



Gippsland Regional Profile

An analysis of regional strengths and challenges

A Report prepared for Infrastructure Victoria

March 2019

A I T H E R

Contents

1. Introduction	1
1.1. About this project	1
1.2. Approach to this regional assessment	1
1.3. Overview of the Gippsland region	2
2. Summary of findings.....	10
2.1. Gippsland region high-level findings.....	10
2.2. Gippsland region economic, social and environmental profile summary	11
2.3. Gippsland sub-regional summary	16
3. Drivers of change	21
3.1. Deindustrialisation and structural change	21
3.2. Demographic changes and urbanisation	23
3.3. Climate change.....	28
4. Economic profile.....	30
4.1. Summary	30
4.2. Regional economic data.....	31
5. Social profile	51
5.1. Summary	51
5.2. Regional social data.....	52
6. Environmental profile.....	73
6.1. Summary	73
6.2. Regional environmental data.....	75
7. References.....	88

Tables

Table 1	General findings for the supply of digital infrastructure in regional Victoria	9
Table 2	Percentage population with access to car, public transport, and internet.....	49
Table 3	Destinations of 2016 Year 12 or equivalent completers Gippsland (%)	58
Table 4	Community services and health care services	59

Table 5	Social housing and homelessness in Gippsland region.....	67
---------	--	----

Figures

Figure 1	Local Government Areas in the Gippsland region.....	4
Figure 2	Gippsland region.....	4
Figure 3	Gippsland transport links and access to key services in surrounding regions	7
Figure 4	Gippsland region showing three key areas of regional assessment	16
Figure 5	Size of non-service sector industries in the Gippsland region, 1994 - 2016	22
Figure 6	Projected employment growth in industries in Gippsland, change from 2016 to 2031	22
Figure 7	Growth in population from 1981 - 2016 and total town size for regional cities, regional centres and regional towns in Gippsland.....	24
Figure 8	Change in population by 20-year age groups between 2006 and 2016	24
Figure 9	Net migration of Victorian residents within the Gippsland region, 2011-2016	25
Figure 10	Region of origin in Victoria and destination LGA for in-migration to Gippsland, 2011-2016	26
Figure 11	Projected population change in the Gippsland region (%), sub-LGA level, 2016-2031	26
Figure 12	Aged dependency ratio, current and projected, Gippsland region and Victorian average (2011-2031)	27
Figure 13	Projected annual average temperature changes (LHS) and percentage changes in average rainfall (RHS) for the Gippsland region under different emission scenarios	28
Figure 14	Employment concentration of industries in the Gippsland region, 2017.....	32
Figure 15	Proportion of sales exported from the Gippsland region, 2017	33
Figure 16	Total percentage change in number of firms and average firm GVA, Gippsland, 2006 to 2017.....	34
Figure 17	GRP per capita, 2006 and 2017, Gippsland and Victoria	35
Figure 18	GVA share of key industries in the Gippsland region, 2017	36
Figure 19	Employment location of Gippsland residents by LGA, 2016.....	37
Figure 20	Capital investment in the Gippsland region, 2017	38
Figure 21	Tourism expenditure by tourism region (excluding Central Melbourne), 2014-15	39
Figure 22	Tourism visitor-population ratio by tourism region, 2014-15	39
Figure 23	Dwelling occupancy rates, Gippsland and Victoria, 2016	40
Figure 24	Labour productivity, Gippsland and Victoria, 1992-2017	41
Figure 25	Labour force participation rate, Gippsland and Victoria, 2001 to 2016.....	42
Figure 26	Population by age group in the Gippsland region.....	43
Figure 27	Projected change in working age population, indexed to 2011	43
Figure 28	Components of the difference in GRP per capita between Victoria and Gippsland	44
Figure 29	Median weekly equivalised total household income	45

Figure 30	Unemployment rate by LGA, 2006 and 2016.....	46
Figure 31	Proportion of resident population employed within or outside the region or LGA, 2016	47
Figure 32	Place of work of Gippsland residents outside the Gippsland region and method of transport, 2016.....	47
Figure 33	Origin of non-resident workforce and mode of transport, 2016.....	48
Figure 34	Employee skill level by key industries, 2006 and 2016.....	50
Figure 35	Projected change in workforce qualifications in Gippsland and Victoria, 2010 to 2031	50
Figure 36	ABS SEIFA – Index of Relative Disadvantage by SA1	54
Figure 37	Index of Relative Disadvantage by SA1, Latrobe regional hub.....	55
Figure 38	ABS SEIFA – Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) by LGA	55
Figure 39	Relative disadvantage by Jesuit DOTE ranking, quartiles, 2015	56
Figure 40	Youth engagement by LGA, 2016	57
Figure 41	Life expectancy at birth for males and females by LGA.....	60
Figure 42	Self-reported type 2 diabetes, obesity and dental health by LGA	61
Figure 43	Service utilisation for hospital in-patient services and HACC services.....	61
Figure 44	Service utilisation for mental health and drug and alcohol services by LGA	62
Figure 45	Per cent of babies born with low birth weight by LGA	63
Figure 46	Children fully immunised between 24 and 27 months by LGA.....	64
Figure 47	Children with emotional or behavioural problems at school and children developmentally vulnerable in two or more domains by LGA	64
Figure 48	Child protection substantiations per 1,000 population by LGA	65
Figure 49	Low income households with housing costs 30% or more of income by LGA, 2016	66
Figure 50	Low income households with housing costs 30% or more of income by LGA, as a per cent of all households, 2016.....	66
Figure 51	Offence rate per 100,000 population, 2017, Gippsland region and Victoria	68
Figure 52	Self-reported Personal Wellbeing Index by LGA	69
Figure 53	Self-reported wellbeing index by LGA and age group	70
Figure 54	Sense of safety walking alone at night in local area by LGA and gender.....	71
Figure 55	Percentage of population who volunteer, 2016	72
Figure 56	Land use in the Gippsland region, 2016	75
Figure 57	Gippsland region – key environmental assets.....	76
Figure 58	Gippsland region – key coastal and marine assets	78
Figure 59	Catchment Management Authority boundaries in Gippsland region	81
Figure 60	Waterway health in Victoria.....	82
Figure 61	Stream condition of CMA regions in Gippsland.....	83
Figure 62	Ramsar listed sites in Victoria	83
Figure 63	Frequency of natural disasters in the Gippsland region.....	86

Abbreviations

ABS	Australian Bureau of Statistics
ACSC	Ambulatory Care Sensitive Conditions
CEDA	Committee for Economic Development of Australia
CMA	Catchment Management Authority
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVM	Chain volume measure
DELWP	Department of Environment, Land, Water and Planning
DOTE	Dropping off the Edge (Jesuit Social Services Report)
EPA	Environmental Protection Agency
FTTC	Fibre to the Curb
FTTN	Fibre to the Node
FTTP	Fibre to the Premises
GRP	Gross Regional Product
GVA	Gross Value Added
IEO	Index of Education and Occupation
IER	Index of Economic Resources
IRSAD	Index of Relative Socio-Economic Advantage and Disadvantage
IRSD	Index of Relative Socio-Economic Disadvantage
LGA	Local Government Area
LQ	Location Quotient
NBN	National Broadband Network
NIEIR	National Institute of Economic and Industry Research
SA1	Statistical Area 1
SEIFA	Social and Economic Indices For Areas
VCMC	Victorian Catchment Management Council

Glossary

ABS SEIFA	Index of socio-economic conditions by geographic area and based upon data available through the national Census. This data is limited to questions which cover income, housing and education, and has comprehensive geographic coverage.
Access to community services	Residents who could access community services or resources, such as libraries, maternal and child health centres and neighbourhood centres, when needed.
Aged	The aged dependency ratio is the ratio of aged dependents (people older than

dependency ratio	64) to the working-age population (those aged 15-64). Data shown is the proportion of dependents per 100 working-age population.
Child protection substantiations	The outcome of an investigation and assessment where it is assessed that the child or young person has suffered significant harm and/or there is unacceptable risk of significant harm and there is no parent able and willing to protect the child.
Declared Water Supply Catchment	Designated catchment areas recognised under the <i>Victorian Catchment and Land Protection Act 1994</i> for the purposes of water supply.
Environmental Water Holdings	Water that is held and managed for the purpose of achieving environmental outcomes.
Gross Value Added	A measure of the 'value' of goods and services produced in an area, industry or sector of an economy.
Gross Regional Product	The market value of all final goods and services produced by all firms in a region.
Homelessness	When a person does not have suitable accommodation alternatives, they are considered homeless if their current living arrangement: <ul style="list-style-type: none"> • is in a dwelling that is inadequate; • has no tenure, or if their initial tenure is short and not extendable; or • does not allow them to have control of, and access to space for social relations.
Hospital separations	The process by which an episode of care for an admitted patient ceases. A separation may be formal or statistical. A statistical separation is the administrative process by which a hospital records the cessation of an episode of care for a patient within the one hospital stay.
Jesuit Social Services DOTE report	The Jesuit Social Services disadvantage indicator is constructed from measures of low family income, internet access, school education, post school qualification, skilled workers, disengaged young adults, disability support, unemployment, long term unemployment, rental assistance, numeracy and reading NAPLAN scores, child maltreatment, criminal convictions, juvenile convictions, domestic violence, prison admissions, psychiatric admissions.
Labour force	The labour force is the sum of employed people and unemployed people.
Labour productivity	Labour productivity measures the amount of goods and services produced by one hour of labour.
Location Quotient	An LQ is a simple ratio used to determine the concentration or dominance of a particular industry in a region (i.e. Local Government area) in comparison to a larger reference or benchmark region (i.e. State or Nation). Suppose X is the amount of some asset in a region (e.g., manufacturing jobs), and Y is the total amount of assets of comparable types in the region (e.g., all jobs). X/Y is then the regional "concentration" of that asset in the region. If X' and Y' are similar data points for some larger reference region (like a state or nation), then the LQ or relative concentration of that asset in the region compared to the nation is $(X/Y) / (X'/Y')$.
Participation rate	The labour force participation rate is calculated as the labour force divided by the total adult population. The adult population refers to people aged 15+.
Ramsar wetland	A 'declared Ramsar wetland' is an area that has been designated under Article

	2 of the Ramsar Convention or declared by the Minister to be a declared Ramsar wetland under the EPBC Act. The Convention on Wetlands, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
Salinity	<p>Salinity refers to the movement and concentration of salt in landscapes. Both soil and natural waters can become saline. Hence salinity can be described as either soil salinity or water salinity. The effects of salinity are broad including:</p> <ul style="list-style-type: none"> • reduction in the productive capacity of affected land (e.g. crop yields) • degradation of the environment and wildlife habitats • loss of water quality for stock and domestic water supplies • production losses causing economic hardship • damage to roads • damage to water-using household equipment.
SA1	SA1s have been designated as the smallest unit for the release of Census data
Skilled jobs	This report uses Australian Bureau Statistics data on employment and training, including terminology regarding 'skilled' employment. For the purpose of this report, 'low' skilled employment requires no post-school qualifications, 'intermediate' skilled employment means vocational training was obtained, and 'high' skilled employment means higher/tertiary education was obtained.
Social Housing	The social housing stock data includes both public housing provided directly by the Department of Health and Human Services and housing provided by the not-for-profit community housing sector.
Unemployment rate	The unemployment rate is a measure of the prevalence of unemployment and it is calculated as a percentage by dividing the number of unemployed individuals by all individuals currently in the labour force.
Volunteering	The provision of unpaid help willingly undertaken in the form of time, service or skills, to an organisation or group, excluding work done overseas.
Youth Disengagement	Those aged 15 to 19 not engaged at all in work or study.

1. Introduction

1.1. About this project

When Infrastructure Victoria prepared their first 30-year infrastructure strategy in 2016, they committed to undertake further research to develop a stronger evidence base about the need for and impact of infrastructure investment in different parts of regional and rural Victoria. This project informs that evidence base and will assist Infrastructure Victoria to understand regional Victoria's challenges and opportunities in depth across economic, social and environmental domains. An Economic, Social and Environment Profile has been prepared for each of the nine non-metropolitan regions identified by the Victorian Government's Regional Partnerships.

As part of the 30-year strategy Infrastructure Victoria developed a set of ten objectives. These objectives set out what the strategy is aiming to achieve and recognise that good infrastructure is not an end in itself, but an enabler of better social, economic and environmental outcomes.

Therefore, before considering possible infrastructure solutions for regions, Infrastructure Victoria needs to better understand the economic, social and environmental strengths and challenges that infrastructure solutions might seek to address. This project explores economic, social and environmental strengths and challenges in order to support Infrastructure Victoria's understanding and thinking on infrastructure needs, opportunities and solutions. It does not, and is it not intended to, provide insights or recommendations with respect to specific infrastructure needs, opportunities and solutions.

1.2. Approach to this regional assessment

This regional assessment provides an overview of the current economic, social and environmental profile of the Gippsland region and the potential future risks and challenges it will face. The assessment is based on currently available data with some additional analysis. Where datasets are highly correlated, such as is the case with health indicators, higher level indicators have been used. The approach to this regional assessment was to ensure that all evidence presented here is factual, unbiased and to allow for direct comparisons across all regions and the State as a whole.

This profile also includes an assessment of the key drivers of change facing Victoria and their relevance for the region. To do this, this report identifies a range of attributes, competitive strengths and challenges which have shaped the Gippsland economy and community. Attributes can be characterised as physical or built infrastructure, natural resources, or environmental amenities. Attributes may be leveraged as regional strengths, or may be under threat and present a challenge to the region. This is particularly relevant when the attribute is important in the context of Victoria and provides benefits to the regional economy. These attributes have been noted more frequently throughout this report on this basis.

The assessment of the Gippsland region has identified three sub-areas with broadly distinct characteristics. The three areas have been defined by Local Government Areas (LGAs):

- Latrobe regional hub (Latrobe LGA)
- Western peri-urban fringe (Baw Baw, Bass Coast and South Gippsland LGAs)
- Eastern regional areas (Wellington and East Gippsland LGAs).

1.2.1. Report usage and limitations

Aither worked with Infrastructure Victoria through an extensive pilot reporting process to identify appropriate data sets that best align with the needs of Infrastructure Victoria for the purpose of this report.

The majority of data is available at the LGA level, and data has been generally focussed at this level to maintain consistency. This means that for some LGAs with large population centres the outcomes for the largest population area drive the outcomes for the whole LGA. This can hide some of the nuances for the wider region, however where appropriate these have been captured anecdotally. For Gippsland, which has three large population centres within the Latrobe LGA (Moe, Morwell and Traralgon), this means that data is generally analysed at the Latrobe LGA level and referred to as a single regional hub.

Economic data at the LGA level has been provided by NIEIR through their national model of the Australian economy. For small rural LGAs with an economy highly dependent on agriculture the data is not as reliable on a year to year basis given that employment and output and prices fluctuate far more than in other industries. Therefore, strong conclusions should not be drawn on the basis of this data alone. This report uses Australian and New Zealand Standard Industrial Classification (ANZIC) data at the 1 digit level. Investigations of ANZIC data at a more detailed level was outside the scope of this report.

The Latrobe Valley Authority was established in 2016 to bring together local people, councils, industry, education providers and governments to secure the future of the Latrobe Valley. As the indicators and data used in this report rely primarily on 2016 data due to information availability and consistency across all regions, outcomes from actions and investments made by the Latrobe Valley Authority will not be reflected in 2016 data and this report.

This final report has been written to ensure clarity on the key messages and to a standard sufficient for internal dissemination and consequently some graphics have been left in their original state.

1.3. Overview of the Gippsland region

Gippsland is 41,600 square kilometres in extent (covering 18 per cent of Victoria) and is characterised by several distinct areas. The western part of the region extends to the fringe of Melbourne and includes the towns of Warragul and Drouin. The eastern part forms the southern extent of the Australian eastern seaboard, with Bairnsdale being the main regional centre. The City of Latrobe LGA (Latrobe LGA), comprising the large population centres of Moe, Morwell and Traralgon, is the regional hub and is located within the western portion of the region.

The Gippsland region comprises six Local Government Areas. As shown in Figure 1 these are:

- Latrobe
- East Gippsland
- South Gippsland
- Wellington
- Bass Coast
- Baw Baw.

Gippsland is one of five regions that border metropolitan Melbourne, which has a strong influence on the region's population and economy. The areas in the west are within Melbourne's peri-urban fringe

which continues to provide population and associated development pressures, including on some of the region's landscapes, agricultural, waterway and other environmental assets.

In comparison, the eastern areas of the region are dominated by national parks with smaller established towns, lower population growth and therefore fewer associated development pressures.

The Gippsland area includes the traditional lands of the Gunaikurnia people. The Gunaikurnia Land and Waters Aboriginal Corporation, the Bunurong Land Council Aboriginal Corporation, the Wurundjeri Tribe Land and Compensation Cultural Heritage Council and the Taungurung Clans Corporation have legislated responsibilities relating to the management of Aboriginal cultural heritage places in the Gippsland region (State Government of Victoria 2014a).

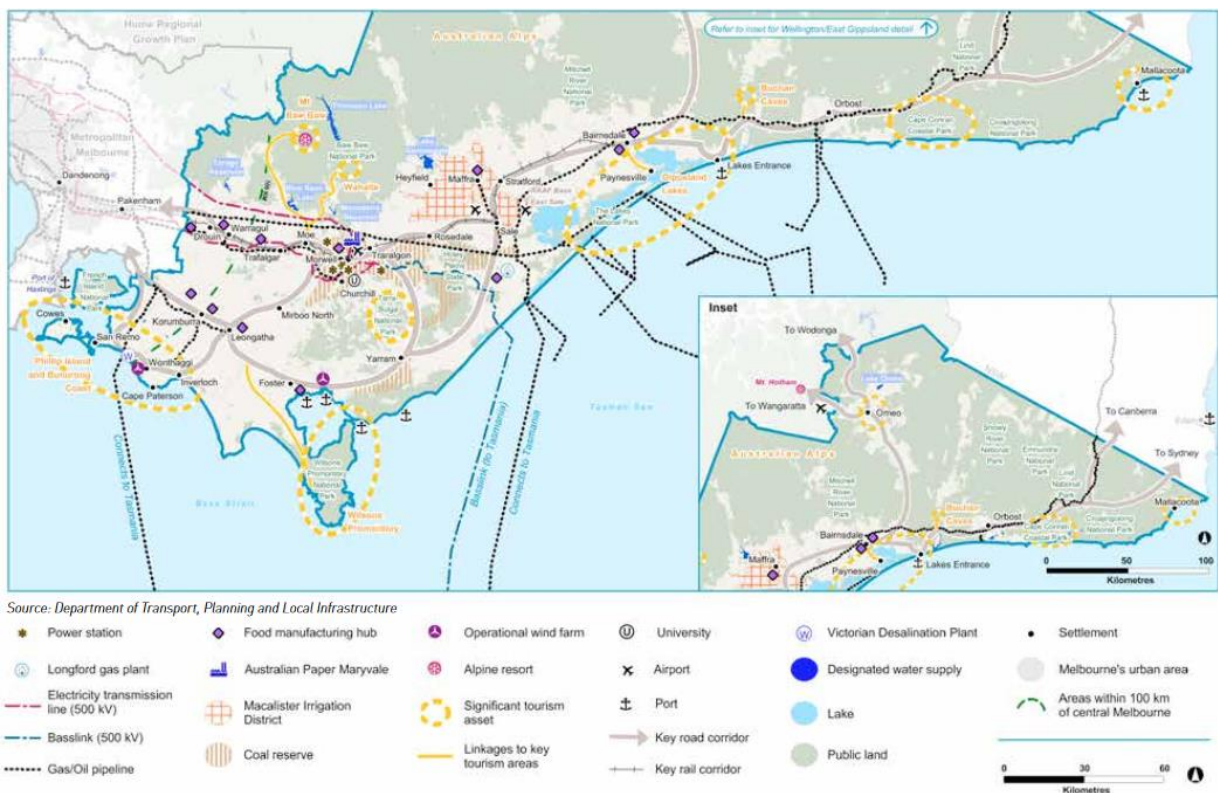
The Latrobe regional hub area was established as a post-European settlement built on forestry and agricultural industries but developed into a regional centre following expansion in the coal industry. From the 1920s onward, the region's brown coal deposits became an increasingly important source fuel for electricity generation with the region providing electricity for Melbourne and the wider state. This activity saw the dismantling of the initial township of Yallourn which was moved to provide access to coal reserves for the Yallourn A power plant (SGS 2016).

The broader region's early history centred around agriculture and forestry with the dairy industry being well established since the 1880's. During this period, Bairnsdale acted as the region's port before the construction of the east-west rail line in 1888 which linked the region to Melbourne. The region was also home to gold prospecting between the 1860s and 1880s with activity being concentrated around the towns of Walhalla and Omeo. The historic buildings and mines of this era in conjunction with coal mining has provided the area with several historic tourist attractions similar to those found in the Central Highlands (VisitVictoria, 2018).



Source: RDV n.d..

Figure 1 Local Government Areas in the Gippsland region



Source: State Government of Victoria (2014a) Gippsland Regional Growth Plan

Figure 2 Gippsland region

1.3.1. Regional centres and towns

The total population of the region is 271,804 (ABS 2016a), representing 4.6 per cent of Victoria's population. This is dominated by the regional City of Latrobe LGA (Latrobe LGA) (62,500) which comprises the three large population centres of Traralgon (26,000), Moe (14,000) and Morwell (14,000), as well as Newborough (7,000) and Yallourn North (1,500) – making up 23 per cent of the Gippsland region population (ABS 2016a).

Other regional centres as shown in Figure 2 include:

- Bairnsdale (15,000)
- Sale (15,000)
- Warragul (14,000)
- Drouin (12,000)
- Leongatha (5,000)
- Wonthaggi (4,000).

Other regional towns include:

- Inverloch (6,000)
- Maffra (5,000)
- Lakes Entrance (5,000)
- Cowes (4,000)
- Korumburra (3,600)
- Paynesville (3,400)
- Stratford (2,600)
- Orbost (2,200)
- Yarram (2,100)
- Mirboo north (1,700)
- Metung (1,700)
- Yarragon (1,600)
- Mallacoota (1,000)

The majority of population growth has occurred in Latrobe LGA and the region's western areas. Smaller regional towns, particularly in the eastern parts of the region, have experienced lower rates of population and economic growth.

The Gippsland region contains sub regions in close proximity to other regions by road, including Melbourne:

- Warragul and Drouin are approximately 100 kilometres from the Melbourne CBD.

Many sub regions within the region, however, are far removed from regional centres:

- Bairnsdale is approximately 130 kilometres from Latrobe LGA

- Mallacoota in the region's far east is approximately 230 kilometres from Bairnsdale. Mallacoota is closer to Canberra (345 kilometres) than Melbourne (515 kilometres).

Distribution of population centres in Gippsland

The Gippsland region comprises a series of population centres that are distributed longitudinally across the region. Five medium catchment-serving population centres run inland along the Princes Highway (from west to east): Moe, Morwell, Traralgon, Sale and Bairnsdale. Drouin, Warragul, Wonthaggi and Leongatha also serve as catchment-service centres in the west of the region and on the south coast, respectively.

The City of Latrobe LGA (Latrobe LGA) comprises three population centres (Moe, Morwell and Traralgon). These population centres, or regional hubs, are large regional hubs in Gippsland and play an important 'catchment-serving' role within the region. However, whilst collectively they have a significant population, individually none of these regional hubs have the scale of Victoria's larger diversified regional hubs of Geelong, Bendigo, Ballarat and Albury-Wodonga. The lack of a single clear regional hub continues to pose an ongoing challenge for service delivery planning within Gippsland, including infrastructure investment, because there is no single centre in which to focus future services. For the purposes of this report, the three population centres of Moe, Morwell and Traralgon have been analysed as the Latrobe regional hub (consistent with the scale of data analysed across all regional reports, which is typically at the LGA level).

Drouin and Warragul are large population centres in Gippsland, however they are within the peri-urban fringe of Melbourne and consequently are not classified as regional hubs for the purposes of this report. The peri-urban fringe location may explain why both Drouin and Warragul have experienced high population growth between 1981 and 2016 (73 per cent and 208 per cent respectively) when compared to other large population centres in Gippsland (DELWP 2016a, DELWP 2016b). Moe and Morwell experienced a population decline over this time period and Traralgon more moderate growth of 39 per cent.

The longitudinal distribution of several medium and catchment-serving population centres is unique in Victoria. Other regions tend to have a single dominant regional hub, either medium and catchment serving (e.g. Horsham) or larger and diversified (e.g. Bendigo) that is well connected to several other regional and inter-regional regional centres. The transport connectivity of Gippsland's population centres is also unusual compared to other Victorian regions, due to the Yarra Ranges in the north and the ocean in the south. These features can constrain connectivity with other regions, which can limit inter-regional trade and access to services. These aspects mean that Gippsland's regional hubs' service catchment is different to other regions and, as a consequence, they do not exhibit many of the trends seen in other regions with larger, centralised hubs.

The Gippsland region's unique population distribution has resulted in different strengths and challenges which may require a different approach to considering service delivery planning when compared to Victoria's other regions.

1.3.2. Major Regional Infrastructure

Gippsland is well connected via Melbourne to a number of key economic centres as well as a key airport and port (Figure 3). Key transport infrastructure is consequently centred around the Princes Highway and rail that connects Melbourne to Latrobe LGA and Bairnsdale.

The road network through the Gippsland includes:

- Princes Highway – Melbourne-Latrobe LGA-Bairnsdale-Sydney link
- Great Alpine Road – Bairnsdale-Omeo-Wangaratta link

- South Gippsland Highway – Melbourne-Leongatha-Longford link
- Strzelecki Highway – Leongatha-Morwell link.
- Bass Highway – Lang Lang-Grantville-Wonthaggi-Leongatha link
- Monaro Highway – Cann River-Cooma-Canberra link
- Phillip Island Road – Cowes-Anderson link

The rail network includes:

- Direct passenger and freight rail routes from Bairnsdale to Melbourne through the Latrobe LGA and Warragul.



Source: State Government of Victoria 2014a.

Figure 3 Gippsland transport links and access to key services in surrounding regions

The region does not have a major airport however it does have several smaller regional airports. In addition, Gippsland also hosts the East Sale Royal Australian Air Force base. Barry Beach Marine Terminal at Corner Inlet is an important regional port terminal supporting the offshore oil and gas industry in Bass Strait. A number of small regional ports are also home to commercial fishing fleets, with Victoria's largest commercial fishing fleet located at Lakes Entrance. The Gippsland region is strongly associated with coal mining and electricity generation in the western part of the region; the Latrobe Valley contains almost all of Victoria's coal reserves and is home to the state's brown coal mining and power generation industries. It contains major electricity generation and transmission infrastructure.

Gippsland has a range of social infrastructure, particularly in the major centres and smaller towns in the west and centre of the region. Higher services are provided in Latrobe LGA and in Melbourne's peri-urban area in Gippsland west. Federation University has a strong presence in the Gippsland region due to the presence its Gippsland Campus in Churchill, and Federation Training and the Chisolm Institute provide TAFE services. There are four major hospitals in Gippsland, located in Traralgon, Warragul, Sale and Bairnsdale.

Water storage and supply infrastructure includes thirteen major catchments and includes Thomson Dam which supplies 60 per cent of Melbourne's drinking water. Gippsland is also home to the Victorian Desalination Plant, located at Wonthaggi, which is capable of supplementing Melbourne's water supply. The Macalister Irrigation District, situated around Maffra, is also Southern Victoria's largest irrigation district supporting the local dairy industry.

The New South Wales towns of Bega and Eden are located approximately 80 and 40 kilometres, respectively, from the Victorian border and contain important services for far east Gippsland residents (such as those in Mallacoota).

Digital infrastructure

Digital infrastructure is a broad category of technologies which together comprise the digital connectivity landscape in a given location. The most significant digital infrastructures for businesses and households include:

- **Fixed broadband access:** for example, National Broadband Network (NBN) fixed-line broadband services including Fibre to the Premises (FTTP), Fibre to the Node (FTTN), Fibre to the Curb (FTTC), Fixed Wireless and Satellite services.
- **Mobile access:** digital mobile networks capable of supporting voice telephony and data applications such as through 4G networks, with emerging Internet of Things capability.

The quality of this infrastructure across the Gippsland region is highly variable, as are the demand characteristics of different user groups within each location, making it difficult to provide a simple snapshot of the current infrastructure landscape across the whole region. However, general points can be made about the availability of these infrastructures in different place and sector contexts, as summarised in the table below.¹

The general findings below do not consider the adequacy of the infrastructure in meeting the economic and social needs of businesses, households and other users in a given location, rather it provides an outline of what tends to be available. Although mobile coverage availability may be noted below, regional users may still face issues with the quality and reliability of services including accessing data.

¹ These high-level findings are informed by continuing work from the Gippsland Regional Partnership to assess the current state of digital infrastructure supply and demand in their region, in the form of a Digital Plan. Digital Plans are not yet complete and are subject to further consultation and input which is underway. While the table above focuses on the major infrastructures of fixed broadband and mobile access, these are not the only types of infrastructure relevant to digital connectivity. For instance, Low Powered Wide Area Networks (that can support Internet of Things applications like remote sensors) and WiFi networks are increasingly relevant infrastructures for industry applications, tourism and addressing disadvantage. Also, backhaul fibre networks provide national and global digital connectivity and the quality of these networks in a location affects investment, availability, affordability and quality of all digital services.

Table 1 General findings for the supply of digital infrastructure in regional Victoria

	Fixed broadband access	Mobile access
Cities and large towns, such as Traralgon and Morwell	Generally comparable to metropolitan Melbourne with some access to FTTP and widespread provision of FTTN within town centres, but fixed wireless and satellite serving the town fringe and beyond.	Generally comparable to metropolitan Melbourne with multiple carriers operating 4G networks, but quality and reliability of access can fade beyond town centre.
Small towns and localities, such as Wurruk and Venus Bay	Generally provisioned with fixed wireless services in the town centre with the fringe and surrounding areas receiving satellite. Some small towns receive higher-speed FTTN or FTTC services.	Less capacity and reliability than in larger towns. Better quality within the town centre than when moving into surrounding areas and between towns.
Primary production areas, such as beef and dairy grazing around Warragul	Lower capacity fixed broadband technologies like fixed wireless and satellite available due to remoteness of these farms / businesses. Fixed wireless is more available closer to population centres.	Variable service quality across primary production areas. Better when closer to population centres and unimpeded by local topography.
Tourist locations, such as Wilsons Promontory	Most relevant to tourist operators and businesses. Higher capacity technologies like FTTP available to operators in town centres, but lower capacity services like fixed wireless and satellite in more remote tourist locations.	Often weak coverage in remote locations such as trail walks and national parks and network limitations in accommodating large influxes of visitors during periodic events and peak tourism seasons.
Transport corridors, such as major highways and rail lines	N/A	Stronger and more reliable coverage on large highways and rail lines out to Traralgon, with service quality and reliability compromised on smaller roads and in more remote areas such as East Gippsland.

Source: Infrastructure Victoria 2019.

2. Summary of findings

2.1. Gippsland region high-level findings

○ Attributes

- The regional economy is supported by important transport infrastructure that includes the Princes Highway, south east rail line and Barry Beach Marine Terminal.
- The Thomson Reservoir holds up to 60 per cent of Melbourne's total water storage capacity. The Victorian Desalination plant is located at Wonthaggi. Gippsland has major electricity generation and transmission infrastructure.
- Natural resources including water, timber, mining and renewable energy provide opportunities. Soils and water support agriculture.
- Environmental assets near Melbourne, and in alpine and coastal areas with large areas covered by parkland. Gippsland Lakes, Wilsons Promontory, Alpine areas, Bass Coast and the far east are all notable environmental amenity assets.

○ Regional Strengths

- Latrobe regional hub consists of three large population centres (Moe, Morwell and Traralgon) that provide services to the wider community, including health services. Other regional hubs include Bairnsdale and Sale.
- Agriculture (14%), manufacturing (10%), construction (10%), energy (9%), health care (8%) and mining (8%) comprise 59% of GRP, with agriculture and energy of regional importance (with LQs above 2.5).
- Projected employment growth in health care and social assistance, education and training, and construction.
- Relative advantage in the farmlands, outside of the rural towns.
- Moderate to high population growth is forecast for most areas, particularly the peri-urban fringe of Melbourne (which also has higher working age population compared to the Victorian average). Unemployment similar to the Victorian average except for Latrobe LGA which is higher.
- Higher levels of self-reported wellbeing than the Victorian average

○ Key Insights

- Latrobe regional hub consists of three population centres (Moe, Morwell, Traralgon) that collectively provide services to the wider community.
- Eastern regional areas face ongoing challenges and significant impacts from the drivers of change.
- Western peri-urban fringe has a high commuter population and demonstrates a number of stronger indicators of economic and social outcomes.

○ Regional Challenges

- Agriculture (14% of GVA), mining (8% of GVA), energy (10% of GVA) and manufacturing industries likely to be impacted by climate change, deindustrialisation and structural adjustment. Employment in manufacturing and agriculture is forecast to continue to decline.
- Higher relative disadvantage across much of the region, but particularly in Latrobe, which is the 7th most disadvantaged LGA in Victoria.
- Potential degradation of environmental amenity assets, including those that support tourism and associated accommodation and food services (e.g. Bass Coast). Coastal natural and built assets are at high risk from increased coastal inundation and erosion. Potential reduction in water availability for agriculture due to climate change.
- Population expected to continue to decline and age in most rural areas.
- The impacts of climate change represent a risk to social wellbeing and cohesion, public health from higher temperatures, uncertainty about water resource availability and a potential increase in the frequency and severity of natural hazards such as bushfires, droughts and floods.
- Agglomeration of services to regional hubs.

2.2. Gippsland region economic, social and environmental profile summary

Economic Profile			
Indicator	Rating	Likely impact of drivers of change	Description
Industry structure	N/A	N/A	The Gippsland regional economy is highly concentrated within both agriculture and electricity supply. Employment is growing in service-based industries however the concentration of employment in service-based industries is lower than in Victoria as a whole. Agriculture and associated industries are important exports for this region.
Economic output	Below average	Adverse	This region has a lower GRP per capita than the Victorian average. GRP per capita has declined in the last 10 years while Victoria has seen growth in economic output. The low relative output can partly be attributed to lower labour productivity, lower participation rates and an ageing population. However, output in this region is also impacted by the commuters living in Melbourne's peri-urban fringe and commuting to Melbourne resulting in their economic output being attributed to other regions. This can be seen in the low level of GRP per capita in peri-urban LGAs such as Baw Baw. Low dwelling occupancy in the Bass Coast LGA which may indicate a large proportion of second homes or holiday rental properties associated with coastal tourism on the peri-urban fringe.
Labour productivity	Average	Adverse	Labour productivity in this region is close to the average for Victoria. This is mainly driven by high labour productivity in Latrobe regional hub and Wellington LGA associated with the coal mining industry (noting the most recent data does not yet capture some recent changes such as the closure of Hazelwood power station).
Capital investment	Below average	-	Capital investment in the Gippsland region is below the Victorian average, with the exception of Bass Coast LGA on Melbourne's peri-urban fringe, which is forecast to experience strong population growth. Non-residential construction is highest in Wellington LGA. The lowest rates of capital investment are seen in Latrobe and South Gippsland LGAs, which have lower rates of population growth.

Participation rate	Below average	Adverse	The average participation rate is below the average for Victoria which could be due to a range of contributing factors including the number of retirees. ² There are lower participation rates in the rural areas than in Latrobe and Melbourne's peri-urban fringe.
Household income and unemployment	Below average	Adverse	Household income varies across the region with the LGAs on the Melbourne peri-urban fringe having the highest median household income and rural LGAs the lowest. This is likely to reflect the presence of commuters to Melbourne in the peri-urban fringe LGAs being more likely to work in high skill, high wage employment, primarily in Melbourne. Unemployment across the region is around the average for Victoria, although the high unemployment rate in Latrobe skews the average for the Gippsland region as a whole.
Employment and skills	Below average	Adverse	Employment growth in the region has been strongest in the health care sector with declines in total manufacturing employment and no growth in agricultural employment. These trends are projected to continue in accordance with a broader trend across Victoria and Australia for growth in high skill industries. This presents both a challenge and an opportunity for the region. While growth in high skill jobs offers opportunities for continued wage growth, increasing demand for high skill labour will potentially lead to future skill shortages and increasing income differences between those with higher qualifications and those without.
Social Profile			
<i>Indicator</i>	<i>Rating</i>	<i>Likely impact of drivers of change</i>	<i>Description</i>
Relative disadvantage	Below average	Adverse	There is a mixture of relative advantage and disadvantage between LGAs. There is severe disadvantage in Latrobe LGA, while other LGAs range from moderate to average levels of relative disadvantage. Levels of disadvantage (outside of Latrobe LGA) are generally consistent to comparable LGAs in other regions (e.g. rural LGAs, or LGAs peri-urban to Melbourne).

² ABS calculate the participation rate based on the population aged 15 +, it is therefore affected by retiree numbers.

