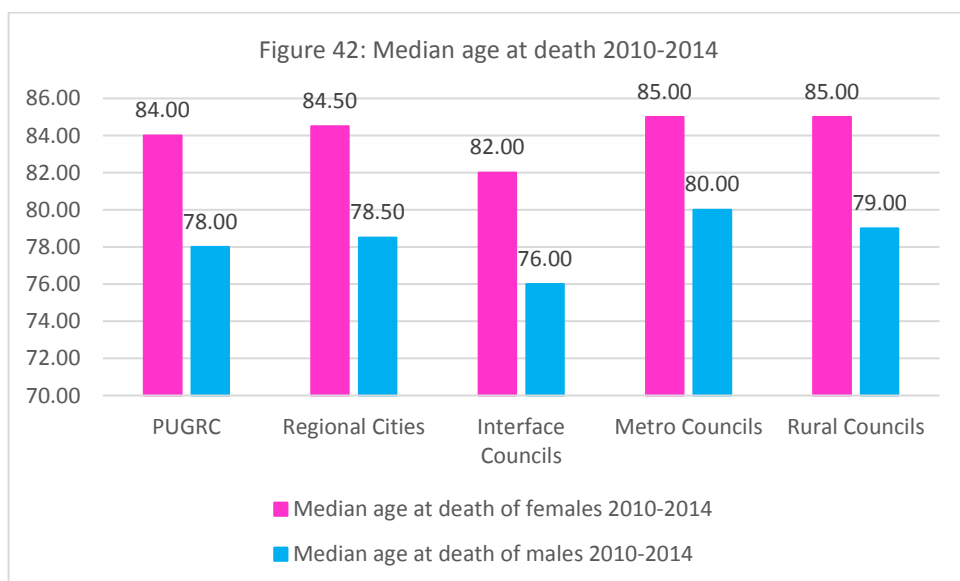
The PUGRC has a population suffering from high levels of premature death, (relative) high infant mortality rates, high levels of mental health issues and suicide, and high levels of chronic illness, which all contribute to impact on the ability of a community to develop economically. Having enough trained medical staff and enough medical facilities to service a community is a vital step in ensuring a region is able to care for and maintain a healthy population.

The most important element in a community’s health and wellbeing is access to health professionals. In the case of communities of the PUGRC, they have the second lowest ratio of health workers (9.46 per 100 residents) in the state. The only other region that has lower levels of health workers is the Interface region with 7.11 per 1000 residents (Figure 41).



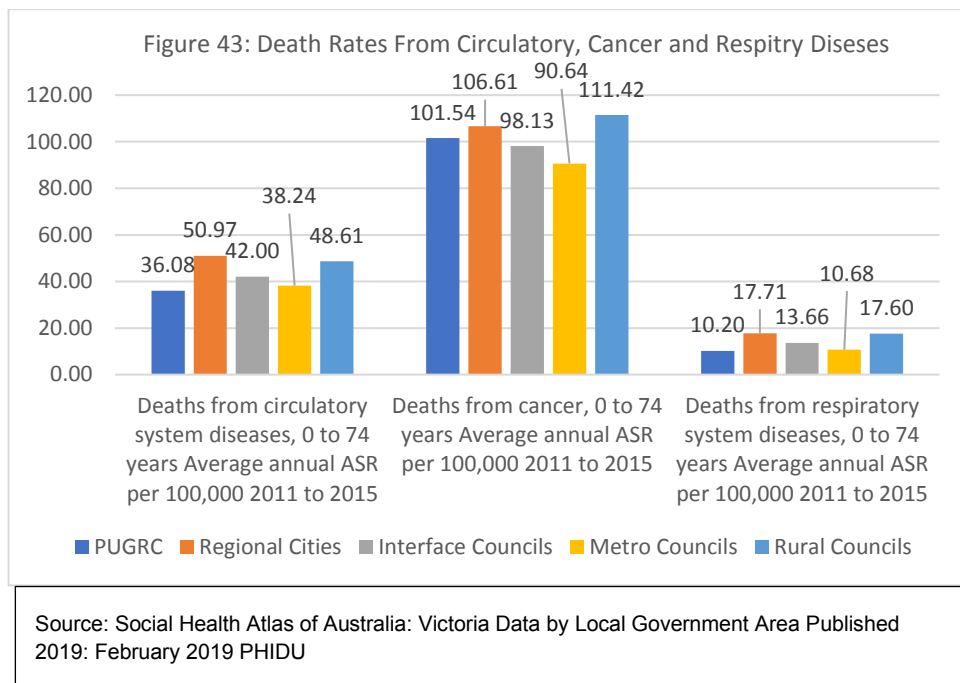
Source: Social Health Atlas of Australia: Victoria Data by Local Government Area Published 2019: February 2019

Life expectancy for females in the PUGRC is a full year less than in Metro and Rural Council regions at 84 Years. Life expectancy for males is two years less than that experienced in Metro Melbourne and one year less than experienced in Rural Councils at 78 years (Figure 42).



Source: Social Health Atlas of Australia: Victoria Data by Local Government Area Published 2019: February 2019 PHIDU

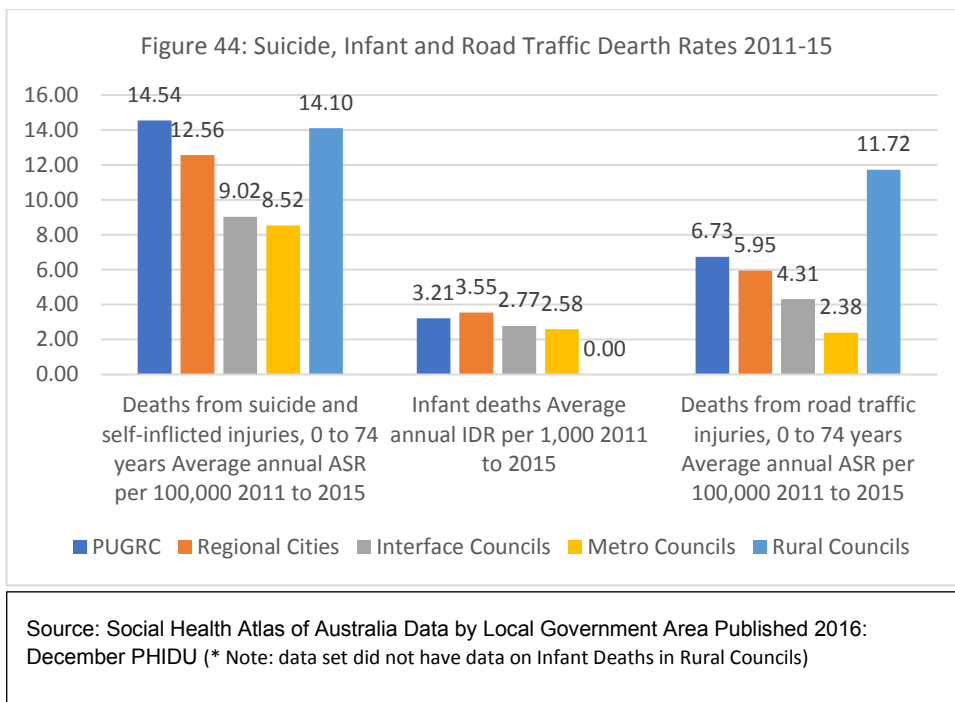
Whilst death rates in the PUGRC from Circulatory and Respiratory diseases are at the lower end of occurrences when compared to all regions, death rates for Cancer is mid-range, being 101.54 per 100,000 (Figure 43), but is 11 points higher than that experienced in Metro Melbourne areas.



The PUGRC has the highest rate of suicide of any region within Victoria, recording 14.54 deaths per 100,000 (Figure 44) - a full six percentage points above that experienced in Metro Council areas, and 2.79% above the Victorian average.

Infant death rates per 1000 in the PUGRC are the second highest in the state, with 3.21 infant deaths for every 1000 births compared to infant death rates in Interface councils and Metro Council areas which are over 0.5 point lower (Figure 44).

Death from road accidents in the PUGRC is the second highest rate of any region in Victoria, with 6.73 people losing their lives per 100,000 on average between 2011-15 (Figure 44).



The PUGRC’s low level of health workers compared to other regions, with a density of just 9.46 per 1000 residents, is thought to contribute to the lower health outcomes experienced by PUGRC residents. Attracting more health care workers to the PUGRC region is a high priority, that will help address the region’s comparatively lower life expectancy, higher cancer deaths and higher suicide rates, and ensure PUGRC residents attain and remain at a higher level of overall health.

These relatively poor health outcomes can damage a region’s amenity reputation amongst inward-migrating high Human Capital individuals and families. To address this issue, which is caused by a lack of health infrastructure, personnel and a developed health system presence in the region, the PUGRC proposes the establishment of a series of Multi-disciplinary Medical Centres in each of the PUGRC members LGAs.

To address these issues the PURGC proposes the following action:

**ACTION ITEM 8: UNSDG 3: GOOD HEALTH AND WELLBEING - MULTI-DISCIPLINARY MEDICAL AND EMERGENCY CENTRES**

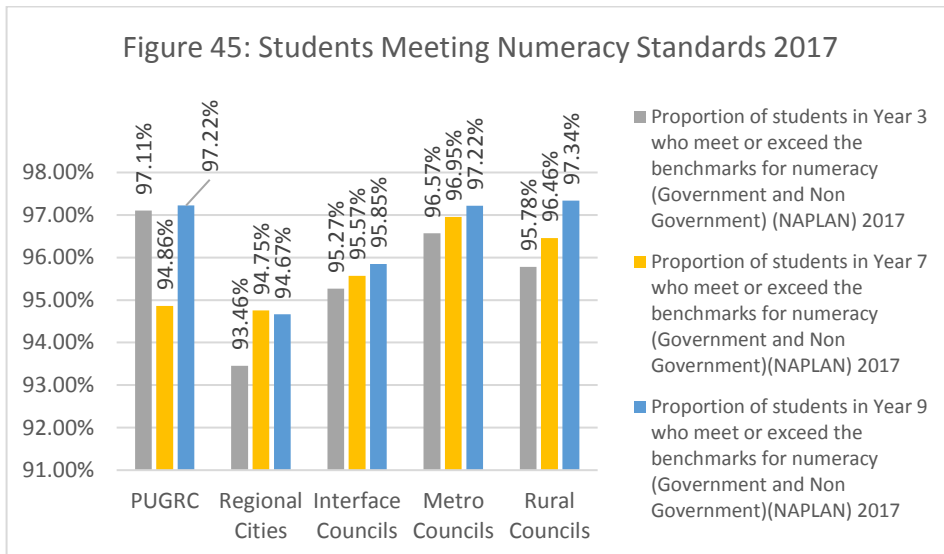
Work with State and Federal Government to fund the establishment of Multi-disciplinary Medical and Emergency Centres. These centres would provide access to GP, mental health, maternity and emergency EMS facilities is a priority for the PUGRC. We propose the adoption of a model, which combines a GP service, with a small hospital ward structure, and an emergency room for critical patients. In this facility a basic EMS service can be established as a first point of call for local medical practices to send their emergency clients to receive emergency care and triage. In this way emergency care can be administered more quickly, rather than just being sent directly to major hospital centres that could be hours away. This will enable road accident victims to receive emergency care much more quickly. These centres can also be the base for localised cancer treatment for local communities and health education hubs from which educators can deliver much needed health education.

**UNSDG 4: QUALITY EDUCATION - MULTI-INSTITUTIONAL CO-STUDYING FACILITIES IN THE PUGRC.**

Education services within the PUGRC, are limited. Tertiary education facilities are non-existent and there are limited education options at the pre-school, primary and secondary levels. This situation is a significant brake on economic growth, affecting

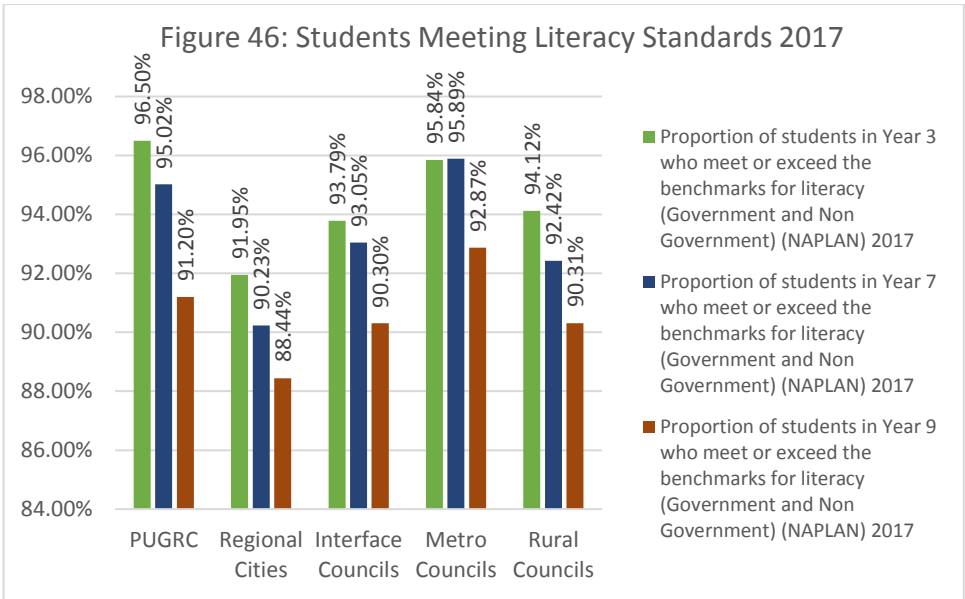
potential inward migrants’ choices on where to move to. Whilst the academic performance of school aged children in the PUGRC is either equal to or exceeds that of Metropolitan Councils (Figure 45 – Naplan Numeracy and 46 – Naplan Literacy), there is a disturbing trend emerging amongst school leavers’ post school education choices, that favour seeking employment as opposed to gaining some form of tertiary education or training after school.

Within the PUGRC, children in the year three age group exhibit the best results for numeracy standards across the state, topping the results at 97.11%. In the year nine age group PUGRC results match that of Metro Councils at 97.22% and are only 0.12% lower than the average set by Rural Councils, the highest ranking region. The area where the PUGRC does not do well in NAPLAN numeracy results is in the year seven-year age group, recording the second lowest score at 94.86%, just above that of Regional Cities. (Figure 45)



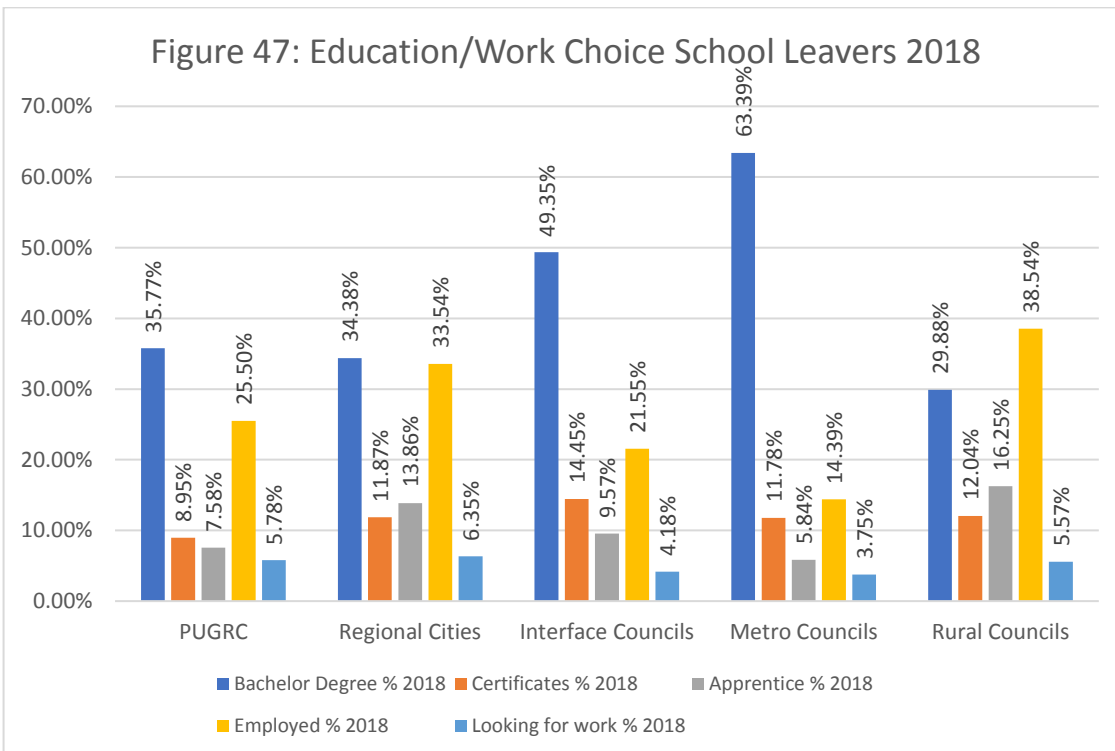
Source: Victorian Curriculum and Assessment Authority, extracted from VCAMS portal, Department of Education and Training VCAMs\_Indicator\_11\_1.xlsx  
<https://www.education.vic.gov.au/about/research/Pages/vcamsindicator.aspx>

Literacy level within the PUGRC are also at a high standard. Year three NAPLAN literacy results are the highest of any region in Victoria and are 0.66% higher than Metro Council results. In the year 7 age group PUGRC students come in second to Metro Councils at 95.02%, 2% above Interface councils and 5% above Regional Cities NAPLAN literacy results. At the year nine level, literacy results are again only second to Metro Councils results, with 91.20% reaching acceptable literacy standards (Figure 46).



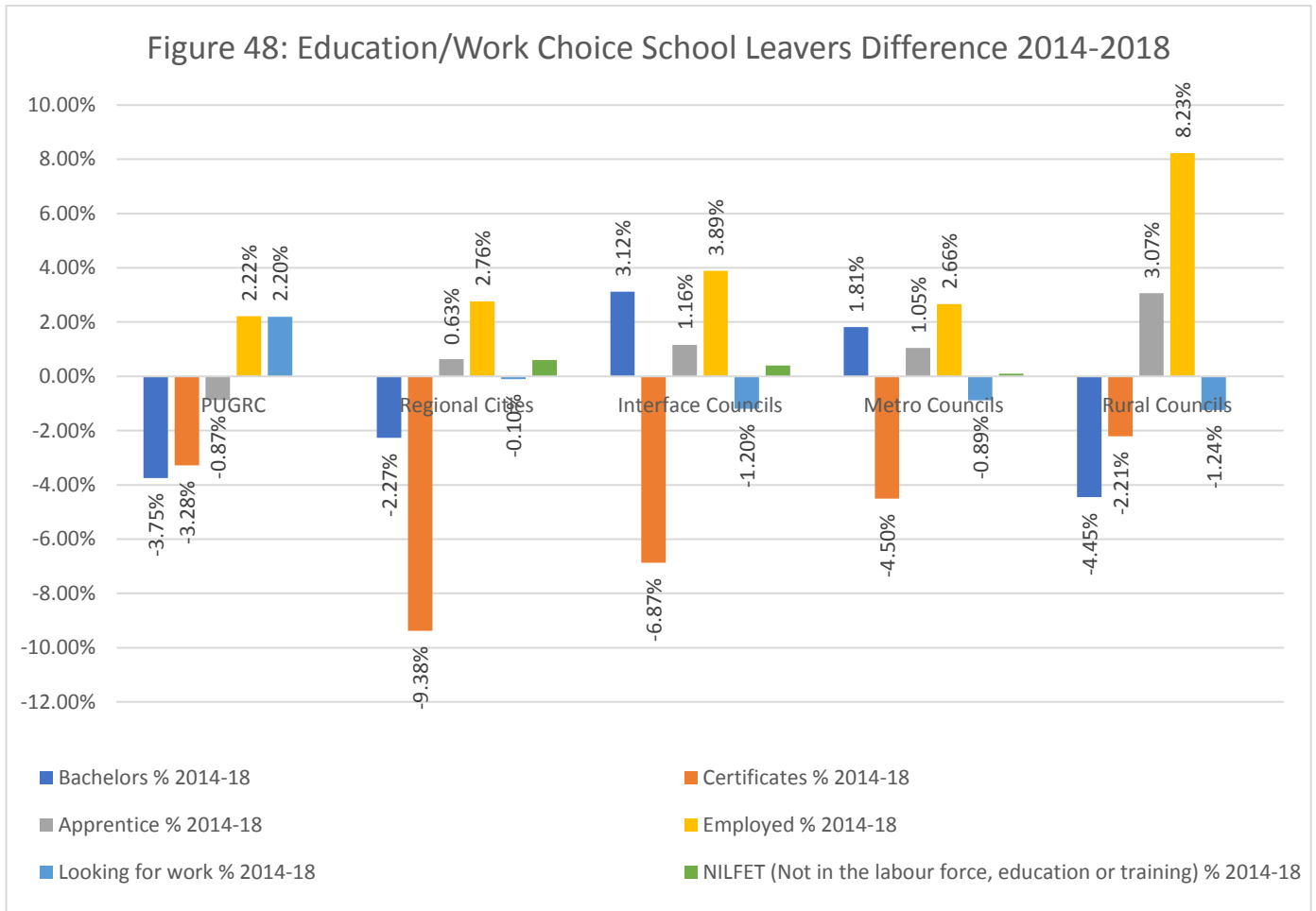
Source: Victorian Curriculum and Assessment Authority, extracted from VCAMS portal, Department of Education and Training VCAMs\_Indicator\_11\_1.xlsx  
<https://www.education.vic.gov.au/about/research/Pages/vcamsindicator.aspx>

These relatively high NAPLAN scores are not translating into PUGRC youth engagement with tertiary education and training. The PUGRC in 2018 had the third lowest numbers of youth undertaking a Bachelor’s degree, (33.77%), but also had the lowest levels of engagement with Certificate training (8.95%) and apprenticeships (7.58%) of any region in Victoria (Figure 47).



Source: Estimate using Victorian Department of Education On Track Data 2018  
<https://www.education.vic.gov.au/about/research/pages/ontrack.aspx>

When we look at the various post-secondary education choices of school leavers in the PUGRC between 2014-18 we see drops in school leavers choosing tertiary (-3.75%) and certificate education (-3.28%), and apprenticeships (-0.87%) over the period. Whilst the drop in PUGRC school leavers undertaking certificate training is one of the smallest drops in this category across all regions in Victoria (-3.28%), the drops in school leavers choosing to start a bachelor degree (second largest -3.75%) or apprenticeship (largest -0.87%) show the highest drops in engagement for these types of education of any region in Victoria. In contrast, school leavers gaining employment (+2.22%) and looking for employment (+2.20%) rose in the PUGRC during the period (Figure 48).

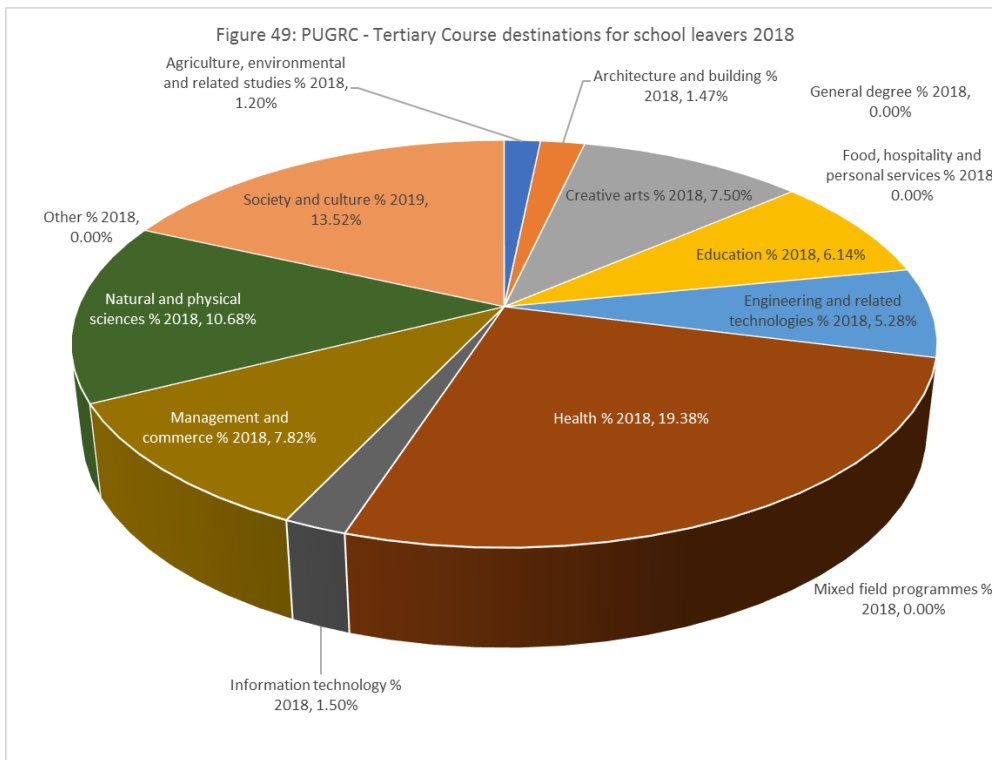


Source: Estimate using Victorian Department of Education On Track Data 2018  
<https://www.education.vic.gov.au/about/research/pages/ontrack.aspx>

For those that go on to tertiary study, 28.63% are taking Arts related courses, 38.04% are taking Science based sources and 7.82% are undertaking some form of business course. That means that 66.67% of new tertiary students are taking some form of study in the Science, Technology, Engineering, Arts and Technology (STEAM) disciplines (Figure 49). This is encouraging news for the potential of new economy industries in the PUGRC.

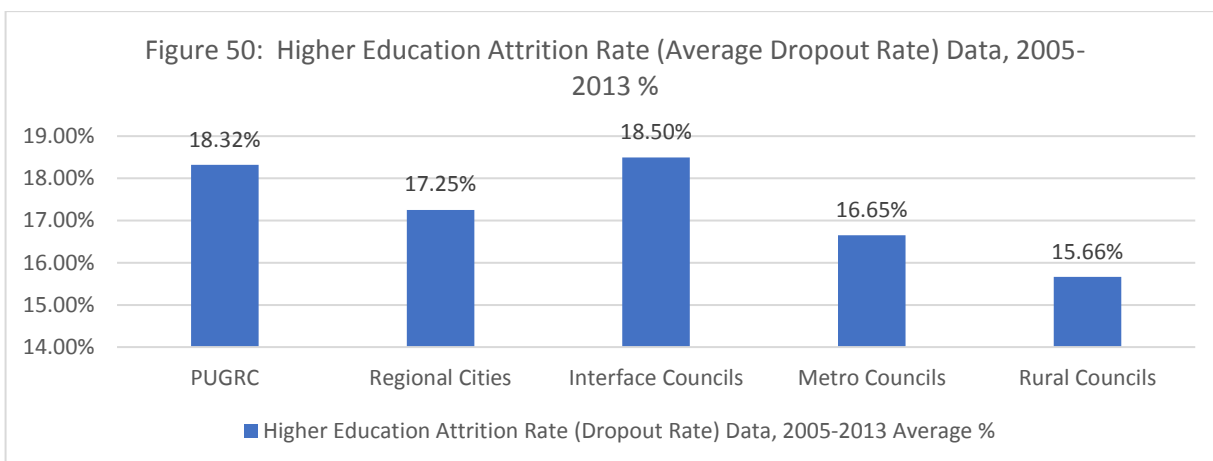
There are four disturbing issues with PUGRC school leaver choices. Firstly, given the primacy of agriculture in the PUGRC economy, it had the lowest take-up rate of any course by students of the PUGRC. Take up of Food, hospitality and personal services courses was non-existent. Take up of information technology course (1.50%) is very low in the region. If we look outside of the Arts and Sciences, towards management and commerce education, take up of these courses comparable with the take up of other course types, but to build a thriving innovative 4<sup>th</sup> Industrial Revolution economy the numbers of students taking up these economic related disciplines should be improved. Students in both IT and management/commerce disciplines

are a potential future source of new economy young entrepreneurs and increasing their numbers is important for the future of the PUGRC Economy.



Source: Estimate using Victorian Department of Education On Track Data 2018  
<https://www.education.vic.gov.au/about/research/pages/ontrack.aspx>

This turning away from tertiary education and training by school leavers in the PUGRC region is only exacerbated by the high attrition rates for those undertaking higher education compared to those in other Victorian regions. The average attrition rate for those undertaking higher education in the PUGRC is 18.32%, only second to the attrition rate in the Interface Councils (18.50%) (Figure 50).



Source: <https://data.gov.au/dataset/higher-education-attrition-rates-2005-2013>



There are several factors here why school leavers in the PUGRC are turning away from higher education; chief amongst these is the lack of any tertiary education facilities within the region.

The cost of studying and the need to move to a major population centre, away from home, could be significant issues for PUGRC TAFE and university students. This issue may be addressed by the establishment of Multi-Institutional Co-studying Facilities in each of the major population centres of the PUGRC. These facilities could encourage VCE students to undertake some form of higher education rather than opting for work straight out of school and potentially halt the large higher education attrition rates experienced by students in the PUGRC.

To address these issues the PURGC proposes the following action:

#### ACTION ITEM 9: UNSDG 4: QUALITY EDUCATION - MULTI-INSTITUTIONAL CO-STUDYING FACILITIES

Work with State and Federal funding for a series of Multi-Institutional Co-studying Facilities in the PUGRC. A Multi-Institutional Co-Studying Facility would consist of classrooms with video conferencing facilities that could link students to lectures and classes at any university or TAFE. This would allow students to interact with the class/lecturer, ask questions, sit through presentations from the classes they are taking at their education institution without having to leave their town or region. This type of facility could reduce the sliding tertiary and TAFE enrolment rates and decrease the higher education attrition rates being experienced by PUGRC youth.



#### CLIMATE CHANGE ACTION

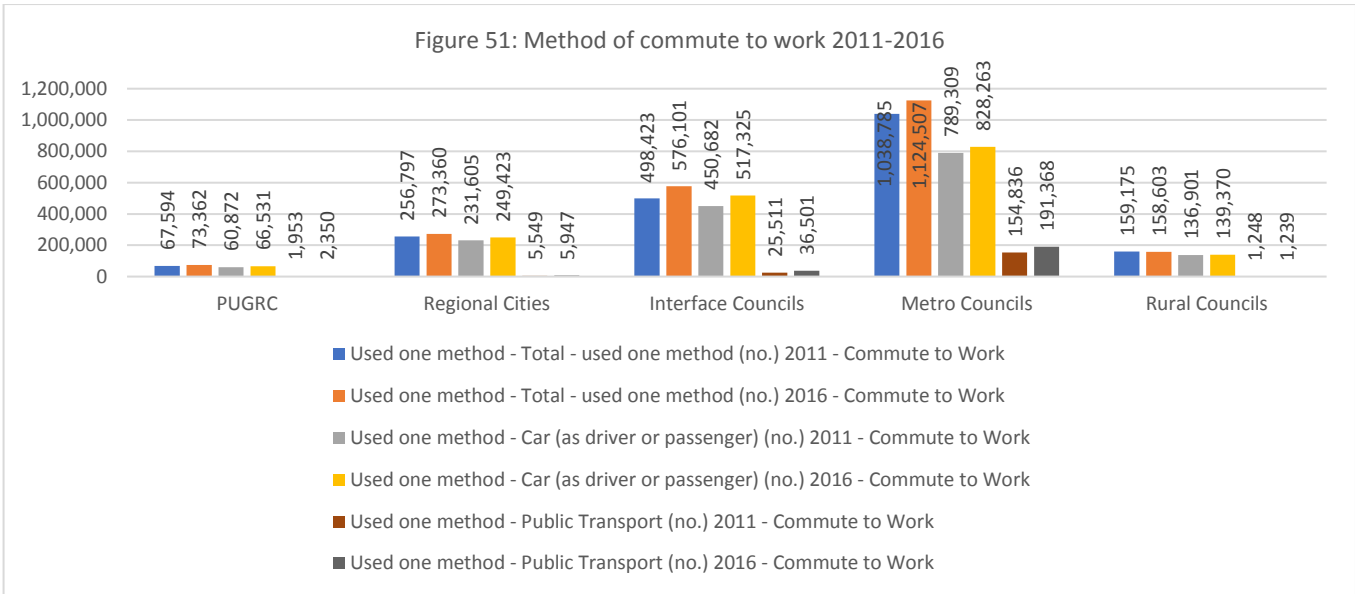
Climate change will impact on the PUGRC in many ways, such as sea level rise, erosion, heat, extreme fire events and disruption of agriculture. These disruptions will all be major pressures on the region over the next 80 years if the world does not embrace significant carbon emission cuts to halt a 4°C global temperature rise. Mitigation and preparation should be one of the key focuses of the region in the next few years to help our community prepare for this change. Some of the challenges that climate change will impose on the PUGRC are outlined below.

---

#### UNSDG 13: CLIMATE ACTION – THE NEED FOR LOW CARBON PUBLIC TRANSPORT SOLUTIONS.

The PUGRC has several opportunities to not only reduce carbon emissions but to also build new industries within its region.

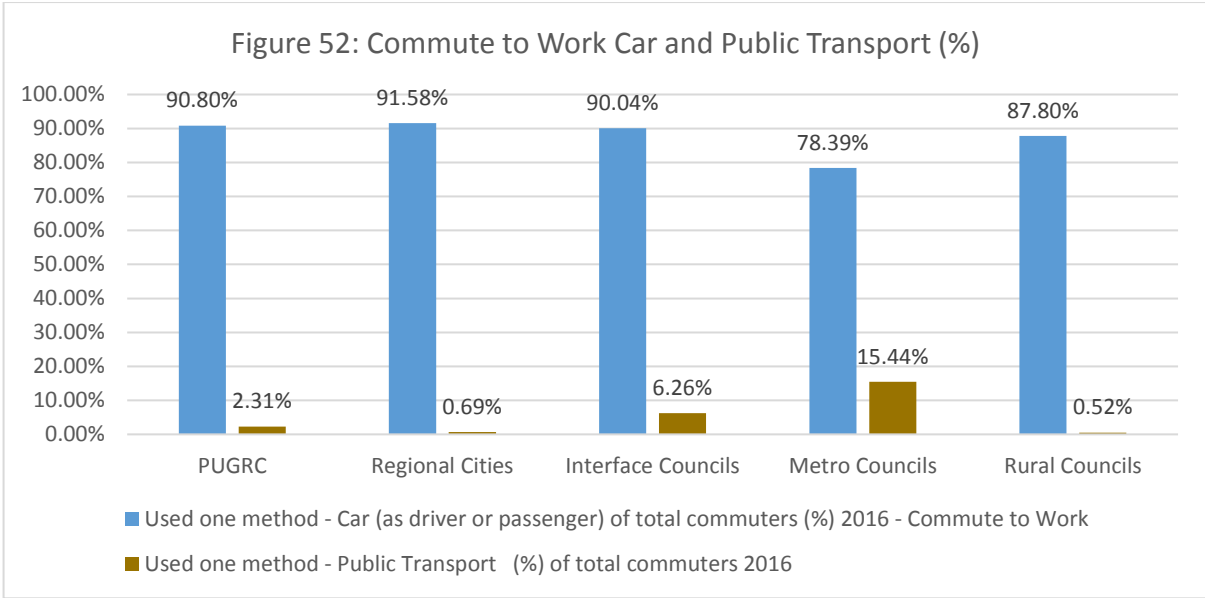
The area that the PUGRC could improve, and with the assistance of the State and Federal Government, is reducing transport emissions. Whilst, the total quantity of commuting trips is demonstrably less than any other region, there is still seventy-three thousand commuting trips occurring in the PUGRC every day (Figure 51).



Source: ABS Dataset: Regional Statistics by LGA 2017

Commuting via car is by far the dominant method of travelling to work in the PUGRC, with 90% of people using a car every workday of the week (Figure 52). This equates to sixty thousand car trips during an average week (Figure 51, above).

Only 2.31% of workers commuted to work via Public Transport in the PUGRC. This is approximately 13% less than in Metro Councils. Whilst the total number of those travelling by public transport to work in the PUGRC is small (2350 commuters in 2016), this is more a reflection of the lack of quantity and quality of public transport options in the PUGRC, rather than a preference for car travel (Figure 52).



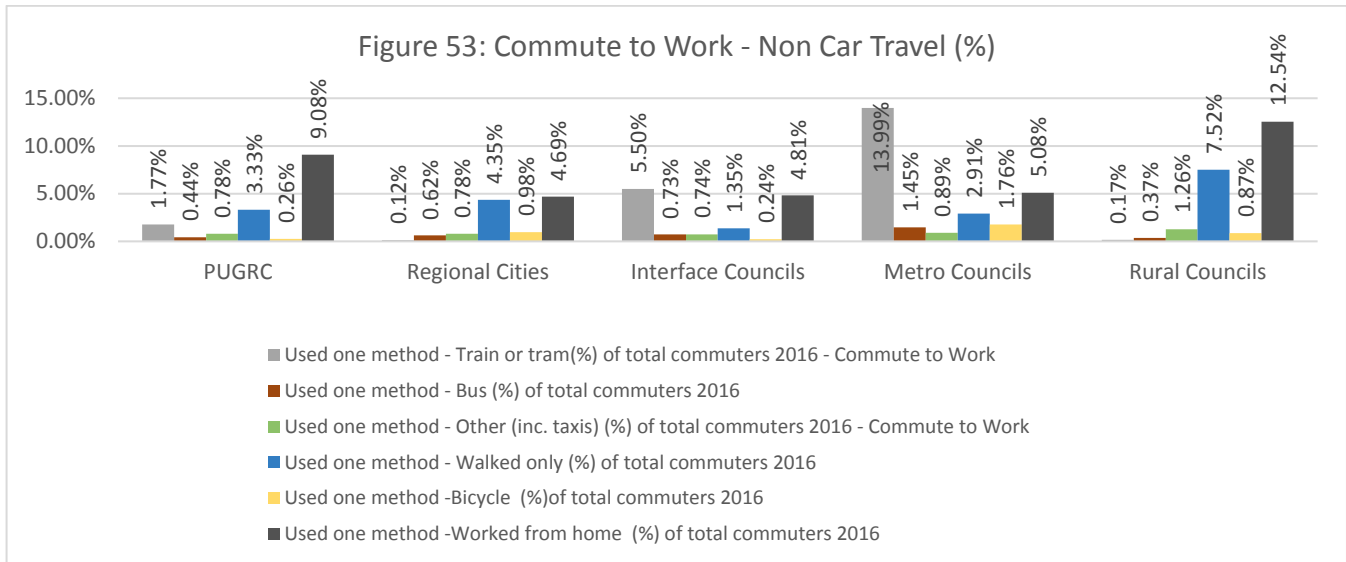
Source: ABS Dataset: Regional Statistics by LGA 2017

When we look at total non-car commuting, there are a number of standout trends. In the PUGRC working from home could be a noticeable attempt by residents to avoid commuting altogether (Figure 53). Given that this form of commuting (or not

commuting) behaviour has a high proportion of residents engaging with it, it could indicate a definite preference for this type of working arrangement.

Walking to work is the second largest preferred method of non-car commuting to work, with 3.33% of residents choosing this method of commuting in 2016 (Graph 104).

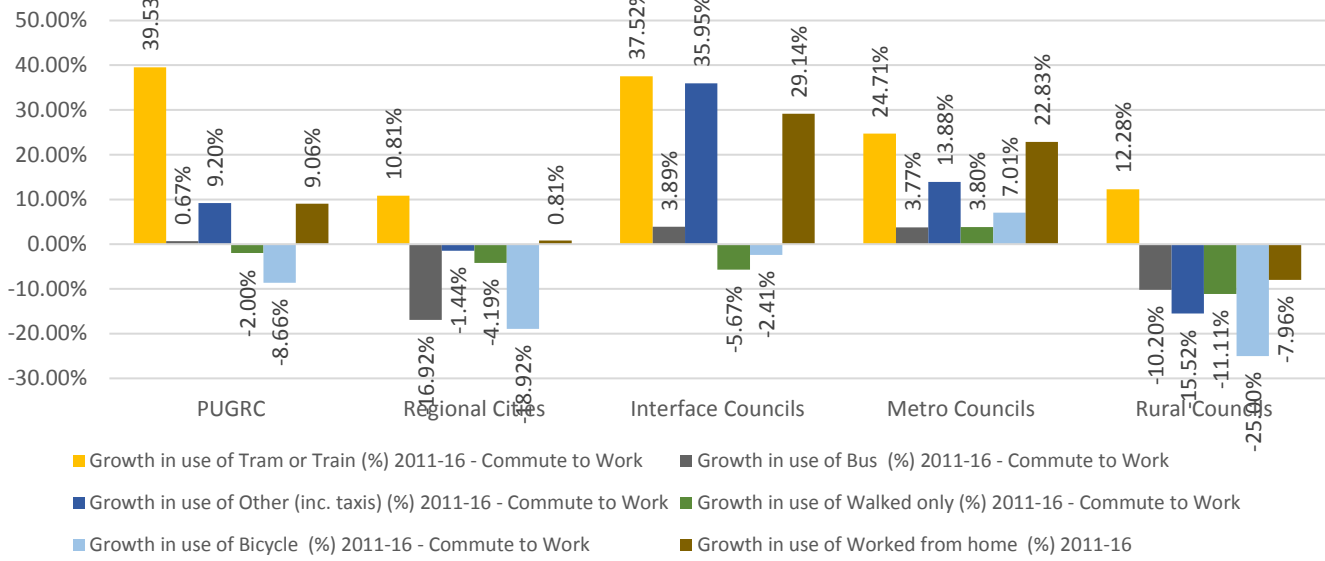
Cycling to work is one of the least used methods of commuting at 0.26% of people using bicycles to commute to work and is even less popular than travel to work by taxis 0.78% (Figure 53).



Source: ABS Dataset: Regional Statistics by LGA 2017

These trends in commuting behaviour illustrate commuters’ preferences for work travel choices to avoid greenhouse gas emissions. The largest growth area in non-car commuting behaviour between 2011-16 occurred in the use of trains and trams in the PUGRC, increasing by approximately 40% (Figure 54). This is a large proportional increase, but in total numbers it is an increase of only 387 between 2011-16. This change in behaviour could be seen as aspirational, in that if there were more train services within the PUGRC, a higher number of residents might change from car to train commuting. These low numbers could also be affected by the lack of fast rail services in the eastern side of the PUGRC. Interestingly, commute by taxis had the next highest level of growth at 9.20%, and people working from home grew by 9.06% between 2011-16 (Figure 54). Walking and cycling were two areas that suffered definite declines between 2011-16 and may be a reflection of a lack of infrastructure and other road users’ attitudes to these forms of transport.

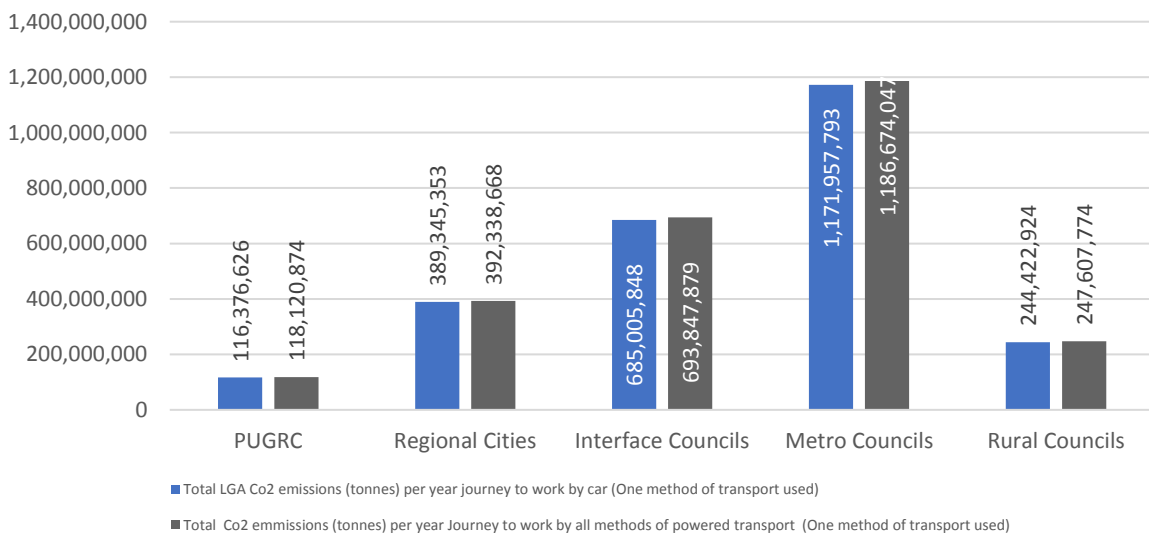
Figure 54: Commute to Work - Non Car Travel Growth 2011-16 (%)



Source: Estimate based on ABS Dataset: Regional Statistics by LGA 2017

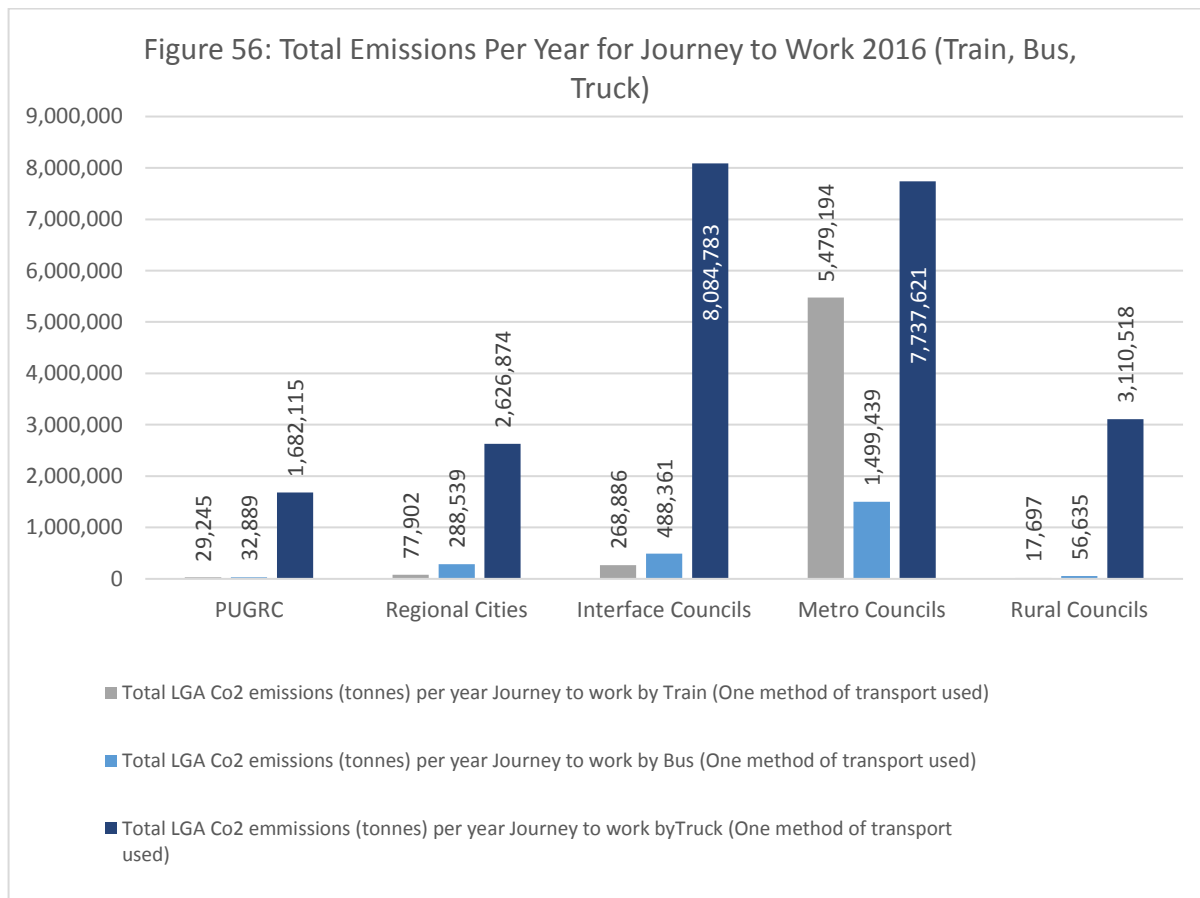
The over reliance on powered transport choices of PUGRC residents translate into 118 million tonnes of carbon emitted in the regions commute to work each year (Graph 55). 116 million tonnes of commuting carbon emissions per year come from car travel (Figure 55).

Figure 55: Total Emissions Per Year for Journey to Work 2016 (Cars & Total Emmissions)



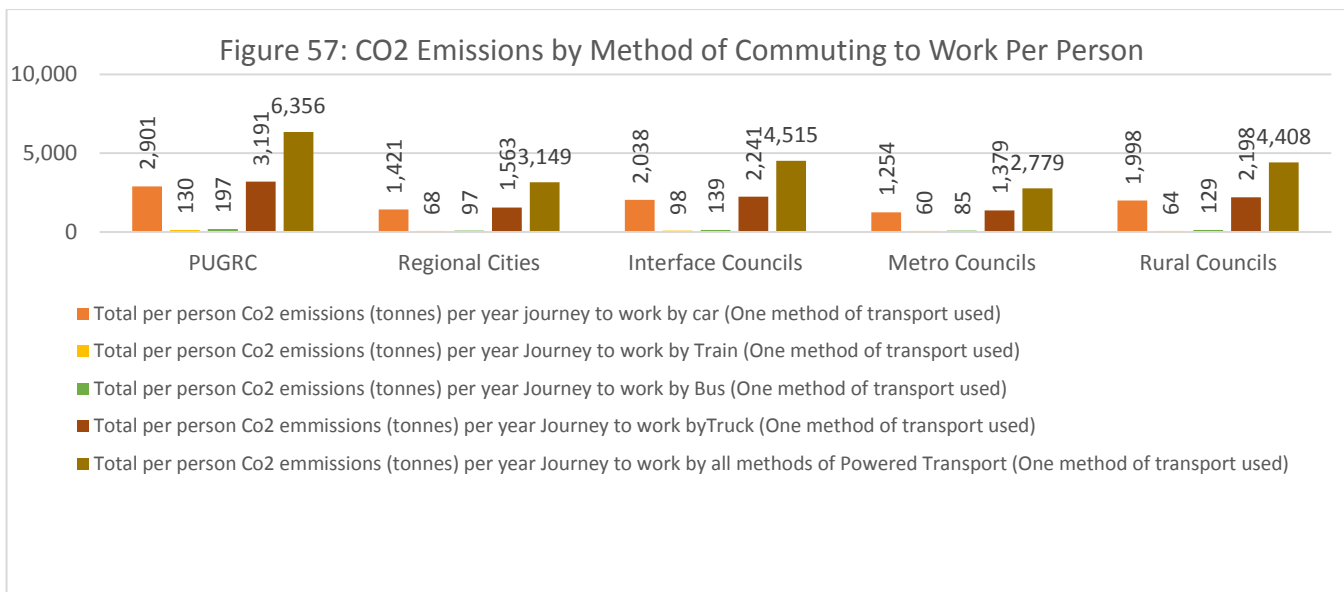
Source: Calculation using The Australian Climate Council estimates

The lowest carbon impacted powered commuting methods are traveling by bus and train (Figure 56). We see below that these two methods have far lower carbon impacts than any other powered method of transport. However, what we see in Graph 106b, is also a function of the quantity of commuters using this method, with few people using this option. The second largest CO2 emitting commuting method is commute by truck, which emits 1.6 million tonnes of carbon per year (Figure 56).



Source: Calculation using The Australian Climate Council estimates

How does this commuting behaviour translate into CO2 emission per person? Figure 57 outlines the CO2 emission for each powered method of commuting highlighted above. Commuting by car (2,901 tonnes of CO2 per person) and by truck (3,191 tonnes of CO2 per person) are the clear standouts amongst all methods of powered commuting. Commuting by bus has the second smallest emission rate, at 197 tonnes of CO2 per person per year (2016). Commuting by train produces the least amount of CO2 emissions per person per year (2016), emitting only 130 tonnes.



Source: Calculation using The Australian Climate Council estimates and Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2017 NTC

With 118 million tonnes of CO2 being emitted each year, it is clear from the data above that commuting using fossil fuel powered transport to work every day is creating a significant amount of CO2 emissions. Encouraging commuting by bicycle, walking or working from home are the ideal methods for replacing commuting by powered transport. However, as we have seen, not all powered transport is equal. Increasing the provision and access to public transport, such as trains and buses, could significantly reduce CO2 emissions for commuting in the PUGRC.

**ACTION ITEM 10: UNSDG 13: CLIMATE ACTION – THE NEED FOR LOW CARBON PUBLIC TRANSPORT SOLUTIONS**

To address these issues the PURGC proposes the following action:

Work with State and Federal Government to fund the expansion of Public Transport access for the PUGRC. This should be broken down into two parts: Part 1. Funding of a public transport feasibility study outlining how the PUGRC population centres can be linked with the wider existing public transport network. And how innovative public transport solutions can be deployed to provide a reliable, frequent and fast public transport system in PUGRC population centres. Part 2. With the assistance of both State and Federal Governments, fund the required transport infrastructure outlined in the feasibility study.

**UNSDG 13: CLIMATE ACTION – AGRICULTURE CLIMATE ACTION PLAN**

The PUGRC produces approximately \$888 million in agricultural products each year. Changes to the ability of agricultural businesses to generate a profit due to climate change impacts, could have a profound impact on not only the region, but also Melbourne’s food supply.<sup>37</sup>

The PUGRC is part of Melbourne’s food bowl.<sup>38</sup> In the report by FoodPrint Melbourne it stated:

<sup>37</sup> ROADMAP FOR A RESILIENT AND SUSTAINABLE MELBOURNE FOODBOWL, Foodprint Melbourne Report

<sup>38</sup> P.5, ROADMAP FOR A RESILIENT AND SUSTAINABLE MELBOURNE FOODBOWL, Foodprint Melbourne Report

“Melbourne is predicted to reach a population of at least 8.6 million by 2066. If the city continues to grow as it has in the past, by the time it reaches a population of 7 million, the capacity of Melbourne’s Food Bowl to meet the city’s food needs could fall from 41% to 18%.”<sup>39</sup>

The impact on Melbourne’s food supply from climate change could be dramatic, with drops in production during a 2009 heat wave in the Port Phillip region leading to a 20-25% reduction in the size of the apple crop and a 60-80% loss of the strawberry crop.<sup>40</sup>

The report goes on to say: “Estimates of the impacts of climate change on food production in Australia range from a 17% drop in overall production to a 92% reduction in irrigated production in the Murray-Darling Basin (Australia’s main food bowl) by 2100 if there is a high rate of warming and no global adaptation.”<sup>41</sup>

The IPCC report of August 2019 reinforced the potential of climate change to disrupt food production. Climate change induced temperature increase food supply disruptions will occur. At the 1°C level there will be infrequent price spikes affecting individual countries. Between a range of 1°C to 2°C degrees temperature increase, there will be period food shocks across all regions. Above a 4°C temperature increase there will be sustained food supply disruptions globally. NASA estimates that global temperatures in 2018 were 0.83°C warmer than the 1951-1980 mean.<sup>42</sup> Given that we are currently tracking for a 4°C increase in temperature, this scenario is most likely. The IPCC predicts with a high level of confidence that climate change will disrupt the stability of the food supply chain as extreme weather events impact the environment, increases in CO2 will also decrease the nutritional quality of crops. The impact of climate change will also cause a median increase in cereal prices of 7.6% by 2050, leading to an increased risk of food insecurity and hunger.<sup>43</sup>

The PUGRC grows approximately 45% of the total amount of food produced in Melbourne’s Food Bowl. This could prove highly problematic if we see similar drops in agricultural production caused by climate induced extreme heat as predicted for the Riverina region, and seen in Port Phillip region in 2009, outlined above. Also, if the dietary changes that the IPCC are proposing as a partial solution to climate change are brought into widespread practice, this could change the face of agriculture in the PUGRC in the future. The biggest potential change that will impact agriculture in the PUGRC under these influences will be the need to swap food producing land for carbon sequestration purposes.<sup>44</sup>

Agriculture could adapt to the increasingly harsh environmental and climate changes being forced on us through climate change. The FoodPrint II report outlines five key pillars to maintain a vibrant and sustainable food bowl in the Peri -Urban region, that could be designed to withstand the impacts of climate change. These include<sup>45</sup>:

---

March 2019, University of Melbourne and the Lord Mayor’s Charitable Foundation

<sup>39</sup> P.6, ROADMAP FOR A RESILIENT AND SUSTAINABLE MELBOURNE FOODBOWL, Foodprint Melbourne Report

March 2019, University of Melbourne and the Lord Mayor’s Charitable Foundation

<sup>40</sup> P.13, ROADMAP FOR A RESILIENT AND SUSTAINABLE MELBOURNE FOODBOWL, Foodprint Melbourne Report March 2019, University of Melbourne and the Lord Mayor’s Charitable Foundation

<sup>41</sup> P.14, ROADMAP FOR A RESILIENT AND SUSTAINABLE MELBOURNE FOODBOWL, Foodprint Melbourne Report March 2019, University of Melbourne and the Lord Mayor’s Charitable Foundation

<sup>42</sup> [https://climate.nasa.gov/climate\\_resources/139/graphic-global-warming-from-1880-to-2018/](https://climate.nasa.gov/climate_resources/139/graphic-global-warming-from-1880-to-2018/) (accessed 26<sup>th</sup> Aug 2019)

<sup>43</sup> P.16 IPCC SRCC IPCC (07 August 2019) Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse gas fluxes in Terrestrial Ecosystems

<sup>44</sup> P. 14 Foodprint Melbourne

<sup>45</sup> P.3 Roadmap For A Resilient And Sustainable Melbourne Foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor’s Charitable Foundation and University of Melbourne

- “Farmland protection - Farmland should be permanently protected on Melbourne’s fringe by maintaining Melbourne’s Urban Growth Boundary, mapping agricultural land and introducing a new food production ‘zone’ that strengthens farmland protection
- Farm viability - Farm viability should be promoted by investing in infrastructure that enables small-medium scale farmers to gain greater control of supply chains, ensuring that peri-urban producers are able to access relevant funding streams and applying differential government ‘farm rates’ to all actively farmed land
- Water access - Water reuse should be increased by adopting an integrated water management approach to managing water assets in farming areas, developing integrated assessment frameworks to cost delivery of recycled water and investigating options for greater reuse of storm water
- Nutrient recycling - Nutrient recycling on farm should be promoted by preventing contamination of organic waste streams, collaborating with farmers to develop ‘fit for purpose’ compost products and establishing a ... Nutrient Recycling Network
- Sustainable farming - A diverse range of sustainable farming approaches should be promoted to increase the resilience of the city’s food system, including regenerative and agroecological approaches, sustainable intensification and protected closed-loop environment agriculture.”

The PUGRC is in a water-scarce region of the country that is likely to experience more frequent and severe drought and extreme heat because of global warming. The PUGRC could increase its water efficiency significantly and divert much needed wastewater into the agricultural area for food production, if it embraced higher levels of water recycling. Only an estimated 21.16% of effluent is recycled in the PUGRC, making this resource available for potential growth industries such as future Sustainably Intensified Closed Loop Farming (SICLF) businesses. Recycling wastewater is a logical way to meet the future demands for this scarce resource and managing our water better will have a major impact in mitigating the effects of climate change.

To address these issues the PURGC proposes the following action:

---

#### ACTION ITEM 11: UNSDG 13: CLIMATE ACTION – AGRICULTURE CLIMATE ACTION PLAN

Work with State and Federal Government for a plan to address the threats from climate change to our agricultural industry so as to protect the productivity of food production in the region in the future. These will include: a) Development of food waste to fertiliser industry; b) Increase the capacity for water reuse and recycling for agricultural use. This may include a water transport network for recycled water, piping it to designated high intensity farming areas and; c) Development of a high intensity farming strategy, to increase the productivity of farming businesses within the PUGRC.

---

#### UNSDG 13: CLIMATE ACTION – MITIGATING EXTREME CLIMATE CHANGE IMPACTS AND EVENTS.

Climate change will impact on the PUGRC in a myriad of ways, such as extreme heat events that will lead to reduced rainfall and desertification, as well as extreme fire events that we have just experienced in the summer of 2019-2020. Other potential impacts include erosion of seafronts,

Heat will become a major issue within the PUGRC if current emissions continue to track close to the RCP 8.5 pathway (low CO2 mitigation). If this scenario becomes a reality, by 2100 the average temperature rise will be 4°C and above, globally. This will mean that there will be 13 days a year above 35° C for Melbourne by 2030. By 2090 this will increase to 24 days a year. Days above 40°C for Melbourne will increase from 2.4 days in 2030, to 6.8 days per year by 2090. To give a comparison, days with



temperatures over 35°C in Mildura during the same period will increase from 32 days in 2030 to 73 days by 2090 per year. Days over 40°C will increase from 10 days in 2030 to 27 days in 2090 per year.<sup>46</sup>

Whilst, we do not have figures for the PUGRC, it is clear that the number of extreme heat events will increase, and this will have an impact in the areas of agriculture, rainfall and the health of local residents. Longden (2018) has mapped the impact of heatwaves and mortality in recent heatwaves in Australia and found that both Melbourne and Adelaide are susceptible to high mortality rate in extreme heat events due to their populations not being able to acclimatise to heat. This can be seen in the numbers of heat related deaths recorded in Melbourne during the 2014 heatwave in Melbourne. Between the 14th and 17th of January 2014, every day was above 41°C. During this period 167 people died of heat stress related conditions.<sup>47</sup>

If a 4°C increase in temperature is the most likely outcome by 2100, the PUGRC needs to start preparing now for the impact of future temperature increases. This will mean heat proofing our homes, instituting extreme heat event plans with comparable and trackable metrics, and broadening PUGRCs residents' access to appropriate medical facilities to deal with the expected increase in heat related illnesses from Climate Change.

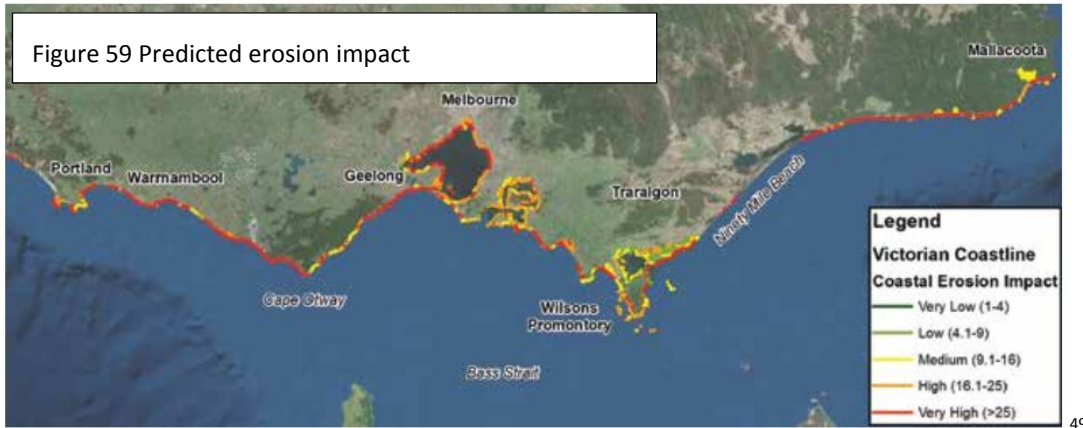
The other climate change threat to the PUGRC's future is the impact of erosion on the Victorian Coastline from sea level rises. Figures 58 and 59 below outlines those areas that are threatened by climate change induced erosion from heightened storm activity along the Victorian coastline. As can be seen in both these maps, Bass Coast and the Surf Coast are vulnerable to climate change induced erosion of their coastlines. This may have a dramatic impact on the tourist industry in both LGA's and a significant response from the State and Federal Government is needed to address this threat now to prepare for the future.



<sup>46</sup> P.354 ,Longden, T. Climatic Change (2018) October, Volume 150, Issue 3–4, pp 343–375.

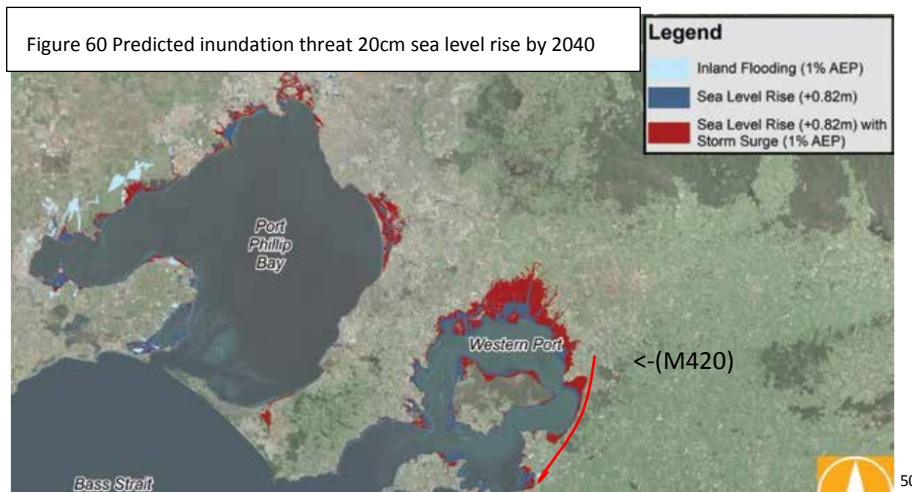
<sup>47</sup> P.354 ,Longden, T. Climatic Change (2018) October, Volume 150, Issue 3–4, pp 343–375.

<sup>48</sup> P.52, Assessment of the Values of Victoria's Marine Environment Report, (May 2019), Victorian Environmental Assessment Council



49

The other major threat from climate change is from sea level rises. In a recent report “Assessment of the Values of Victoria’s Marine Environment Report, (May 2019)”, from the Victorian Environmental Assessment Council outlines briefly the threat to the Bass Coast in Figure 60 below. As can be seen in this Figure, there are a significant number of areas on its coast that are threatened by climate change induced sea level rise. If this area were inundated it would affect Grantville and the use of the Bass Highway which is the principle roadway into Phillip Island and the most direct route between Melbourne and Wonthaggi. If this was to occur, it would significantly impact on the regions GRP, damaging or destroying properties and infrastructure along the coastline of Western Port Bay and also adding a minimum of 20 minutes travel time to the region from Melbourne if an alternate route would be needed to access the area.



50

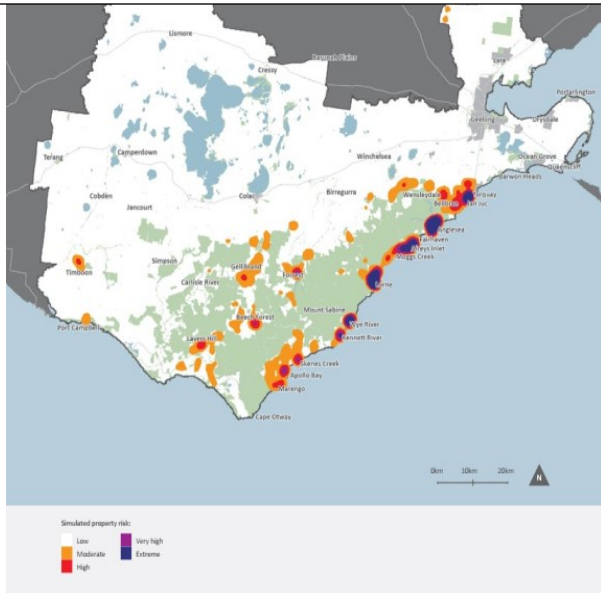
The risk from fire will only increase with rising temperatures, which for the PUGRC centres on those areas with dense vegetation. The threat and damage that extreme fire events can cause impacts on the entire region. Given the large areas covered by forests and agriculture within the PUGRC, the threat of extreme fire events poses a serious threat to some communities within the region now.