Youth engagement with work or study	Average	Adverse	There is relatively good youth engagement with more youth engaged in work compared to further education and training. There are few young people (with a year 12 certificate or higher) not in the labour force, education or training, however, the rate of those looking for work is high in some cases, suggesting difficulties in accessing jobs. This is particularly the case in Latrobe and East Gippsland LGAs.
Population health	Below average		Population health is slightly worse than the state average in most cases. Life expectancy is generally lower (particularly for males), and generally higher rates of obesity. Access to health services, GPs, and avoidable hospital separations are all relatively similar or better than the Victorian average, while utilisation of health services is generally higher. Most notably, the rate of registered mental health clients, and clients receiving drug and alcohol treatment services is almost universally higher than the Victorian average (with the exception being clients receiving drug and alcohol treatment services in South Gippsland).
Early childhood outcomes	Below average		Early childhood outcomes are slightly lower than the Victorian average. Key indicators of emotionally and/or developmentally vulnerable children, and child protection substantiations are worse than the Victorian average with a few exceptions.
Housing stress	Below average		There is typically lower housing stress, consistent with other regions. However, rental stress may be an issue in Latrobe and Bass Coast. This may be being driven by economic downturn (more so in Latrobe) as well as population growth (for Bass Coast).
Crime	Above average		Crime levels are level with or just below the state average with the exception of South Gippsland, which is significantly below, while Wellington is slightly above the state average. The offence rate in Latrobe is more than double the Victorian average, and the highest of all regional LGAs.
Wellbeing	Average		Across the wellbeing metrics, there are relatively similar results across each LGA within the region, with results similar to or slightly above the Victorian average. This is aligned with typically higher rates of wellbeing reported by regional populations. The exception is Latrobe which has reported wellbeing below the state average.

Environmental Profile

<i>Indicator</i>	<i>Rating</i>	<i>Likely impact of drivers of change</i>	<i>Description</i>
Land	Good condition	Adverse	The Gippsland region has a rich and diverse range of natural and cultural heritage assets including alpine and mountain regions, forests, woodlands and coastal complexes. A large proportion of land in Gippsland is publicly owned and is protected by state or national park. Despite this, land use across other parts of the Gippsland region is highly variable. Some parts of the Gippsland region are highly modified from their pre-European settlement state. Outside parkland areas, the majority of land is designated as either agricultural or residential. Compared to other regions of Victoria, Gippsland has negligible risk of erosion from bare soils in dryland production areas, which is largely a result of overall high levels of rainfall across most of the region and associated vegetation cover. Salinity is generally not a large issue in Gippsland although there is some occurrence around Sale.
Natural resources	N/A	N/A	The Gippsland region is strongly associated with coal mining and electricity generation in the western part of the region; the Latrobe Valley contains almost all of Victoria's coal reserves and is home to the state's brown coal mining and power generation industries. There is also a significant off-shore oil and gas industry. The Grantville-Nyora area is a major supplier of sand and stone products to the construction industry in Melbourne. The eastern part of Gippsland possesses vast timber resources which supports a significant timber, pulp and paper manufacturing sector. While Gippsland's energy production is closely linked to brown coal, there are good prospects for renewable energy, particularly wind and geothermal. Gippsland is an important centre for both commercial and recreational fishing.
Biodiversity	Moderate condition	Adverse	Biodiversity across the Gippsland region is considered relatively high compared with other regions of Victoria. Tree cover varies from very high levels of tree cover across East Gippsland (85 per cent) to an average of 50 per cent in West Gippsland. East Gippsland CMA assessed the condition of biodiversity as remaining stable with evidence of improved habitat in some pockets. The West Gippsland CMA assessed native vegetation extent as poor to moderate in the catchment's lower reaches.
Waterway health	Good condition	Adverse	Natural waterways across the region are in better condition than western Victorian waterways: the Mitchell River, Snowy River and East Gippsland basins rate as having the best waterway condition in Victoria. East Gippsland has the highest percentage of stream length in good or excellent

			condition with approximately 80 per cent. According to the latest index of stream condition, 34 per cent of stream length in West Gippsland is in good or excellent condition.
Natural hazards	Average	Adverse	The Gippsland region, similar to other regions, is characterised by threats of both bushfire and flood including vulnerable areas that intersect with towns and cities and areas that are experiencing rural residential and tourism expansion. Coastal hazards are a considerable risk that is likely to increase due to the effects of climate change.
Contaminated sites and pollution	Average		The land use history of the Gippsland region, including its gold mining history, may mean that there are significant areas of contaminated land throughout the region. As of March 2018, there are currently 18 sites in the Gippsland region listed on the EPA's Priority Sites Register.

2.3. Gippsland sub-regional summary

The Gippsland has been divided into three sub-regions which have been defined to better summarise the differences demonstrated in economic, social and environmental profiles. Figure 4 shows the three key areas:

- Latrobe regional hub (light yellow)
- Western peri-urban fringe (light pink)
- Eastern regional areas (light green).

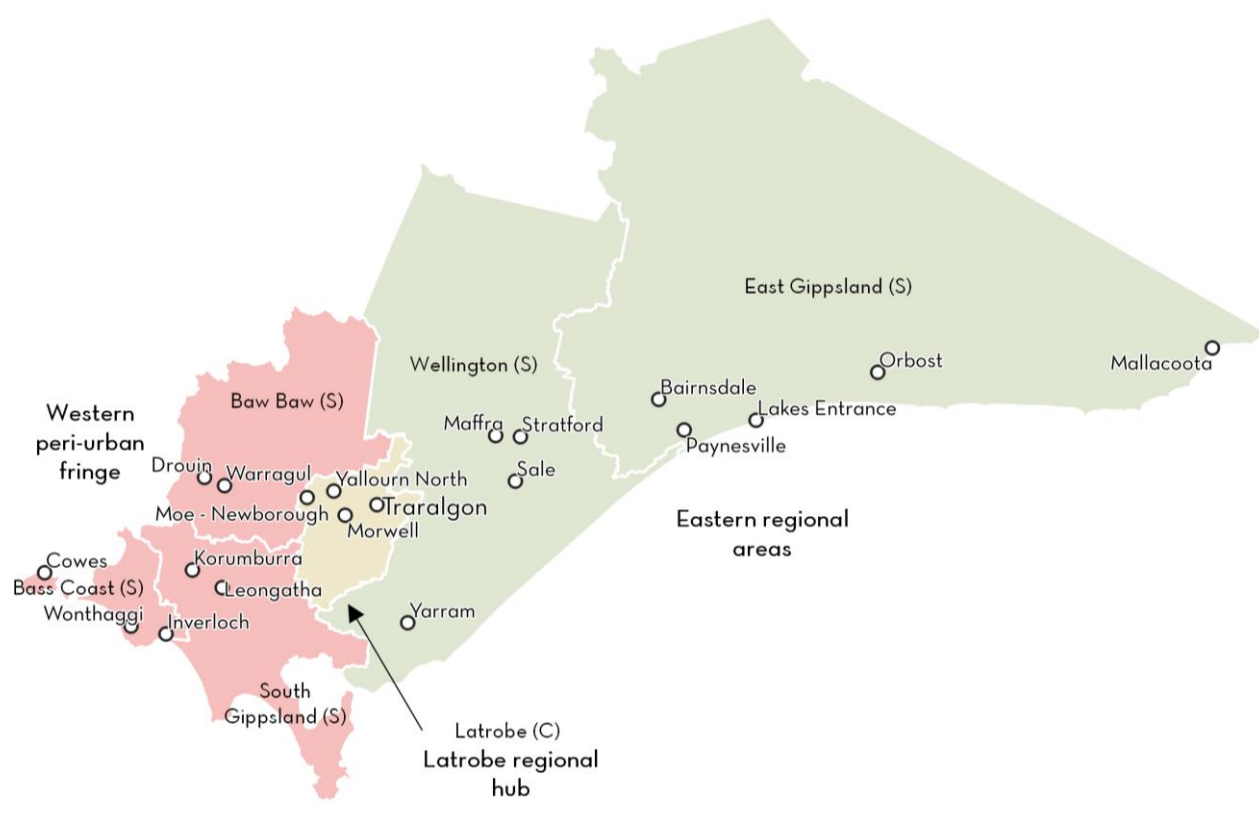


Figure 4 Gippsland region showing three key areas of regional assessment

Latrobe regional hub

The Latrobe LGA constitutes a regional hub³ made up of the population centres of Traralgon, Moe, Morwell, Newborough and Yallourn North, and accounts for 23 per cent of the Gippsland region's population. Economic and social indicators are less consistent with other regional hubs such as Bendigo and Ballarat, with relatively poor economic and social outcomes relative to surrounding areas and the Victorian average. Long-term structural changes have created challenges, and LGAs to the

³ Regional Victoria has a number of population centres which, for the purposes of this project, have been termed 'regional hubs'. Regional hubs provide services for those within the hub as well as surrounding areas, which characterises them as being 'catchment-serving'. Geelong, Ballarat, Bendigo and Albury-Wodonga are identified as larger and diversified regional hubs. The impact of the distribution of population centres in Gippsland has been further explained in Section 1.3 as well as throughout this report.

west of this sub-region may be more likely to access services from greater Melbourne (rather than Traralgon as a regional hub).⁴

The GRP per capita is below the Victorian average but higher than other LGAs in the region. This area is heavily reliant on the energy industry with the largest industries being coal mining and electricity services. Mining in particular, is likely to be driving high labour productivity in this region. The workforce participation rate in this sub-area is below the Victorian average and the working age population is projected to decline to 2031 in contrast to many other regional hubs in Victoria. The unemployment rate is particularly high in Latrobe LGA at 9.7 per cent. The majority of resident's work within the Gippsland region and it is likely that residents from the surrounding Gippsland LGAs commute to work within the regional hub.

The Latrobe regional hub is the 7th most disadvantaged LGA in Victoria, and this correlates with Latrobe LGA having poorer youth engagement, population health and early childhood outcomes. Disadvantage is concentrated in Moe, Morwell and to a lesser extent Traralgon. There is relatively less disadvantage outside of these three towns.

Poor health outcomes include high rates of obesity and type two diabetes, low life expectancy, and high numbers of registered mental health clients, and clients receiving drug and alcohol treatment (almost double the state average for the latter two indicators). Early childhood outcomes are worse than the Victorian average across all indicators except for immunisation rates, and the crime rate is well over double the state average.

There appears to be marginally less housing stress compared to the Victorian average, however rental stress is slightly above the state average. There are relatively lower rates of homelessness and a large proportion of social housing. Self-reported wellbeing is similar to the state average (and slightly below for some indicators) – this is unusual given typically higher rates of self-reported wellbeing outside of major metropolitan centres.

Post-European land use has been strongly based on agriculture and forestry prior to the discovery and subsequent development of large brown coal deposits in the area. The coal mining and electricity industries have subsequently been major drivers of land use in the area with multiple open cut mines and power plants around the sub-region.

The structure of the economy in Latrobe and in particular, its reliance on coal mining and electricity generation, means it is particularly exposed to drivers of change affecting these key industries. Declining jobs in mining and other manufacturing will be offset to some extent by growth in service sectors however the projected declines in working age population will be a challenge for the region. There is likely to be further growth in health care as a result of the ageing population. There are a number of poor social outcomes in the region at present which may be exacerbated further given future drivers of change.

Western peri-urban fringe

The western peri-urban fringe performs similarly to other peri-urban areas with relatively stronger economic and social outcomes. This sub-region is somewhat different to other peri-urban regions due to some LGA boundaries extending beyond what would typically be considered peri-urban (e.g. southern South Gippsland).

LGAs within the peri-urban fringe area have very low GRP per capita due to the large commuter population not directly contributing to the local economy through their labour. This can be seen

⁴ Note – this analysis has been based on 2016 census data, this means that any impacts from the 2017 closure of the Hazelwood power station are not seen in the data.

particularly clearly in Baw Baw LGA which has low GRP per capita, but high household income and high participation rates. The largest industry within Bass Coast LGA is construction driven by population growth, most likely due to in-migration from Melbourne. Construction is also a significant industry in Baw Baw, however the largest industry in Baw Baw is agriculture (as it is in South Gippsland as well). Baw Baw and Bass Coast LGAs are projected to undergo over 140 per cent working age population growth to 2031. In contrast, although South Gippsland LGA has some commuter population, this is confined to the more northern parts of the LGA. In the south, its distance from Melbourne and desirable natural assets mean that it has seen more growth in retirees leaving Melbourne rather than a commuter population. This is also true for Bass Coast, where sea-changers, retirees and holiday homes / weekenders from Melbourne are also driving changes. The Bass Coast LGA reported a significantly lower rate of dwelling occupancy in the 2016 Census compared to other Gippsland LGAs and the Victorian average, which may indicate a large proportion of second homes or holiday rental properties.

The peri-urban fringe LGAs have relatively moderate levels of disadvantage with Baw Baw (42nd), Bass Coast (23rd) and South Gippsland (32nd) all falling somewhere around the middle of the 79 LGAs in Victoria with Bass Coast the most disadvantaged out of the three. Areas of disadvantage appear to be concentrated in towns and centres, with relatively less disadvantage in rural-residential areas.

Youth engagement is similar to the Victorian average but with less youth in further education and training, and more youth either working or seeking work. There is a relatively large proportion of youth not in the labour force, education or training in Baw Baw LGA – this seems to contrast with other social and economic indicators for the LGA. Population health is relatively consistent across the sub-region, with performance marginally below the state average. Early childhood outcomes fluctuate across indicators and LGAs within the sub-region, however generally appear slightly poorer than the state average on balance.

Housing stress is generally low, with the exception of above average rental stress in Bass Coast compared to the Victorian average. Rates of homelessness and the proportion of social housing are small across the sub-region and crime is below the state average. Wellbeing indicators show performance slightly above the Victorian average.

The proximity to Melbourne as well as opportunities for residential rural living have a strong influence on land use in the sub-region. Land use varies with rural residential areas closer to Melbourne, primary production; and, environmental and tourism assets (e.g. Wilsons Promontory to the south).

The Granville-Nyora area is home to important sand and stone resources which are strategically important for the supply of building materials in the peri-urban area as well as metropolitan Melbourne.

The towns of Warragul and Drouin are within 100 kilometres of the Melbourne CBD and are predicted to grow considerably due to their recognition as alternate residential locations. Future growth may lead to their emergence as regional centres in their own right.

Improved transport accessibility to Melbourne is likely to support population growth in these LGAs while market trends which drive service agglomeration in Melbourne will continue the trend of a large proportion of residents' work being outside the sub-region (in Melbourne). It is also likely that access to health care services will become increasingly important for the ageing population. Future urban expansion in these LGAs is expected to drive higher levels of competition between agriculture, amenity and residential land uses.

Eastern regional areas

Eastern regional areas (Wellington and East Gippsland LGAs) have below average performance against economic indicators, moderate performance against social indicators and relatively strong performance against environmental indicators.

The data shows lower gross regional product (GRP) per capita than the Victorian average. Agriculture is the largest industry by GVA in this sub-region, with an important coal mining industry in Wellington LGA. These areas have lower workforce participation rates than the Victorian average and the wider region. There is currently a lower working age population in East Gippsland however it is projected to grow to 2031 driven by population growth around the seaside town of Lakes Entrance. In contrast, the working age population in Wellington is projected to decline, however it is not projected to decline as much as other rural areas in Victoria. Household income is lower than the Victorian average in this sub-area. This area has important tourist attractions, in particular the coastline in East Gippsland which includes the Gippsland Lakes area. The 2016 Census reported that nearly half of Bass Coast LGA's dwellings were unoccupied, significantly below the other Gippsland LGAs and the Victorian average, which may indicate a large proportion of second homes or holiday rental properties.

The LGAs of Wellington (27th most disadvantaged) and East Gippsland (22nd most disadvantaged) are somewhat disadvantaged – though not to the same extent as Latrobe and other areas in Victoria. Relatively lower rankings appear to be driven by a more equal spread of disadvantage and advantage across the population rather than severe disadvantage or concentrations of relative advantage.

Youth engagement is similar to the Victorian average but with less youth in further education and training, and more youth either working or seeking work. Population health is marginally poorer with lower life expectancy, higher rates of obesity and high utilisation of health services (particularly drug and alcohol treatment services).

Early childhood outcomes also appear worse than the Victorian average with high rates of emotionally and developmentally vulnerable children and high rates of child protection substantiations. There is low housing stress and higher rates of homelessness in East Gippsland (slightly above the Victorian average). The homelessness rate correlates with greater social housing in this LGA as well. Crime is close the state average, and self-reported wellbeing is also higher than the state average.

The sub-region includes a number of distinct types of environments and land uses including rural, coastal and remote wilderness areas. These have been discussed by type below:

- **Regional rural areas:** are dominated by dryland and irrigated agriculture, as well as considerable forestry within state forests and plantations. The central rural areas, primarily within Wellington LGA host the most important agricultural region (lead by dairy) in Gippsland. Since 2004 there has been a trend of converting dairy land to horticulture, particularly for vegetable production.
- **Coastal:** there are important environmental assets along the coastline including Gippsland Lakes and Croajingolong National Park. The Coastal inlets, bays, estuaries mangroves and wetlands provide crucial habitat and are places with high amenity. While these assets support a large amount of nature-based tourism, commercial fishing is also a major industry. Urban development in coastal areas will also need to consider coastal impacts and hazards.
- **Wilderness areas:** the remote northeast parts of the region are dominated by national parks with smaller established towns, lower population growth and therefore fewer associated development pressures. Long term population decline is expected in the remote areas of East Gippsland. Hazards from bushfire and flood are present in these areas and are an important consideration for future land use planning.

Given the relative remoteness and vast tracts of land in national parks and state forests, environmental health in this sub-region is some of the best in Victoria, for example, this sub-region has the best stream condition results in Victoria.

Higher temperatures and changing rainfall patterns as a result of climate variability and change will be a key driver; potentially depressing economic growth in the region, and potentially increasing risks to coastal assets. The same trends of population decline and an ageing population are not as prevalent in this sub-region as is the case in many other rural areas. Population is forecasted to grow modestly and there is minimal forecasted change in working age population.

3. Drivers of change

The Gippsland region, along with many other areas in Victoria and Australia, has experienced substantial changes to its economy, society and environment. Australia continues to shift away from a resource-based to a service-based economy. For example, the share of output from agriculture fell from over a third in the 19th century to just three per cent in the 2000s (Department of Industry 2014).

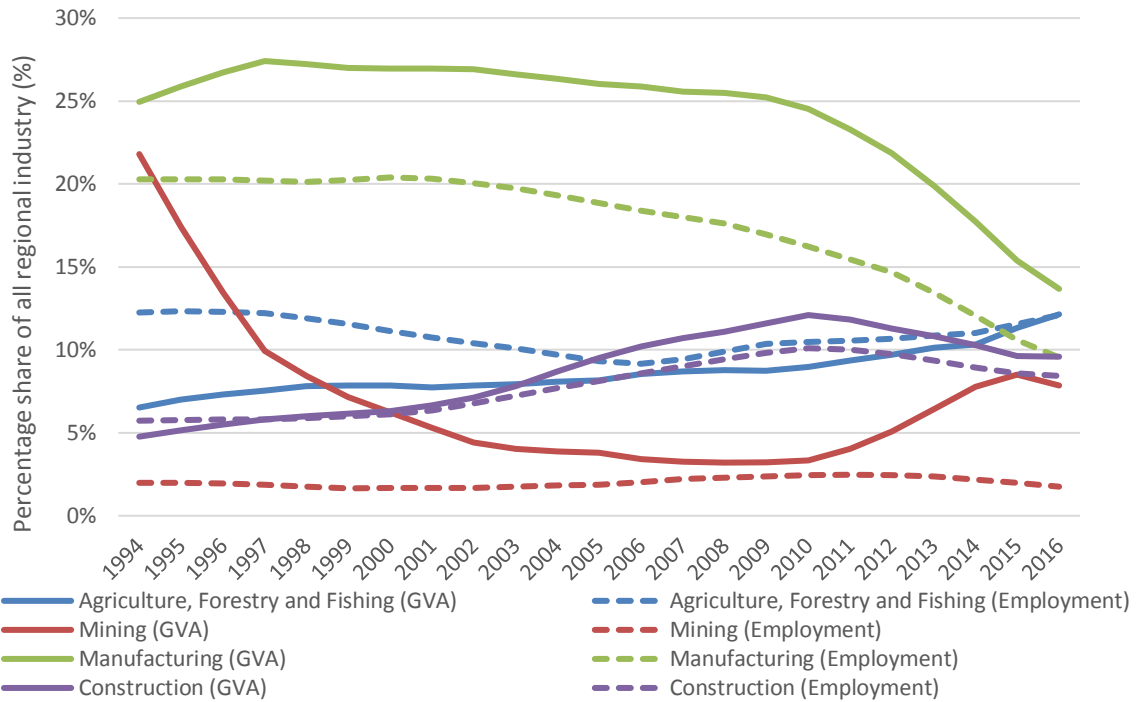
Partly as a result of the shift away from a distributed, resource-based economy, increasing urbanisation has resulted in a greater concentration of people living in Melbourne and regional cities. In the 10 years from 2006 to 2016 the population in Greater Melbourne grew by 26 per cent while the population in the rest of Victoria only grew by 12 per cent (ABS 2016b). Alongside this there is an ageing population with the number of people aged 65 years and over in Victoria projected to almost triple from 2011 to 2051 (DELWP 2016b). A further challenge to be faced is climate change. In Victoria, this means a warmer and drier future, with an increasing likelihood of more extreme events such as heatwaves, bushfires and storm surges (CSIRO 2016).

These changes all present challenges and opportunities for improving the health, wellbeing and prosperity of Victorians in the future.

3.1. Deindustrialisation and structural change

Similar to many other Western countries the Australian economy has been shifting over time from a manufacturing to a service-orientated economy and this shift is expected to continue (Department of Industry 2014). This can be seen in Figure 5 which shows the decreasing share of manufacturing industries in both output and employment in the Gippsland region. This has been offset to some extent in this region by growth in the value of output in the construction and agricultural industries. In contrast it can be seen that the fluctuations in economic output from the mining industry have not seen corresponding changes in employment due to the highly capital-intensive nature of mining with minimal labour inputs (Figure 5 and Figure 6).

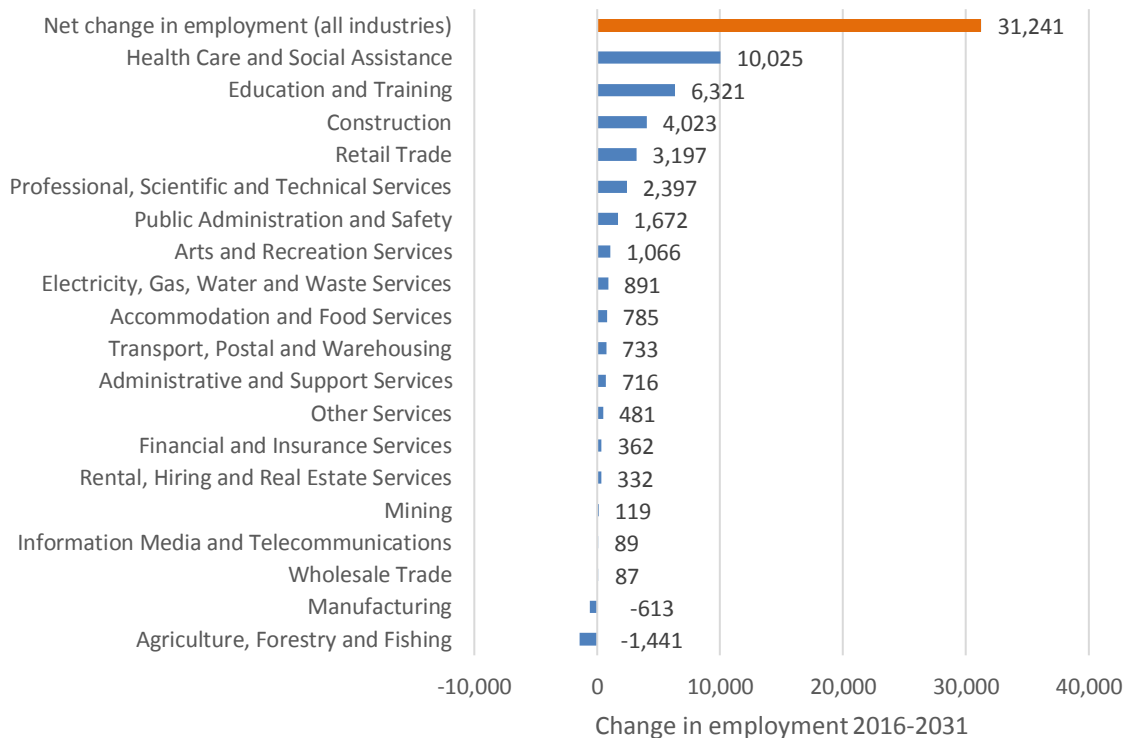
A report by the Committee for Economic Development of Australia (CEDA) found that almost five million Australian jobs – around 40 per cent of the workforce – face the high probability of automation in the next 10 to 15 years (CEDA 2015). In the Gippsland region, much of the automation of labour has been in the goods-producing industries which has contributed to the changing industrial structure. However, in the future, automation is likely to affect jobs in the service industries, such as health care, which have previously been largely unaffected by automation. With service industries as the main growth area in employment in the Gippsland region (Figure 6), there are likely to be future challenges due to these changes.



Source: NIEIR 2018.

Note: Only non-service industries have been included.

Figure 5 Size of non-service sector industries in the Gippsland region, 1994 - 2016



Source: Deloitte Access Economics n.d.

Note: It is unlikely that this projection captures future change in industry structure, or that it assumed the 2017 closure of the Hazelwood power station, however longer-term downturn in coal-fired energy production would be a likely assumption.

Figure 6 Projected employment growth in industries in Gippsland, change from 2016 to 2031

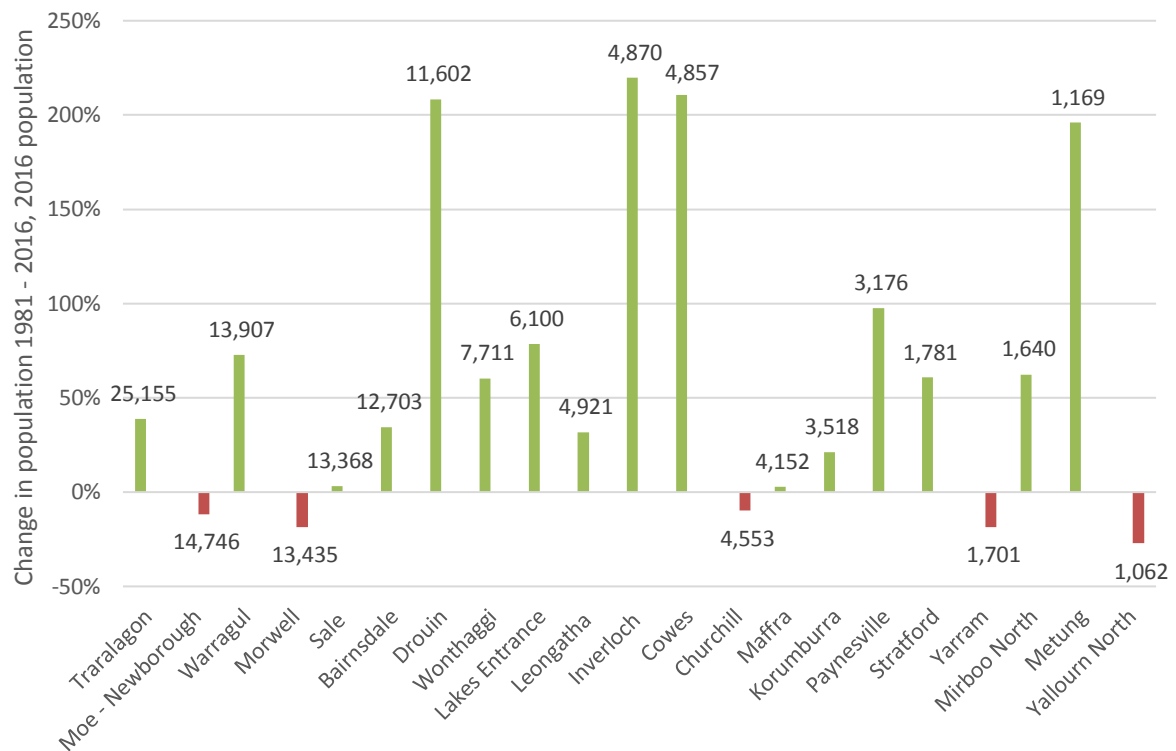
A shift towards a service-based economy has implications for the skills and qualifications of the workforce. Many jobs requiring intermediate skill levels exist in manufacturing and production industries. The shift towards service-based industries coupled with automation of the primary industries, such as agriculture and manufacturing, may lead to less low-skilled jobs. These changes will produce both challenges and opportunities. Further automation can increase productivity and increase wages for those with complementary skills able to leverage those productivity gains. However, it will also mean jobs losses and increased skill requirements, with growth particularly in high skilled industries.

3.2. Demographic changes and urbanisation

In the Gippsland region there has been population growth in the majority of regional centres and towns since 1981.⁵ There has been particularly strong growth in Drouin, on the fringe of Melbourne, and in the coastal towns of Inverloch and Cowes; each of which have experienced population growth of over 200 per cent. The regional hub of Latrobe LGA, which consists of several large population centres, has seen growth in the largest town of Traralgon but declines in the satellite towns of Moe, Morwell and Yallourn North (Figure 7). All other towns in the Gippsland region have experienced growing populations.

Across Victoria, lower birth rates and longer life expectancy have led to an ageing of the population, which is expected to continue. However, this trend is not as pronounced in the Gippsland region. The population aged 20-39 is still growing in all LGAs. However, there is a more rapid growth in the population aged over 60, which alongside declines in the population aged 0-19 in East Gippsland, Latrobe, South Gippsland and Wellington LGAs, will lead to continued population ageing in the future (Figure 8). All LGAs except Baw Baw and Bass Coast are experiencing population growth primarily in the over 60 age group. An ageing population leads to an increasingly dependent population, with fewer working age adults to support those who have retired from the workforce.

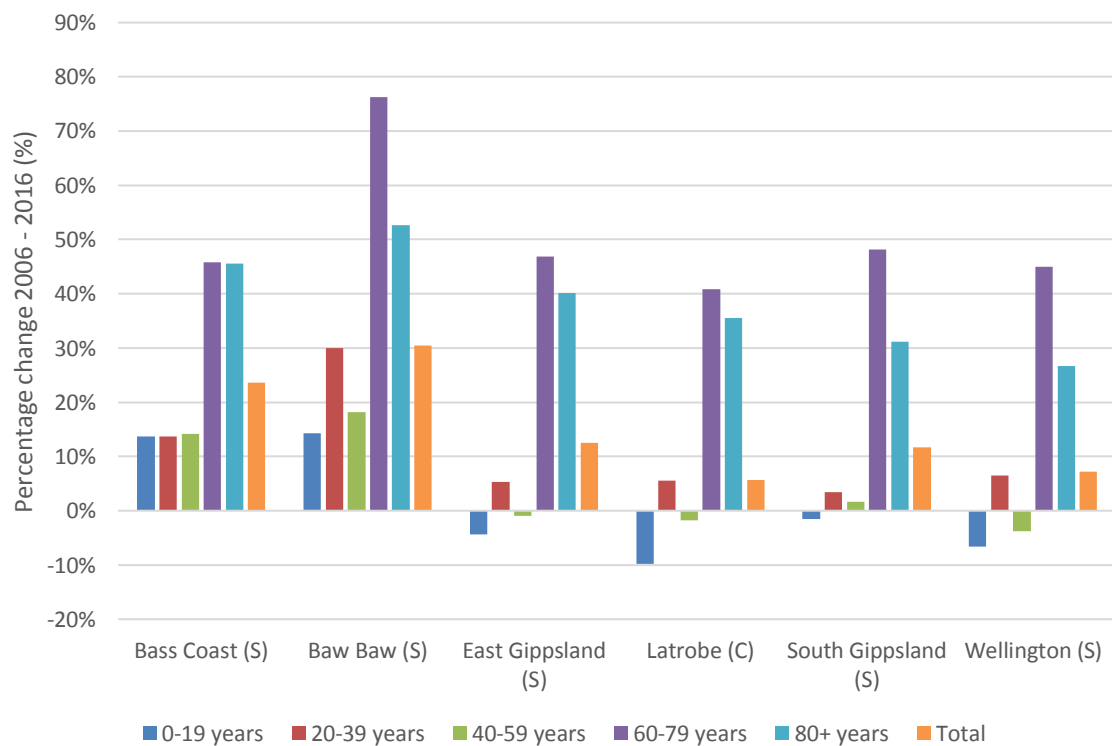
⁵ This report uses unpublished data from DELWP's *Towns in Time* data source (DELWP 2016a) that may differ from population data from the Australian Bureau of Statistics (ABS), which uses different boundary definitions. The *Towns in Time* data also counts population by location on Census date, while ABS uses usual residences, as this definition can be used consistently further into the past. This dataset is therefore able to be used consistently over time.



Source: DELWP 2016a, DELWP 2016b.

Note Number indicates total population 2016

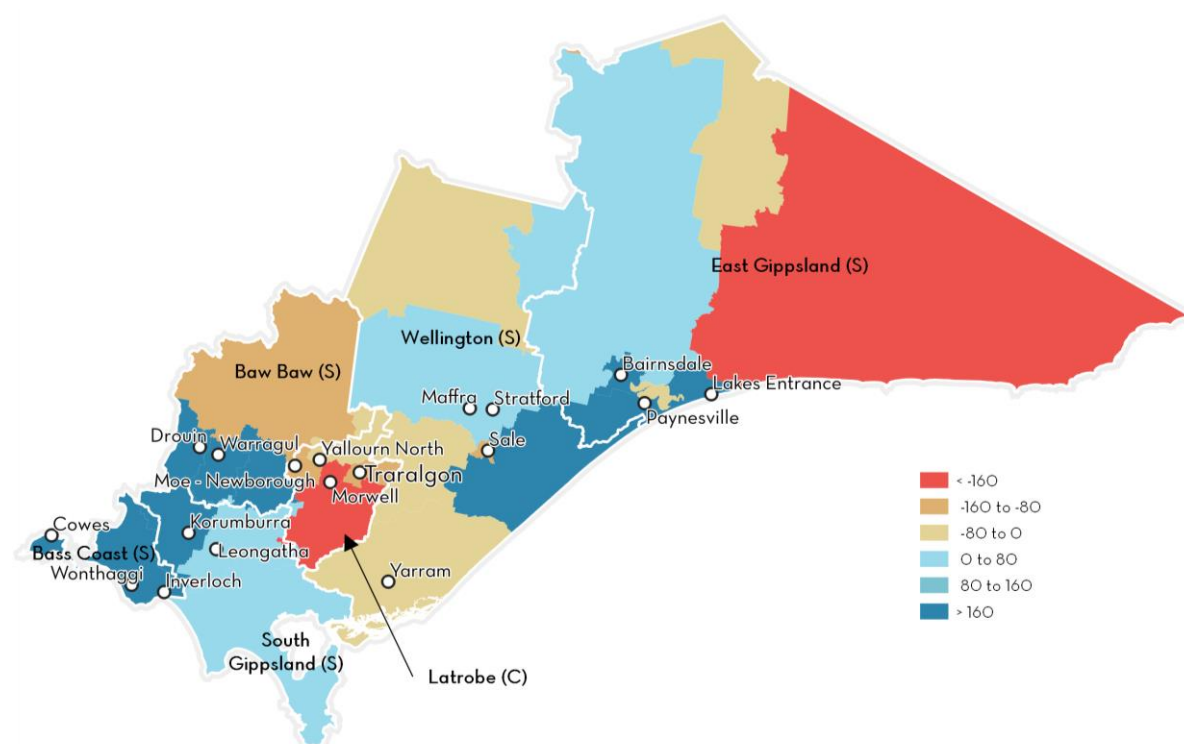
Figure 7 Growth in population from 1981 - 2016 and total town size for regional cities, regional centres and regional towns in Gippsland



Source: ABS 2006, ABS 2016a.

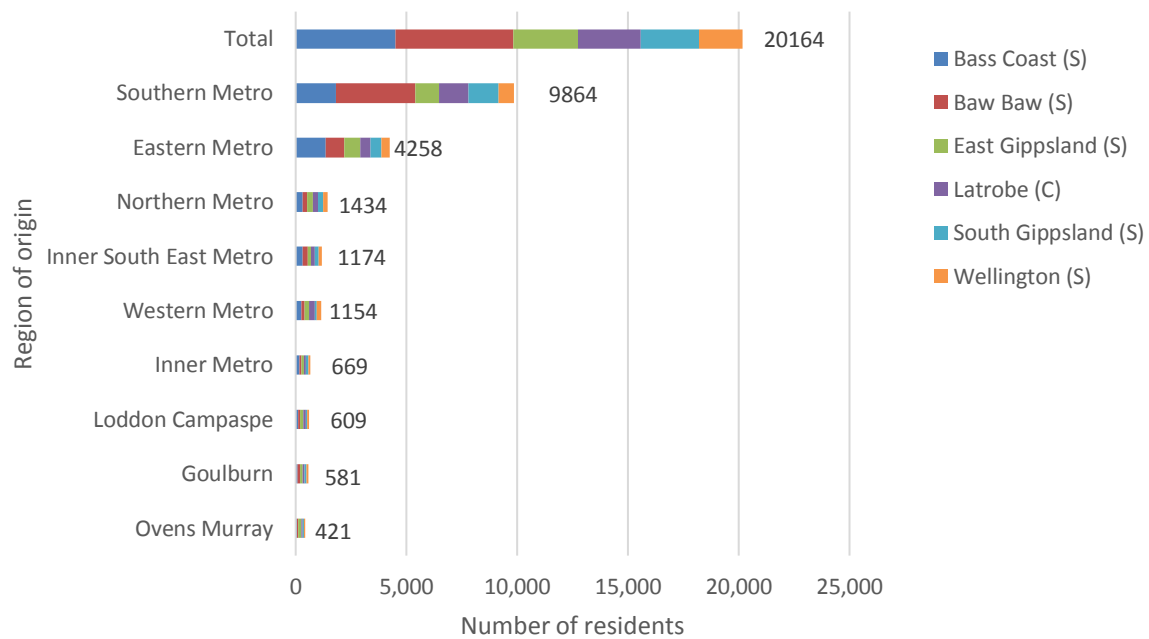
Figure 8 Change in population by 20-year age groups between 2006 and 2016

Migration is a key driver of demographic and population change, both within the Gippsland region and within Victoria. There has been high net in-migration to the Melbourne peri-urban fringe particularly around the towns of Drouin, Warragul and Wonthaggi (Figure 9). There has also been net in-migration to the Gippsland Lakes region. Net out-migration has occurred in and around Latrobe LGA and far east Gippsland, making Latrobe LGA the only Victorian regional hub experiencing net out-migration. Aside from movement within the Gippsland region, the highest number of in-migrations have come from the Southern and Eastern Metro regions of Melbourne with the majority relocating to Bass Coast and Baw Baw LGAs (Figure 10). This suggests that whilst there is movement away from rural areas, there is also suburbanisation occurring with residents moving away from Melbourne.