<sup>49</sup> P.52, Assessment of the Values of Victoria’s Marine Environment Report, (May 2019), Victorian Environmental Assessment Council

<sup>50</sup> P.52, Assessment of the Values of Victoria’s Marine Environment Report, (May 2019), Victorian Environmental Assessment Council

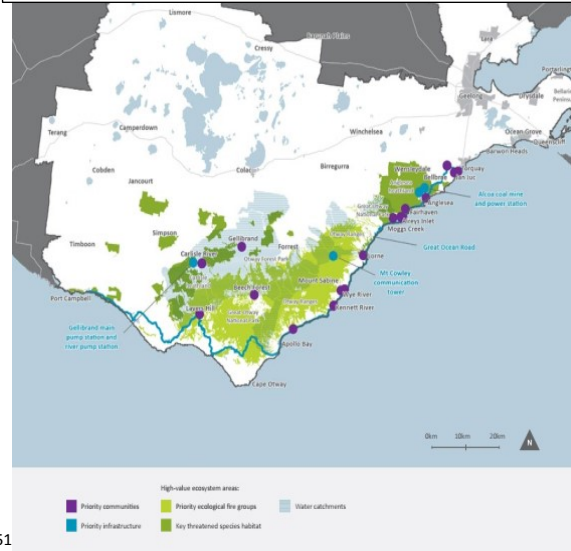
The risk from fire will only increase with rises in annual temperatures. Figures 61 to 66 outline the risks to property and ecosystems from fire threats into the future. These risks will only increase substantially if nothing is achieved globally to address the threats created by climate change.

Figure 61: Simulated property risk South West PUGRC and surrounds



51

Figure 62: Priority communities and infrastructure, and high-value ecosystem areas South West PUGRC and surrounds

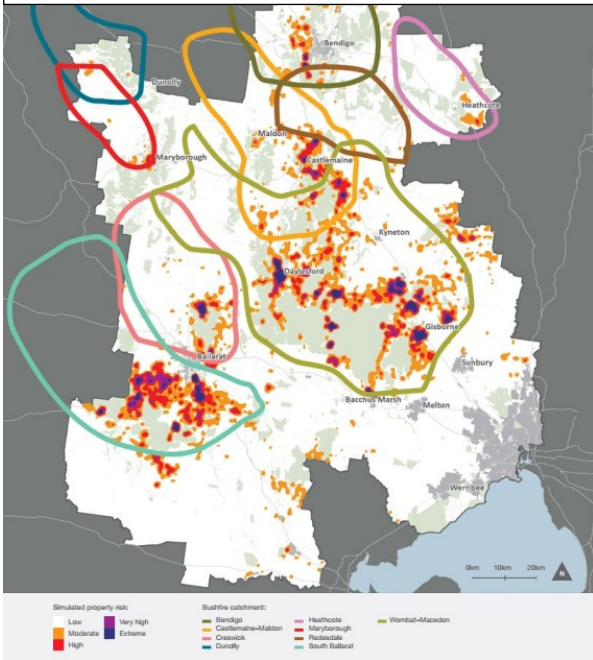


52

<sup>51</sup> P.21, Strategic bushfire management plan - Barwon Otway, Department of Environment, Land, Water and Planning (DELWP)

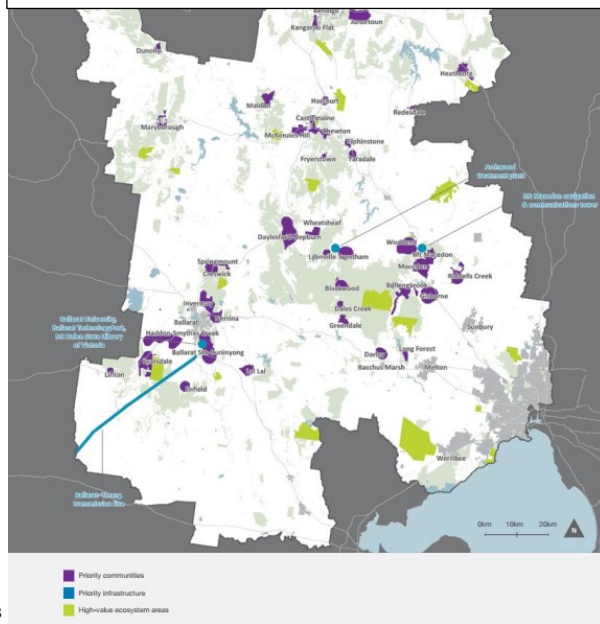
<sup>52</sup> P.15 Strategic bushfire management plan - Barwon Otway, Department of Environment, Land, Water and Planning (DELWP)

Figure 63: Simulated property risk North West PUGRC and surrounds



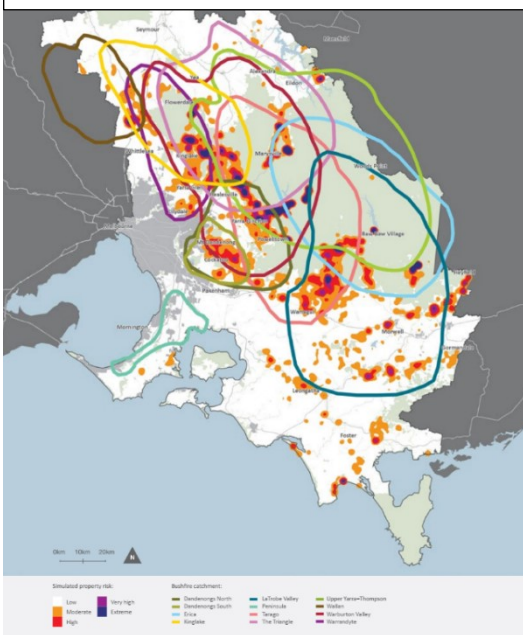
53

Figure 64: Priority communities and infrastructure, and high-value ecosystem areas North West PUGRC and surrounds



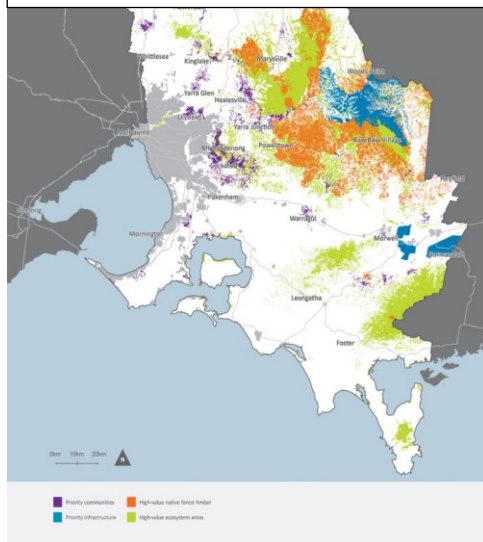
54

Figure 65: Simulated property risk South East PUGRC and surrounds



55

Figure 66: Priority communities and infrastructure, and high-value ecosystem areas South East PUGRC and surrounds



56

<sup>53</sup> P.23, Strategic bushfire management plan West Central, Department of Environment, Land, Water and Planning (DELWP)

<sup>54</sup> P.15 Strategic bushfire management plan West Central, Department of Environment, Land, Water and Planning (DELWP)

<sup>55</sup> P.20, Strategic bushfire management plan East Central, Department of Environment, Land, Water and Planning (DELWP)

<sup>56</sup> P.15 Strategic bushfire management plan East Central, Department of Environment, Land, Water and Planning (DELWP)

The risk from fire centres on those areas with dense levels of vegetation. The threat and damage that extreme fire events can cause impacts on the entire region, as seen in the recent bushfires across Australia. Given the large areas covered by forests within the PUGRC, the threat of extreme fire events will pose an existential threat to some communities and the economic activity they engage in within the region. Without realistic mitigation policies to address these threats, investment in the region could be affected by the risks that climate change presents.

Mitigation is the key to dealing with these issues and can come in many forms. Such actions could include adoption of heat proofing of our homes, expansion of our sustainable energy generation capacity, building heat resilience into our energy systems, fostering low impact high intensity agriculture that is resilient to climate change, addressing the challenges presented to our coastal communities from rising sea levels, by inundation proof road designs, the expansion of low carbon transport systems including the expansion of public transport and EV and Hydrogen car infrastructure. In this way the PUGRC will be able to build industries and businesses based on a low carbon - high productivity economy and provide new economy jobs for our region, at the same time as addressing the causes of climate change immediately.

---

#### **ACTION ITEM 12: UNSDG 13: CLIMATE ACTION – MITIGATING EXTREME CLIMATE CHANGE IMPACTS AND EVENTS.**

---

To address these issues the PURGC proposes the following action:

Work with State and Federal Government to fund the creation of a PUGRC Regional Climate Change Action Plan which will include a complete analysis of the threats that climate change poses to the PUGRC region, and propose a critical pathway to deliver substantive mitigation strategies and infrastructure to address this serious regional and global challenge.

---

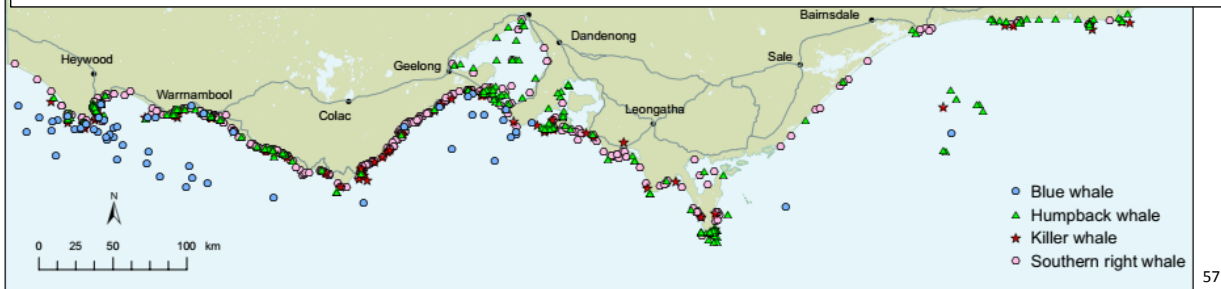
#### **UNSDG 14: LIFE BELOW WATER - DISTINCTIVE AREAS AND LANDSCAPES TO INCLUDE COASTAL WATERWAYS.**

---

Our oceans, which are complex biospheres with essential environmental systemic importance, are a huge natural resource that is integral to the vitality of our tourism industry, a major reason people migrate to the region therefore, providing the impetus for growth in the region. Less than 1% of PUGRC lands are used for water in some way. The PUGRC has two member councils who have access to coastal waterways. Surf Coast and Bass Coast rely on maintaining the quality of their coastal waterways as part of the attraction for tourists to visit their areas during the peak holiday season each year. The Surf Coasts tourism accounts for 8.40% of all jobs and represents 28.6% of its GRP. 69% of day trippers and 73% of overnight domestic visitors come to the Surf Coast to go to the beach. Whilst the Bass Coast's tourism sector employs 9.30% of all employees in the LGA and represents 31.4% of its GRP in 2017.

The PUGRC's coastal waterways are habitats for Dolphins, Little Penguins, Fur Seals and Elephant Fish, Leatherback Turtle, Blue whales, Humpback whale, Killer whales and Southern Right whales and Seal haul out sites and colonies are present in the PUGRC region (Figure 67).

Figure 67: Blue whale, humpback whale, killer whale and southern right whale sightings since 1990. Data compiled by Marine Mammal Foundation



There are a number of Marine Protected areas within the PUGRC such as the Churchill Island Marine National Park, French Island National Park adjacent, the Buroung Marine Park and the Bunrong Marine National Park, Point Addis Marine National Park, and Marine Sanctuaries at Eagle Rock, Point Danger and Barwon Bluff. Also, the Mornington Peninsular and Western Port Marine and Coastal Biosphere Reserve completely covers half the PUGRC coastal water way area.

PUGRC coastal areas have two significant Ramsar Convention Protected wetland sites. These include the Port Phillip Bay (Western Shoreline) and Bellarine Peninsular Ramsar Site and Western Port Ramsar Site. These sites are essential for protecting migrating shorebirds that travel from the Northern Hemisphere in Spring and stay until Autumn each year.

The wild caught and aquaculture industries in Victoria, operate near to PUGRC coast lines and across Victoria generated \$94 million in 2016-17. Of that production, Wild catch accounted for \$54 million and aquaculture and accounted for \$39 million, with aquaculture increasing by 43% and wild catch production falling by 6%, during the period.<sup>58</sup>

Recreational fishing in Victoria generated \$593 million in 2016-17 in Victoria, with the average Victorian recreational fisherperson expending \$1,079 per year (2016-17).<sup>59</sup>

Recreational fishing in Victoria generated \$593 million in 2016-17, with the average Victorian recreational fisherperson expending \$1,079 per year (2016-17). In 2013-14 838,119 Victorian residents participated in recreational fishing, the second largest number of recreational fishers in Australia.<sup>60</sup>

Boating is a popular activity with 197,000 registered vessels and boat 417,000 licence holders in Victoria.<sup>61</sup> There are also 256,000 licence endorsements for personal watercraft or jet skis in Victoria. Significant numbers of people use towed watercraft, and need boat launching sites to engage in the sport. Figure 68 illustrates the numbers of boat ramps in the PUGRC, with significant numbers of this infrastructure existing in the two PUBRC LGA's demonstrating how important this activity is to the local recreational economy.

<sup>57</sup> P.79, Assessment of the Values of Victoria's Marine Environment Report (MAY 2019), Victorian Environmental Assessment Council

<sup>58</sup> P.31, Australian fisheries and aquaculture statistics 2017, Department of Agriculture and Water Resources

<sup>59</sup> P.31, Australian fisheries and aquaculture statistics 2017, Department of Agriculture and Water Resources

<sup>60</sup> P.31, Australian fisheries and aquaculture statistics 2017, Department of Agriculture and Water Resources Research by the Australian Bureau of Agricultural and Resource Economics and Sciences, DECEMBER 2018

<sup>61</sup> <https://transport.vic.gov.au/fishing-and-boating> (accessed 7th Aug 2019)

Figure 68: Boat launching sites along the Victorian coast



62

Commercial and recreational fishing as well as boating in its many forms are three significant activities of the Surf Coast and Bass Coast economies and must be protected to ensure the vibrancy of the economy in these areas. This vibrant coastal based economy can only continue to thrive if the environment in which these activities occur is protected from other commercial activities.

One of the main risks to the PUGRC coastal waterway derived economy is energy extraction activities. Currently, there are oil and gas fields being exploited in Gippsland and Otway Basins near the PUGRC.

In May 2018, the Andrew's Government announced that it would allow exploration oil and gas exploration in the coastal areas of the western part of the state. These new exploration fields are close to the PUGRC coastline and could present a danger to existing tourism and recreational facilities if there was an accident.<sup>63</sup>

Future undersea fracking could become a risk to the PUGRC Coastline if this practice is again allowed within Victoria. Carbon capture and storage (CCS) is also being explored in the coastal region off the coast of Gippsland, and could pose a threat to the PUGRC coastline in the future.

These areas must be protected and managed appropriately to ensure the economic sustainability of tourism and related industries in these coastal LGA's. As we will see below, Distinctive Areas and Landscapes legislation has been introduced in Victoria to protect areas with unique characteristics on land. This type of legislation could be extended to protect our coastal waterways, in a similar way.

To address these issues the PURGC proposes the following action:

**ACTION ITEM 13: UNSDG 14: LIFE BELOW WATER - DISTINCTIVE AREAS AND LANDSCAPES TO INCLUDE COASTAL WATERWAYS.**

Work with the State Government to extend the protection of the Distinctive Areas and Landscapes to include coastal water ways.

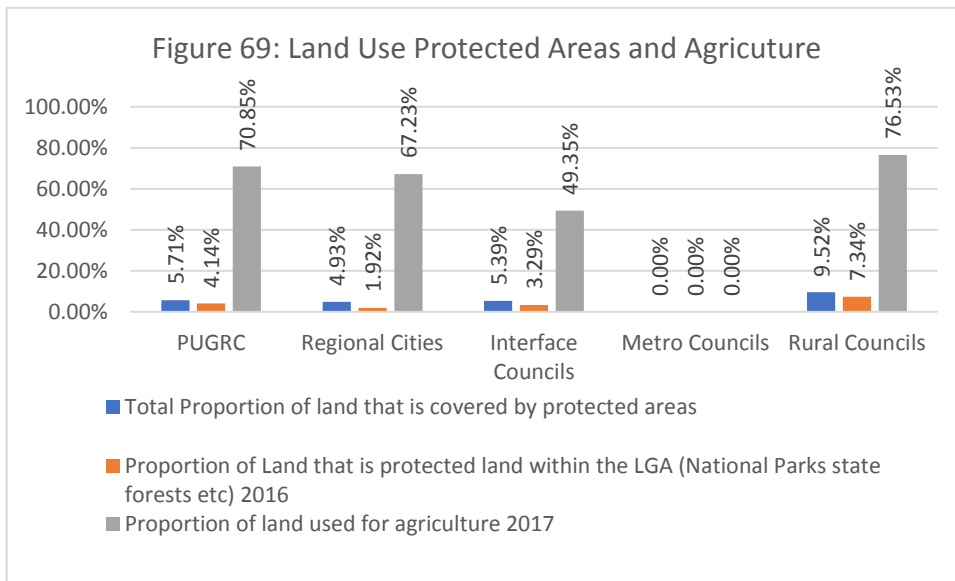
<sup>62</sup> P.145, Assessment of the Values of Victoria's Marine Environment Report (MAY 2019), Victorian Environmental Assessment Council

<sup>63</sup> <https://www.premier.vic.gov.au/offshore-gas-exploration-to-build-future-supply/> accessed 3/05/2020

UNSDG 15: LIFE ON LAND - DISTINCTIVE AREAS AND LANDSCAPES – DISTINCTIVE AREAS AND LANDSCAPE EXPANSION.

Forests are an integral part of our natural environment, are key to combating climate change and protecting biodiversity. In their managed state they are also significant wood and fibre resources for industry, and attract significant visitation to the region for recreational use. By protecting state forests and national parks, we will also be able to strengthen natural resource management and increase land productivity through the protection of pollinators that are critical for agriculture.<sup>64</sup>

The PUGRC currently has approximately 6% of its land protected, of which 4% are National Parks or State Forests. 70% of land in the PUGRC is used for agricultural purposes. This is one of the highest proportions of land protection within any region in the State, with only Rural Councils having a higher proportion of protected areas at 9.5% and agricultural land taking up 76.5% of all land in that region. Interface Councils have a similar level of protected areas to the PUGRC, at 5.4%, but have much less land dedicated to agriculture with only 50% of land used for this purpose (Figure 69).

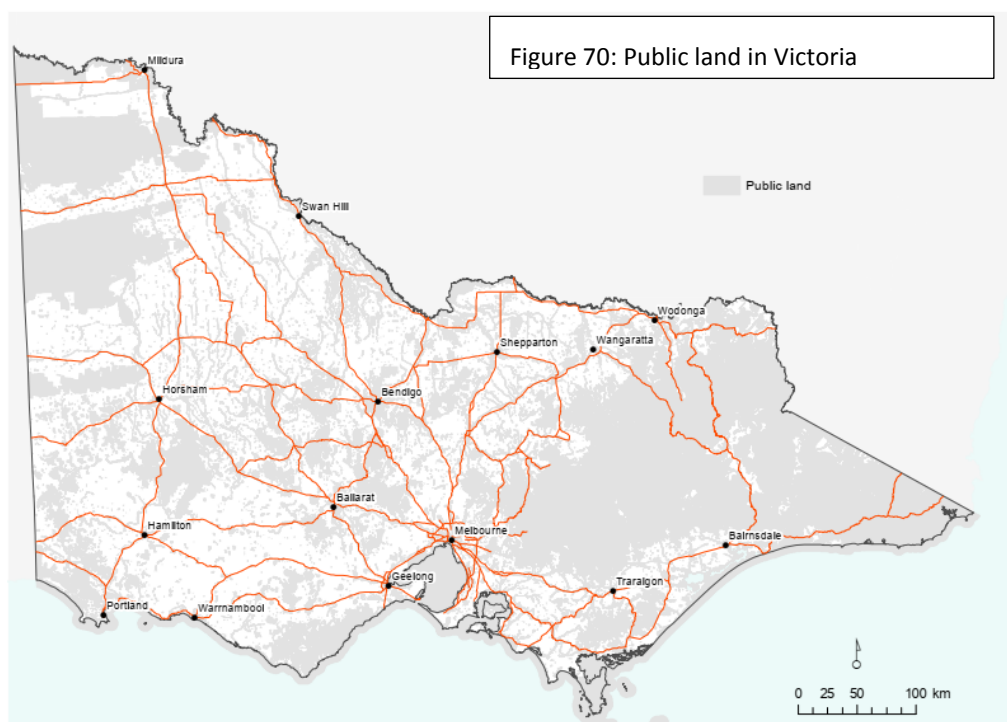


Source: ABS; DATA BY REGION, 2011-16; FAMILY AND COMMUNITY, LAND AND ENVIRONMENT, Local Government Area, 2011-2016, Primary Production RDV calculated using ABS Cat 1270.0.55.003, July 2017 and data from AURIN

Whilst national Parks and State Forests (and other protected areas) make up a small total area of the PUGRC, Public land or that is owned by the state is significant across Victoria and the PUGRC as can be seen in Figure 70.

<sup>64</sup> <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>





\*includes Trust for Nature freehold land (e.g. Neds Corner Station) and licensed HVP Plantations land

65

Being a key part of our natural environment, forests and national parks are essential in being able to combat climate change and protect our regions biodiversity.

The Victorian Environmental Assessment Council has written three reports on the state of the biodiversity, range and age of forests and the impact of invasive species in these areas. Unfortunately, this analysis does not cover the entire State, so what is presented below is a fractured view of the state of life on land within the PUGRC.

There are many National Parks and State Forests in the PUGRC, and these areas are also important water catchment and supply areas and refuges for threatened species. In the Port Phillip and Western Port region, there are 1860 species of native flora and 600 species of native vertebrate fauna. Of this approximately 19% of the flora and 30% of the fauna in the region has been listed as threatened, with only 40% of pre-European vegetation remaining in the region.

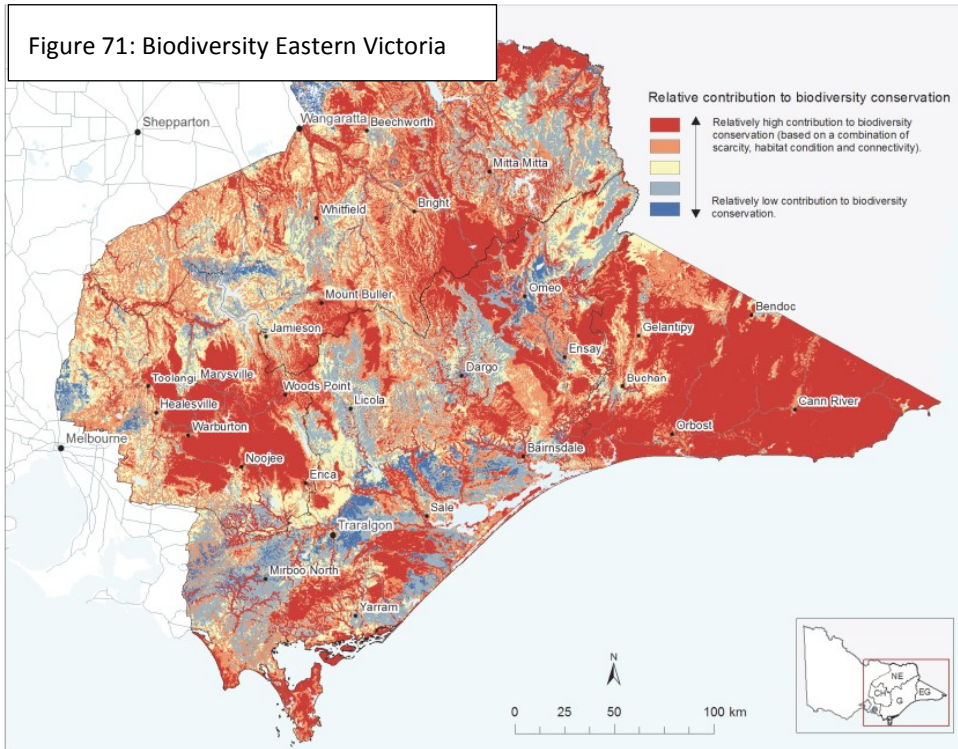
The PUGRC region provides shelter for indigenous and European and honeybees, the Baw Baw Frog *Philoria frosti*, Leadbeater's Possum *Gymnobelidus leadbeateri*, Smoky Mouse *Pseudomys fumeus*, Greater Glider *Petauroides Volans*, Yellow-bellied Glider *Petaurus australis*, Powerful Owl *Ninox strenua*, Sooty Owl *Tyto tenebricosa*, Masked Owl *Tyto novaehollandiae*, a new species of galaxias *Galaxias* sp. 8 (Stoney) and *Galaxias* sp. 9 (Rintoul).<sup>66</sup>

The PUGRC hosts and borders on some of the richest areas of biodiversity and the home to the largest area of old growth forests in the State. This area is threatened by a number of human and natural processes which need to be mitigated. Figure 71 illustrates the depth and breadth of the biodiversity adjacent to the Eastern part of the PUGRC.

<sup>65</sup> P.2. Statewide Assessment of Public Land Final Report May 2017 The Victorian Environmental Assessment Council

<sup>66</sup> Statewide Assessment of Public Land Final Report May 2017 The Victorian Environmental Assessment Council

Figure 71: Biodiversity Eastern Victoria



67

Our natural environment, forests and national parks provide human society with a number of benefits such as soaking up CO<sub>2</sub>, providing refuge for native flora and fauna, providing places for our residents and visitors to relax and recreate, and draw tourists region in ever increasing numbers to the region as part of the tourism industry. The uniqueness of the natural environment on land is a key characteristic of the amenity we discussed earlier that draws many new migrants and visitors to the region. In many ways native forests in the PUGRC give our region its distinctive character. Protecting these natural assets is key to ensuring we protect the distinctive natural environment of our region, and the environmental as well as the economic benefits that they provide to our community. The Distinctive Area and Landscapes legislation, which has been applied to part of the PUGRC could be extended to include other distinctive areas in the PUGRC region and help protect these valuable areas for the future.

To address these issues the PURGC proposes the following action:

**ACTION ITEM 14: UNSDG 15: LIFE ON LAND - DISTINCTIVE AREAS AND LANDSCAPES EXPANSION**

Work with the State Government to extend the protection of the Distinctive Areas and Landscapes to include additional areas within the PUGRC.



ENABLING INFRASTRUCTURE

Enabling infrastructure is that type of physical basic infrastructure that is required to support a developing and modern regional economy. The Infrastructure Pillar of the SEED concerns itself with UNSDG 6, Clean Water and Sanitation, UNSDSG 7 Affordable and Clean Energy, UNSDG 9 Industry Innovation and Infrastructure, UNSDG 11 Sustainable Cities and Communities and UNSDG 12 Responsible Consumption and Production.

The types of engaging infrastructure include, but not limited to the following:

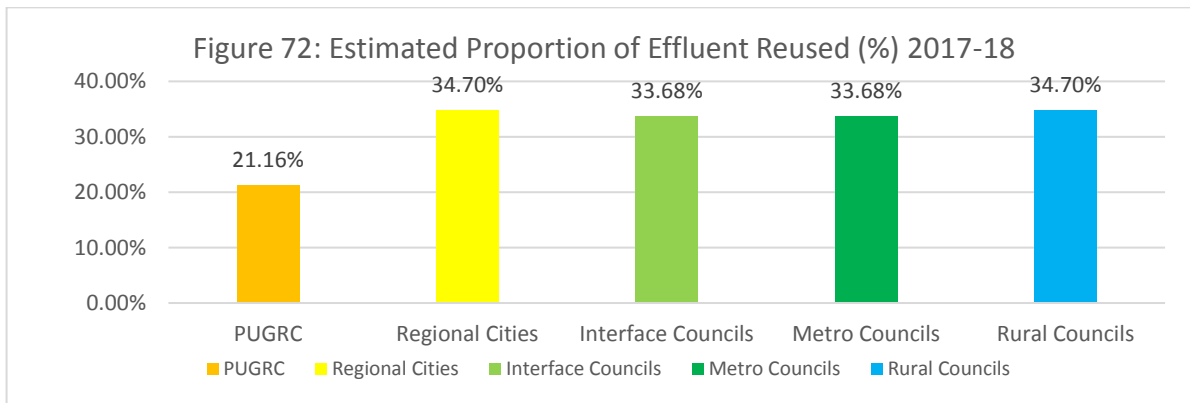
- Roads/Bridges
- Public Transport – Rail, Bus,
- Internet Connectivity
- Mobile Coverage
- Water and Sewerage
- Cheap Sustainable Energy

Enabling Infrastructure has two roles, to provide basic services to engage in the economy and provide access to local, national and global markets. This infrastructure forms the basic physical structure for any local economy to operate efficiently and directly impacts on the economic vitality of a region.

In the discussion below we will outline the issues raised by the analysis of the UNSDG’s and present a series of actions and projects that will form the basis of the various elements of the Sustainable Equitable Economic Development Model for the PUGRC. We start with UNSDG 6, Clean Water and Sanitation.

UNSDG 6: CLEAN WATER AND SANITATION - WATER RECYCLING FACILITIES.

The reuse of wastewater in the region, is a significant resource for agricultural activities and supporting secondary industrial processes. In a carbon and climate changed future, with a warming and drier planet, water reuse is becoming a more significant issue with the passing of every hotter summer. Water effluent reuse is an area where the PUGRC could improve, with only 21.16% of effluent being reused for commercial purposes, the production of recycled water could increase dramatically and be used to supply an intensive sustainable agricultural sector amongst other parts of industry (Figure 72).



Source: Estimation using the Essential Services Commission 2017-18 Water Performance Report [www.esc.vic.gov.au/water/water-sector-performance-and-reporting/water-performance-reports](http://www.esc.vic.gov.au/water/water-sector-performance-and-reporting/water-performance-reports)

As stated in UNSDG 2 Zero Hunger, FoodPrint II highlighted that water recycling (repurposing effluent for agricultural use) is a key strategy for future proofing the region against the threats posed by climate change. As the PUGRC is situated in a water-scarce region of the country that is likely to experience more frequent and more severe periods of drought and extreme heat as a result of global warming, recycling waste water is a logical way to meet the future demands for this scarce resource. As stated in Figure 72, only an estimated 21.16% of effluent is recycled in the PUGRC. Making this resource available for potential growth industries such as Sustainably Intensified Closed Loop Farming (SICLF) businesses.

To address these issues the PURGC proposes the following action:

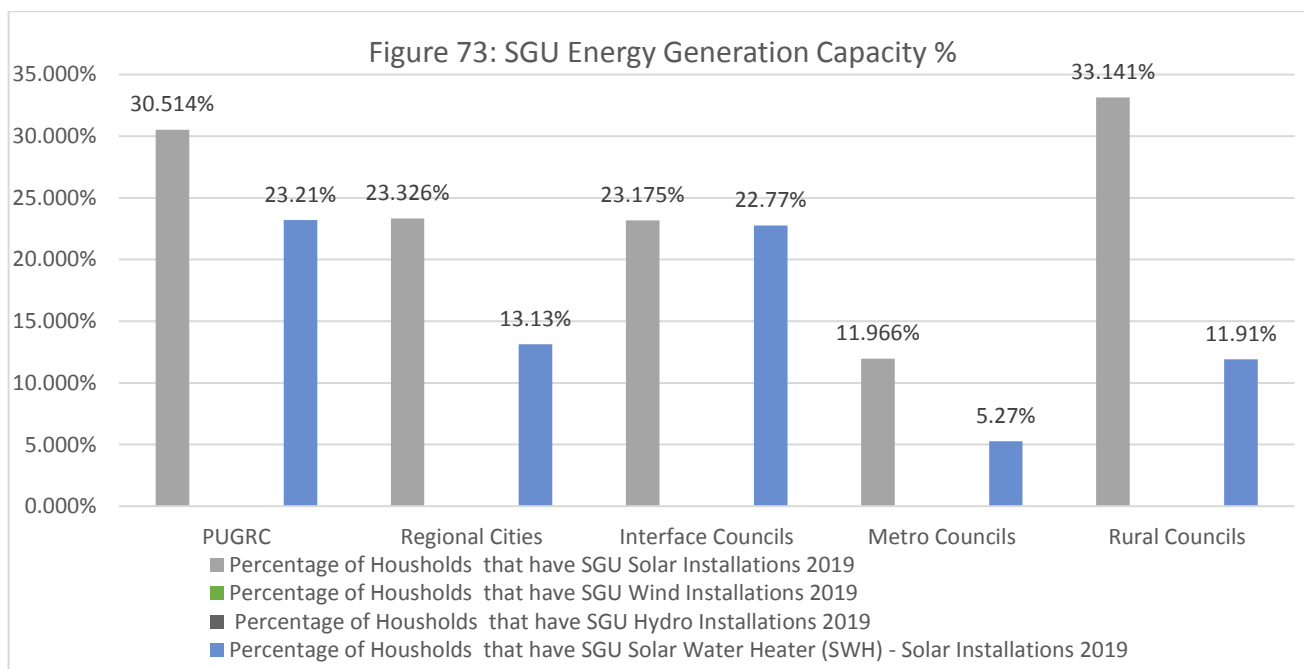
**ACTION ITEM 15: UNSDG 6: CLEAN WATER AND SANITATION – WATER RECYCLING FACILITIES.**

Work with State and Federal Government to fund the building of water recycling facilities in the PUGRC with the purpose of providing cheap, available water to the agricultural (and other business sectors) industry to assist in developing a Sustainable Intensive farming sector.