Source: ABS 2016a.

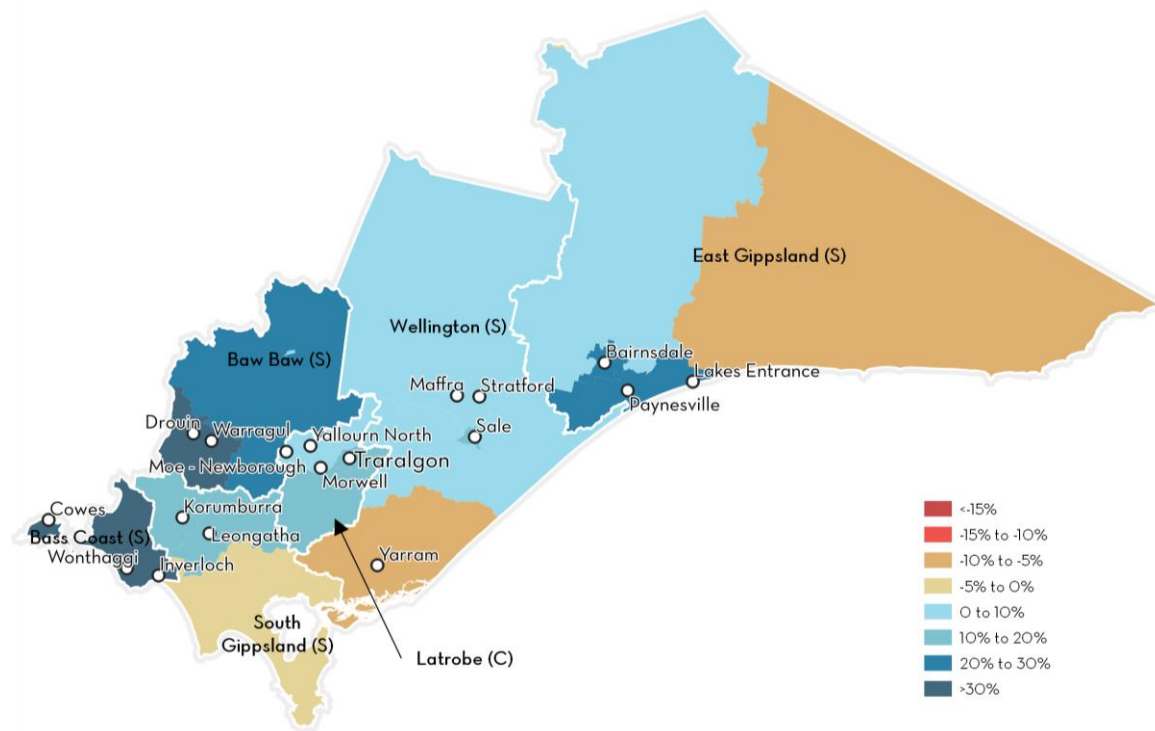
Figure 9 Net migration of Victorian residents within the Gippsland region, 2011-2016



Source: ABS 2016a.

Figure 10 Region of origin in Victoria and destination LGA for in-migration to Gippsland, 2011-2016

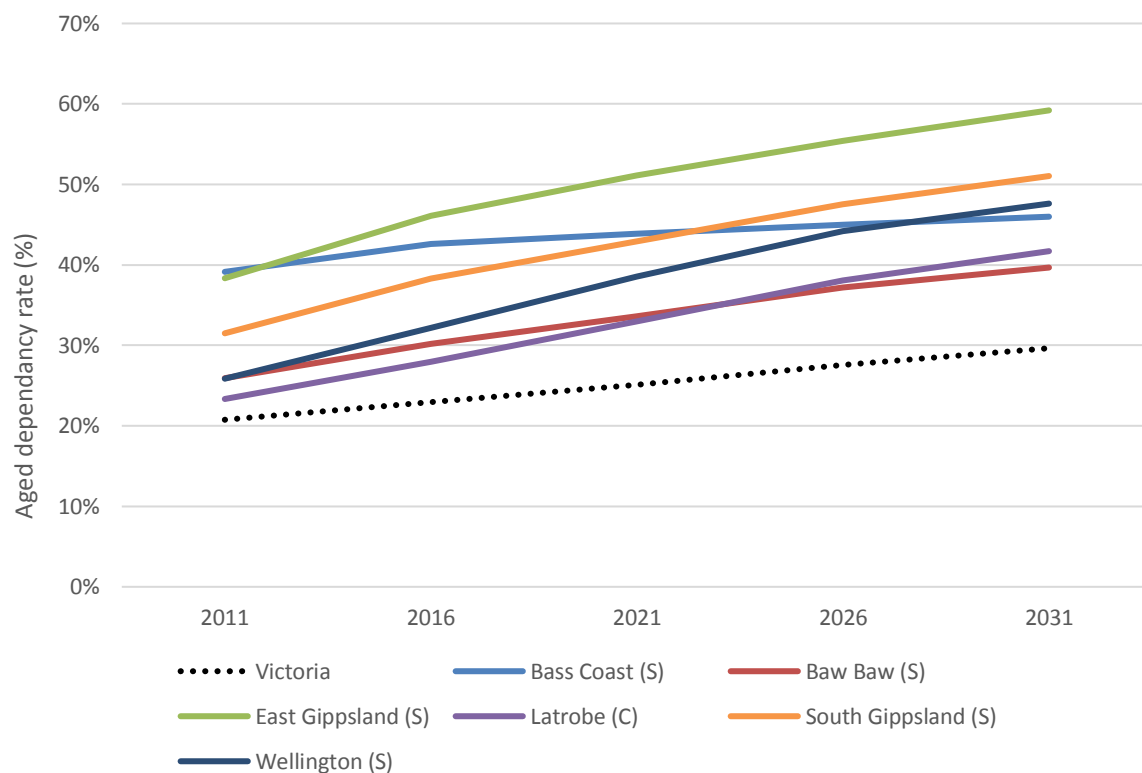
The LGAs of the Gippsland region can be broadly divided into two groups according to different demographic trajectories. As shown in Figure 11, high population growth is projected for the peri-urban fringe near Melbourne. There is also a smaller rate of projected growth around the Gippsland Lakes and Traralgon. The far east of Gippsland is projected to experience modest population decline as are the southern areas.



Source: DELWP 2016b.

Figure 11 Projected population change in the Gippsland region (%), sub-LGA level, 2016-2031

For all LGAs within the region, the aged dependency ratio is expected to increase to 2031 by more than the Victorian average. The lowest levels of aged dependency are seen in Latrobe and the peri urban fringe LGAs of Baw Baw and Bass Coast. The LGAs of South and East Gippsland are projected to increase much more significantly to between 50 and 60 per cent by 2031 compared to the Victorian average of 30 per cent (Figure 12).

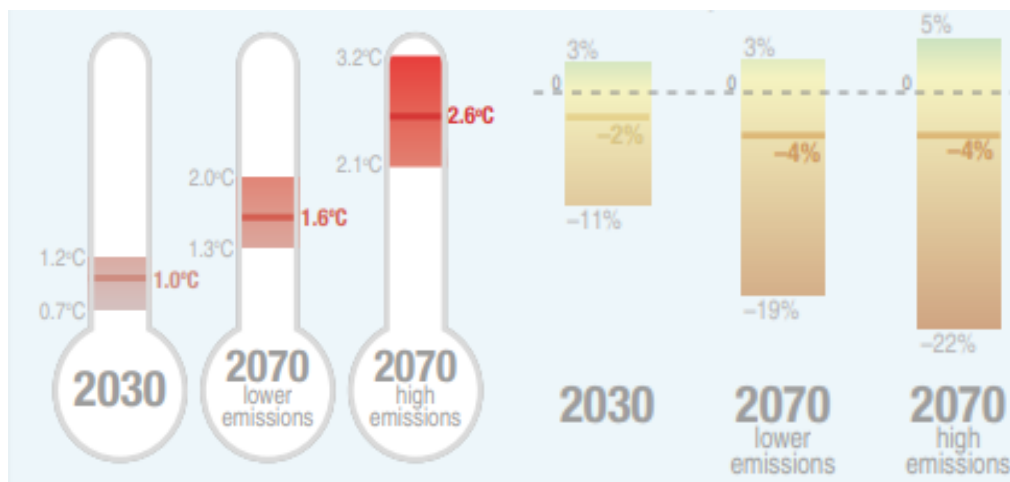


Source: DELWP 2016b.

Figure 12 Aged dependency ratio, current and projected, Gippsland region and Victorian average (2011-2031)

3.3. Climate change

Climate change is a major future risk to agricultural industries across Australia. Victoria has already experienced decreased rainfall and increased temperatures over the past few decades. For much of Victoria the impacts of climate change are expected to mean higher average temperatures, decreased cool season rainfall and increased fire risk (Figure 13).



Source: CSIRO 2016.

Figure 13 Projected annual average temperature changes (LHS) and percentage changes in average rainfall (RHS) for the Gippsland region under different emission scenarios

The potential impacts of climate change are uncertain and dependent in part on future efforts to curb greenhouse gas emissions. The Gippsland region of Victoria has already become warmer and drier, reflecting a trend expected to continue in the future and includes:

- increasing temperatures year-round
- more days of extreme heat
- less rainfall overall, contrasted by more frequent and more intense rainfall events
- harsher fire weather and longer fire seasons
- rising sea level
- increased incidence of coastal erosion
- increasing exposure to periodic flooding and landslips.

Research suggests that farmers in dryland farming areas have adapted to the longer-term changes in climate by focusing on technologies and management practices that improve productivity during dry years. Farmers have made a variety of management practice changes—including adoption of conservation tillage—to better exploit summer soil moisture, as an adaptation to reduced winter rainfall. There is also evidence of shifts in the location of cropping activity over time. Both the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) and ABS data shows that the amount of cropping activity in higher-rainfall zones—such as south-western Victoria—has increased in recent decades. At the same time, there is evidence that cropping activity has decreased in some inland areas that have been heavily affected by the deteriorating climate (ABARES 2017). While the full impact of these changes on the agricultural industries across the region is difficult to predict, particularly in the short-term, an increase in the risks to agricultural productivity from the expected impacts of climate change is likely. Shorter growing seasons, more extreme rainfall events, increasing bushfire risks and water scarcity are all potential risks that could substantially reduce the economic output of these regions.

More broadly, the impacts of climate change represent a risk to social wellbeing and cohesion, with health implications from higher temperatures, uncertainty about water resource availability, decreased urban and rural amenity (e.g. gardens, sporting fields, recreational facilities) and a potential increase in the frequency and severity of natural hazards such as bushfires and floods. The Gippsland region has areas of high-risk rating for significant coastal assets including built and natural assets around Lakes Entrance and Lake Wellington, and Wilsons Promontory (VAGO 2018 p. 56).

4. Economic profile

4.1. Summary

Latrobe regional hub

This Latrobe regional hub encompasses the Latrobe LGA, which comprises three population centres (Moe, Morwell and Traralgon). For the regional hub the GRP per capita is below the Victorian average but higher than other LGAs in the region. This area is reliant on the energy industry with the largest industries being coal mining and electricity services. The influence of the mining sector can be seen in the high labour productivity in this region. The workforce participation rate in this area is below the Victorian average and the working age population is projected decline to 2031 in contrast to many other regional hubs in Victoria. The unemployment rate is particularly high in Latrobe LGA at 9.7 per cent. The majority of resident's work within the Gippsland region and there will likely be residents from the surrounding Gippsland LGAs working within the regional hub.

The structure of the economy in Latrobe means it is exposed to drivers of change affecting the industrial structure and population of the region. Declining jobs in mining and other manufacturing will be offset to some extent by growth in service sectors however the projected declines in working age population will be a challenge for the region. There is likely to be further growth in health care as a result of the aging population.

Western peri-urban fringe

LGAs within the peri-urban fringe area have very low GRP per capita due to the large commuter population not directly contributing to the local economy through their labour. This can be seen particularly clearly in Baw Baw LGA which has low GRP per capita, but high household income and high participation rates. The largest industry within Bass Coast LGA is construction driven by population growth, in particular with migration from Melbourne. It is also an important industry in Baw Baw, however the largest industry is agriculture as it is in South Gippsland. Baw Baw and Bass Coast LGAs are projected to undergo over 140 per cent working age population growth to 2031. In contrast, although South Gippsland LGA has some commuter population, it is only in the more northerly parts of the LGA, in the south its distance from Melbourne and desirable natural assets mean that it has seen more growth in retirees leaving Melbourne rather than a commuter population. It also has important tourism assets including Wilsons Promontory National Park. This is true to some extent across all these LGAs with the areas closest to Melbourne seeing growing commuter populations but the further regions including areas such as Phillip Island and Baw Baw National Park having high amenity value and attraction to retirees. The Bass Coast LGA reported a significantly lower rate of dwelling occupancy in the 2016 Census compared to other Gippsland LGAs and the Victorian average, which may indicate a large proportion of second homes or holiday rental properties.

Improved transport accessibility to Melbourne is likely to support population growth in these LGA while market trends which drive service agglomeration in Melbourne will continue the trend of a large proportion of residents' work being outside the LGA. It is also likely that access to health care services will become increasingly important for the ageing population.

Eastern regional areas

The data shows that the rural areas of Wellington and East Gippsland have lower gross regional product (GRP) per capita than the Victorian average. Agriculture is the largest industry by GVA in these regions, with important coal mining industry in Wellington LGA. These areas have lower

workforce participation rates than the Victorian average and the wider region. There is currently a lower working age population in East Gippsland however it is projected to grow to 2031 driven by the population growth around the seaside resort of Lakes Entrance. In contrast, the working age population in Wellington is projected to decline, however it is not projected to decline as much as other rural areas in Victoria. Household income is lower than the Victorian average in this region. This area has important tourist attractions, in particular the coastline in East Gippsland which includes the Gippsland Lakes area. The 2016 Census reported that nearly half of Bass Coast LGA's dwellings were unoccupied, significantly below the other Gippsland LGAs and the Victorian average, which may indicate a large proportion of second homes or holiday rental properties.

Higher temperatures and changing water supply as a result of climate variability and change will be a key driver; potentially depressing economic growth in the region, and potentially increasing risk coastal assets. The same trends of population decline and an ageing population are not as prevalent in this sub-region as is the case in many other rural areas. Population is forecasted to grow modestly and there is minimal forecasted change in working age population.

4.2. Regional economic data

Economic data to inform the regional economic profile has been collected and presented at two spatial scales:

1. At the regional scale, GRP per capita, GVA by industry, changes in the structure (number and size) of firms, labour productivity and participation rates are used to assess the economic performance of the region as a whole.
2. At the household scale, household income, household wealth, unemployment and the location of where income is earned relative to place of residence are used to assess the economic wellbeing of the residents of a region.

The economic profile is heavily influenced by the difference between place of work and usual residence. There will be people:

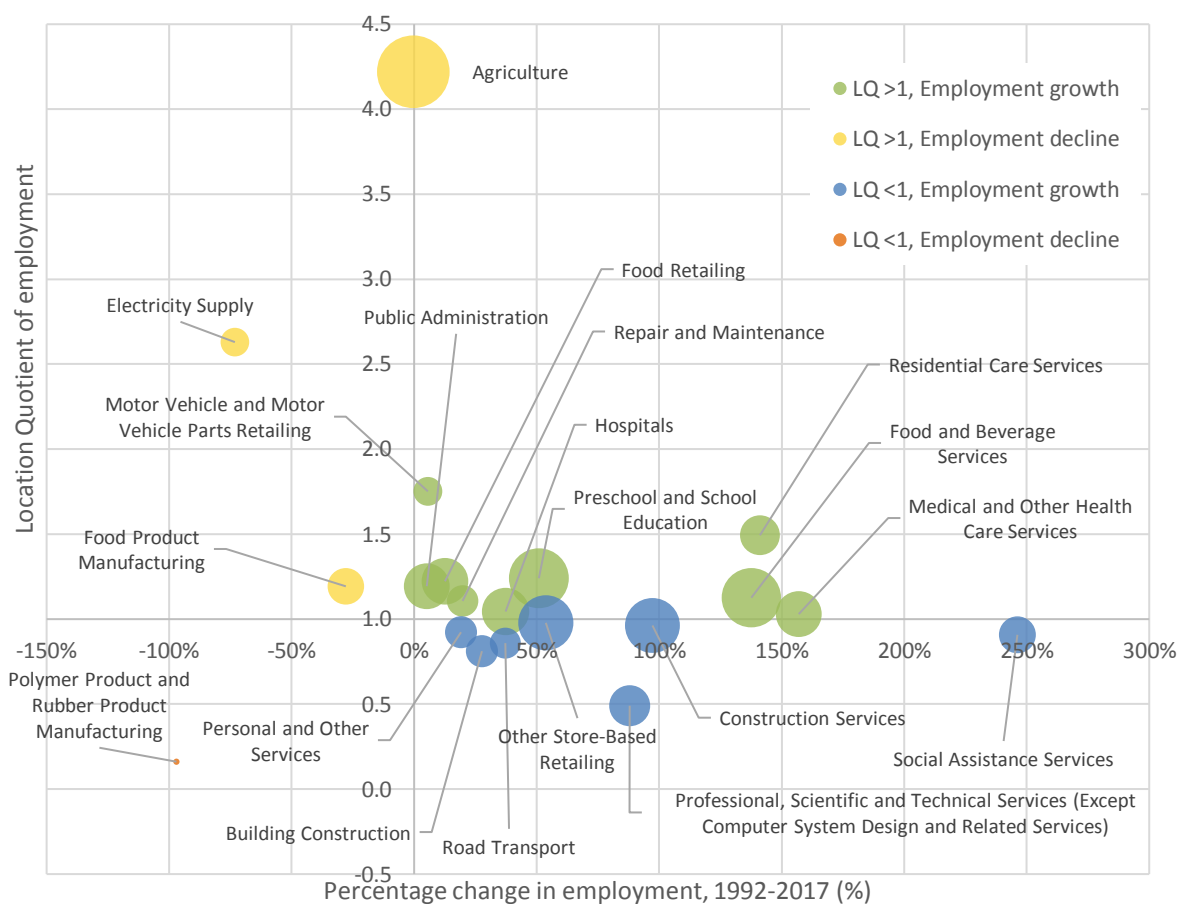
- living and working in the region and therefore contributing to the local economy through both their income and output
- living in the region and working elsewhere and therefore contributing through their income but not their output
- working in the region and living elsewhere and therefore contributing to output but with income accounted for in another region.

4.2.1. Economic performance of regional industry

The Gippsland regional economy is highly concentrated within both agriculture and electricity supply. Location quotient is a measure of the concentration of industries in a particular region compared to the State. Industries with a location quotient above 1 have a larger proportion of employment in that region compared to the Victoria overall.

Figure 14 shows the location quotient and growth in employment over 25 years for industries in the Gippsland region. The size of the bubbles indicates the percentage contribution to total employment in the region. The location quotient can potentially show which industries are strengths of a region. However, this does not necessarily hold where a high location quotient is combined with a small share

of regional employment. The location quotient should be used as a potential indicator of which industries are important in a region, rather than as a definitive analysis of regional strengths.



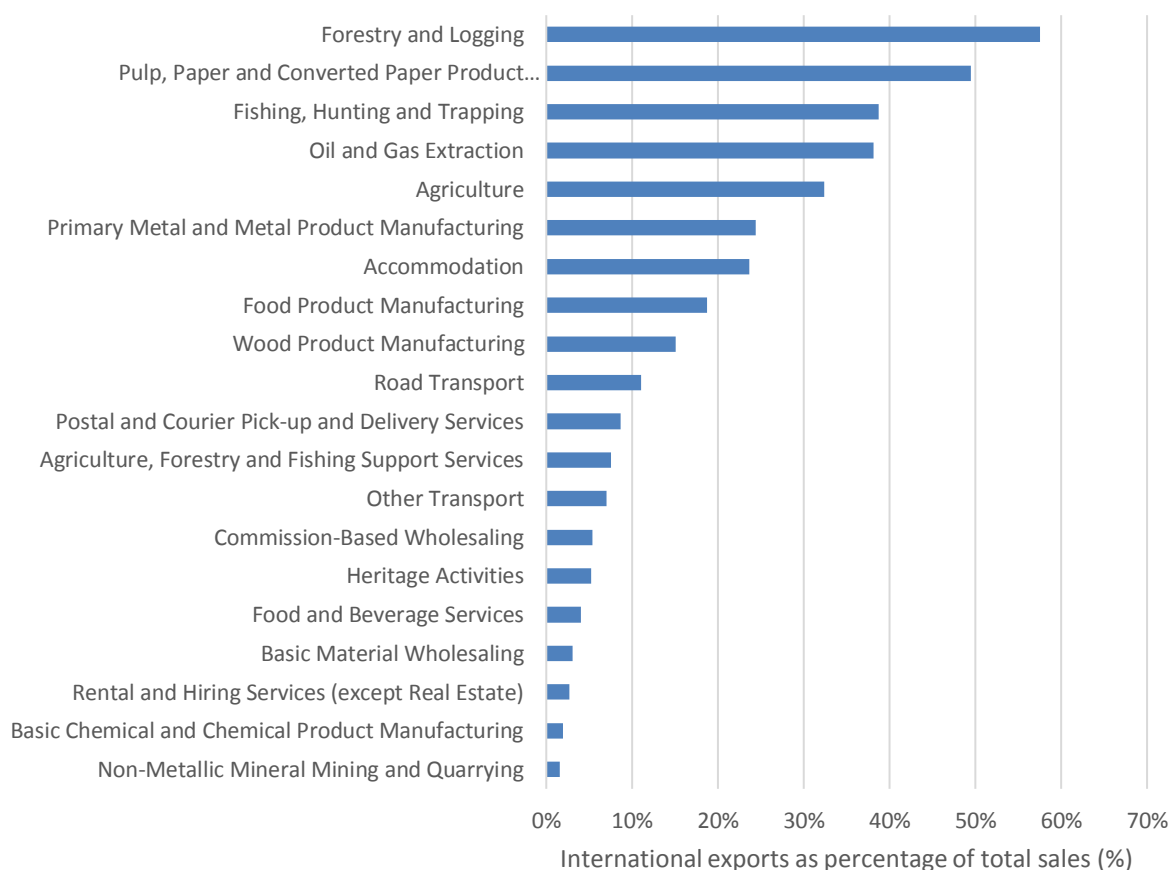
Source: NIEIR 2018.

Note: Bubble size indicates industry employment rates.

Figure 14 Employment concentration of industries in the Gippsland region, 2017⁶

⁶ This report uses Australian and New Zealand Standard Industrial Classification (ANZIC) data at the 1 digit level. Investigation of ANZIC data at a more detailed level was outside the scope of this report.

Industries with a location quotient greater than 1.5 and with growing employment are potentially relatively important growth industries for a region. There are currently no industries within this category in the Gippsland region. Employment is growing in other service industries however the concentration of employment is at a lower level than in Victoria as a whole. Industries with a location quotient greater than 1.5 but with declining employment are likely to be historically important industries that are now declining in importance for regional employment. This can be seen with agriculture and electricity supply in this region. The importance of the agricultural industry for exports can be seen in Figure 15 which shows agriculture and associated industries are three of the top five export industries in the Gippsland region. Paper manufacturing and oil and gas extraction are also key export industries for the region however they employ relatively few people.



Source: NIEIR 2018.

Figure 15 Proportion of sales exported from the Gippsland region, 2017

The industrial structure of the Gippsland region has been changing over the past 10 years, with movement within sectors occurring in addition to a more general shift to service sectors. Figure 16, which shows the change in both average firm size and the number of firms by sector, shows that the number of firms in both agriculture and manufacturing in this region has remained relatively constant between 2006 and 2017. However, whilst agriculture has seen an increase in average GVA, manufacturing has seen a decline. Firms in the construction, and electricity and gas service sectors have tended to proliferate, with growth in the number of firms but a decline in average size. There has been an expansion of both mining and health care with an increase in both number and size of firms.

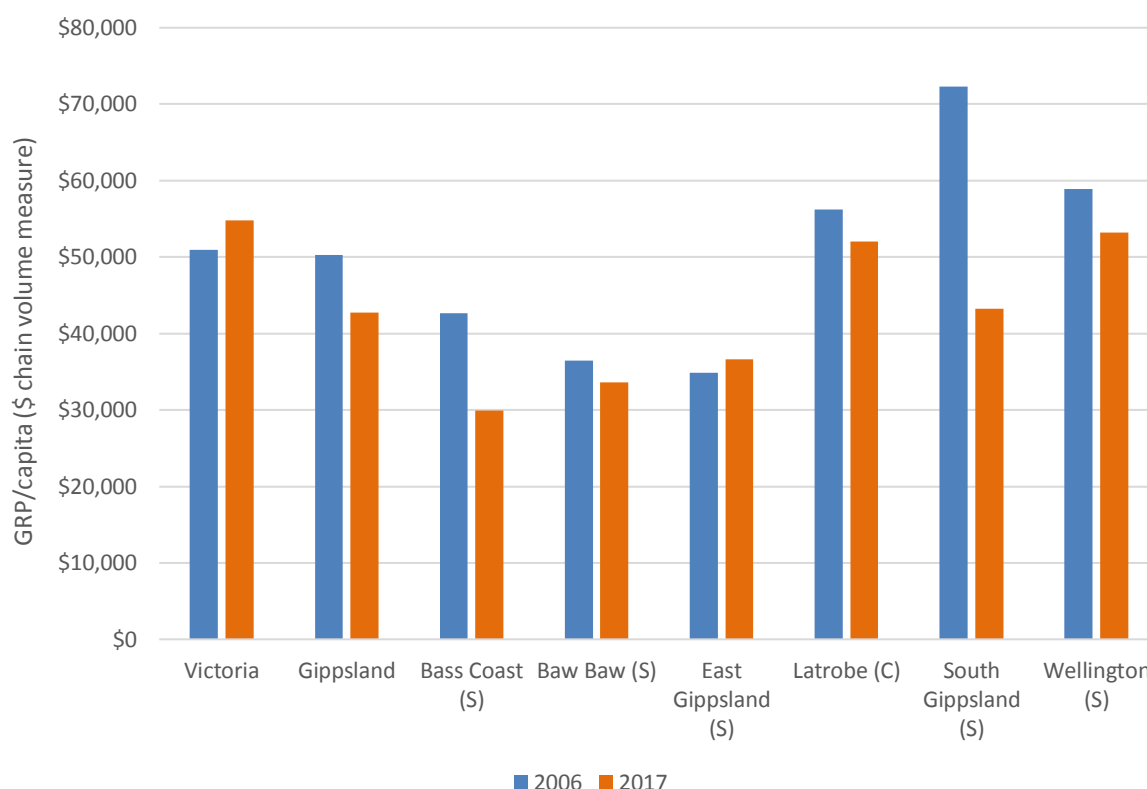


Source: Worksafe n.d., NIEIR, 2018.

Note: Consolidators refers to growth in fewer, larger firms. Expanders are experiencing increases in both firm output and number. Proliferators are experiencing an increase in number of smaller firms and decliners are experiencing falls in both the number and output of firms.

Figure 16 Total percentage change in number of firms and average firm GVA, Gippsland, 2006 to 2017

GRP measures the value of economic production of a region. In order to compare regions, GRP per capita is used. This is an imperfect metric at this level as high labour mobility exists between regions, meaning that those working in a region do not necessarily live there, which affects both the measure of GRP and the population measure. The Gippsland GRP per capita is below the Victorian average (Figure 17) however GRP per capita varies by LGA. All LGAs are below the Victorian average with the Latrobe and Wellington LGAs having the highest GRP per capita within the Gippsland region and close to the Victorian average, likely driven by high productivity extractive industries. Baw Baw and Bass Coast LGAs are well below the Victoria average, which as discussed above, is due to the large proportion of residents working outside the Gippsland region. This may also be occurring to some extent in South Gippsland. GRP per capita in the East Gippsland LGA is well below the Victorian average which may be due to the remoteness of this LGA.



Source: NIEIR 2018.

Note: There appears to be exceptionally high GRP per capita in 2006 for South Gippsland – it is unclear why this would be the case.

Figure 17 GRP per capita, 2006 and 2017, Gippsland and Victoria

GVA by industry

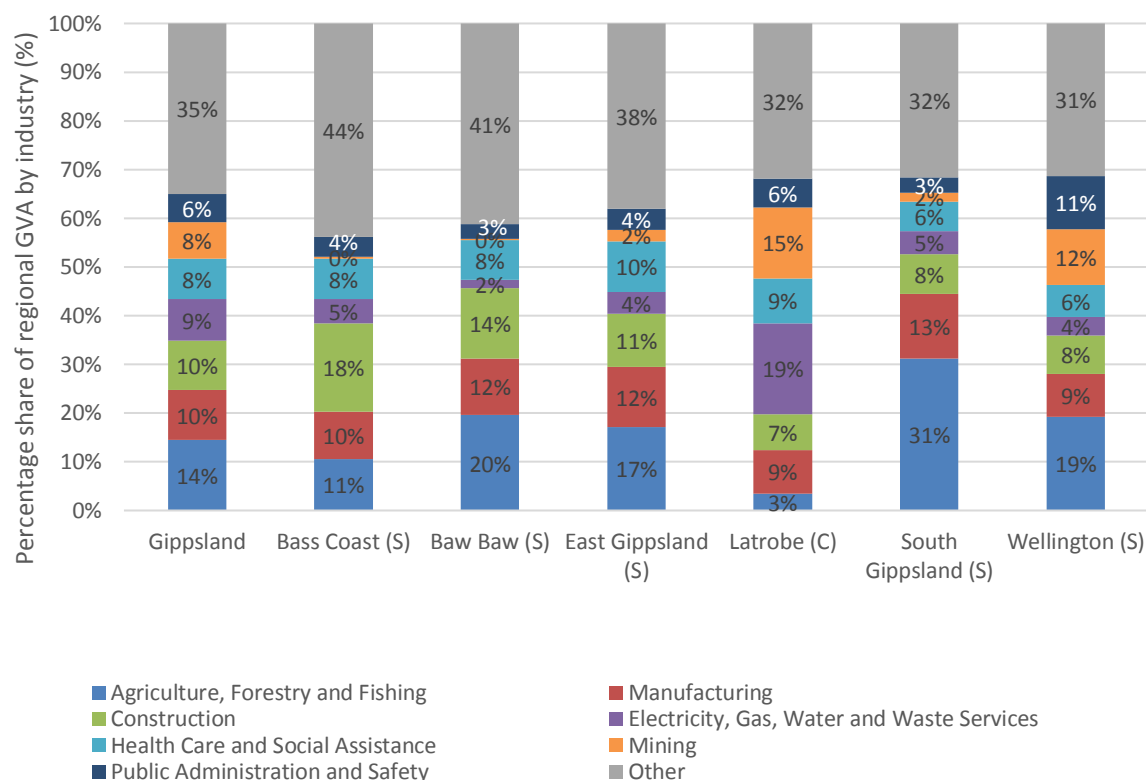
GRP in a region is the sum of industrial GVA. Figure 18 shows the biggest industries by GVA in the Gippsland region:

- agriculture (14%)
- manufacturing (10%)
- construction (10%)
- electricity and gas services (9%)
- health care (8%)
- mining (8%).

These six industries comprise 59 per cent of regional GVA. Between 2006 and 2017, there was a decline in the share of GVA from manufacturing in the Gippsland region and an increase in the share of health care. This is broadly consistent with trends occurring across Victoria, with a decline in the manufacturing sectors and an increase in service-based industries, particularly health-related services associated with ageing populations.

The biggest industries vary across the LGAs with agriculture being most substantial in South Gippsland, Baw Baw and Wellington LGAs than the region as a whole.

Construction is greatest where population is growing, this includes in Baw Baw and Bass Coast LGAs driven by growth in the peri-urban fringe near Melbourne. Latrobe LGA is highly concentrated in both mining and related electricity and gas services. This is due to the presence of both coal mining and coal-fired power generation in this LGA. The closure of Hazelwood power station in May 2017 has likely not yet been picked up in the economic data but may have a significant impact.



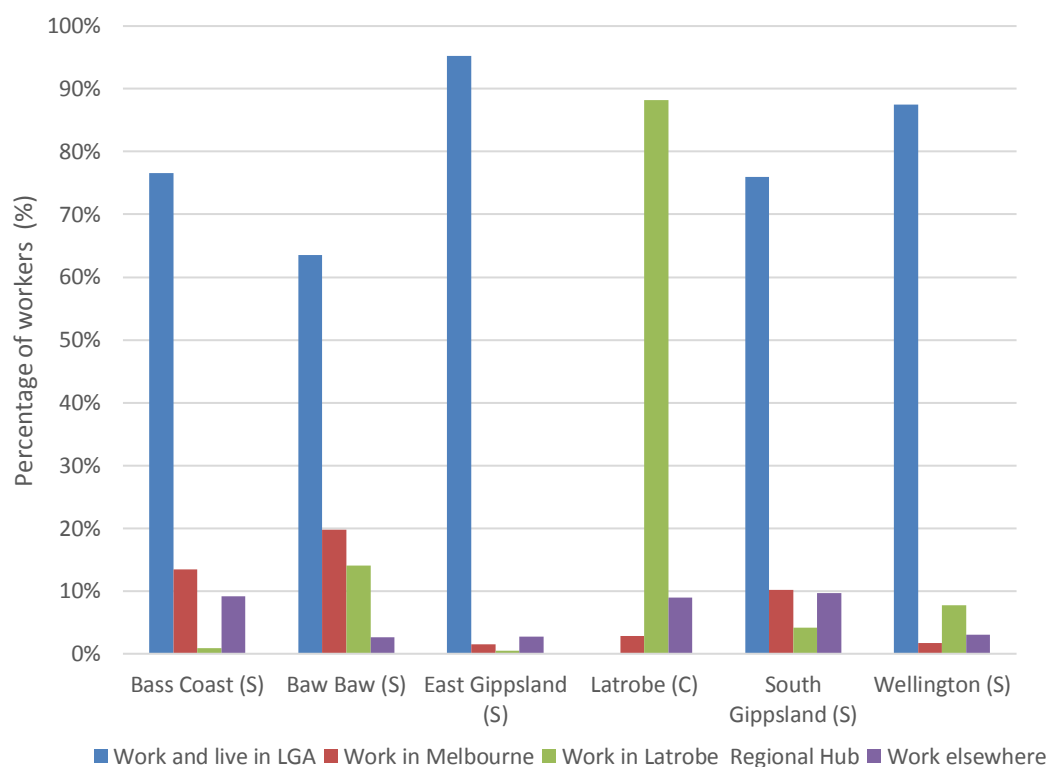
Source: NIEIR 2018.

Figure 18 GVA share of key industries in the Gippsland region, 2017⁷

⁷ Other industries in each region are comparatively small and therefore not included. The full range of industries includes: Agriculture, Forestry and Fishing; Mining; Manufacturing; Electricity, Gas, Water and Waste Services; Construction; Wholesale Trade; Retail Trade; Accommodation and Food Services; Transport, Postal and Warehousing; Information Media and Telecommunications; Financial and Insurance Services; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services; Administrative and Support Services; Public Administration and Safety; Education and Training; Health Care and Social Assistance; Arts and Recreation Services; Other Services.

Regional employment

The majority of Gippsland residents live and work in the same LGA. Baw Baw LGA has the smallest proportion of residents living and working in the LGA (64 per cent), while 20 per cent work in Melbourne and 14 per cent in the Latrobe regional hub. In East Gippsland, the most remote LGA, 95 per cent of residents live and work within the LGA, the highest rate of the Gippsland region, with only small numbers commuting elsewhere. The Latrobe regional hub has a large proportion of residents living and working in the region (88 per cent) (Figure 19).

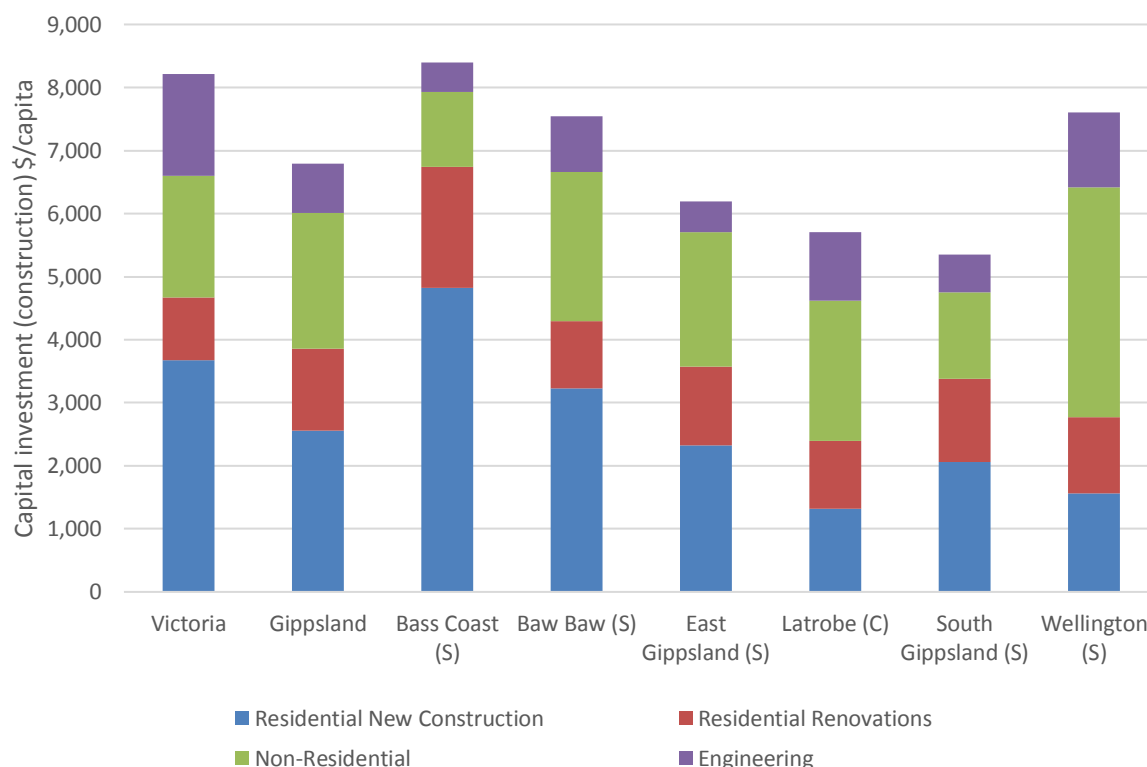


Source: ABS 2016c.

Figure 19 Employment location of Gippsland residents by LGA, 2016

Capital investment

Capital investment in the Gippsland region is below the Victorian average, with the exception of Bass Coast LGA on the peri-urban fringe, which is forecast to experience strong population growth. Non-residential construction is highest in Wellington LGA. The lowest rates are seen in Latrobe and South Gippsland LGA, which have lower rates of population growth.



Source: NIEIR 2018.

Figure 20 Capital investment in the Gippsland region, 2017

Tourism

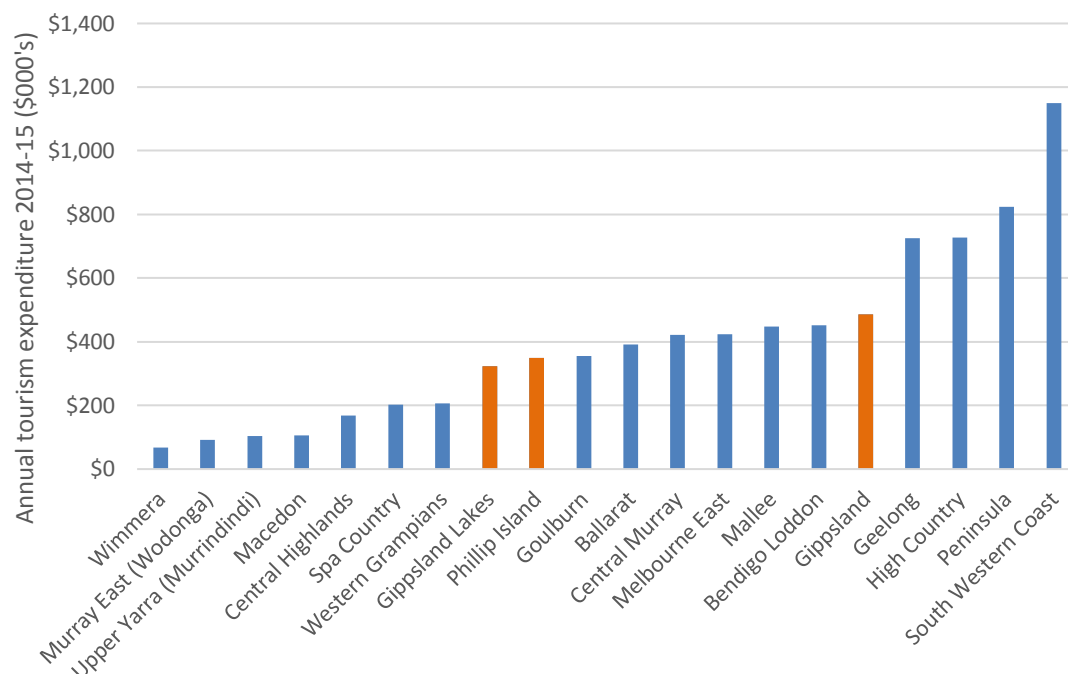
There are major environmental and recreational tourism assets in the Gippsland region in both coastal and mountainous areas. Mountain areas include Baw Baw National Park, the south east of the Alpine National Park and the south west of Kosciuszko National Park. Coastal assets include the Gippsland lakes, Wilsons Promontory National Park, Phillip Island and Croajingolong National Park.

Analysis by Tourism Research Australia (2016) includes three key tourism regions within Gippsland: the Gippsland region, Phillip Island and Gippsland Lakes. Tourism expenditure in these regions is highest in Gippsland, which includes both Wilsons Promontory and Baw Baw National Park and is at the higher end of expenditure in Victoria (Figure 21).

Whilst total tourism expenditure is highest in Gippsland, the visitor-population ratio is highest in Phillip Island which is also the highest in Victoria, with 35 visitors for every resident in 2014-15 (Figure 22). The discrepancy between expenditure and visitor numbers to Phillip Island may be driven in part by its close proximity to Melbourne, leading to higher numbers of daytrips rather than overnight visits as well as Phillip Island being a relatively small tourism area (by size), and having a relatively small population.

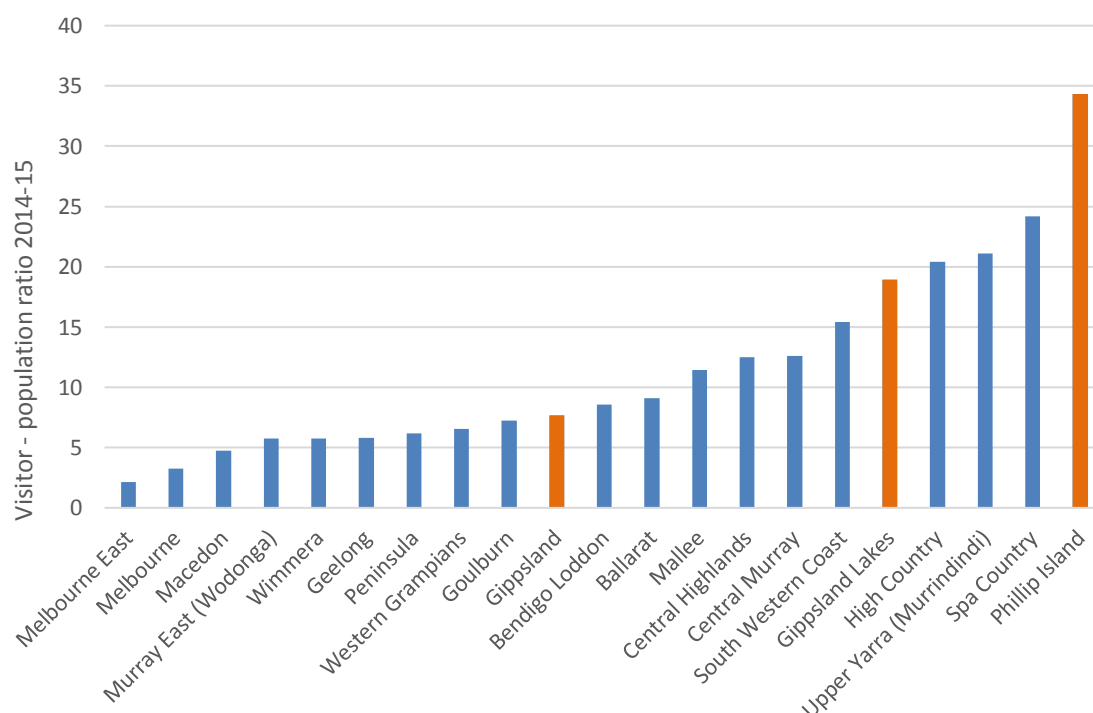
The number of dwellings not occupied on Census night in August may indicate the proportion of units that are second homes or holiday rental properties. The 2016 Census reported that approximately 56

per cent of Bass Coast LGA's dwellings were occupied, significantly below the other Gippsland LGAs and the Victorian average. Overall, dwelling occupancy was close to or below the Victorian average (Figure 23). A large proportion of second homes or holiday rental properties, located on the Bass Coast LGA coastline close to Melbourne, mean the area is susceptible to the impacts of seasonal population fluctuations.



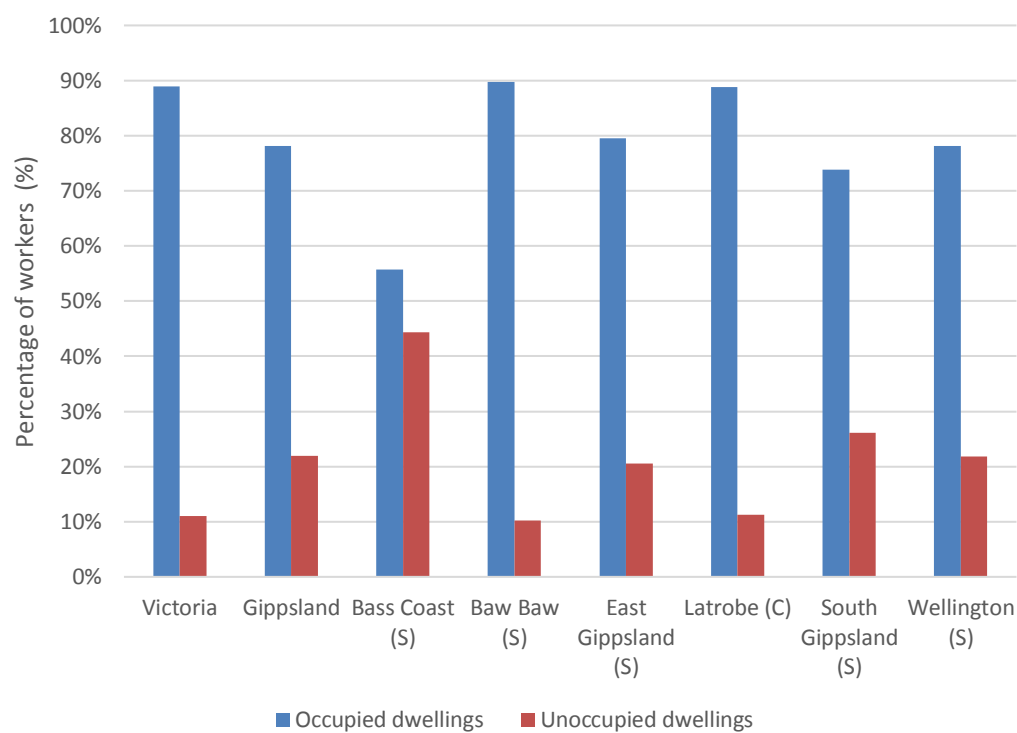
Source: Tourism Research Australia 2016.

Figure 21 Tourism expenditure by tourism region (excluding Central Melbourne), 2014-15



Source: Tourism Research Australia 2016.

Figure 22 Tourism visitor-population ratio by tourism region, 2014-15

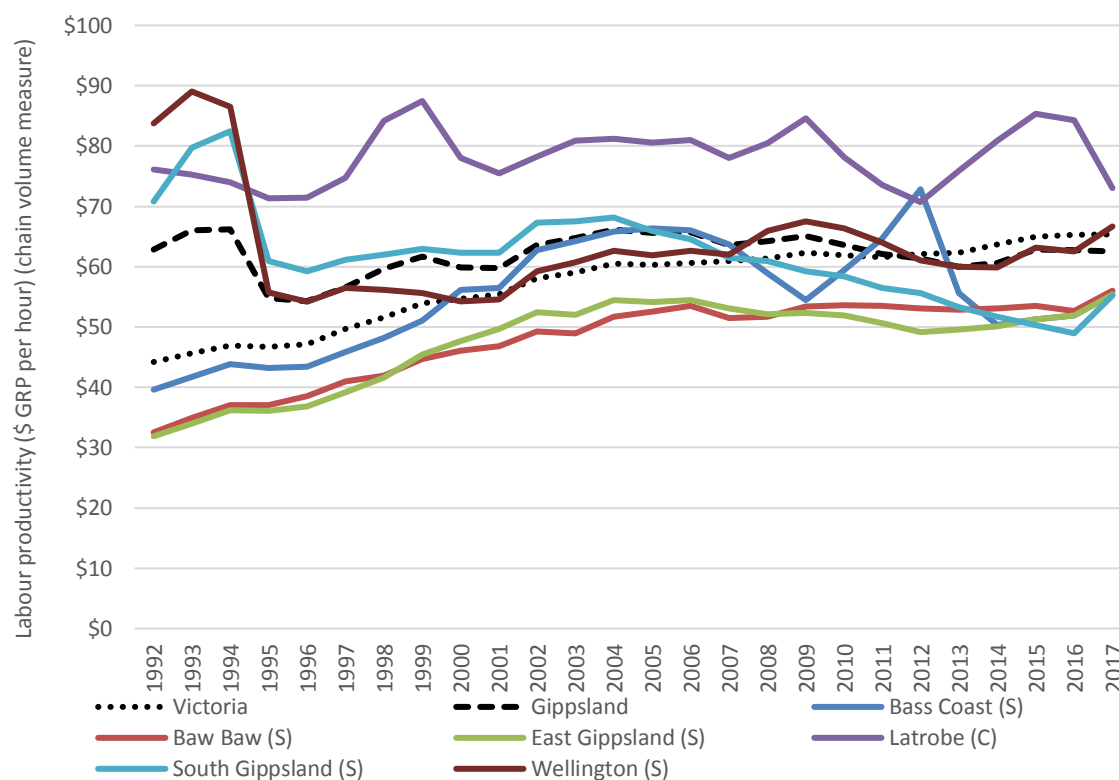


Source: ABS 2016e.

Figure 23 Dwelling occupancy rates, Gippsland and Victoria, 2016

Labour productivity

Labour productivity in the Gippsland region has generally been above the level of Victoria as a whole, however it has not increased over the past 15 years and is therefore now below the Victorian average (Figure 24). The LGAs of Latrobe and Wellington have generally been responsible for high labour productivity in this region due to large, capital-intensive mining and energy industries.

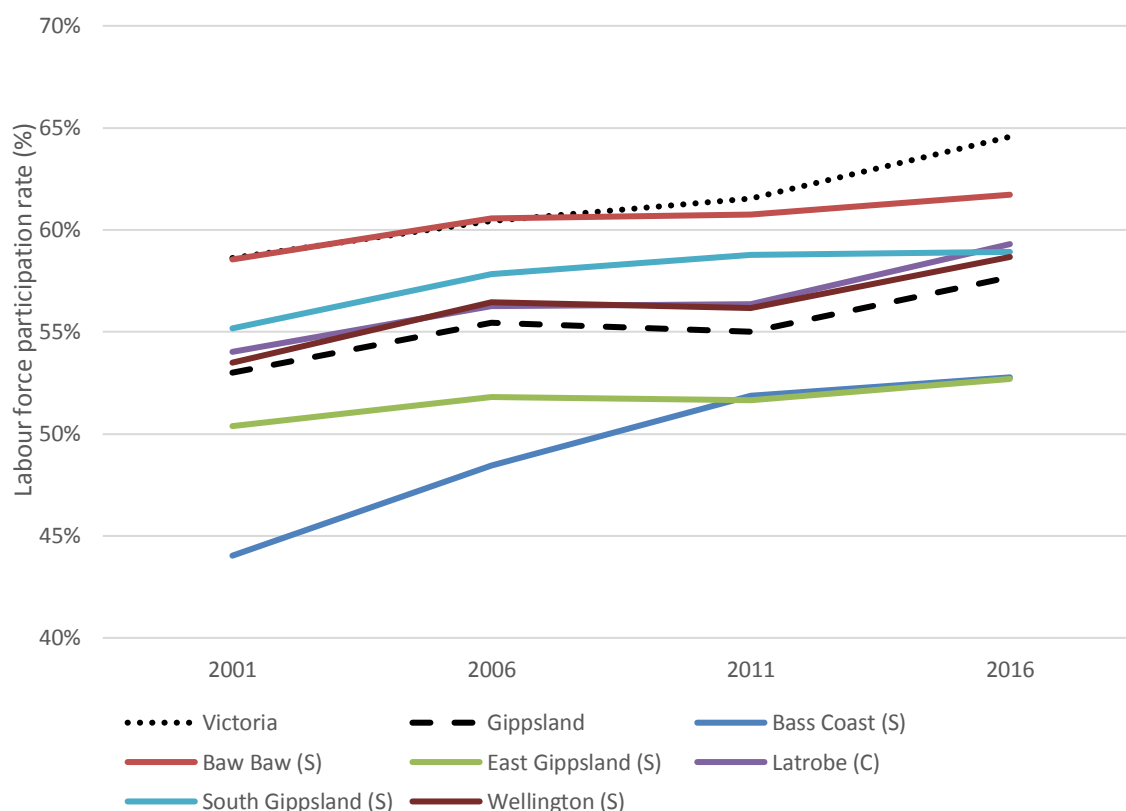


Source: NIEIR 2018, Aither analysis.

Figure 24 Labour productivity, Gippsland and Victoria, 1992-2017

Participation rate

The average participation rate for the Gippsland region is well below the average for Victoria as shown in Figure 25. The participation rate is particularly low in Bass Coast and East Gippsland LGAs. This may be due to a combination of economic and social factors in these LGAs such as access to social disadvantage, poor youth engagement (see Figure 40), jobs, family structure and number of retirees. These factors may be worth further investigation to understand the key drivers of the difference between LGAs. This is offset to some extent by the higher participation rates in Baw Baw LGA.

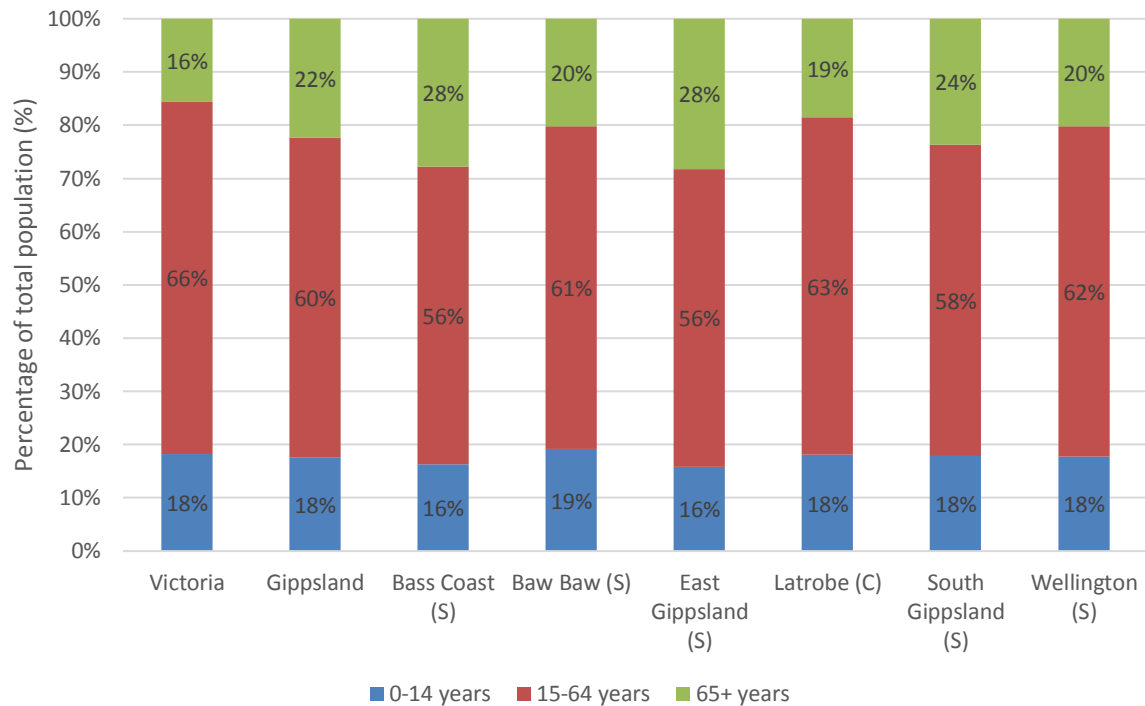


Source: ABS 2016c.

Note: ABS calculate participation rate based on population aged over 15, not working age population (15-64) as used elsewhere in this report.

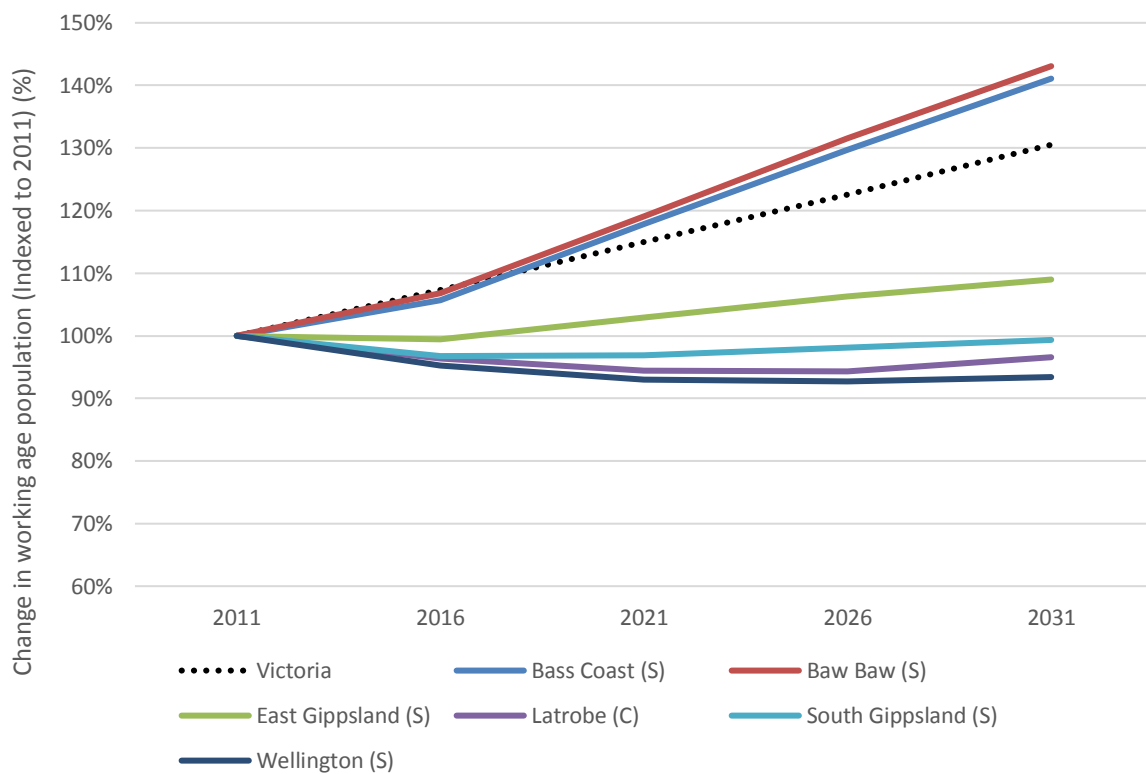
Figure 25 Labour force participation rate, Gippsland and Victoria, 2001 to 2016

The total proportion of the population employed or seeking work is affected by the demographics of the region. Figure 26 shows that the working age population (population aged 15-64) is a smaller proportion of the total population in Bass Coast, South Gippsland and East Gippsland LGAs in particular. Conversely the working age population of Latrobe LGA is closer to the Victorian average. The peri urban fringe LGAs of Bass Coast and Baw Baw are expected to experience substantial growth in the working age population to 2031 (Figure 27) (above the Victorian average). There is also relatively strong forecast working age population growth in East Gippsland, potentially driven by lifestyle migration to the Gippsland Lakes region.



Source: ABS 2016a.

Figure 26 Population by age group in the Gippsland region

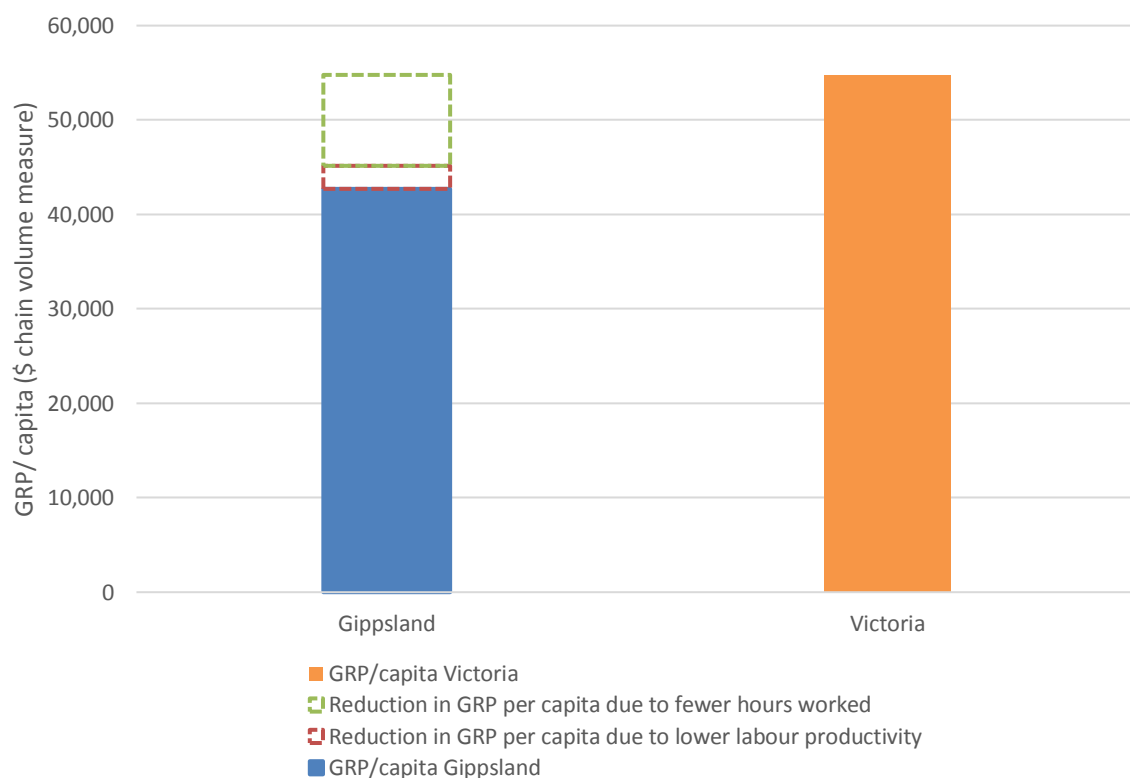


Source: DELWP 2016b.

Figure 27 Projected change in working age population, indexed to 2011

Difference between Victorian average and Gippsland

The factors discussed above account for the difference in GRP per capita between Victoria as a whole and the Gippsland region. Figure 28 shows that the key difference between the Gippsland and Victorian GRP per capita is hours worked, driven mainly by the presence of a significant commuter population working outside the region and therefore not contributing directly to regional GRP.



Source: NIEIR 2018.

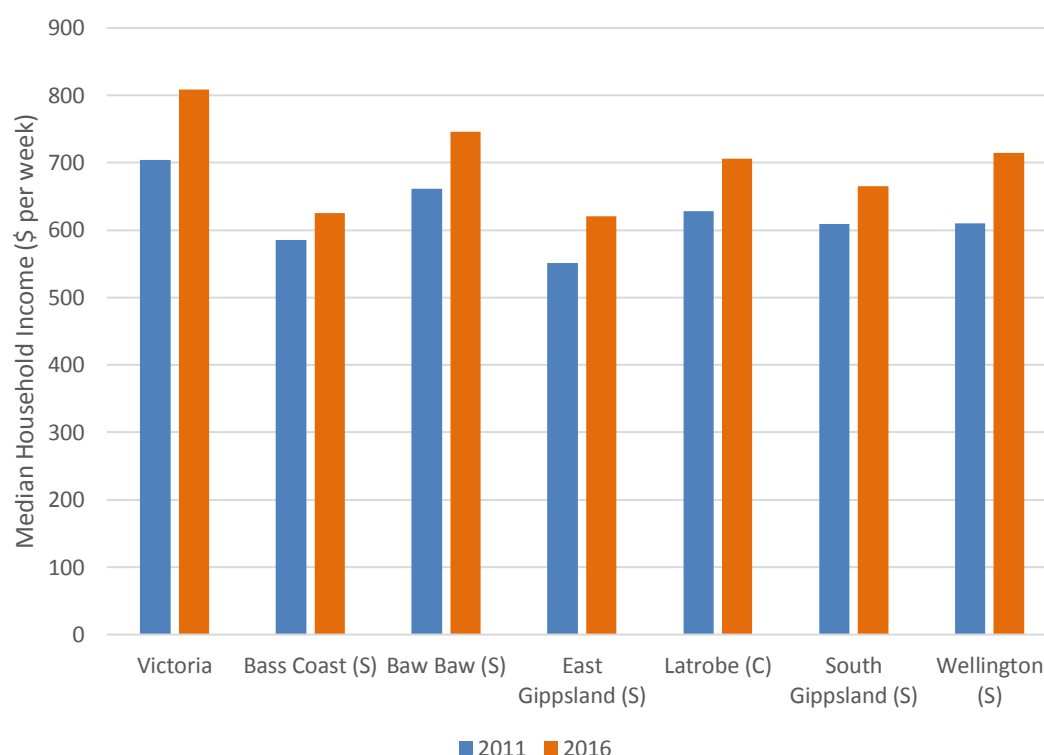
Note: This analysis is based on the accounting principle that GRP is the sum of GVA which is a function of the supply of labour and labour productivity. Labour is shown by hours worked, which is influenced by size of the labour force and the participation rate, as well as the type of work i.e. full time or part time.

Figure 28 Components of the difference in GRP per capita between Victoria and Gippsland

4.2.2. Economic wellbeing of residents

Household Income

As shown by Figure 29, household income is lower than the state average across all LGAs. The highest income is in Baw Baw LGA which is likely due to the proximity of this LGA to Melbourne, with a large proportion of working residents commuting and accessing higher skill, higher paid jobs. For example, residents of Baw Baw LGA who work in the inner metro area of Melbourne have a median wage bracket of \$1,250-\$1,499 per week. In comparison, those who work in the Gippsland region have a median income of \$800-\$999 per week (ABS 2016c). Whilst income in Latrobe LGA is below the Victorian average, it is higher than the more rural LGAs in the region potentially due to the greater availability of jobs within the regional centre compared to the rural areas. The lowest household incomes are in the LGAs of Bass Coast and East Gippsland.



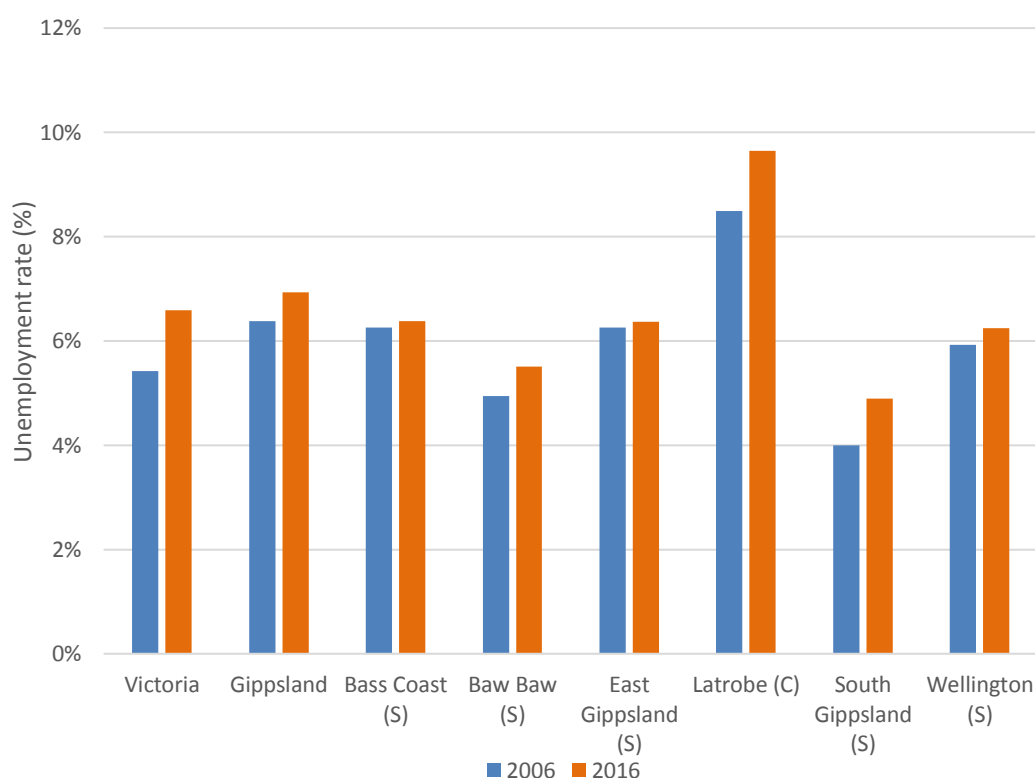
Source: ABS 2016d.

Figure 29 Median weekly equivalised total household income

Unemployment

The unemployment rate varies across the region from 4.9 per cent in South Gippsland to 9.7 per cent in Latrobe, well above the Victorian rate of 6.6 per cent in 2016. The relatively higher unemployment in Latrobe may reflect characteristics of regional centres observed more broadly across Australia. Other research has shown that unemployment has increased faster in many regional centres compared to the rural areas that surround regional centres and that at the same time, the populations of these regional centres have also tended to grow faster (Daley, Wood and Chivers 2017).

The unemployment rates in South and East Gippsland are low relative to the Victorian average. This is in contrast to the lower average income levels seen in these LGAs, and the low participation rates. This may suggest that in these LGAs, there is work available for those participating in the labour market. It may also be that there is a high level of structural unemployment which is therefore being counted in the low participation rate rather than measures of short term unemployment (Figure 30).

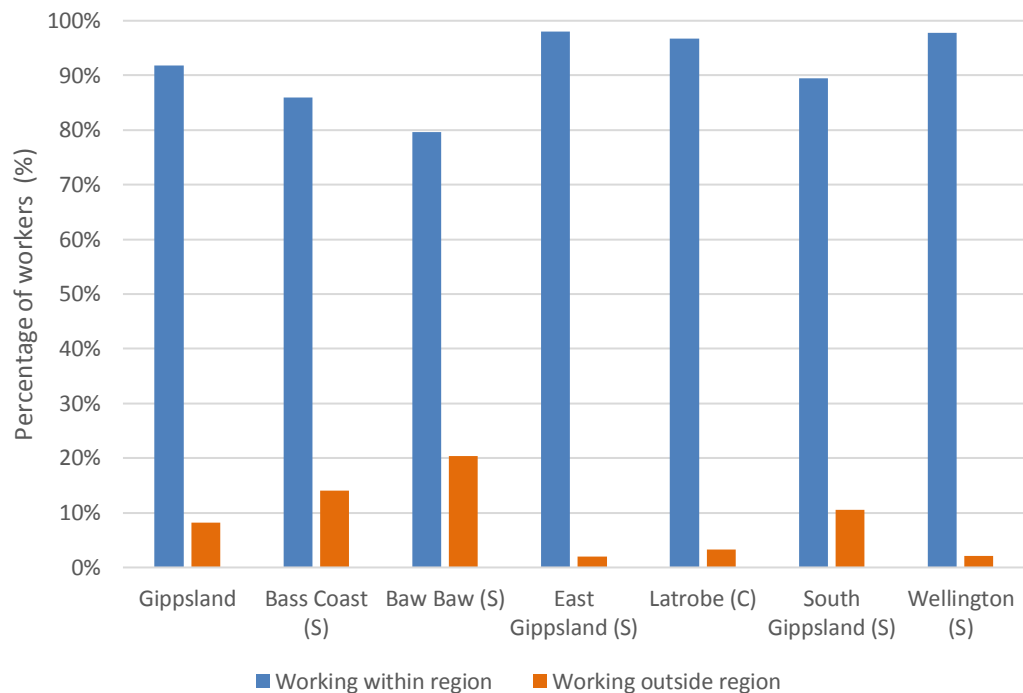


Source: ABS 2016c.