**UNSDG 7: AFFORDABLE AND CLEAN ENERGY - COMMUNITY ENERGY GENERATION.**

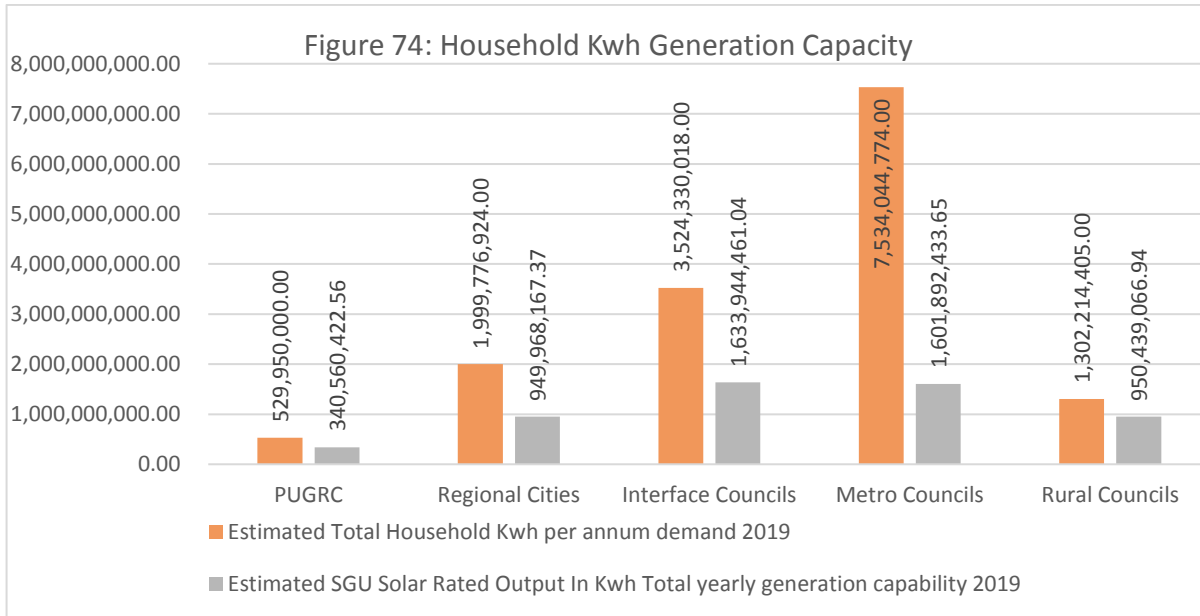
UNSDG 7: Affordable and clean energy, analyses the availability of renewable energy generation within a jurisdiction. The level of renewables within a community not only affects the cost of living for community members, which allows for household energy savings to be redirected to other expenditure within the local economy. It also allows for the development of service industries for the installation and maintenance of renewable energy generation systems present within the community. This new economic activity allows for workers in the old economy to transition to the new sustainable economy. It is important to foster this part of the economy as it leads to not only lower energy costs, but also to added discretionary spending, and job generation. Therefore, the higher the level of household energy generation capacity, the wider the economic effects are felt.

We start our analysis by looking at Small Generation Unit (SGU) capability for energy generation in the PUGRC, which is large. 30% of all households have solar energy generation capability and 23% having solar water heating capability. These combined totals are the largest percentages solar energy installations in any region in Victoria (Figure 73).



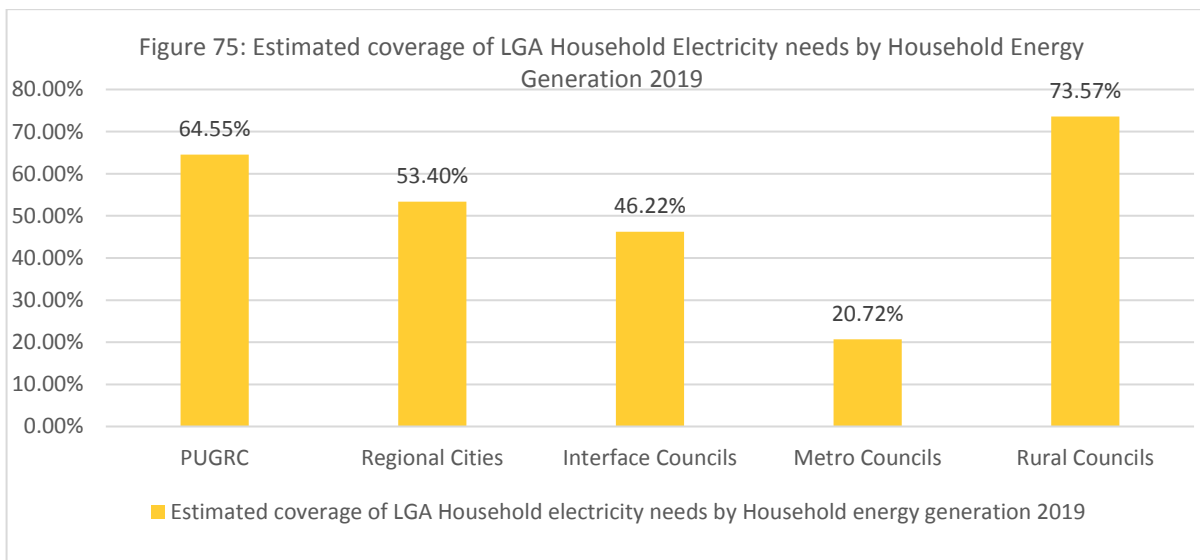
Source: The AER (Australian Energy Regulator) report Electricity and gas bill benchmarks for residential customers 2017 <https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/electricity-and-gas-bill-benchmarks-for-residential-customers-2017>

If we look at total Kwh demand and generation capability in the PUGRC, our demand is the smallest in Kwh terms at over 520 million Kwh and so is our household energy generation capability at 340 million Kwh (Figure 74).



Source: The AER (Australian Energy Regulator) report Electricity and gas bill benchmarks for residential customers 2017 <https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/electricity-and-gas-bill-benchmarks-for-residential-customers-2017>

However, if we look at how much the PUGRC household energy demands is met with its own household energy generation, we see that household SGU output meets 64% of our household needs (Figure 75).



Source: The AER (Australian Energy Regulator) report Electricity and gas bill benchmarks for residential customers 2017 <https://www.aer.gov.au/retail-markets/retail-guidelines-reviews/electricity-and-gas-bill-benchmarks-for-residential-customers-2017>

With 64% of household energy demand being met by household SGU energy generation, the PUGRC is well placed to claim the title of one of the most sustainable energy regions in Victoria. Only Rural Council areas have a higher level of household SGU energy generation meeting household energy demand.

The PUGRC is well advanced in investing in sustainable energy generation for household use. This activity will significantly reduce the need to produce electricity with fossil fuels into the future which will assist in reducing our CO2 footprint. 30% of all PUGRC households have solar energy generation capability and 23% have solar water heating capability. These combined are the largest percentages solar energy installations in any region in Victoria. If we look at total Kwh demand and generation capability in the PUGRC, our demand is over 520 million Kwh and our household energy generation capability is 340 million Kwh. The PUGRC household energy generation meets 64% of household needs. There is room here to develop community sustainable energy generation to meet the remaining 36% of household demand, which equates to 189,389 Mwh of unmet domestically generated household demand. This demand could be met with further development of SGU household generation or community SGU energy generation initiatives. Whilst this is not large in commercial terms, it would be significant for community energy operators to meet this need and help the region become electrical energy self-sufficient.

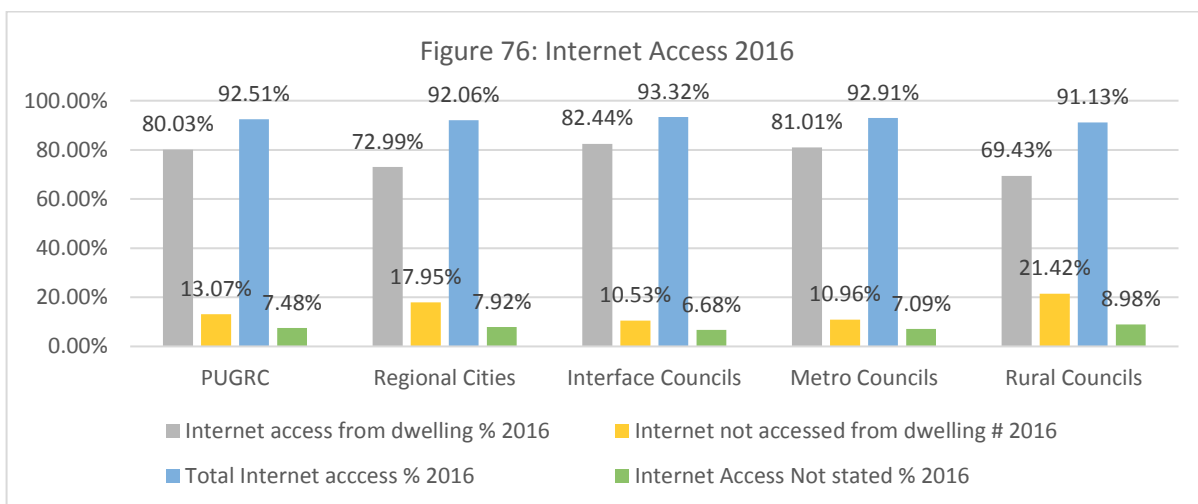
To address these issues the PURGC proposes the following action:

**ACTION ITEM 16: UNSDG 7: AFFORDABLE AND CLEAN ENERGY - COMMUNITY ENERGY GENERATION.**

Work with State Government to partner with the PUGRC to assist with the setting up of community energy generation projects, to make the PUGRC a sustainable energy region. This includes the introduction of a Battery base load project to safeguard electricity supply during peak load periods.

**UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE – INTERNET CONNECTIVITY.**

In a modern networked economy, one of the most important enabling infrastructure technologies is internet connectivity. By being able to connect to the internet enables a resident to connect to the economy. Without this access, residents can only connect with the economy by interacting with shops and service providers through voice dominated telecommunication or physically, by visiting the business providing the good or service. In the PUGRC, just under 20% of residents do not have an internet connection at their dwelling. A further 13% only have access to the internet at their place of work. In total, 92.5% of PUGRC residents have access to the Internet through all means (Figure 76).



Source: Census 2016, Dwelling Internet Connection by Dwelling Structure LGA)  
[http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS\\_C16\\_T24\\_LGA](http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_C16_T24_LGA)

To address these issues the PURGC proposes the following action:

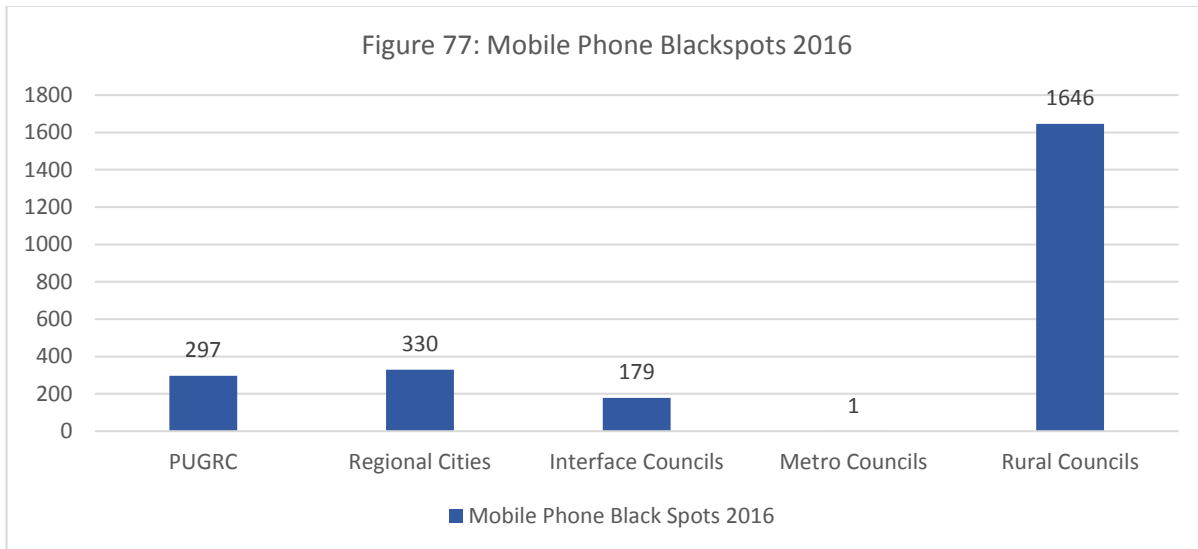
**ACTION ITEM 17: UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE – INTERNET CONNECTIVITY**

Work with the Federal Government to ensure the PUGRC has the same level of Internet connectivity as the metropolitan centres.

**UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE – MOBILE BLACKSPOTS.**

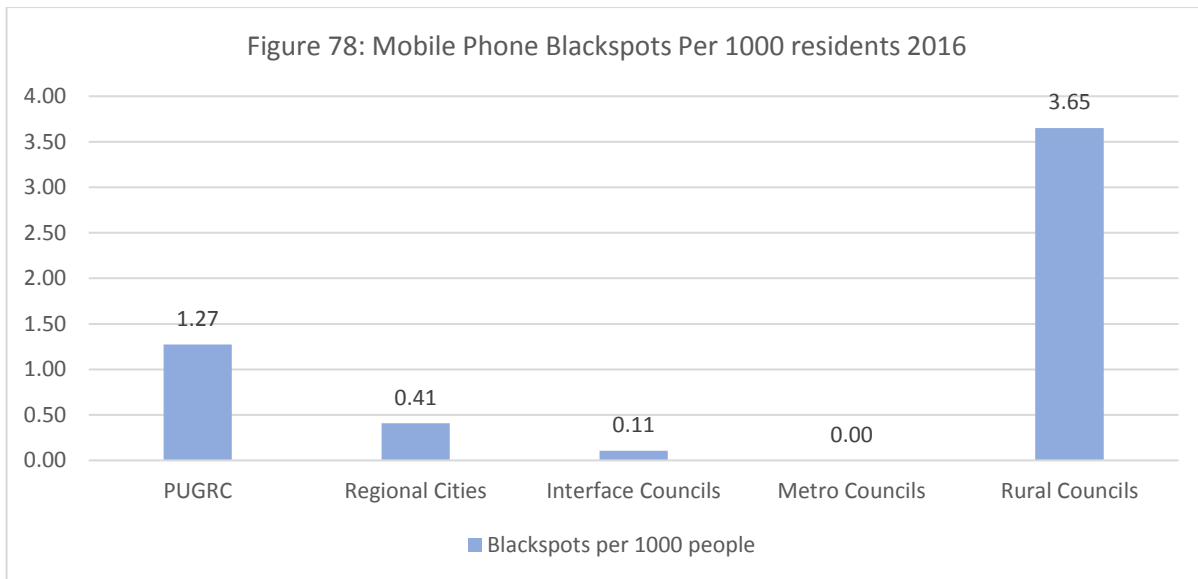
Mobile communications are used not only as a primary means of connecting to work, family, and suppliers, it is also a gateway for technology essential for conducting business in a networked economy. Mobile access allows for EFTPOS facilities to be used in business, tracking and monitoring technology to send data from transport and courier service providers, and for agricultural businesses to monitor and manage stock and environmental conditions. In the future the Mobile network will be used to link autonomous transport drones to their delivery systems, guiding them to customers and back to base. The Internet of Things (IoT) will be one of the many innovations of the new economy, which will be particularly important in automating many practices within Agriculture. Not being able to be connected will be akin to being relegated to a disadvantaged region. Residents and businesses must be able to connect to the internet at any time, that means always having Mobile coverage.

The PUGRC suffers from approximately 297 Mobile Phone black spots. Whilst this is comparable to that suffered by Regional Cities and better than that experienced by Rural Councils, it is a high level of disconnection that will have an impact on the region’s potential for economic growth (Figure 77).



Source: Department of Communications and the Arts Database of mobile black spot data base of reported blackspot locations 25february2016 XLSX

For every thousand residents in the PUGRC, there is 1.27 Mobile blackspots. Compare this level of coverage with just about every other region analysed, and the PUGRC is significantly worse off than any other region except for Rural Councils. Given that the PUGRC is less than half the population of Rural Councils, the PUGRC carries a telecommunications disadvantage not commensurate with its size (Figure 78).



Source: Department of Communications and the Arts Database of mobile black spot data base of reported blackspot locations 25february2016 XLSX

To address these issues the PURGC proposes the following action:

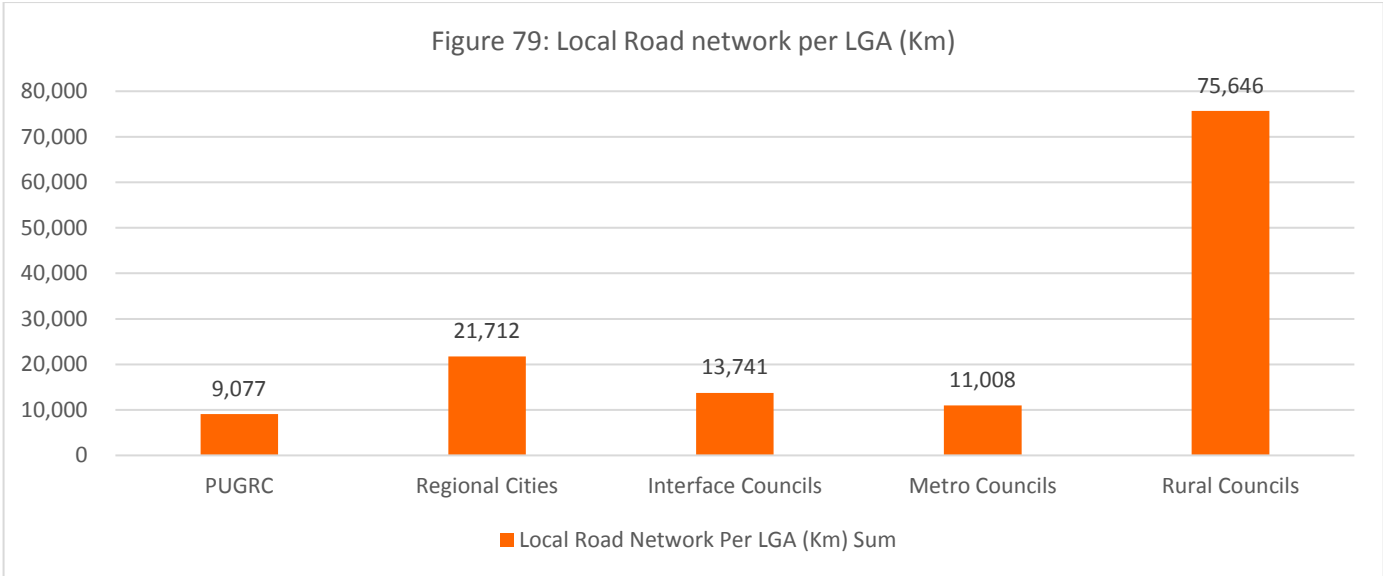
**ACTION ITEM 18: UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE – MOBILE BLACKSPOTS**

Work with the State and Federal Government to address the unacceptable level of mobile coverage and connectivity in the PUGRC, and reduce the numbers of blackspots to zero.

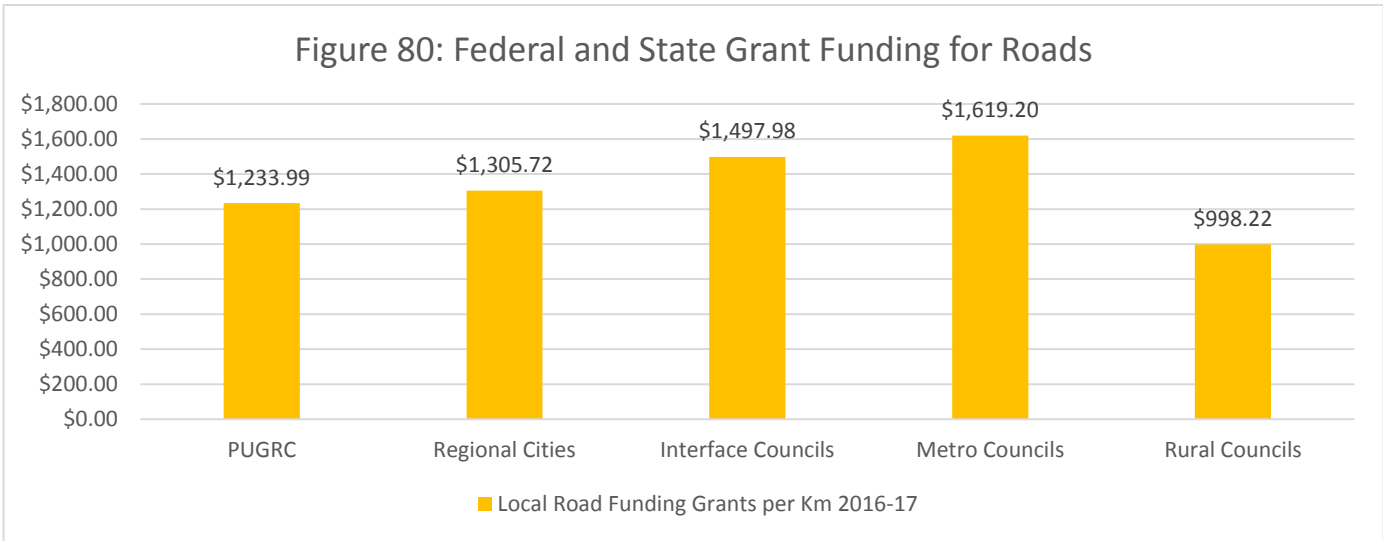
**UNSDG 9: INDUSTRY, INNOVATION, AND INFRASTRUCTURE – ROAD INFRASTRUCTURE FUNDING.**

Transport infrastructure is another economically enabling technology. There are two mass transport technologies in use in the PUGRC, roads and rail. Rail is a State and Federally funded system and we will speak briefly about this at the end of this section. Roads are funded at the LGA, State and Federal levels. The PUGRC has over 9000km of roads, approximately 2000km less than Metro Councils and approximately 5000km less than Interface Councils (Figure 79).





Whilst the PUGRC has the second highest per person funding for roads, it has the second lowest funding for local road funding per km, at \$1,233 per km compared with Metro Council road funding at \$1,619 per km and Interface Council Road funding at \$1497 per km (Figure 80).



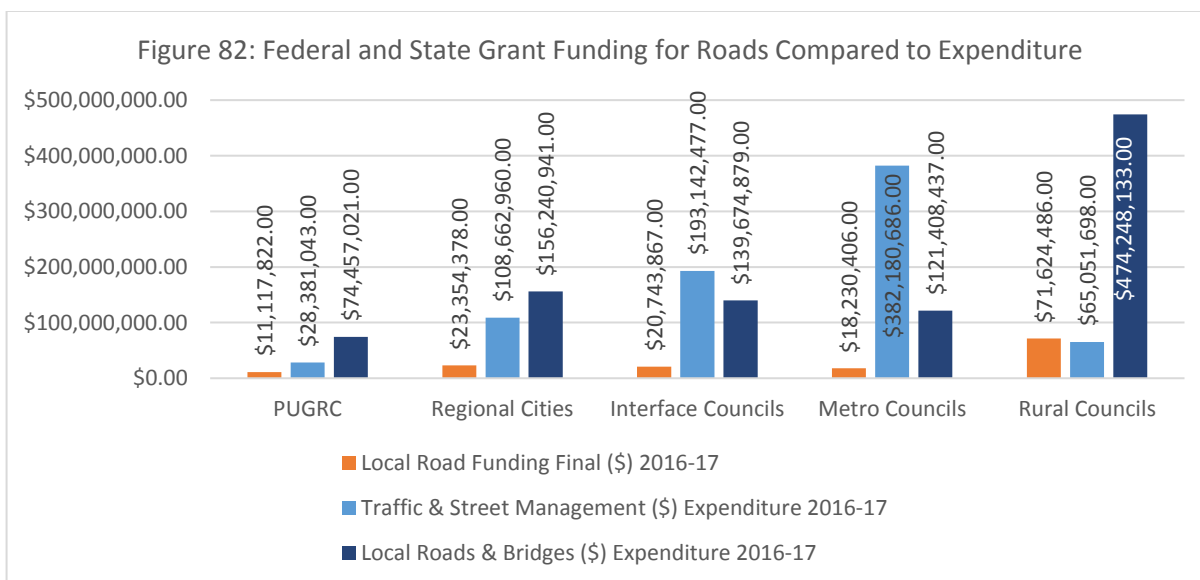
Source: Victoria Grants Commission - Annual Report 2016-17

That’s a \$400 difference in funding for roads between what is enjoyed in Metro Councils compared with the experience in the PUGRC.

The median budget for a PUGRC Council is \$31 million and the median budget for an Interface Council is \$93 million and Metro Councils \$114 million (Figure 81). The amounts given to Interface and Metro Councils for local road funding grants seems out of proportion to the ability of Interface and Metro Councils to fund this infrastructure themselves compared to the demand on PUGRC finances to fund the upkeep of a 9000Km local road network.

Figure 81: Median VGA Assessed 4 Year Average Standardised Rate Revenue <sup>68</sup>	Median 4 Year Average Standardised Rate Revenue per Council
PUGRC	\$31,083,642.50
Regional Cities	\$25,731,060.00 <sup>69</sup>
Interface Councils	\$93,120,805.50
Metro Councils	\$119,103,866.50
Rural Councils	\$8,450,968.00

State and Federal Road funding for the PUGRC is the lowest of all regions coming in at \$11 million for 9000 km of roads, compared to Metro Councils which receive \$18 million for 11,000Km of roads and Interface Councils which receive approximately \$21 million for 14,000Km of roads (Figure 82).



Source: Victoria Grants Commission - Annual Report 2016-17

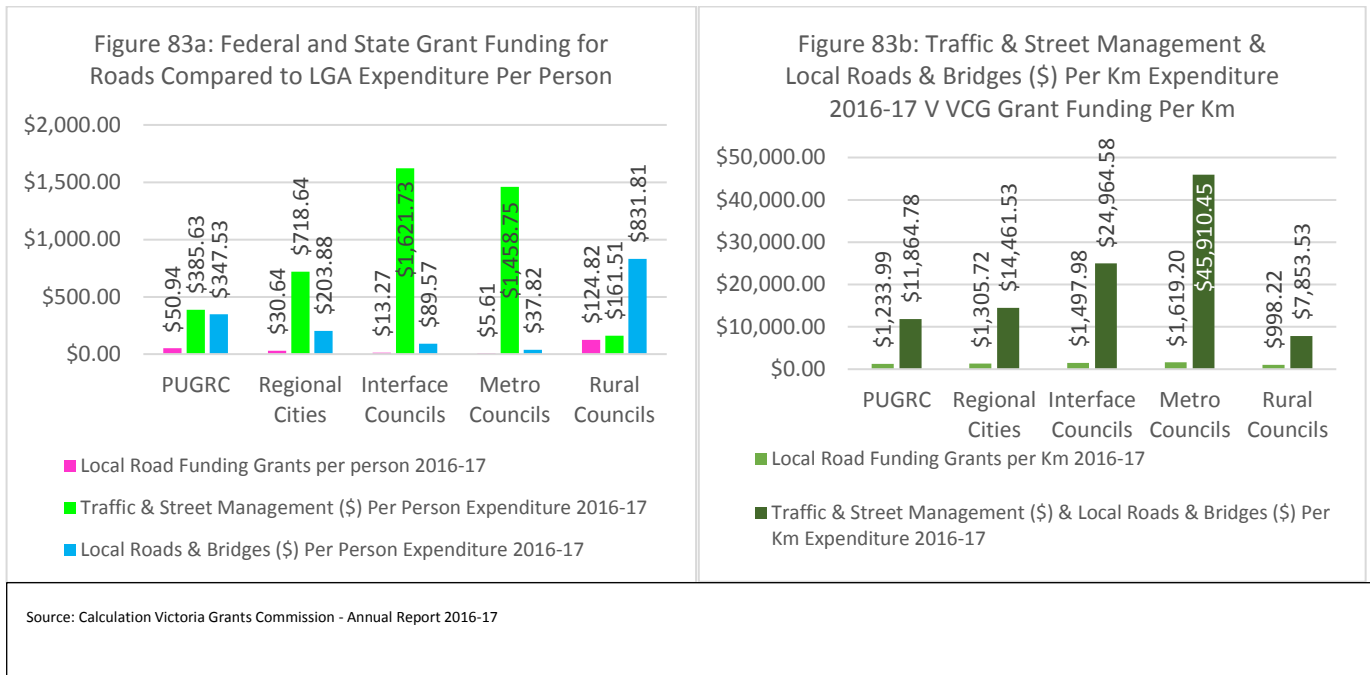
When we look at Traffic and Street Management expenditure as a per person amount, it is not surprising that the funding expended by PUGRC Councils is significantly less than that expended by Interface and Metro Councils by well over a \$1000 per person. Given the high levels of State and Federal support for per km funding for local roads works etc., and the much larger rate base in the Interface and Metro Council regions, it is not surprising that they can outspend PUGRC Councils significantly in this area (Figure 83a). This seemingly positive picture is misleading on two fronts. Firstly, essential infrastructure expenditure is not spent on a per person basis, but rather on a per km basis. For example, an average Metro Council has 517 km (median)

<sup>68</sup> Victorian Grants Commission Annual Report 2016-17

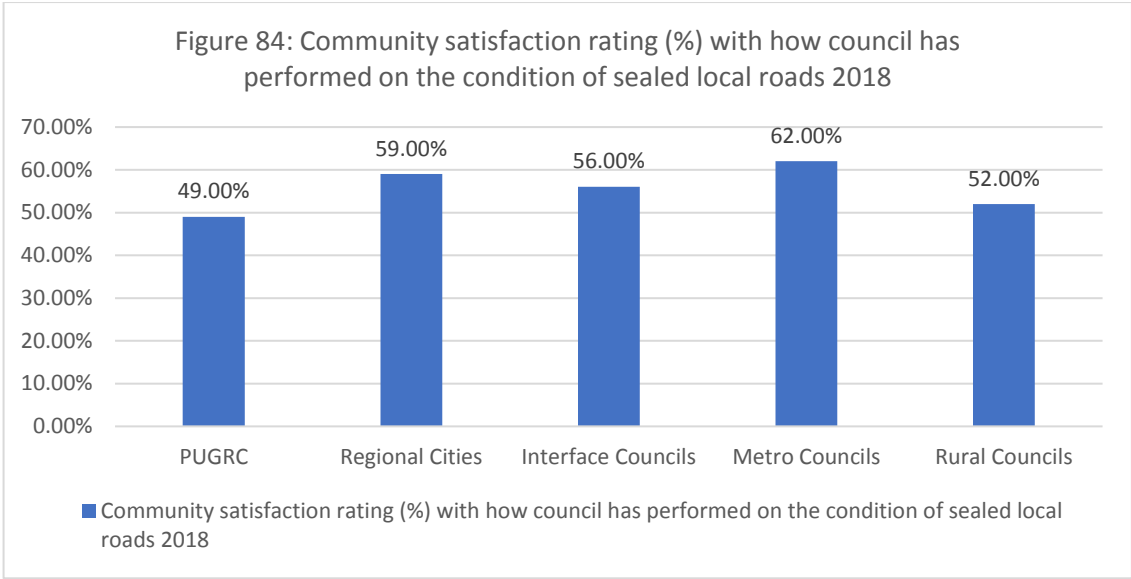
<sup>69</sup> There is a large discrepancy in the values of councils in this group's Median VGA Assessed 4 Year Average Standardised Rate Revenue, with Geelong having a VGC assessed 4 Year Average Standardised Rate Revenue of \$145 Million at the top end and Horsham having a VGC assessed 4 Year Average Standardised Rate Revenue of \$10 million at the bottom.

of road network to administer and maintain, whilst an average PUGRC Council has 1,593 km (median) of road network to administer and maintain.

Figure 83b demonstrates what that means in actual on the ground terms. For every km of road PUGRC Councils have, they only receive \$1,233.99 per km in road grant funding. Due to their size and lack of rate base, they can only spend approximately \$11k on road infrastructure per km. Compare this with Interface Councils who have a similar amount of road network to administer (1,424 km, median), but receive more road grant funding per km, receiving \$1,497.98 per km. Because of their substantially larger rate base, Interface Councils can expend over \$24k per km in maintenance and expansion. This situation is magnified in Metro Council areas that receive \$1619 per km in road grant funding and can expend a total of \$45,901 in road infrastructure spending per km.



The lack of adequate State and Federal funding, and the small rate base of PUGRC councils is one of the main reasons the PUGRC has a low community satisfaction rating of its performance in providing quality sealed local roads. With a small rate base and limited access to State and Federal funding in his area this situation is likely to continue (Figure 84).



Source: Department of Environment, Land, Water & Planning (2018). Know Your Council - Local Government Performance Reporting

As seen in the previous section, (UNSDG 8), the PUGRC hosts over six million tourists to its region who use its roads every year, in addition to the use local residents make of the road network. This is a significant burden on PUGRC councils given the high levels of usage and the relatively low levels of funding received from State and Federal funding sources. Add on top of this burden a PUGRC growth rate of 27% between 2019-31 and the pressure on PUGRC councils to provide adequate road infrastructure becomes quite unreasonable.

**ACTION ITEM 19: UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE – ROAD INFRASTRUCTURE FUNDING**

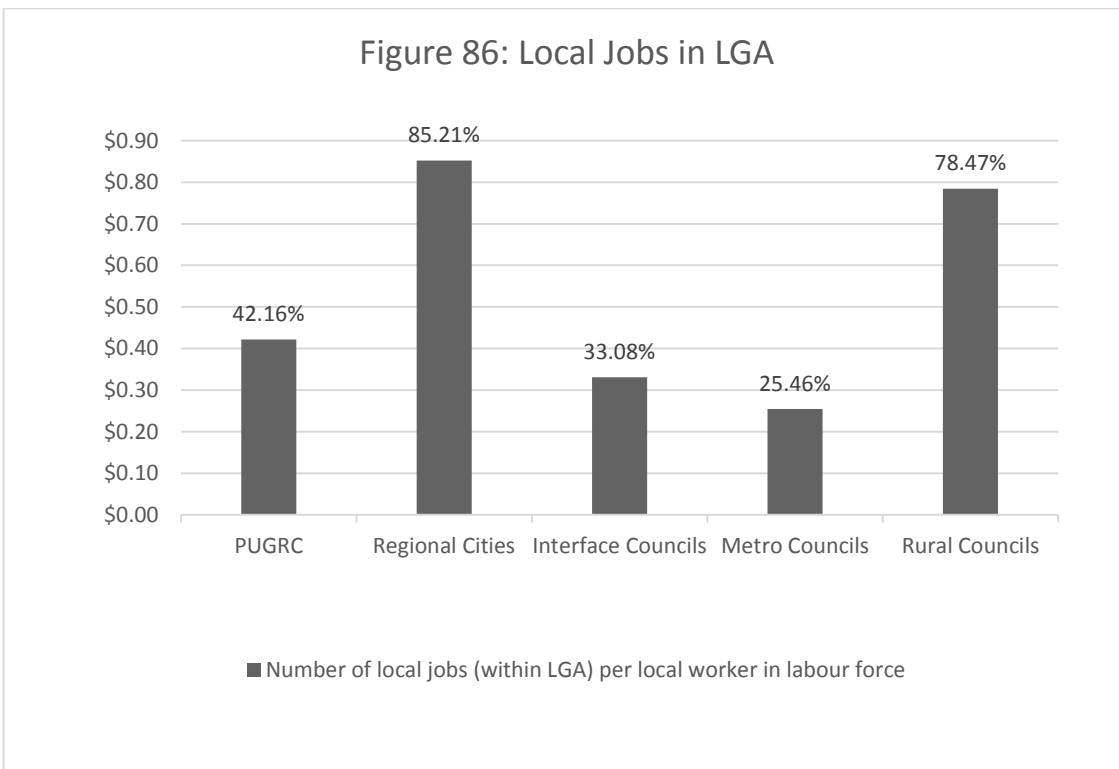
Work with the State and Federal Government to increase the level of road funding to a minimum per km funding enjoyed by Metro and Interface councils.

**UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE - EXTENDING RAIL INFRASTRUCTURE TO DIRECTLY SERVICE ALL AREAS OF THE PURGC, AND UNSDG 11: SUSTAINABLE CITIES AND COMMUNITIES - EXTENSION OF VIABLE, AFFORDABLE, FREQUENT AND RELIABLE PUBLIC TRANSPORT WITHIN THE PUGRC.**

The rail network through the PUGRC, where it exists, is of varying connectivity and capability. Rail lines on the Western side of the state give the region in Surf Coast, Moorabool and Macedon Ranges Council areas a high level of connectivity to major markets, such as regional cities and Melbourne. The rail line running through Baw Baw is a direct line to Melbourne, but does not offer the same high quality fast rail service as that experienced in the West of the state. Golden Plains and Bass Coast Councils have no rail connection and rely on passenger lines in adjacent LGAs to service their communities (Figure 85).



Only 42.16% of residents in the PUGRC work within their LGA. This creates a transport networking inefficiency for those 57% of PUGRC resident workers that must travel to work every day. The lack of jobs within the region impacts on inward migration choices for those considering relocating to the PUGRC region without adequate public transport options that could connect them to the higher paid metropolitan Melbourne Labour market (Figure 86).



Source: 2016 Census - Counting Employed Persons, Place of Work (POW) LGA (UR) by LGA (POW) Counting: Persons Aged 15 Years and Over Place of Work

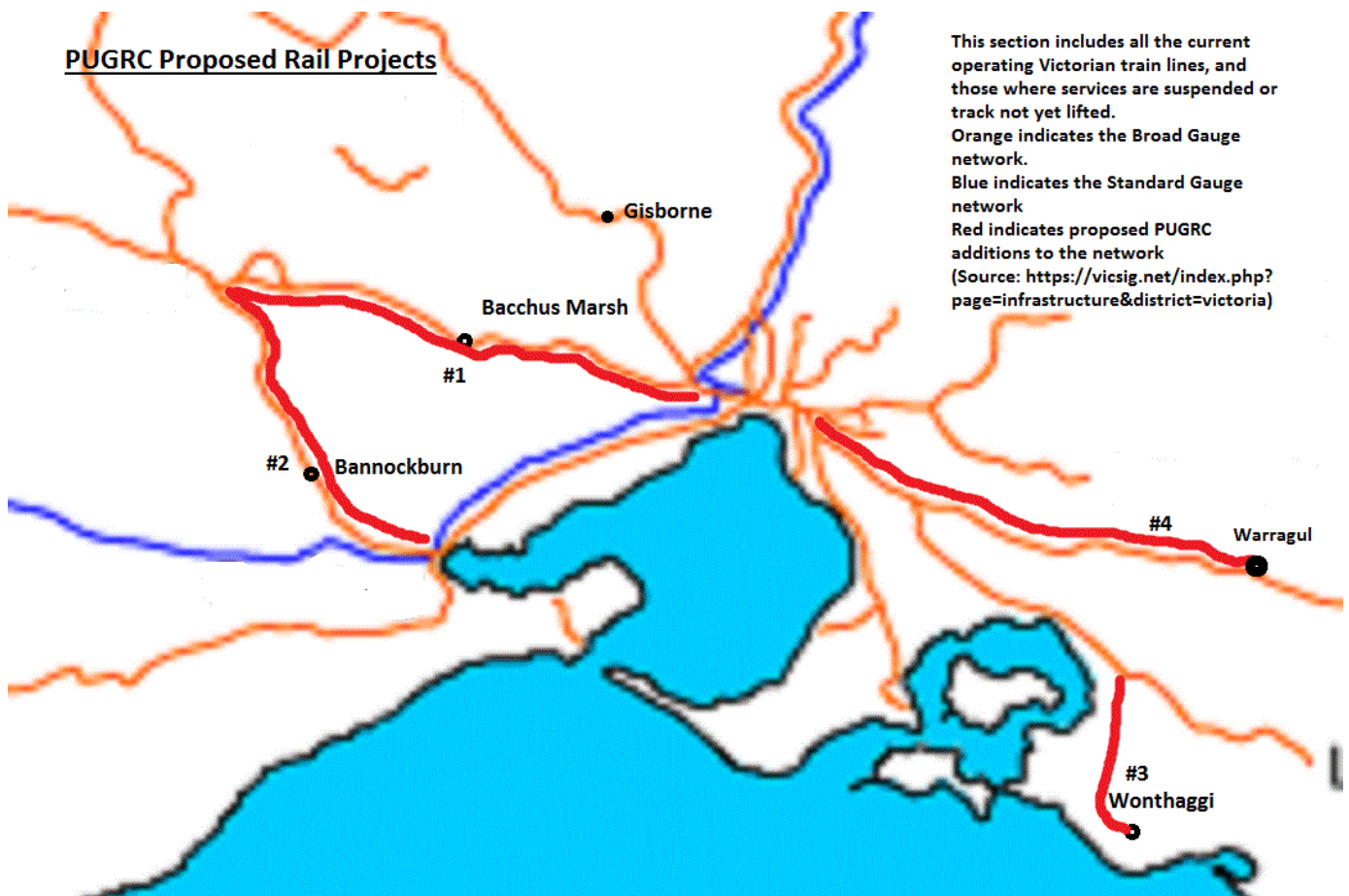
As we have seen above (Figure 52), 90.80% of people in the PUGRC travel to work in their private motor vehicle, and only 2.31% use public transport.

Many of those travelling outside of the region for work every day would be working in the Melbourne metropolitan area, Ballarat, Geelong, and LaTrobe labour markets. Fast commuter rail access to these areas would significantly improve the traveling times and mode of transport for many PUGRC residents. This would also increase the amenity of the region significantly, making the PUGRC a more attractive migration location.

The following projects are proposed for the rail network within the PUGRC and are outlined in Figure 88 below:

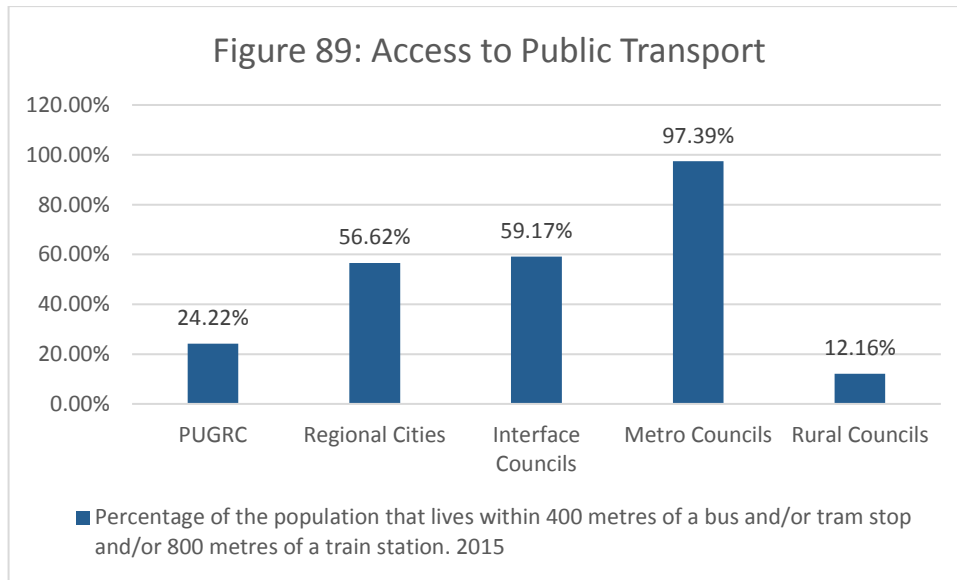
- Enhanced rail connections between Melbourne and Ballarat with the extension of suburban services to peri-urban areas - Moorabool.
- Fast passenger rail between Ballarat and Geelong – Golden Plains
- Fast passenger rail service (like that enjoyed between Melbourne and Ballarat) to be established between Melbourne and Warragul – Baw Baw
- Fast passenger rail service (like that enjoyed between Melbourne and Ballarat) to be established between Wonthaggi and Melbourne (including a freight service for product from the extractive industries) - Bass Coast.

Figure 88



Another major area where the PUGRC lags significantly behind other regions and impacts on its ability to provide a well-connected urban landscape, is in access to public transport. In a sustainable world, access to public transport is essential. Figure 89 demonstrates that the PUGRC is severely disadvantaged as only 24% of its residents live within 400 meters of public transport. Compared to 97% of Metro Council resident and 59% of Interface Council residents.

Cheap accessible public transport is essential in reducing living costs and providing the ability to move around the urban space to access goods and services.



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

To address these issues the PURGC proposes the following actions:

**ACTION ITEM 20: UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE - EXTENDING RAIL INFRASTRUCTURE TO DIRECTLY SERVICE ALL AREAS OF THE PURGC.**

Work with the State and Federal Government to investigate the feasibility of extending rail infrastructure to directly service all areas of the PURGC to deliver:

1. Enhanced rail connections between Melbourne and Ballarat with the extension of suburban services to peri-urban areas - Moorabool.
2. Fast passenger rail between Ballarat and Geelong – Golden Plains
3. Fast passenger rail service (like that enjoyed between Melbourne and Ballarat) to be established between Melbourne and Warragul – Baw Baw
4. Fast passenger rail service (like that enjoyed between Melbourne and Ballarat) to be established between Wonthaggi and Melbourne (including a freight service for product from the extractive industries) - Bass Coast.

**ACTION ITEM 21: UNSDG 11: SUSTAINABLE CITIES AND COMMUNITIES - EXTENSION OF VIABLE, AFFORDABLE, FREQUENT AND RELIABLE PUBLIC TRANSPORT WITHIN THE PURGC.**

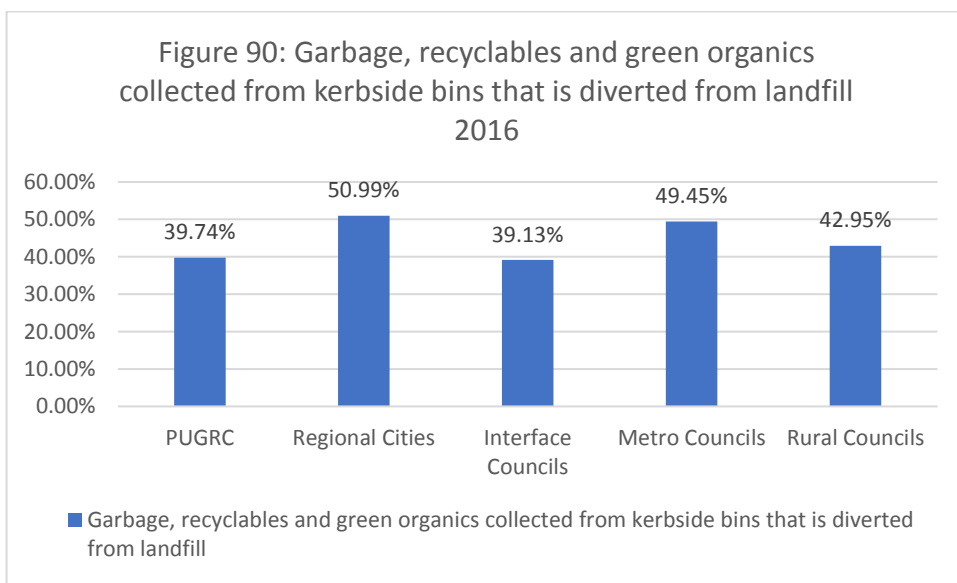
Work with State and Federal Government to assist with the extension of viable, affordable, frequent and reliable public transport within the PURGC. Funding for a comprehensive public transport plan for the PURGC, to link PURGC towns and villages with population hinterlands within PURGC LGA’s and to regional cities and Metro population centres. Funding for the

conduct of trials of new economy public transport solutions, such as automated bus systems, expansion of the taxis network and bike paths throughout the PUGRC.

**UNSDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION - CIRCULAR ECONOMY DEVELOPMENT PACKAGE.**

Responsible Consumption and Production is about building a circular economy by doing more with less. Developing a sustainable response to waste, recycling it where you can, re-processing recovered material into re-purposed products through the development of secondary industries. Creating markets for these new products are an essential part creating a circular economy within the PUGRC.

The PUGRC has the second lowest estimated rate of diversion of waste from landfill of any region in the state, with only 39.74% of kerbside waste including, garbage, recyclables and green organics being diverted (Figure 90).

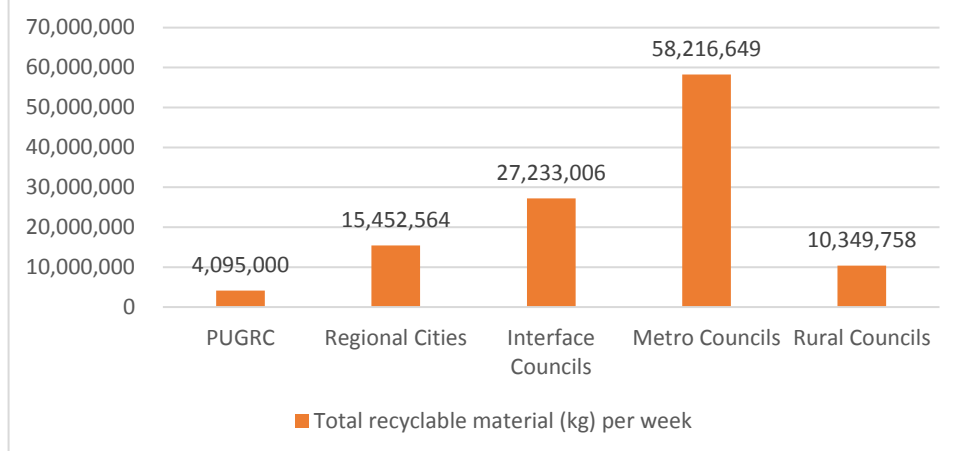


Source: Department of Environment, Land, Water & Planning (2018). Know Your Council - Local Government Performance Reporting

Due to its size, the PUGRC is estimated to have the lowest total tonnages of waste collected compared to any other region in Victoria (Figure 91).



Figure 91: Total Avoidable Food Waste (kg) per week



Source: Estimates based on the Victorian Average from the Victorian state-wide garbage bin audits 2013  
<https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-statewide-bin-audits>

Avoidable food waste in the municipal waste stream is estimated at 8619 tonnes per week, this converts into 448,188 tonnes of food waste per year within the PUGRC. Much of this food waste could be processed into fertiliser for agriculture and based on a conservative \$50 per tonne of compost, it could produce a revenue stream of up to approximately \$22 million per year. This could create a burgeoning industry in the PUGRC, where processing the organic waste of neighbouring LGA's could start a viable and lucrative organic fertiliser industry, that could make our agricultural industries self-sufficient and sustainable into the future.

There are also large amounts of food that we don't consume either as a by-product of the production process or after purchase by consumers. Food waste is the focus of a National Food Waste Strategy. The National Food Waste Strategy<sup>70</sup> was designed to address Sustainable Development Goal 12.3. The Food Strategy states its objectives as:

"By 2030, halve per capita food waste at the retail and consumer levels and reduce food losses along the production and supply chains, including post-harvest losses. United Nations General Assembly, 2015. (The impact of food waste on the Australian economy includes):

- \$20 billion is lost to the economy through food waste.
- Up to 25 per cent of all vegetables produced don't leave the farm—31 per cent of carrots that don't leave the farm equate to a cost of \$60 million.
- The total cost of agricultural food losses to farmers is \$2.84 billion.
- Households throw away 3.1 million tonnes of edible food, that's close to weight of 17,000 grounded 747 Jumbo jets.
- Food waste costs to households vary from \$2,200 to \$3,800.
- 2.2 million tonnes of food is wasted from the commercial and industrial sectors, resulting in significant waste disposal charges and lost product costs to business."<sup>71</sup>

<sup>70</sup> P.18 National Food Waste Strategy

<sup>71</sup> P.19, (2017) National Food Waste Strategy: Halving Australia's food waste by 2030 Commonwealth of Australia

A Return on Investment (ROI) study conducted in the UK identified that when initiatives were implemented to reduce food waste, households, local governments and the private sector benefited. This analysis showed that for over half of the businesses involved in the study, a \$14 return was made for every dollar invested in food waste reduction.<sup>72</sup>

A number of businesses and organisations in Australia have recognised the value of food waste and implemented a range of solutions such as:<sup>73</sup>

- converting produce that do not meet specifications, or surplus produce, into chopped and packaged vegetables for sale
- extracting nutrients from food waste to be used in pharmaceutical and cosmetic products
- producing organic fertilisers and soil enrichers
- producing animal feed from food waste
- food waste to energy conversion.

In the recently released FoodPrint II report, food waste was identified as a major potential source of fertilizer products for agriculture stating:

“Farms close to cities have the advantage of ready access to large amounts of organic waste generated by urban populations. This waste is a source of important nutrients (such as nitrogen and phosphorous) that can be processed into biofertilisers, including composts, and added to soils on farm to counter declining supplies of the natural resources ...(and replace) synthetic fertilisers.”<sup>74</sup>

This new industry would essentially base its foundation on the concept of nutrient recycling, where fertilisers could be developed for specific nutrient profiles to address a farmer’s specific needs.

Such products could be used in controlled-environment agriculture such as intensive greenhouse-based system and non-soil based hydroponic systems. This source of nutrients could also be used for the landscaping and residential sector as well. The PUGRC could utilise the Victorian Government’s ‘Recycled organics market development program’ to develop such an industry.<sup>75</sup>

Whilst PUGRC residents recycling behaviours are mid-range compared to other regions, PUGRC residents are the second group that is effective in ensuring food scraps are not put in the waste stream (Figure 92).

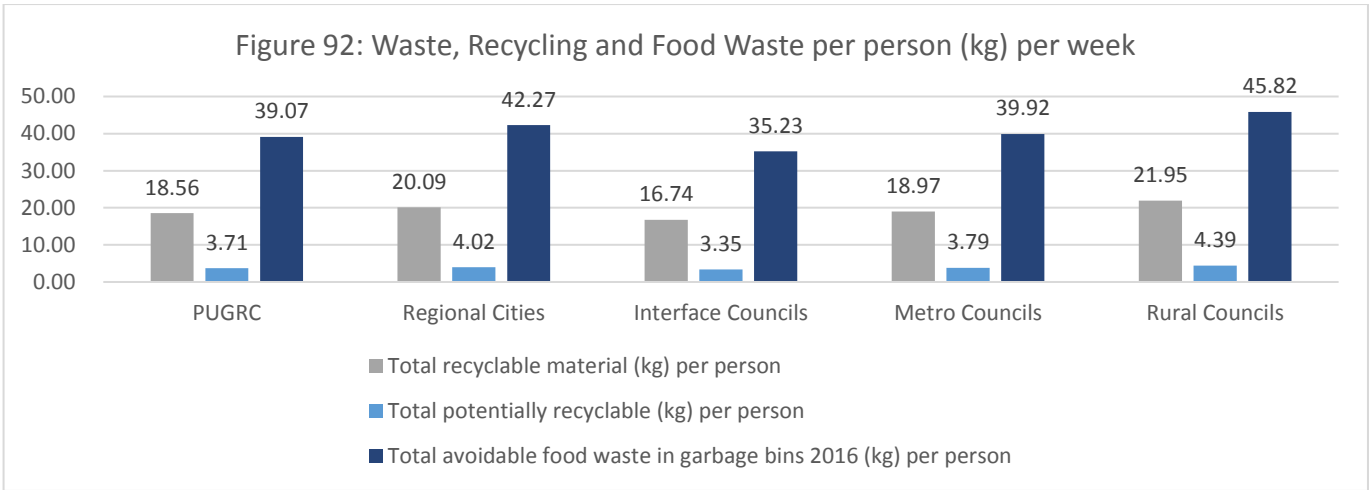
---

<sup>72</sup> Champions 12.3 (2017) The business case for reducing food loss and waste. <https://champs123blog.files.wordpress.com/2017/03/report-business-case-for-reducing-food-loss-and-waste.pdf>. Accessed 12 October 2017.

<sup>73</sup> p.24, (2017) National Food Waste Strategy: Halving Australia’s food waste by 2030 Commonwealth of Australia

<sup>74</sup> P.3 Roadmap For A Resilient And Sustainable Melbourne Foodbowl, A Foodprint Melbourne Report March 2019 Lord Mayor’s Charitable Foundation and University of Melbourne

<sup>75</sup> P.14, Recycled Organics, Market Analysis, 26 September 2013, Sustainability Victoria



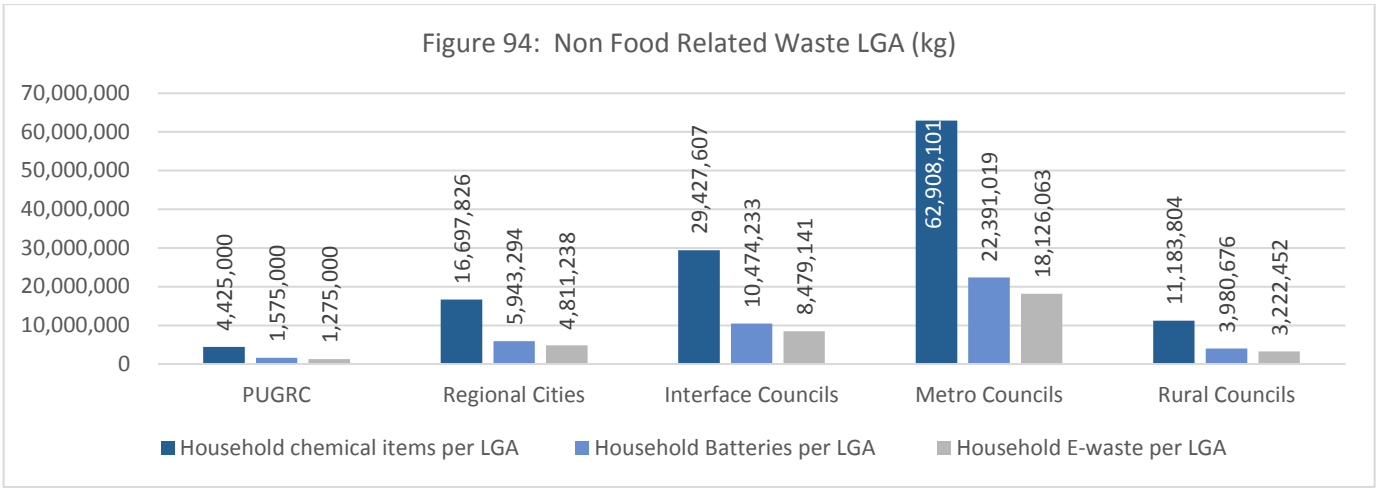
Source: Estimates based on the Victorian Average from the Victorian state-wide garbage bin audits 2013 <https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-statewide-bin-audits>

To put the food waste issue in perspective, for every food insecure person in the PUGRC, 819kg of food is wasted in the PUGRC. Whilst this is a mid-range result compared to all other regions, it is a substantive amount of food to be wasted each year (Figure 93).



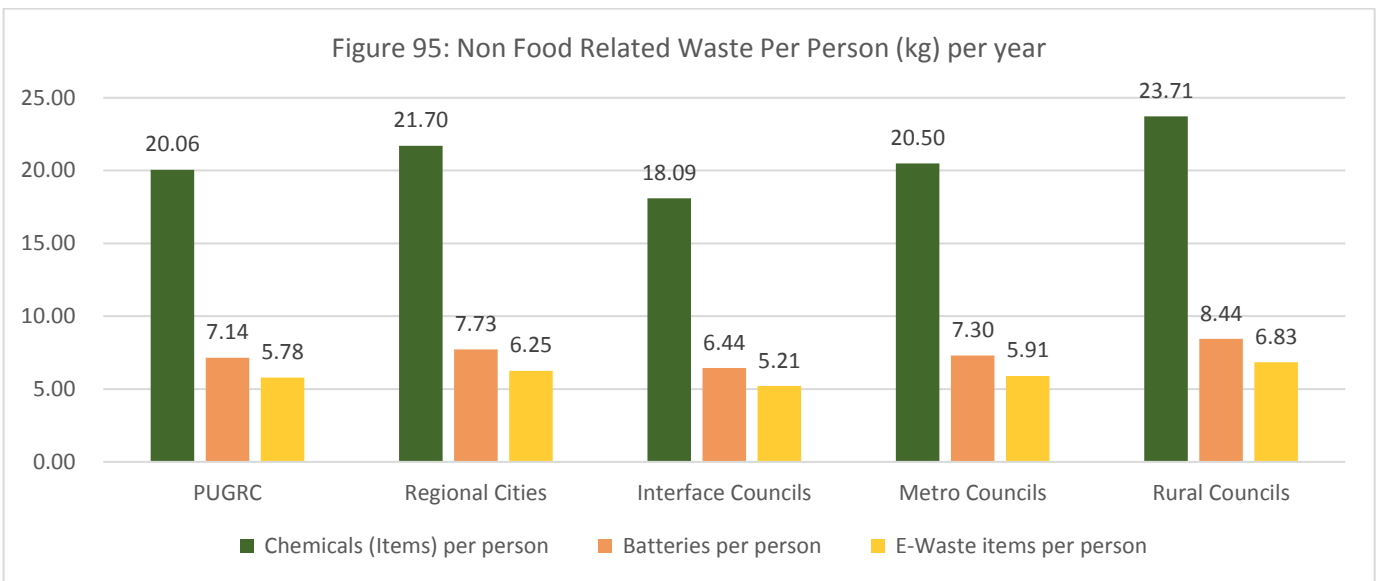
Source: Estimates based on the Victorian Average from the Victorian state-wide garbage bin audits 2013 <https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-statewide-bin-audits>

Another area of waste is non-food related waste, such as chemicals, batteries, and e-waste. Total non-food related waste quantities are largest in the Metro Council region, with the PUGRC having the smallest quantity of this type of waste (Figure 94).



Source: Estimates based on the Victorian Average from the Victorian state-wide garbage bin audits 2013 <https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-statewide-bin-audits>

Figure 95 illustrates the per person quantities of non-food related waste generated through-out Victoria. The PUGRC profile of non-food related waste is like that of the Metro Councils. If more of these waste types could be redirected into the recoverable waste stream, value could be realised from dedicated facilities focused on the extraction of valuable elements and precious metals from the PUGRC waste stream , as well as the waste streams of adjacent LGA's.



Source: Estimates based on the Victorian Average from the Victorian state-wide garbage bin audits 2013 <https://www.sustainability.vic.gov.au/Government/Victorian-Waste-data-portal/Victorian-statewide-bin-audits>

A particularly valuable non-food waste is E-waste. E-waste consists of several components in the form of metals and other valuable elements. The base metals in E-waste include iron, copper, aluminium, nickel, zinc, selenium, indium, gallium and precious metals such as gold. Hazardous substances that can be found in e-waste, include mercury, beryllium, lead, arsenic, cadmium, antimony.

In a recent article about urban gold mining Professor Veena Sahajwalla at the University of New South Wales (UNSW) stated that economic modelling for her urban mining method shows the cost of around \$500,000 Australian dollars for a micro-

factory pays off in two to three years, and can generate substantial revenue and create jobs.<sup>76</sup> Professor Sahajwalla went on to elaborate the potential for mining e-waste when she said:

“While a gold mine can generate five or six grams of the metal per tonne of raw material, that figure rises to as much as 350g per tonne when the source is discarded electronics.”<sup>77</sup>

If we start from the proposition that 350g per tonne of e-waste is the uppermost limit on the density of gold in e-waste and take a conservative position of being able to regularly recover 35g of gold per tonne of e-waste, on these projections the PUGRC would produce approximately \$6,390,726.80 in gold recovered per year based on a spot price of \$48.40 per gram (22<sup>nd</sup> AUG 2019). This assumption is based on the position that a total of 106,000 tonnes of e-waste from all waste streams (domestic and commercial) would enter the Victorian waste and resource recovery system per year, which translates into approximately 50kg of e-waste per household, per annum (2014 figures).<sup>78</sup>

This potential revenue from a dedicated gold recovery effort could be substantially increased if other precious metals such as silver and platinum could also be mined from the e-waste stream as well.

Other valuable metals such as cadmium, zinc, manganese, cobalt and rare earth metals that may be recovered through battery recycling in the chemical and battery waste streams, that are part of the wider Municipal waste stream.

Household chemical waste can be collected and recycled too. Paint can be either salvaged and used in community projects, or re-blended into back into the paint production stream. Steel from paint containers can be recycled. Solvents and used engine oil can be repurposed as fuel. Weed killers and pesticides can be destroyed in arc furnaces such as those operated by Tox free in Melbourne.

Given that in the PUGRC we could increase the amount of material diverted from landfill by another 60%, this potentially means a 60% increase in revenue generated from the recovery of materials that have significant worth. This could lead to the development of a series of sustainable and high paying industries within our region, dedicated to mining this material from the waste stream.

From the perspective of recyclable material that has current established markets, Figure 96 below outline the break-down of common marketable recyclable materials that could be “mined” to be redirected into secondary processing to recover the value of these commodities.

---

<sup>76</sup> <https://www.bbc.com/news/business-44642176>

<sup>77</sup> <https://www.bbc.com/news/business-44642176>

<sup>78</sup> P.118, (2018) Statewide Waste and Resource Recovery Infrastructure Plan, Sustainability Victoria

Figure 96: Recyclable Material Tonnes <sup>79</sup>	Compliant paper and cardboard (T) per week	Compliant plastics (T) per week	Compliant glass (T) per week	Compliant steel (T) per week	Compliant and other aluminium (T) per week	<b>Total recyclable material (T) per week</b>
<b>PUGRC</b>	1,677	936	819	390	156	4,173
<b>Regional Cities</b>	6,328	3,532	3,091	1,472	589	15,747
<b>Interface Councils</b>	11,153	6,225	5,447	2,594	1,037	27,752
<b>Metro Councils</b>	23,841	13,307	11,643	5,544	2,218	59,326
<b>Rural Councils</b>	4,121	2,300	2,012	958	383	10,254

In a report for Waste Management and Resource Recovery Association of Australia (WMRR) and Sustainability Victoria (SV) titled "Recover Resources Market Bulletin (March 2019) Victorian Market Intelligence Report Project (edition #1)," stated that compliant paper and cardboard sells for \$20 per tonne for mixed paper & paperboard to for \$240 per tonne old corrugated cardboard. If we take a mid-point price for the sake of demonstration, this recycled commodity could be worth \$184,470 per week. Most plastics in the recycling stream are either PET (\$400 per tonne) or HDPE (\$600 per tonne) with mixed plastics (Types 1-7 \$100 per tonne), the Compliant Plastics category in Table 1 could generate between \$93,600 (just mixed plastic) to \$421,200 (only PET & HDPE) in revenue per week for recovered plastics.

The Compliant Glass stream could generate \$24,570 for mixed glass. Whilst the compliant Steel stream could generate \$50,700 in revenue. The Aluminium stream could generate \$156,000 in revenue per week according to the prices used in the WMRR and SV report. This would equate to a recovery business generating an upper end estimated revenue of between \$509,340 to \$836,940 per week for these commodities. Combine this with the recovery of gold and other precious metals in the PUGRC region, this could be a \$32m to \$50m a year operation. Whilst this is simplified discussion of the potential economic opportunities in this space, this does not take into account the flow on multiplier effects that the growth of secondary industries processing this material could open up for residents and businesses in the PUGRC.

The processing of recycled plastics for example could be made into non-structural building products such as those produced by Replas in Carrum Downs VIC, in the Frankston LGA. This company produces plastic bollards, plastic decking, outdoor fitness equipment, out-door furniture, post and rail fencing, and plastic sheet fencing.<sup>80</sup>

Sub 10mm glass fines are a common product from the glass recycling stream and is difficult to sort this size of material, which is often simply sent to land fill. However, this material once washed could be used as a gravel substitute for road sub-base in road construction. Standards for this product have been developed in the US, and Victoria with glass fines being included in sub-base for road projects in NSW and Victoria. There are two current standards for the use of glass fines in road and pavement construction:<sup>81</sup>

- 15% crushed glass in Class 3 pavement sub-bases (VicRoads Standard Specification 812 and 820).
- 30% crushed glass in footpath bases (Municipal Association of Victoria specifications, 2011)

<sup>79</sup> Waste Management and Resource Recovery Association of Australia (WMRR) and Sustainability Victoria (SV) titled "Recover Resources Market Bulletin (March 2019) Victorian Market Intelligence Report Project (edition #1)"

<sup>80</sup> <https://www.replas.com.au/products/>

<sup>81</sup> <https://www.sustainability.vic.gov.au/Government/Waste-and-resource-recovery/Recycled-materials-in-pavement>

Glass fines can also be used for producing insulation. There are a number of companies in Australia that use this resource to produce building insulation batts.

The development of secondary markets for these recycling resources is essential if the municipal recycling industry is to be able to dispose of its product in a sustainable way and divert many recyclable products from ending up in landfill. Developing standards for these products and requiring a certain percentage of recycled material to be used in green field projects would provide the basis for the establishment of such circular economy industries.

So what products could be produced by the circular economy? There are markets within Australia for the use of food waste derived fertiliser. Glass could be used either as a gravel substitute or reintroduced into the glass manufacturing stream. Chemical waste can be repurposed or disposed of safely. E-waste is a lucrative revenue source of precious metals from the recycling stream. Recovered steel can still be introduced back into the manufacturing stream<sup>82</sup>, as can aluminium. Plastics can be utilised in secondary industries also. All these products need retail businesses to purchase them and need markets to be on sold to. There are few players in this space currently with the industry needing substantial investment to grow.

Using a Policy HotHouse format, a State sponsored policy framework could be established and adopted by Local Government agencies that will deliver the regulatory environment required to establish a secondary recycled resource manufacturing industry within the PUGRC.