Figure 30 Unemployment rate by LGA, 2006 and 2016

Place of work

As discussed above, some income in the region comes from jobs outside of the Gippsland region. This can be seen in Figure 31 where over 20 per cent of workers in the Melbourne peri-urban fringe LGA of Baw Baw work outside of the Gippsland region. For the Gippsland region as a whole, 17 per cent of the resident population work outside of the region. This is seen to a lesser extent in Bass Coast and South Gippsland LGAs – likely driven by residents in the northwest areas of these regions (closer to Melbourne).

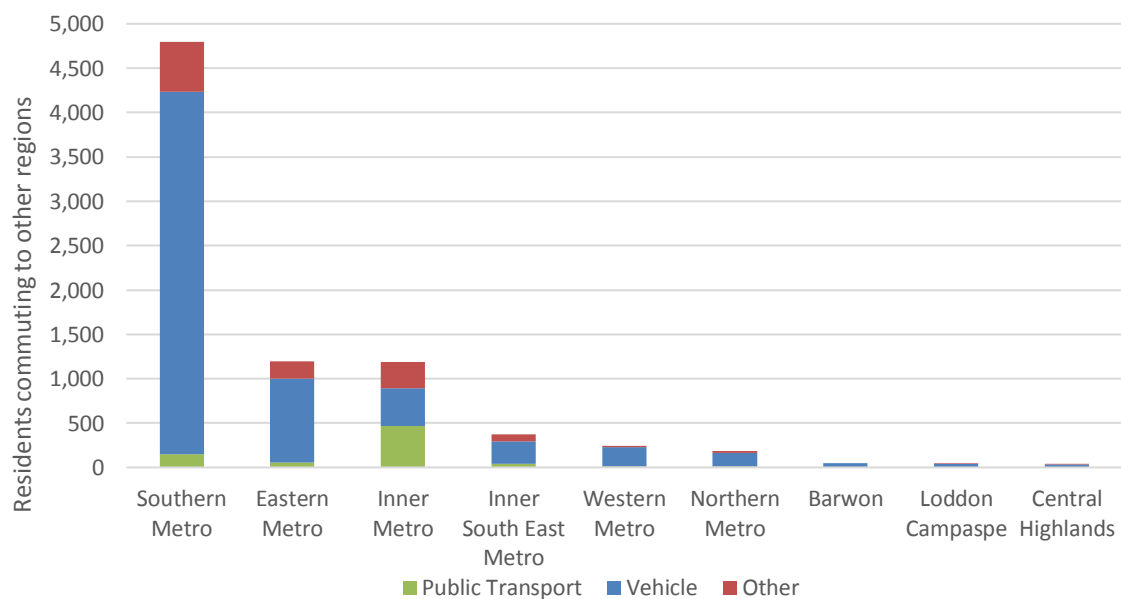


Source: ABS 2016c.

Figure 31 Proportion of resident population employed within or outside the region or LGA, 2016

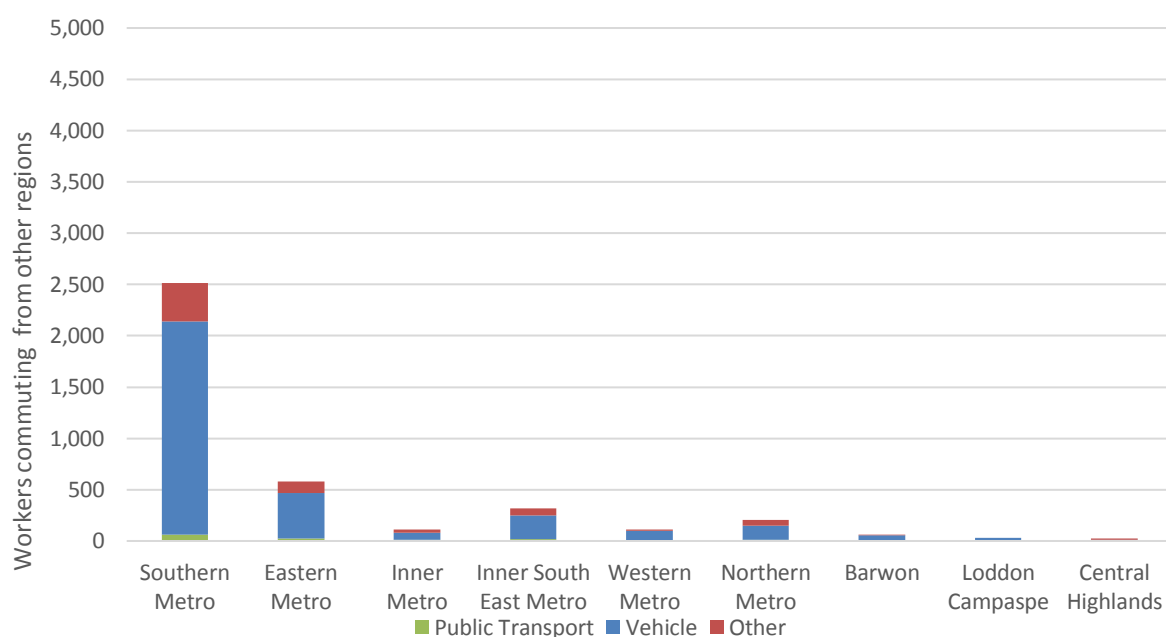
For those residents working outside the Gippsland region, the key regions for work are the Melbourne Metro regions (Figure 32). The majority of those traveling to other regions do so by car, with 9 per cent travelling by public transport of which 63 per cent are working in Melbourne's inner metro region.

For those travelling into the Gippsland region for work, the majority (80 per cent) travel by car, mainly from the neighbouring regions of Southern and Eastern Metropolitan Melbourne (Figure 33).



Source: ABS 2016c.

Figure 32 Place of work of Gippsland residents outside the Gippsland region and method of transport, 2016



Source: ABS 2016c.

Figure 33 Origin of non-resident workforce and mode of transport, 2016

As shown by Figure 32 and Figure 33, there are high rates of labour mobility, particularly between the Gippsland region and Melbourne. There is also a correlation between LGAs with higher income (Figure 29) and number of people working outside of the LGA (Figure 31). This is likely to continue to be the case as high skill, high-wage jobs are increasingly centralised in urban areas.

Access to other regions is a potentially key driver of future economic success for a region, whether through public transport, car or through virtual access. Access to public transport is defined as the percentage of the population that lives within 400 metres of a bus and/or tram stop and/or within 800 metres of a train station.

As shown in Table 2, access to public transport across the region is substantially lower than the state as a whole, with Latrobe LGA seeing the highest levels of access. Bass Coast also has relatively high access to public transport, which may reflect access to local bus networks as opposed to longer-distance networks. By contrast, the proportion of households with a vehicle is larger across the region – and in each LGA – than across Victoria. This is particularly true of those LGAs with lower access to public transport.

The number of household dwellings with access to the internet⁸ is lower across the region than the Victorian average.

⁸ This variable records whether any member of the household accesses the internet from the dwelling. This variable is applicable to all occupied private dwellings enumerated in the 2016 Census.

Table 2 Percentage population with access to car, public transport, and internet

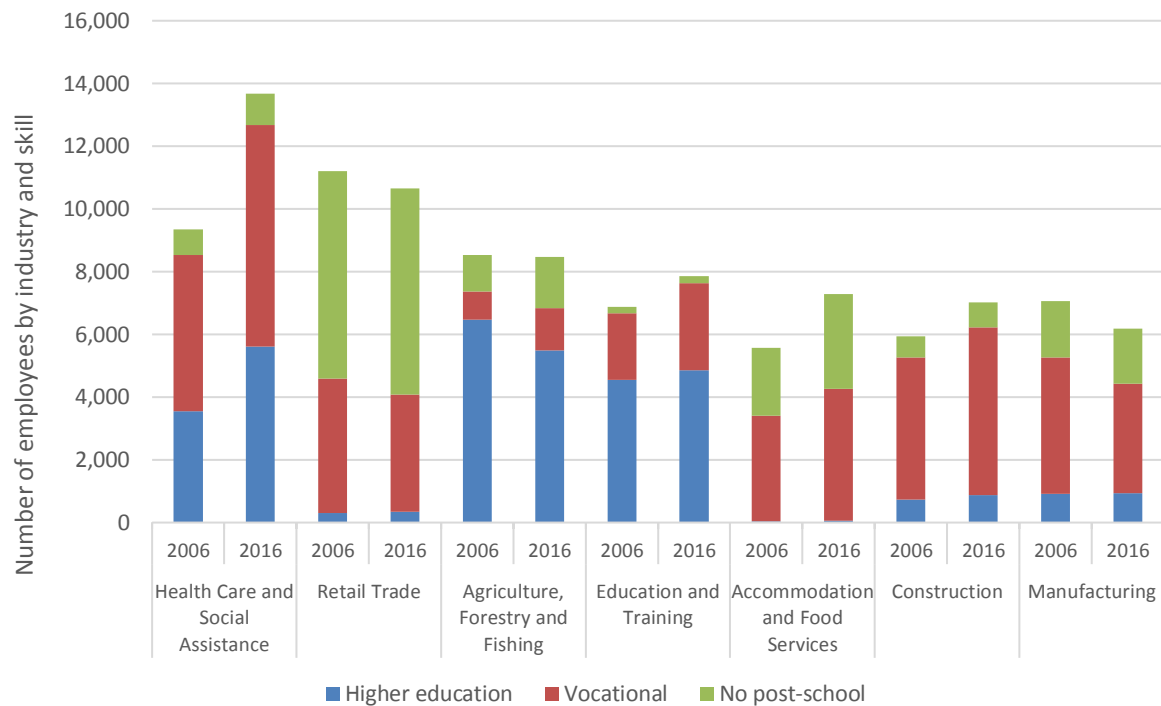
	Percentage households with car *	Dwellings with internet access**	Access to Public Transport† ***
Bass Coast	97%	73%	37%
Baw Baw	97%	76%	21%
East Gippsland	97%	70%	20%
Latrobe	94%	73%	64%
South Gippsland	97%	73%	9%
Wellington	96%	73%	27%
Victoria	93%	80%	74%

Source: *ABS 2016e, **ABS 2016f, ***DHHS 2015.

Note: †The percentage of the population that lives within 400m of a bus and/or tram stop and/or within 800m of a train station (Infrastructure Australia 2013).

4.2.3. Employment and skills

Consistent with state-wide trends, total employment declined in the manufacturing industries in the Gippsland region between 2006 and 2016 (Figure 34). Employment has remained relatively constant in agriculture although there has been a decline in skilled employment in this industry. This is consistent with projected employment growth to 2031 shown in Section 3.1 which shows manufacturing and agricultural employment declining but less significantly than in other regions. The majority of employment growth since 2006 has been in the health care sector. There is growth in high skill employment in the health care and growth in low skill jobs in the accommodation and food services sector and growth for middle skill jobs in the construction sector. Projections by Deloitte Access Economics for the Department of Education and Training (Figure 35) show projected growth in the percentage of the population with higher qualifications and a decline in the percentage with no qualifications. Vocational skills and jobs constitute a valuable component of the Gippsland economy.

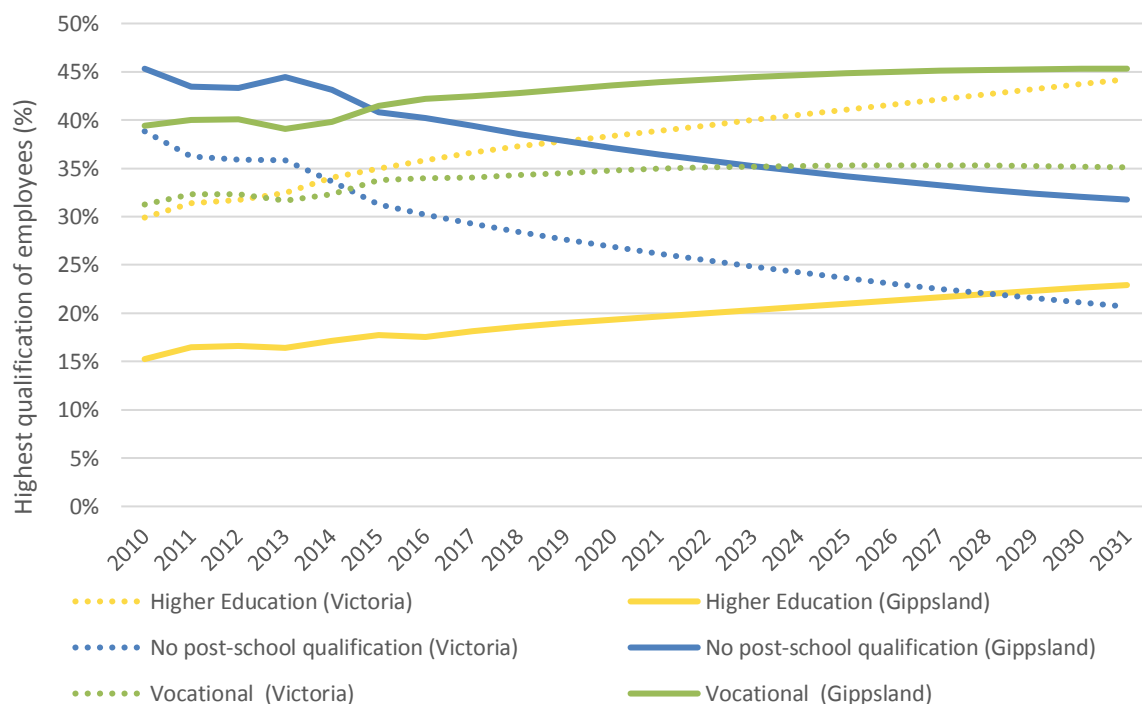


Source: ABS 2016c.

Note: Further information can be accessed here:

<http://www.abs.gov.au/ausstats/abs@.nsf/0/598C2E23628BB8FDCA2575DF002DA6B8?opendocument>

Figure 34 Employee skill level by key industries, 2006 and 2016



Source: Deloitte Access Economics n.d.

Figure 35 Projected change in workforce qualifications in Gippsland and Victoria, 2010 to 2031

5. Social profile

5.1. Summary

Latrobe regional hub

This Latrobe regional hub encompasses the Latrobe LGA, which comprises three population centres (Moe, Morwell and Traralgon). The Latrobe regional hub is the 7th most disadvantaged LGA in Victoria, and this correlates with Latrobe LGA having poorer youth engagement, population health and early childhood outcomes. Disadvantage is concentrated in Moe, Morwell and to a lesser extent Traralgon; there is relatively less disadvantage outside of these three towns.

Poor health outcomes include high rates of obesity and type two diabetes, low life expectancy, and high numbers of registered mental health clients and clients receiving drug and alcohol treatment (almost double the state average latter two indicators). Early childhood outcomes are worse than the Victorian average across all indicators except for immunisation rates, and the crime rate is well over double the state average.

There appears to be marginally less housing stress compared to the Victorian average, however rental stress is slightly above the state average. There are relatively lower rates of homelessness and a large proportion of social housing. Self-reported wellbeing is pretty similar to the state average (and slightly below for some indicators) – this is unusual given typically higher rates of self-reported wellbeing outside of major metropolitan centres.

Western peri-urban fringe

The peri-urban fringe LGAs have relatively moderate levels of disadvantage with Baw Baw (42nd), Bass Coast (23rd) and South Gippsland (32nd) all falling somewhere around the middle of the 79 LGAs in Victoria and Bass Coast the most disadvantaged out of the three. Areas of disadvantage appear to be concentrated in towns and centres, with relatively less disadvantage in residential rural areas.

Youth engagement is similar to the Victorian average but with less youth in further education and training, and more youth either working or seeking work. There is a relatively large proportion of youth not in labour force, education or training in Baw Baw LGA – this seems to contrast other social indicators for the LGA. Population health is relatively consistent across the sub-region, with results generally marginally below the state average. Early childhood outcomes fluctuate across indicators and LGAs within the sub-region, however generally appear slightly poorer than the state average on balance.

Housing stress is generally low, with the exception of above state average rental stress in Bass Coast. Rates of homelessness and the proportion of social housing are small across the sub-region and crime is below the state average. Wellbeing indicators show performance slightly above the Victorian average.

Eastern regional areas

The LGAs of Wellington (27th most disadvantaged in Victoria) and East Gippsland (22nd most disadvantaged) are somewhat disadvantaged – though not to the same extent as Latrobe and other areas in Victoria. Relatively lower rankings appear to be driven by a more equal spread of disadvantage and advantage across the population rather than severe disadvantage or concentrations of relative advantage.

Youth engagement is similar to the Victorian average but with a smaller proportion of youth in further education and training, and more either working or seeking work. Population health is marginally poorer than the Victorian average with lower life expectancy, higher rates of obesity and high utilisation of health services (particularly drug and alcohol treatment services). High rates of service utilisation may indicate service availability, accessibility or quality.

Early childhood outcomes also appear worse than the Victorian average with high rates of emotionally and developmentally vulnerable children and high rates of child protection substantiations. There is low housing stress and higher rates of homelessness in East Gippsland (slightly above the Victorian average), the homelessness rate correlates with greater social housing in this LGA as well. Crime is close to the state average, and self-reported wellbeing is also higher than the state average.

5.2. Regional social data

5.2.1. Disadvantage

There are a number of indices available which aim to measure social disadvantage. The ABS Social and Economic Indices for Areas (SEIFA) are based upon data available in the census. The SEIFA Relative Index of Social Advantage and Disadvantage (IRSAD) has been chosen for this regional assessment as it assesses both disadvantage and advantage. This data has comprehensive geographic coverage to Statistical Area 1 (SA1)⁹, which is the smallest scale that ABS data is presented. The Jesuit Social Services' "Dropping off the Edge" (DOTE) index has a broader suite of underlying data with a greater focus upon outcomes of disadvantage.¹⁰ It is presented at a postcode level in order to show the most disadvantaged areas/neighbourhoods within LGAs however it may misrepresent relative disadvantage where there are only a small number of indicators collected for a postcode, which can be the case in small regional LGAs (Jesuit Social Services 2015).

The SEIFA IRSAD indicator of relative advantage and relative disadvantage shows that LGAs within the Gippsland region demonstrate highly varied rates of disadvantage:

- Latrobe – 7th most disadvantaged LGA
- East Gippsland – 22nd most disadvantaged LGA
- Bass Coast – 23rd most disadvantaged LGA
- Wellington – 27th most disadvantaged LGA
- South Gippsland – 32nd most disadvantaged LGA
- Baw Baw – 42nd most disadvantaged LGA.

The proportion of the population in each SEIFA decile is shown in Figure 38. This shows high levels of relative disadvantage in Latrobe LGA, with over 45 per cent of the population living in SA1s ranked in the lowest two deciles of the SEIFA IRSAD index, indicating high disadvantage. Across the other LGAs, there is a more even distribution across each decile of relative disadvantage, however the

⁹ SA1 is the smallest area of output from the Australian Census of Population and Housing. Victoria is covered by 13,339 SA1s. This compares with 79 LGAs and 667 postcodes.

¹⁰ The Jesuit Social Services disadvantage indicator is constructed from measures of low family income, internet access, school education, post school qualification, skilled workers, disengaged young adults, disability support, unemployment, long term unemployment, rental assistance, numeracy and reading NAPLAN scores, child maltreatment, criminal convictions, juvenile convictions, domestic violence, prison admissions, psychiatric admissions.

proportion of the population in the most advantaged deciles are under-represented compared to other regions in Victoria.

The higher relative disadvantage in the Latrobe LGA is concentrated around the towns of Moe, Morwell and Traralgon (see Figure 37). This is likely to be driven by longer term structural adjustment associated with declines in mining and electricity, gas, water and waste water services and social housing policy. The 2017 closure of the Hazelwood power plant will have a further impact (not yet captured in the SEIFA data) and analysis of relative disadvantage indices once the next round of SEIFA data is available would provide a more up to date snapshot.

There are also pockets of higher relative disadvantage in the rural towns throughout the peri-urban areas of the Bass Coast, South Gippsland and Baw Baw LGAs. At the same time, the rural and residential rural areas throughout these LGAs reveal higher relative advantage. The divergence between rural residential areas with relative advantage and rural towns which display higher levels of disadvantage may be explained by commuter populations and migration from Melbourne for rural lifestyle living.

There appears to be higher relative advantage close to important environmental assets and high amenity landscapes such as some coastal areas throughout South Gippsland (i.e. Wilsons Promontory) and Wellington LGAs. This is also observed in the more mountainous areas in the Baw Baw, Wellington and East Gippsland LGAs which border the alpine region. Tourism opportunities as well as lifestyle attractions may be linked to more positive social and economic outcomes in these areas.

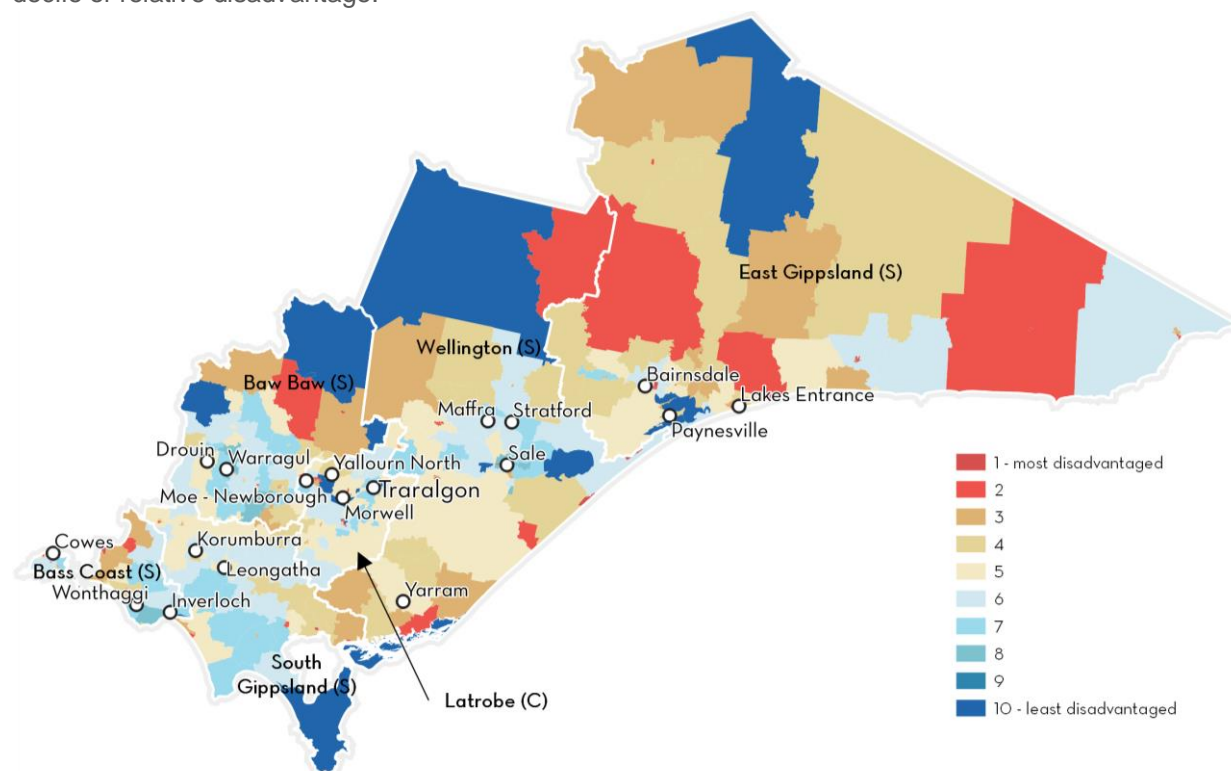
Across rural farming areas of South Gippsland, Wellington and East Gippsland LGAs, there is a pattern of higher relative advantage in farmlands, and higher relative disadvantage concentrated in rural towns (as can be seen by the concentrated red dots in Figure 36). The difference in advantage between the towns and the farmlands of the northern and central rural areas may be due to the gradual economic decoupling of small rural towns and the surrounding farm businesses. The decoupling of small town economies from the surrounding farms is a pervasive trend across Australia (Frost et al. 2002). This decoupling is partly due to the consolidation of farms to fewer, larger farms as well as the consolidation of farm equipment and service businesses into major regional centres. This decoupling means that the smaller towns no longer benefit from employment and expenditure to the same degree that they might have in the past. While this trend is prevalent across agricultural areas of Victoria, it is less pronounced in Gippsland region. It also appears that the main transport connections through the region, such as the Princess Highway, correlate closely with levels of relative advantage and disadvantage – with relatively less disadvantage in areas adjacent to major transport routes (e.g. linkages between Melbourne, Latrobe, Sale and Bairnsdale). In the more isolated areas of the northeast of the Gippsland region, there is generally higher relative disadvantage.

ABS SEIFA

The ABS SEIFA provide socio-economic conditions by geographic area and are based upon data available through the national Census. This data is limited to questions which cover income, housing and education, and has comprehensive geographic coverage. The ABS SEIFA comprises four indexes:

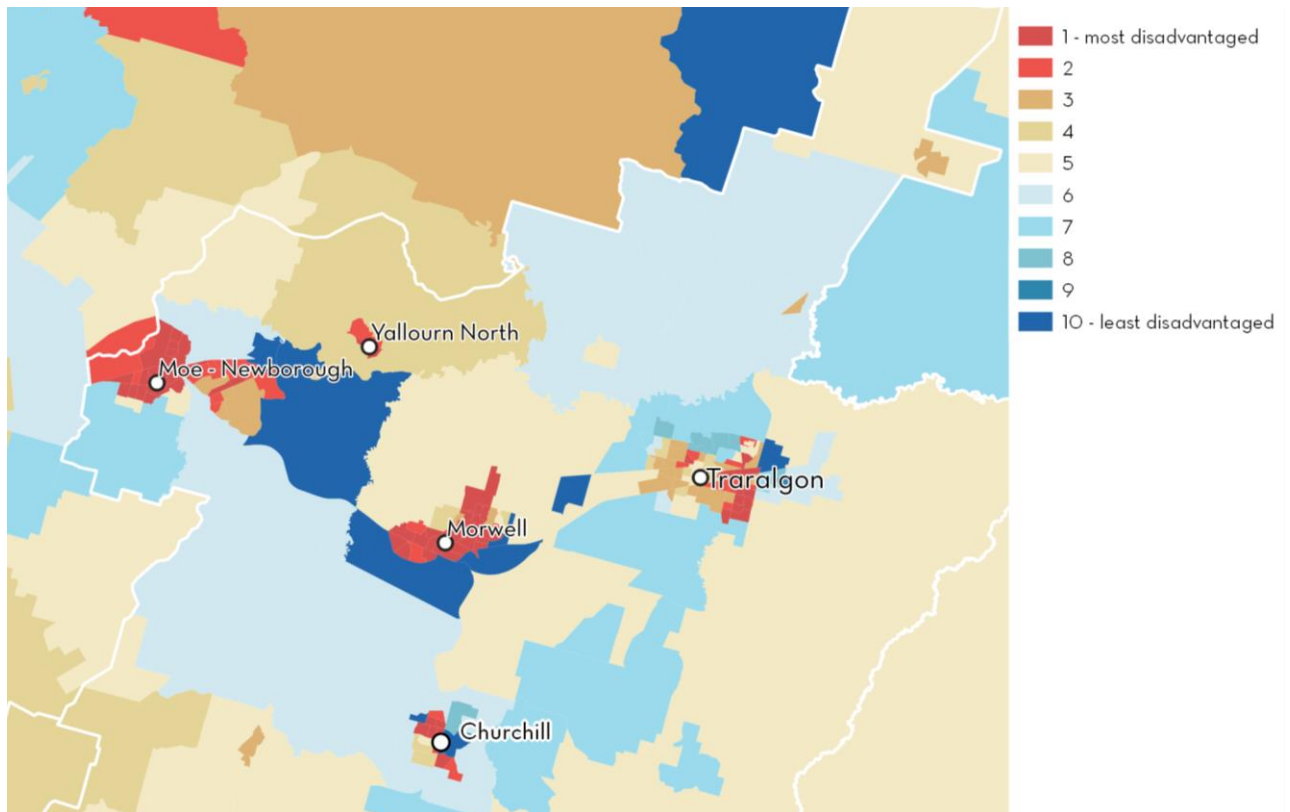
- Index of Relative Socio-Economic Disadvantage (IRSD)
- Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)
- Index of Education and Occupation (IEO)
- Index of Economic Resources (IER).

The SEIFA IRSAD has been chosen for this regional assessment as it assesses both disadvantage and advantage. The IRSAD data is presented at SA1 level in Figure 36 for the Gippsland region, which shows clusters of relative advantage on the peri-urban fringe, and for the Latrobe regional hub in Figure 37, which shows high disadvantage around Moe, Morwell and Traralgon. Figure 38 displays a population distribution for each LGA allocating the population according to the IRSAD score of the SA1 in which they reside. Figure 38 shows that a third of Latrobe LGA residents are in the lowest decile of relative disadvantage.



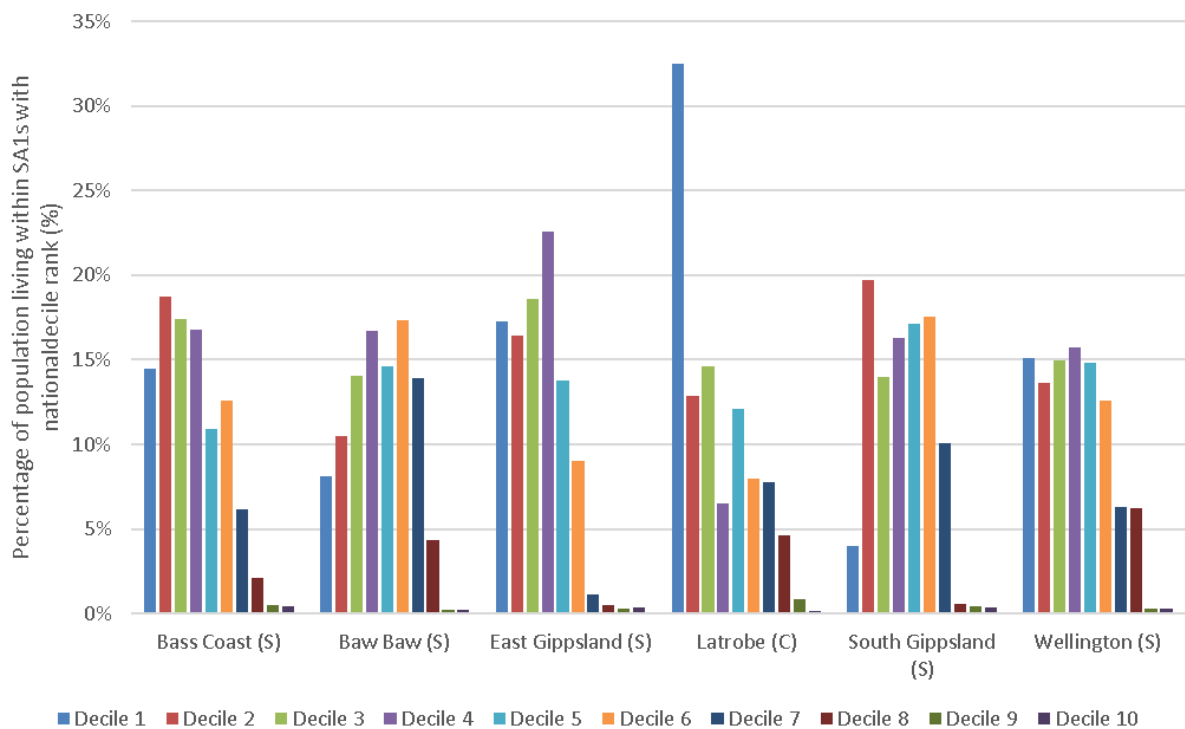
Source: ABS 2016g.

Figure 36 ABS SEIFA – Index of Relative Disadvantage by SA1



Source: ABS 2016g.

Figure 37 Index of Relative Disadvantage by SA1, Latrobe regional hub



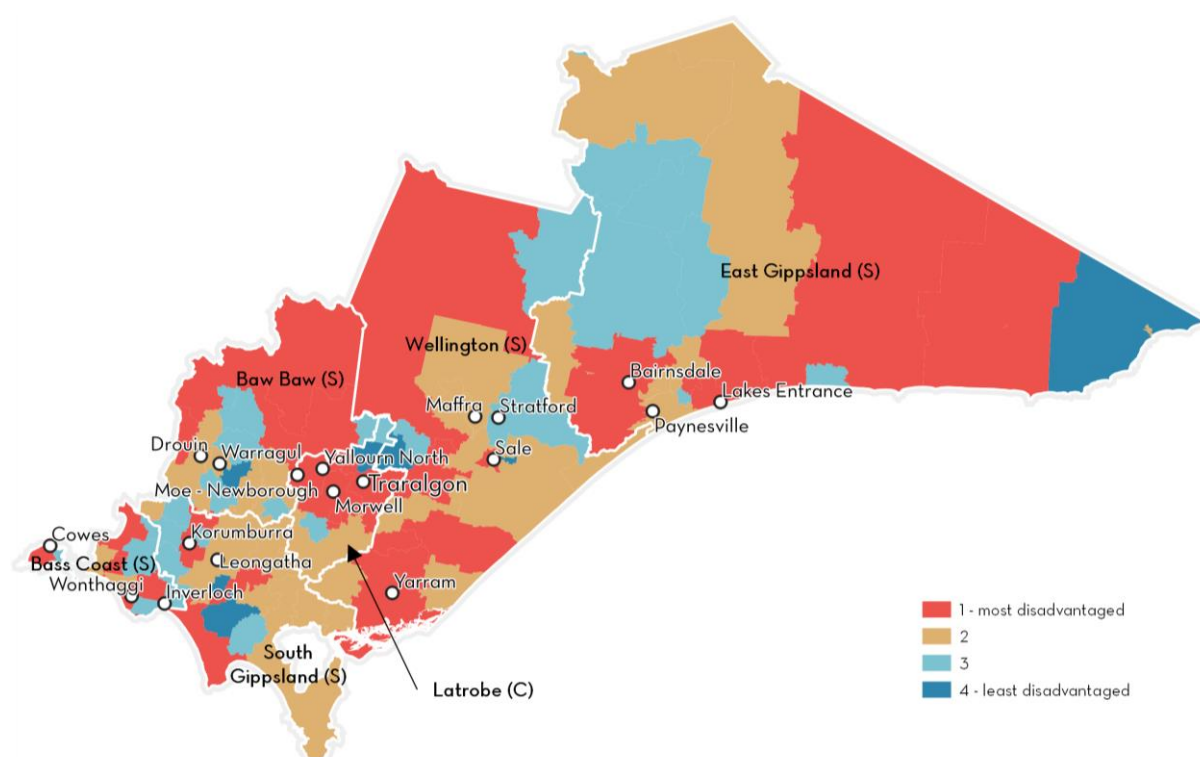
Source: ABS 2016g.

Figure 38 ABS SEIFA – Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD) by LGA

Dropping off the Edge Index

The Dropping off the Edge index (DOTE), developed by Jesuit Social Services and the Catholic Social Services Australia, identifies areas of relative disadvantage across Australia and has a broader suite of underlying data than that used by the ABS SEIFA with a greater focus upon outcomes of disadvantage (Jesuit Social Services 2015). It is presented at a postcode level in order to show the most disadvantaged areas and neighbourhoods within LGAs. DOTE measures indicators including unemployment, criminal convictions, unemployment and young adults not fully engaged in work or study, as outlined in . However, the greater range of indicators combined with the larger spatial areas can mask the finer detailed analysis presented through the SEIFA SA1 level analysis.

Similarly, in smaller LGAs, the DOTE dataset can potentially misrepresent relative disadvantage where there are only a small number of indicators collected for a postcode. Nevertheless, it can provide a useful way to support or contrast the SEIFA analysis. In the Gippsland region there appears to be some alignment with the SEIFA analysis however discrepancies are evident in areas with low populations Figure 39.



Source: Jesuit Social Services 2015.

Figure 39 Relative disadvantage by Jesuit DOTE ranking, quartiles, 2015

5.2.2. Youth engagement with work or study

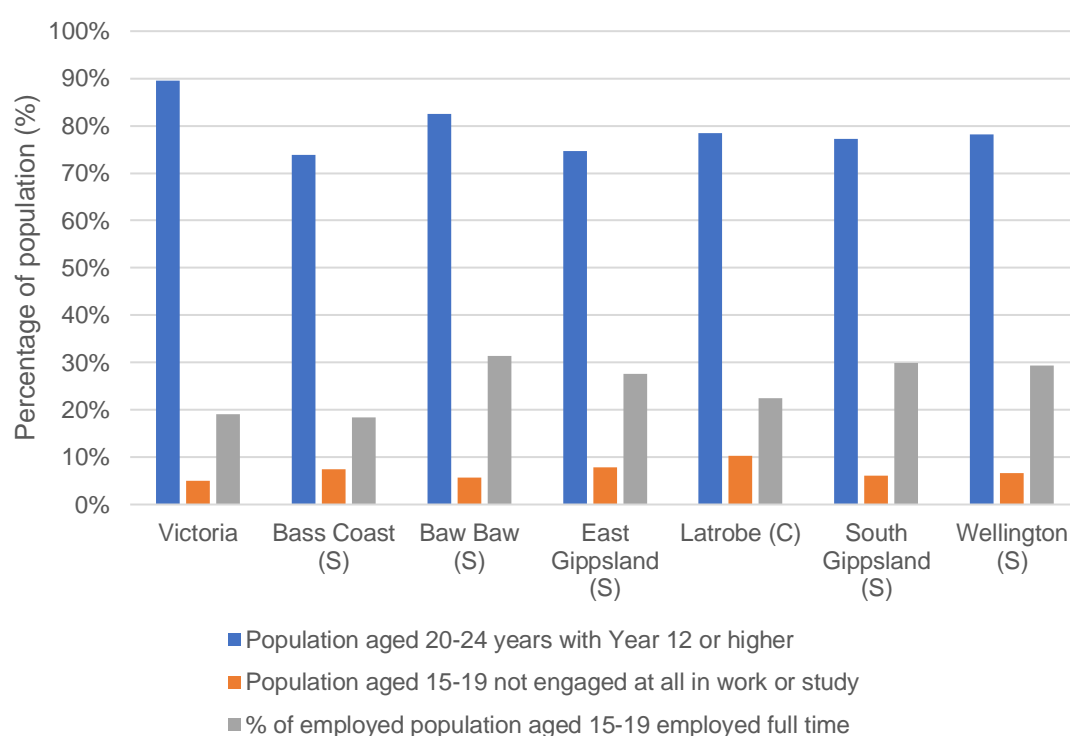
Youth disengagement contributes to higher indicators of relative disadvantage. State-wide, a cohort of young people are not fully engaging with study or employment. Across the Gippsland region, youth disengagement rates are mostly similar, but slightly higher than the Victorian average, however, there is some variation according to each LGA (see Figure 40). The Baw Baw LGA has the smallest proportion of the population aged 15-19 years not engaged in work or study with 5.7 per cent, only marginally higher than the Victorian average. Latrobe LGA has the largest proportion of the population

aged 15-19 years not engaged in work or study with 10.4 per cent. This is more than double the Victorian average.