Given the current crisis in recycling the Nation is experiencing, more needs to be done to quickly create an industry base for utilising recycled source material into a secondary industry, and to establish much needed markets for products produced using recycled material. There needs to be a dedicated industry development fund that can quickly invest in the creation of an industry that specifically utilises product from the waste stream. The economic development opportunities from the creation of these secondary processing and manufacturing industries using recycled material are significant and need regulatory assistance to be established in our region.

To address these issues the PURGC proposes the following actions:

#### **ACTION ITEM 22: UNSDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION - CIRCULAR ECONOMY DEVELOPMENT PACKAGE**

---

Draft policies to enhance diversion of waste from land fill to recycling. These might include: redesignating the waste collection stream into food/organics waste only, recyclables only and e-waste only waste streams. The development of new food waste storage systems and options within the home for residents. Develop a distinctive e-waste recovery process for larger e-waste items such as TV's and computer monitors. Education program on why we need to recycle more effectively and how it will help council and the residents in the end. The objective is to increase the current level of diversion from landfill from 40% to 80% within three years.

Work with the State and Federal Government for funding for a feasibility study, business case and business plan to develop a board-based recycling and material recovery business, including organics to fertilizer products, glass, plastics, paper and e-waste in the PUGRC.

Work with the State Government to access TCorp financing for the creation of a board-based recycling and material recovery business for the PUGRC owned by its member LGAs.

Policy HotHouse the regulatory framework for the establishment of the business environment to create a circular economy secondary manufacturing industry. Concepts that might be included in the final policy framework include: Mandating a 20%

---

<sup>82</sup> <https://www.worldautosteel.org/life-cycle-thinking/recycling/>

use of manufactured building materials to be made from recycled resources when building a house. Mandated use of recycled resource material in housing and road construction. Mandated use of manufactured drainage products made from recycled resources when building a drainage or sewerage system. Purchasing transport equipment from suppliers using recycled resources.



## OPPORTUNITY



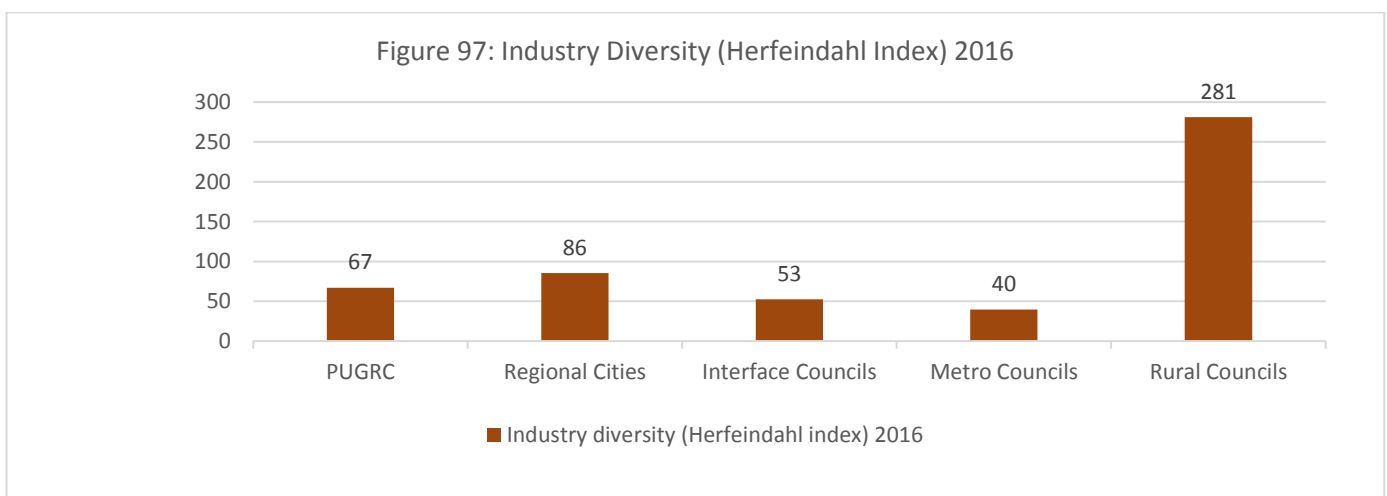
Creating economic opportunity is about nurturing existing industries, building comparative or absolute advantage and creating a space where new businesses and industries can establish themselves in a supportive environment. The Opportunity Pillar of the SEED concerns itself with UNSDG 8, Decent Work and Economic Growth, the Industry and innovation part of UNSDSG 9 Industry, Innovation, and Infrastructure and UNSDG 17 Partnerships for the Goals. The PUGRC has a diverse economy with strong primary industrial base. It also has an emerging number of industries that have exceptionally high levels of growth and or high levels of comparative advantage within the State and Nation. It is these characteristics of the PUGRC economy that we will explore next.

### INDUSTRY DIVERSITY

The first element of economic Opportunity in the PUGRC is economic/industry diversity. The Herfeindahl Index is a measure of industry diversity based on share of jobs by industry in a region, relative to that of the Victorian economy. A lower index value signifies higher industry diversity, higher value signifies higher industry specialisation. The PUGRC has an Industry Diversity (Herfeindahl Index) of 67, (Figure 97) indicating that it has a relatively diverse economy. A score of 65 is a competitive and diversified marketplace. This is a positive economic characteristic, indicating that it has a range of diverse industries operating within it. In simple terms this means that the PUGRC has a level of economic resilience, not needing to rely on any one dominant industry.

All the scores outlined in this graph for the various regions could be considered competitive. However, the PUGRC has a higher level of industry diversity and is therefore more resilient economically than either Regional Cities or Rural Council economies which have lower levels of diversity.

Because of the PUGRC's proximity to Interface and Metro Council areas, its businesses have access to larger markets and can diversify to meet the demand in these areas. They also must compete more effectively with the Metro/Interface regions compared to businesses in Regional Cities and Rural Council areas. This would effectively make PUGRC businesses highly agile and adaptive than their Regional City and Rural Council counterparts. This agility may take the form of a wider and diverse product and service offerings and or increased responsiveness to customer's needs.



Source: <http://www.rdv.vic.gov.au/information-portal/table-and-chart>

## COMPARATIVE ADVANTAGE

The second element of Opportunity that we must examine is the comparative advantage of existing industries in the PUGRC. The key industries of the PUGRC Councils are outlined in Figure 98 below. This table is a consolidation of the data from the Infrastructure Victoria's Comparative Advantage analysis of the Barwon, Central Highlands, Gippsland and Loddon-Campaspe regions. This table outlines the key industries of all PUGRC members, at level 1 of the ANZSIC industry categorisations.

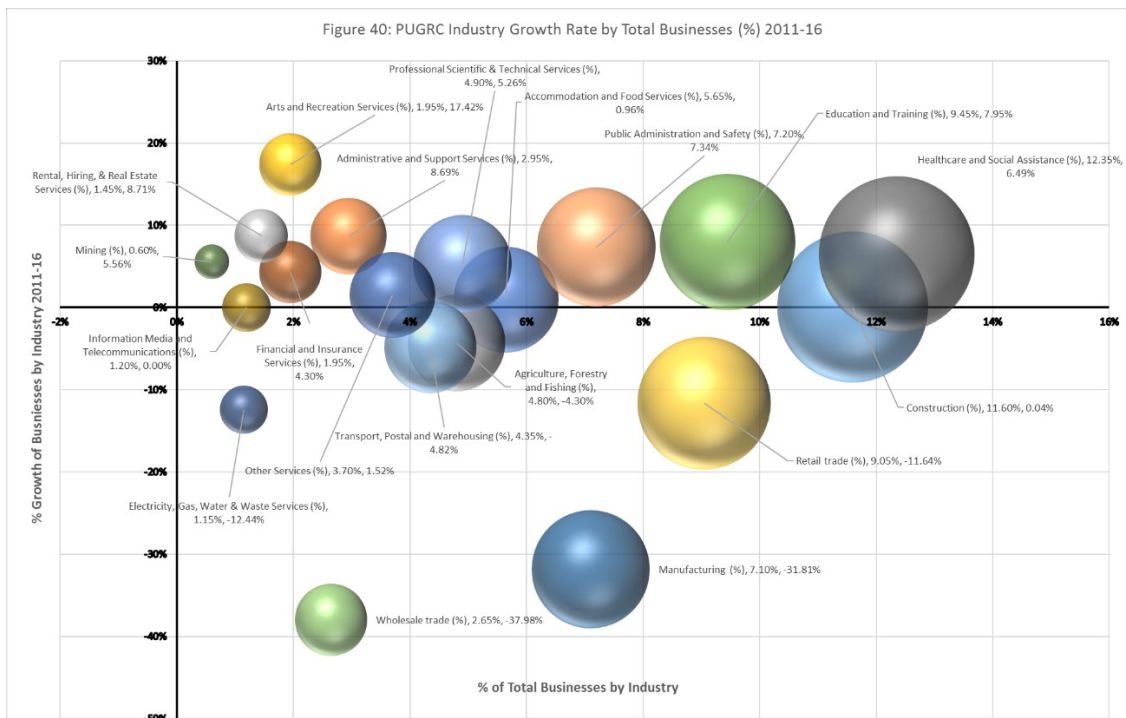
Figure 98: GVA SHARE OF KEY INDUSTRIES IN PUGRC REGION, 2017-18	Bass Coast	Baw Baw	Golden Plains	Macedon Ranges	Moorabool	Surf Coast	PUGRC (Median)
Other	29%	23%	14%	31%	28%	28%	28%
Agriculture, Forestry and Fishing	21%	21%	43%	7%	19%	14%	20%
Construction	N/A in IV Data	13%	17%	11%	12%	12%	13%
Health Care and Social Assistance	10%	10%	4%	13%	10%	8%	10%
Retail Trade	9%	7%	3%	7%	7%	7%	7%
Education and Training	N/A in IV Data	6%	5%	7%	7%	5%	7%
Manufacturing	5%	8%	6%	9%	6%	5%	6%
Financial and Insurance Services	4%	6%	N/A in IV Data	7%	N/A in IV Data	4%	5%
Professional, Scientific and Technical Services	N/A in IV Data	N/A in IV Data	4%	N/A in IV Data	5%	6%	5%
Public Administration and Safety	4%	3%	4%	6%	6%	4%	4%
Electricity, Gas, Water and Waste Services	6%	2%	N/A in IV Data	N/A in IV Data	N/A in IV Data	N/A in IV Data	4%
Transport, Postal and Warehousing	N/A in IV Data	N/A in IV Data	N/A in IV Data	N/A in IV Data	N/A in IV Data	1%	1%
Mining	1%	1%	N/A in IV Data	N/A in IV Data	N/A in IV Data	N/A in IV Data	1%
Source: FIGURE 1.3 Aggregated data from Infrastructure Victoria Comparative Advantage Analysis profile documents <a href="https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/">https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/</a>							

Industries such as: Other Services, Agriculture, Forestry and Fishing, Construction, Health Care and Social Assistance, Retail Trade, Education and Training and Manufacturing are the biggest contributors to GVA in the PUGRC economy (estimated at 90%).

GVA and comparative advantage tell one story about the make-up of the PUGRC economy, the proportion of businesses in each industry that exists within the PUGRC tells a different story. Industries like Agriculture, Forestry and Fishing are dominant economic players in the PUGRC from a GVA point of view, and its GVA is generated by a relatively small number of companies, only making up 4.80% of total firms. The number of firms within the Agriculture, Forestry and Fishing space is also declined by -4.30% between 2011-16.

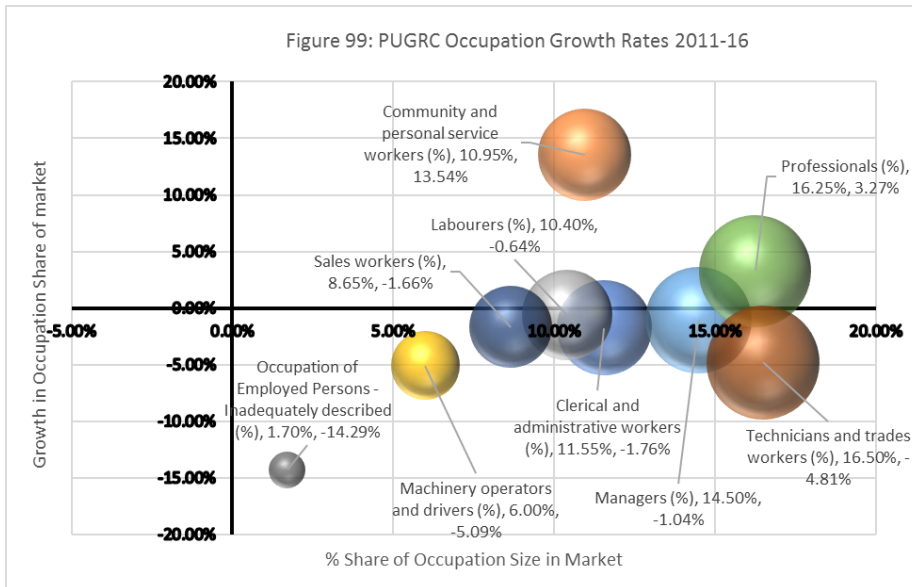
Of the six industries identified earlier (Figure 40 reproduced again below) as making up an estimated 90% of the regions GVA, the numbers of businesses in the Retail Trade (-11.64%), and Manufacturing (-31.81%) sectors were also shrinking or consolidating.

There was business entity growth during this period in: Other Services (1.52%), Health Care and Social Assistance ((6.49%) and Education and Training (7.95%)



Source: Dataset: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

The occupations that have direct connections to the industries that are experiencing a decline in business numbers between 2011-16 are Machinery operators and drivers (-5.09%), Technicians and Trade workers (-4.81%), Clerical and administrative workers (-1.76%), Sales workers (-1.66%), Managers (-1.05%) and Labourers (-0.64%). This group represents 67.15% of all occupations. Therefore, opportunity in traditional occupations is declining for the majority of PUGRC residents, who are certificate or diploma educated (Figure 99).



Source: Dataset: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au/>

Occupations that experienced growth were Community and personal service workers (13.54%) and Professionals (3.27%), reflecting general trends of a shift to a service economy and away from traditional industries. This group represents 27.20% of all occupations and highlights the way economic opportunity for employees is shifting towards tertiary educated service and professional occupations. The need for access to tertiary education to enter these rising occupations becomes obvious, as does the need to provide or nurture new businesses that can repurpose traditional occupational skill sets.

Figure 100 outlines the 10 largest industries which are represented in at least three PUGRC council areas. The two most prominent industries represented in all PUGRC LGAs identified by Infrastructure Victoria, are Agriculture and Agricultural Services. The highest growing industries (10 year growth rate) that are in at least three PUGRC LGAs are: Fishing, Hunting and Trapping (+746.00%), Food Retailing (+61.00%), Fuel Retailing (+61.50%) and Forestry and Logging (+62.00%).

Industries that have significant Comparative Advantage include Library and Other Information Services (17.70) at the CAI National level, and Fishing, Hunting and Trapping (5.20) at the CAI Victorian (State) Level.

Industries that have limited coverage across the PUGRC region, but have significant growth levels include: Non-Store Retailing and Retail Commission Based Buying (+400.50% - Golden Plains and Moorabool – also known as internet or online retailing), Medical and Other Health Care Services (+155.50% - Bass Coast and Surf Coast), and Insurance and Superannuation Funds (+371.00% - Macedon Ranges).

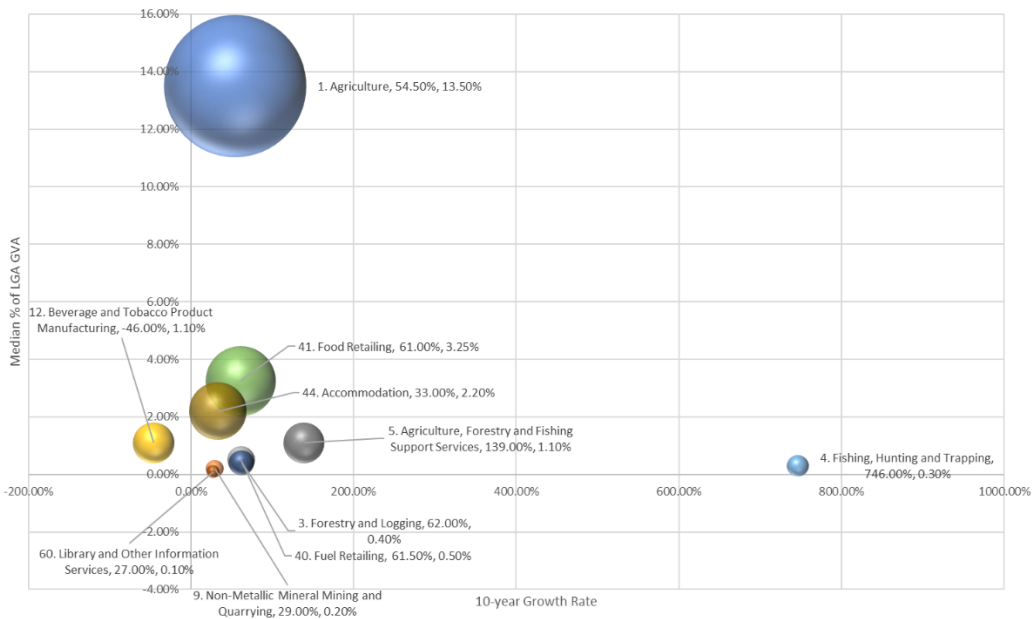
**Figure 100: TOP 10 LARGEST INDUSTRIES FOR PUGRC (Combined Table)**

Industry Represented in LGAs	Industry (Level 2 ANZSIC)	Median CAI (Victorian comparison)	Median CAI (National comparison)	Median 10-year growth	Median % of LGA GVA
Bass Coast, Baw Baw, Golden Plains, Macedon Ranges, Moorabool and Surf Coast	1. Agriculture	4.30	5.50	54.50%	13.50%
Bass Coast, Baw Baw, Golden Plains, Moorabool and Surf Coast	5. Agriculture, Forestry and Fishing Support Services	4.80	4.40	139.00%	1.10%
Bass Coast, Baw Baw, Golden Plains, Moorabool and Surf Coast	9. Non-Metallic Mineral Mining and Quarrying	4.50	1.10	29.00%	0.20%
Bass Coast, Baw Baw, Macedon Ranges, and Moorabool	41. Food Retailing	2.25	1.70	61.00%	3.25%
Baw Baw, Golden Plains, Moorabool and Surf Coast	40. Fuel Retailing	2.30	2.10	61.50%	0.50%
Bass Coast, Macedon Ranges, Surf Coast	44. Accommodation	4.50	3.10	33.00%	2.20%
Golden Plains, Macedon Ranges and Surf Coast	12. Beverage and Tobacco Product Manufacturing	3.00	2.50	-46.00%	1.10%
Bass Coast, Baw Baw and Golden Plains	3. Forestry and Logging	3.70	2.00	62.00%	0.40%
Golden Plains, Macedon Ranges and Surf Coast	4. Fishing, Hunting and Trapping	5.20	2.40	746.00%	0.30%
Bass Coast, Baw Baw and Golden Plains	60. Library and Other Information Services	3.20	17.70	27.00%	0.10%
Bass Coast and Surf Coast	30. Building Construction	2.50	2.30	4.50%	5.65%
Bass Coast and Surf Coast	85. Medical and Other Health Care Services	2.30	1.60	155.50%	5.30%
Baw Baw and Macedon Ranges	11. Food Product Manufacturing	1.95	2.65	53.50%	4.35%
Golden Plains and Moorabool	43. Non-Store Retailing and Retail Commission Based Buying	2.85	1.10	400.50%	0.25%
Surf Coast	37. Other Goods Wholesaling	3.20	4.90	2.00%	5.00%
Moorabool	46. Road Transport	2.60	2.10	21.00%	4.40%

Macedon Ranges	63. Insurance and Superannuation Funds	2.20	-	371.00%	3.50%
Macedon Ranges	86. Residential Care Services	2.00	2.60	145.00%	3.50%
Moorabool	6. Coal Mining	10.00	1.10	266.00%	2.90%
Baw Baw	31. Heavy and Civil Engineering Construction	1.70	1.30	74.00%	2.00%
Surf Coast	13. Textile, Leather, Clothing and Footwear Manufacturing	4.10	4.80	19.00%	1.00%
Moorabool	20. Non-Metallic Mineral Product Manufacturing	2.00	1.50	-13.00%	0.80%
Baw Baw	14. Wood Product Manufacturing	1.70	1.90	-2.00%	0.70%
Macedon Ranges	82. Adult, Community and Other Education	1.90	2.30	115.00%	0.70%
Moorabool	48. Water Transport	2.70	2.60	274.00%	0.30%
Golden Plains	2. Aquaculture	10.60	3.70	73.00%	0.20%
Bass Coast	50. Other Transport	2.60	0.80	70.00%	0.20%
Source: FIGURE 1.3 Aggregated data from Infrastructure Victoria Comparative Advantage Analysis profile documents <a href="https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/">https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/</a>					

Figure101 has graphed the results for the top ten industries represented in at least three PUGRC LGAs across the region. Many of these industries have relatively strong growth over the ten-year period. Except for Agriculture, which is strongly represented in each LGA, all other PUGRC Shared industries have a small share of the regions' GVA.

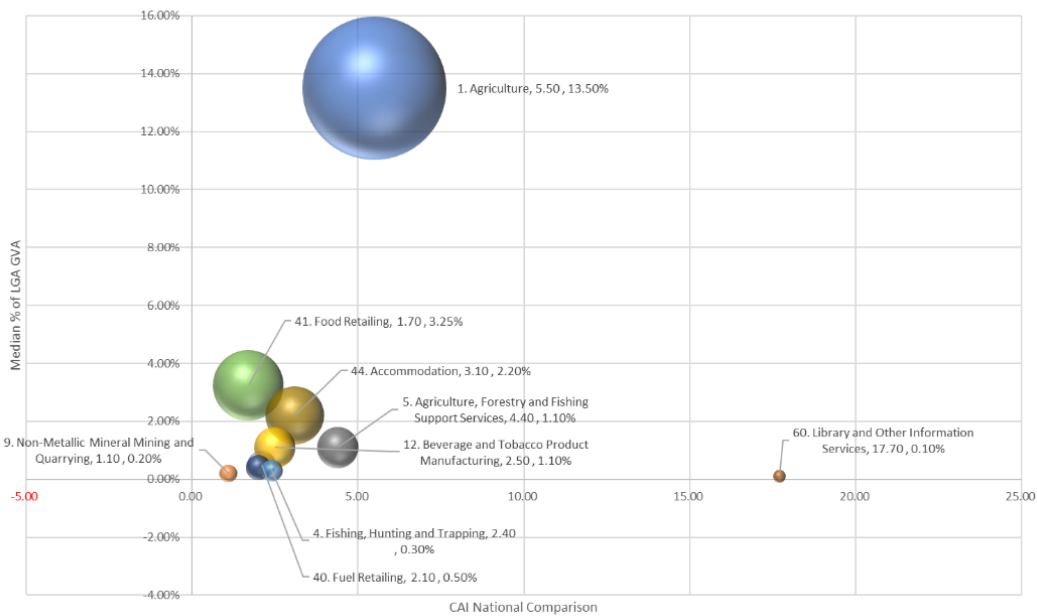
Figure 101: 10 Top Industries in PUGRC - GVA By Growth and Size  
(Criteria: Industries that are represented in at least 3 PUGRC LGA's)



Source: Aggregated data from Infrastructure Victoria Comparative Advantage Analysis profile documents  
<https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/>

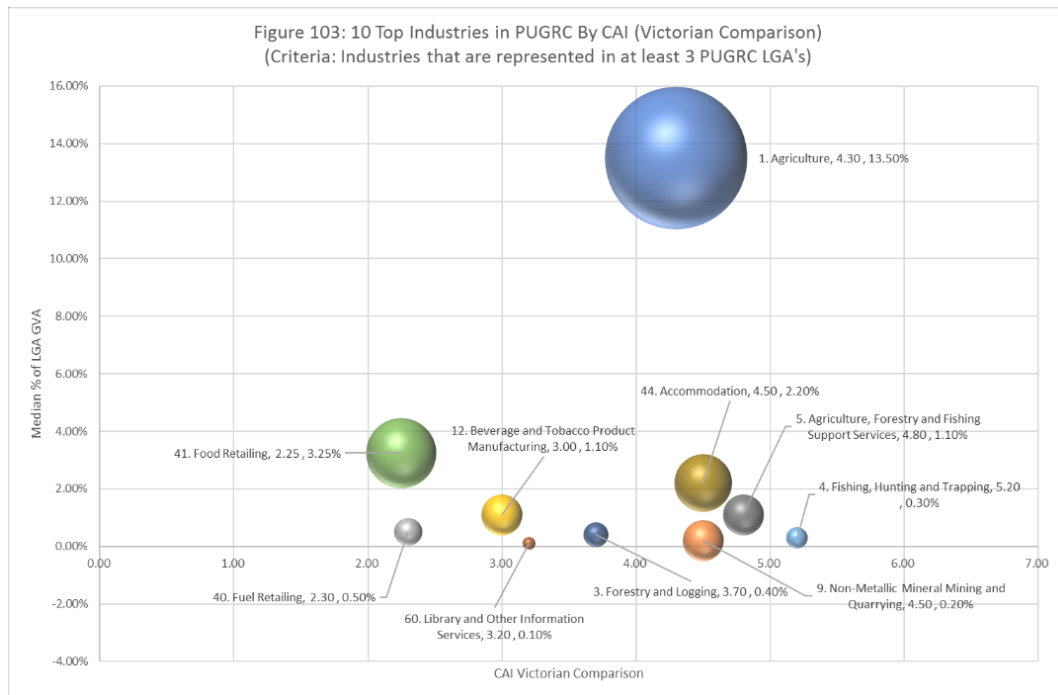
Analysing the National Comparative Advantage data for PUGRC shared industries, highlights one outstanding candidate, Library and other Information Services with a National CAI score of 17.70. Whilst this is a small industry, Bass Coast, Baw Baw and Golden Plains seem to represent a cluster of excellence in this area (Figure 102 below).

Figure 102: 10 Top Industries in PUGRC By CAI (National Comparison)  
(Criteria: Industries that are represented in at least 3 PUGRC LGA's)



Source: Aggregated data from Infrastructure Victoria Comparative Advantage Analysis profile documents  
<https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/>

At the State level, Fishing, Hunting and Trapping Victorian CAI score of 5.20, located in Golden Plains, Macedon Ranges and Surf Coast has the highest Comparative Advantage Score of the top ten shared industries in the PUGRC (Figure 103, below)



Source: Aggregated data from Infrastructure Victoria Comparative Advantage Analysis profile documents  
<https://www.infrastructurevictoria.com.au/project/research-infrastructure-priorities-for-the-regions/>

Analysis of PUGRC Economic structure reveals an economy that is diverse, with a Herfindahl Index score of 65. This is a relatively healthy position to be in for a regional economy, with its diversity acting as a bulwark against industry specific shocks.

Agriculture, Forestry and Fishing, Construction, Health Care and Social Assistance, Retail Trade, Education and Training, and Manufacturing are represented in all PUGRC members economies (except for Education in the Bass Coast LGA). Agriculture is the dominant industry across the PUGRC, representing a median of 28% of the regions GVA. The ten-year median growth rate for agriculture across the region was 54.5%, indicating that this industry is in a healthy state and growing. But Agricultural firms only represent 4.8% of total firms in the region and have declined by -4.3% between 2011-16, indicating either a consolidation of the industry, or the exiting from the industry by retiring farmers is occurring. Traditional businesses in industries such as Retail and Manufacturing are also declining in numbers. This is impacting on the numbers of positions in occupational classifications such as Machinery Operators and Drivers, Technicians and Trade workers, Clerical and Administrative Workers, Sales Workers, Managers and Labourers, which all recorded declines in numbers between 2011-16. At the same time, the proportion of people working as Community and Personal Service Workers and Professionals has seen significant growth. This leads to the conclusion that there is a mismatch in the PUGRC skill base developing and if left unchecked will cause issues with underemployment and unemployment in the labour force with increasingly unwanted skill sets.

Industries that have limited coverage across the PUGRC region, but have significant growth levels include: Non-Store Retailing and Retail Commission Based Buying (+400.50% - Golden Plains and Moorabool – also known as internet retailing), Medical and Other Health Care Services (+155.50% - Bass Coast and Surf Coast), Water Transport (+274% - Moorabool), Residential Care Services (+145% - Macedon Ranges) and Insurance and Superannuation Funds (+371.00% - Macedon Ranges).



On the national level of the IV comparative advantage index, one industry stands out, that is Library and Other Information Services with a National CAI score of 17.70. Unfortunately, Library and Other Information Services only represents a median of 0.10 % of the regions GVA.

Only Agriculture (5.50 CAI Score) and Agricultural, Forestry and Fishing Support Services (4.40 CAI score) reached a CAI National score above 4, of all industry groups which had representation in each LGA across the PUGRC.

At the State CAI level, all regional comparative advantage is in the primary production sector, with the exception of the Accommodation industry. Five industry categories had CAI scores above 4 are: Agriculture (4.30 State CAI score), Non-Metallic Mining and Quarrying (4.50 State CAI score), Accommodation (4.50 State CAI score), Agriculture, Forestry and Fishing Support Services (4.80 State CAI score) and Fishing Hunting and Trapping (5.20 State CAI score).

Whilst Primary production associated industries dominate the PUGRC landscape, there are several smaller industries that have significant growth rates that should receive economic development policy attention. This need to foster non-agricultural sector occupations and employment opportunities, is well founded given the trend of long-term decline in many businesses in traditional industries, such as Wholesale Trade (-37.98%), Manufacturing (-31.81%), Electricity, Gas, Water and Waste Services (-12.44%), Retail Trade (-11.64%), and Transport, Postal and Warehousing (-4.82%), and occupations such as Machinery operators and drivers (-5.09%), Technicians and Trade workers (-4.81%), Clerical and administrative workers (-1.76%), Sales workers (-1.66%), Managers (-1.05%) and Labourers (-0.64%).

There is a real need to re-purpose traditional skill sets through the nurturing and development of new industries. This re-purposing can be achieved through the development of new businesses. New entrepreneurs often struggle in successfully creating a new business. Having a place to go to where they can incubate a business; in an environment that is supportive; has reduced operating costs; provides good advice; enhances critical networks; facilitates investment and access to capital; is a place that would speed up business formation and increase their chances of survival. This concept will be discussed as an action item first, which has been designed to meet the needs of these emerging businesses and industries.

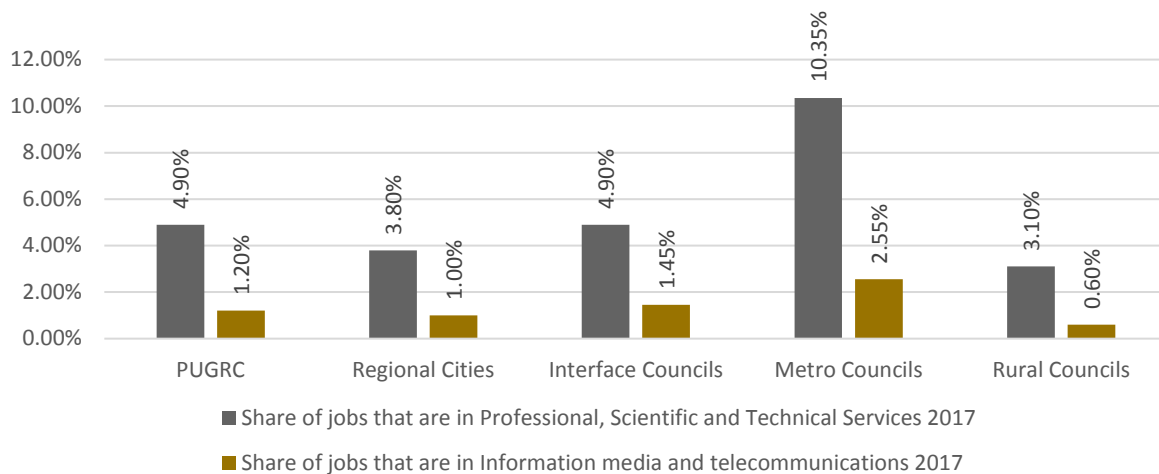
---

## UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE - INNOVATION HUB AND BUSINESS INCUBATOR.

Technical, organisational and service focused innovation and business incubation are two economic development drivers that are able to marry new opportunities with new professional/creatively inclined skill sets and re-purpose old economy skill sets for the new economy.

One indicator of the innovation potential of a region is the number of professional, science and IT qualified jobs it possesses. It is a proxy for the human capital innovation potential of the region. The PUGRC has the second highest proportion of professional, scientific and technical jobs in the state after the Metropolitan Council region (Figure 104). It also has a relatively high level of information media and telecommunications workers.

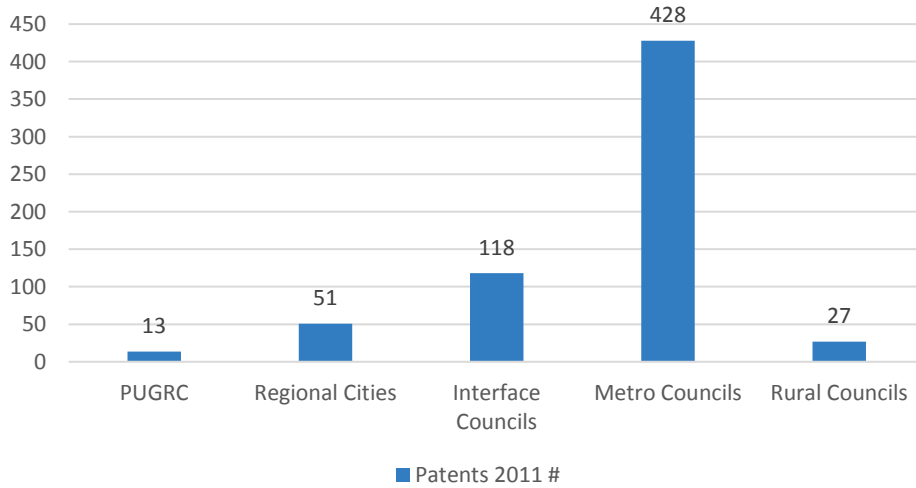
Figure 104: Share of Professional, Science and IT Jobs



Source: Regional Statistics by LGA 2017 <http://stat.data.abs.gov.au>

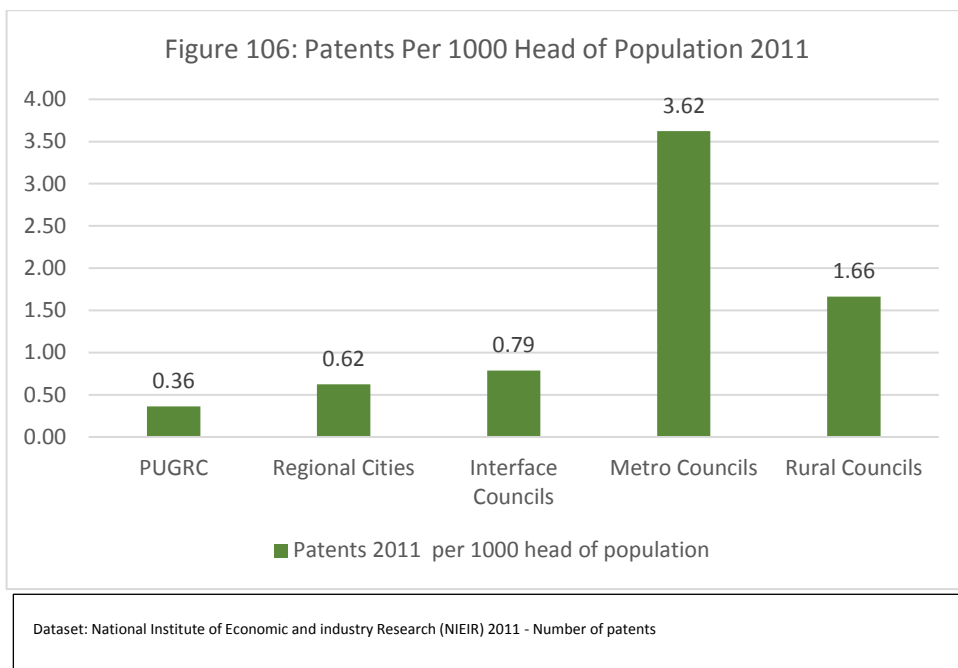
However, if we look at Patents production as a proxy for technical innovation, the PUGRC has one of the lowest levels of innovation of any region. The PUGRC developed only thirteen patents in 2011, compared to 428 for Metropolitan Councils and 118 for Interface Councils (Figure 105).

Figure 105: Patents Total # 2011



Dataset: National Institute of Economic and industry Research (NIEIR) 2011 - Number of patents

This rate of innovation converts into 0.04 patents per 1000 residents in the PUGRC; the second lowest rate of any region within Victoria (Figure 106). This low patent rate reflects the lack of any tertiary research and education institutions within the PUGRC. The lack of dedicated tertiary education linked research and development facilities within the PUGRC is a major obstacle to the region reaching its economic potential. Creating infrastructure and organisations that can facilitate innovation is a key economic development strategy objective. But most of these types of facilities only exist within the Melbourne metro area.



Innovation can be fostered and nurtured within a regional environment if it has supporting infrastructure within it. Most STEM technology hubs and incubators exist only in Metropolitan Melbourne. These hubs and incubators provide cheap rent, business advice and access to venture capital and funding. Anyone who wants to enter this space can only do it if they do it in Melbourne (or a Regional City with a university). This is a model that directly disadvantages regional Victoria outside of the major population centres.

We propose a solution to this problem by creating a series of innovation hubs across the PUGRC that will provide the base for new enterprise formation, prototype development, business advice, education and training, networking, and hacking. As has been seen above, the PUGRC has an inward flow of well-educated new residents. It also has an established population of highly skilled and experienced tradespeople.

The Innovation Hub and Business Incubator we are proposing will enable both the creative technically focused new economy residents/entrepreneurs to network and partner with highly skilled and experienced trade trained residents, ideally to collaborate to develop new products and businesses. This collaborating could be between a clothing designer and a clothing outworker. It could also be between a designer of drone autopilots, and a metal fabricator. The Innovation Hub would focus on STEAM industries (Science, Technology Engineering, Arts and Mathematics) and on less technically focused start-ups, such as hospitality, tourism, and sustainable agriculture ventures to name a few. This concept has five basic elements in it:

1. Multi-Institutional Co-studying Facility (already outlined in UNSDG 3).
2. Prototyping facility and community workshop where residents can share workshop equipment to build prototypes for proof of concept purposes;
3. Hackerspace/STEAM (Science, technology, Engineering, Art, Mathematics) lab;
4. Co-working space; and
5. Business Incubator.

Co-locating these elements will create a focal point for education and learning, idea sharing and innovation, technical and creative play that will ideally drive innovative entrepreneurship to facilitate economic growth. It will also house the Comparative/Absolute Advantage Development Group (CAADG) discussed below.

To address these issues the PURGC proposes the following action:

#### ACTION ITEM 23: UNSDG 9: INDUSTRY, INNOVATION AND INFRASTRUCTURE - INNOVATION HUB AND BUSINESS INCUBATOR.

---

Work with the State and Federal Government to fund the establishment of an Innovation and Business Incubators Hub in each of the main population centres, of the six PUGRC members. This concept has five basic elements in it:

1. Multi-Institutional Co-studying Facility.
2. Prototyping facility and community workshop where residents can share workshop equipment to build prototypes for proof of concept purposes.
3. Hackerspace/STEAM (Science, technology, Engineering, Art, Mathematics) lab.
4. Co-working space, and
5. Business Incubator.

---

#### UNSDG 8: DECENT WORK AND ECONOMIC GROWTH - COMPARATIVE/ABSOLUTE ADVANTAGE DEVELOPMENT GROUP (CAADG)

The work done by Infrastructure Victoria (IV) in creating and publishing a series of comparative advantage studies has filled a much-needed gap in the knowledge of the economic make up and character of regional Victoria. These valuable studies do not give us an understanding of the capabilities and strengths of existing businesses within the PUGRC, and how they are striving towards developing their comparative advantage within the state and national context. To fully understand the full potential of each PURGC LGA's comparative and absolute advantages, we are proposing that another series of studies be developed at a fine grain level that will highlight actual companies, groups and individuals that are achieving high levels of comparative advantage within the PUGRC economy.

We have seen above how the Library and other Information Services with a National CAI score of 17.70, has a clear national comparative advantage within the PUGRC. The IV studies do not outline a definitive pathway to fostering this comparative advantage within the region. It also does not tell us specifically what that comparative advantage is in real terms. Is it in Library services or Information services, and what parts of these two services is it?

Another case in point is the anecdotal evidence of the existence of members of the former Holden and Ford design teams who are now unemployed residing in PUGRC LGAs who could form the nexus of a new vehicle design industry in the region. These specialists could, with Government assistance, form the core of a vehicle design community similar to the Grand Prix design community clustered around Oxford and Cambridge in the UK.

It is within the Innovation and Business Incubation Hub network discussed above, that programs such as a Comparative/Absolute Advantage Development Group (CAADG) could be housed, which would aim to discover pockets of highly skilled human capital, or the innate nature of these industries with high levels of comparative advantage, and create critical pathways to develop them into new businesses and employment opportunities within the PUGRC.

The CAADG activities would consist of:

- Identifying existing areas of Comparative/Absolute Advantage that can be developed and fostered within the PUGRC.
- Mapping the skills and technical capabilities of the residents and businesses within the PUGRC.
- Identify investment and venture capital.
- Creating a business networking structure, to collaborate on common projects.
- Identifying business development opportunities common business collaborations.
- Facilitating the co-ordination new enterprises through the prototype to commercialisation critical paths.

To address these issues the PURGC proposes the following action:

#### **ACTION ITEM 24: UNSDG 8: DECENT WORK AND ECONOMIC GROWTH - COMPARATIVE/ABSOLUTE ADVANTAGE DEVELOPMENT GROUP (CAADG).**

---

Create a Comparative/Absolute Advantage Development Group (CAADG), which would aim to build comparative and absolute advantage through the development of new business and employment opportunities within the PUGRC. The CAADG would be in same location as the Innovation Hub and Business Incubator (UNSDG 9 below) and the Multi-Institutional Co-studying Facilities (UNSDG 4 above). The CAADG would consist of:

1. Identifying existing areas of Comparative/Absolute Advantage that can be developed and fostered within the PUGRC. This would be a fine grained exercise using the desktop analysis already conducted by Infrastructure Victoria and taking it to the next level of transparency, where specific companies and groups of Human Capital rich specialists residing in the PUGRC can be identified and activated into projects that develop comparative advantage regionally.
2. Mapping the skills and technical capabilities of the residents and businesses within the PUGRC for the purpose of identifying Comparative Advantage specialised Human Capital
3. Identify investment and venture capital that could be utilised for Comparative/Absolute Advantage development.
4. Creating a business networking structure, that will allow local businesses to collaborate on contracted projects.
5. Identifying business development opportunities for local businesses and independent contractors to work together to develop new products and services.
6. Facilitating the co-ordination of human capital elements, finance, general business building and development pathways and shepherding new enterprises through the prototype to commercialisation critical paths.

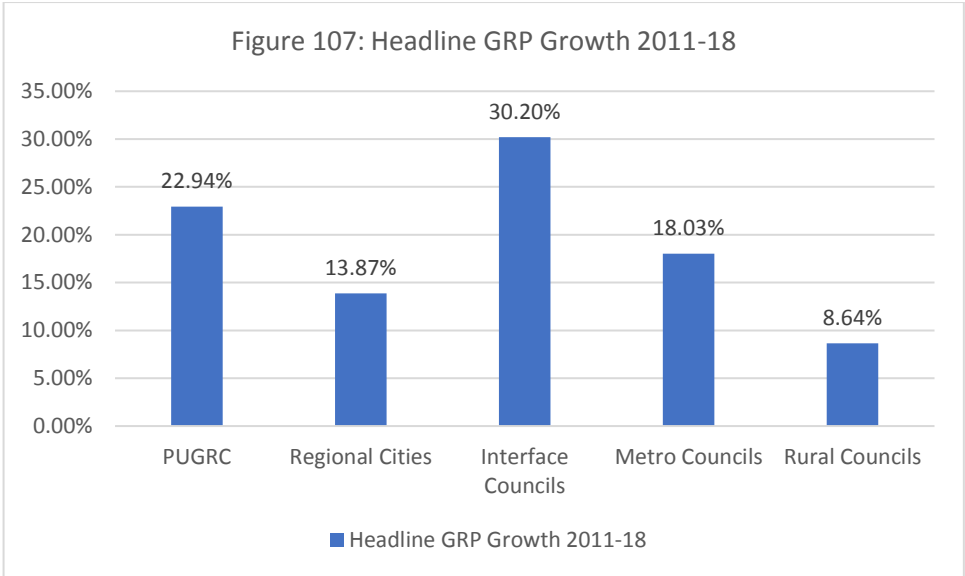
---

#### **UNSDG 17: PARTNERSHIPS FOR THE GOALS –\$20 MILLION P.A. PUGRC GROWING TOWNS FUND**

As we have seen above in UNSDG 9 which explored road funding inequalities and UNSDG 10 which explored the regional institutional bias suffered by the PUGRC, with past administration of the Regional Development Victoria funding vehicles, we see how these impacts increase the inequality the PUGRC economy has suffered from multiple institutional bias.

We will now turn to the disadvantage the PUGRC experiences in State and Federal Grant allocations, and how this impacts on the PUGRC being able to address the demands its high level of population and economic growth is putting on the region. We have already explored the reasons for the high levels of population in the PUGRC. It's now time to turn our attention to its economic growth.

The headline growth in Gross Regional Product (GRP) in the PUGRC is one of the highest levels of any region in Victoria. At 22.94% between 2011-18, the PUGRC experienced economic growth above that of Metro Councils, only second to the very bullish growth in the Interface Council region. This GRP result mirrors the growth in population being experienced by the PUGRC and the Interface Council Region (Figure 107).

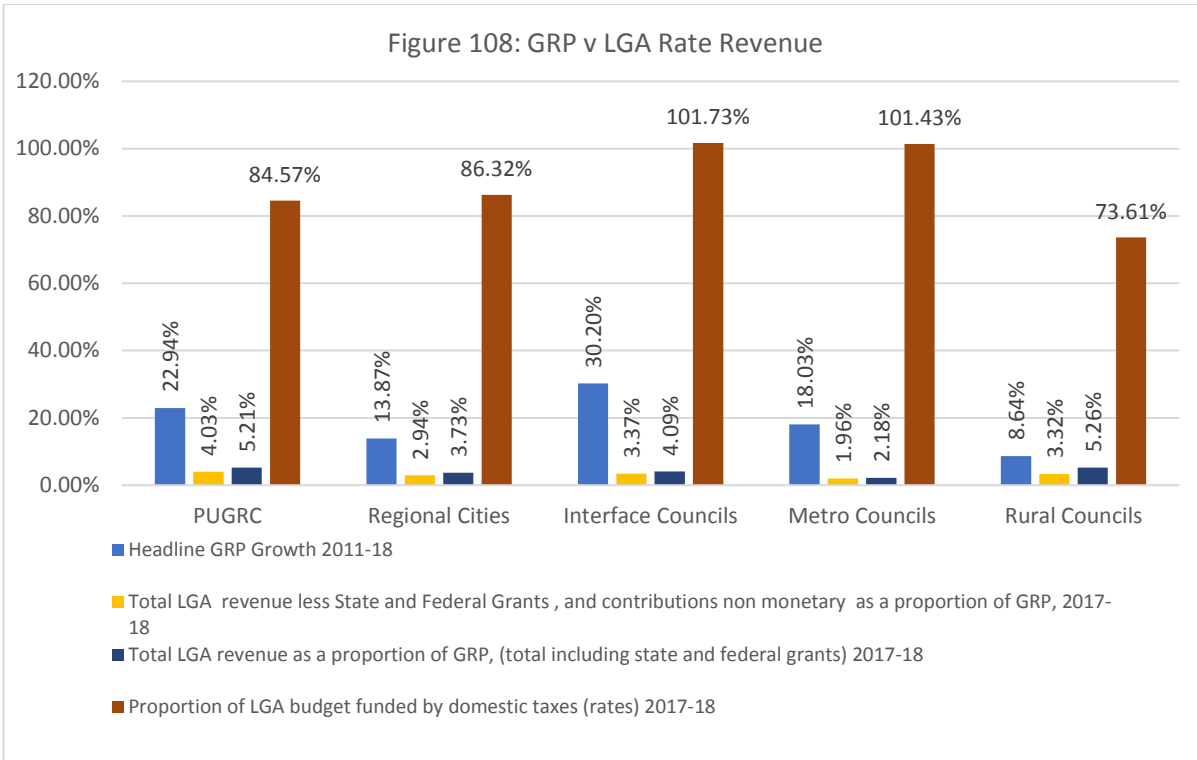


Source NIEIR 2019

However, this healthy GRP growth does not translate directly into a revenue stream for LGA's in the PUGRC. PUGRC locally generated revenues (such as rates) as a percentage of GRP is the highest of any other region at 4.03%, reflecting the dominance of Local Government as part of the local economy (Figure 108). If we include State and Federal Grant into this equation, Rural Councils LGA revenue's share of GRP at 5.26%, outpaces that of the PUGRC revenue including Grants (5.21%) by 0.05%. Both these data measures reveal that the activity of Local Government in the regional economy is more significant in the PUGRC and Rural Councils than in any other region in the state.

The real measure of the ability of Local Government to fund economic development solutions, is the metric outlined in Figure 108. Here we can see that currently, PUGRC members are on average only funding 84.57% of all their council current activities through their rate base, the second lowest level of financial sustainability of any group of Councils in Victoria. The only group to have a lower level of financial sustainability is the Rural Council group being able to fund only 73.61% of their budget from their rate base. How these Local Government Authorities fund the remainder of their budget is through State and Federal Grants for operational costs and capital works. As a result, there is little left in PUGRC members budgets to fund economic development themselves. We have seen above how in the past this situation has been exacerbated by the bias demonstrated by RDV in favouring Regional Cities over PUGRC councils.

Figure 108: GRP v LGA Rate Revenue

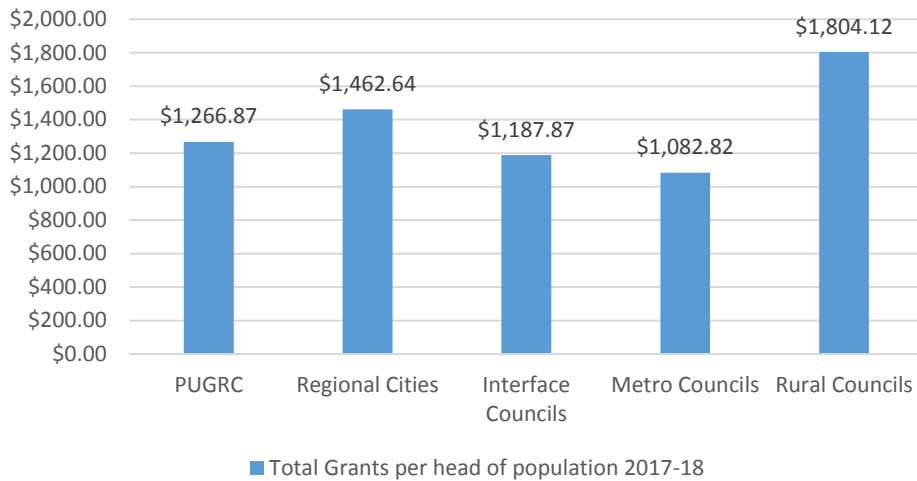


Source NIEIR and data from all 79 LGA's Comprehensive Income Statements For the Year Ended 30 June 2018 Annual Report Financial Statements

State and Federal grants come from a number of departmental sources, but in Victoria they generally come through the Victorian Grants Commission. Part of the Federal Government legislation governing the distribution of Federal grant funds to LGA's, requires that these funds be distributed on a per-person basis. This creates a distortion in regard to the way that Federal Grants are distributed. This creates a situation where LGA's with the highest rate revenues and highest populations (Metropolitan Councils), that are able to fund their own infrastructure, receive the largest amounts of Federal grant funding. Conversely, those areas that have smaller populations, lower rate revenues to fund infrastructure and who need that infrastructure much more, receive the lowest levels of Federal grant funding. As we saw in Figure 108, Interface and Metro Councils have a rate base that allows them to raise over 1% more revenue than they need for their operational and capital budget. Whilst the PUGRC experiences a -15% rate revenue to budget short fall.

In 2017-18 the Victorian Grants Commission distributed Federal grant funds to LGAs within each of the five regions as outlined in Figure 109 below. The distribution of funding appears to be reasonably equitable, with the PUGRC receiving a higher amount per person compared to the Interface and Metro Councils. But below that received by Regional Cities, who had a higher ability to service their budgetary requirements from their own rate base. Rural Councils received the highest per person grant allocations during this period.

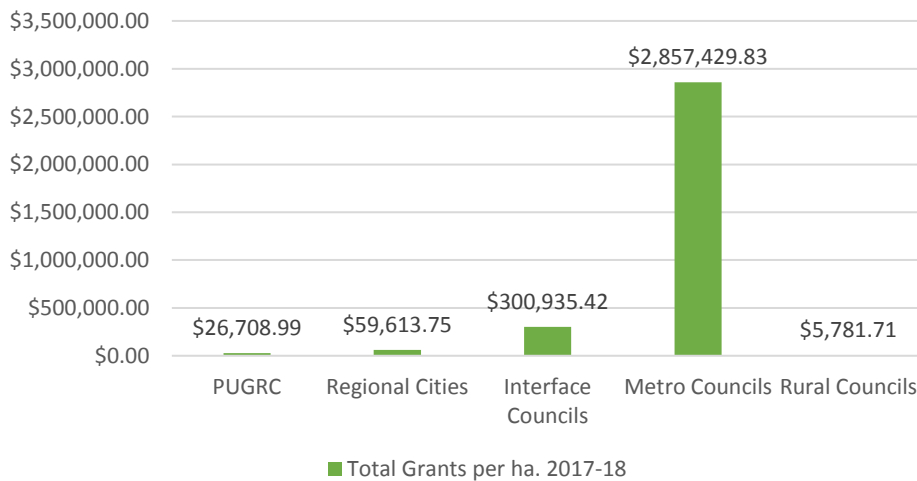
Figure 109: Total Grants per head of population 2017-18



Source VIF data and data from all 79 LGA's Comprehensive Income Statements For the Year Ended 30 June 2018 Annual Report Financial Statements

The issue for the PUGRC, is that grant funding is not spent directly on individuals, it is spent on roads, drainage and other council provided infrastructure and services. The median size of a PUGRC LGA is 1,929 Km<sup>2</sup>. The median size of a Metro Council LGA is 61 Km<sup>2</sup>. As we see in Figure 110, the PUGRC receives approximately \$26k for each hectare of land it must administer. This is compared to the \$2.8m the Metro Councils receive per hectare for the same purpose.

Figure 110: Total Grants per ha. 2017-18



Source VIF data and data from all 79 LGA's Comprehensive Income Statements For the Year Ended 30 June 2018 Annual Report Financial Statements



To address the issues raised in this chapter the PUGRC proposes the establishment of a PUGRC Growing Towns Fund, that mirrors the Growing Suburbs fund available to the Interface councils. The Growing Suburbs Fund (GSF) is a \$250 million investment (over four years) in local infrastructure for communities in Melbourne's inner peri urban region. It focuses on delivering projects that improve the amenity, liveability and resilience of inner peri urban regional communities. It funds local infrastructure such as family and community centres, town centres, civic revitalisation projects, open-space and amenity improvements. The PUGRC needs a similar fund, of \$80 million over four years to cover the loss of revenue from rate capping.

The Growing Towns Fund is available to Interface Councils of the inner peri urban fringe surrounding Melbourne. The ten interface councils are: Cardinia, Casey, Hume, Melton, Mitchell, Mornington Peninsula, Nillumbik, Whittlesea, Wyndham, and Yarra Ranges. This fund is not available to any PUGRC members.

The objective of the GSF fund is to target grants towards high priority community infrastructure projects that contribute to:

- delivery of innovative models of integrated/shared community infrastructure
- improved local economic conditions in Melbourne's interface communities
- improved capacity for councils to respond to changing community needs and demands.<sup>83</sup>

The GSF is aimed at funding primarily social infrastructure that is not funded through developer contributions, or currently budgeted through Council finances. It is aimed at providing infrastructure in a timely manner to new communities within the Interface region.

The 2019-20 GSF will fund a mix of projects that have a direct benefit to communities across the following broad infrastructure categories:

- community health and well-being
- early education, learning and training
- sport, recreation, and leisure facilities that support multi use purposes
- environmental and climate change resilience
- placemaking, civic amenity, and community connecting<sup>84</sup>

GSF aims to deliver projects that improve the amenity, liveability and resilience of interface communities, support connections, enhance services and provide local jobs.

## GROWING TOWNS FUND STRUCTURE

---

The PUGRC proposes a similarly structured fund to the Growing Suburbs Fund, the Growing Towns Fund (GTF). The GTF would include the current range of funding streams included in the GSF, such as:

- Community Health and Well-Being, Education,
- Learning and Training, Multi Use Sport, Recreation, and Leisure Facilities,
- Environmental and Climate Change Resilience,
- Placemaking, Civic Amenity, and Community Connecting.

The GTF would have similar categories, but with an added focus on providing Future Focused Essential Infrastructure, (FFEI) and funding for Economic Development (EconDev) projects included in the funding mechanism.

The aim of the GTF will be to fill the funding gap between what PUGRC councils can collect through rate and fee revenue and grant funding revenue, and funds needed for social, environmental, and essential infrastructure that is required to meet the future growth needs of the PUGRC. It is proposed to meet this need with an \$80 million dollar fund, being streamed onto 7

---

<sup>83</sup> p.6, 2019 -20 Growing Suburbs Fund - Application Guidelines

<sup>84</sup> P.7, 2019 -20 Growing Suburbs Fund - Application Guidelines

broad categories of funding. In this way the full range of socio-economic infrastructure needs can be met in one accessible funding mechanism.

These categories could include:

1. Community Health and Well-Being (CHWB)
2. Education, Learning and Training (ELT)
3. Multi Use Sport, Recreation, and Leisure Facilities (MUSRLF)
4. Environmental and Climate Change Resilience (ECCR)
5. Placemaking, Civic Amenity, and Community Connecting (PCACC)
6. Future Focused Essential Infrastructure: (FFEI) drainage, waste, roads and associated footpaths, and public transport infrastructure
7. Economic Development (EconDev)

Lets now look at each of these categories separately, starting with Community Health and Well-Being.

Community Health and Well-Being (CHWB): This category would consist of locally based services and infrastructure that have a direct focus on alleviating social and economic disadvantage. Some of the services that could be funded under this stream include:

- Emergency Services (CFA related infrastructure)
- Community Health care
- Welfare Services
- Food Security Services
- Domestic Violence Services
- Emergency Accommodation Services
- Affordable Accommodation Services

Education, Learning and Training (ELT): This category would consist of locally based services and infrastructure that have a direct focus on community access to assisted knowledge acquisition, alleviating education disadvantage, and bolstering education services where there is market or government failure in funding. Some of the services that could be funded under this stream include:

- Library Funding
- Tertiary and Trade Distance Education Facilities
- Pre-School-Secondary Learning Facilities (not covered in other funding sources)

Multi Use Sport, Recreation, and Leisure Facilities (MUSRLF): This category would consist of locally based infrastructure that have a direct focus on community sporting needs. Some of the services that could be funded under this stream include:

- Sporting grounds for AFL, Cricket, Soccer, Hockey and Basketball Etc.
- Female amenity upgrades at established sporting facilities
- Indoor/outdoor facilities for non-traditional leisure activities and sports such as skate parks, drone racing, and recreational hacker and gaming spaces.

Environmental and Climate Change Resilience (ECCR): This category would consist of locally based infrastructure, services and the establishment of networks that have a direct focus on projects and activities to reduce the impact of climate change, protect the environment and local bio-diversity. Some of the infrastructure and services that could be funded under this stream include:

- Funding the establishment of Community Sustainable Energy Networks
- Habitat and bio-diversity protection projects
- Sea level rise abatement works
- Extreme heat community protection facilities

Placemaking, Civic Amenity, and Community Connecting (PCACC): This category would consist of locally based infrastructure and services that have a direct focus on projects and activities that provide infrastructure and services for connecting community through building community places and providing civic amenity. Some of the services and infrastructure that could be funded under this stream include:

- Building of club facilities
- Community Hubs
- Town centre public places
- Playgrounds
- Space renewal programs

Future Focused Essential Infrastructure: (FFEI): This category would consist of locally based infrastructure, that have a direct focus on projects that address short falls in Council's Essential Infrastructure programs. This stream of the fund aims to build and pre-position infrastructure in advance of future communities migrating to PUGRC LGA's. This stream's aim is to mitigate the impact of population growth on current residents and facilitate the integration of new residents into local new and established communities. Some of the infrastructure that could be funded under this stream include:

- Non-DCP Drainage
- Non-DCP Sewerage
- Waste and recycling facility establishment and upgrades
- Non-DCP roads and associated footpaths, and
- Public transport infrastructure

Economic Development (EconDev): This category would consist of locally based infrastructure, services that have a direct focus on projects and activities aimed at facilitating economic development and funding direct economic development projects. Some of the services that could be funded under this stream include:

- Assistance with Tourism projects
- Innovation and Incubation Hubs
- Sustainable and renewal business development

To address these issues the PURGC proposes the following action:

#### ACTION ITEM 25: UNSDG 17: PARTNERSHIPS FOR THE GOALS - \$20 MILLION P.A. PUGRC GROWING TOWNS FUND

Work with State Government to establish a PUGRC Growing Towns Fund. That the State Government establish a Growing Towns Fund at the rate of \$20million per year as part of the 2020-21 budget process. Which should become an ongoing capital investment expenditure fund.

## CHAPTER 4: INDUSTRY SPECIFIC ECONOMIC DEVELOPMENT PACKAGES.

In the sections above the PUGRC SEED Model has been outlined, analysis of the migration patterns of inward migration and an analysis of the UNSDG data itself has been used to justify the proposal of a series of Action Items that form the basis of the PUGRC Economic Development strategy. We are now at the point where we bring all of these elements together to outline specific industry development packages that will form the strategic pathways for the delivery of economic development across the PUGRC.

The PUGRC Economic Development strategy has identified six areas that will assist all economic activity across the PUGRC region. These six areas address shared critical deficiencies within the PUGRC economy, and or specific industries requiring development in the region.

Below are six industry development packages based on the PUGRC SEED Model, which use the PUGRC SEED Model Pathway matrix to outline in diagrammatic form each key element of each industry development package.

There are six Industry Specific Economic Development Packages:

7. New Economy Industry Development Package
8. Agricultural Industry Development Package
9. Retail Industry Development Package
10. Tourism Industry Development Package
11. Transportation Industry Development Package
12. Circular Economy Development (Recycling and Secondary Industry Development) Package

To make discussion of these Industry Development Packages easier, they have been broken down into two parts. Firstly, below is a discussion of Community Development which are common Action Items across all Industry Development Packages, that build economic capability and form the basis upon which economic development can be built. Then we will examine the Economic Development Activities in the form of the Industry packages we discussed above. Lets now look at the Community Development Action Items.

### COMMUNITY DEVELOPMENT

The UNSDG's focus on community wellbeing broadly fits within the framework of community development, with many identified issues and problems falling outside of the traditional scope of what could be considered economic development. The PUGRC SEED model recognises this differentiation, but also the need to highlight the interlinkages between actions and projects that are solely or partially community development focused and those that have a pure economic outcome.

The 16 community development Action Items outlined below, not only build capacity for effective economic development, they also provide wider non-economic benefits to the community. This dual effect is why they have been included in the community development section, and not characterised as strictly economic development Action Items.

All 16 community action items have been included in each Industry Development Package for consistency, as they create the economic, environmental, infrastructure and social framework for each of these Industry Specific Economic Development Packages to succeed in the PUGRC.

We have separated out these common community development Action Items below for brevity. Each of these action items are represented with their relevant UNSDG number in the six Industry Specific Economic Development Package diagrams that you will see below.

The Sixteen common community development action items are:

---

## PSYCHOLOGICAL NEEDS ACTION ITEMS – CLIMATE ACTION (COMMUNITY DEVELOPMENT ACTIVITY)



1. UNSDG 13: Climate Action - Work with State and Federal Government to fund the creation of a PUGRC Regional Climate Change Action Plan which will include a complete analysis of the threats that climate change poses to the PUGRC region, and propose a critical pathway to deliver substantive mitigation strategies and infrastructure to address this serious regional and global challenge.



2. UNSDG 14: Life Below Water - Work with the State Government to extend the protection of the Distinctive Areas and Landscapes to include coastal water ways.



3. UNSDG 15: Life on Land - Work with the State Government to extend the protection of the Distinctive Areas and Landscapes within the PUGRC.

---

## PSYCHOLOGICAL NEEDS – INFRASTRUCTURE – (COMMUNITY DEVELOPMENT ACTIVITY)



4. UNSDG 6: Clean Water and Sanitation – Work with State and Federal Government to fund the building of water recycling facilities in the PUGRC with the purpose of providing cheap, available water to the agricultural (and other business sectors) industry to assist in developing a Sustainable Intensive farming sector.



5. UNSDG 7: Affordable and Clean Energy - Work with State Government to partner with the PUGRC to assist with the setting up of community energy generation projects, to make the PUGRC a sustainable energy region. This includes the introduction of a Battery base load project to safeguard electricity supply during peak load periods.

---

## SAFETY NEEDS – HUMAN CAPITAL DEVELOPMENT (COMMUNITY DEVELOPMENT ACTIVITY)



6. UNSDG 3: Good Health and Wellbeing, Work with State and Federal Government to fund the establishment of Multi-disciplinary Medical and Emergency Centres. These centres would provide access to GP, mental health, maternity and emergency EMS facilities is a priority for the PUGRC. We propose the adoption of a model, which combines a GP service, with a small hospital ward structure, and an emergency room for critical patients. In this facility a basic EMS service can be established as a first point of call for local medical practices to send their emergency clients to receive emergency care and triage. In this way emergency care can be administered more quickly, rather than just being sent directly to major hospital centres that could be hours away. This will enable road accident victims to receive emergency care much more quickly. These centres can also be the base for localised cancer treatment for local communities and health education hubs from which educators can deliver much needed health education.



7. UNSDG 4: Quality Education - Multi-Institutional Co-studying Facilities, Work with State and Federal funding for a series of Multi-Institutional Co-studying Facilities in the PUGRC. A Multi-Institutional Co-Studying Facility would consist of classrooms with video conferencing facilities that could link students to lectures and classes at any university or TAFE. This would allow students to interact with the class/lecturer, ask questions, sit through presentations from the classes they are taking at their education institution without having to leave their town or region. This type of facility could reduce the sliding tertiary and TAFE enrolment rates and decrease the higher education attrition rates being experienced by PUGRC youth.

---

## COMMUNITY BELONGING – INFRASTRUCTURE (COMMUNITY DEVELOPMENT ACTIVITY)



8. UNSDG 9: Industry, Innovation and Infrastructure – Work with the State and Federal Government to increase the level of road funding to a minimum per km funding enjoyed by Metro and Interface councils.



9. UNSDG 9: Industry, Innovation and Infrastructure - Work with the Federal Government to ensure the PUGRC has the same level of Internet connectivity as the metropolitan centres.



10. UNSDG 9: Industry, Innovation and Infrastructure - Work with the State and Federal Government to address the unacceptable level of mobile coverage and connectivity in the PUGRC, and reduce the numbers of blackspots to zero.



11. UNSDG 11: Sustainable Cities and Communities - Extension of viable, affordable, frequent and reliable public transport within the PUGRC. Work with State and Federal Government to assist with the extension of viable, affordable, frequent and reliable public transport within the PUGRC. Funding for a comprehensive public transport plan for the PUGRC, to link PUGRC towns and villages with population hinterlands within PUGRC LGA's and to regional cities and Metro population centres. Funding for the conduct of trials of new economy public transport solutions, such as automated bus systems, expansion of the taxis network and bike paths throughout the PUGRC.