There are differences between the Gippsland region and the Victorian average when it comes to the proportion of the population aged 15-19 years engaged in full time employment, and the proportion of population aged 20-24 years with a Year 12 certificate or higher. Across all LGAs in the Gippsland region except for the Bass Coast LGA, there is a larger proportion of the population aged 15-19 who are employed full time compared to the Victorian average. On the other hand, the proportion of those aged 20-24 years holding a Year 12 certificate or higher is consistently smaller across all LGAs in the Gippsland region compared to the Victorian average.

The high rates of full time employment amongst those aged 15-19 years and the smaller proportion of the population aged 20-24 with a Year 12 certificate suggests there may be a larger proportion of the workforce with a lower skill-base. This may present as a challenge in the context of future employment and industry trends as the economic profile for the region and the drivers of change indicate that there may be an increasing demand for higher skill work in the future as the industrial, agricultural and manufacturing sectors continue to adjust to changes to the economy and climate change.

There is likely to be more growth in high skilled jobs, particularly in the developing south eastern peri-urban to Melbourne LGAs of Baw Baw and Bass Coast to provide higher order services.



Source: ABS 2016c.

Figure 40 Youth engagement by LGA, 2016

On Track is a Victorian Government initiative which surveys school leavers who have left school in the last six months to find out if they are on track to a bright future. On Track ensures school leavers are contacted within six months of leaving school to see if they are on a path to further education, training or employment. It also enables young people to seek further advice and assistance via a referral service if required to get back on track. Table 3 shows that across all LGAs in the Gippsland region, fewer Year 12 or equivalent finishers are in further education or training within six months than the

Victorian average. The lowest figure is recorded for East Gippsland at 40 per cent, compared to the Victorian average of 75 per cent.

However, across all LGAs, most of those not continuing in further education and training are employed, with a smaller proportion looking for work. This suggests relatively good outcomes for those who complete Year 12 (or equivalent), with only a very small proportion of this cohort not in the labour force, education or training (NILFET) – just 2.5 per cent in Latrobe, followed by 2.1 per cent in Baw Baw LGA – however this is still double the state average. Additionally, in Latrobe LGA, while NILFET is a small proportion of the total population, there is a larger proportion of this cohort looking for work (more than double the state average).

Table 3 Destinations of 2016 Year 12 or equivalent completers Gippsland (%)

	Bass Coast	Baw Baw	East Gippsland	Latrobe	South Gippsland	Welling ton	Victoria
In further education or training	57.9	67.6	39.6	62.5	65.0	58.0	74.8
Bachelor degree	38.8	45.7	20.3	38.2	39.3	38.6	53.8
Certificates/Diploma	6.6	10.6	10.2	9.5	12.0	8.5	12.9
Apprentice/Trainee	12.4	11.2	9.1	14.7	13.7	10.8	8.1
Not continuing in further education or training	42.1	32.4	60.4	37.5	35.0	42.0	25.1
Employed	38.8	23.6	51.9	24.2	27.4	34.1	19.5
Looking for work	3.3	6.8	8.0	10.9	6.8	6.8	4.6
Not in labour force, education or training	0.0	2.1	0.5	2.5	0.9	1.1	1.0

Source: Department of Education 2018.

5.2.3. Population health

Across the range of population health indicators most LGAs appear to have slightly lower health outcomes than the Victorian average.

In considering population health, it is important to exercise a degree of caution. While research has demonstrated a relationship between relative disadvantage and negative health outcomes there are other contributing factors such as structural ageing (Marmot and Wilkinson 2005). This is particularly important to note given there is a relatively aged population in some areas.

Another aspect of population health is access to health and other community services. Inability to easily access health services can lead to poorer outcomes due to failure to seek appropriate care. Table 4 shows the percentage of residents in each LGA who could access community services or resources, such as libraries, maternal and child health centres and neighbourhood centres, when needed. It also shows the number of GPs per 1,000 population. Finally, it also includes Ambulatory Care Sensitive Conditions (ACSC) separations per 1,000 population. ACSCs are those for which hospitalisation is thought to be avoidable with the application of public health interventions and early

disease management, usually delivered in ambulatory settings such as primary care. High rates of separations are an indicator of poor health outcomes as hospital admissions for ACSCs may provide indirect evidence of problems with patient access to primary healthcare, inadequate skills and resources, or disconnection with specialist services.

In terms of peoples' access to community services and resources in the Gippsland region, there do not appear to be major discrepancies with the Victorian average (Table 4). Many LGAs including East Gippsland, South Gippsland, Baw Baw and Latrobe are above the average, Wellington is the same and Bass Coast is marginally below. With respect to the number of general practitioners per 1,000 people, all LGAs are either the same as or above the Victorian average (Table 4).

In terms of ACSC separations, the highest rate of separations is recorded in East Gippsland at 36.2 per 1,000 people (above the Victoria average of 27.7). This does not appear to correlate with the general practitioners per 1,000 people (1.2), or the large proportion of people who could definitely access community services and resources (89.9 per cent). ACSC separations vary across the other LGAs but are generally above the state average with the exception of Baw Baw. It is not possible to discern any major shortfalls in access to or adequacy of health services from this data.

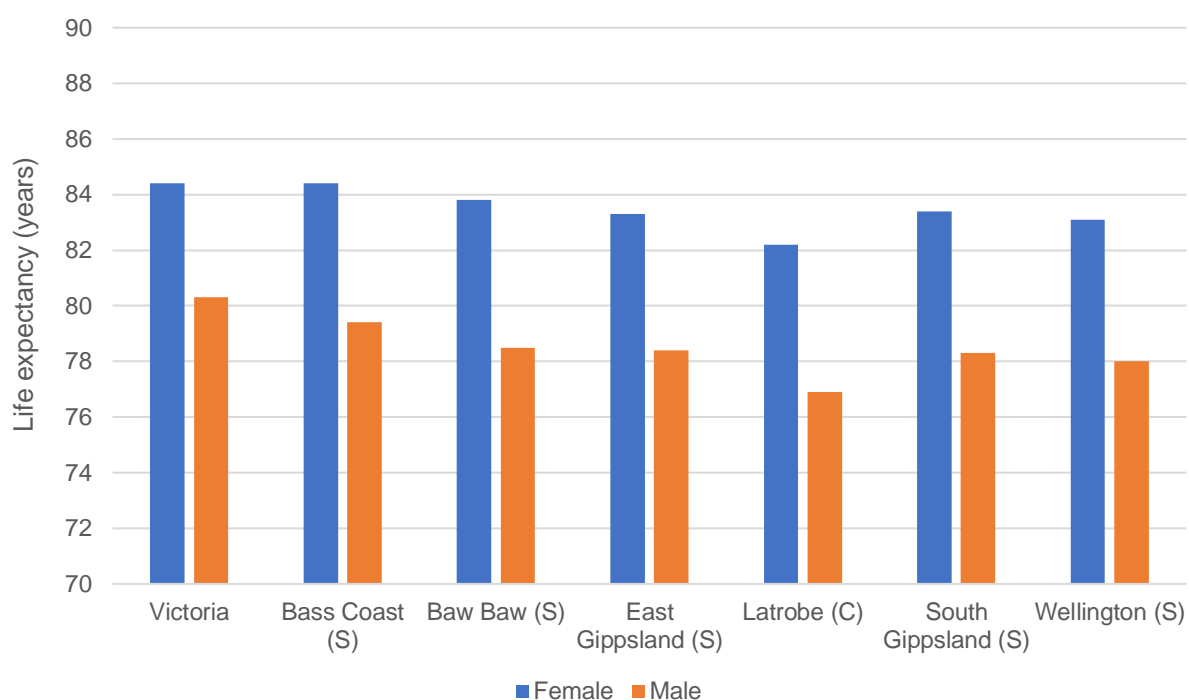
Table 4 Community services and health care services

	People who could definitely access community services and resources*	GPs/1,000 head*	ACSC (PPH) separations for all conditions per 1,000 population**
Bass Coast	84.4%	1.2	30.9
Baw Baw	87.7%	1.2	23.2
East Gippsland	89.9%	1.2	36.2
Latrobe	87.1%	1.4	33.4
South Gippsland	88.2%	1.3	31.6
Wellington	85.2%	1.3	31.1
Victoria	85.2%	1.2	27.71

Source: *DHHS 2015, *Department of Human Services and State Government of Victoria n.d..

Life expectancy at birth is a good summary indicator of health status. As a whole, life expectancy across the Gippsland region is lower than the Victorian average across all LGAs (Figure 41). While female life expectancy is only marginally lower than the state average, life expectancy at birth for males is generally significantly lower.

The LGAs with the lowest life expectancy for both males and females are Latrobe followed by Wellington. While there appears to be some connection between location and lower life expectancy in Latrobe in particular, it is difficult to pinpoint any causal relationship within the data.

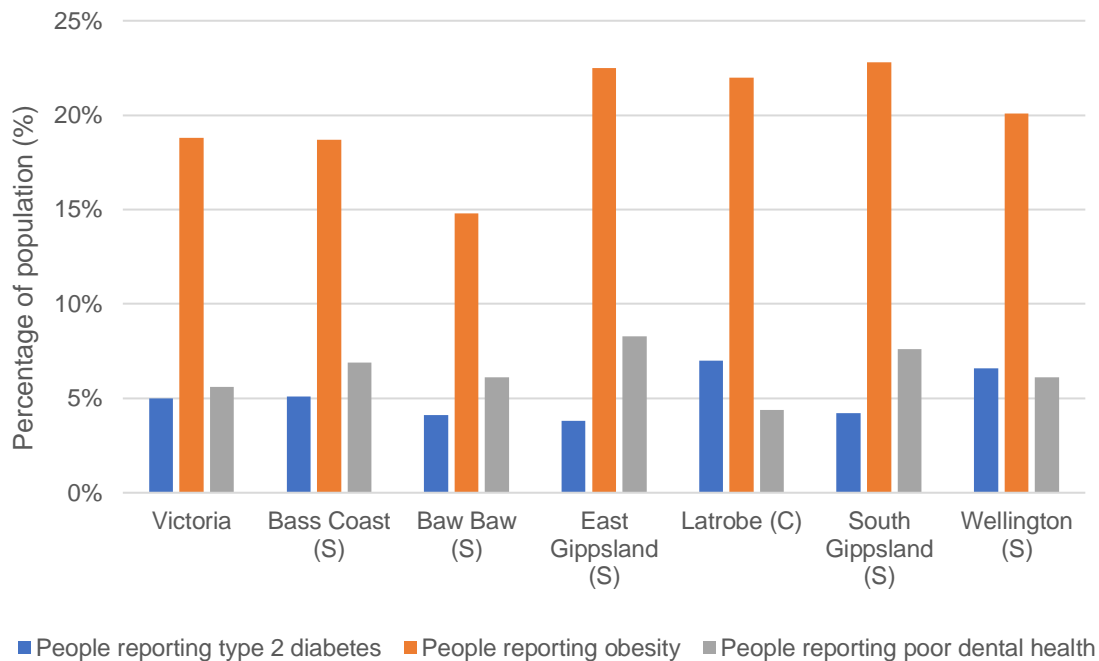


Source: DHHS 2015.

Figure 41 Life expectancy at birth for males and females by LGA

Self-reported health outcomes by LGA are shown in Figure 42. Rates of obesity are either similar to or slightly higher than the state average for most LGAs except for Baw Baw which is the same as the state average. Self-reported rates of type two diabetes are generally either below or closer to the state average. This conflicts with an expected correlation between obesity and type two diabetes which may be explained by a gap in awareness and diagnosis challenges leading to lower rates of self-reported incidences of type two diabetes. This disparity between obesity and type two diabetes is particularly evident in East Gippsland and South Gippsland LGAs which have lower self-reported rates of type two diabetes but higher rates of obesity.

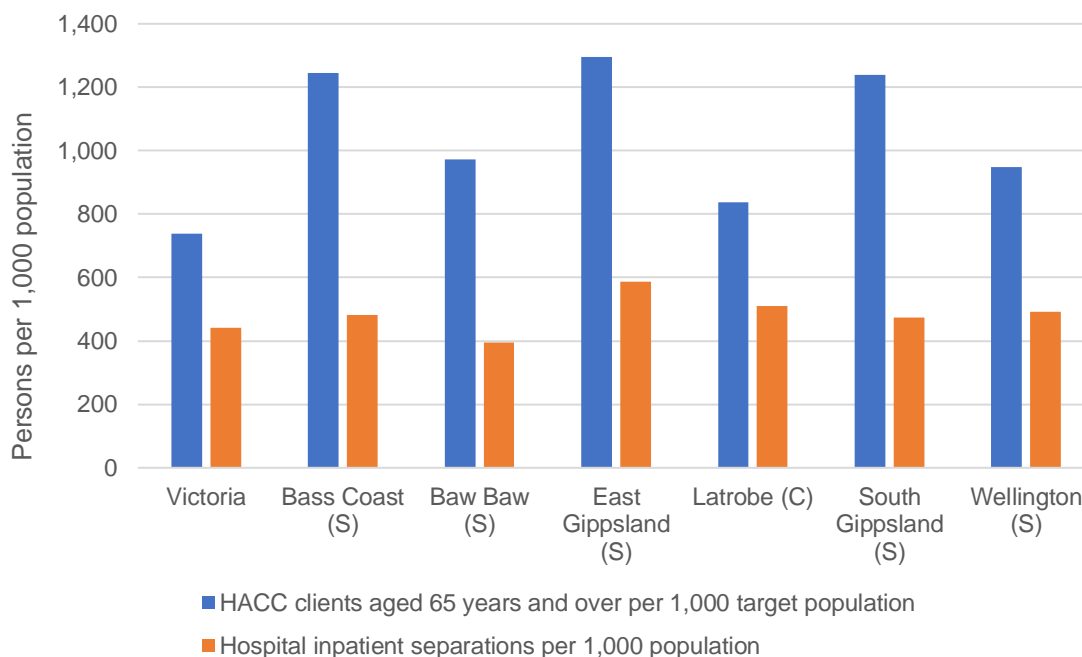
Dental health fluctuates across the region and is highest in East and South Gippsland LGAs. Other areas are similar to the Victorian average (if not slightly above).



Source: DHHS 2015.

Figure 42 Self-reported type 2 diabetes, obesity and dental health by LGA

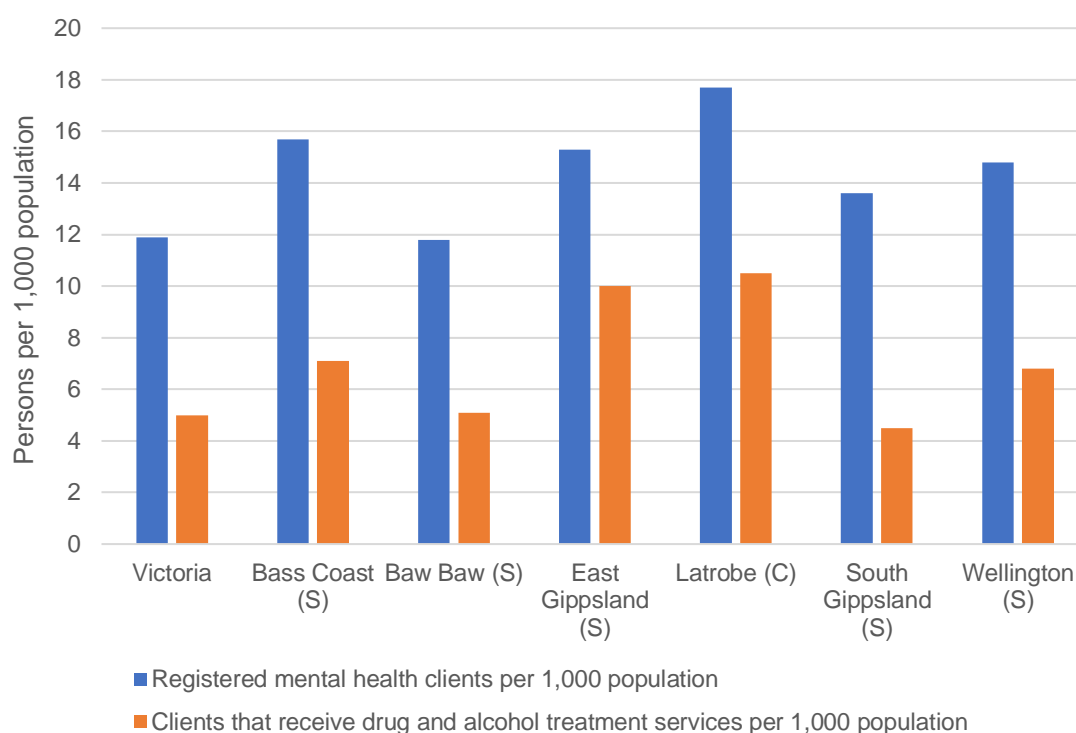
In Figure 43, hospital separations are similar to the Victorian average with the exception of East Gippsland LGA which is high compared to the Victorian average. Figure 43 also shows Home and Community Care (HACC) service utilisation is higher than the state average for all LGA's in the Gippsland region. Higher rates of HACC utilisation, particularly in Bass Coast, East Gippsland and South Gippsland LGAs, may reflect an ageing population in these areas.



Source: DHHS 2015.

Figure 43 Service utilisation for hospital in-patient services and HACC services

As shown in Figure 44, the number of persons per 1,000 population of registered mental health clients is higher than the Victorian average in all LGAs and much higher in Latrobe. Clients receiving drug and alcohol treatment services per 1,000 population is approximately double the state average in East Gippsland and Latrobe LGAs, slightly higher in Bass Coast and Wellington LGAs and marginally lower than the state average in Baw Baw and South Gippsland LGAs. Variations in utilisations may also reflect service quality and accessibility.



Source: DHHS 2015.

Figure 44 Service utilisation for mental health and drug and alcohol services by LGA

5.2.4. Early childhood outcomes

Indicators have been selected to represent three aspects of early childhood development:

- infant health
- early childhood development
- children at risk of abuse and neglect.

Figure 45 shows the proportion of children born under-weight. Latrobe, Wellington and East Gippsland LGAs have larger proportions of children born under-weight than the state average while Bass Coast and South Gippsland are similar to the state average. In contrast, Baw Baw LGA appears to be performing better than other LGAs in Gippsland against this indicator with a smaller proportion of children born under-weight than the Victorian average.

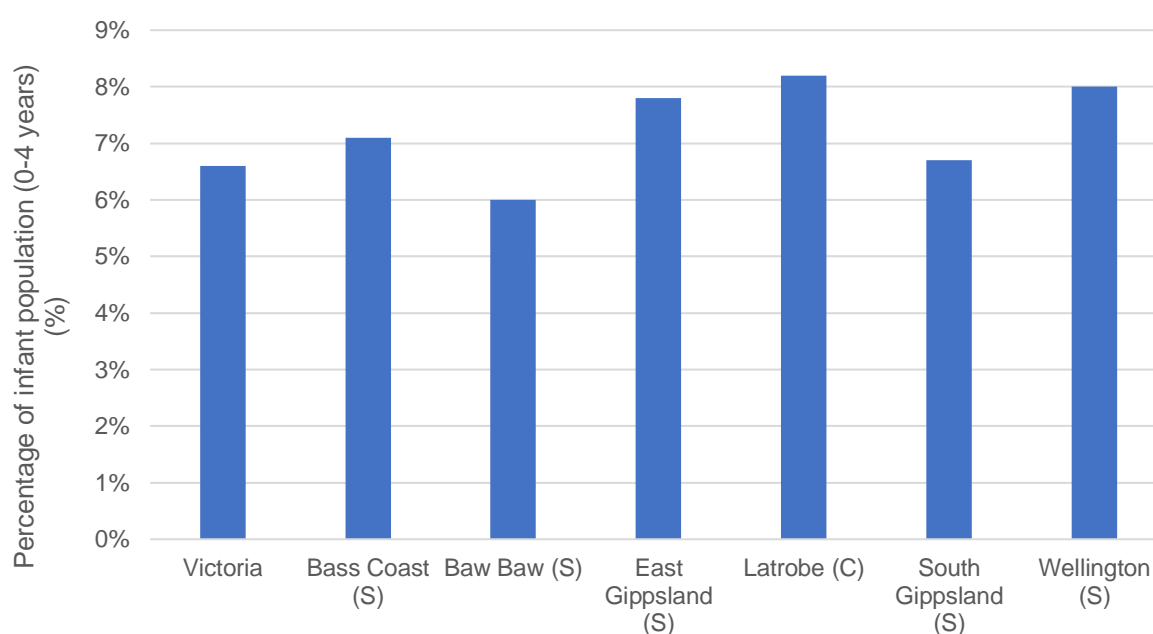
Figure 46 displays the proportion of children who are fully immunised. The Bass Coast and East Gippsland LGAs proportions are both slightly smaller than the Victorian average. Other LGAs are otherwise above the state average.

Figure 47 displays the rate of children with emotional problems and developmental vulnerability across two indicators: children with emotional or behavioural problems at school entry, and children

developmentally vulnerable in two or more domains. All LGAs in the Gippsland region report higher numbers of children with emotional or behavioural problems at school entry than the Victorian average. In comparison, Baw Baw and South Gippsland LGAs report lower levels of children who are developmentally vulnerable in two or more domains, with the rest of LGAs being above the state average.

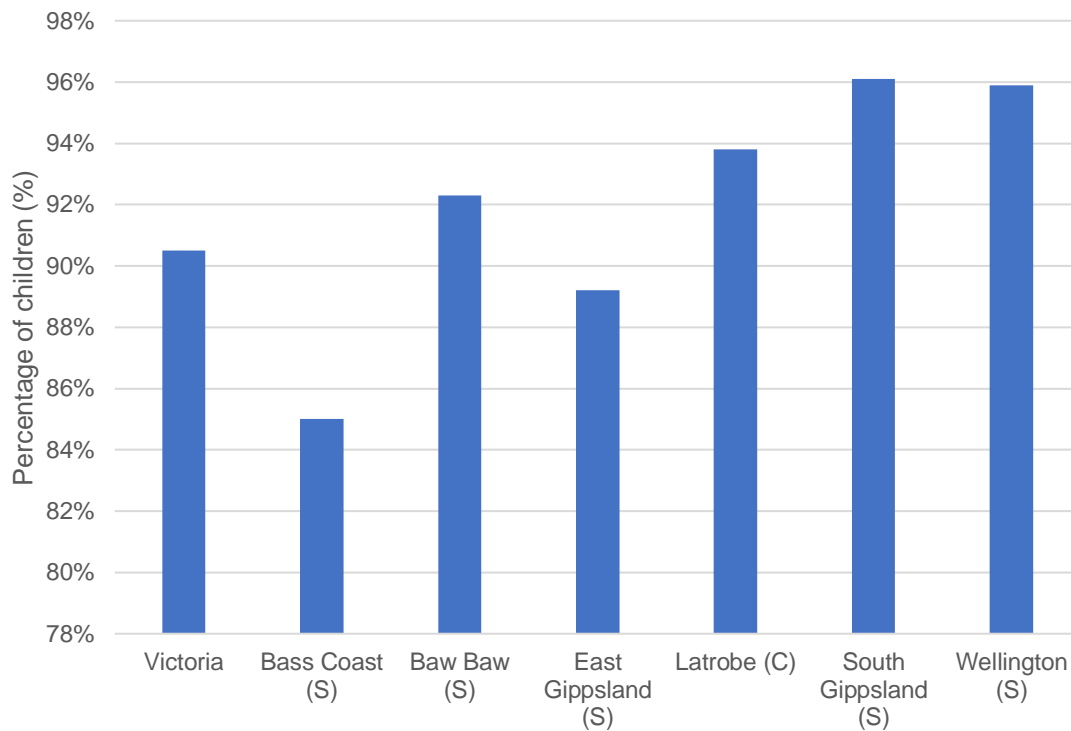
Figure 48 shows child protection substantiations per 1,000 population. The Gippsland region as a whole performs poorly for this indicator with every LGA reporting above the Victorian average. The Latrobe LGA has more than double the Victorian average. East Gippsland and Bass Coast, too, are almost double the Victorian average.

In general, early childhood outcomes in Baw Baw LGA appear close to the Victorian average, while Latrobe and East Gippsland both perform worse than average across each of the indicators – suggesting impacts for childhood development. Across other LGAs and indicators there are larger fluctuations likely owing to small sample sizes – findings for other LGAs are difficult to make given this uncertainty.



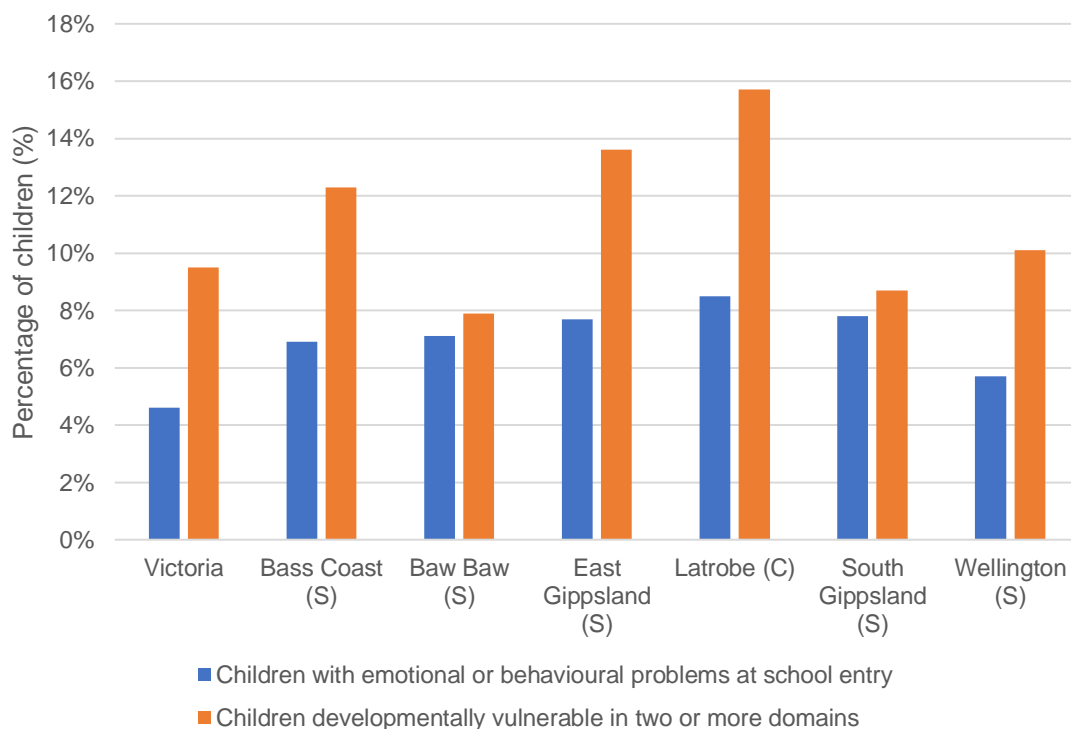
Source: DHHS 2015.

Figure 45 Per cent of babies born with low birth weight by LGA



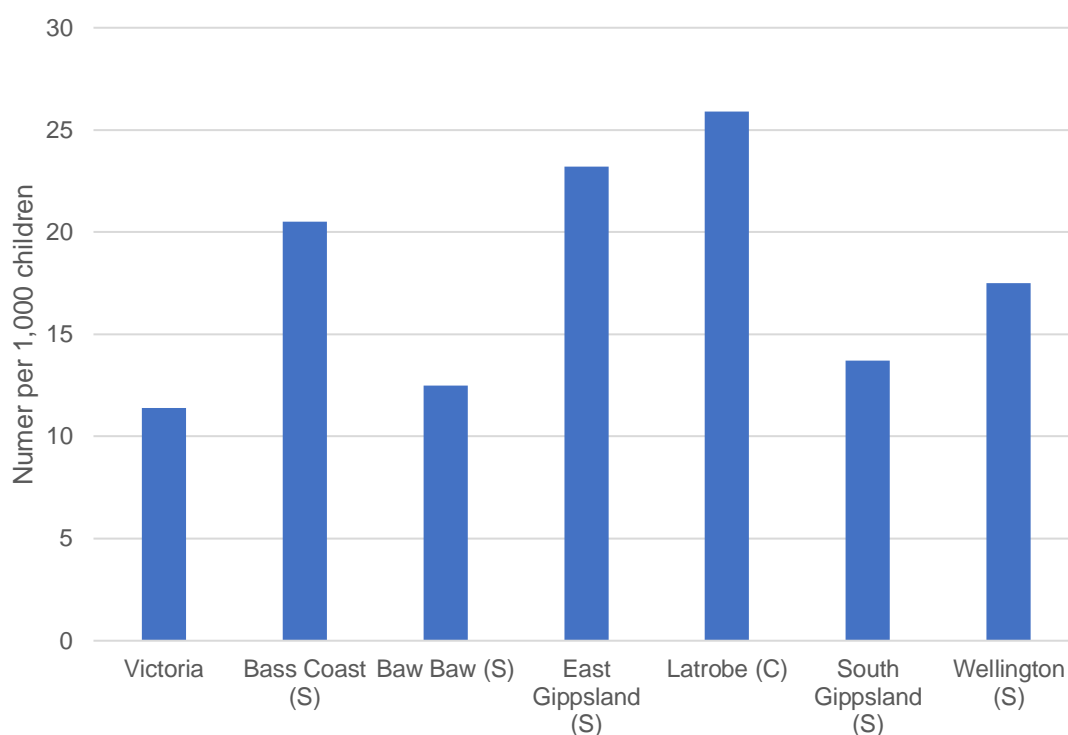
Source: DHHS 2015.

Figure 46 Children fully immunised between 24 and 27 months by LGA



Source: DHHS 2015.

Figure 47 Children with emotional or behavioural problems at school and children developmentally vulnerable in two or more domains by LGA



Source DHHS 2015.

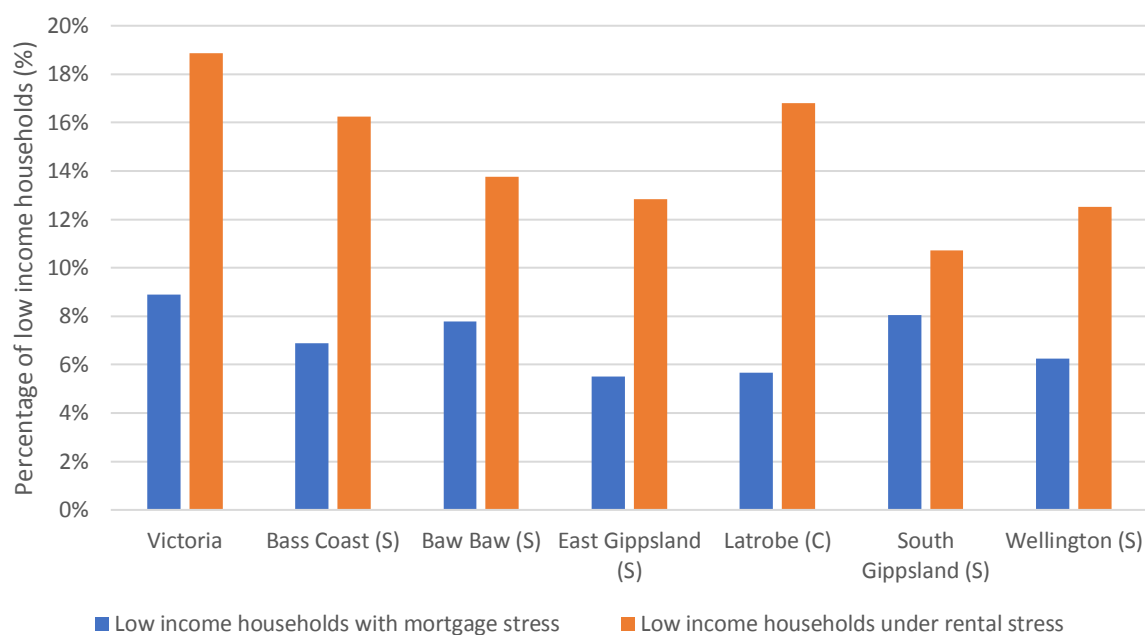
Figure 48 Child protection substantiations per 1,000 population by LGA

5.2.5. Housing stress

Housing stress can be measured in multiple ways, however, low income¹¹ households with more than thirty per cent of household income allocated to housing costs is often used as a benchmark. Housing costs include mortgages or rent. Different indicators of housing stress will produce different results, so the data presented using this indicator as a benchmark should be taken as an indicator of the relative prevalence of housing stress within the region. The Social Health Atlas (2018) data produced by the Public Health Information Development Unit (PHIDU) calculates housing stress using ABS census data and has been used in this analysis.

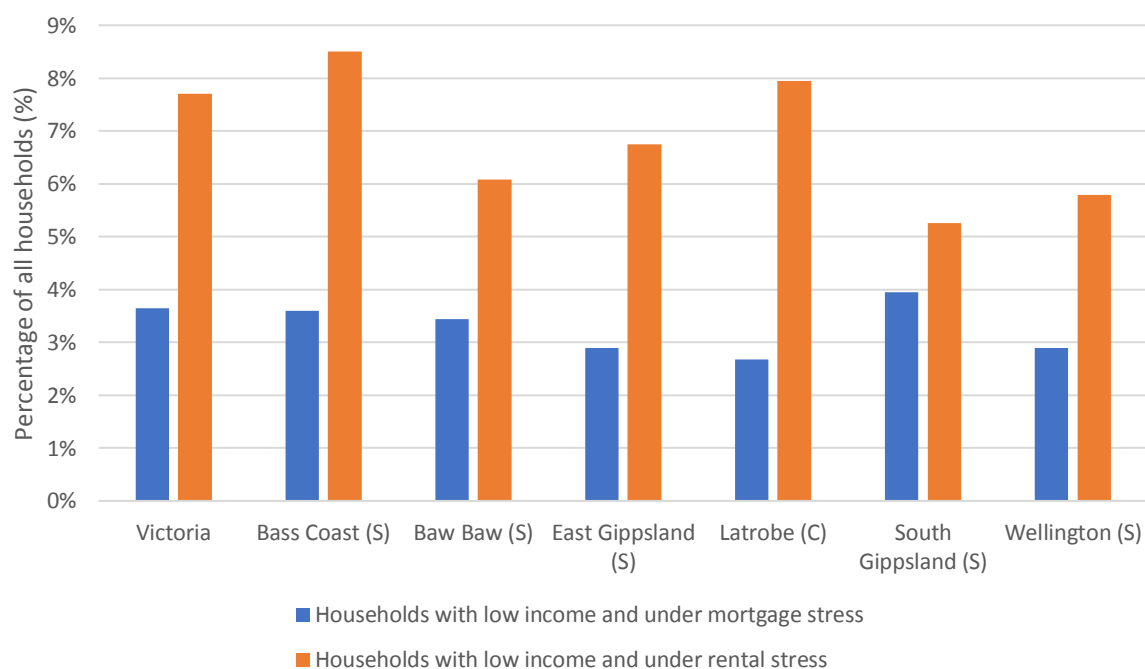
Housing stress in the Gippsland region is lower than or similar to the state as a whole for low income households. The Latrobe and Bass Coast LGAs have higher levels of rental stress than other LGAs in the Gippsland region although still below the Victorian average.

¹¹ Defined as households in the bottom 40% of the income distribution.



Source: PHIDU 2018.

Figure 49 Low income households with housing costs 30% or more of income by LGA, 2016



Source: PHIDU 2018.

Figure 50 Low income households with housing costs 30% or more of income by LGA, as a per cent of all households, 2016

Table 5 shows social housing and homelessness by LGA for the Gippsland region. The rate of homelessness is much lower compared to the Victorian average across most LGAs. The exception to this is the East Gippsland LGA, which has a higher rate of homelessness compared to the state average. There are also higher levels of social housing in East Gippsland and the population centres of Lakes Entrance, Bairnsdale, and Orbost may attract homeless persons looking to access services (hence increasing homelessness rates). Latrobe and East Gippsland have higher rates of homelessness than other LGAs in the Gippsland region but are still close to or lower than the state

average. Differences in homelessness between Latrobe and other LGAs may be explained by homeless migration to Latrobe as a regional hub, and regional centres in East Gippsland, to access services.

Rates of homelessness correlate with Latrobe and East Gippsland LGAs also having a higher percentage of social housing (as a proportion of total dwellings – also see Table 5), while other LGAs have a lower percentage of social housing when compared to the Victorian average. This is also in line with Latrobe as a regional hub for community services, and is a trend observed in other regional hubs across Victoria. There is general alignment with larger proportions of social housing and higher homelessness which supports the trend of vulnerable persons seeking services where available (in regional centres and towns). Higher rates of social housing in regional areas are also partially driven by decentralisation policies from the 1940s to 1970s which required 45 per cent of social housing development in Victoria to be in country areas (Ministry of Housing and Construction 1988).

Table 5 Social housing and homelessness in Gippsland region

	Social housing (% total dwellings)	Homeless people (% of population)
Bass Coast	1.70%	0.14%
Baw Baw	2.60%	0.19%
East Gippsland	4.30%	0.48%
Latrobe	6.90%	0.31%
South Gippsland	1.50%	0.17%
Wellington	3.40%	0.16%
Victoria	3.9%	0.42%

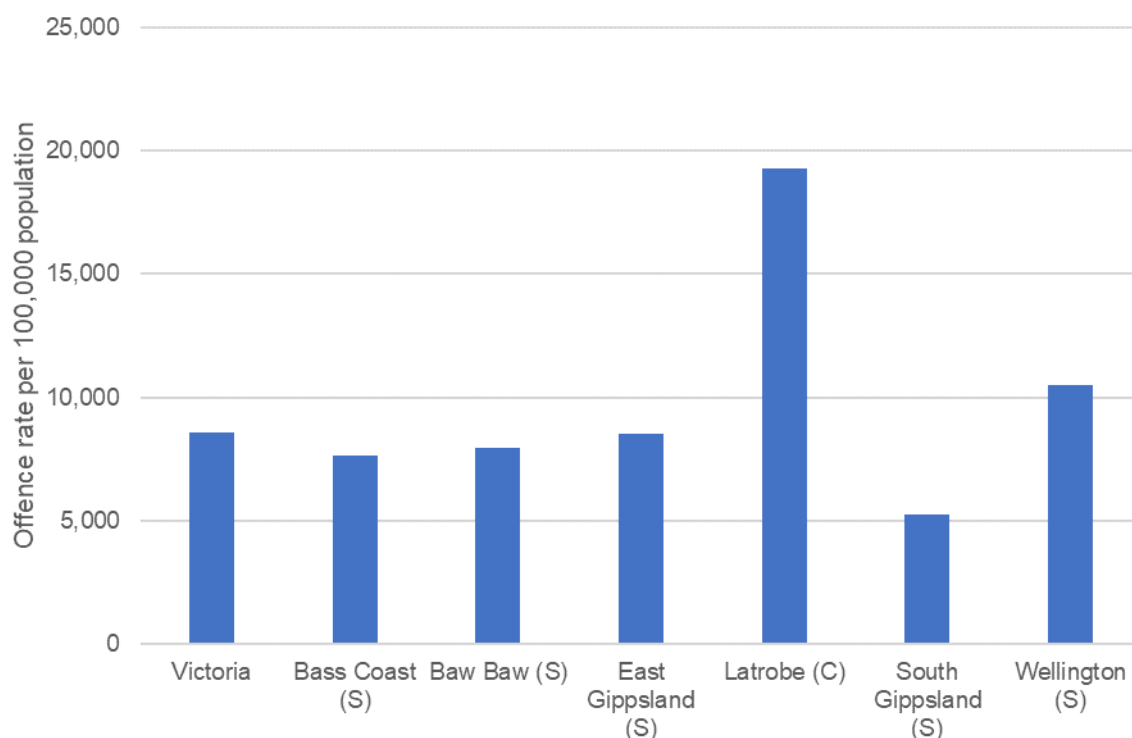
Source: DHHS 2015.

5.2.6. Crime

The crime rates vary across each LGA (see Figure 51) with rates in Latrobe more than double the Victorian average and the highest of all regional LGAs. Offence rates in Wellington are also higher than the Victorian average, while rates in the other LGAs are close to (e.g. Bass Coast, Baw Baw and East Gippsland) or below the Victorian average (e.g. South Gippsland).

The higher rates of crime in Latrobe may be correlated with several other key social and economic indicators. For example, Latrobe shows poor performance across early childhood development outcomes, higher rates of relative social disadvantage, housing stress (though housing stress was still lower than the Victorian average) and a larger proportion of social housing. This also aligns with typically higher rates of crime in more urbanised areas compared to rural or remote areas.

This may also help explain lower crime rates (compared to Latrobe) in the more sparsely populated Wellington LGA, where there are similar results for social criteria, including early childhood outcomes (e.g. the rate of childhood protection substantiations).



Source: State Government of Victoria 2018.

Figure 51 Offence rate per 100,000 population, 2017, Gippsland region and Victoria

5.2.7. Wellbeing index

Wellbeing is a subjective measure of an individual's quality of life (VicHealth 2016). Three key self-reported indicators of wellbeing have been used in this regional assessment:

- sense of wellbeing
- personal safety
- proportion of population who volunteer.

Except for Bass Coast, a larger proportion of respondents in Gippsland LGAs report a higher level of wellbeing than Victoria overall (see Figure 52). The Baw Baw LGA records the highest sense of wellbeing, followed by South Gippsland, Wellington and East Gippsland. Bass Coast is only marginally below the state average whereas Latrobe is marginally above the state average.

This may appear inconsistent with the information from objective social indicators which show higher levels of relative disadvantage in parts of the Gippsland region. This result is however, consistent with other studies of subjective wellbeing in rural areas. Part of the explanation may be found in the measures of sense of community involvement and personal safety that contribute to the index. Rural residents typically score higher on these indicators than their urban counterparts. The most sensitive indicator of the sense of personal security is the number of people who feel safe to walk alone at night in the local area (see Figure 54). Most of the region scores at a similar level to or slightly higher level than the Victorian population.

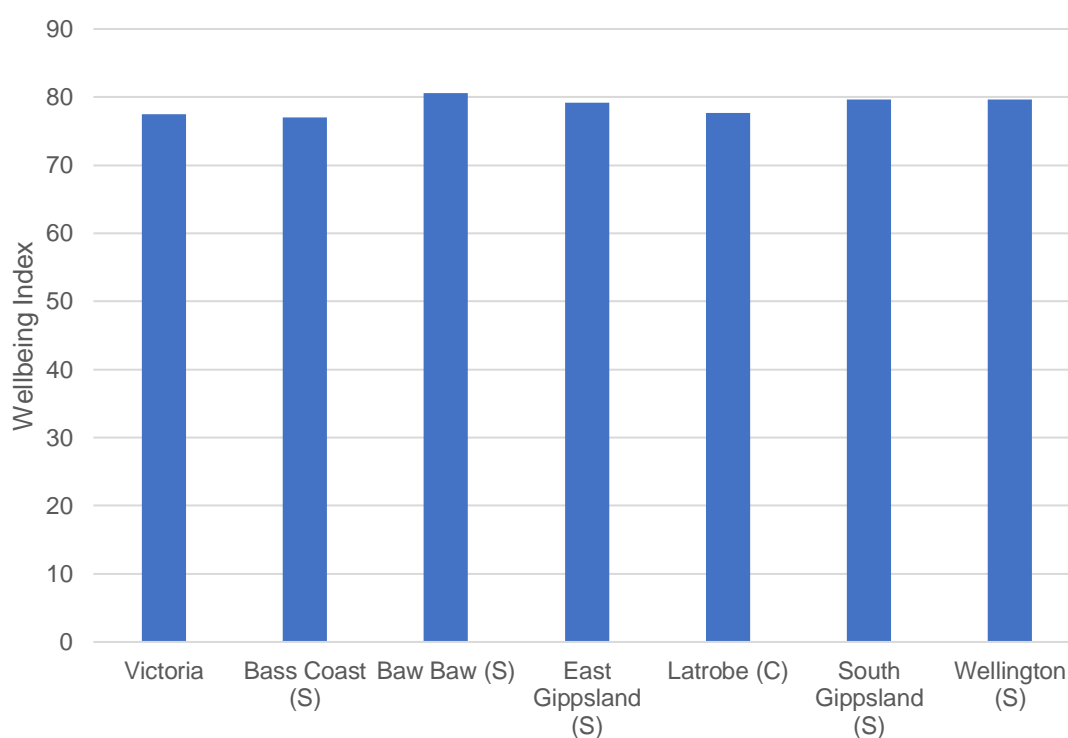
There are potentially other objective differences between rural and urban parts of the region that may also contribute to the higher rural wellbeing score. The rural areas have an older population, and sense of subjective wellbeing has been shown to increase with age – this accords with the self-

reported wellbeing by age group shown in Figure 53. Lower housing costs may be another contributing factor.

Self-reported sense of wellbeing

Sense of wellbeing is recorded through surveys and is self-reported which makes measurement a challenge. Wellbeing is influenced by objective factors such as financial security, family and community support, employment, work life balance and physical safety. However, self-reporting can be influenced by intrinsic factors such as personal outlook, personality, sense of social status and expectations.

In Victoria, the VicHealth Indicators Survey uses a series of questions across a number of domains of wellbeing in order to determine a wellbeing index (VicHealth 2016). The mean score of this survey for all the LGAs of the Gippsland region is close to or slightly above the Victorian average (Figure 52).

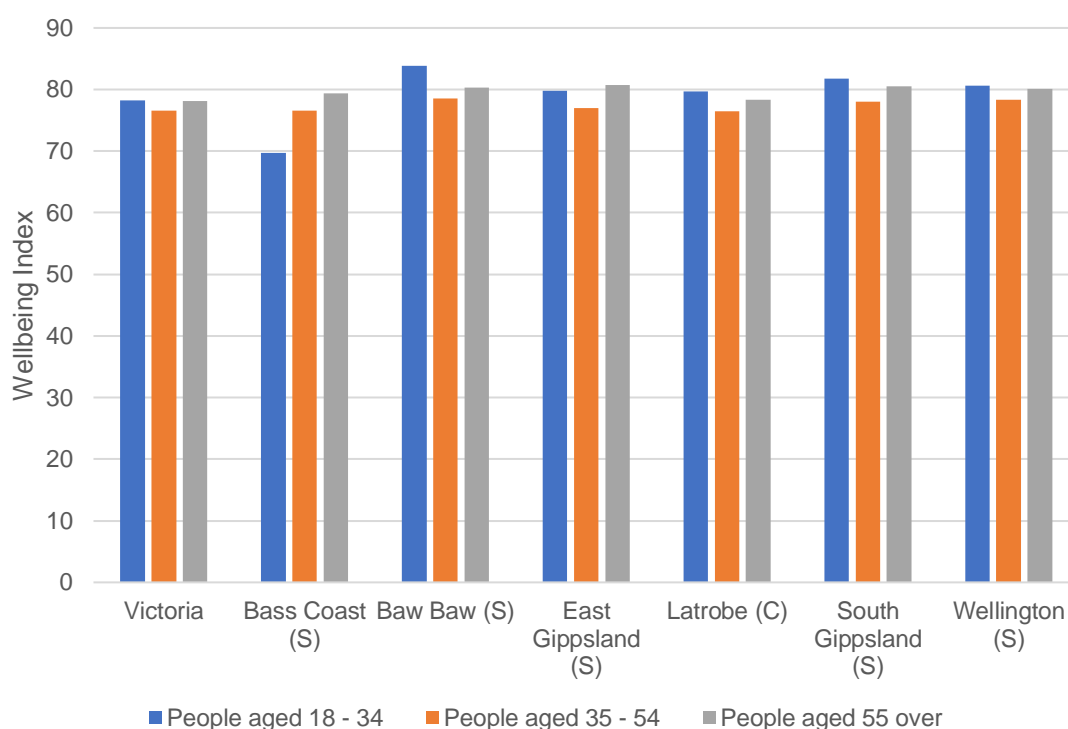


Source: VicHealth 2016.

Figure 52 Self-reported Personal Wellbeing Index by LGA

Figure 53 (based on 2011 data) shows that within each of these LGAs, and consistent with the rest of Victoria, the sense of wellbeing is greatest with the young (18-34 years of age) and older (55 years of age and older) adult age groups. In the Gippsland region, the younger age group generally reported the highest levels of wellbeing, followed by the older, and then the middle groups. The exception to this is in Bass Coast where the younger age group is significantly below the state average. This trend is in conflict to a trend observed in regional areas across Victoria reporting higher levels of wellbeing associated with older age groups – although the trend still holds true with respect to older age groups reporting higher wellbeing than middle age groups.

Ageing populations in the Gippsland region and the propensity of older age groups to self-report higher rates of wellbeing may potentially be a driver of higher self-reported wellbeing in the Gippsland region.



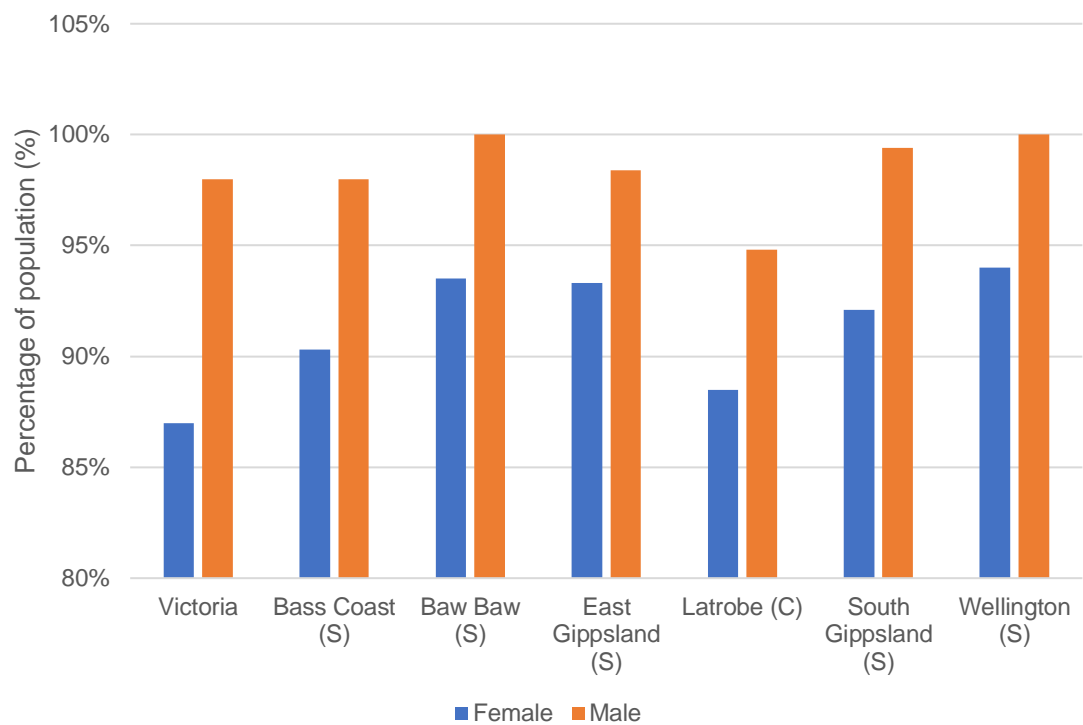
Source: VicHealth 2012.

Figure 53 Self-reported wellbeing index by LGA and age group

Sense of personal safety

Personal safety is a key indicator of wellbeing, with the number of people who feel safe to walk alone at night in the local area the most sensitive component of this indicator. Consistent across Victoria, the proportion of males who feel safe to walk alone in a local area at night is larger than the proportion of women for the same area (Figure 54).

With the exception of Latrobe, all LGAs in Gippsland demonstrate a similar or larger proportion of respondents indicating a sense of personal safety than those across Victoria (both male and female). In Latrobe, the proportion of females reporting a sense of safety when walking home at night is above the Victorian average whereas the proportion of males is smaller for this indicator than the Victorian average.

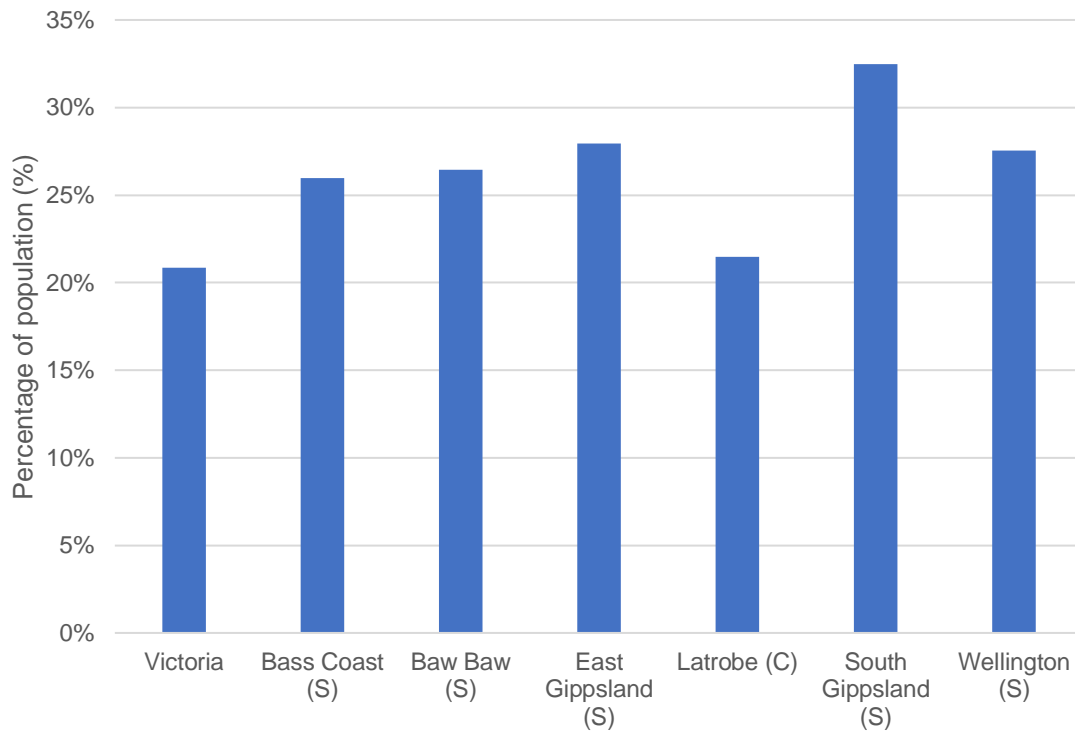


Source: VicHealth 2016.

Figure 54 Sense of safety walking alone at night in local area by LGA and gender

Volunteering

Figure 55 shows volunteering rates in all LGAs in the Gippsland region. Most LGAs are higher than the Victorian average, with the exception of Latrobe which is closer to the average. South Gippsland and to a lesser extent East Gippsland have much higher rates of volunteering which may reflect the older population and sense of community in these regions. This pattern also aligns with the slightly higher rates of self-reported wellbeing in South Gippsland and East Gippsland as compared to the Victorian average.



Source: ABS 2016c.

Figure 55 Percentage of population who volunteer, 2016

6. Environmental profile

6.1. Summary

The Gippsland region covers a broad area containing a variety of environmental characteristics. The Latrobe area surrounding Traralgon, Moe and Morwell is a regional centre with a concentrated population and is home to a variety of services. The western parts of Gippsland adjacent to the greater Melbourne metropolitan area exhibit characteristics typical of a peri-urban fringe. Considerable dryland and irrigated agriculture exists through the central rural areas. To the south there is a vast tract of coastline comprising important environmental assets and coastal towns which support tourism. To the north, there are also large areas of forested land and environmental assets within the more remote and mountainous areas across the Gippsland region.

These environmental zones transect LGA boundaries and the sub-regions used to discuss the economic and social profiles.

Latrobe regional hub

This Latrobe regional hub encompasses the Latrobe LGA, which comprises three population centres (Moe, Morwell and Traralgon) as well as several smaller towns. The sub-region has a population of approximately 62,500 people, making it the most populous sub-region in Gippsland.

Post-European land use has been strongly based on agriculture and forestry prior to the discovery and subsequent development of large brown coal deposits in the area. The coal mining and electricity industries have subsequently been major drivers of land use in the area with multiple open cut mines and power plants around the sub-region. The largest land use is agriculture followed by residential.

Areas within the Latrobe regional hub are expected to grow in the future, in particular the urban area of Traralgon. Infrastructure spending has already been planned to assist this growth and will likely present opportunities in the construction industry. Population growth is also likely to stimulate demand for other higher order services in the sub-region.

Western peri-urban fringe

The LGAs of Bass Coast, Baw Baw and South Gippsland all have an interface with metropolitan Melbourne forming Gippsland's western peri-urban fringe. The proximity to Melbourne as well as opportunities for residential rural living have a strong influence on land use.

Land use in this sub-region varies with rural residential areas closer to Melbourne, primary production; particularly in Bass Coast and South Gippsland, and environmental and tourism assets (e.g. Wilsons Promontory to the south). Future urban expansion in these LGAs is expected to drive higher levels of competition between agriculture and residential land uses.

The western peri-urban fringe is also proximal to a number of important and diverse environmental assets. Towns in Baw Baw have good access to forests and mountainous areas including Baw Baw National Park. Bass Coast and South Gippsland LGAs are close to assets located on the coastline including national and state parks, coastal parks and marine parks such as Wilsons Promontory and Flinders Island.

The Granville-Nyora area is home to important sand and stone resources which are strategically important for the supply of building materials in the Melbourne peri-urban area as well as metropolitan Melbourne.

The towns of Warragul and Drouin are within 100 kilometres of the Melbourne CBD and are predicted to grow substantially due to their recognition as alternate residential locations. Future growth may lead to their emergence as regional centres in their own right. The Tarago water supply system, particularly the part of the system that serves the towns of Warragul and Drouin, requires major augmentation to address scarcity issues. Augmentation is expected to occur by 2023.

Eastern regional areas

The Eastern portion of Gippsland (covered by Wellington and East Gippsland LGAs) cover a large area with relatively low population. The sub-region includes a number of distinct types of environments and land uses including rural, coastal and remote wilderness areas. These have been discussed by type below.

Regional rural areas

Regional rural areas are dominated by dryland and irrigated agriculture, as well as considerable forestry within state forests and plantations. The central rural areas, primarily within Wellington LGA host the most important agricultural region in Gippsland. The region currently produces a third of Victoria's dairy and is supported by reliable water from the Macalister Irrigation Area. Since 2004 there has been a trend of converting dairy land to horticulture, particularly for vegetable production. The largest urban centres in the regional rural areas are the towns of Maffra and Sale.

Coastal areas

Wellington and East Gippsland LGAs also possess important environmental assets along the coastline including Gippsland Lakes and Croajingolong National Park. The Coastal inlets, bays, estuaries mangroves and wetlands provide crucial habitat and are places with high amenity. While these assets support a large amount of nature-based tourism, commercial fishing is also a major industry.

Most of the population in East Gippsland is located close to the coastal fringe, including Lakes Entrance, Bairnsdale, Orbost and Mallacoota. Regional coastal towns attract seasonal tourism as well as in-migration. Bairnsdale is the largest coastal urban centre and is expected to experience future growth, while Lakes Entrance is also expected to grow. Urban development in coastal areas will also need to consider coastal impacts and hazards.

Wilderness areas

The remote northeast parts of the region are dominated by national parks with smaller established towns, lower population growth and therefore fewer associated development pressures. These areas present opportunities for nature-based tourism (including alpine tourism). Long term population decline is expected in the remote areas of East Gippsland. Hazards from bushfire and flood are present in these areas and are an important consideration for future land use planning.

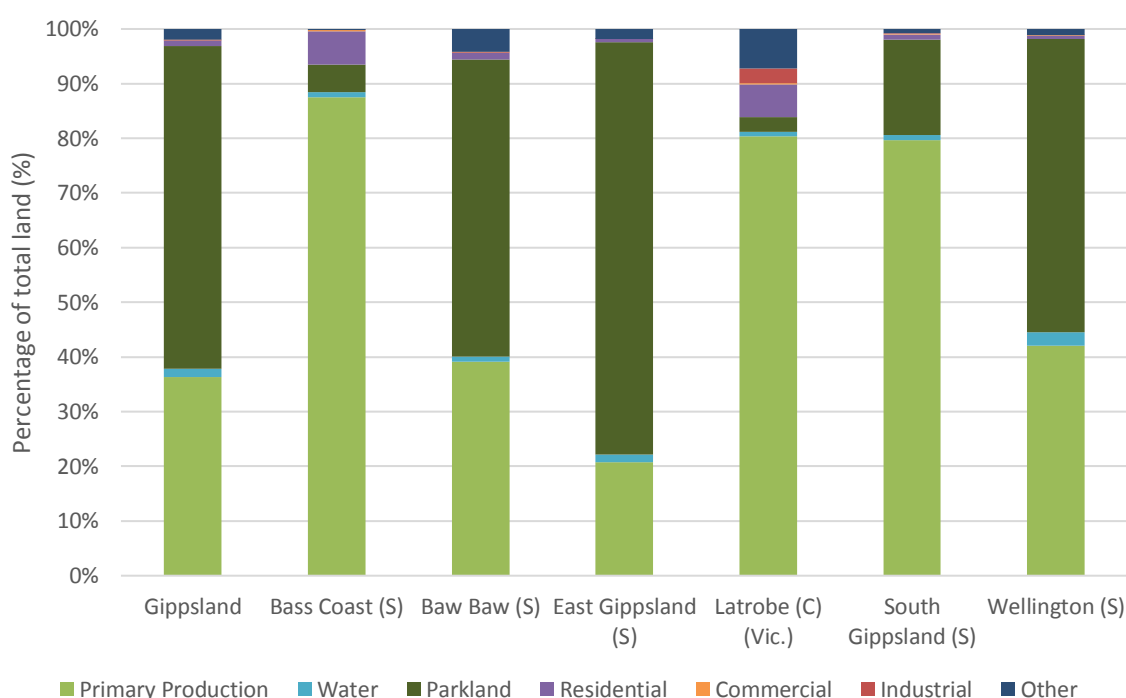
Given the relative remoteness and vast tracts of land in national parks and state forests, environmental health in this sub-region is some of the best in Victoria, for example, this sub-region has the best stream health results in Victoria.

6.2. Regional environmental data

6.2.1. Land

Land use across the Gippsland region is highly variable (Figure 56). Some parts of the Gippsland region are highly modified from their pre-European settlement state and support a range of land uses with the majority of land designated as either agricultural or residential. Other areas of Gippsland (for example, East Gippsland LGA) are less disturbed, with large amounts of parkland and less area designated for residential and other land uses. A large proportion of land in the Gippsland region is publicly owned, which is a considerable proportion of Victoria's total public land.

Some areas of the region remain under development pressure with land potentially changing towards use for both urban and rural residential development. For example, land in the peri-urban area of the Bass Coast, South Gippsland and to a lesser extent Baw Baw LGAs are under considerable competition for land uses between rural residential development, urban expansion (including the expansion of Melbourne's peri-urban fringe) and agriculture.



Source: ABS 2016h.

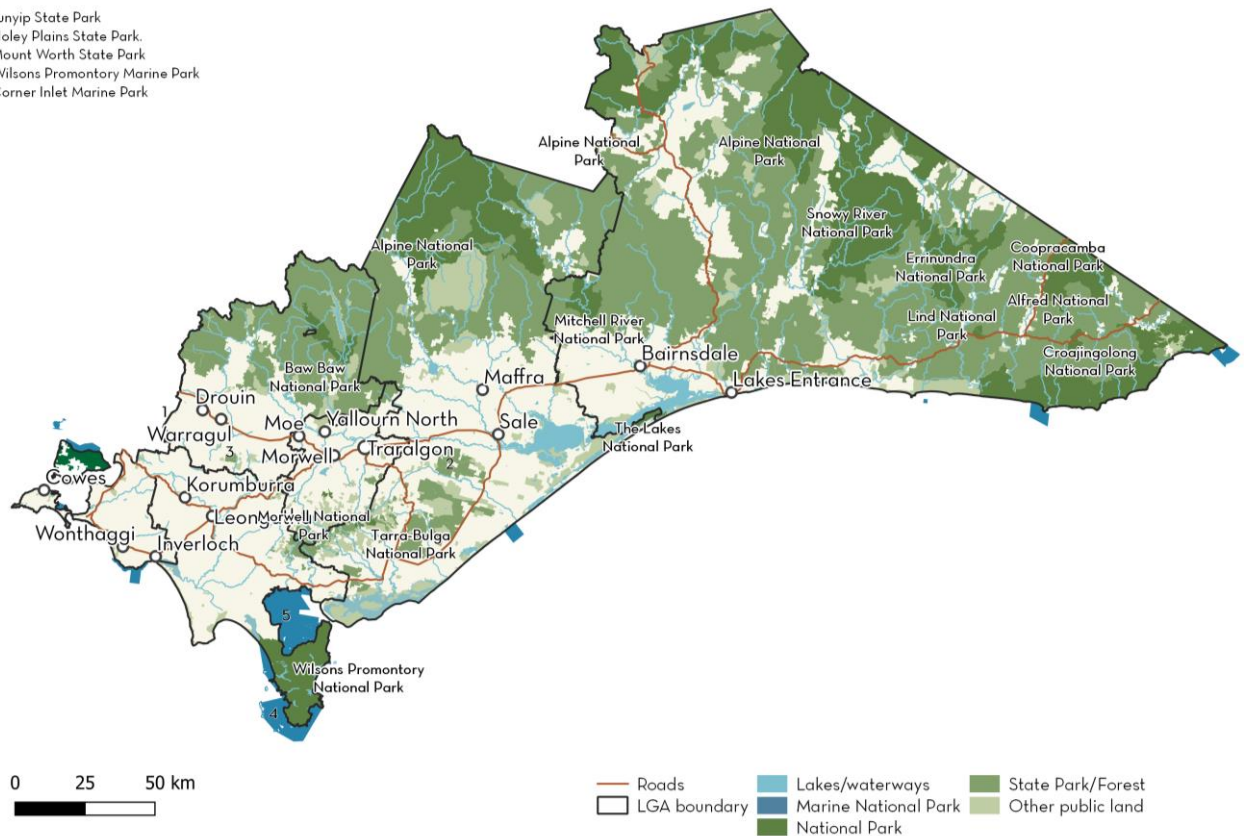
Figure 56 Land use in the Gippsland region, 2016

Terrestrial environmental assets

The Gippsland region has a rich and diverse range of natural and cultural heritage assets including alpine and mountain regions, forest, woodland and coastal complexes. Compared to other Victorian regions, a large proportion of land in Gippsland is publicly owned and is protected by state or national park (Figure 57). Around 20 per cent of land in the Gippsland region (4,500 square kilometres) is freehold land (State Government of Victoria 2014a).

Other environmental assets

1. Bunyip State Park
2. Holey Plains State Park
3. Mount Woth State Park
4. Wilsons Promontory Marine Park
5. Corner Inlet Marine Park



Source: State Government of Victoria 2014b.

Figure 57 Gippsland region – key environmental assets

National Parks

- Wilsons Promontory National Park
- Snowy River National Park
- Tarra-Bulga National Park
- Croajingolong National Park
- Baw Baw National Park
- Mitchell River National Park
- Errinundra National Park
- The Lakes National Park
- Morwell National Park
- Lind National Park
- Alfred National Park
- Coopracambra National Park.

State Forest and State Parks

- Bunyip State Park
- Mount Worth State Park
- Holey Plains State Park.

Other

- the Victorian Alps
- Conservation reserves such as Buchan Caves
- Walhalla Historic Area.

Aboriginal cultural heritage assets

The Gippsland region includes the traditional lands of the Gunaikurnai people and comprises important cultural heritage assets. The lands of the Gunaikurnai people include Port Albert in the south, east along the coast to Marlo, and encompasses Mount Buller and the Alpine National Park inland.

Important heritage sites in the land of the Gunaikurnai people include ten parks and reserves which are managed in partnership between the Gunaikurnai Land and Waters Aboriginal Corporation and the Victorian Government through the Gunaikurnai and Victorian Government Joint Management Plan 2018. These include Tarra-Bulga National Park, Mitchell River National Park, the Lakes National Park, the New Guinea Cave in the Snowy River National Park, Corringale Foreshore Reserve, and the Knob Reserve on the Avon River in Stratford. There are numerous ancient middens marking important meeting places along the Cape Conron coastline. Prior to European settlement, the Sale wetlands were an important source of food and raw materials. There are multiple scar trees in the Gippsland region, which are protected under the Aboriginal Heritage Act 2006. Other important sites include the Den of Nargun cave and waterfall on the Mitchell River, the Buchan Caves, and Burnt Bridge Reserve near Lake Tyers.

This information was gathered using publicly-available information (Aboriginal Victoria n.d., Gunaikurnai Land and Waters Aboriginal Corporation n.d., Bataluk Cultural Trail n.d.).

Coasts, estuaries and marine assets

As can be seen in Figure 58, there is a range of coastal, estuary and marine assets in the Gippsland region that support important economic, cultural, environmental and recreation values (State Government of Victoria 2014b). Coastal environmental features such as estuaries, bays and inlets provide habitat and breeding grounds for native plant and animal species. Ecosystems such as saltmarshes, mangroves and wetlands found along the coast are also important habitat. In addition to important ecosystem services, coastal and marine areas are also valuable recreational, commercial and tourism resources offering opportunities for economic development. The majority of coastal and marine assets occur on public land.



Source: State Government of Victoria 2014b.

Figure 58 Gippsland region – key coastal and marine assets

Marine and Coastal parks

- Churchill Island Marine National Park
- French Island Marine National Park
- Bunurong Marine National Park
- Wilsons Promontory Marine National Park
- Corner Inlet Marine National Park
- Nooramunga Marine and Coastal Park
- 90 Mile Beach Marine National Park
- Gippsland Lakes Coastal Park
- Point Hicks Marine National Park
- Cape Howe Marine National Park
- Cape Conran Coastal Park.

Soil health

Compared to other regions of Victoria, Gippsland has negligible risk of erosion from bare soils in dryland production areas (VCMC 2017). This is largely a result of overall high levels of rainfall across most of the Gippsland region which maintains vegetation cover. Nevertheless, erosion risk is present in parts of the West Gippsland catchment with steep slopes and approximately 24 per cent of private

land was modelled as being at high or very high risk of gulley and tunnel erosion (VCMC 2017).¹² East Gippsland reported no significant evidence of poor condition for its soils.

The knowledge of the extent and severity of salinity are poor in Victoria (CES 2013). However generally speaking, eastern Victoria is less severely affected by salinity than western Victoria, largely because conversion of native vegetation to agriculture has been less extensive (CES 2013). Within Gippsland, the area most affected by salinity is around Sale.

6.2.2. Natural resources

Mineral resources and forestry

The Gippsland region is strongly associated with coal mining and electricity generation in the western part of the region; the Latrobe Valley contains almost all of Victoria's coal reserves and is home to the state's brown coal mining and power generation industries. Open cut mines operate at Yallourn and Loy Yang near Traralgon which support electricity generation. Off-shore oil and gas extraction in the Bass Strait provides for the bulk of Victoria's natural gas supply and for export opportunities to New South Wales and Tasmania.

The Grantville-Nyora area, at the eastern edge of Western Port Bay, is an important supplier of sand resources to the construction industry, particularly for metropolitan Melbourne and growth areas in Gippsland (Government of Victoria 2014a). Hard rock resources are similarly important for construction and are well distributed across Gippsland.

Gold mining has been an important industry in Gippsland with goldfields at Walhalla, Grant, Dargo and Swifts Creek. There may be future opportunities for gold mining given favourable economic conditions (State Government of Victoria 2014b). Lead, iron, zinc, silver and platinum may also offer future opportunities for extraction, as well as mineral sands such as rutile and zircon (State Government of Victoria 2014a).

The eastern part of Gippsland possesses vast timber resources. Commercial forestry is a notable land use with native forest and softwood plantations supporting a significant timber, pulp and paper manufacturing sector. Nearly one quarter of Victoria's plantation estate is located in Gippsland (State Government of Victoria 2014a).

Renewable energy

Gippsland's energy production is closely linked to brown coal mining and electricity generation; however, potential renewable energy resources include geothermal, wind, hydro-electric, wave and tidal generated energy. In particular geothermal and wind are thought to offer the best prospects (State Government of Victoria 2014a). Wind energy facilities operate at Toora, Wonthaggi and Bald Hills in the coastal areas of Gippsland. Hydroelectricity generation also occurs at Thomson Dam.

Fisheries

Gippsland is an important centre for both commercial and recreational fishing based on its freshwater and saltwater sources. The most economically important fishery is abalone from the Eden-Tamboon area, which includes the town of Mallacoota (State Government of Victoria 2014a and 2014b).

¹² Tunnel erosion is a form of sub-surface erosion caused by runoff flowing into the subsoil and creating tunnel which can eventually enlarge to reach the soil surface. Gully erosion is the removal of soil along drainage lines by surface water runoff.

6.2.3. Biodiversity

Tree cover is used as one proxy for biodiversity by the Victorian Catchment Management Council (VCMC) in their 5-yearly Catchment Condition and Management Report. Biodiversity across the Gippsland region is considered relatively high compared with other regions of Victoria (VCMC 2017). Tree cover varies from high levels of tree cover across East Gippsland (85 per cent), to an average of 50 per cent in West Gippsland. The widespread tree cover in East Gippsland is a result of some 83 per cent of the region being public land held in state forests and national parks (VCMC 2017). Within West Gippsland, higher levels of tree cover are found in the northern part of the catchment along the Great Dividing Range.