12. UNSDG 12: Responsible Consumption and Production. Draft policies to enhance diversion of waste from land fill to recycling. These might include: Redesignated the waste collection stream into food/organics waste only, recyclables only and e-waste only waste streams. The development of new food waste storage systems and options within the home for residents. Develop a distinctive e-waste recovery process for larger e-waste items such as TV's and computer monitors. Education program on why we need to recycle more effectively and how it will help council and the residents in the end. The objective is to increase the current level of diversion from landfill from 40% to 80% within three years.

---

## COMMUNITY BELONGING – TOLERANCE AND EQUITY (COMMUNITY DEVELOPMENT ACTIVITY)



13. UNSDG 10: Reducing Inequality - Work with State and Federal Government to ensure that high growth regional areas are treated equally to those more prosperous regions in the allocation of government funding in the form of a Growth Assistance Pact. This will bind State and Federal agencies to addressing the needs of regions like the PUGRC, with high growth and relative high levels of inequality.

---

## COMMUNITY BELONGING – OPPORTUNITY (COMMUNITY DEVELOPMENT ACTIVITY)



14. UNSDG 17: Partnerships for the Goals - Work with State Government to establish a PUGRC Growing Towns Fund, (GTF) whose aim will be to fill the funding gap between what PUGRC rate and fee revenue, currently available grant funding revenue and funds needed for social, environmental, and essential infrastructure that is required to meet the future needs of growth in PUGRC LGA's. It is proposed to meet this need with funding being streamed onto 7 broad categories of funding. In this way the full range of socio-economic infrastructure needs can be met in one accessible funding mechanism. These categories could include: Community Health and Well-Being (CHWB), Education, Learning and Training (ELT), Multi Use Sport, Recreation, and Leisure Facilities (MUSRLF), Environmental and Climate Change Resilience (ECCR), Placemaking, Civic Amenity, and Community Connecting (PCACC), Future Focused Essential Infrastructure: (FFEI) drainage, waste, roads and associated footpaths, and public transport infrastructure, and Economic Development (EconDev).

---

## SELF ESTEEM NEEDS - TOLERANCE AND INEQUALITY (COMMUNITY DEVELOPMENT ACTIVITY)



15. UNSDG 5: Gender Equality - Develop with the State a program for the promotion of women to management positions in business throughout the PUGRC.



16. UNSDG 16: Peace, Justice and Strong Institutions - Address the level of acceptance of Multiculturalism through public engagement with the general public and minority groups, to demonstrate that the PUGRC region is a tolerant and accepting place to visit, live and build a business.

---

## ECONOMIC DEVELOPMENT

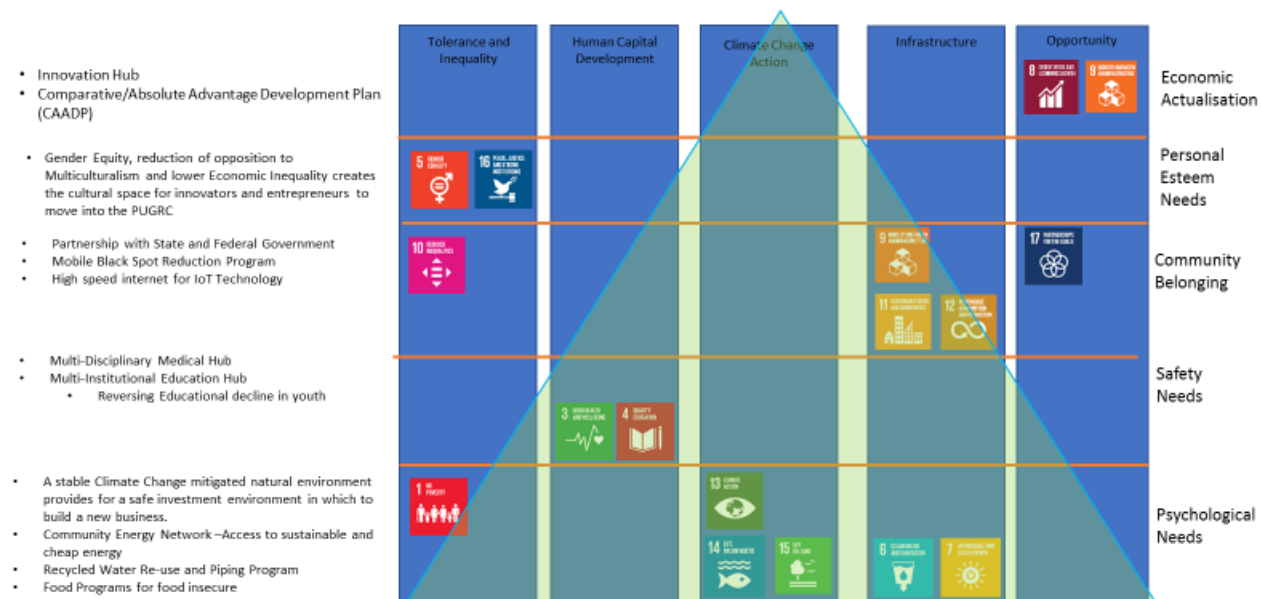
---

### PUGRC SEED MODEL PATHWAY – NEW ECONOMY INDUSTRY DEVELOPMENT PACKAGE

The PUGRC has many opportunities to develop new businesses and industries with significant numbers of tertiary educated residents moving to the PUGRC. These opportunities will only increase with the introduction of new automated and artificial intelligence based production processes into the economy within the next 10-15 years. The creation of new innovative businesses should be the priority of any region experiencing the level of growth the PUGRC is experiencing so close to major

population centres as Melbourne. To facilitate new business creation and development of nascent new economy industries it is proposed to establish a New Economy Industry Development Package consisting of an Innovation Hub and Business Incubator and a Comparative/Absolute Advantage Development Group in each LGA of the PUGRC. These two projects will drive new business formation within the PUGRC, providing a supportive entrepreneurial environment for prospective start-ups to germinate and grow. Outlined below is a SEED pathway to ensuring the growth of New Economy Businesses within the PUGRC (Figure 111).

Figure 111: SEED Model Pathway – New Economy Industry Development



## Economic Development

### Economic Actualisation – Opportunity (Economic Development Activity)



#### UNSDG 9: Industry, Innovation and Infrastructure – Innovation and Business Incubator Hub.

Work with the State and Federal Government to fund the establishment of an Innovation and Business Incubator Hub in each of the main population centres, of the six PUGRC members. This concept has five basic elements in it:

1. Multi-Institutional Co-studying Facility.
2. Prototyping facility and community workshop where residents can share workshop equipment to build prototypes for proof of concept purposes.
3. Hackerspace/STEAM (Science, technology, Engineering, Art, Mathematics) lab.
4. Co-working space, and
5. Business Incubator.





## UNSDG 8: Decent Work and Economic Growth - Comparative/Absolute Advantage Development Group (CAADG).

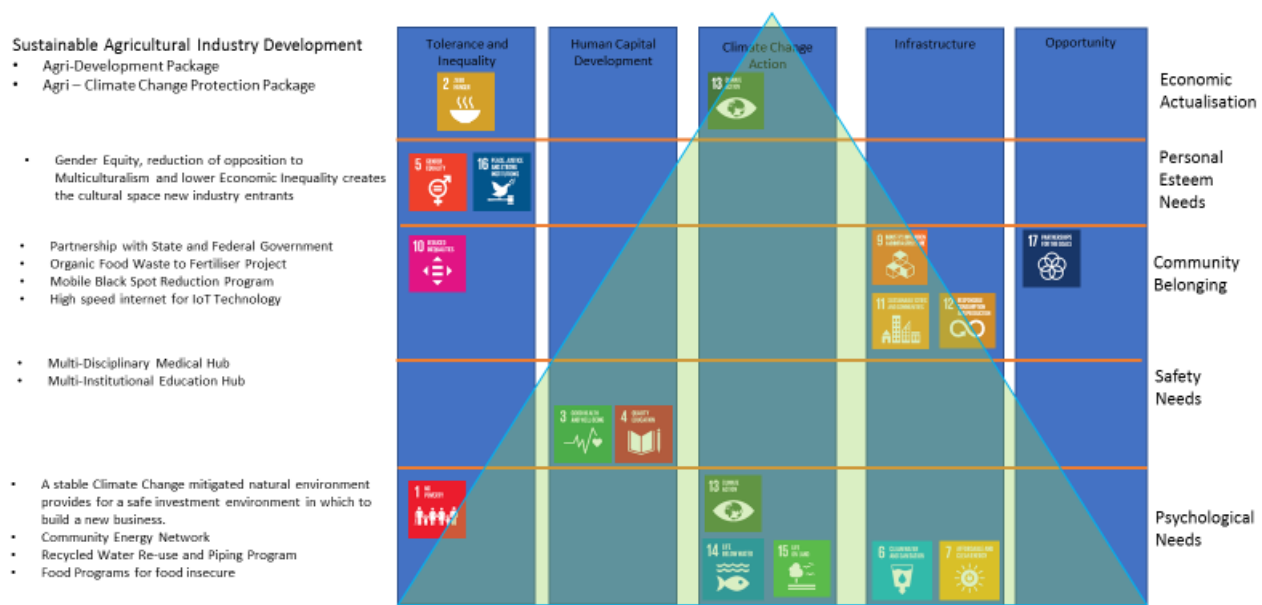
Create a Comparative/Absolute Advantage Development Group (CAADG), which would aim to build comparative and absolute advantage through the development of new business and employment opportunities within the PUGRC. The CAADG would be in same location as the Innovation Hub and Business Incubator (UNSDG 9 below) and the Multi-Institutional Co-studying Facilities (UNSDG 4 above). The CAADG would consist of:

1. Identifying existing areas of Comparative/Absolute Advantage that can be developed and fostered within the PUGRC. This would be a fine grained exercise using the desktop analysis already conducted by Infrastructure Victoria and taking it to the next level of transparency, where specific companies and groups of Human Capital rich specialists residing in the PUGRC can be identified and activated into projects that develop comparative advantage regionally.
2. Mapping the skills and technical capabilities of the residents and businesses within the PUGRC for the purpose of identifying Comparative Advantage specialised Human Capital
3. Identify investment and venture capital that could be utilised for Comparative/Absolute Advantage development.
4. Creating a business networking structure, that will allow local businesses to collaborate on contracted projects.
5. Identifying business development opportunities for local businesses and independent contractors to work together to develop new products and services.
6. Facilitating the co-ordination of human capital elements, finance, general business building and development pathways and shepherding new enterprises through the prototype to commercialisation critical paths.

SEED MODEL PATHWAY – AGRICULTURAL INDUSTRY DEVELOPMENT PACKAGE

Agriculture is the biggest industry in GVA terms in the PUGRC. It is also an essential food supplier to the Melbourne domestic food market, supplying 41% of Melbourne’s food and 80% of its vegetable demand. Between 2013-14 the PUGRC produced \$0.8 billion in agricultural products. Climate change poses a serious and existential threat to Agriculture within the PUGRC. Heat stress of crops and animals through rising temperatures, lower rainfall and extreme bush fire events all threaten the viability of this vital regional industry. A new framework that supports agriculture in a climate change challenged environment should be built in the PUGRC. Also, new agricultural methods need to be established in the PUGRC, which can address these challenges. Outlined below is a PUGRC SEED pathway to ensuring the continued viability and growth of Agriculture in the PUGRC (Figure 112)

Figure 112: SEED Model Pathway – Agricultural Industry Development



Economic Development

Economic Actualisation – Tolerance and Equity (Economic Development Activity)



UNSDG 2: Zero Hunger - Agri-Development Package. Work with State and Federal Government to partner with the PUGRC to develop an Agri-Development package for the PUGRC based on the FoodPrint II pillars of sustainable agriculture, Farmland protection, Farm viability, Water access, Nutrient and Sustainable farming in the PUGRC. This program will focus on the development of the following forms of New Sustainable Agriculture in the region:

- Regenerative agriculture
- Agroecological agriculture
- Sustainable Intensification in Agriculture

- Protected closed-loop agriculture

Economic Actualisation – Climate Change Action (Economic Development Activity)



UNSDG13: Climate Action - Agri – Climate Change Protection Package. Work with State and Federal Government for a plan to address the threats from climate change to our agricultural industry so as to protect the productivity of food production in the region in the future. These will include: a) Development of food waste to fertiliser industry; b) Increase the capacity for water reuse and recycling for agricultural use. This may include a water transport network for recycled water, piping it to designated high intensity farming areas and; c) Development of a high intensity farming strategy, to increase the productivity of farming businesses within the PUGRC.

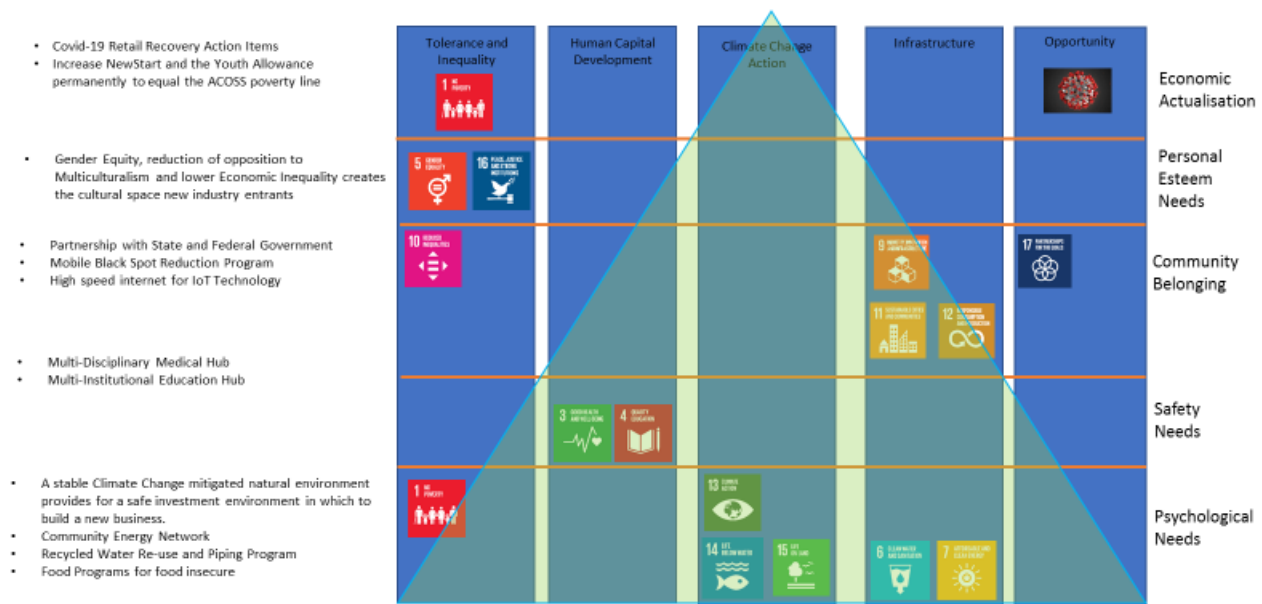
SEED MODEL PATHWAY – RETAIL INDUSTRY DEVELOPMENT PACKAGE

The traditional retail sector is in decline across the region for some time (-11.64% between 2011-16) which has translated into a decline in sales workers jobs within the region of -1.66% over period. The Covid-19 pandemic has shut down most retail businesses across the region delivering another severe hit to the retail industry. Pre -Covid-19 online shopping has cannibalised many retail businesses local markets and Non-Store Retailing and Retail Commission Based Buying (online shopping) is one area that has had growth in the retail industry in the region, growing by +400.50% over the last 10 years (Golden Plains and Moorabool).

Without customers there is no market. Therefore, ensuring customers have the buying power to maintain local retailing is an important economic development consideration. This core recognition of the importance of maintaining buying power within the market for local Retail customers, is an important economic development tool.

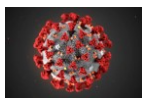
These realisations form the basis for a number of initiatives that are proposed below to assist PUGRC retail businesses adapt and have a chance of survival post lockdown Covid-19 environment. Outlined below is a PUGRC SEED pathway to ensuring the survivability of local retail in the PUGRC (Figure 113).

Figure 113: SEED Model Pathway – Retail Industry Development



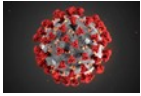
Economic Development

Economic Actualisation – Covid-19 (Economic Development Activity)

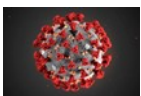


Online access for retail businesses: The ability to sell online has kept afloat many retail businesses that have traditionally relied on a bricks and mortar sales strategy. Businesses that can adapt can survive. We propose that the State and Federal Government’s provide funding for small retail businesses to move to a digital platform so as to be able to offer their products and services (within the bounds of medical advice and social distancing rules) online. This initiative will not only

assist retail businesses by opening new sales channels for their products, but also provide much needed stimulus in the graphic and web design industries which will provide the e-commerce webs sites. The PUGRC proposes that a \$5000 grant to build an e-commerce platform for each small business be made available by either the State or Federal Government to assist these struggling businesses.



Extending the Covid-19 NewStart and Youth Allowance increase indefinitely. Part of the Federal Government's response the Covid-19 crisis has been to increase NewStart and the Youth Allowance to basically the level of the ACOSS poverty line. Most people on this form of welfare purchase most of their goods within 1.5km of where they live. We have estimated that approximately \$763 million would be injected directly into the PUGRC economy each year if this policy was adopted. This Covid-19 enhancement needs to be continued into the foreseeable future to support the economic survival of not only the most vulnerable in our community, but also to ensure that a market for local retailing businesses within the region continues to exist after this crisis has abated (See UNSDG 1 Action Item below).



Local Retail Businesses stimulus payment. We propose that as a post lockdown stimulus strategy for retail industry support that all residents be given a \$2000 once off payment to use with retail businesses in the local economy. This once off payment is designed to jumpstart spending in the months after the lockdown is lifted, and pump prime demand for the local retail industry.

#### Economic Actualisation – Tolerance and Inequality (Economic Development Activity)



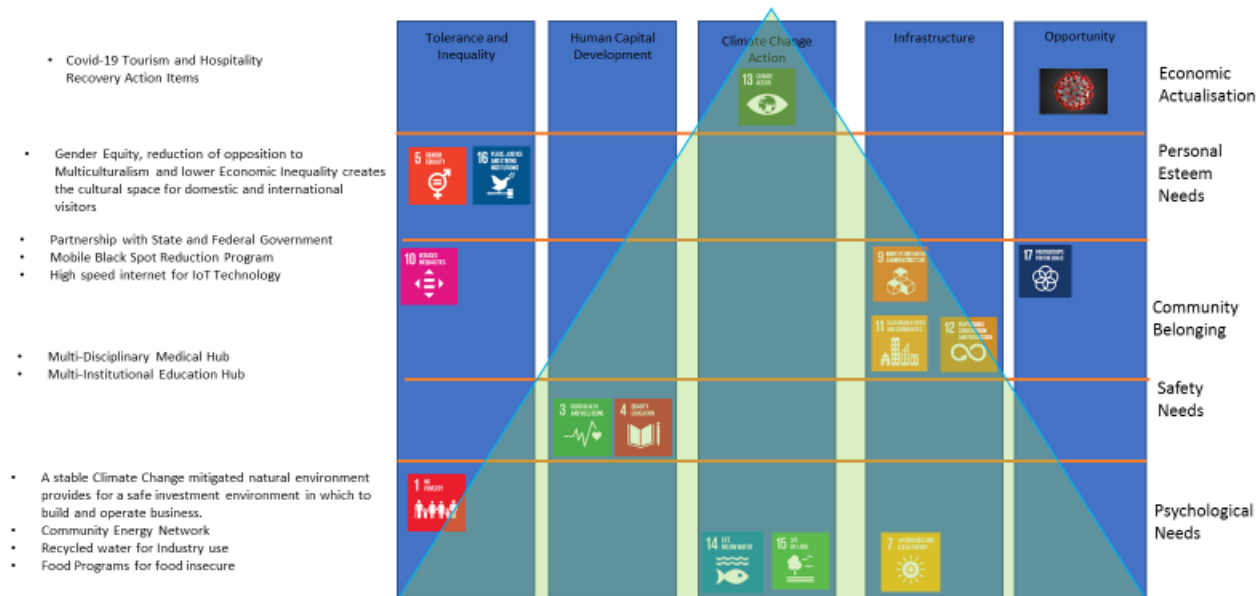
##### UNSDG 1: End Poverty – Increase Poverty Reduction Payments to ACOSS Poverty Line Level

Work with the Federal Government to maintain the current Covid-19 increase in state-based poverty reduction income support (NewStart, Austudy, Abstudy and the Youth Allowance) to a minimum equal to the ACOSS poverty line, to become a permanent increase in these payments.

SEED MODEL PATHWAY – TOURISM INDUSTRY DEVELOPMENT PACKAGE

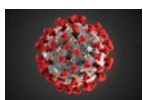
The Surf Coast and Bass Coast are the two PUGRC members who rely heavily on Tourism as a major part of their economy. The Surf Coasts tourism accounts for 8.40% of all jobs and represents 28.6% of all this LGA’s GRP. 69% of day trippers and 73% of overnight domestic visitors, came to the Surf Coast to go to the beach. Whilst the Bass Coast’s tourism sector employs 9.30% of all employees in the LGA and represents 31.4% of GRP in 2017. As other PUGRC member councils build their tourism industry, there are critical elements to building a viable and sustainable Tourism economy across the region. These include the need for high quality large capacity road networks to cope with seasonal influxes of tourists. Good public transport systems that connect the region with major Metro and Regional City markets. Protection of natural land and ocean environments that provide the amenity tourists travel to the PUGRC to enjoy. Appropriate health care and educational infrastructure to provide health care to the tourist population and provide tourism training to residents to support the industry. This Industry Development Package also includes some Action Items that relate directly to the immediate survivability of the Tourism and Hospitality industry as a result of the impacts of the Covid-19 pandemic. Outlined below is a PUGRC SEED pathway to ensuring the survivability, continued vibrancy, and growth of Tourism in the PUGRC (Figure 114).

Figure 114: SEED Model Pathway - Tourism and Hospitality Industry Development

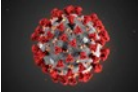


Economic Development

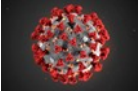
Economic Actualisation – Covid-19 (Economic Development Activity)



Deliver a training, retraining and skills package to upskill existing Tourism workers in preparation for post Covid-19 resumption of trading. This Skills package should be open to all tourism and related workers and business owners who have lost their jobs and businesses due to the Covid-19 pandemic. It includes free tuition and support through Austudy for the duration of their courses. It allows for upskilling for those choosing to return to the Tourism industry after the Covid-19 pandemic has ended. This package will also be open to those wishing to retrain so they can move out of the tourism industry.



\$50 million per year for two years, “Get to know your Region” tourism package. This package is designed to fund advertising, events and marketing to draw tourists back to the PUGRC after the Covid-19 pandemic has ended. The funding for this package would be directed at funding festivals, cultural, gastronomic and sports events to draw tourists back to the regions. It would help cover the costs for advertising, marketing and communication campaigns for the re-invigoration of the industry post Covid-19.

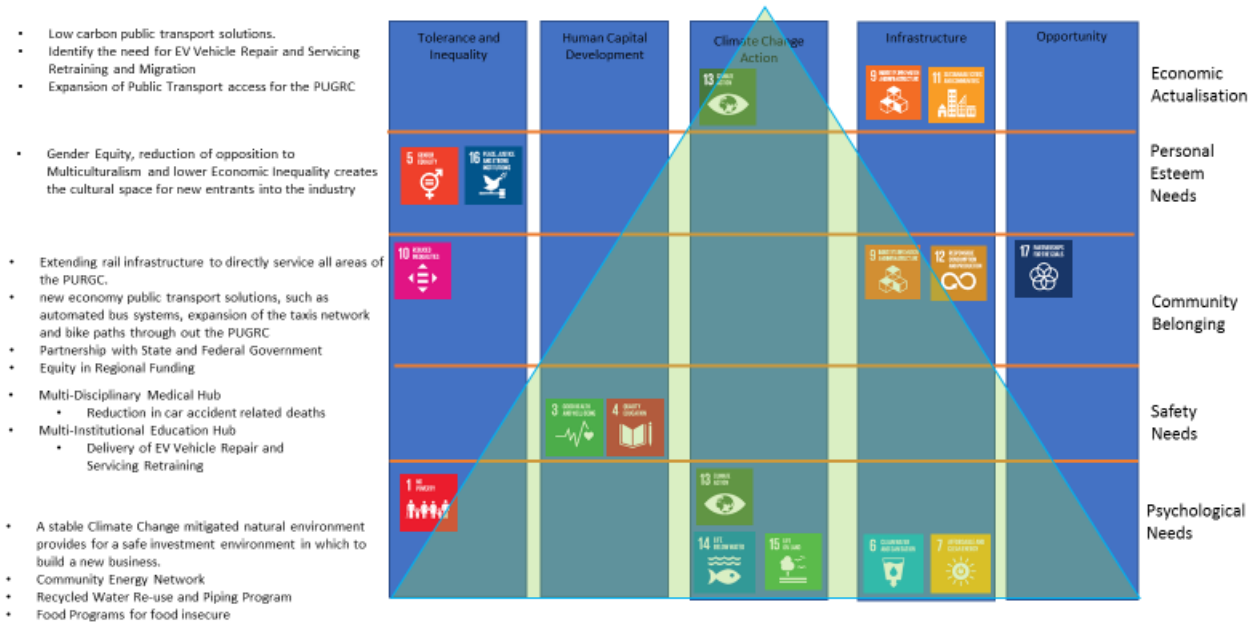


\$2000 per Victorian Family holiday in Victoria voucher package. This system would aim to jolt back demand for tourism products within the State. The voucher would only be available for use within Victoria and could be used for accommodation and food etc. at a single venue. The aim with this package is to sharply increase demand once the Covid-19 pandemic is over.

SEED MODEL PATHWAY – TRANSPORTATION INDUSTRY DEVELOPMENT PACKAGE

Transport in all its forms is an essential part of any economy. We have seen how parts of the PUGRC are significantly disadvantaged by a lack of transport infrastructure and public transport options. This impacts on both human travel, freight and bulk transport of primary produce. Outlined below is the PUGRC SEED pathway to ensuring the continued viability and growth of transport services and infrastructure in the PUGRC (Figure 115).

Figure 115: SEED Model Pathway – Transport Infrastructure Development



Economic Development

Psychological Needs – Climate Action (Economic Development Activity)



UNSDG 13: Climate Action - Work with State and Federal Government to fund the expansion of Public Transport access for the PUGRC. This should be broken down into two parts: Part 1. Funding of a public transport feasibility study outlining how the PUGRC population centres can be linked with the wider existing public transport network. And how innovative public transport solutions can be deployed to provide a reliable, frequent and fast public transport system in PUGRC population centres. Part 2. With the assistance of both State and Federal Governments, fund the strategy outlined in the feasibility study. Also, work with state and Federal Governments for funding for training for current motor vehicle repair and servicing businesses to retrain staff to service and repair Hydrogen and Electric Vehicles in the PUGRC.

Community Belonging – Infrastructure (Economic Development Activity)





UNSDG 9: Industry, Innovation and Infrastructure - Work with the State and Federal Government to investigate the feasibility of extending rail infrastructure to directly service all areas of the PURGC. This would include: Enhanced rail connections between Melbourne and Ballarat , with the extension of suburban services to peri-urban areas - Moorabool. Fast passenger rail between Ballarat and Geelong – Golden Plains. Fast passenger rail service like that enjoyed between Melbourne and Ballarat to be established between Melbourne and Warragul – Baw Baw. Fast passenger rail service like that enjoyed between Melbourne and Ballarat to be established between Wonthaggi and Melbourne (including a freight service for product from the extractive industries) - Bass Coast.



UNSDG 9: Industry, Innovation and Infrastructure – Work with the State and Federal Government to increase the level of road funding to a minimum per km funding enjoyed by Metro and Interface councils.



UNSDG 11: Sustainable Cities and Communities - Work with State and Federal Government to assist with the extension of viable, affordable, frequent and reliable public transport within the PUGRC. Including: Funding for a comprehensive public transport plan for the PUGRC, to link PUGRC towns and villages with population hinterlands within PUGRC LGA's and to regional cities and Metro population centres; and, Funding for the conduct of trails of new economy public transport solutions, such as automated bus systems, expansion of the taxis network and bike paths throughout the PUGRC.

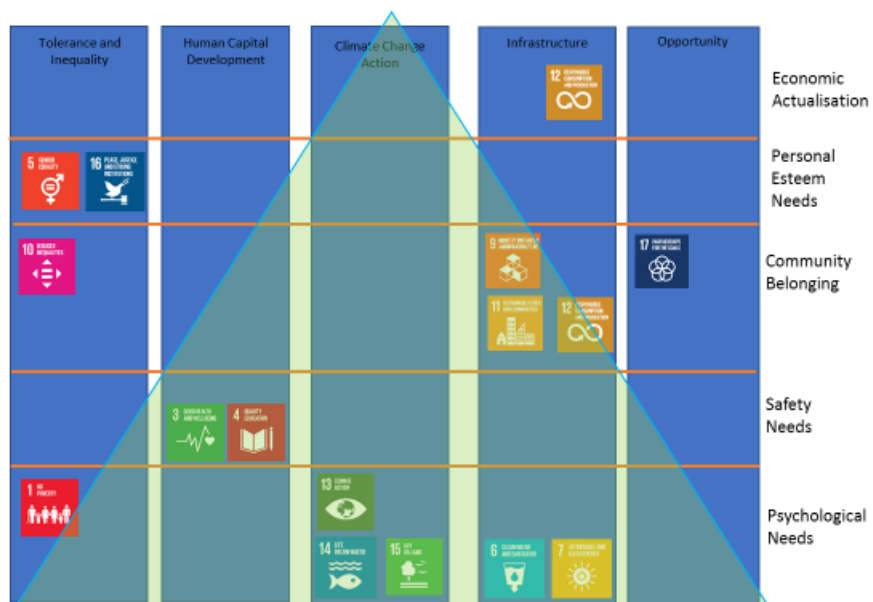
**SEED MODEL PATHWAY – CIRCULAR ECONOMY DEVELOPMENT (RECYCLING AND SECONDARY INDUSTRY DEVELOPMENT) PACKAGE**

As we have seen above the potential for developing a circular economy based on the municipal waste stream is high in the PUGRC. Total combined recovery of recyclable materials could be worth between \$32m to \$50m a year. Whilst this is simplified discussion of the potential economic opportunities in this space, this does not take into account the flow on multiplier effects that the growth of secondary industries processing this material could open up for residents and businesses in the PUGRC.

We have seen above the opportunities to develop circular economy markets within Australia for a large range of products. These circular economy products could include the use of food waste derived fertiliser, glass fines as a gravel, E-waste, steel, aluminium and other metals, as well as plastics can be utilised in secondary industries. As stated above, chemical waste can be repurposed, or disposed of safely. A regulatory environment could be established to deliver a secondary circular economy manufacturing industry within the PUGRC. The PUGRC SEED critical pathway to developing a Circular Economy Industry base within the PUGRC is outlined below (Figure 116).

**Figure 116: SEED Model Pathway – Circular Economy Development (Recycling and secondary industry development)**

- Circular Economy Development (Recycling and secondary industry development) Package
- Development of board-based recycling and material recovery business
- Gender Equity, reduction of opposition to Multiculturalism and lower Economic Inequality creates the cultural space for innovators and entrepreneurs to move into the PUGRC
- Partnership with State and Federal Government
- Develop a distinctive e-waste recovery process for larger e-waste items such as TV's and computer monitors
- Develop a secondary recycled resource manufacturing industry through HotHouse policy framework development.
- T-Corp funding for Circular economy development.
- Multi-Disciplinary Medical Hub
- Multi-Institutional Education Hub
- A stable Climate Change mitigated natural environment provides for a safe investment environment in which to build a new business.
- Community Energy Network –Access to sustainable and cheap energy
- Recycled Water Re-use and Piping Program
- Food Programs for food insecure



**Economic Development**

**Economic Actualisation – Infrastructure (Economic Development Activity)**



UNSDG 12: Responsible Consumption and Production. Work with the State and Federal Government for funding for a business case and business plan for the development of board-based recycling and material recovery business.



UNSDG 12: Responsible Consumption and Production. Policy HotHouse the regulatory framework for the establishment of the business environment to create a circular economy secondary manufacturing industry. Concepts that might be included in the final policy framework include: Mandating a 20% use of manufactured building materials to be made from recycled resources when building a house. Mandated use of recycled resource material in housing and road construction. Mandated use of manufactured drainage products made from recycled resources when building a drainage or sewerage system. Purchasing transport equipment from suppliers using recycled resources.



UNSDG 12: Responsible Consumption and Production. Work with the State Government to access TCorp financing for the creation of a board-based recycling and material recovery business.

## CHAPTER 5: CONCLUSION.

The Peri Urban Group of Rural Councils (PUGRC) Economic Development Strategy is a first of its kind, synergising important community development projects and policies, with sustainable economic development activities. This combining of community and economic development activities together in a single economic development strategy recognises the important interrelatedness of these two disciplines in the delivery of economic benefits for all residents in the PUGRC. This approach has enabled us to identify and address key hurdles to future economic growth. Seeing the impacts of poverty, inequality, the environment, and community development issues in a regional context, enabling us to see how these traditionally non-economic elements drag on growth. This new perspective has led us to make a paradigm shift in the way economic development is done in the PUGRC.

We used the PUGRC UNSDG analysis and data sets, which have provided a window into community, environmental and economic advancement for all 79 Local Government Areas within Victoria. This data set has allowed us to compare the PUGRC against all other regions. This PUGRC UNSDG data set and analysis has allowed us to focus on the 17 UNSDG's to develop 25 Action Items to address the issues most important to the PUGRC for its future economic development.

Creating the PUGRC Sustainable and Equitable Economic Development (SEED) Model to identify those elements that people need to progress up the economic ladder to attain a measure of economic actualisation, is an important step forward in the application of the UNSDG framework to the field of economic development. It also provides us with a structure to communicate to government what policy inputs are needed to achieve the required social, environmental, and economic outputs that will remove the obstacles to economic growth in the PUGRC.

The development of the six Industry development packages provides the economic framework for the continued growth and development of the PUGRC region. By working towards the implementation of these six industry development packages, the PUGRC is confident of building the community development base upon which a solid, sustainable, and equitable economic development growth strategy can be delivered to the region. This is the way forward for all the PUGRC.