In its 2015-16 annual condition report, East Gippsland CMA assessed the condition of biodiversity as remaining stable with evidence of improved habitat in some pockets (East Gippsland CMA 2017a).

The West Gippsland CMA assessed native vegetation extent as poor to moderate in the catchment's lower reaches. This is mainly a result of conversion of private land for agriculture, and the associated fragmentation of remnant vegetation. Challenges impacting the condition of biodiversity within the West Gippsland region include fragmentation and lack of connectivity of remnant vegetation, reduced extent and condition of flora and fauna communities, competition from invasive species, urban development and climate change (West Gippsland CMA 2017).

6.2.4. Water

Hydrology and waterway condition

The Gippsland region spans the Great Dividing Range and contains all or part of 13 important river catchments and numerous nationally and internationally significant wetlands (State Government of Victoria 2014b). Some of Gippsland experiences significant flooding from these rivers. The Thomson River is an important urban water source for both Gippsland and metropolitan Melbourne. Major hydrological features include nine waterways designated as Heritage Rivers under the *Victorian Heritage Rivers Act 1992*. The numerous waterways in the region typically flow from headwaters in the Great Dividing Range and the Australian Alps, draining into coastal lakes, lagoons and estuaries. They include:

- To the west of the Gippsland region, the South Gippsland and Latrobe River basins and part of the Bunyip River basin.
- Through the centre, the Thomson River, Mitchell River and Tambo River basins and the Ramsar-listed Gippsland Lakes.
- To the east, the Snowy River and East Gippsland River basins and the Lower Snowy River Wetlands System and Mallacoota Inlet Wetlands.
- To the north, includes areas of the Goulburn River, Kiewa River, lower Murray River, Ovens River and Yarra River catchments.

Gippsland is located across two of Victoria's ten Catchment Management Authorities (CMAs); East Gippsland and West Gippsland (Figure 59).

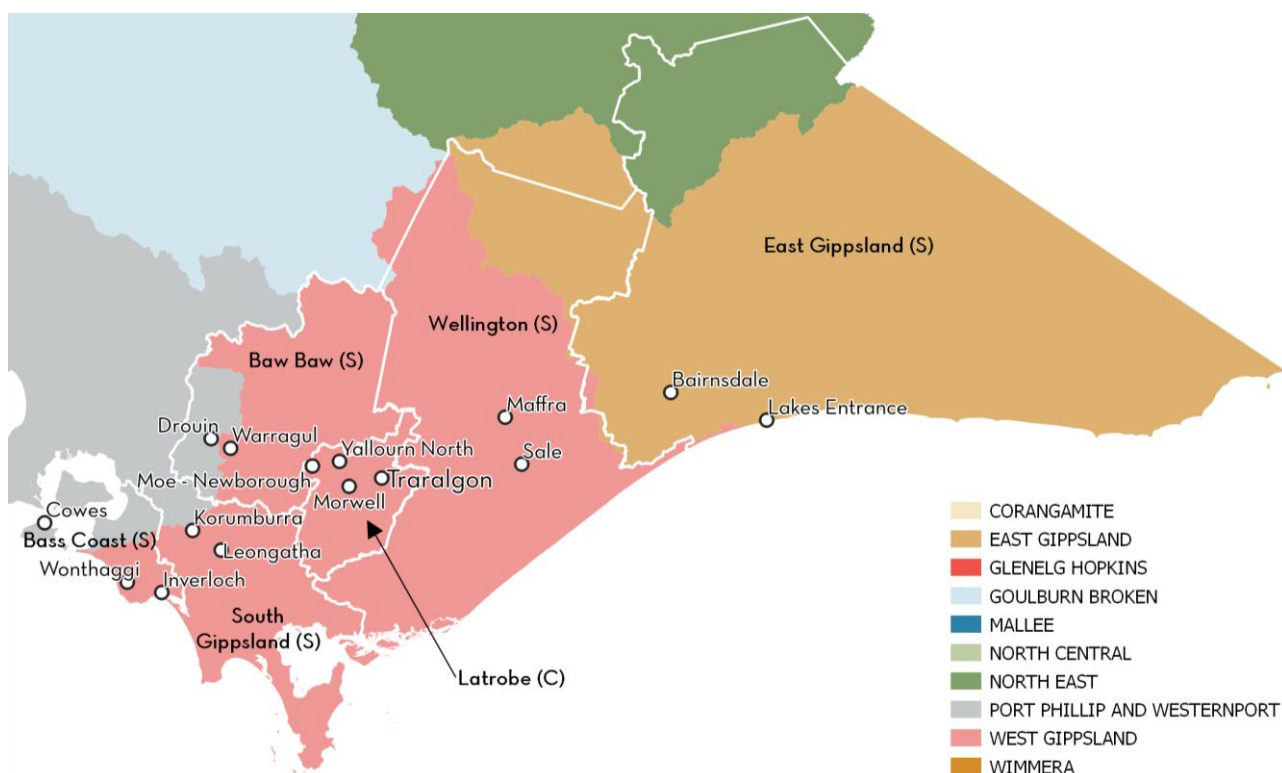
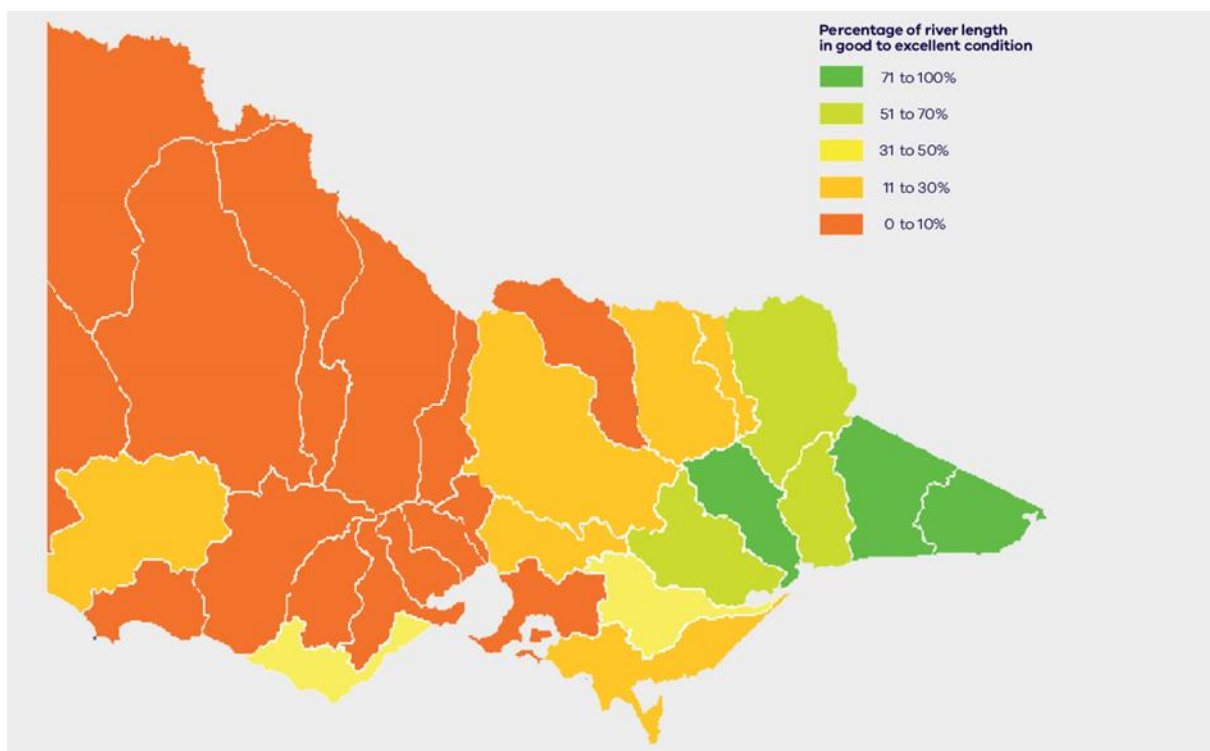


Figure 59 Catchment Management Authority boundaries in Gippsland region

The catchment areas within the region are used to supply water for domestic, irrigation and other purposes. Domestic supply is for Melbourne as well as cities and towns in the region including Latrobe, Sale and Bairnsdale. Many of the catchments in Gippsland are declared for the specific purpose of water supply and are therefore protected under legislation. The Thomson Reservoir provides approximately 60 per cent of metropolitan Melbourne's total water storage capacity and supplies about 30 per cent of its drinking water supply (Melbourne Water 2017). Water in the Thomson Reservoir is also used to maintain the ecological health of the Thomson River and for agriculture and hydroelectricity generation.

More broadly, natural waterways across the region are in better condition than western Victorian waterways (Figure 60). While many waterways have been moderately impacted by post-European land use including clearing and agriculture, the Mitchell River, Snowy River and East Gippsland basins rate as having the best condition in Victoria.

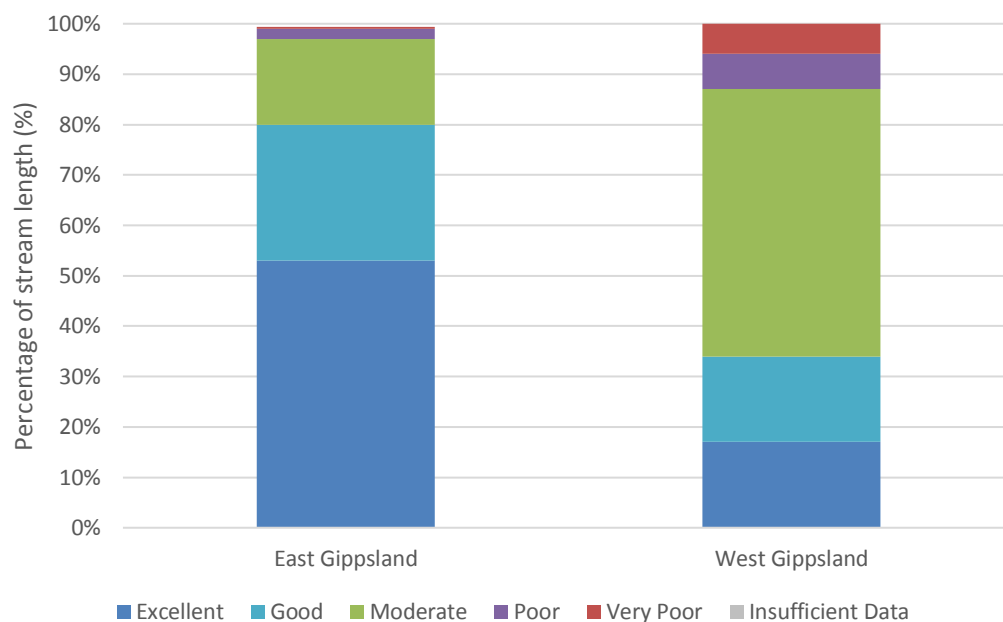


Source: State Government of Victoria 2016.

Figure 60 Waterway health in Victoria

Of the two CMA regions intersected by the Gippsland region, East Gippsland has the greatest percentage (approximately 80 per cent) of stream length in good or excellent condition (Figure 61). According to the latest index of stream condition, 34 per cent of stream length in West Gippsland is in good or excellent condition (VCMC 2017). Environmental water holdings¹³ exist on four of Gippsland's river systems (the Latrobe, Macalister, Thomson, and Snowy rivers) which are used to maintain the ecology of the rivers and to water environmental assets including Gippsland Lakes and the Lower Latrobe Wetlands.

¹³ Water that is held and managed for the purpose of achieving environmental outcomes.



Source: VCMC 2017.

Figure 61 Stream condition of CMA regions in Gippsland

The Gippsland Lakes, Corner Inlet and Western Port are Ramsar-listed sites within the coastal region of Gippsland (Figure 62). In the Victorian Government's last state-wide assessment of Ramsar site condition, marine and tidal wetlands were not assessed. Therefore, there is no data available for wetlands in Western Port Ramsar site, Corner Inlet Ramsar site and part of the Gippsland Lakes Ramsar site (DSE 2012).



Source: Victorian Auditor-General 2016.

Figure 62 Ramsar listed sites in Victoria

The Department of Environment, Land, Water and Planning (DELWP) assessed eight of the fringing wetlands in the Gippsland Lakes Ramsar site. Five wetlands were in good condition and three were in moderate condition. The physical form was excellent for all wetlands and the soils were in good condition for most wetlands (DSE 2012). The fringing wetlands are located in conservation reserves and therefore are protected from disturbance from livestock and other land uses. While the original wetland has not been altered by land use change, there have been some changes to hydrology of wetlands fed by the Thomson and Latrobe rivers due to the regulation of flows on the Thomson River for urban water supply (DSE 2012). With reduced freshwater flows into the wetlands fringing Lake Wellington, salinity levels have increased and there has been an associated change in vegetation.

Urban water supply and water security

Urban water supply across the Gippsland region is the responsibility of a number of regional water corporations, including East Gippsland Water (spanning East Gippsland LGA and incorporating the towns of Mallacoota, Lakes Entrance and Bairnsdale), Gippsland Water (Warragul, Drouin and surrounding Baw Baw LGA; Moe, Morwell Traralgon and surrounding Latrobe LGA; Sale and surrounding Wellington LGA), South Gippsland Water (Leongatha and surrounding South Gippsland Shire) and Westernport Water (Wonthaggi and surrounding Bass Coast Shire). In addition, rural water corporation services, which include providing water for irrigation districts and bulk water services to urban water authorities and Latrobe Valley power generators, are provided by Southern Rural Water. Each water corporation completed an Urban Water Strategy (UWS) in 2017 that articulates the outlook for, and actions required to ensure water supply security over a fifty-year horizon.

Urban water security reflects the balance between demand for water and available supply, each of which is impacted by a number of factors over time. The resulting uncertainty when forecasting future urban water security is addressed through scenario planning. The scenarios – which consider the implications of population and climate change, among other factors – indicate the possible timeframe over which intervention may be required under a range of plausible conditions.

Most water supply systems inherently have some level of vulnerability to infrequent and severe drought conditions that arise from time to time (for example, Wellington and East Gippsland are currently experiencing drought conditions), for which Drought Preparedness Plans are prepared and implemented to ensure water supplies can be maintained over short periods of relative water scarcity. More substantial upgrades to system infrastructure are triggered when forecasts of demand and supply over time suggest that levels of service can no longer be maintained.

The key challenges for water security tend to be population growth (particularly in larger centres) and climate change. The impacts of climate change, in particular, are generally forecast to contribute to increasing uncertainty and reduced availability of water resources.

The outlook for key urban water supply systems in the Gippsland region includes the following:

- Latrobe system: the Latrobe system is serviced by Gippsland Water, which supplies a number of towns as well as major industry in the Latrobe valley. Water supply in the Latrobe system is generally considered secure, with yield expected to exceed demand for the 50-year planning horizon under a medium climate scenario. Under a worst-case scenario, augmentation could be required as early as 2030. The largest uncertainty for the system is associated with future use of the entitlement used by Engie's Hazelwood mine.
- Tarago system: The Tarago system supplies water to a number of towns in the western part of Gippsland Water's operating area including Warragul and Drouin. The Gippsland Water UWS identified the Tarago system as urgently requiring action to address water security issues. Supply augmentation is expected to occur by 2023. An alternative supply agreement with the Melbourne water corporations to provide 400 ML per year to the Tarago system is in place until 2025.

- Bass Coast LGA: Urban water supply in the Bass Coast LGA is provided by Westernport Water. The system has a diversified supply, including water from Candowie Reservoir, the Bass River, groundwater and Melbourne's water supply system when the Victorian Desalination Plant is operating. At the earliest, shortfall in water supply could occur by 2028 under worst-case conditions of high demand and high climate change. Future imbalances of water supply and demand are likely to be met by augmenting supply via an additional share from the Melbourne Supply system and infrastructure improvements to the Bass River Pump Station.
- Mitchell River system: The Mitchell River system is the largest of East Gippsland Water's supply systems, serving Bairnsdale, Lakes Entrance and surrounding towns. The system's water supply is generally considered secure as system demand is well below the total capacity of the bulk entitlement. Despite this, system augmentation could be required as early as 2028 due to infrastructure constraints relating to bulk water storage and supply deficiencies.
- Little Bass River system and Coalition Creek system: urban water supply for the towns of Poowong, Loch, Nyora (Little Bass River system) and Korumburra (Coalition Creek system) is provided by South Gippsland Water. Existing urban water supply for these towns is currently not sufficient to meet South Gippsland Water's level of service objectives. Connection to Melbourne's supply system via the Lance Creek system in 2019 is expected to alleviate supply shortfall.
- Lance Creek system: South Gippsland Water services the towns of Wonthaggi and Inverloch. While shortfall in supply is not predicted to occur until 2032 (under a worst-case scenario), expansion of the system configuration to include the Little Bass River and Coalition Creek systems could require supply augmentation by 2023 at the earliest. The purchase of additional entitlement to meet this requirement is expected by 2024.

Gippsland is home to the Victorian Desalination Plant at Wonthaggi, which has the capacity to provide approximately 30 per cent of Melbourne's annual drinking water needs (Melbourne Water 2018). The Victorian Desalination Plant provides an alternative, climate-independent water supply source which helps to guarantee a reliable and sustainable water supply during periods of water shortage.

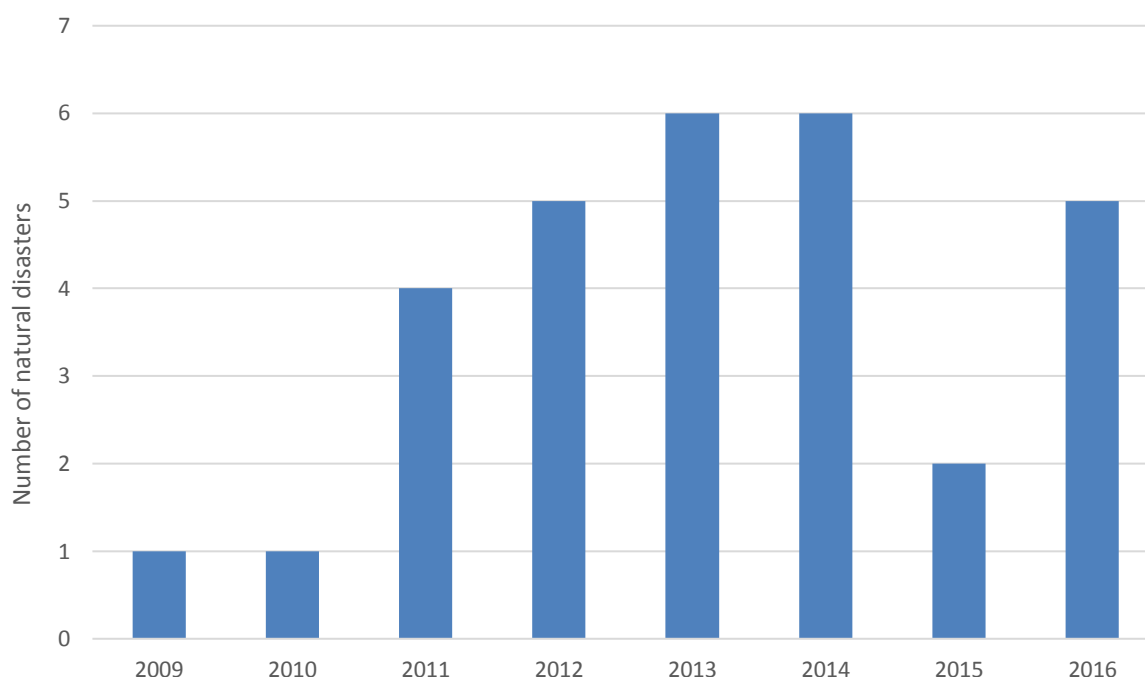
6.2.5. Natural hazards

Like all regions, there is a history of bushfire, flood and storm in Gippsland with recent data indicating the occurrence of some form of damage in every year since 2009 (Figure 63).¹⁴ Coastal hazards are also a significant risk.

Riverine and coastal flooding are significant threats in Gippsland. Urban and agricultural development has occurred on floodplains which lie at the bottom of narrow mountain valleys. As a result, flood waters can be deep and fast moving. Likewise, much urban development has occurred around coastal lakes, inlets and estuaries that are at risk of storm surge and the build-up of flood waters from the top of catchments. Significant floods occurred in 2007, 2010 and 2016 which caused significant disruption to agriculture, tourism and communities (State Government of Victoria 2014a).

There are also areas of significant bushfire risk; notably parts of Gippsland were affected by the 2009 Black Saturday bushfires.

¹⁴ This has been identified as any natural disaster which was eligible for receiving Federal funding for recovery. Eligible disasters are those where more than \$100,000 worth of damage has occurred across the extent of the disaster.



Source: Disaster Assist 2017.

Figure 63 Frequency of natural disasters in the Gippsland region

The risks presented to land use from flood hazards must continue to be considered in strategic and statutory planning decision making. These decisions should be based on the best quality information on flood hazards to minimise the risk to life, property, infrastructure and environmental assets. Many settlements within the region have significant flood risks that must be considered, including Bairnsdale, Orbost and Swifts Creek, and the communities around Gippsland Lakes: Raymond Island, Lakes Entrance, Paynesville, and Metung (East Gippsland CMA 2017b).

Many of the areas in the Gippsland region that are most susceptible to bushfire are areas that intersect with settlements and tourism. Pressures to develop in highly attractive, bushfire prone areas such as near the foothills and in the valleys leading up to the Great Dividing Range are expected to continue (State Government of Victoria 2014a). Remote settlements and old timber towns present a particular issue for emergency response agencies, where there are extreme bushfire hazards, high concentrations and limited capacity for evacuation (State Government of Victoria 2014a).

With significant stretches of coastline, predicted population growth and urban development in coastal areas and the impacts of climate change, coastal hazard risks are likely to increase in Gippsland (State Government of Victoria 2014b). Coastal hazards that may be experienced in the Gippsland region include coastal inundation, saline intrusion, coastal erosion and damage to infrastructure.

The Victorian Auditor-General's Office (VAGO) report *Protecting Victoria's Coastal Assets* assessed the current and future management of, and risk to, Victoria's coastal assets (VAGO 2018). The report looked at modelling by CSIRO and DELWP which indicates that increased coastal inundation and erosion from rising sea levels and increased storm intensity will have widespread impacts across the Victorian coast in the medium to long term, for both natural and built assets.

The Gippsland coastline has areas of high-risk rating for significant coastal assets and areas in 2040 conditions, using 2015 controls (VAGO 2018, p. 56). The Inverloch coast is at a significant risk. There is a considerable area of coastline and waterways at high risk between Lakes Entrance and Lake Wellington. This area is at risk of both restricted/loss of access and loss of terrestrial Crown land, and includes the Lakes National Park, Blond Bay Wildlife Reserve and Gippsland Lakes Coastal Park. The Corner Inlet Marine and Coastal Park coastline north of Wilson's Promontory is at high risk with

likely loss of terrestrial Crown land. Wilsons Promontory Marine Park and National Park is at significant risk and likely to experience less tourist activity. Waratah Bay, including the Shallow Inlet Marine and Coastal Park, is at high risk and likely to undergo restricted/loss of access.

6.2.6. Contaminated sites and pollution

The extensive coal mining history of the Gippsland region, specifically around the Latrobe LGA regional hub, along with its other industrial history, may mean that there are significant areas of contaminated land throughout the region¹⁵. Contaminated sites may pose immediate or longer-term risks to human health and the environment, depending on the type and extent of the contamination and how the site will be used in the future. The specific locations of all contaminated sites in the region are unknown. The potential for contamination will need to be considered as sites are developed (either through urban expansion or infill such as in Latrobe LGA), particularly for sensitive uses (State Government of Victoria 2014a).

As of March 2018, there are approximately 18 sites in the Gippsland region listed on the EPA's Priority Sites Register. These sites have been issued a Clean Up Notice pursuant to section 62A, or a Pollution Abatement Notice pursuant to section 31A or 31B of the *Environment Protection Act 1970* (EPA 2018). The current condition of these sites has been identified as incompatible with the current or approved use of the site and poses a risk to human health or the environment. Sites are removed from the Priority Sites Register once all conditions of a Notice have been complied with. It is important to note that these sites do not include those which are being managed through voluntary agreements.

Examples of contamination/pollution issues experienced in the Gippsland region include:

- former landfill sites in Wonthaggi, Traralgon, Forster and Leongatha
- current and former industrial sites in Sale
- industrial waste dumping in Bairnsdale
- ash pond within a Ground Water Attenuation Zone at Loy Lang Traralgon.

A detailed list of current Priority Sites can be found on the EPA Priority Sites Register.

While not included on the Priority Sites Register, the Hazelwood mine fire caused considerable air pollution in the Latrobe LGA regional hub area during 2014 (EPA 2015). Air pollution has since been assessed as within acceptable levels. Soil, ash and water pollution was not assessed as being an ongoing problem.

¹⁵ Recommendation 14.1 of the Inquiry into the Environment Protection Authority (available: <http://epa-inquiry.vic.gov.au/epa-inquiry-report>) identifies: *The Department of Environment, Land, Water and Planning develop a comprehensive statewide database of sites that pose a high risk to the community because of their past use, which should link to other relevant government data sources including information held by the EPA.*

7. References

Aboriginal Victoria n.d., Heritage – *Welcome to Country and Acknowledgement of Traditional Owners*, viewed 7 March 2019, <<https://www.vic.gov.au/aboriginalvictoria/heritage/welcome-to-country-and-acknowledgement-of-traditional-owners/acknowledgement-of-traditional-owners.html>>.

Australian Bureau of Statistics (ABS) 2006, *Migration*, TableBuilder. Findings based on use of ABS TableBuilder data.

Australian Bureau of Statistics (ABS) 2016a, *Internal Migration*, TableBuilder. Findings based on use of ABS TableBuilder data.

Australian Bureau of Statistics (ABS) 2016b, *Regional Population Growth, Australia*, viewed 09 March 2018, <<http://www.abs.gov.au/ausstats/abs@.nsf/mf/3218.0>>.

Australian Bureau of Statistics (ABS) 2016c, *Employment, Income and Education*, TableBuilder. Findings based on use of ABS TableBuilder data.

Australian Bureau of Statistics (ABS) 2016d, *Data by Region, 2011-2016*, 'Income (including Government Allowances), Education and Employment, Health and Disability, LGA, 2011-2016', data cube: Excel spreadsheet, cat. no. 1410.0, viewed 10 July 2018, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1410.02011-16?OpenDocument>>.

Australian Bureau of Statistics (ABS) 2016e, *Selected Dwelling Characteristics*, TableBuilder. Findings based on use of ABS TableBuilder data.

Australian Bureau of Statistics (ABS) 2016f, *Data by Region, 2011-2016*, 'Family and Community, Land and Environment LGA, 2011-2016', data cube: Excel spreadsheet, cat. no. 1410.0, viewed 10 July 2018, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1410.02011-16?OpenDocument>>.

Australian Bureau of Statistics, (ABS) 2016g, *Census of Population and Housing: Socio-Economic Indexes for Areas (SEIFA), Australia*, cat. no. 2033.0.55.001, viewed 10 July 2018, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2033.0.55.0012016?OpenDocument>>.

Australian Bureau of Statistics (ABS) 2016h, *Census of Population and Housing, 2016*, '2016 Census Mesh Block Counts', data cube: Excel spreadsheet, cat. no. 2074.0, viewed 10 July 2018, <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2074.02016?OpenDocument>>.

Bataluk Cultural Trail n.d., website, viewed 7 March 2019, <<http://batalukculturaltrail.com.au>>.

Commissioner for Environmental Sustainability (CES) 2013, *Victoria: State of the Environment Report*, Melbourne, Australia.

Committee for Economic Development of Australia (CEDA) 2015, *Australia's future workforce?*, Melbourne, Australia.

Commonwealth Scientific and Industrial Research Organisation (CSIRO) 2016, *Climate Change in Victoria*, CSIRO, Clayton, Australia.

Dairy Australia 2016, *Regional Irrigated Land and Water Use mapping in the Gippsland Murray Irrigation District – Dairy Evaluation*, Dairy Australia, Melbourne, Australia.

Daley J, Wood, D and Chivers, C 2017, *Regional patterns of Australia's economy and population*, Grattan Institute, viewed 11 April 2018, <<https://grattan.edu.au/wp-content/uploads/2017/08/890-Regional-patterns.pdf>>.

Deloitte Access Economics n.d., data for the Department of Education and Training (unpublished).

Department of Agriculture and Water Resources – Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) 2017, *Farm Performance and Climate*, Australian Government, Canberra, Australia.

Department of Education 2018, *On Track*, viewed 11 March 2018, <<http://www.education.vic.gov.au/about/research/Pages/ontrack.aspx>>.

Department of Environment, Land, Water and Planning (DELWP) 2016a, *Towns in Time data* (unpublished).

Department of Environment, Land, Water and Planning (DELWP) 2016b, *Victoria in Future: 2016*, State Government of Victoria, Melbourne, Australia.

Department of Health and Human Services (DHHS) 2015, *Geographical profiles and planning products*, viewed 11 March 2018, <<https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles>>.

Department of Human Services and State Government of Victoria n.d., *Victorian Health Information Surveillance System (VHISS)*, viewed 11 April 2018, <<https://hns.dhs.vic.gov.au/3netapps/vhisspublicsite/ViewContent.aspx?TopicID=1>>.

Department of Industry 2014, *Australian Industry Report 2014*, Commonwealth Government of Australia, Canberra, Australia.

Department of Sustainability and Environment (DSE) 2012, *Index of Wetland Condition 2009/10: Statewide assessment of Victoria's high value wetlands*, State Government of Victoria, Melbourne, Australia.

Disaster Assist 2017, *Australian Disasters*, viewed 09 March 2018, <<https://www.disasterassist.gov.au/Pages/australian-disasters.aspx?state=VIC>>.

East Gippsland Catchment Management Authority (East Gippsland CMA) 2017a, *Annual Report 2016-2017*, viewed 20 May 2018, <<http://www.egcma.com.au/file/file/Annual%20reports/EGCMA%20AR%202017%20%20Final%20150917%20low%20res.pdf>>.

East Gippsland Catchment Management Authority (East Gippsland CMA) 2017b, *East Gippsland Floodplain Management Strategy: Draft for public consultation*, viewed 27 April 2018, <http://www.egcma.com.au/file/file/Plans_Strategy/EGFMS%20Draft%20for%20consultation%20May%202017.pdf>.

East Gippsland Water 2017, *Urban Water Strategy*, viewed 20 May 2018, <<https://www.egwater.vic.gov.au/wp-content/uploads/2017/07/UWS-Plan-2017.pdf>>.

- Environment Protection Authority Victoria (EPA) 2015, *Summarising the air monitoring and conditions during the Hazelwood mine fire, 9 February to 31 March 2014*, viewed 30 April 2018, <<http://www.epa.vic.gov.au/our-work/publications/publication/2015/june/1598>>.
- Environment Protection Authority Victoria (EPA) 2018, *Priority Sites Register 30 April 2018*, viewed 30 April 2018, <<https://www.epa.vic.gov.au/your-environment/land-and-groundwater/~media/Files/Your%20environment/Land%20and%20groundwater/PSR/Priority-Sites-Register-Web-Report-April-2018.pdf>>.
- Frost L, Reeves I, Stayner R and McNeil J 2002, *Issues in Regional Development*, Institute for Rural Futures, University of New England, Armidale, Australia.
- Gippsland Water 2017, *2017 Urban Water Strategy*, viewed 2 May 2018, <https://www.gippswater.com.au/application/files/6814/9931/0017/Gippsland_Water_-_Urban_Water_Strategy_2017.pdf>.
- Gunaikurnai Land and Waters Aboriginal Corporation n.d., website, viewed 7 March 2019, <<https://gunaikurnai.org/news/>>.
- Infrastructure Australia 2013, *Urban Transport Strategy: December 2013*, viewed 27 February 2019, <https://infrastructureaustralia.gov.au/policy-publications/publications/files/InfrastructureAus_Rep_UrbanStrategy.pdf>.
- Jesuit Social Services 2015, *Dropping off the Edge*, viewed 09 March 2018, <<https://dote.org.au/findings/full-report/>>.
- Marmot, M and Wilkinson, R (eds.) 2005, *Social determinants of health*, Oxford University Press, Oxford, England.
- Melbourne Water 2017, *Thomson Reservoir*, viewed 7 May 2018, <<https://www.melbournewater.com.au/community-and-education/about-our-water/water-storage-reservoirs/Thomson>>.
- Melbourne Water 2018, *Desalination*, viewed 7 May 2018, <<https://www.melbournewater.com.au/community-and-education/about-our-water/water-supply/desalination>>.
- Ministry for Housing and Construction and Howe, R 1998, *New houses for old: fifty years of public housing in Victoria 1938-1988*, Melbourne, Australia.
- National Institute of Economic and Industry Research (NIEIR) 2018, *Regional Economic Data*.
- Public Health Information Development Unit (PHIDU) 2018, *Social Health Atlas*, viewed 11 March 2018, <<http://www.phidu.torrens.edu.au/social-health-atlases>>.
- Regional Development Victoria (RDV) 2016, *Information Portal*, viewed 11 April 2018, <<http://www.rdv.vic.gov.au/information-portal/home>>.
- Regional Development Victoria (RDV) n.d., *Victoria's Gippsland Region*, viewed 02 May 2018, <<http://www.rdv.vic.gov.au/victorian-regions/gippsland>>.
- SGS Economics and Planning 2016, *The Current and Future State of Victoria: a spatial perspective*, viewed 09 March 2018, <<https://www.sgsep.com.au/projects/current-and-future-state-victoria-spatial-perspective>>.

South Gippsland Water 2017, *South Gippsland Water Urban Water Strategy*, viewed 20 May 2018, <<http://www.sgwater.com.au/wp-content/uploads/2014/04/Urban-Water-Strategy.pdf>>.

State Government of Victoria 2014a, *Gippsland Regional Growth Plan*, Melbourne, Australia.

State Government of Victoria 2014b, *Gippsland Regional Growth Plan: Background Report*, Melbourne, Australia.

State Government of Victoria 2014c, *Gippsland Regional Growth Plan: Summary Report*, Melbourne, Australia.

State Government of Victoria 2016, *Water for Victoria*, Melbourne, Australia.

State Government of Victoria 2018, *Crime Statistics Agency data*, viewed 11 April 2018, <<https://www.crimestatistics.vic.gov.au/crime-statistics/latest-crime-data/download-data-6>>.

Tourism Research Australia 2016, *Regional Profiles*, viewed 11 March 2018, <https://www.tra.gov.au/tra/2016/Tourism_Region_Profiles/Region_profiles/index.html#>.

Victorian Auditor-General 2016, *Victorian Auditor-General's Report: Meeting Obligations to Protect Ramsar Wetlands*, Melbourne, Australia.

Victorian Auditor-General 2018, *Protecting Victoria's Coastal Assets: Independent assurance report to Parliament 2017-18: 14*, Melbourne, Australia.

Victorian Catchment Management Council (VCMC) 2017, *Catchment Condition and Management Report 2016-17*, State of Victoria, Melbourne, Australia.

Victorian Health Promotion Foundation (VicHealth) 2012, *VicHealth Indicators Survey 2011*, VicHealth, Melbourne, Australia.

Victorian Health Promotion Foundation (VicHealth) 2016, *VicHealth Indicators Survey 2015*, VicHealth, Melbourne, Australia.

West Gippsland Catchment Management Authority (West Gippsland CMA) 2017, *Annual Report 2016/17*, viewed 20 May 2018, <<https://www.wgcma.vic.gov.au/wp-content/uploads/2015/01/WGCMA-AR2017-5Sept-final-web.pdf>>.

Westernport Water 2017, *Urban Water Strategy*, viewed 20 May 2018, <<http://www.westernportwater.com.au/wp-content/uploads/2017/05/WPW-2017-Urban-Water-Strategy.pdf>>.

Worksafe n.d., data (unpublished).

Document history

Revision:

Revision no.	3
Author/s	Joseph Lorimer, Sarah Leck, Lawson Cole, Neil Barr, Chris Arnott, Emma Dovers
Checked	Justin Story
Approved	Justin Story

Distribution:

Issue date	March 2019
Issued to	Infrastructure Victoria
Description	A final regional assessment of the Gippsland region including economic, social, environmental profile and key drivers for change.

Citation:

Do not cite, distribute or reproduce content from this document without the express permission of Aither Pty Ltd. Unless otherwise stated, this document remains confidential.
© 2019 Aither Pty Ltd. All rights reserved.

For information on this report:

Please contact: Justin Story
Mobile: 0424 250 128
Email: justin.story@aither.com.au

© 2019 Aither Pty Ltd. All rights reserved.

This document has been prepared on the basis of information available to Aither Pty Ltd at the date of publication. Aither Pty Ltd makes no warranties, expressed or implied, in relation to any information contained in this document. This document does not purport to represent commercial, financial or legal advice, and should not be relied upon as such. Aither Pty Ltd does not accept responsibility or liability for any loss, damage, cost or expense incurred or arising by reason of any party using or relying on information provided in this document. Any party that uses information contained in this document for any purpose does so at its own risk.

The information contained in this document is confidential and must not be reproduced, distributed, referred to or used, in whole or in part, for any purpose without the express written permission of Aither Pty Ltd.

A I T H E R